

Introduction: The Army's Strategy for the Areas to the South [of Japan] and the Changes in the Employment of Aviation

(Until the Spring of 1941)

The strategic areas in the South, which became invasion targets of Japan in the initial period of the last war, were colonies of Britain, the Netherlands and the United States. They were the product of a centuries-long history of domination over Asia by the major [Western] powers. Since there was no noticeable expansion of Japan as a nation in the Edo and the early Meiji periods, because of its seclusion policy during the former and the policy of giving priority to domestic reforms during the latter, no [particular] problems over the southern areas, which might have caused a clash of interests with the major [Western] powers, occurred for a long time.

However, in the late Meiji period, [especially] from around 1895, when Japan got in possession of Taiwan after the Sino-Japanese War, Taiwan, Hong Kong and the Philippines, namely, the territories of Japan, Britain and the United States, came to face each other across the South China Sea. Hong Kong had become a British possession in 1842 after the Opium War, and the Philippines became an American possession in 1898 after the Spanish-American War.

Nevertheless, the three countries enjoyed friendly relations until the end of the Russo-Japanese War (1904-1905) and there were no conflicts between them in the Far East. It was at the end of the Meiji period that diplomatic relations between the United States and Japan started to cool off, and it was after the First World War (1914-1918) that a clash of interests between the three countries became obvious. In the last years of Meiji, the United States had already regarded Japan as a hypothetical enemy, while Japan started working on a plan of operations against the United States from around 1918.

The Army operations in this plan consisted of invasions against the Philippines and Guam, and the strength to be employed for these operations was two to three divisions for the former and one regiment as the core for the latter. Along with the developments in aeronautical technology, the army's air mission in the operations against the United States changed from reconnaissance in the Taishō period to direct support of the landing operations in the early Shōwa period, and from 1937 onwards to campaigns to destroy enemy air power.

It was in fiscal year 1937 that the Japanese high command included Britain among its hypothetical enemies and started working on a plan to capture Hong Kong, Singapore as well as key places in British Borneo and Malaya.

Then, the global situation changed drastically. Triggered by the German and Soviet invasions of Poland in September 1939, the Second World War broke out at last. While Japan at

first declared a policy of nonintervention in the wars in Europe, in the "Principles of Foreign Policy," decided by the three ministers of War, Navy, and Foreign Affairs at the end of 1939, it made clear its intention to establish "A New Order in East Asia" including the areas to its south.

Around that time, on account of the experiences gained in the China Incident and the Nomonhan Incident and in order to prepare for changes in the new global situation, the Army revised its armament plan that had been in place since 1937 to upgrade and strengthen its air arm. And at the end of 1939, the Japanese [Army] high command drew up a new plan of operations for fiscal year 1940, which newly included the capture of key places in French Indochina.

Then for about half a year, a state of cold war referred to as the "Twilight War" [Phoney War] continued in Europe. However, in the spring of 1940, Germany swept across northern and western Europe with a blitz-like operation in almost no time. The British forces' total withdrawal from the European continent, the surrender of the French government led by Pétain, and the Dutch government's exile in Britain gave the impression of an epoch-making crucial turning point in history, and German military power was highly regarded.

In July 1940, IGHQ and the government decided on the "Outline of the Main Principles for Coping with the Changing World Situation" and made clear that at a favorable opportunity military force might be employed to settle the southern question.

Based on this outline, the Army and the Navy high command started a serious and comprehensive study of the entire operation to invade the key areas in the South.

In the plans of the southern operation in general, the employment of aviation, which had been making rapid progress, naturally became an important factor. And whether out of profound awareness or not, command of the air became increasingly prioritized. In order to successively expand and push forward the range [of air supremacy], the tactics of 'advancing air bases by way of stepping stones' were worked out.

The Army and Navy air services, working closely together, were supposed to constitute the core strength of these tactics. However, for the Army air units, which had been trained in, and for, a continental environment, the southern invasion operation and the preparations for it, which would most likely include a switch to maritime operations, were far from easy.

1. The First Initiatives for a Strategy Against the U.S. Forces in the Philippines and the Army Air Service

The Origin of the Southern Question as a Strategic Problem

Japan's southern question as a strategic problem can be considered as having started from Japan-U.S. relations over the Philippines. Diplomatic relations between both countries had rapidly cooled off after the Russo-Japanese war. In 1907, the United States started drawing up [War] Plan Orange, which assumed operations against Japan, and also in the same year Japan decided on a national defense policy and its fundamental principles of strategy, which counted the United States as a hypothetical enemy next to the Russia and France.

However, Japan's plan of operations against the United States at that time was nothing more than intercepting and destroying the U.S. fleet on the sea near mainland Japan. The

plan did not include such offensive intentions as an invasion of the Philippines, it rather focused on the defense of its coastal areas, particularly those near Taiwan.

In the First World War (1914-1918), in conformity with the Anglo-Japan Alliance (concluded in 1902) Japan declared war against Germany, invaded Qingdao and seized the Marshall, Caroline and Mariana Islands.

Although after the war as a result of the Treaty of Versailles (1919), these islands were mandated to Japan [by the League of Nations], this situation had a great impact on the strategies of Japan and the United States, because these territories under Japanese mandate could cut off the U.S. lines of communications to the Philippines and Guam.

From 1921 until 1922, the Washington Naval Conference was held and [in the treaty concluded,] the tonnage of capital ships kept by the United States, Britain and Japan was limited to a ratio of 5:5:3. At the same time, the Anglo-Japanese Alliance was dissolved.

Nevertheless, as far as the offensive and defensive position of the Philippines was concerned, Japan had a strategic advantage over the United States. Of course, the fact that the equatorial Pacific islands had become a Japanese mandate was of great importance as previously told, but above all else, the fundamental factor was the great difference in distance [to the Philippines] from both respective mainlands. The distance from the west coast of the United States is 13,000 kilometers and that from Hawaii 9,000 kilometers, whereas that from mainland Japan is about 2,000 kilometers and that from Taiwan just a few hundred kilometers.

The United States strategy for the Philippines was in a serious predicament. Although securing the islands in the initial period of the hostilities was extremely difficult and strategically not necessarily a good plan, from the political point of view of maintaining its national prestige in the colony, the country could not simply abandon the islands. [Therefore,] it was, as a matter of course, important to strengthen the defense [of the Philippines] in peacetime, and once hostilities were opened, a large reinforcement operation was required.

Consequently, Japan's invasion operation of the Philippines had to be conducted in such a way as to completely destroy the U.S. operational bases in as short a period as possible, and then be ready against the [counter] attack by U.S. forces.^(1, 2)

The Birth of the Philippines Invasion Operation Plan

From around 1918 onwards, the Army started working on a Philippines invasion operation plan, giving it concrete form around 1923, its outline was as follows:

At the opening of hostilities, the Navy shall destroy the U.S. Navy in the waters of the Philippines, block its advance bases, Manila Bay and Subic Bay (on the west coast of Bataan Peninsula), and at the same time seize Aparri in northern Luzon with one element.

The Army shall capture Manila with the strength of one and a half division as the core, by putting ashore the main force at Lingayen and one element at Lamon Bay. [However,] it shall avoid an assault by force on the naval port of Olongapo in Subic Bay, and the stronghold of Corregidor at the mouth of Manila Bay.

Concerning the landing [points] on Luzon, apart from the above, various [scenarios], such as [landings at] the Batangas area on the southwest coast, Baler Bay at the north-central part on the east coast, and Legaspi on southeast coast, were also examined.

The problem [for the Army] was getting information, particularly the gathering of military topographical data necessary for operations. In general, the Army was not able to collect sufficient information.

Around that time, the arrival of the U.S. main fleet in the western Pacific area was estimated to take seventy-five days from the opening of hostilities.⁽³⁾

The Philippines invasion operation plan of fiscal year 1926 was expanded in scale. Subsequent studies showed that it was possible for the U.S. main fleet to arrive in western Pacific area in forty-five days after the opening of the hostilities, which meant that it was necessary [for the Japanese forces] to capture Manila and seize the naval port of Cavite along the bay by that time.

The forces to be employed were increased to three divisions as the core. It was [also] decided that in addition to [the landings at] Lingayen Gulf and Lamon Bay in the previous [plan], one powerful element should be advanced from the Batangas area and another element should be put ashore in Subic Bay, to seize the U.S. naval base at Olongapo.

The plan for the stronghold of Corregidor was changed in such a way that at first it should only be blocked but that at a favorable opportunity it should be captured along with Bataan Peninsula.

Furthermore, [the new plan] included the capture of Mindanao (primarily Davao) in the southern Philippines, the Visayan area (Iloilo, the San Bernardino and Surigao Straits) in the central Philippines after the completion of the above operations.

The plan for the Army Air Service in the above period was to have one element of reconnaissance units transported by sea to support the ground combat of the main force [of the invasion unit]. However, by the end of the Taishō period [mid 1920s], [lack of] cover from the air at the time of the landing operations of the main force came to be considered a problem. Consequently, studies of surprise landings of small detachments at the outset of the war on Batan Island and some key places on northern Luzon to seize airfields were begun.⁽⁴⁾

The Growth of the Army Air Service and Its Participation in the Philippines Invasion Operation

The Armaments of the Army Air Service in the Taishō Period [1912-1926]

The first stirrings to form an Army Air Service had begun in the late Meiji period, and the first air units were born in the early Taishō period.

In the First World War, the Army Air Service participated with a small number of aircraft both in the invasion operation of Qingdao (1914) and the Siberian Intervention from 1918 onwards, and in both some lessons of war were learned. However, since Japanese aviation did not experience full-scale air combat or the bombing of cities, etc., which had developed in Europe during the war, its progress lagged far behind.

While the world entered an era of arms reductions after the world war, innovation in aviation technology was making rapid progress. In the initial stages, the Army Air Service put efforts into introducing French aircraft technology.

At the end of the Taishō period [mid 1920s], the Japanese Army resolutely carried out an upgrading of its air service and an improvement of the equipment for the ground units, by abolishing four [infantry] divisions.

It was in 1925 that the aviation branch of the Army was made independent [within the Army], and the Army Aviation Headquarters was established. At that time, the operational air units amounted to twenty-six squadrons in total, consisting of eleven squadrons each of reconnaissance planes and fighter planes, and two squadrons each of light and heavy bombers. Military aviation, which had started off in the field of reconnaissance aircraft, made rapid progress during the First World War in the field of fighter planes, and in succession, the field of bombers was about to make dramatic progress.

Around that time, [the establishment of independent] air forces was enthusiastically discussed by the major Western powers. The British and Italian Air Forces became independent in the late Taishō period [the early 1920s].^(5, 6) Also in Japan in 1921, [from the point of view of] pure war tactics, Lt. Gen. Inoue Ikutarō, Chief of Army Aviation Department (the former body of the Army Aviation Headquarters) submitted a proposal that the air forces should be made independent, which was said to be at least approved by War Minister Tanaka Giichi and Chief of General Staff Uehara Yūsaku, but which is said to have fizzled out due to opposition by the top echelon of the Navy.⁽⁷⁾

In any case, the employment of aircraft in the [Japan's] Philippines invasion operation [plan] developed along with the progress in aviation, marking multiple stages.

The Army Air Service Support in Reconnaissance

Around 1923, when the Philippines invasion operation plan had taken shape, the Army Air Service mainly employed Salmson Model-I aircraft for reconnaissance aircraft, Type-A Model-III or Model-IV aircraft for fighter planes, and Farman Type-D Model-I for bombers. The combat ranges of these aircraft were so short that it was impossible for them to cross the four hundred kilometers wide Bashi Channel [between Taiwan and the Philippines] and accomplish their mission.

At first, the Army Air Service was supposed to participate in the Philippines invasion operation only with reconnaissance aircraft. The idea was to transport disassembled and crated aircraft by sea, reassemble them at an airfield set up near the coast and after the landing of the ground troops, have them support the ground combat.

This idea was put into effect in the Qingdao operation in 1914, and the experience gained had shown the problems of seizing and setting up such airfields.

Although the military topography of Luzon was still very much unclear, it was judged that landing strips might be relatively easily set up somewhere along the coast of the Bashi Channel and Lingayen Gulf.⁽⁸⁾

The Army Air Service Support of the Philippines Invasion Operation

For the next several years, almost no changes were made to the [Army's] plan for the Philippines invasion operation. However, from 1932 onwards after the Manchurian Incident had occurred, [the Army] limited the scope of the Philippines invasion [operation] to Luzon, and gradually attached more importance to the capture of the Bataan Peninsula and the stronghold of Corregidor.

Around that time, the Army General Staff estimated the strength of U.S. Air Forces in the Philippines at about four squadrons of reconnaissance bombers and about two squadrons of fighter planes based on the Clark and Nichols fields. Although their real war potential was

not clear, the rapid developments in aeronautical technology meant that the capability of aircraft to attack naval surface vessels should not be underestimated. It was around that time that the tactics of having aircraft provide support for the landing operations were introduced in the Philippines operation plan.⁽⁸⁾

The Army aircraft around 1932 and 1933 were mainly Type-92 and Type-93 aircraft, and the range of action of the fighter planes was three hundred kilometers or less.⁽⁹⁾ From the southern part of Taiwan it is about seven hundred kilometers to Lingayen and about nine hundred kilometers to Manila. In order to advance fighter planes to these areas and have them establish command of the air, their bases would need to be advanced in two or three leaps. In order to cover the convoy for the Lingayen landing, Ibahos Island (southwest of Batan Island in the Bashi Channel), as well as Aparri, Laoag and Vigan, etc. on the northern or northwestern coast of Luzon were selected as candidates for setting up airfields. For the setting up [of airfields] it was desirable that these places were suitable enough to allow the take-off and landing of aircraft within five to seven days. Although usable and suitable grounds such as pastures were found at places in northern Luzon, it was questionable whether the marshy areas near Aparri as well as the small Ibahos Island could be turned into airfields in such a short time.

The covert and rapid construction of simple landing strips became an important issue, and research on it was started (note: as will be mentioned later).

In any case, the Philippines invasion operation plan of around 1932 or 1933 was drawn up in such a way that right at the opening of hostilities, detachments of about one infantry battalion each were supposed to make surprise landings on Ibahos Island, Aparri, Laoag, Baler Bay, etc., and set up landing strips for the advance of fighter planes and other aircraft, which should cover the landing of the main force of ground troops from the air.

At that time, no air campaigns to destroy enemy air power (attacks on [enemy] airfields) by army aircraft at the opening of hostilities were planned, [because] aircraft suitable for such [campaigns] were not yet available.

Although the Japanese Navy possessed aircraft carriers since the end of the Taishō period [mid 1920s], they were meant for decisive battles against enemy fleets and not included in the forces for its Philippines operation plans drawn up in peacetime.^(15, 44)

In short, the use of the army air service around that time was strongly colored by its support of the ground operations with a focus on covering the landing [operations]; it was not meant to gain command of the air by prior air campaigns to destroy the air power of the enemy.

The army air strength planned to be employed around that time for the Philippines operation was about one battalion (two squadrons) of fighter planes and one battalion (two squadrons) of reconnaissance bombers. Apart from cases where heavy bombers were particularly needed such as in attacks on a stronghold, the employment of heavy bombers was not included in its plans of operation drawn up in peacetime.^(8, 9)

Very heavy bombers kept by the Army around that time and their [expected] role in the Philippines operation plan shall be described below all together.

Very Heavy Bombers, Launching/ Arresting Devices, etc.

Type-92 Very Heavy Bombers (Four-Engine Very Heavy Bombers)

The radius of action of heavy bombers in the early Shōwa period [late 1920s], such as Type-D Model-II or Type-87 aircraft, was three to four hundred kilometers, and their attacking capacity was also poor.

In 1928, based on a proposal offered by Maj. Gen. Koiso Kuniaki, chief of the General Affairs Division of the Army Aviation Headquarters, the chief of the department, Gen. Inoue Ikutarō, proposed to develop a very heavy bomber which could attack Manila and vicinity from Taiwan.

With that as a start, the Army purchased a manufacturing license for the Model G-38 aircraft from the German firm Junkers and had the Mitsubishi Aircraft Company remodel it into a bomber and make a prototype.

For the research of the aircraft and making a prototype, the Army Air Service (with Col. Kazumi Kensuke, technical chief of the Army for this project) and the technical staff at the Mitsubishi Aircraft Company participated in the project en masse. After having spent enormous time and costs, the aircraft successfully made its first flight at Kakamigahara in October 1931, after which it was officially employed as the Type-92 heavy bomber; a total of seven aircraft (including the prototype) were manufactured by 1935.

Although there were many problems with its performance, its radius of action of one thousand kilometers raised the hope [of the Army], since [the distance] from southern Taiwan to Manila was a little less than nine hundred kilometers.

In June 1933, the training of personnel for a special mission unit (Squadron E) equipped with the aircraft was started. The trainers included Capt. Ogawa Kojirō, who had been in charge of the aircraft from the days when it was still under study, and the trainees consisted of several personnel each for flying, bombing, reconnaissance and servicing. Day after day, they carried out basic training, while conducting test drops of 500kg bombs against a 2.5-meter-thick concrete cover constructed at the Irigo Firing Test Site, made to resemble the stronghold of Corregidor. However, with no hits scored and no effects achieved [even] in stationary blasting tests, the experiment was unsuccessful.⁽¹⁰⁾

After that, the training of Squadron E was continued after a fashion by having it prepare for operations in Manchuria. However, the performance of Type-92 heavy bomber was so poor that it was never included in the [Army's] operation plan against the Philippines. In peacetime, the squadron was not formed and the study of and the training for the Type-92 heavy bombers were continued mainly at the Hamamatsu Flying School. However, by 1937 when the China Incident occurred, [even study and trainings were] suspended, and the aircraft were put in hangars at the Kakamigahara Aircraft Depot.

Then, in the autumn of 1938, four of the aircraft were assigned to one squadron of the 7th Air Group, which repeatedly conducted trainings near mainland Japan up until the spring of 1940.

Type-92 heavy bombers were eventually never used in operations at all. [It was partly because] the research and training for the aircraft were sacrificed to [the Army's] policy of keeping them top secret, aiming to deliver a surprise attack [on the enemy] in a technological sense. Nevertheless, the aircraft soon failed to keep pace with the striking innovations in

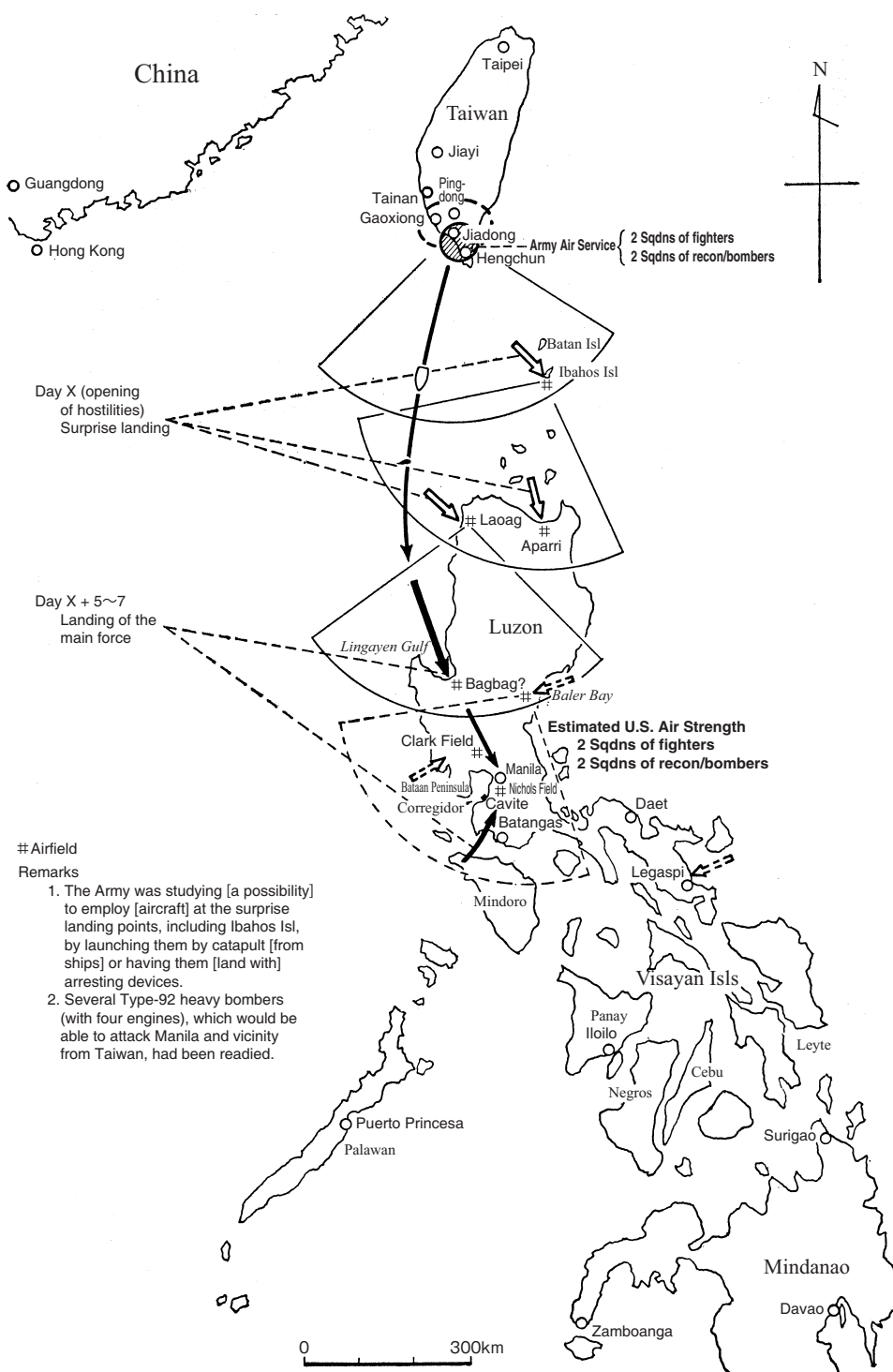
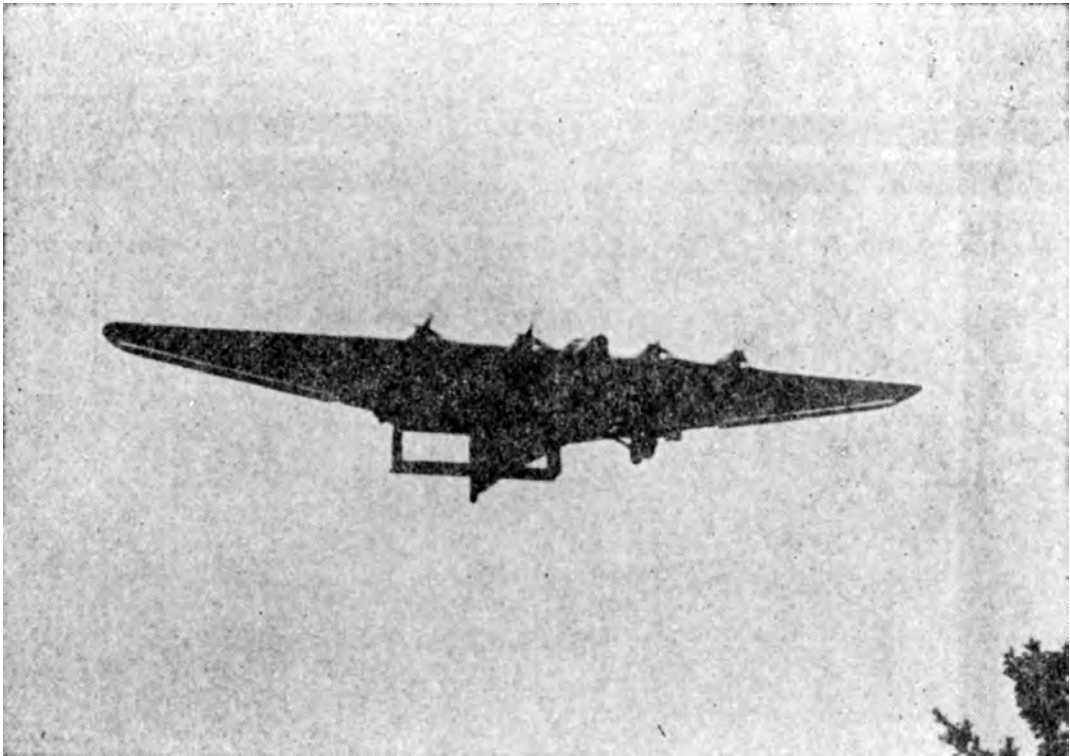


Illustration No. 2 — Outline of the Employment of Aviation in the [Army's] Philippines Invasion [Operation Plan] of 1932 and 1933



Type-92 Very Heavy Bomber

aeronautical technology. In 1935, the B-17, the so-called 'flying fortress,' had already made its maiden flight [in the United States].

Although the aircraft offered various lessons to the Army, the research on very heavy bombers was discontinued thereafter.^(9, 10, 11, 79) (Note: An Army-Navy joint research project on a very heavy bomber (the Fugaku) in 1943 also ended in failure.)

Aircraft Launching Device (Ke Model-1) and Arresting Device (Ke Model-2)

In relation to the employment of aircraft in the Philippines invasion operation, the Army General Staff had felt for a long time the need for an ability to condition runways under pressing conditions, or an ability for aircraft to take off and land on cramped airfields.

Around 1931, Kayaba Manufacturing, which had manufactured landing gears with hydraulic dampers for army aircraft, came up with an idea to adapt the launching and arresting devices on warships for use on land, and proposed the idea to the Army Aviation Headquarters.

The Army, while starting to research the idea, also investigated other ideas. Maj. Imagawa Issaku, chief of the Aviation Group of the [Army] Aero-technical Research Institute, as the main investigator, visited Naval sites and extensively studied the situation at the Navy.

It was in October 1935 that the launching catapult and the hydraulic arresting device, which had been repeatedly tested since 1933, were adopted as official equipment of the Army. Apart from [these devices], a simple arresting device (made up of arresting wire[s] with sand-bags tied [to the wire]) was invented by Major Imagawa.

The aircraft, on which [those devices] were tested in the first place, included Type-88 reconnaissance aircraft, Type-91 fighter planes and Type-92 reconnaissance aircraft; using [only] about thirty meters for take off and about sixty meters for landing, the devices successfully passed the tests.

After that, [the devices] were also tested with Type-93 twin-engine light bombers, Type-97 fighter planes, Type-98 light bombers and other aircraft. It became clear that a level ground of about three hundred meters square would allow a concentrated use by a large number of aircraft. Keeping these schemes strictly confidential, the Army informally formed a plan of employing the idea in the Philippines and the border areas of Manchuria.

In the meantime, the Army had [also] been studying methods to launch aircraft from ships. Around 1934, it concocted a plan to put aircraft (such as nine Type-88 reconnaissance aircraft or twelve Type-91 fighter planes) on the *Shinshū-maru*, which had been designed as a mothership for landing craft (with a bow that could open to launch landing craft), and launch aircraft using catapults.

The test to launch [aircraft] from the *Shinshū-maru* was carried out in 1936. Under the command of Major Imagawa, several aircraft, which were launched from the ship off Kure in the Inland Sea, safely landed on the drill ground in Hiroshima.

These uses of aviation, which had been intended for [the operations against] the Philippines and the coastal areas of China, were [studied] on the assumption that [operations should be conducted as] surprise attacks from the air and the sea. The launched aircraft were supposed to attack enemy airfields or support landings, after which they were supposed to land on the sandy areas or level grounds along the coast as designated after prior surveys. Needless to say, they were supposed to land on airfields if available ones had been seized prior to the operation.

These Model-Ke devices were treated as top secret, and almost no trainings were conducted.^(8, 12, 13)

Study of Takeoff and Landing of Aircraft on Soft Ground

In relation to the employment of aviation in the Philippines operation, soft ground was a matter of concern in setting up airfields on Luzon in the rainy season, particularly at Aparri. Since the occurrence of the Manchurian Incident, the Army Air Service had been worried about the muddy [ground] of the airfields in the northern Manchuria.

Since 1933, the Army had studied measures to quickly set up airfields on soft ground. [Led by] Major Imagawa of the Aero-technical Research Institute [then the Technological Department of the Army Aviation Headquarters], who was in charge, various methods such as the use of wire nets, canvas, thick boards and even the use of coagulating agents to set [soft] soil were tested at places in mainland Japan. As a result, it found that the most reliable way was to cover [the ground] with two-meter-square perforated iron sheets. Laying such sheets on a three-hundred-meter-square area would require about fifty hours of work by about thirty personnel, and a total of two hundred trucks for transportation.

Although the method was judged to be useful by the Army Aviation Headquarters, it was eventually not designated as official operational equipment by the central command of the Army, due to the difficulty in obtaining the materials.^(12, 13)

In later years, the U.S. Army used this method in its counterattack operation against Japan to quickly set up airfields.

2. Incorporating the Strategies Against Britain in Malaya and the Army Air Service

The First Initiatives for a Plan of Operations Against Britain

The inclusion of Britain as a hypothetical enemy dated from the Army and Navy plan of operations for fiscal year 1937, decided on in August 1936. Around that time, information reached [Tokyo] that the defenses of Hong Kong and Singapore had been strengthened, while also Anglo-Japanese relations gradually worsened over the China problem. [As a result,] the Japanese high command started to consider operations against strategic British points in the Far East.

Hong Kong was [just] a little more than six hundred kilometers to the southwest of Taiwan, and it was becoming possible for Japanese heavy bombers, which had gradually been improved, to conduct transoceanic attacks on the place. Moreover, judging from a comparison between the war capabilities of the Japanese and British forces in the Far East as well as from the distances to their mainland, an invasion of Hong Kong was considered not so difficult.

However, British Malaya and Borneo were distant, and their military topography was unknown, which posed a serious problem. [Consequently,] in the plans for that fiscal year, the outlines of an operation against Britain were merely described as “to be decided when the circumstances should arise.”^(14, 15)

The Army Air Service's Long-Term Military Preparation Plan and the Employment [of Army Aviation] in the Philippines [Operation]

Composition and Employment [of the Army Air Service] in the Years Between 1935 and 1937

Around 1935, most of the world powers had independent air forces [separate from the other services]. Not only Britain and Italy [whose air forces had become independent] from about right after the First World War, but also France and Germany made their air forces independent respectively in 1934 and in 1935, while in the same year the Army air service of the United States gained a half-independent status as the Army Air Force.^(2, 59, 222)

The international reactions toward Japan after the Manchurian Incident were very severe, and the remarkable increase in Soviet forces in the Far East, particularly the strengthening of its air forces, posed a serious threat.

Intending a full-scale expansion of armaments, the Army made a plan to increase between fiscal years 1937 and 1942 its air strength from about fifty squadrons at that time to 142 squadrons (of which bombers constituted 50%, fighter planes 30% and reconnaissance aircraft 20%).⁽⁵⁾

The global trend in military aviation around that time was that through the remarkable improvements in bomber [performance] bombers formed the main component in armaments. In its employment, the idea to giving priority to air campaigns to destroy the enemy air power and gain air supremacy became predominant.

The Army's thoughts about the composition and employment of its air forces developed mostly along this line, too. The employment of air forces in Manchuria had shifted from

around 1935 onwards in such a way that gradually more importance was attached to air campaigns to destroy enemy air power, and around 1937, the policy to thoroughly implement such air campaigns was adopted.^(8, 16)

The Beginning of the Idea to Use an Air Campaign to Destroy the Enemy Air Power in the Philippines

From around 1925 onwards, the Japanese high command had been collecting intelligence on the U.S. Filipino Army's strengthening of the ground defenses in the Philippines. However, the most important subject of its study concerning the Philippines invasion operation plan was the impact which the developments in aviation would have on the landing operations.

In 1936, the Japanese Navy equipped its air force with Type-96 land-based attack planes, which were able to conduct attacks on the Philippines straight from Taiwan, and in 1937, the Army, too, officially adopted the Type-97 heavy bomber, which had a radius of action of seven to eight hundred kilometers.

From the [Army] plan of operations for fiscal year 1937 onwards, the idea of employing a kind of air campaign to destroy enemy air power was adopted in the Philippines invasion plan of operations. However, it was impossible to conduct from Taiwan at a stroke, right at the outset of the war, air campaigns over the air bases of the U.S. air units, such as Nichols and Clarke Field, because [it was too far] for fighter planes to accompany [and escort the bombers], and also because the bombing power was not sufficient, either. That was why the aforementioned plan, to secure air bases in northern Luzon and conduct an air campaign to destroy the enemy air power by using these bases to facilitate the landing operations of the main ground force, was adopted. Needless to say, employing aircraft carriers for an air campaign to destroy enemy air power could have been considered. However, because of their special characteristics, the capabilities of the carriers were in principle supposed to be employed for decisive battles against [enemy] fleets.^(5, 8, 15)

Meanwhile, in connection with the intelligence obtained in the spring of 1936 concerning the strengthening of the strongholds in Corregidor and on the neighboring islets by the U.S. forces, the point was emphasized in the outline of the ground operations of the Philippines invasion [operation] that if enemy [troops] should take cover in the Bataan Peninsula and the stronghold there, they should be caught and destroyed without missing an opportunity.

Nevertheless, the primary targets of the ground operations remained the [enemy] naval bases in Manila and its vicinity.

Around that time, there was also intelligence concerning the construction of air and naval bases in the central and southern Philippines [by the United States]. The Army, which was going to employ only two divisions, hoped to avoid dispersion of its own forces to those areas and planned in such a way that the Navy should seize these [bases] with one element of its special landing force.^(14, 15)

The Planning in Earnest of Employing an Air Campaign to Destroy the Enemy Air Power in the Philippines

Thereafter, no precise information concerning the U.S. reinforcements of its air forces in the Philippines was obtained. However, in view of the general military situation of the world powers, it was judged that powerful elements were being advanced in succession.

It was from the [operation] plan of fiscal year 1938 onwards that the air campaign from Taiwan to destroy the enemy air power in the Philippines right at the outset of war was clearly included in the plan. The Navy determined that the first move which [Japan] should make in the operations against the United States should be the following:

Right at the outset of war, [the Navy shall] in the first place carry out sudden attacks on the enemy fleets and air power in the Philippines and Guam and completely destroy them.

The Army in general tended to overstress the air campaigns to destroy enemy air power. For example, in the plan of fiscal year 1938, it designated the tasks of its air units in the Philippines operation in the following way:

The main force of the air division shall be concentrated in Taiwan, from where it shall support the landing and subsequent operations of the advance detachments, and after quickly advancing to the Luzon area, it shall destroy the enemy air power prior to the landing of the main force of the Tenth Army (note by the author: the Philippines invasion force, consisting of two divisions as the core).

However, the air campaign to destroy the enemy air power in the Philippines was mainly assigned to the Navy, and the Army Air Service was supposed to support it. The planned strength of the Army Air Service to be employed for the Philippines [operation] in [the plan of] that fiscal year consisted of one air division made up of one air group and one squadron of fighter planes, two air groups of light bombers, one air group and one squadron of heavy bombers, and one squadron of reconnaissance planes, as well as the required ground service units (one air-ground support headquarters, four airfield battalions, two airfield companies, one element each of an air signal unit, air intelligence unit and field airfield construction unit).

The air division, which was to be put under the direct control of IGHQ along with the advance detachments in the initial stages, was supposed to be put under the command of the Tenth Army commander at an appropriate moment after the latter's advance to Luzon.

In the outline of the Philippines invasion plan of the Tenth Army, which is as shown in *Illustration No. 3*, major importance was given to the air operations. The number of airfields planned to be seized and prepared by the advance detachments amounted to about ten.^(8, 15)

At that time, the Navy General Staff estimated that the U.S. air forces in the Philippines consisted of one squadron each of fighter planes, reconnaissance planes and bombers, which, together with about ten civilian aircraft, added up to about seventy aircraft. It also estimated that along with the reinforcements of about fifty aircraft from Hawaii and one element of carrier-based aircraft, [both of] which were available at any time, it would make a total of about 140 aircraft (excluding reserve carrier aircraft but including some heavy bombers).⁽¹⁵⁾

According to the Army plan of operations of fiscal year 1939 drawn up in February of that year, the Army, too, decided to employ its air service from right at the outset of the war for air strikes against the Philippines, as specified in the plan as follows:

The air division shall be concentrated in Taiwan and, from right at the outset of war [onwards], destroy the enemy air power in the Luzon area. It shall also support the landing and the subsequent operations of the advance parties, while quickly advancing to Luzon.

Partial Progress Made in the Plan of Operations Against Britain

The plan of operations of fiscal year 1937, which took up an operation against Britain for the first time, only listed an agenda such as destroying the [British] Fleet in the East and its operational bases as well as intercepting the British main fleet on the Eastern waters.

Then in the plan of fiscal year 1938, it was clarified that in the beginning of the operation, not only the [British] fleet in the East but also its air forces should be destroyed, that Hong Kong and Singapore should be captured and key places in British Malaya and Borneo should be seized. Concerning the outline of operation, the Navy General Staff had its own internal version of the scheme, which was as follows:

Right at the outset of the war, [Japanese forces shall] carry out sudden attacks on the British fleet in the East as well as its air forces and destroy them, and also conduct sudden attacks on Miri and Brunei on Borneo and occupy them. If Guangdong is already occupied, Hong Kong shall swiftly be captured. Then [Japanese forces shall] strive to set up an advance base in Brunei Bay [to be ready for] their plan to occupy the Malay Peninsula and capture Singapore.

In the summer of 1938, the Navy judged that the British air forces in the Far East consisted of sixty-six aircraft in Singapore (first line aircraft; also applies to the numbers below), sixteen aircraft in Hong Kong, and about forty carrier-based aircraft apart from the above. It also estimated that reinforcements of about 210 aircraft were available within a week, and about 150 aircraft and about 100 aircraft respectively in the second and the third week.⁽¹⁵⁾

However, a [definite] outline of operations against Britain was not yet included in the plan of operations of fiscal year 1938, and it was only mentioned that [the outline of operations] should be decided when the circumstances should arise.

It was from the plan [of operations] of fiscal year 1939 (decided on in February of that year) onwards that somewhat concrete outlines of operations were included in the plan, a summary of which is as follows:

1. The composition of the forces to be employed and their tasks
The Fifteenth Army (consisting of two divisions as the core) shall, in conjunction with the Navy, capture Singapore, and seize key places in British Borneo and Malaya.
The Twenty-first Army shall, in conjunction with the Navy, capture Hong Kong with one element (about one division).
2. The outline of operations [to capture] the Singapore area
Right at the start of the operation, Detachment H (one infantry regiment as the core) shall land in Kuching (the northwestern point of Borneo) and prepare the airfield there.
Circumstances permitting, one detachment shall land in Singora ([in] Thai Malaya), prepare the airfield [there] and secure necessary footholds, so as to facilitate the operations of the main force of the Fifteenth Army.
The main force of the Fifteenth Army shall land in the vicinity of Mersing in British Malaya and capture Singapore.
Depending on the circumstances, the main force or one element of [the Fifteenth] Army shall land in Singora, and advance into British Malaya to conduct operations.
One element may [directly] land in Singapore.
3. The outline of operations in the Hong Kong area
One element of the Twenty-first Army shall capture Hong Kong from the land front of Kowloon Peninsula. Depending on the circumstances, it may land at a point closer to Hong Kong.

Right at the outset of war, the air unit shall strive to destroy the enemy air power and naval vessels at anchor in Hong Kong and vicinity.

Thus, some parts of the plan of operations against Britain took a concrete shape. However, setting aside the operations against Hong Kong, the landings on Borneo or the Malaya Peninsula with the aim of attacking Singapore itself would greatly depend on how the Philippines (and the United States) and French Indochina (and France) were dealt with.

Although [operations] against multiple countries were [already] more or less considered in the plans of operations of fiscal year 1938 and thereafter, no comprehensive plans of operations against the three countries of Britain, France and the United States were figured out yet.

It was very clear, however, that bases in French Indochina were absolutely indispensable in an air campaign to capture Singapore. The staff officers in charge at the Army General Staff were of course well aware of it, however, the situation in early 1939 did not allow the subject to be seriously discussed yet.^(15, 21)

3. Incorporating the Strategies Against France in French Indochina and the Army Air Service

Sudden Changes in the Situation of Eastern Europe, and [Japan's] Aspirations to [Achieve] a New Order in the South

From 1935, unrest began to surface all over the world, to wit Germany's rearmament declaration and Italy's advance into Ethiopia in that year, the Spanish Civil War in 1936, the China Incident in 1937, the Changkufeng Incident [the Battle of Lake Khasan], and Germany's Annexation of Austria in 1938.

In 1938, the flames of war in China spread to the southern part of China. In May 1939, in a northern corner of Manchuria, the Nomonhan incident broke out. In Europe, Germany entered Czechoslovakia in March, and along with the Soviet Union, it invaded Poland in September. The British and French declarations of war against Germany raised the curtain on the second European war.

In September, the Japanese Government declared its policy of non-intervention in the war in Europe, [and] the Army, which had for several months repeatedly fought fierce battles at Nomonhan, gave priority to settling that incident as well as dealing with the China Incident.

However, the Japanese Government and the high command studied Japan's national policy to deal with these changes in the global situation, and in December, the Ministers of War, Navy and Foreign Affairs decided on the *Principles of Foreign Policy*, which stated:⁽¹⁷⁾

... [the foregoing part omitted] ... for the present, in conformity to the principle of nonintervention, [the Empire shall] take measures so as to make the most of its neutrality and lead the global situation in a favorable manner to help facilitate [Japan's] settlement of the China Incident, and at the same time create a situation advantageous to the construction of a New Order in East Asia including the South.

In the meantime, in mid-October 1939, the IGHQ Army Department planned to capture the areas of Nanning (about 550 kilometers west of Guangdong) and Longzhou (about 130

kilometers west of Nanning), aiming to cut off the supply and support to Chiang Kai-shek, [Jiang Jieshi] from northern French Indochina.^(18, 19)

There were quite a few land transport routes from French Indochina into Chinese territory. In particular, there was the railway between Lao Cai and Kunming. Although it was impossible to accomplish the aim of completely cutting off the supply and support to Chiang only with the above operation, if [the Army] could advance air bases to Nanning and make use of them, it would be able to conduct air attacks not only on Kunming but also over the supply routes from Burma. But even then, it was impossible to have fighter planes cover the long-distance bombing [missions], which meant that the air campaign to cut off the supplies [to Chiang] only had a limited effect.

Despite much opposition even in the Army, this operational plan was resolutely pushed through by the enthusiasm of Maj. Gen. Tominaga Kyōji, the newly-appointed chief of the 1st Bureau of the Army General Staff.

In late November, the Twenty-first Army in Guangdong, defeated part of the resistance of the enemy with a force consisting of the 5th Division as the core, and occupied Nanning and Longzhou.

Afterwards, the enemy on this front fought back on a larger scale than expected, which made Japan to successively increase its strength in this area.

As will be mentioned later, this operation became the first stage of advancing forces into northern French Indochina.^(20, 21, 22)

The Plan of Operations Against Multiple Countries Including the Occupation of French Indochina

For the plans of operations against key places in British Malaya and Borneo, particularly the invasion of Singapore, which had gradually taken shape since 1937, air bases in French Indochina and Thailand were at the minimum indispensable, because the distance from southern China to Singapore was about 2,500 kilometers, and because the current developments in aviation made a large-scale invasion operation without the support of land-based aircraft out of the question.⁽¹⁵⁾

In December 1939, assuming a case of advancing into French Indochina by force of arms, the Japanese high command incorporated a plan for such a scenario into the plan of operations of fiscal year 1940, the main points of which were as follows:

The force to be employed shall be the Sixteenth Army, consisting of two divisions as the core, and their mission is to seize key places in French Indochina in conjunction with the Navy.

Right at the outset of the war, the Sixteenth Army shall advance into French Indochina with one division from the direction of the Lang Son (about 130 kilometers northeast of Hanoi) and seize Hanoi.

The army shall have one detachment land near Tourane (Da Nang) (on the east coast in the central French Indochina) to seize the air base and cut the communications between Hanoi and Saigon.

The army shall [also] put another division ashore on the coast south of Saigon right at the outset of the war, and have it seize Cam Ranh Bay as swiftly as possible.

The above is a part of the Army plan of operations of fiscal year 1940. In the operation plan, cases were considered where out of the Soviet Union, the United States, Britain and France two to four countries would wage war against Japan while the latter was conducting operations against China. The outline of the operations “in case the United States, Britain and France should participate in the war while [Japan’s] operations against China are under way” was as follows:⁽¹⁵⁾

Operations against these several countries shall as far as possible be conducted one by one, depending on the situation.

The aim of the initial operations of the Army is to destroy the bases of the U.S., British and French forces in East Asia in conjunction with the Navy, and facilitate the implementation of the subsequent operations of the Army, while generally continuing the ongoing operations against China.

The outline of the operation of the Army is, in conjunction with the Navy, to capture Hong Kong, Luzon, and Guam, seize key places in and near Luzon as well as in northern French Indochina, and also, as far as possible, occupy key places in southern French Indochina.

After that, when the situation permits, the Army shall occupy key places in British Borneo and British Malaya and seize Singapore.

The [outline of] the respective operations against the United States and Britain followed that of [the plan of operations of] the previous year while the operations against France were as described above. (*See Illustration No. 4*)

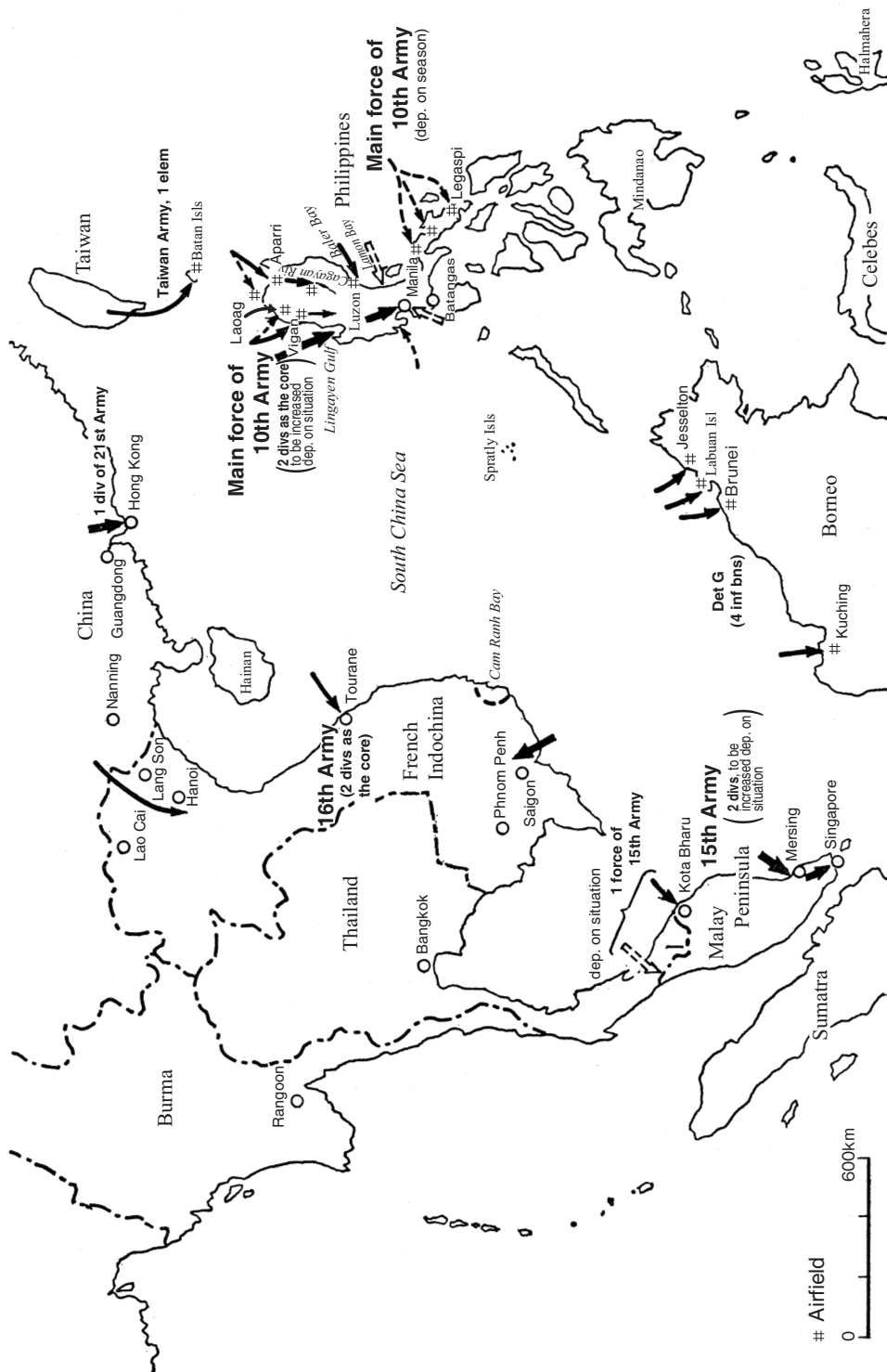
The Army Air Service’s Revision of Its Preparations and Employment in the South

In the Army Plan of Operations of fiscal year 1940, the Army Air Service participation in the Philippines invasion [operation] followed the plan of the previous fiscal year, i.e. one air division consisting of four air groups (one air group of fighter planes, two air groups of light bombers and one air group of heavy bombers), three independent air squadrons (one each of fighter planes, strategic reconnaissance planes and tactical reconnaissance planes) as the core, and the necessary ground service units. They were supposed to destroy the enemy air power in Luzon right at the outset of the war.

[The plan also specified that] the strength of the Army Air Service to be employed in the attacks on Hong Kong and French Indochina should be determined depending on the situation. It was judged that the strength of the British air forces in Hong Kong was about 50 aircraft and that of the French air forces in French Indochina was about 150 aircraft. The Army air units stationed in China were supposed to mainly take care of the air operations against those aircraft with one element or their main force.

As for the Malaya area, it was anticipated that the air operations there would require at least one powerful numbered air force, [since] it was judged that British air forces consisted of about three hundred aircraft in the area.

At the end of 1939, in view of the lessons of war of the Nomonhan Incident and the changes in the world situation, the Army revised and scaled up its previous military preparation plans. As for its Air Service, it particularly focused on increasing the depth of providing supply and replenishment. While the operational air units were [only slightly increased]



from 142 squadrons to 162 squadrons, a considerable number of reserve aircraft were added to the formation of each air unit.^(5, 15, 21, 23)

4. The Army Air Service and the Overall Strategy for the South Including the Invasion of the Dutch East Indies

Sudden Changes in the Situation in Western Europe and [Japan's] Judgment of the Situation to Employ Force of Arms Toward the South at a Favorable Opportunity

Outline of the Main Principles [for Coping with the Changing World Situation]

In April 1940, Germany, which had bided its time after the partition and occupation of Poland together with the Soviet Union in the autumn of 1939, carried out a sudden attack on Denmark and Norway, occupied them, and on 10 May, launched a full-scale attack on western Europe.

The combined land and air, blitz-like operation instantly defeated the allied forces made up of France, Britain, Belgium, the Netherlands, etc., and broke through the Maginot Line, which was said to be impregnable. Around the end of May, the British Expeditionary Force on the continent retreated to mainland Britain from Dunkirk, while the Dutch government went into exile in Britain. In mid-June, Paris fell, and the French Pétain Government surrendered. The IGHQ Army Department was of the general opinion that it might not be long before Germany would carry out a landing on mainland Britain.⁽²⁴⁾

Having judged the situation to be a significant historic turning point, IGHQ and the Government of Japan decided on 27 July on the *Outline of the Main Principles for Coping with the Changing World Situation*. The policy was: "The Empire shall deal with the crisis in the world situation by remedying the state of affairs in and outside Japan, and accelerate the settlement of the China Incident. At the same time, [the Empire] shall seize a favorable opportunity to resolve the southern question. If the focus [needs] to be shifted to measures for the South while the China Incident has not yet been settled, these measures shall be decided in consideration with the various circumstances in and outside Japan." Meanwhile, the conditions that would meet the employment of force of arms toward the South were stated as follows:^(21, 24, 25)

1. In case the China Incident has by and large been settled, [the Empire shall] seize a favorable opportunity and use force of arms in order to resolve the southern question, in as far as various conditions in and outside Japan permit.
2. If the China Incident has not yet been settled, [the Empire] shall take measures within the bounds of not being led into a war against third countries. However, if various conditions in and outside Japan progress particularly favorably, it may use force of arms to resolve the southern question.
3. When, where and how the force of arms [mentioned] in the previous two items should be employed shall be decided depending on the situation.
4. When employing force of arms, [the Empire] shall make every effort to limit the opponent in the war to Britain only. Nevertheless, even in such a case, it shall resolve to be faultlessly prepared for a war against the United States, since it may be inevitable.

Although the above text leaves considerable latitude for interpretation, the gist of the judgment of the situation of the top leaders of the IGHQ Army Department was that Japan should take advantage of a favorable opportunity, such as Germany succeeding in a landing operation on mainland Britain, and invade the key areas in the South.⁽²⁶⁾

The Value of French Indochina and Thailand in the Strategy of the [Army] Air Service

Then, as IGHQ's study on the Malaya and Sumatra operations progressed, the strategic value of French Indochina and Thailand became ever clearer.

From June 1940 onwards when the defeat of France was almost definite, the IGHQ Army Department started to show interest in measures against French Indochina and studied ways to immediately cut off the supply to Chiang [Kai Shek], as well as plans for obtaining bases for a future invasion of the South.

The strategic value of the Philippines in an invasion operation against Malaya was substantially similar to that of French Indochina. However, around that time, the IGHQ Army Department [still] saw a possibility of [dealing with] Britain separately from the United States, that is, to knock out Britain in an early stage while preventing the United States from participating in the war. So, it also studied plans to invade deep into the South, leaving the Philippines untouched.

In the summer of 1940, it was judged that the air strength of French Indochina, whose mother country had already fallen, consisted of a total of no more than one hundred aircraft, and that although some new and powerful fighter planes were among them, the majority was outdated. Moreover, given the difficulty of their replenishment as well, the confrontation with the French air force units was not such a serious problem.

The air bases in French Indochina were not only of absolute value for Japan's implementation of a southern operation, but they were also useful in dealing with the current China Incident. Although the airfields in northern French Indochina would require considerable repair work before Japan could make use of them, they were considered effective in attacking the routes in the Kunming area, which were used for the support of the Chiang [regime].⁽²¹⁾

[On the other hand,] it required deft political maneuvering to make use of air bases in Thailand, a very much pro-British independent country. From the beginning of 1940 onwards, the Army had sold some of its aircraft to Thailand with an intention to form a partnership in aviation through training, etc. At that time, Thailand mainly used U.S. aircraft. [Having] about two hundred front line aircraft [ready], the country was at first reluctant to purchase Japanese aircraft. However, soon afterward an agreement was made to introduce a regular airline between Japan and Thailand, and the traffic over French Indochina was about to be approved by France. However, in protest against Japan's bombing of the Yunnan[-Haiphong] railway, French Indochina withdrew its approval and did not easily change its decision.

The regular flights between Japan and Thailand started in late June; the flight from Hainan Island to Bangkok detouring along the southeastern coast of French Indochina became a nine-hour nonstop flight. In early July, Capt. Ōhira Yoshikata, staff officer of the Southern China Area Army, flew along the coast of French Indochina to reach Bangkok on the regular flight, where he contacted the military attachés.

It was on 4 July that the governor-general of French Indochina informally gave approval to the regular airline between Japan and Thailand to extend its service to Hanoi. On the 5th, he gave conditional approval to flights of Japanese military aircraft between Guangdong and

Hanoi, and on the 16th, he [also] approved a regular airline between Japan and French Indochina. However, he kept refusing to provide airfields for military use until early September.^(9, 22, 27, 28)

The Air Operation Accompanying the Stationing of Troops in Northern French Indochina

The Origin of the Question of Stationing Troops in Northern French Indochina

In the aforementioned *Outline of the Main Principles for Coping with the Changing World Situation*, decided on in late July, it was specified that: "Concerning French Indochina (including Guangzhouwan), [the Empire] shall resolve to thoroughly cut off the movements to support the Chiang [regime] and have the territory quickly accept the provision of supplies to the Japanese forces and approve their passage through its territory or their use of airfields there, while the Empire shall strive to obtain the resources required. Depending on the circumstances, it may use force of arms."

While the main goal was to primarily contribute to the settlement of the China Incident by cutting off the routes of support for the Chiang [regime], on the other hand, [the policy] also included the intention to prepare an advance to the South. The latter was strongly supported by part of the Army high command. Furthermore, although the stationing of troops without the use of force of arms was principally intended in the outline for the stationing of troops, the idea that an advance with force of arms would be more advantageous was shared below the surface, particularly among the chief of the 1st Bureau of the [IGHQ] Army Department and his colleagues.

In any case, around 20 June 1940, along with the cease-fire with Germany, France accepted Japan[’s request] to stop supporting the Chiang [regime] and approved the latter’s dispatch of a monitoring team to northern French Indochina.

By 2 July, the monitoring team led by Maj. Gen. Nishihara Issaku (the team, which hereafter is also called the Nishihara Kikan (Party) in short, also contained naval officers and was put under the command of chiefs of the Army and Navy General Staffs) advanced to Hanoi. Its mission consisted not only in monitoring the stopping of acts in support of the Chiang [regime], but also in conducting negotiations about the passage of troops, the use of airfields and the stationing of forces necessitated thereby.^(21, 24, 28)

The Situation of the 21st Independent Air Unit in the Southern China Area

In mid June 1940, when IGHQ was considering the stationing of troops in French Indochina, the 21st Independent Air Unit of the Third Air Force of the Army Air Service was stationed in southern China. The unit consisted of the 82d Independent Air Squadron (reconnaissance aircraft), the 84th Independent Air Squadron (fighter planes), the 2d Squadron of the 31st Air Group (light bombers), the 1st Squadron of the 64th Air Group (fighter planes) and some strategic reconnaissance aircraft, led by Col. Ishikawa Ai (graduate of the 27th class [of the Imperial Japanese Army Academy]).⁽²²⁾

Around that time, the Southern China Area Army proposed to capture Kunming by using northern French Indochina as the supply route. Although IGHQ did not approve the pro-

posals, it agreed with the Southern China Area Army on the intensification of attacks on Kunming from northern French Indochina.⁽²⁷⁾

In early and mid July, the Southern China Area Army headquarters advanced the main force of the 5th Division of the Twenty-second Army in Nanning to Longzhou and Zhennanguan, and while striving to cut off the supply and support for the Chiang [regime], made preparations for an advance into French Indochina.

During that period, while providing defense over Guangdong or attacking the supply routes from Fujian Province to the Chiang [regime], the independent air unit supported the operations of the 5th Division. Since flights over the territory of French Indochina were prohibited, the air unit widely conducted reconnaissance attacks, closely flying along the border of French Indochina.^(22, 29, 30)

Reinforcing the Air Unit in Southern China

In early and mid July, the Nishihara Party's negotiations with French Indochina reached a stalemate, except for the cessation of support for the Chiang [regime].

On 23 July, the IGHQ [Army Department] put the Southern China Area Army under its direct control and gave orders to occupy the areas along the road connecting Nanning and Longzhou, cut off the enemy routes of supply and communications in conjunction with the Navy, and make the necessary operational preparations against a third country (French Indochina).

In the Central Agreement on the Air Operations of the Army and the Navy of the same date, the Army air strength in southern China was set at the level mentioned above, while the air strength of the Navy consisted of the 3d Combined Air Unit (twenty-seven carrier-based fighter planes and nine carrier-based bombers of the 14th Air Group, twenty-seven mid-sized land-based attack planes, six land-based reconnaissance planes of the 15th Air Group and sixteen reconnaissance seaplanes of other units).

On the 26th, the IGHQ [Army Department] put the 1st Squadron of the 10th Air Group (strategic reconnaissance), the 14th, the 58th and the 98th Air Groups (all [consisting of] heavy bombers) from Manchuria or Taiwan temporarily under the command of the Southern China Area Army. The aim of the transfer was to train them for flights over sea, flights in the tropics, and long-distance formation flights so as to have them prepared for future operations in the South, such as attacks on Singapore from southern French Indochina. At the same time, it was also expected that this would have a supporting effect on the negotiations about the stationing of troops in French Indochina.^(18, 19, 27)

On the 30th, the IGHQ [Army Department] also transferred the 1st Air Division headquarters, the 59th Air Group (fighter planes), the 90th Air Group (light bombers) and others from eastern and northern China to southern China.

Having advanced to southern China in early August, all air units in the above other than the heavy bombers and strategic reconnaissance aircraft units came under the command of the 1st Air Division commander. Col. Akiyama Bunji (graduate of the 27th Class), who was newly appointed commander of the division in early August, arrived in Guangdong in the middle of the month, deployed the 59th and the 90th Air Groups under his direct command to Qinxian in succession, while having the 21st Independent Air Unit maintain its former formation mainly in the Nanning area and continue its previous tasks. The commander of

the [21st Independent Air] Unit was replaced by Col. Kumabe Masami (graduate of the 30th class) in early August.⁽³¹⁾

[In the meantime,] the 14th and the 98th Air Groups of heavy bombers were deployed at Haikou to repeatedly conduct trainings for flights over sea towards the coast east of Haiphong, while the 58th Air Group, deployed in Guangdong, carried out reconnaissance attacks over the coastal areas of Fujian Province as well as on the supply routes to the Chiang [regime] leading from those areas.

The Navy air unit was deployed to Hainan Island; while directly supporting the army operations with one element, it conducted attacks on the supply routes to the Chiang [regime] in coastal areas or inland areas with its main force.^(18, 19, 22, 186)

The Situation of the [Army] Air Service at the Time of the Advance of the Ground Units (See Illustration No. 5)

In early September, the negotiations about the stationing of troops in French Indochina, which had dragged along, at last came to a conclusion, and an agreement was made about Japan's use of three airfields in Lao Cai, Phu Tho, Vinh Yen and the stationing of 5,000 troops or less to guard them.

The Japanese air forces to be stationed there consisted of one squadron each of fighter planes and light bombers of the 21st Independent Air Unit for the Army, and the 14th Air Group for the Navy, the main body of which was made up of carrier-based fighter planes and carrier-based bombers. And it was decided that an Indochina Expeditionary Army of one infantry regiment as the core, led by Maj. Gen. Nishimura Takuma, should advance from the sea under the pretext of guarding the airfields.

However, on 6 September, due to an ill-defined border line, the Japanese garrison unit at Zhennanguan carelessly crossed the border, on which grounds French Indochina refused on the 7th the implementation of the previously arranged agreement about the stationing of [Japanese] troops in French Indochina. On 14 September, IGHQ made the dispositions for a hostile advance into northern French Indochina from the 22d onwards and put the Third Air Force headquarters, the 60th Air Group (heavy bombers), the 18th Independent Air Squadron (strategic reconnaissance planes) in eastern China under the command of the Southern China Area Army commander. Around that time, the air strength of the French Indochina Army consisted of no more than sixty aircraft of mainly outdated models in actual operation, but they seemed to be frequently conducting nighttime trainings, which led Japan to judge that it should need to be on the alert for counterattacks.^(8, 9, 21, 22, 33)

On the 14th, the Army-Navy Central Agreement on Air [Operations] was issued. It stipulated that the Army should be in charge of supporting the ground operations and conduct air campaigns to destroy the enemy air power in Tonkin Province with two squadrons of reconnaissance aircraft, four squadrons of fighter planes and three squadrons each of light bombers and heavy bombers, while the Navy should take charge of attacks on enemy vessels and air campaigns to destroy the enemy air power in the area from Vinh southwards as far as Tourane (Da Nang) with land-based air forces mainly consisting of the 3d Combined Air Unit, as well as with the main force of the 2d Carrier Division, the *Kamikawa-maru*, and others.

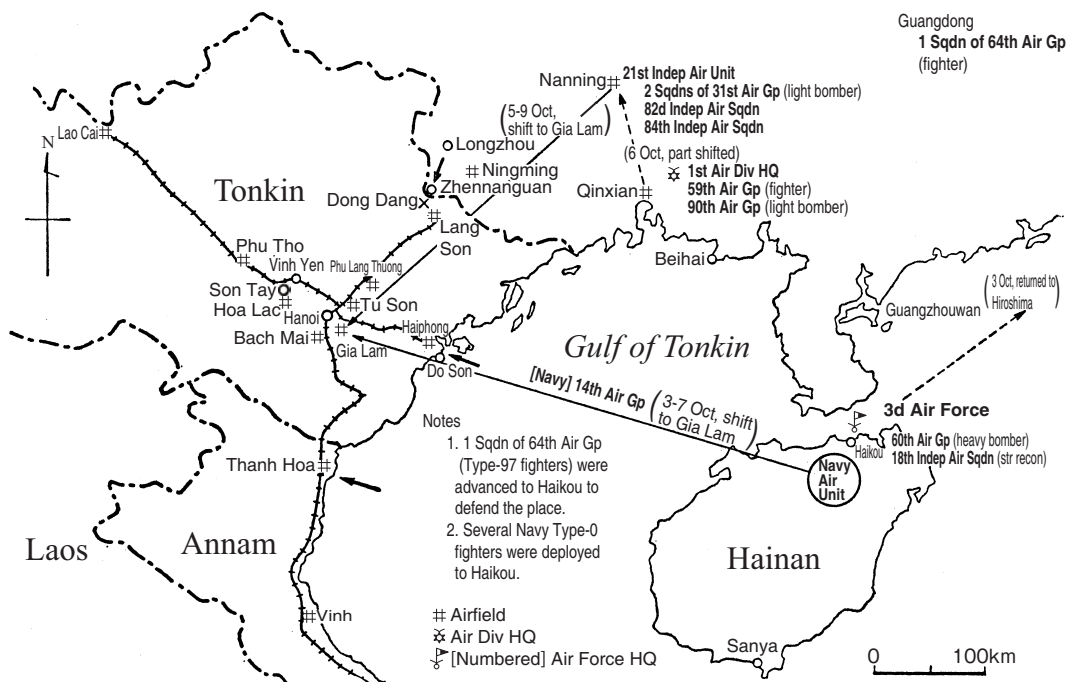


Illustration No. 5 — Outline of the Deployment of the [Japanese] Air Forces in the Northern French Indochina Area (Around Early October 1940)

On the 17th, while leaving one element of the headquarters in eastern China, Third Air Force Commander Lt. Gen. Kinoshita Hayashi advanced to Haikou and assumed command of all Army air units in southern China.

The new outline for the stationing of troops in French Indochina consisted in the 5th Division and the Indochina Expeditionary Army launching [operations] respectively from Zhenhanguan and Haiphong, and although [the Army should] make efforts to amicably carry out the stationing, it should use force of arms if the French Indochina army should resist.

On the 19th, as if by ultimatum, Japan notified French Indochina of its intentions for a hostile advance from the 23d onwards and stubbornly negotiated with the latter. As a result, at 1630 on the 22d, Japan eventually won an on-the-spot agreement.

However, the order to call off the [hostile] advance in the border area did not reach the 5th Division units, which were already deployed there and had completed their preparations to attack. On the morning of the 23d, hostilities broke out in the area of Dong Dang.

On that day, upon the request of the Southern China Area Army, the Third Air Force distributed from the air leaflets of a written message (according to the records of 1st Air Division Commander Col. Akiyama Bunji), [notifying] the 5th Division to cease hostilities and withdraw into Chinese territory.

Nevertheless, hostilities continued until the 5th Division's capture of [the town of] Lang Son on the 25th, and the [Third] Air Force ended up providing direct support for the ground combat with one element.

During this period, one element of the French air forces conducted counterattacks with fighter planes (Morane-Saulnier).^(22, 32, 33, 186)

The Situation of the Air Forces Around the Time of the Advance from the Sea

At first, the advances to Haiphong and Thanh Hoa from the sea were scheduled for 24 September. However, due to the occurrence of hostilities at Zhennanguan, French Indochina requested a postponement of the landings. On the 25th, the Army and the Navy Departments of IGHQ made a special agreement for this and gave instructions that the landings should be amicably conducted from the 27th onwards.⁽¹⁹⁾ However, the Nishimura Regiment failed to thoroughly observe the instructions. On the 26th, despite the disapproval of the Navy on site, the regiment carried out landings near the battery of Do Son and advanced to Haiphong. While no engagements occurred since the French Indochina [army] did not put up resistance, some accidental bombings on the early morning of that day did occur. What had happened was that one aircraft of the light bomber squadron on duty in the air over Haiphong, ready [to support] the Nishimura Regiment in the landing combat, mistook some moves of the wings of the commander's plane, which were [actually] caused by some treacherous air currents, for the sign to launch an attack, and carried out a bombing attack. Although the loss was limited to several casualties among the local people, it became a big problem [in the high command] in Tokyo, because the latter had no idea about the detailed situation.^(30, 186)

On the 26th, an informal order was conveyed to remove the Southern China Area Army commander, and on the 27th, the IGHQ Army Department banned bombings during the stationing of troops in northern French Indochina until specifically ordered otherwise.^(18, 19, 31)

The advance of air units into northern French Indochina was first [carried out] by the previously-mentioned designated units. The Army [advanced] during 5 to 9 October and the Navy from 3 October onwards, both to Gia Lam. The other airfields in French Indochina required considerable repairs, or expansion and conditioning, in order to be used by Japanese aircraft.⁽²²⁾

Assessment of the Preparations of the Air Arms in the Hostile Countries to the South

It was in the spring of 1940, after the war situation in Europe had more and more escalated that the Army in earnest started collecting information for [future] operations in the South. Key staff officers of central command were sent respectively to Malaya, the Dutch East Indies, the Philippines, Hong Kong, Australia and other areas. The following shows how the assessment by IGHQ of [the enemy] air power [in the South] progressed.⁽¹⁵⁾

The [Air] Forces of Britain and the Dutch [East Indies]

In the autumn of 1939, the British air strength in the Far East was assumed to be four hundred and several dozens of aircraft, totaling those in India, Malaya and Australia, and [apart from those,] a few in Hong Kong.

Around October 1940, it was judged that 150 aircraft were deployed in India, three hundred aircraft in Malaya (some intelligence reported the number [of aircraft in Malaya] to be five hundred when mobilized), 150 in Australia, and a few in Hong Kong.

Around March 1941, it was judged that about two hundred aircraft each were deployed in India, Malaya, and Australia, along with fifteen aircraft in Hong Kong. It is unclear whether the decrease in the number of aircraft in Malaya reflected the war situation in Europe, or the old number was [misinformation] from [allied] propaganda, or whether the standard by which the number of aircraft was calculated was inconsistent. The information on their makeup was also [mixed]; some reported that [the forces were] well-equipped and well-trained, and that [even] Spitfires, the fighter planes which the British forces were proud of, had been advanced [to the area]. However, others reported that being colonial forces, their actual war potential was poor and low.^(21,35)

Around that time, the Navy General Staff estimated the strength ([of] the front-line aircraft) of British air forces in the Far East at the end of 1941 as follows:

Singapore:	32 torpedo bombers (2 sqdns) 32 fighter planes (2 sqdns)
Northern Malaya:	64 bombers (4 sqdns) 32 fighter planes (2 sqdns)
East coast of Malaya:	42 reconnaissance planes (2 sqdns) 6 flying boats (1 sqdn)
India:	42 land-based reconnaissance planes (2 sqdns)
Andaman Islands:	12 flying boats (2 sqdns)
Borneo:	32 bombers (2 sqdns) 42 land-based reconnaissance planes (2 sqdns)
Total:	336 aircraft (21 sqdns)

Apart from the above, reinforcements of some two aircraft carriers (about one hundred aircraft) were expected.

As for British ground forces, it seemed that as of April 1941, there were 43,000 troops, who were deployed to strengthen the defenses of Singapore, northern Malaya and the east coast of Malaya.

As for the Dutch air strength in Java and Sumatra, it was reported that [it had] 184 aircraft as of August 1940. In an estimate around February 1941, the air strength was expected to be increased to about four hundred aircraft by the end of that year.⁽¹⁵⁾

The U.S. [Air] Forces

In February 1941, the Navy General Staff judged the U.S. air power in the Philippines as follows:^(15, 35) (See *Illustration No. 6*)

1. Reinforcement of forces

Between late November and mid-December of 1940, two squadrons of fighter planes (twenty-seven aircraft per [squadron] for regular use) and one squadron of patrol aircraft (twelve aircraft for regular use) were added.

2. Expansion of airfields

It was planned to expand airfields such as Clark, Nichols, Bagang and Legaspi, deploy air units also to the Legaspi airfield, and construct a new base for patrol aircraft at Los Baños.

3. U.S. aircraft in the Philippines are recently being upgraded to the latest models.

4. When a Japanese ship put in the port of San Fernando, six U.S. aircraft came flying out of the blue.



Illustration No. 6 — Map Indicating the Names of Airfields, etc. on Luzon

5. The U.S. Navy Air Unit consisted of two squadrons of patrol aircraft stationed in the naval port of Cavite.
6. The U.S. Army air units consisted of one group of fighter planes (eighty-one aircraft for regular use) on Nichols Field, and one squadron each (thirteen aircraft each for regular use) of observation aircraft and bombers on Clark Field. Along with reserve aircraft and outdated models, they would make a total of about 150 (or 200) aircraft.
7. Apart [from the above], units designated the Philippine Army Air Corps, an observation (training) unit ([consisting of] about forty aircraft) were stationed in Zablan, and one observation squadron ([with] ten aircraft for regular use) in Lahug.
8. By April 1941, approximately twenty-seven to fifty-four fighter planes and twelve to twenty-four patrol aircraft would be added to the air strength.

Subjects for Comprehensive Research in Employing the Air Arms Against the South

The Order in Which to Proceed with the Invasion of the South

The southern operation was comprised of four [major] operations; the Philippines operation (against the United States), the Malaya, etc. operation (against Britain), the Sumatra and Java operations (against the Netherlands), and the French Indochina operation (against France). Plans of operations for each operation were drawn up every year purely from a supreme command point of view. However, the [overall] plan combining these plans was deficient. That problem was to some extent worked out in the plan of 1940, however, that plan was still limited to nothing more than general principles. Now, the question of how to deal with the new real world situation and give concrete form to these plans became the major subject to work on.

Although there were quite a few problems concerning the aim, the nature, and the outline of the operations in the southern operation as a whole, the top priority was the choice of countr[ies] [to wage war on], since this would affect every aspect of the conduct of the war. In the *Outline of the Main Principles [for Coping with the Changing World Situation]* decided on in late July 1940, the original intention of the use of force in the southern areas was that although preparations for an operation against the United States should be made, the operation should be limited to one against Britain only. This intention probably originated from the anticipation of Britain's impending decisive defeat, to be caused by a German landing on mainland Britain. And it was based on a situational assessment that if such a situation should occur, the United States would probably not plunge into war as one body with Britain.

In mid-August 1940, the Army and the Navy Departments of IGHQ jointly studied the combined plan of operations against the South, which had been drawn up by the Operations Section of the Army Department. The plan focused on seizing resource areas in the Dutch East Indies and key places in British Malaya. Its real intention was that, although they should make efforts to prepare for the operations against the United States, they should limit the operations [in the South] to those against the Dutch East Indies and Britain as best as they could. The assessment that the United States and Britain were separable formed the basis. However, the Navy was of the strong opinion that the operations should be conducted only against the Netherlands. Its judgment at that time was that the United States and Britain were essentially inseparable and that the Navy was not sure [of victory] if a war against Britain should develop into a war against the United States. In mid-August, while starting

to intensify in earnest the preparations for a war against the United States, the Navy maintained a cautious attitude toward an advance to the South at a favorable opportunity.

In late November, the Navy conducted a map simulation of the southern operation, presided over by the Combined Fleet. Taking into consideration the results of this simulation and the subsequent war situation in Europe, the IGHQ Navy Department became even more inclined to believe that the United States and Britain were inseparable. That is, the Navy thought that preemptively launching an attack on the Dutch East Indies, hoping to conduct the operation against the Netherlands only should be limited to such cases, where serious delay in the war preparations of the United States and Britain's decisive disadvantage in its war against Germany would make it certain that [the attack would not] lead Japan and the United States into war. If not, it was very much likely that a war against the Netherlands would [eventually] develop into a war against the United States and Britain. The Navy also thought that if an invasion of the southern areas with force of arms should be inevitable, [Japan] should from the start thoroughly focus on the operation against the United States and attack the Philippines in the first place. However, the Army did not give up hope that Britain and the United States were [still] separable and continued the study on an operation to first attack Malaya.^(21, 27, 35)

Recognition of the Value of the Air Forces and the Creation of the Stepping-Stone Tactics

The key areas in the South in question were located in a vast tropical region stretching three to four thousand kilometers in each direction, and the key resource areas which Japanese forces intended to capture were situated in the deepest part of the region.

Although it was a combined sea and land operation, the invasion had, on the whole, strongly the character of a maritime operation, in which long-range sea maneuvers and distant maritime supply lines were essential.

With such a strategic topography and under such prospective operational conditions, how did IGHQ value its air power and how did it plan to employ it?

Among the studies of conducting a preemptive attack on the Dutch East Indies, there was a plan to send large landing convoys straight to Sumatra and Java. In terms of strategic conditions for the air forces, such a plan was only thought feasible if the U.S, British and French air forces in the Philippines, French Indochina, Malaya and other areas would take no hostile actions, and that powerful Japanese aircraft carriers could support the convoys at all times. However, one could never expect such one-sided conditions would continue for long; evidently, it was necessary to advance land-based air units and, using their support, push forward the sea and ground forces.

Pushing air bases forward and expanding the areas of [Japan's] air supremacy was included in the aims of [the operations to] capture key places in the Philippines, southern French Indochina, Malaya, and other places. Whether IGHQ was very much aware of it or not, the stepping-stone tactics, which General MacArthur later praised and employed for the counterattack against Japan in the Pacific area, were already about to be adopted by the [Japanese] Army at that time as a result of these strategic studies.^(21, 27)

The Short Combat Range of Army Aircraft and the Plan of Advancing Air Bases

The distance to Sumatra and Java by way of Singapore from northern French Indochina, where [Japanese] troops had been stationed since the autumn of 1940, is about three thousand kilometers. In order to securely push forward the areas under Japan's command of the air, air bases had to be advanced in hops on the basis of the action radius of the fighter planes, but the very short combat ranges of the Army planes were a major worry.

In order to advance into Malaya, air bases in southern French Indochina were indispensable. However, [even then,] the action radius of the Type-97 fighter planes of that time was [merely] about four hundred kilometers, and it was impossible for them to cover the landings of the convoys sailing for about six hundred kilometers across the Gulf of Thailand. In addition, from French Indochina, an air campaign with bombers to destroy enemy air power would also be limited to northern Malaya.

The Army immediately started on readying fighter planes (Type-1) with a long combat range.^(12, 21) (Note: A summary of the development of the Type-1 fighter plane shall be given later.)

The short action radius of the Army planes meant an increase in the number of hops to push the air bases forward. In the outline of the Malay Peninsula invasion for the capture of Singapore, one could have thought of putting ashore the main force of the invasion forces near the southern point of the peninsula at a stroke straight from southern French Indochina, but it was not feasible, because with army aircraft alone support for the operation was impossible. This was indeed the primary factor why the plan of a ground operation advancing southward for as long as one thousand kilometers along the Malay Peninsula was later adopted.

Navy aircraft generally had longer combat ranges than Army aircraft. Its Type-0 carrier-based fighter plane developed around that time was an outstanding aircraft, and the Navy was [further] studying the extension of its action radius to one thousand kilometers. By employing the aircraft, the clockwise operation of attacking the Philippines first, which the Navy had pressed for, enabled it [to advance] the stepping-stone tactics with longer steps than the counterclockwise Malaya first operation, which was advocated by the Army.^(21, 23)

The First Air Strike at the Opening of Hostilities

The way of employing air forces at the opening of hostilities was a major issue. Without breaching international law, the effect of a surprise attack had to be maximized. [So,] how to combine the launch of attacks by ground, naval, and air forces, particularly, the question which should be conducted first, a first strike by the air forces or the start of landing operations from the convoys, became an issue.

In the general military thinking of that time, the argument that hostilities should be opened with air strikes was widely supported, while prior air campaigns to destroy enemy air power were considered indispensable in landing operations. However, the question was whether such a textbook example of tactics could really be applied just like that to the upcoming actual operations in Malaya and the Philippines. Although there were very complicated relevant factors [to be considered], it eventually boiled down to a [compromise] plan that a surprise landing by one element (to seize airfields) should precede [the first air strikes]

in Malaya, while air attacks would mostly precede [the landing operations] on the Philippines.^(21, 23)

The Actual State of the Army Air Service and Its Assessment of the U.S. Air Force's Preparedness for War

The Progress in the Army Air Service's Military Preparations

The military preparations plan of the Army Air Service, revised at the end of 1939, was to increase its operational air strength to 162 squadrons by fiscal year 1943. In the summer of 1940, when the decision to advance to the South at a favorable opportunity was made, the strength consisted of twenty squadrons of reconnaissance aircraft, thirty-six squadrons of fighter planes, twenty-eight squadrons of light bombers and twenty-two squadrons of heavy bombers, totaling 106 squadrons.

The scheduled strength, which the IGHQ Army Department thought in November 1940 to employ in the southern operation, consisted of a total of fifty-four squadrons, of which thirty-one squadrons were to be employed for Malaya, twenty-one squadrons for the Philippines, and two squadrons for the Dutch East Indies (at the start). Although quantitatively they constituted about one half of its total strength, qualitatively they were picked elite units and obviously the main force of the Army Air Service.

The production of army aircraft as of the autumn of 1940 was about one hundred and fifty aircraft per month on average, and the total annual manufacturing capacity was a little less than two thousand aircraft.⁽³⁵⁾

Of the types of aircraft in use, Type-97 aircraft (officially adopted in 1937) comprised the major part, and the latest types were Type-99 and Type-100 aircraft.⁽⁵⁷⁾

As for the training of flight personnel at that time, on the basis of building up 162 squadrons, at any rate a regular number of 5,112 pilots were needed. And the planning was that 1,742 pilots should make their maiden flight in fiscal year 1940.^(5, 9)

Such being the case, the Army Air Service's in-depth strength barely allowed it to fulfill the military preparation plans that had been decided on, while at the same time prosecuting the China Incident. Needless to say, [the Army] should be able to count on future reinforcements of its air strength [to compensate for the expected] huge losses in full-scale operations against the United States, Britain and the Netherlands, etc. However, with the obviously weak war potential of its air power, such a problem was not easy for Japan to solve. With various [other] preparations for the operations becoming increasingly urgent, no particular measures were taken at that moment to increase the Army Air Service's in-depth war potential.⁽³⁴⁾

About the military preparedness of the United States, particularly the reinforcement plan of its air forces, [the Army] had received such intelligence as mentioned below. However, in reality the Army, whose main interest was ground combat, was not overly concerned about the comparative differences between the Japanese and U.S. air forces as such.

Meanwhile, there was a general belief within the IGHQ Army Department that the southern operation as such against the colonial armies could be successfully conducted with sudden attack operations. However, the Army had not made an in-depth study whether it would ever be able to successfully carry on its air operations for a longer period against the full-scale counterattacks by the allies that were expected to follow. It was mainly because [the

Army] tended to think that it could rely on the Navy to intercept and destroy the U.S. counterattacks at sea.^(21, 35)

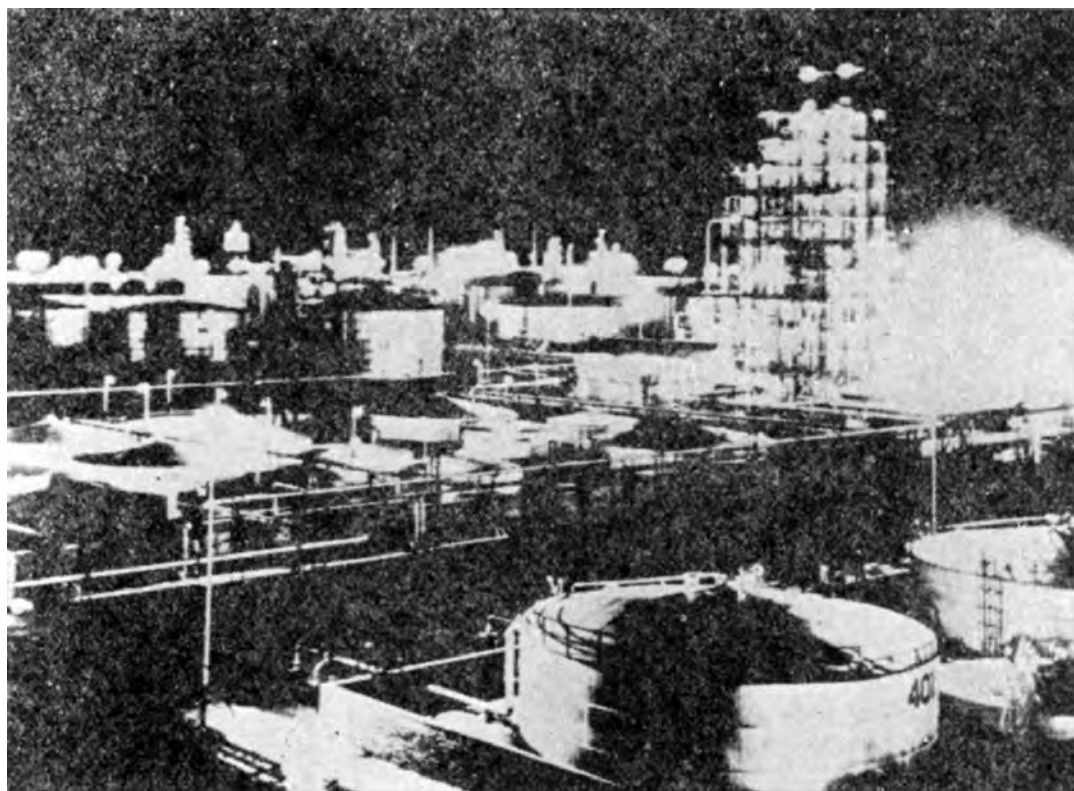
[The Navy's] Assessment of the U.S. Air Forces' Arms Buildup

In February 1941, the Navy General Staff judged the U.S. air forces' arms buildup as follows:⁽¹⁵⁾

1. The current strength
[The number of] the front-line aircraft was about 3,500 for the Army and 2,200 for the Navy. The current production capacity of U.S. military aircraft is 15,000 to 20,000 aircraft per year.
2. The current plan
 - (1) Army and Navy front-line air units of a total of 50,000 aircraft shall be formed and maintained by around July 1945. The target of the annual manufacturing capacity of aircraft shall be set at 50,000, and by April 1942, the annual manufacturing [capacity] shall be increased to 35,000 aircraft.
 - (2) The Navy's goal in war preparation of its air service is to form an air strength of 15,000 front-line aircraft. For a start, the number of pilots shall be [increased to] 18,500, and an air force of 10,000 aircraft shall be organized by June 1944.
 - (3) The Army shall for a start [increase] its number of pilots to 36,000 men, and form a force with 25,000 aircraft by the end of 1942.
 - (4) The current number of civilian pilots is 42,000, and in fiscal year 1941, 45,000 new pilots shall be trained.
3. The outlook for the air power buildup
 - (1) The increase in manufacturing [capacity] of aircraft is possible as planned. So is the increase of pilots; the current number of 3,850 men will be increased to 25,000 men in July 1945.
 - (2) The production of [military] aircraft for supporting Britain will greatly hamper the increase in the manufacture of Army aircraft. [Conducting] the training of flight personnel [as planned] seems considerably difficult, too; the plan of [forming an air unit of] 25,000 aircraft by the end of 1942 will be delayed by about one year.
 - (3) Despite a number of difficulties, the expansion of the manufacturing capacity of aircraft will progress more or less as planned.
4. The construction of air bases on the Pacific Islands
The following air routes are expected to be completed within a year or two:
The central air route: Hawaii, Midway Island, Wake Island, Guam, Manila, Hong Kong, and Singapore
The southern air route: Hawaii, Palmyra Atoll, Kanton Island, Tutuila Island, Port Moresby, Port Darwin, and Singapore
The preparation of bases on Hawaii and other Pacific islands has steadily progressed, and by 1944, Hawaii will have been turned into a center of operations for a large fleet, and other Pacific Islands, too, will have been turned into air and naval bases.

Changes in the Aviation Fuel Situation of the Army

For a long time, Japan relied for liquid fuels on imports from the United States. It was after the Manchurian Incident that the Army started to have misgivings about the fuel supply and started storing. Particularly in late 1937, when the China Incident occurred, [the Army] imported considerably large amounts of fuel by pressing private companies into service.



The Oil Refineries of Palembang

The United States put into effect the first restrictions on the export of fuel to Japan at the end of 1939, first of all by banning the export of production equipment, production technology and the patents on aviation gasoline. Having anticipated the tightening of the restrictions by the United States, the Japanese government and the military desperately struggled to increase the import of petroleum [products], particularly aviation fuel, by making good use of business deals with U.S. private companies.

The United States imposed a second round of restrictions in August 1940, when high-octane aviation gasoline, its raw materials, tetraethyllead and others were subjected to a license system for export to Japan. Nonetheless, imports through commercial trade between Japan and the United States still continued. Since Japan was short of oil storing facilities around that time, instructions were given to import the oil just in drums.⁽³⁶⁾ In August 1940, the Japanese government also decided to send a mission led by Kobayashi Ichizō to the Dutch East Indies.⁽¹⁷⁾ Since the Dutch East Indies had an annual oil production of about eight million kiloliters (of which 3.75 million kiloliters was produced at Palembang), the mission negotiated for an annual export of over three million kiloliters [of oil] to Japan for the next five years or so. However, acting in concert with and under pressure from Britain and the United States, the Dutch East Indies did not agree to export high-octane aviation gasoline, and only approved export of a fraction of other products demanded by Japan.

The amount of aviation fuel stored for the operations of the Army, which Tanaka Shin'ichi, chief of the 1st Bureau (in charge of operations) of the IGHQ Army Department gave in his

briefing to War Minister Tōjō Hideki in November 1940, was [the amount] for a full-strength [operation] of eleven months, and it was expected [to increase] to an amount [for full-strength operations] of about twelve months to 405,000 kiloliters in around March 1941 (the monthly amount for full-strength operations [was estimated at] 33,800 kiloliters).

It led to the following assumptions: If the two-thirds of the full strength of the Army Air Service should be employed in the southern operation for six months, it would require an amount of 135,000 kiloliters, and given that an amount of 30,000 kiloliters would be required for other purposes, about 240,000 kiloliters would remain. If the operations after completion of the first phase of the southern operation were assumed to be relatively slack, the storage of 240,000 kiloliters of oil would allow [the forces to conduct] operations for about one and a half year ([consumption calculated on a basis of] 15,000 [kiloliters] per month). Even if a northern operation should occur following the southern operation, the storage would [still] allow the forces to conduct war for about eight months ([consumption calculated on a basis of] about 30,000 [kiloliters] per month).

Despite great apprehensions, oil storage gradually increased during the year 1940. However, in 1941, the U.S. government's license restrictions became very strict. The [highest] octane rating of oils [permitted to be exported to Japan] was lowered from ninety-two to eighty-seven, and then to eighty-five, and the amount [for export] was sharply reduced, too.^(35, 36)

[Meanwhile], the Resources Section ([which became] the Fuel Section from April 1941 onwards) of the Ministry of War endeavored to study the [expected amount of] fuel to be obtained when important resource areas in the South were occupied. Its rough estimation, whose details are omitted [here], was that, on the assumption that all oil refineries had been destroyed, 0.3 million kiloliters of crude oil would be obtainable for the first year, about 1 million kiloliters for the second year and 2.5 million kiloliters for the third year.

It meant that even if the oilfields in the Dutch East Indies were occupied, a fuel crisis would still occur in the second year.

In the reports which Col. Okada Kikusaburō, chief of the War Preparation Section [of the Ministry of War] submitted in mid-January and late March 1941, he, too, indicated similar points with regard to the fuel problem and offered an opinion in his conclusion that while accelerating the negotiations with the Dutch East Indies, [Japan] should strive to obtain resources from the U.S. and British bloc until the very last minute.

The trade negotiations with the Dutch East Indies to obtain oil had been continued by Ambassador Yoshizawa Kenkichi from December 1940 onwards.^(35, 38)

5. Acceleration of the [Army] Air Service's War Preparations for [the Operation in] the South

Extension of the Combat Range of the Army Fighter Planes and Adoption of the Type-1 Fighter Plane

In the summer of 1940, Lt. Col. Tanikawa Kazuo, chief of the Aviation Group of the Operations Section of the IGHQ Army Department, started on a concrete study of an outline for the air operations in the Malaya area, taking into account the results of his own recent survey of the area as well.

Among the various problems, the short combat range of Army aircraft, particularly its fighter planes, was the biggest cause for worry. Lieutenant Colonel [Tanikawa] secretly sought the opinion of Col. Imagawa Issaku, chief of the [Army] Flight Test Group of the Flight Test Department (led by Maj. Gen. Sakaguchi Yoshitarō) on ways to prepare by next March about two squadrons of Army fighter planes with an action radius of about one thousand kilometers, to be employed for an attack on Singapore.

After some research, Colonel [Imagawa] proposed three ideas: To equip the Ki-43 (which later became the Type-1 fighter plane) with additional drop fuel tanks, to equip the strategic reconnaissance aircraft with additional armaments, or to equip the Type-99 twin-engine light bombers with additional drop fuel tanks. The Army central command hurriedly examined the proposals and decided on proceeding with the first idea.

The Ki-43 was made [on an experimental basis] by improving the speed and armaments of the Type-97 fighter plane, while maintaining its maneuverability, which was light and easy. The first prototype had been completed at the Nakajima Aircraft Company in January 1939, but after operational suitability screening at the Akeno Flying School, it was about to be rejected.

The grounds, on which Colonel Imagawa recommended the aircraft, was that its engine (Ha-25) was the same as that of the Type-0 fighter plane, the masterpiece of the Navy (Model Sakae-12 engine, officially adopted in July 1940 on the Type-0 fighter plane), and that also the body of the aircraft was almost the same as that of the Navy, which made him think that further tests were worth conducting. He became the first chief of the Flight Test Group at the end of 1939, and from early 1940 onwards, he thoroughly retested the aircraft.

The main reason why the Akeno Flying School had regarded the aircraft as unfit was that compared to Type-97 fighter planes, the aircraft was markedly inferior in aerial combat. However, Colonel Imagawa found out that the aircraft could sufficiently match the Type-97 fighter planes [in performance] by taking advantage of its enhanced climbing power, which was due to the increase in horse power of the engine, and the tactics of vertical maneuvering (the dog fight) while making good use of the air combat maneuver flaps.

The method of extending the combat range by using drop tanks was already known from experience with the Type-97 fighter plane. Later studies revealed that the action radius of the plane could not be extended to one thousand kilometers. But, unfortunately, the Army had no other suitable fighter planes any more that could be adopted in such a short period.

In May 1941, the aircraft was officially adopted [by the Army] as the Type-1 fighter plane. By the time of the opening of hostilities in December that year, the aircraft was employed by two air groups as an upgrade. Although at first some broke apart midair and wrinkles developed on the wings, after quick-fix repairs and reinforcing the parts, the aircraft were readied in time for the opening of hostilities.

Its combat action radius, which considerably varied depending on the units equipped with the aircraft, was more or less six to seven hundred kilometers, which covered the distance from southern French Indochina to the Malay Peninsula crossing the Gulf of Thailand.^(5, 12, 21)

Exercises to Study the Malaya Invasion Air Operation

The Problem of Training for Flights over Sea

Since the Army Air Service was basically trained for operations on the continent, its ability to conduct maritime operations was low, and it had generally no experience of operations in the tropics.

As previously told, around the time of [the Army's] advance into the northern French Indochina, the IGHQ [Army department] dispatched five air groups of heavy bombers to southern China. Although supporting the advance [of the Army units] was [among] the aims, the primary objective was to improve the groups' skills for flights over sea, the servicing [of aircraft] for tropical [operations], long-distance flights in formation and the like, which obviously assumed attacks on Malaya or the Philippines. [Following them,] the [air] units stationed in Manchuria and Korea, too, one after another started on trainings for flights over sea from the beginning of 1941 onwards.^(21, 23)

A War Game of the Malaya Invasion Air Operation

In January 1941, a war game of the Malaya invasion operation was conducted according to the plan of the Army General Staff with War College students specializing in aviation as the players. The simulation was planned by Lt. Col. Tanikawa Kazuo, a teacher of strategy at the War College, who had been a staff officer of the Army General Staff until recently, and the umpire was Col. Miyoshi Yasuyuki (graduate of the 31st class [of the Army Academy]), who was also a teacher there.

The assumption of the exercise was that one army (consisting of four divisions) and one [numbered] air force (a total of thirty-one squadrons, consisting of eleven fighter plane squadrons, five light bomber squadrons, nine heavy bomber squadrons and six reconnaissance aircraft squadrons) were to invade the Malay Peninsula from southern China and northern French Indochina by way of southern French Indochina and Thailand. The British forces in the area were assumed to consist of about two hundred aircraft including one element of Spitfires, and a ground force that was about one half of the Japanese force.

The course of the exercise was that [the Japanese forces] were to seize air bases in the Bangkok and Saigon areas in about one month, put ashore the main force [of the ground troops] in northern Malaya and one element in the Mersing area to capture Singapore in about four months.

One of the plans which the players studied was to occupy air bases in northern Malaya with one element, and after conducting air campaigns to destroy the enemy air power from the said area, put ashore the main force of the army in the Mersing area to the northeast of Singapore, with the support of a powerful fleet. Although it corresponded to the outline of the operation against Britain in the Plan of Operations of the Imperial Army of fiscal year 1940, Colonel Miyoshi [dismissed the plan] and continued the simulation according to the other operation plan to land [the troops] at Singora and have them march southward along the Malay Peninsula overland, because of the instability of the gained air and naval supremacy. His assumption was that no support by aircraft carriers was available.

Although there were some arguments about in what order to have the ground, naval and air forces deliver their first strikes against Britain, it was decided that priority should be given to the launch of surprise landings [by ground troops] from the convoys and that no prior air

campaigns to destroy the enemy air power nor attacks on [enemy] naval fleets should be conducted. The plan was to deceive the enemy by making the convoy look like sailing toward Bangkok and [then instead] carry out surprise landings. The advance of air bases into Thailand and southern French Indochina was a major problem. It was decided that [the conclusion of] a military treaty with Thailand to obtain an advance air base equipped with repair and supply facilities in Bangkok and the use of airfields in Thai-Malaya should be accelerated. Advancing military forces into southern French Indochina might not be difficult, however, the construction within about one month of air bases, which would enable large operations in the Malay area, was a big question.

Along with Type-97 fighter planes, the fighter planes of a latest model (Ki-43) were also considered to be employed to cover the landing of [the ground troops] from the convoys sailing across the Gulf of Thailand. However, the short action radius of the army aircraft remained a major worry in [planning] the operations.

Being colonial forces, the British air units were generally regarded as qualitatively not altogether excellent. Nevertheless, it was considered that [the Japanese forces] should be on the alert for Spitfires and that [if the latter were spotted], top-of-the-line aircraft should be dispatched even in small number.

The logistics and supplies for the air operations in this operation were a serious problem. The study yielded the following lessons:

1. The [expected] number of flights of the aircraft
 - (1) During the operations against southern French Indochina
One flight per day for about ten days
 - (2) During the the Malaya operation

First month:	Fighter planes	Two flights per day for thirty days
	Other types	One flight per day for thirty days
Second month:	One half of the first month	
Third month:	One third of the first month	
2. An estimate of losses during the Malaya operation

Types of air units	Fighter planes and heavy bombers	Light bombers and reconnaissance planes
First month	20%	15%
Second month	15%	10%
Third and fourth months	10% each	10% each

3. Stockpiling of operational matériel in Thailand and French Indochina is required.
It is important to concentrate as forward as possible the same number of reserve aircraft as front-line aircraft.
Aviation fuel to an amount of forty thousand kiloliters is required for the four-month operation.
4. It is effectual to convert ships and form shipboard aircraft depots for repairing [aircraft] engines.
5. Reinforcements of flight personnel to make up for losses

Pilots:	210 men (of whom 78 men in the first month)
Others:	300 men (of whom 110 men in the first month)

The exercise was inspected by Chief of Army General Staff General Sugiyama Hajime, War Minister Gen. Tōjō Hideki, as well as by chiefs, section chiefs and staff officers of the Army high command within the IGHQ [Army Department]. Although a number of misgivings arose concerning individual problems, the exercise created confidence that the Malaya operation would be feasible if preparations were duly made.

A problem was the case of all-out military operations including those against the United States, in particular the case of a drawn-out war, as pointed out by Minister Tōjō at that time. However, that was outside the scope of this exercise. Chief of the Army General Staff Sugiyama recognized the significance of this exercise and demanded that further serious study should be continued and that it should be kept classified.^(23, 27, 35, 39, 145)

Joint Landing Operation Exercise by the Army and the Navy

From March to April 1941, an Army-Navy joint exercise assuming an attack on Singapore was conducted between Shanghai and northern Kyūshū.

[In the exercise,] the blue force, consisting of the 5th Division as the core, launched convoys from Zhoushan Islands and vicinity, forced back the red force's air and naval attacks, sailed for about seven hundred kilometers, landed in northern Kyūshū and attacked the stronghold of Sasebo.

The course of the exercise prescribed that the Fifth Air Force, stationed in Manchuria, should cover the convoys and support the landings from airfields in Korea as the air unit of the blue force, and then dash to the airfields in northern Kyūshū.

In this exercise, the Fifth Air Force for the first time experienced the task of supporting a landing operation of a large force, and it was felt that the main point of covering convoys required further detailed study and exercise. The Type-97 fighter planes employed in the exercise had too short a combat range which caused grave concern about the implementation of this task.

However, all in all it was concluded that a landing operation conducted along these lines was feasible if [the forces were] well-prepared and well-trained.^(21, 141, 152)

Stepping Up the Air Service's Military Preparations and the Study of Operations in the Tropics in Taiwan

In August 1940, the Army central command decided on the Outline of Advancing Supply Bases for the South[ern Operation], and sent a large amount of military supplies to Taiwan. Matériel for the air operations stockpiled in Pingdong, Gaoxiong, Fengshan and Xiaogang and their vicinities around the end of that year amounted to those required [in operations] for four air divisions during one month.

Around that time, of the army air units, the 4th Air Division headquarters and the 8th Air Group (consisting of light bombers and strategic reconnaissance aircraft) were stationed in Pingdong, the 14th Air Group ([consisting of] heavy bombers) in Jiayi, and the 50th Air Group ([of] fighter planes) in Taizhong. The bases of the Navy Air Unit in southern Taiwan were in Gangshan, Donggang, etc., and apart from these, there were airfields mainly for civilian use in Taizhong, Tainan, and Taidong.

[The Army] was short of airfields in southern Taiwan. While expanding and conditioning the airfields in current use, it started on preparations to newly construct airfields in Fengshan, Jiadong, Chaozhou, Hengchun and other places.

The need was also felt to upgrade and reinforce by the spring of 1941 the Air Service's preparations concerning intelligence, communications and meteorological information.

Regular flights by way of Taiwan were intensified, and as previously mentioned, regular flights to Thailand by way of French Indochina began their operation from July 1940 onwards. It was of great significance in terms of securing and preparing the flying routes, which were indispensable for the concentrated mobilization of air units for the invasion of the South.^(9, 34, 35)

In mid-December 1940, the IGHQ [Army Department] established the Taiwan Army Research Department (about twenty members including officers) in Taipei as the core institution to study operations in the tropics. Its tasks were to conduct practical surveys, research and experiments on the composition [of units] for various duties, equipment, tactics, front duties, provisions, medicines, quarantine as well as the military situation and topography of the southern countries and provisionally report the results by March 1941.

The upper echelons of the [Army] Air Service were not included in the Research Department. Aviation experiments required a dedicated air unit to be in charge. [So,] in mid-January 1941, the IGHQ [Army Department] assigned the army air unit in Taiwan to cooperate with the Research Department.

[Also] in mid-January, the IGHQ [Army Department] ordered the Southern China Area Army to conduct research on engagements (including landing operations) and front duties to be expected in the southern operation as well as on the employment of divisions with motor vehicles in the tropics, and had the army closely cooperate with the Taiwan Army Research Department.^(18, 19, 78)

During the above period, from the end of 1940 to early February 1941, led by Maj. Murata Kingo (graduate of the 41st class of the Army Academy) of the Army Affairs Section of the War Ministry, Maj. Satō Katsuo (graduate of the 42d class) of the Army Aviation Headquarters, Capt. Maruta Fumio (graduate of the 44th class) attached to the 64th Air Group and several other personnel in charge of the composition [of air units], supply, communications and facilities of the Air Service inspected [facilities in] Okinawa, Taiwan, Guangdong and northern French Indochina, and strove to urgently accelerate the concrete operational preparations in order to have the Air Service ready for sudden changes in the situation expected in the spring or summer of 1941.^(22, 34)

The Measures Taken to Advance Air Bases to Southern French Indochina and Thailand

Mediation of the Border Dispute Between Thailand and French Indochina

In the autumn of 1940, as the study on southern operation at the IGHQ [Army Department] progressed, the strategic value of air bases in Thailand and southern French Indochina became clearer than ever.

Since the chaotic stationing of troops in northern French Indochina had previously led to export restrictions by the United States, the subsequent steps against French Indochina and Thailand required prudence.

It so happened that around that time a border dispute had arisen between Thailand and French Indochina. This time, Thailand was trying to solve at a stroke the return of lost territories, such as those in Laos and Cambodia, which it had been demanding from France for many years. After France's rejection of the demand, the situation reached in October crisis proportions when ground forces of both countries were deployed along the border between Thailand and French Indochina and confronted each other.

Although Japan had generally been friendly to Thailand, it was not sensible to be hostile to French Indochina, either. [So], it planned to mediate the dispute and by taking advantage of it to militarily infiltrate both countries.

In January 1941, the Thai army's invasion of Cambodia triggered the opening of hostilities between both armies. On 20 January, Japan offered mediation, which was immediately accepted by Thailand, but refused by French Indochina.

In late January, in order to put coercive pressure on French Indochina, Japan sent a powerful fleet to the coastal waters of southern French Indochina. On 21 January, the IGHQ [Army Department] removed the ban on bombing attacks by the Southern China Area Army over French Indochina, and advanced the 90th Air Group (light bombers) to Hanoi, to be ready for changes in the situation.

On 27 January, French Indochina accepted Japan's mediation, and a ceasefire between both forces was realized by around the end of the month.

However, the settlement of the border dispute was not simple. Diplomatic negotiations between both countries were held in Tokyo, and after many twists and turns, an agreement was finally reached on 31 March. Although part of the key areas became Thai territory, this did not satisfy Thailand, to say nothing of the dissatisfaction on the French Indochinese side. Both countries just yielded to Japan's high-handed mediation.

Although the demand on both countries to conclude a military treaty with Japan was not specifically brought up, the way for it was successfully paved.^(17, 35)

The Sale of Army Aircraft to Thailand and the Training for Their Operation

Prior to this, in January 1940, the Army central command had heard that some high-ranking officials in Thailand were hoping to purchase Japanese military aircraft and started to contact them. It was judged strategically advantageous to establish an air force alliance with Thailand. However, the real state of affairs in the country, which was fairly pro-British, and which was using U.S. aircraft, was complicated, and things did not progress easily.

In the summer of 1940, the Army central command upgraded the military attaché office in Thailand and started preparing the ground to form a military alliance with the country. Sales promotion of army aircraft to Thailand and the already-mentioned launch of a regular airline service were part of the plan.

In November the sales contract for the aircraft was concluded, and in mid-December, as the first part [of the deal], ten Type-97 fighter planes and twelve Type-97 heavy bombers were airlifted and handed over to Thailand in Bangkok. A small team consisting of Maj. Ōnishi Hiroshi (graduate of the 34th class [of the Army Academy]) and a few others, led by Col. Tanaka Tomomichi (graduate of the 27th class), were dispatched to the country to take charge of the operational training. Then in late February 1941, the team was joined by Maj. Kuroda Hisafumi (graduate of the 33d class) and several others, and Col. Tanaka Tomomichi returned to Japan.⁽⁴⁰⁾

In the second aircraft deal, nine Type-97 heavy bombers were purchased at the urging of Japan, and were handed over [to Thailand] in mid-March at Don Mueang Airfield. Maj. Iizuka Hiroshi (graduate of the 43d class) and several men were dispatched to join Major Kuroda and his team [to provide] the training.

Quite extensive aviation training was provided, which covered firing, bombing, and navigation practices, to say nothing of piloting.

The situation of the airfields in Thailand became clear. The airfields in Singora, Nakhon and other places in Thai Malaya, namely, those along the west coast of the Gulf of Thailand were no better than landing strips for relays and emergencies. However, the airfields in the Bangkok plain were fit for use by heavy bombers mostly without problems. The sold ammunition was stockpiled at the training airfields.

The fact that Japan had formed an air force alliance with Thailand later greatly helped the operations of the Japanese Army Air Service.

Thailand used some of its Japanese aircraft in its dispute with French Indochina, which had arisen at that time. This gave French Indochina an excuse to reject Japan's mediation of the dispute. Nevertheless, as a manifestation of the strengthened alliance between Japan and Thailand, it gave Japan an advantage in terms of its overall leadership in the political maneuvering.^(9, 35, 40, 78, 107)

The Formation and Training of a Paratrooper Unit

The First World War already saw examples of paratroop operations to attack the enemy on the ground from the air. In the early Shōwa period [late 1920s], the Soviet Army adopted the maneuver as [one of] its tactics, formed a unit specialized in such missions and gradually expanded it. Its large-scale military exercises aroused the [Western] powers and also surprised Japan.

In May 1940, the German forces implemented large-scale paratroop operations in their advance on the west and achieved lightning operational results. With this example as motivation, the [Japanese] Army, which had taken a relatively cautious stance on such tactics, seriously started studying them. Japan's judgment of the general situation with an eye on [advancing] to the South with force of arms at a favorable opportunity was also behind this move.

By chance, Lt. Col. Itoda Isamu (graduate of the 35th class), who had returned from service as an officer resident in Europe, was appointed staff officer at the Inspectorate General of Army Aviation. He was assigned to take charge of the planning and formation of a [paratrooper] unit and the training of its personnel. From October to November 1940, about two hundred personnel were selected from the whole army for the first group [of the unit], and in December, the Training Department [for paratroop operations] of the Army Hamamatsu Flying School was established at Mikatagahara (Shizuoka Pref.). The first director of the department was Lt. Col. Kawashima Keigo (graduate of the 33d class).

After a ground training of about one month at the Army Toyama [Training] School (school for gymnastics and physical training) in Ushigome, Tokyo, Lieutenant Colonel Kawashima and other leaders carried out basic trainings in descending, making use of a paratroop [experience] tower of the Yomiuri Amusement Park at Futako Tamagawa.

Following them, the training assistants, too, completed these trainings in Tokyo, after which they moved to Mikatagahara and started flights to master the skills.

The paratroop trainings of the key leading officers were conducted using Fokker aircraft at first, and then with AT [Nakajima] and MC [Mitsubishi] aircraft, all from an altitude of about one thousand meters.

Since it was considered that Mikatagahara was unsuitable to smoothly conduct the training of a large number of personnel while keeping the plans secret, the Training Department was in May 1941 moved to Baichengzi in Manchuria. About four hundred men including those selected for the second [group] started training there.^(21, 34, 41)

Changes in the Expectations About the Southern Advance — The Army and Navy's Outline of Policy Toward the South

During the above period of operational preparations, IGHQ's assessment of the general situation with regard to [the advance toward] the South changed several times.

In late July 1940, when the Outline of the Main Principles for Coping with the [Changing World] Situation was decided on, it was expected that a situation where [Japan should] employ force of arms [to advance toward] the South at a favorable opportunity, namely when a German landing on the British mainland would have caused the fall of Britain, would arise relatively soon.

However, in that autumn, the German landing on the British mainland did not materialize. Moreover, after the Japanese Army's advance into northern French Indochina, the United States tightened the restrictions on exports to Japan, while U.S., British and Dutch economic pressure on Japan was gradually increased. IGHQ, particularly its Navy Department judged that, while [Japan] should speed up the build-up of its forces, [the decision to] use force of arms against the South should be made prudently. Even then, expectations still remained [in the Army] that major changes in the world situation, such as those caused by a German landing on mainland Britain, might occur in the spring of 1941.^(24, 35)

However, the situation in Europe in the spring of 1941 showed that a German landing on mainland Britain seemed rather difficult. Bolstered by U.S. produced and supplied aircraft, the Royal Air Force was recovering air supremacy over its mainland. The losses of the German Luftwaffe began to rise markedly.⁽²²⁰⁾

In the meantime, as the IGHQ [Army Department's] operational studies, particularly its comprehensive study of the overall southern operation, progressed, the [Army's] initial wishful, but not necessarily unlikely judgement that the United States and Britain were separable, turned out to be improbable. The department found itself in the situation that it had no choice but to agree to the Navy's view that the United States and Britain were inseparable.

The world situation after these changes was so markedly different from the assumptions made at the time of the decision on the Outline of the Main Principles for Coping with the Changing World Situation in the summer of 1940, that in mid-March 1941, Chief of Army General Staff Sugiyama warned [his staff] not to be taken up too much with the southern question.⁽²⁴⁾

After that, the IGHQ Army and Navy Departments kept examining [the situation], and on 6 June they decided on the Outline of Policy Toward the South. The purpose of it was to make the enlargement of [Japan's] aggregate national power for the sake of its self-preserva-

tion and self-defence the aim of the policy for the South and that in principle this aim should be accomplished through diplomatic means. Force of arms should only be resorted to if U.S., British and Dutch oil embargoes against Japan, or increased U.S. and allied pressure, should make the situation intolerable for Japan in terms of its national defense.⁽²⁴⁾

6. The Composition and Equipment of the Army Air Service

The Outline of the Composition of the Military Units

The Types and Components of the Unit

The organization of the Army Air Service generally corresponded to that of the Army. [The entire service] was roughly divided into three: administrative offices, schools, and military units, of which the latter were divided into air units and ground service units.

The air units were grouped into sections by their type of equipment such as reconnaissance aircraft, fighter planes, bombers, etc., while the ground service units were grouped according to their type of duty into units for airfield operation, intelligence, communications, navigation, meteorology, supply, repair, airfield construction, air routes, etc.

At the time of the opening of hostilities, squadrons, air groups, and air divisions formed successively from the bottom up the higher echelons. This system was adopted from 1937 onwards. Since the main force of the air units was in principle supposed to be shifted from place to place by air, [the number of] service personnel was kept limited to the minimum required for emergency services.

As the commanding units controlling [both] the air and ground service units together there were the numbered air force (*hikō shūdan* renamed *hikō shidan* from April 1942 onwards) and the independent air division, and again as a still higher unit the air corps (air army from June 1942 onwards) was formed.^(5,45)

The Air Unit Sections and Their Ratios

About right before the opening of hostilities, the sections of the air unit consisted of a strategic reconnaissance section (provided with strategic reconnaissance aircraft), a tactical reconnaissance section (provided with tactical reconnaissance aircraft), a direct support section (provided with reconnaissance aircraft to directly support [ground troops]), a fighter plane section (provided with fighter planes), a light bomber section (provided with light bombers or assault planes), a heavy bomber section (provided with heavy bombers), etc.

The ratios of these sections were an important factor in determining air armaments. Aviation developed from reconnaissance aircraft to fighter planes to bombers in that order, but whether to put more emphasis on fighter planes or bombers in the total air power mix was intricately related to other aspects such as employment methods and tactics as viewed by the high command, technology and production as viewed by the military administration, or other aspects such as training, replenishment etc.

As mentioned previously, from about 1937 to 1939, when the Army planned a major expansion of its air service, there was a remarkable progress in bomber development. Accordingly, in the plans of operations of both years, the emphasis in armaments was put on bombers (bombers would comprise 50% of the force, fighter planes 30% and reconnaissance aircraft 20%).

The ratios of the sections of the army air units employed for the southern operation at the time of the opening of hostilities, too, roughly corresponded to the above, and the ratios were [later] to be reexamined at every important stage of the operations, causing animated discussions.^(5, 39)

Air Groups and Independent Air Squadrons

In 1938, the former air regiment was separated into air units and ground units. Air groups belonged to the former, while airfield battalions, which will be mentioned below, and detached depots of aircraft depots, belonged to the ground service units.

This was the first adoption of the so-called "separation of air and ground [units]" of the Army Air Service. Its main goal was to enable air units to exert their power anytime anywhere by [rapidly] shifting by air.

An air group consisted of a headquarters and three squadrons under the command of an air group commander (a colonel or major). A fighter plane air group had squadrons consisting of twelve aircraft, while air groups of other types had squadrons consisting of nine aircraft. In addition, an air group other than reconnaissance air groups had one headquarter aircraft (for the air group commander) attached to it. Since these front-line aircraft were supposed to be able to operate at any time, reserve aircraft amounting to one third of the number of the front-line aircraft were supposed to be kept at each air group and rear reserve aircraft amounting to another one third at the aircraft depot. However, this was nothing but a formal rule in terms of formation, if anything, the actual number of aircraft always fell short of the regular number.

An independent air squadron performed its duty on its own, without being incorporated in an air group. It was more or less [the same as] a squadron in an air group with somewhat upgraded headquarters, commanded by a major or captain.^(5, 45)

Air Divisions

An air division consisted of a headquarters and two to three air groups. Some air divisions only consisted of fighter units and others were made up of a combination of groups of different types. In wartime, air groups in air divisions were flexibly combined each time [as necessitated] by orders of the high command, not by imperial military edicts, which established fixed formations. Because the total [air] strength was not sufficient, forces were frequently transferred and employed in units of air groups.

The commander of an air division was a major general or colonel. Air divisions consisting of fighter planes had a formation [consisting of] a headquarters, which enabled the air division commander to command in the air, while other air division headquarters had transport aircraft and communication aircraft, which made it possible to shift at a minimum by air.^(5, 39, 45)

Airfield Battalions and Airfield Companies

As previously told, in 1938 the airfield battalions were separated [from the air units]. In terms of composition, they were in principle supposed to support the air groups that had separated from the same air regiment by taking charge of the airfield operations, such as providing the air groups with servicing, supplies, quarters, provisions and guards. They were also supposed to flexibly provide temporary support for other air units that might occasionally fly

in. In other words, they were not only supposed to be capable of servicing the aircraft of the same type of the air groups they had been with, in a so-called "husband-wife relationship," but they were also supposed to be more or less able to deal with aircraft of other types.

An airfield battalion at the time of the opening of hostilities consisted of a headquarters, two servicing companies and one guarding company, and it was led by a major or captain.

An airfield company had its composition and functions compressed to about one-third the size of an airfield battalion. Usually it was assigned to a specific independent airfield.

The system to separate air and ground [units] was made on the basis of the operations on the continent, particularly in Manchuria. In principle, when the air groups in a husband-wife relationship were transferred for engagements to other fronts for a long period, [the partner ground service units] were supposed to follow them.

Whether this system [of separating] air and ground [units] would really work in the large-scale mobile operations in the South, where sea transport was indispensable, was about to be tested.^(5, 39)

Air-Ground Support Headquarters

The basic tasks of the air-ground support headquarters were to command the airfield battalions and companies, and in cooperation with the air divisions, assign them to duty at the airfield[s] in a certain area.

Although a colonel or a lieutenant colonel was assigned as commander, he was especially given the title of air-ground support headquarters commander, and in principle put under the direct control of the commander of a numbered air force, or the commanding officer at a higher level.

Other than supervising airfield battalions, the air-ground support headquarters were often assigned to set up airfields and other tasks.^(5, 9, 45)

Numbered Air Forces

A numbered air force consisted of air divisions, air groups under its direct control, air-ground support units, and units in charge of intelligence, communication, navigation (to guide aircraft in the air), meteorology, supply, repair and other tasks. Put under the full control of the commander of an air corps, an area army, or a higher level of command, it took charge of the air operations on one front. In other words, a numbered air force was a command unit to [control] in a unified way the various units separated into air and ground units.

In April 1942, numbered air forces changed in name (*hikō shūdan* → *hikō shidan*),* and their commanders became lieutenant generals appointed by the emperor.^(5, 9)

Air Corps [*Kōkū heidan*] (Air Army [*Kōkū gun*]/Theater Air Force)

An air corps had existed in Manchuria [from] before the opening of hostilities. Consisting of a numbered air force and the units under its direct control, the air corps was itself put under the full control of the Kwantung Army commander. In June 1942, the air corps was renamed air army, and simultaneously more air armies were formed in mainland Japan and in the southern areas, too. Their fundamental tasks were to take charge of operations in one area

* To maintain consistency with the previously translated volumes we kept the designation "numbered air force."

under the full control of the commander of the area army or a higher level of command. Generals or lieutenant generals were appointed as commanders of the air armies by imperial decree.^(5, 9, 45)

Preparations for the Aeronautical Technology War

The Army's interest in new technology was relatively keen, and in the later years of the Meiji period (1868-1912), the Army enthusiastically studied balloons and aircraft. However, it had to totally depend on foreign technology. In the beginning the Army followed the example of France, and after many twists and turns, it made use of the example of Germany, the United States and Italy, too. [However,] technologically Japan could not catch up easily with Europe and the United States.

Most Japanese military aircraft were designed and manufactured by private companies. Needless to say, the Army specified the performance requirements based on its needs in terms of operations and its assumptions about the advances in technology. Around 1933, the Army drew up the Outline of Research on Air Armaments, which was to be used as a guideline. This outline was coordinated by a committee made up of representatives of the Army departments and sections concerned, and by order of the war minister, the chief of the Army Aviation Headquarters requested private companies to research and produce prototypes in conformity to this guideline. Although the competitive production of prototypes was continued between private companies until around 1935, the competitors in aeronautical technology, which had from the beginning required governmental support, were short in resources at that time, so the competition was eventually called off.

The center of aeronautical technology in the Army was the Technology Department and its related subdepartments within the Army Aviation Headquarters. The Aviation Headquarters was established in 1925, from which, in 1936, the Army Aero-technical Research Institute was separated and subsequently expanded in 1940. While its institutional structure was gradually strengthened, lack of experience made it difficult to upgrade its contents, and there was a lack of senior technology officers.

Although Japanese aeronautical technology had gradually started pioneering its own ways in the beginning of the Shōwa period [late 1920s], it showed apart from a few exceptions hardly any originality. As before, foreign technology continued to be introduced. However, the international situation after the China Incident gradually made the introduction of [new] technology difficult.

Aeronautical technology was making rapid progress. The major powers competed against one another, striving to improve their current models or develop state-of-the-art aircraft. Being superior or not had an immediate, decisive impact on victory in air operations. It really was a competition in technology and could be called a technology war.

Its core element was a competition in aircraft performance (including armaments), namely, the competition in upgrading the aircraft of the air units. And some other related problems had an impact on it.^(5, 46)

Air armaments were the fruits of a country's technology. Japan, too, implemented various policies to concentrate the technological strength of the military, governmental and private sectors, however, it was not possible to produce an immediate effect. Regrettably, Japan lacked the underlying technological strength, and its technological foundation was weak.

Aircraft Types, and Armaments and Munitions (*See p. 402*)

Army Aircraft Right Before the Opening of Hostilities

The army used the following aircraft right before the opening of hostilities:

Fighter planes	Type-97 Type-1
Light bombers	Type-97 Type-98 Type-99 twin-engine
Assault planes:	Type-99
Heavy bombers:	Type-97 Type-100
Reconnaissance aircraft:	Type-97 strategic [reconnaissance plane] Type-100 strategic [reconnaissance plane] Type-99 tactical [reconnaissance plane] Type-98 direct support [plane]

In the above designation, "Type-97" meant that its official adoption [as army aircraft] was decided in 1937 (the 2597th year of the Imperial reign), "Type-98" meant that its official adoption was in 1938, and the rest in the same manner.

The main army aircraft at the time of the opening of hostilities were Type-97, which were designed around 1935 for use on the continent, particularly in Manchuria. This was the root cause of its short combat range and insufficient fighting performance over sea.^(5, 46)

Aircraft Armaments and Munitions

Until about 1937, army aircraft were mainly equipped with 7.7-mm [aircraft] machine guns (Type89 fixed and flexible aircraft machine guns), [the former of] which was modeled after a Vickers aircraft machine gun employed by the British air forces. About 1938, some aircraft were equipped with 7.9-mm [aircraft] machine guns (Type98 fixed and flexible aircraft machine guns), built on the basis of the Rheinmetall [aircraft] machine guns employed by the German air forces.

Around that time, the major [Western] powers were already eagerly increasing the caliber of their [aircraft] machine guns, however, the Japanese Army was reluctant to do so.

As for aircraft armaments, rapidity of fire, accuracy rate, amount of bullets carried, easiness of handling, impact on the aircraft control, etc. were basically considered of greater importance than the effect of a single bullet, even though that was considered important as well. At that time, the mainstream opinion within the Army fighter units followed and stressed the precedent of agile, single-aircraft dogfights, while shunning heavy equipment such as machine guns or cannons with larger calibers, since it carried the risk of making the aircraft slow and heavy.

It was [only] in 1941 that the Army adopted the 12.7-mm [aircraft] machine gun (Ho-103), which was mounted for the first time on Ki-43 (Type-1 fighter planes).

Around that time, aircraft equipped with 20-mm machine guns already began to appear not only among the aircraft of the major [Western] powers but also among the fighter planes

of the Japanese Navy. Nevertheless, it was not until 1943 that the Army adopted the Mauser-type 20-mm [aircraft] machine gun of the Luftwaffe.^(5, 46)

The above history of aircraft armaments was emblematic of the predicament of the development of the Japanese Army Air Service. Almost all [aircraft] armaments were imitations of foreign examples, and there were problems with the system of research, design, screening and decision-making on the official adoption of such aircraft armaments, as well. Until about 1937, the Ordnance Administration Headquarters (an institution in charge of the research and manufacture of surface weapons under the control of the war minister) had taken charge of everything.* Although the screening [of aircraft armaments] was then placed under the control of the Aviation Headquarters, the other processes remained unchanged. The intention was that the expertise of the Ordnance Administration Headquarters,* which had a long tradition in procuring surface weapons, should also be put to good use in the field of aircraft [armaments]. However, the habit of not easily changing surface weapons, once they had been officially adopted, tended not to follow in the wake of the ever progressing advances in aircraft technology, which led to ceaseless arguments over the armament [procurement] system between the aeronautical and surface departments.

For the Ho-103, three types of bullets, i.e. normal, armor-piercing and incendiary bullets were available; the armor-piercing bullets were of two types, the Ma-103, fused fragmentation bullets (13-mm high explosive prototype bullets) and the Ma-102, fuseless fragmentation bullets. The latter made use of explosion on impact, which was unique to the Japanese Army.

The types of bombs used by [Japanese] Army aircraft before the opening of hostilities were fragmentation bombs to give damage, including fatal damage, to men or horses (15 kilograms and 50 kilograms), armor-piercing bombs to destroy facilities (30 kilograms, 50 kilograms, 100 kilograms, 250 kilograms, 500 kilograms and 1,000 kilograms), incendiary bombs (50 kilograms), etc. It is worth noting that [the Army] did not specifically take attacks on naval vessels into account.^(46, 47)

Equipment for Intelligence, Communications and Other Purposes

Before the war, the [Army] air intelligence unit in charge of predicting enemy aircraft attacks had no radar equipment. Since its establishment in 1938, the unit did not operate beyond the limits of its audio-visual capacities, using telescopes and acoustic locators.

In 1936, the Army started on the study of radar, and in February 1939, the radio wave reflection of an aircraft was for the first time captured at the training grounds of Kanemaruhara (Tochigi Prefecture). In 1940, the prototype of a device called Radio Wave Guarding System A was developed. The device was to give a signal when an aircraft crossed [the space] between a transmitting and a receiving station located at an appropriate distance, [causing abnormalities] in the curtain of radio waves. However, it was impossible with this method to detect enemy aircraft at a far distance. It was in the autumn of 1941 that (two) prototypes of a device called Radio Wave Guarding System B, which used pulse waves, were successfully

* The Ordnance Administration Headquarters as such was actually not established until October 1942, when the Ordnance Bureau of the Ministry of War, the Army Technological Headquarters, and the Army Ordnance Headquarters were merged into one. The Army Ordnance Headquarters had been established in April 1940 by merging the Army Arsenal and the Army Ordnance Depot. See Vol. 87, p. 337 (in the Japanese text).

made. However, the initial equipment had so many breakdowns and was so difficult to handle that it was not used in the southern invasion operation.^(48, 49)

It may be said that the importance of communications in aviation was recognized [for the first time] by the Army in the revised, scaled-up, plan of military preparations of 1939. With the aim to bring the special features of aviation communications into full play, and in particular to improve on-board communication devices as much as possible, the aviation communications [sector] was separated from the communications [sector] between the ground [units]; the research and production of equipment was assigned to the [Army] Aviation Headquarters, while the training of personnel was assigned to the Inspectorate General of Army Aviation (at the Army Air Service Signal School, etc.).

However, the development of on-board radio sets did not make as much progress as expected. The Type96 Tobi Mark2 radio set fitted on Type-97 fighter planes barely allowed telephonic communications at a very close range, and the Type99 Tobi Mark3 radio set, developed in an attempt to improve its predecessor, did neither show great progress nor improvement. Despite a considerable expansion of its communication range, even the Type4 Tobi Mark3 radio set, which was developed after a series of prototypes and was fitted on Type-1 fighter planes and later aircraft, could still not overcome the fact that it frequently tended to break down. This was due to the general weakness of Japanese technology, however, it was also directly due to the fact that, despite its lack of superior [aircraft] engines, [the Army Air Service] strongly felt that flight performance could beat everything, and demanded the aircraft radio sets to be light and small in the extreme.

As for the ground radio sets for [communication with] aircraft, the Mark1 Radio Set for Aircraft [Communications] (fixed; 1 kilowatt), which was officially adopted [as Army equipment] in 1939, and the Mark2 Radio Set for Aircraft [Communications] (for mobile use, 200 watts) appeared, which enabled both ground-to-ground and ground-to-air communications over long distances (1,000 kilometers or more) and middle distances (several hundred kilometers).

From 1940 onwards, the Chi Mark3 Radio Set (for mobile use; 50 watts) was officially adopted to be used by the [air] intelligence units on the front line and by paratrooper units.

All in all, the wireless radio sets for ground use were passable, and the wired communication equipment was nothing special.

As navigation equipment, direction finders to be used on the ground and by aircraft were [also] officially adopted and used by some heavy bombers.

Although research on blind landing equipment was underway, it did not reach the level of practical use; the capabilities for instrument flying were poor, too.⁽⁴⁶⁾