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KAIGUN—THE IMPERIAL JAPANESE NAVY 1868-1945*

Frederick J. Milford

Japan went from a feudal state in 1868 to a modern power willing to challenge the United States in just over seventy years. The Imperial Japanese Navy, *Nihon Teikoku Kaigun* most often simply *Kaigun*, was an intrinsic part of this evolution and in many ways it illustrates some of the intricacies of that evolution. This is in itself interesting, but the IJN was annihilated, not just defeated, between 1941 and 1945. The prospect of resounding defeat can be seen in the pre-WW II history of the Japanese navy[1]. Hindsight is always closer to 20/20 than foresight, and with that caveat I would like to look at some aspects of the evolution of the Imperial Japanese Navy (IJN). Starting from a rag-tag collection of eleven ships, 1 armored ram, 1 gunboat, 1 corvette, 4 paddle ships and 4 old sailing vessels, wich were captured or loaned by loyal clans it emerged after WW I as the world's third most powerful navy. By 1941 it consisted of 10 carriers, 11 battleships, 18 heavy cruisers, 20 light cruisers, 111 destroyers and 64 submarines and was, by some standards, a larger force than all the Allies together had in the Pacific. By the end of WW II the number of surviving ships in the IJN was smaller than the number of aircraft carriers in the United States Navy. I would like, in particular, to look at the pre-war history of the IJN and at its annihilation during WW II with a view to seeing where the seeds of defeat were sown. A lot will be left out or mentioned only briefly, however, you will soon be able to read the book (768 pp) and make your own judgment..

DEVELOPMENT 1869 to 1941

The feudal system of Tokugawa Japan collapsed in 1868 and the Meiji restoration reestablished the Japanese Empire. The Imperial Japanese Navy came into existence in 1869 and in 1870 it was the motley collection of ships mentioned above. Manning was equally unprepossessing. Japan had no tradition of naval power. The Navy had no infrastructure. Japan could provide no major industrial backing. The doors to the west were, however, open. Japan could take advantage of western naval thought and technology without slow and painful indigenous development. This "catch-up" concept was implemented brilliantly. As a first step a British naval mission was invited to help organize and train the IJN. LCDR Archibald Douglas RN and 33 others were in Japan from 1873 to 1879 teaching at the new naval academy and guiding the organization and development of the IJN.

THE FLEET AND TECHNOLOGY

The original eleven ships of the IJN ranged from 140 tons to 1987 tons, totalling 10,175 tons, and were mostly armed with muzzle loading guns. The navy grew to 19 ships by 1880, 30 by 1890 and 40 ships of cruiser size and larger and 12 destroyers by 1900. To appreciate this growth, one must note that sixteen ships had been discarded and that among the forty ships of the 1900 fleet were two modern 12" gunned, 18 knot, 15,000 ton battleships--each had a larger displacement than the entire 1870 fleet! Above all the entire fleet was kept seaworthy and fully operational. The Imperial Japanese Navy had gone from nothing to one of the ten most powerful navies in the world in just thirty years. After World War One, the IJN clearly ranked third and that position was institutionalized by the Washington and London Naval Arms Limitation Treaties, which George Hading told us about a few years ago. This is a remarkable

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* David C. Evans and Mark R. Peattie "Kaigun: Strategy, Tactics, and Technology in the Imperial Japanese Navy, 1887-1941", Annapolis US Naval Institute Press was published in November 1997. The title of this paper and much of the content are taken from the book. Specific comments, however, should not be blamed on Evans and Peattie without consulting the book.

[1] This is an important insight provided by Peattie and Evans.

record of growth. To my knowledge the only comparable record was the growth of the US "New" Navy from 1884 on, but that started from a base of naval traditions, a residual infrastructure and many other advantages..

As the navy grew, a shipbuilding capability was developed,building first small ships, then cruisers using imported material and finally, between 1905 and 1909, the battleship *Satsuma*, the first to be designed and built in Japan. Shipbuilding, however, was plagued by an insidious problem--inadequate know-how, that is inadequate experience with what works and what doesn't, and it seems that the lack was not recognized. As a result some ships capsized, others had inadequate strength and many required significant modification to serve their purposes. In fairness, some ships designed and built for the Japanese navy by western shipyards were not very good either and making mistakes was part of engineering in the early twentieth century. Further, the problems were corrected as they were uncovered, but the underlying problem remained.

In subsystems and other smaller scale naval technology one sees a similar "catch up" methodology. Torpedo warfare was recognized as important in the early years of the IJN. The Japanese development of torpedoes was an outstanding success. Foreign built torpedoes were acquired, copies were manufactured under license and finally indigenous designs were developed. The latter included the enormous 24" x 30' Type 93 oxygen torpedo which wreaked havoc on the Allied fleets early in WW II. This was arguably the best straight running torpedo ever produced. The Japanese navy also pioneered naval aviation. *Hosho* was the first ship[2] built from the keel up as an aircraft carrier. Naval fighter aircraft were originally imported, then produced in Japan to designs with heavy western heritage and finally entirely designed and built in Japan. The first purely Japanese naval fighter was the Misubishi A5M, Claude, the predecessor to the famous A6M, Zero. The Zero was a fantastic aircraft--fast, maneuverable, long ranged and heavily armed. It was a fearsome opponent, but it was an endpoint rather than a milestone. Performance in selected areas had been purchased by ignoring or sacrificing performance in other areas--survivability and durability were poor, there was essentially no growth possibility and simple mechanical strength was lacking in some subsystems.

The evolution of Japanese aircraft engines showed similar features. The first were imported. These were followed by licensed manufacture and modification of foreign designs.. Finally indigenous designs, in some cases outstanding, emerged. These outstanding engines were all relatively small. For a variety of reasons, Japanese experienced great difficulty in extending their success to engines in the 2000 hp category.

One sees from these examples a pattern, perhaps a strategy, for achieving first technological parity and then superiority. The paradigm consist of three phases:

- Import- Buy or have made the best that can be obtained from single or multiple foreign sources.
- Copy and Modify- Select the best of the imported materiel and acquire licenses to manufacture in Japan preferably with technical assistance. Modify to suit Japanese requirements or improve the product.
- Innovate- Develop indigenous designs, using domestic material and domestic production facilities.

This concept may or may not have been formalized, but it was widely practiced. For a nation just escaping for feudalism and entering a world apparently light years ahead, it is difficult even to imagine a better approach. Aiming for superiority based entirely on indigenous designs and counting on it to overcome a quantitative deficiency seems, however, to be a display of arrogance or ignorance and one

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[2] The Royal Navy had carriers a few years before *Hosho* was completed, but they were conversioins as was the USS *Langley*.

of the seeds of disaster. Further, the problem of maintaining qualitative superiority seems not to have been considered at all. In addition, the IJN ignored the less glamorous aspects of naval warfare. Large high prestige ships took priority, agility of aircraft took priority over the ability to survive battle damage and so on. Most astonishingly for an island nation, no provision was made for the defense of shipping or adequate logistics. More seeds of disaster.

PERSONNEL AND TRAINING

The new Imperial Japanese Navy quickly focused on the need for high quality well trained personnel. The Japanese Naval Academy was established in Tokyo in 1869 and moved to a purpose built facility at Etajima in 1888. A Naval Engineering School was established and the Naval Staff College (War College) came into existence in 1888. In addition, young officers were sent overseas to study, in naval schools if possible, but also in civilian institutions. The Imperial Japanese Navy provided an excellent education for its officer corps.

Education is not, however, the whole answer. The navy also needed good people to educate. To this end, competition was made the basis for admittance to the Naval Academy in 1871. This revolutionary step cast off the hobbles of class and region as bases for selection a very early date. There were always more applicants than there were places and the Japanese naval officer corps developed into one of the best in the world.

Education and training were strenuous for both officer candidates and enlisted personnel. Initially it was based on foreign models and implemented with foreign assistance. The Japanese gradually took over full responsibility and finally began to innovate. The programs that emerged were rigorous and produced intelligent, well educated, physically fit and highly motivated manpower for the Imperial Japanese Navy.

Fleet exercises were also of a high standard particularly in emulating combat operations. Fleet commanders were not afraid to risk collisions and even loss of life in training. One area where this paid off was in training for night torpedo attacks. Such attacks involve close maneuvering at high speed in the dark—high risk operations. The resulting level of confidence far exceeded anything found in other navies. In the Java Sea and the first several night battles in the Solomons (1942-43) the US saw the sharp edge of Japanese torpedo tactics and lost a number of ships, while scoring poorly against the Japanese forces. The combination of an outstanding torpedo (the Type 93) and excellent training produced a potent force.

But the best is the enemy of the good and this sort of training cannot produce good or even adequate personnel at a rate sufficient to compensate for wartime attrition and provide for expansion. The system was unable to cope with the demands of war but no new system was developed. The quality of Japanese naval aviators, and other personnel dropped precipitously early in the war and continued to decline through the war as attrition took the best. Kamikaze pilots did not need to be great combat pilots. Yet another seed of disaster.

STRATEGY AND TACTICS

Strategy and tactics are subjects of endless discussion, frequently marred by quibbling over definitions. For our purposes it is sufficient to think about grand or national strategy; naval strategy and very briefly tactics. In Japanese grand strategy one sees an evolution from initially protecting the home islands against invasion, through expansion into neighboring territory to establishing pre-eminence in the Western Pacific. Each of these requires different forces for implementation roughly as follows:

- Protect the homeland (Empire)--the presumed threat was invasion--1869-1879. Requires: fixed defenses and coastal naval forces
- Expand into neighboring territory-China, Korea 1880-1905--Japan coveted Korea and Taiwan both of which are closer to Kyushu than Hokkaido is. Requires: expeditionary forces and short range, blue water naval forces

- Establish and maintain pre-eminence in the Western Pacific 1906-1945. Requires: expeditionary/colonial forces, blue water navy, fleet train (transport/supply/repair).

Some of these requirements were well satisfied, but other were neglected.

The objective of naval strategy is either to support national strategy or beat the army. Japanese naval strategy exhibited both facets. In the IJN strategy developed as essentially defensive, at least until 1941, based on regionally limited, short duration wars. After the success of the Sino-Japanese War naval strategy was based on the concept that qualitative superiority could defeat quantitative superiority. These lines of thought led naturally to the concept of the decisive battle, one in which the enemy fleet was soundly defeated thus establishing command of the seas and precipitating defeat of the enemy's land forces and either surrender or favorable termination of the conflict.

At the tactical level concepts were more aggressive. The concept of better, especially longer range weapons dominated. Torpedoes were either fired from long range or carried by torpedo boats to close range, a long range tactic from the standpoint of capital ships. Gunnery focused on long range early engagement--hit the enemy before he can hit you. Command and control, though that combination of words had not been invented, were an important part of the tactical deployment of all naval forces. The Japanese record in this area is mixed. We will see some of these strategic and tactical ideas played out in the early wars in which the Imperial Japanese Navy participated.

NAVAL BATTLES IN EARLY WARS

There was surprisingly little naval warfare between the Napoleonic Wars and WW I. The battle of Lissa in 1866 was the first open sea battle after Trafalger (1805). It was also the first open sea battle between armored ships. The successful attack tactic was ramming! This aberration was food for naval thought for thirty years. The next significant open sea battle was the radically different Battle of the Yalu River (Yellow Sea). This was a gunnery duel fought in 1894 between a Chinese fleet consisting of two battleships and eight cruisers and the Japanese fleet of eight cruisers and two slow, old, but heavily armed ships. The small apparent Chinese advantage in ships was augmented by the fact that three of the new Japanese cruisers were very unsatisfactory. Thanks largely to a significant speed advantage, the Japanese prevailed, sinking five of the Chinese cruisers. The lessons the Japanese thought they learned were first that better, particularly faster, ships and better weapons could compensate for a numerical inferiority and second confirmation that a decisive naval battle could achieve control of the seas and so play an important and possibly decisive role in winning a war. Thus did Japanese naval dogma begin.

The next war to yield significant naval lessons was the Russo-Japanese War. The first lessons were derived from the attack on Russian ships at Port Arthur by ten Japanese destroyers each armed with two eighteen inch torpedoes. This was the first great torpedo attack in history. No ships were destroyed, but several were put out of action for months. The lessons were again superior weapons, in this case larger and faster torpedoes, produce superior results and a surprise attack by light forces on ships in their home port can inflict serious damage. What was missed was the need for an aggressive follow-up, Togo let a strategic victory pass him by. The second significant action involved six Russian battleships attempting to pass from Port Arthur to Vladivostok and their interception by four Japanese battleships and two cruisers. In the first phase of the battle the Japanese were outmaneuvered and left behind. Thanks to superior fleet speed, however, Togo was able to gradually close the range and take the Russians under fire at very long range. Witgeff, the inspired Russian admiral, was killed by a shell splinter and the bridge of the flagship was destroyed by a lucky hit. Surviving commanders were unable to reorganize and the Russians returned to Port Arthur or neutral ports in disarray. Again superior ship speed saved the day and for the second time a decisive battle assured control of the Yellow Sea. Apparently missed or ignored was the impact of Witgeff's death.

The Battle of Tsushima was the most important naval battle between Trafalgar (1805) and Jutland (1916). It has been studied endlessly. The battle involved just under forty Russian combatants, which had made their way from the Baltic to the Straits of Tsushima, and just over forty Japanese combatants

whose goal was to intercept the Russians and force a decisive battle. In the two day battle all but a few of the Russian ships were sunk, scuttled, captured or interned--a truly decisive battle fought to its logical end. Further the victory had been achieved relatively easily. In this case the Japanese navy had a small advantage in numbers as well as in quality. The decisive advantages were better ships and weapons, better operational control and better materiel condition. The nine month period between the Battle of the Yellow Sea and Tsushima had been well used by the Japanese to improve their tactics and command and control, and to repair their ships and generally enhance their fighting ability. Needless to say, the importance of quality and the decisive battle were not tarnished.

All of these experiences strengthened Japanese belief in the importance of the decisive naval battle and the concept that quality could overcome numerical inferiority. Several things were ignored. The wars were short and the naval battles were fought within 500 sea miles of Sasebo. The seas that were controlled, the Yellow Sea and the Sea of Japan, were small. Enemy incompetence was not clearly distinguished from Japanese brilliance. Some of the seeds of annihilation were generalizations from these victories.

ANIHILATION 1941-1945

In 1941 the Imperial Japanese Navy was a larger naval force in the Pacific than all the Allies combined. It had good ships, excellent weapons and outstanding officers and enlisted men. The Allies were preoccupied with the war in Europe, which was not going well. These factors suggested to some that war with the United States might be a reasonable way for Japan to gain control of the western Pacific and permanent preeminence in the Far East. Several factors, which were downplayed, militated against such a strategy, but we will defer considering them until later. It is worth noting now, however, that Yamamoto, commander of the combined fleet, felt that he could fight a good war against the United States for a year or two, but that he could not win a protracted war.

From the end of the Russo-Japanese War, the United States had been the hypothetical enemy for Japanese naval war planning just as Japan had been the hypothetical enemy for the Orange series of US war plans. Until 1941 Japanese planning was largely defensive, but that changed abruptly and US participation in full scale combat of WW II began following the December attack on Pearl Harbor. This attack was the third time Japan had begun hostilities without a declaration of war. The attack had, as some of us remember, a great emotional impact on the people of the United States. It caused an almost instantaneous end to residual isolationism. This mobilization of the national will against Japan and the Axis Powers in general was probably a more important consequence of the Pearl Harbor attack than the loss of battleships. Following the progress of the naval war in the Pacific takes nine of the fifteen volumes of Morison's "History of United States Naval Operations in World War II" and even a comprehensive summary the events is impractical in a short paper. For my purposes it is, however, possible to make a capsule summary of the Japan vs U.S. aspects of the naval war in the Pacific as follows[3]:

U.S. AND JAPAN AT WAR IN THE PACIFIC 1941-1945

- *Five carrier battles: Coral Sea, Midway, Eastern Solomons and Santa Cruz Islands in 1942; Philippine Seas 1944. The US clearly won at Midway and at Philippine Seas, the other three were draws.*

- *Twenty-two surface actions: two in the Java Sea, fourteen in the Solomons and four at Leyte Gulf. US won eleven, Japan won ten and one was a draw. Timing of wins and losses is important. Before*

[3] There was significant involvement of British, Dutch and Australian naval forces in the Pacific mostly in 1941 and early 1942. This is not reflected in the tables. Four RNN, two RN and one RAN ships participated in the battles in the Java Sea. Two RAN and two RNZN sships participated in the battles in the Solomons. The last surface action in the Pacific, which is not included in the table, pitted five RN destroyersa agains a Japanese heavy cruiser and her escorting destroyer.

November 1943 Japan won ten, the US won three and there was one draw. After November 1943 the US won the remaining eight.

NAVAL BATTLES			
	US Won	Draws	Japan Won
Carrier Battles	2	3	0
Surface Actions to 11/43	3	1	10
Surface Actions after 11/43	8	0	0

- *Submarine warfare was also important. US submarines made some 1600 war patrols. Japanese submarine operations were different, and the number of patrols seems to be unknown, however, I would estimate the number at about 600. The results in terms of ships sunk is striking. US submarines sank more than half of the Japanese vessels of all types that were lost during WW II. Submarines do many other things, but the IJN submarines seem to have done them relatively poorly. The small number of losses of US submarines reflect, among other things, the fact that the Japanese navy almost completely ignored protection of shipping and other aspects of ASW.*

SUBMARINE WARFARE		
US Submarines sank	201 Japanese naval vessels	1113 Japanese merchantmen
IJN Submarines sank	10 US naval vessels	59 US merchantmen
Submarine losses	52 US	129 Japanese

- *Other actions. In addition, there were amphibious landings from Makin (November 1943) to Okinawa (April 1945), other land attacks, convoy escort and ASW, mine warfare, an enormous number of resupply and support operations and many other important operations in which the US Navy participated. On average, US operations of these kinds were much more successful than Japanese operations from mid-1942 on.*

In the course of the war the Imperial Japanese Navy was annihilated. A comparison of what happened to the Imperial Japanese Navy and what happened to the US Navy is shown in the table.

	Imperial Japanese Navy			US Navy		
	Total	Lost	Survived	Total	Lost	Survived
Fleet Carriers	13	11	2	24	4	20
Battleships	12	11	1	27	2	25
Heavy Cruisers	18	16	2	30	7	23
Light Cruisers	27	24	3	52	3	49
Destroyers	143	125	18	515	70	445
Destroyer Escorts	31	10	21	417	11	406
Submarines	180	129	51	317	53	264

Clearly the war did not go according to plan for the Imperial Japanese Navy—something went wrong! Very simply

THE JAPANESE NAVY PREPARED FOR THE DECISIVE BATTLE BUT NOT FOR THE WAR[4]

[4] This is perhaps the most importan conclusion reached in the Evans and Peattie book.

The IJN was benighted by the naval victories of the Sino-Japanese and Russo-Japanese Wars and rather steadfastly sought the decisive naval battle that would win the war. This simple statement subsumes a multitude of items. In particular, decisive battle theory implies a short period of intense naval action fought on a come as you are basis. Two sub-factors of this line of thought are:

- Since the battle would be forced early, the war ~~would~~ be short, and there was little need to worry about shipping, production, development, replacem~~ent~~ manpower etc. This was compounded by a tendency to emphasize the glamour of battleships and carriers. The war lasted too long and all of these and other mundane but critical items became serious problems.
- Since it had been "demonstrated" that quality could overcome quantitative and Japan, had the best, the battles would be won. There's an old saying "Quality is good, but it is best in large quantity.", but apparently it was never translated into Japanese. Quality has many aspects and one can certainly argue that in many ways Japan did have the best at the beginning of the war. But this overlooks the fact that, for example, a whole new generation of US naval aircraft was being procured, the first radar was being delivered, acoustic torpedoes were being developed and all of this as of mid-1941! Japan was unable to accomplish any of these things and towards the end of 1942 lost whatever quality edge existed.

Success oriented strategy and aversion to adverse scenarios exacerbated matters by precluding planning for losses. The seeds from which these concepts and the ensuing disaster for the Japanese navy grew are apparent in the earlier history of Nihon Teikoku Kaigun.

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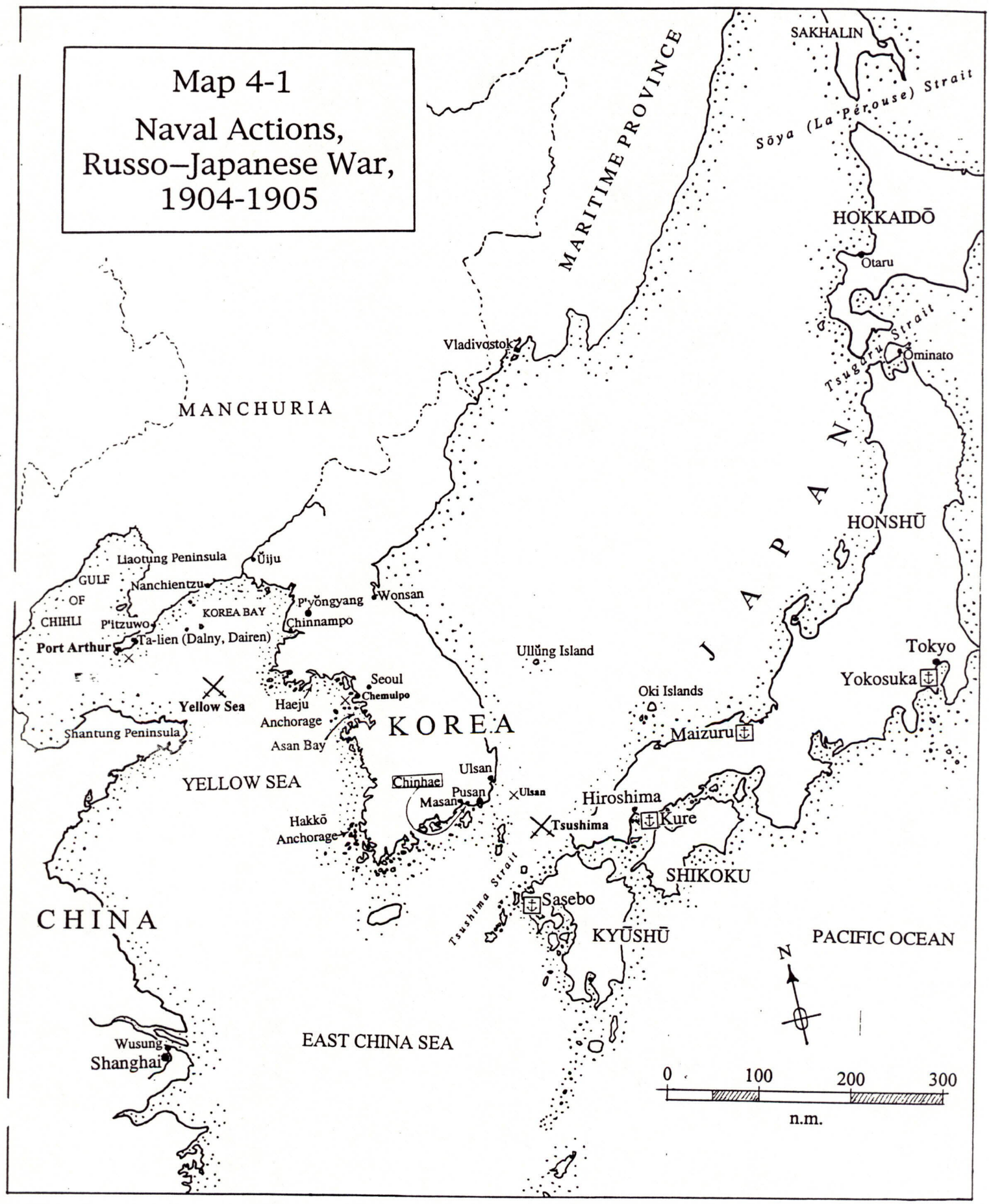
Map 4-1
Naval Actions,
Russo–Japanese War,
1904-1905
SAKHALIN
MARITIME PROVINCE
Sōya (La Pérouse) Strait
HOKKAIDŌ
Otaru
Vladivostok
Tsugaru Strait
Ominato
MANCHURIA
JAPAN
HONSHŪ
Liaotung Peninsula
Ŭiju
GULF
OF
CHIHLI
Nanchientzu
P'itzuwo
KOREA BAY
P'yŏngyang
Chinnampo
Wonsan
Port Arthur
Ta-lien (Dalny, Dairen)
Ullŭng Island
Tokyo
Yokosuka
Yellow Sea
Seoul
Chemulpo
Haeju
Anchorage
Oki Islands
Shantung Peninsula
KOREA
Asan Bay
Maizuru
Ulsan
YELLOW SEA
Chinhae
Pusan
Masan
Ulsan
Hiroshima
Kure
Hakkō
Anchorage
Tsushima
SHIKOKU
Tsushima Strait
Sasebo
CHINA
KYŪSHŪ
PACIFIC OCEAN
N
EAST CHINA SEA
Wusung
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100
200
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n.m.

CHEAT SHEET: U.S. AND JAPAN AT WAR IN THE PACIFIC 1941-1945

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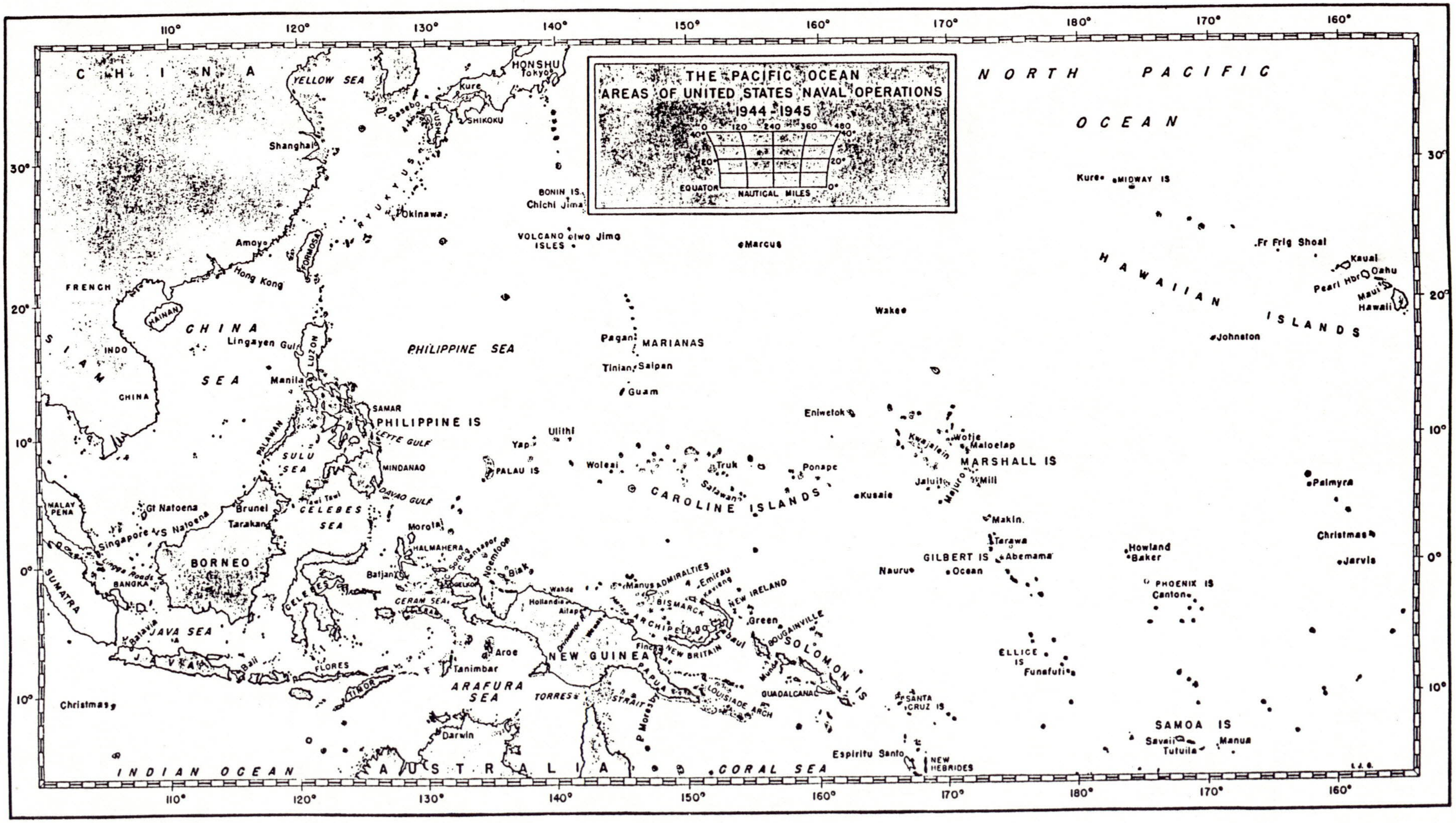
THE PACIFIC OCEAN
AREAS OF UNITED STATES NAVAL OPERATIONS
1944 - 1945
NAUTICAL MILES
EQUATOR
NORTH PACIFIC OCEAN
CHINA
YELLOW SEA
HONSHU
Tokyo
Kure
SHIKOKU
Sasebo
KYUSHU
Shanghai
RYUKYUS
Okinawa
BONIN IS
Chichi Jima
VOLCANO ISLES
Iwo Jima
Marcus
Amoy
FORMOSA
Hong Kong
FRENCH INDO CHINA
SIAM
HAINAN
CHINA SEA
Lingayen Gulf
LUZON
Manila
PHILIPPINE SEA
Pagan
MARIANAS
Tinian
Saipan
Guam
Wake
Kure
MIDWAY IS
Fr Frig Shoal
HAWAIIAN ISLANDS
Kauai
Oahu
Pearl Hbr
Maui
Hawaii
Johnston
SAMAR
PHILIPPINE IS
LEYTE GULF
MINDANAO
DAVAO GULF
PALAWAN
SULU SEA
Ulithi
Yap
PALAU IS
Woleai
Truk
Satawan
CAROLINE ISLANDS
Ponape
Kusaie
Eniwetok
Kwajalein
Wotje
Maloelap
MARSHALL IS
Jaluit
Majuro
Mili
Palmyra
MALAY PENA
Gt Natoena
Brunei
Tarakan
Singapore
N Natoena
CELEBES SEA
Tawi Tawi
Morotai
HALMAHERA
Sansapor
Noemfoor
Biak
BORNEO
Lingga Roads
BANGKA
SUMATRA
CELEBES
Batjan
CERAM SEA
Wakde
Hollandia
Aitape
Manus
ADMIRALTIES
Emirau
Kavieng
NEW IRELAND
BISMARCK ARCHIPELAGO
NEW BRITAIN
Rabaul
Green
BOUGAINVILLE
SOLOMON IS
Munda
GUADALCANAL
Makin
Tarawa
Abemama
GILBERT IS
Nauru
Ocean
Howland
Baker
PHOENIX IS
Canton
Christmas
Jarvis
ELLICE IS
Funafuti
SANTA CRUZ IS
Batavia
JAVA SEA
JAVA
Bali
FLORES
TIMOR
Aroe
Tanimbar
NEW GUINEA
Finsch
PAPUA
LOUISIADE ARCH
ARAFURA SEA
TORRES STRAIT
P Moresby
Christmas
Darwin
AUSTRALIA
CORAL SEA
Espiritu Santo
NEW HEBRIDES
SAMOA IS
Savaii
Tutuila
Manua
INDIAN OCEAN