

A Battle against Tradition: The Rise of Naval Aviation in Modern Japan

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Foreword

The maritime victory off Tsushima in May 1905 during the Russo-Japanese War was a milestone in modern naval history. The victory marked the beginning of a new era for the Imperial Japanese Navy. It also manifested a theory among officers all over the World of large vessels and giant guns as being the most important factors in naval warfare, a view which permeated international naval thinking at the turn of the century. The means applied and the results achieved in this decisive naval engagement paved the way for this theory focusing on large ships and giant guns in Japan, and eventually formed the foundation of the doctrinal core of the Imperial Navy and subsequently ruled out any alternatives as means of securing victory at sea.

This paper seeks to answer the question of whether or not the development of the Imperial Japanese Naval Air Wing, which began less than five years after the Japanese defeat of Russia, was crippled by a doctrine based on experience gained in the golden days of ships of the battle line. First, the paper will examine the emergence of a conventional Japanese naval battle doctrine, and subsequently answer the question of why the Imperial Navy became a surface-oriented force, and how it planned to engage an enemy and emerge victorious. Second, looking at what factors promoted this conventional doctrine, the paper will pose an answer to the question of why the surface doctrine remained prominent and virtually unchallenged, and, subsequently, how deeply this doctrine permeated officers of the naval air wing.

This paper cannot be exhaustive as David C. Evans and Mark R. Peattie's study of Japanese naval air power, *Sunburst*.¹⁾ It will show that although the Imperial Japanese Navy at a very early stage in the history of aviation began investigations into naval aviation, constantly surveyed its international development, and eventually developed an air wing that was probably the finest of its kind on the eve of the Pacific War, this very force was at odds with a much more malignant foe than its counterparts of the navies of the Allied Powers. That enemy was the power of tradition which ruled within the branch of the Japanese armed forces of which the air wing itself was a branch.

Evolution of a Doctrine

The theory that large ships and giant guns determined the outcome of naval battles emerged in the final decades of a century that saw no large-scale engagements at sea apart from Lord Nelson's defeat of the French off Trafalgar on October 21, 1805, and the Battle of Lissa on July 21, 1866, in the Adriatic Sea. The accelerating development in naval technology and the practices and theories of navies all over the world led to

the idea that large, heavy fleets were the acme of sea power. As this view gained acceptance in well-established forces, it swiftly took on the appearance of a tradition. Considering the novelty of the Imperial Japanese Navy as a military service in the late nineteenth century, however, it could hardly be called an institution of tradition. Tradition may be understood in the sense of organizational structure, institutional conduct and other elements of an institution, and may be based on precedent and established through experience accumulated over decades by successive generations of officers and men as in, for example, the British Royal Navy. It is therefore quite interesting how a tradition of doctrine could emerge so swiftly in a force so relatively new as the Imperial Japanese Navy. The Japanese who established the Imperial Navy were primarily trained by officers of the Royal Navy and were subsequently heavily influenced by the doctrines of this tradition-bound force. It is tempting to turn to these foreign instructors to look for a doctrinal source.²⁾ Yet, by the time an actual formulation of battle doctrine was achieved in Japan, the Imperial Navy had discharged most of the British and other foreign instructors. Further, Japan became an ally of Great Britain when the Anglo-Japanese Alliance was signed on January 30, 1902.³⁾ Thus, the emergence of a Japanese naval doctrine cannot be attributed to British influence alone as independent doctrinal development began to accelerate only after the Imperial Navy had seen victory in the Sino-Japanese War of 1894-1895.

The importance of sea power and the means to obtain it appeared in contemporary writings by naval authorities such as Alfred Thayer Mahan, Philip Colomb, S.O. Makarov, Julian S. Corbett, and others.⁴⁾ The American captain, Mahan, who published extensively on various aspects of naval history at the turn of the century, was particularly popular in Japan, where his publications were even brought to the attention of the Emperor.⁵⁾ His writings were also read in navies around the world and his view of sea power subsequently became internationally influential in the development of battle doctrines.

According to Mahan, sea power was to be secured in a battle between heavily armed forces to determine the superior party. The victorious power, having achieved supremacy at sea, would then intercept the mercantile marine of the defeated party and through its annihilation blockade the enemy, forcing surrender. Victory in the decisive battle at sea became synonymous with victory in the war itself.⁶⁾

This perception of sea power and the means to obtain it, later known as *Navalism*, caused the major naval powers to engage in an expensive race of naval construction. This race was accelerated further by the call from servicemen in the maritime forces for heavily armed and armored vessels as the means to comply with an evolving battle doctrine emerging in the wake of Mahan.⁷⁾ All over the world, naval officers concentrated their efforts on this particular way of thinking under a single-minded trust in the power of ships of the battle line — or simply battleships. This notion of large ships and giant guns as the determining factors in a decisive engagement soon became an international obsession and was considered the ultimate means for conducting naval warfare.

In the Japanese case, a number of successive events linked by interrelated causes contributed to the development of an especially strong belief in this doctrine. Tactical factors based upon battle experience that called for capital ships to guarantee victory in

maritime engagement, and strategic factors based upon international incidents caused a national cry for a grand navy. That navy would be centered on a core of capital ships to ensure national independence. Those events fueled the development of a Mahanian doctrine, as officers in the Imperial Navy pursued a perception of maritime supremacy as necessary for the survival of Japan as an independent nation. So thoroughly did the doctrine permeate the Imperial Navy that during the first decades of the twentieth century it became a *de facto* standard. High-ranking officers converging under the ensign of this standard considered other fields of naval technology as nothing more than auxiliary means of achieving victory in the decisive battle. Subsequently, they refused to deviate from the standards of a grand navy composed of large ships mounting giant guns, and thus paved the way for what was to be known as the ideology of big ships and giant guns — *taikankyohō shugi*.⁸⁾

Tactical Factors

The battle experiences that were used to formulate the doctrine in the Japanese navy were acquired primarily during the Sino-Japanese War and the Russo-Japanese War of 1904-1905. The engagements in these conflicts became important in relation to each other for the formulation of a doctrine as success in the former conflict laid down the foundation of success in the latter. Doctrinal theories deriving from victory in the Sino-Japanese War seemed to be confirmed when Japan emerged victorious in the Russo-Japanese War and would thenceforth remained unchallenged.

The first Sino-Japanese War saw but one large-scale engagement at sea. This battle occurred September 17, 1894, and is known in the West as *the Battle of the Yalu*. In this battle the Japanese Combined Fleet, though inferior in number as well as in guns, succeeded in defeating the older and heterogeneous Chinese Northern Fleet by a combination of homogeneously maneuverable vessels and efficient firepower and fire control.⁹⁾ The Japanese did not destroy the Chinese in the same absolute manner in which they would annihilate the Russians in 1904. However, owing to the victory and the subsequent raids on the Chinese vessels that fled the scene and reached Chinese or neutral ports, the Japanese achieved a Mahanian control of the sea in the region. This manner of victory impacted decisively the subsequent course of the war as the Japanese could now intercept Chinese mercantile maritime traffic as well as troop transports at will.

On February 5, 1904, the Imperial Navy was called upon again to defend the empire in a conflict over regional interests with Russia when it received orders to attack Russian shipping in the Yellow Sea and the Sea of Japan. Again, the navy became an important participant in a war that, like the first Sino-Japanese War, was fought overseas. Given that the main operations of this war also took place on the continent, the important duty of securing sea-lanes and shepherding transports to the war theater rested with the navy. Though at high costs, the navy answered the call successfully and engaged the Russian fleet deployed at Port Arthur and later the Baltic Fleet upon its arrival at the scene in May 1905. The successes resonated in the force for decades and were projected as evidence that fast-moving heavily armed vessels and armored vessels were the decisive factors for success in naval warfare. Most commonly, the annihilation of the Baltic Fleet off Tsushima on May 27-28, 1905, was brought forth at

the Naval Staff College as an example of the origins of the Japanese naval doctrine and served as a model for table-top exercises at this institution. It is beyond doubt that the destruction of the Russian force strengthened an existing view of the tactical importance of supreme firepower.¹⁰⁾

However, other aspects of the maritime scenarios contributed to the notion of the importance of superior firepower, too. During much of the war, the Japanese navy faced what Corbett referred to as “a fleet in being.”¹¹⁾ For Corbett, this meant a fleet which though not actively seeking engagement poses a threat by its mere existence. In facing such a fleet the adversary must assign forces and financial resources which might otherwise have been deployed differently to surveillance, with the objective of eliminating the threat posed at any given opportunity. Though the concept of a fleet in being most properly falls under strategy and thus ought to be treated below, superior firepower might have given the Japanese the tactical upper hand and allowed destruction of the opponent at once, thus avoiding the exhaustive siege of the Russian Pacific Squadron deployed at Port Arthur. Until that squadron’s defeat in early January 1905, the Russian vessels spent most of the time at port under the protection of shore batteries. The Russian navy limited the squadron’s operations to occasional sorties in half-hearted attempts at engaging or harassing the Japanese or attempts of escaping to Vladivostok. The Japanese thus became acutely aware of the power of a hostile fleet in being.

A third engagement that contributed to the Japanese perception of naval warfare was the Battle of Jutland fought between the British Royal Navy and the German High Seas Fleet on May 31-June 1, 1916. A little more than a decade had passed since the Battle of Tsushima, and naval aviation had been introduced in navies around the world. The utilization of aircraft in naval warfare had become an object of increasing research just as had the construction of vessels to carry and tender naval aircraft.¹²⁾ However, though submarines and aircraft were available on both sides, the Battle of Jutland was conducted in a conventional manner, as even the editors of the contemporary series *The Story of the Great War* acknowledged.¹³⁾

Though used, torpedoes did not affect the outcome, and during the battle, the British launched only one aircraft from a battle cruiser, and that merely for reconnaissance. Thus, the damages suffered by both sides were caused mainly by conventional gunfire.¹⁴⁾ This two-dimensional battle, fought between the largest modern yet conventional fleets that had ever met, would be the last of its kind. Ironically, this battle did not give either side the decisive victory under which it could claim a Mahanian control of the sea. The British suffered the heavier loss in personnel and material, but the discouraged Germans abandoned their challenge to British supremacy at sea and were content to remain a fleet in being for the rest of the war.

Though an ally of Great Britain, Japan played no active role in the Battle of Jutland. But under the provisions of the alliance, a number of officers served as observers on Royal Navy Ships and witnessed the battle. Their experiences cannot be labeled battle experience for the Imperial Navy itself. However, their reports, information obtained through the British Admiralty, news sources reporting on the war in general, and the media publicity surrounding the death of Lieutenant Commander Shimomura Chūsuke, who was killed when the cruiser *Queen Mary* blew up during the battle, all

drew much attention in military and civilian circles Japan.¹⁵⁾ Eventually, the outcome of the engagement and the fact that the German navy had not been defeated but continued to exist as a fleet in being strengthened the existing view among the Japanese of the need to gain true victory in the decisive engagement. Consequently, the Battle of Jutland influenced a new outline for naval engagements known as “Decisive Fleet Engagements” (艦隊決戦 Kantai Kessen) presented in October 1920 in “The Second Revision of Battle Instructions for Warfare at Sea” (第二改正海戦要務令 Dai Ni Kaisei Kaisen Yōmurei) compiled by the Navy General Staff.¹⁶⁾

Strategic Factors

One of the international events that caused a call for a grand navy in Japan took place exactly one week after the signing of the Treaty of Shimonoseki on April 17, 1895, following the Japanese defeat of China. Believing their position in China to be threatened, Russia, France, and Germany moved additional forces into Asian waters in the Triple Intervention, and on April 23, these three powers jointly advised Japan to return to China the Liaodong Peninsula acquired under the treaty. Isolated in the international political arena, war-exhausted Japan yielded to the advice of the three European powers. This intervention caused much resentment in Japan. Because of the Japanese inability to respond to the European challenge, the Chief of Naval Affairs Bureau, Admiral Yamamoto Gombei, drew up plans for a grand navy based on a core of capital ships calculated to be strong enough to repulse any contemporary theoretical maritime threat dispatched against Japan.¹⁷⁾

Though not following so quickly on the heels of victory as did the Triple Intervention of 1895, third-party maneuvers in the post-Russo-Japanese War period likewise caused anxiety in Japan and renewed the calls for a grand navy to secure national independence. On December 16, 1907, the United States Navy dispatched its Grand White Fleet, consisting of a core of sixteen new battleships, on a circumnavigation that lasted until February 22, 1909. During this tour, which was a show of the United States’ naval power, the fleet called on, among other places, the port of Yokohama from October 18 to October 25, 1908. While the visit was supposedly set up to promote friendly relations between the two nations, it took place in the wake of the — from a Japanese perspective — inadequate American support in the post-war peace negotiations, the San Francisco School Board Incident in October 1906, and the Gentlemen’s Agreement of 1907-1908, all of which had strained Japanese-American relations and caused resentment in Japan. This show of force was a not so subtle reminder to the Japanese of the superior power of the United States. That message was delivered at a time when the national image of the enemy was changing. The *Imperial Defence Policy* (帝国国防方針 Teikoku Kokubō Hōshin) of 1907 had designated the United States as the Imperial Navy’s most likely future opponent.¹⁸⁾

Following World War I, the Washington Conference in 1921-1922 also nourished the Japanese conviction of the strategic necessity of a strong navy. This example of external pressure, however, had a much more serious effect on the Japanese navy itself than any of the previous external threats. When invited to join this international conference on disarmament, the Japanese government and naval authorities were struggling with new plans for further naval construction, which had been passed by the

Diet. This proposal threatened to bankrupt the nation. Nevertheless, some high ranking officers of the navy, including Vice Admiral Katō Kanji, felt that the conference and its aims were not merely a threat to the navy but a threat to the nation itself.¹⁹⁾ The treaty signed at the conference subjected the Japanese navy to restrictions imposed from abroad the 5:5:3 ratio in capital ships. This treaty left Japan inferior to its principal adversaries, the United States and Great Britain, who were both apportioned a ratio of 5.

These restrictions reinforced the Japanese faith that a navy centered on a strong core of modern and qualitatively superior capital ships was a strategic necessity for national security. Likewise, the treaty's restrictions strengthened the view of the importance of the decisive maritime encounter within the Imperial Navy. Any scenario other than such an engagement in Japanese home waters would leave the numerically inferior Imperial Navy at a disadvantage in a conflict with a power such as the United States. In 1923, a revision of the Imperial Defense Policy designated the United States as Japan's primary potential enemy. Japan would never be able to out-build, let alone keep up with, the United States, which could redirect its unlimited resources to war production in the event of a protracted conflict. The decisive engagement thus became an imperative.

Setting a Course

The Japanese development of a conventional doctrine revolving around a grand navy composed of big vessels grew from experience earned at a time when technological development made possible a realization of Mahan's theory. However, the building of a grand navy considered ideal from a doctrinal standpoint was constrained from across the sea even before it came to the drawing board. The Washington Treaty placed the decisive engagement in a new light and, consequently, made success despite inferiority an imperative, leaving out other options for continuous existence for the navy as well as for the nation in case of failure. Subsequently, the attention of the Japanese navy shifted from big vessels and big guns, which had become axiomatic means for winning, to the decisive engagement itself in which these vessels were — as a matter of fact — expected to take part.

What makes the doctrine interesting in relation to the Imperial Naval Air Force is the way it dominated the rise of the air wing. In 1903, Lieutenant Commander Akiyama Saneyuki lectured at the Naval Staff College in Tokyo on the influence on naval warfare of the advances in aviation technology and the subsequent need to pay attention to this development.²⁰⁾ In July 1909 the army and navy jointly established The Provisional Committee for Research on Military Air Balloons (臨時軍用気球研究会 Rinji Gun'yō Kikyū Kenkyūkai), and in June 1912 the navy formed The Committee for Naval Aeronautic Research (海軍航空術研究会 Kaigun Kōkūjutsu Kenkyūkai).²¹⁾ However, by this time, a doctrinal tradition that had its roots in the success of the Sino-Japanese War and the Russo-Japanese War was already gaining a foothold throughout the entire Navy. That a new concept within maritime warfare, evolving parallel to the formulation of the surface doctrine, had potential for the future as promised by the voices that spoke in favor of developing a strong air arm did not convince the adherents of the new, conventional, doctrine that other courses had also to be

considered. Thus, aviation was, and remained, subordinate to a new tradition.

Challenging a Doctrine

Though the conventional doctrine took deep root within the Imperial Navy, an awareness of the future possibilities of naval aviation also rose in the navy. Conventional surface warfare research continued to receive priority funding and manpower, but the Imperial Navy paid attention to international development in naval aviation and aviation in general. Aviation enthusiasts in the navy were marginalized from decision-making officers, but nevertheless voiced their opinion in various ways and in miscellaneous fora.

The first to catch the attention of the naval command was Lieutenant Commander Yamamoto Eisuke, who presented a written statement on aviation to his superiors in March 1909. Yamamoto's statement and the further discussions with high ranking officers the same year led the Imperial Navy to conduct research on naval aviation, send officers abroad for flight training, and gather information on aviation.²²⁾ A contemporary of Yamamoto, Lieutenant Engineer Nakajima Chikuhei, a member of the Committee for Naval Aeronautic Research, likewise filed a personal statement on aviation in January 1914, prior to being sent to France to oversee the construction of newly purchased aircraft and receive training.²³⁾ Whereas Yamamoto remained in the Imperial Navy and in April 1927 was appointed chief of the Naval Aviation Department, Nakajima retired in the summer of 1916 to engage fully in aeronautical research. He later founded the Nakajima Aeroplane Factory.²⁴⁾

Another zealous enthusiast was Lieutenant Commander Isobe Tetsukichi. He did not merely voice his opinion, he also built his own aircraft and succeeded in flying it eight months prior to the first official test flights of the Imperial Navy. Isobe was dispatched to China and later to Europe during World War I, where he and other Japanese aviators saw action and suffered casualties at the Western Front.²⁵⁾ Injured twice, once in a flight test accident at Tsingtao and later when shot down over Verdun, Isobe wrote a book on aviation warfare entitled *Sora no Ikusa* upon returning to Japan in 1918. He foresaw the deleterious aerial bombardments of Japanese cities that would take place approximately twenty-five years later.²⁶⁾ Ironically, Isobe had his book endorsed with the calligraphy of the Imperial Navy officer who symbolized the faith in the superiority of big ships and giant guns, Admiral Tōgō Heihachirō.

Aviation was also a reoccurring topic in the contemporary media. As early as 1910 an article warning against the future prospects of aerial attacks on naval facilities and vessels appeared under a pen name in the monthly periodical *Kaigun*.²⁷⁾ The naval journal *Yūshū* likewise carried numerous articles on aviation, and in 1929 a periodical devoted entirely to naval aviation, *Kaigun to Kōkū*, appeared. Like Isobe's prophetic publication, the first issue of *Kaigun to Kōkū* also carried the calligraphy of Tōgō. In other words, the Imperial Navy was not blind to developments in aviation. On the contrary, it was attentive to the development in other navies in particular. It sent students abroad for aviation training and invited foreigners to Japan to teach the art of aviation. The question, then, is what impeded this new concept in naval warfare and prevented it from achieving a strong foothold vis-à-vis the conventional doctrine of large ships and giant guns in Japanese naval thinking. Though not exhaustive, three

closely interrelated causes, all important to the development of new technology, disfavored the fledgling air wing and subsequently contributed to the power of the conventional doctrine: the state of technology, the economy, and, perhaps most important, the human factor.

Technology

The technological state of naval aviation at the time when naval officers began formulating a surface doctrine is important in considering its subordinate position compared to conventional thinking. The first launch of an aircraft from a ship took place in the United States on November 14, 1910. In Japan the first experiments in naval aviation took place in early November 1912, when the navy tested newly-purchased Maurice Farman and Curtis float biplanes off Oppama in Kanagawa Prefecture. A few days later the same aircraft took part in the Naval Review off Yokohama to show that the Imperial Navy was also introducing aviation.

However, aviation as such and naval aviation in particular was still in its infancy and the aircraft available were but light canvas-covered frames capable of only limited speed, endurance, and payload. Research and experiments did contribute to rapid development, but the fragility and instability of contemporary aircraft, and especially their dependency on weather conditions made it difficult for them to cooperate with the surface force. Consequently, the navy, which was already refining a doctrine that had proved successful, saw little use for an air wing. Except for an experimental deployment of aircraft in a number of inconclusive assaults on German possessions at Tsingtao between August and November 1914, aircraft were disregarded as offensive let alone defensive weapons, and for many years were assigned observation or reconnaissance tasks. In the words of Okumiya Masatake,

...In those days no one would willingly let their own daughter board an air plane. They were too fragile. On the other hand, everybody knew the steadiness and reliability of a war ship...²⁸⁾

Thus, for almost two decades aviation enthusiasts within the Imperial Navy, who praised the new technology's potential for future naval warfare, were but *rarae aves*. These men included Lieutenant Commander Genda Minoru, who was considered out of line with the prevailing doctrine or at best decades ahead of his time while a student at the Naval Academy, and Commander Ōnishi Takejirō, who later conceived the aerial suicide attacks of World War II. Both officers went so far as to claim that the battleship was obsolete.²⁹⁾ Climbing the ladder of promotion was the heretic, Captain Yamamoto Isoroku. He had seen action in the Russo-Japanese War and been a zealous student of naval gunnery, but changed his mind on heavy guns versus aircraft while he studied at Harvard University. Yamamoto was now firmly convinced of the potential of naval air power.³⁰⁾

The Washington Treaty forced the Imperial Navy to look for other means to close the gap on its adversaries. A result of this pressure was the carrier *Hōshō*, which set the navy's initial course for carrier aviation. However, not until full metal monoplanes with better performance than their predecessors began to appear in the 1930s did the

navy begin to seriously consider aviation as more than just an extension of observation and reconnaissance. The first aircraft to attract significant attention was the A5M2 fighter, which entered service with the Imperial Navy early in 1937 and was highly successful in securing Japanese air supremacy over China after the outbreak of the Second Sino-Japanese War on July 7 that same year.³¹⁾

The success of this aircraft created a new awareness of the potential of air power, which increased when a new fighter, the A6M2 — popularly known as the Zero fighter — was accepted by the navy in July 1940 and out-performed any aircraft opposing it. As a consequence of the success, an increase in the demand for aircraft occurred; production doubled in a year.³²⁾ Though the initial successes were achieved over land, the navy began to investigate how its air wing could be deployed to secure command of the air at sea. Eventually, these investigations provided the basis for the formulation of a carrier doctrine and the creation of an offensive strike force, the First Air Fleet, in April 1941. This air fleet spearheaded the attack on Pearl Harbor eight months later.³³⁾ However, the deployment of this new unit remained under the effective control of the Navy General Staff, which remained the bastion of faith in the trinity of big ships, giant guns, and the decisive encounter.³⁴⁾

The Economy

Though aviation received attention, another factor, the economy, would influence its further development, as first priority was still given to the construction of conventional vessels by the time the air wing revealed the potential of air power. In 1934, the United States announced a massive modernization plan for its navy. Feeling threatened in a post-treaty world after the abrogation of the limitations in 1936, the Japanese countered the American program with the Third Replenishment Program, to begin in 1937. Saturated by conventional thinking, this plan called for, along with several other vessels of various categories, the construction of two super battleships of the *Yamato* class. It did, however, also include two carriers of the *Shōkaku* class designed to work together with these battleships. Hostilities with China hastened implementation of elements of the program, and construction was well under way in 1938.

However, that same year the Imperial Navy was taken aback when the United States responded to a deteriorating international situation, aggravated for example by the Japanese sinking of the *U.S.S. Panay* in China in December 1937, by announcing a 20 percent increase in tonnage in a second plan for naval expansion.³⁵⁾ To counter this program, the Japanese Diet authorized the Fourth Replenishment Program, to begin as early as 1939. This time, however, the emphasis changed slightly, and though two additional super battleships were authorized, aviation was given hitherto unseen attention. Where the Americans had announced plans for 1,000 aircraft, the Japanese Navy, having finally realized the value of air power, countered with plans for more than 1,500 aircraft along with a fleet carrier and six escort carriers.

As the hostile atmosphere between Japan and the United States intensified, and the Japanese navy desperately tried to maintain its size relative to American force, the demand for aircraft, as well as the demand for surface oriented construction, encountered the insurmountable barrier of the limits of Japan's industrial capacity. The

Third Replenishment Program and The Fourth Replenishment Program had severely strained the country's shipbuilding industry, civilian as well as military, and as the navy became entangled in the Pacific War, these strains reached unsustainable levels.³⁶⁾

The reason was an increase in demands for changes in existing hardware that arrived from the battlefield parallel to a continuous flow of demands for development of new types of aircraft. This pattern applied to the entire complex of shipyards and aircraft factories and caused an enormous waste of industrial capacity given that standards, which would allow an increase in productivity, were never allowed to settle. In the case of shipping, the continuous demand for changes gradually created a navy of assorted vessels built for specific tasks. The aircraft industry saw a similar flow of demands for changes, especially for the Zero fighter, which was considered the main pillar of naval aviation.³⁷⁾ Eventually these demands took so much time that they slowed the development of the next generation of fighters, subsequently creating a vicious circle of increasing demands for improvements.³⁸⁾

In addition, the aircraft entire industry also suffered in terms of shortages in resources and production facilities. Not only did the massive armament build-up consume an enormous amount of resources, but when the United States imposed an embargo on the export of scrap iron to Japan on September 26, 1940, Japanese aircraft manufacturers found themselves short of supplies vital in aircraft production soon after the newest fighter had been accepted and deployed. The Fourth Replenishment Program was indeed the first program in which the significance of naval aviation was recognized. In terms of shipping, however, this program still gave overall priority to conventional construction, and the small number of carriers launched left carrier-borne aviation subordinate to a core of capital ships, with little room to prove its worth and in no position to challenge the supremacy of traditional thinking.

The Human Factor

Influencing and influenced by the factors mentioned above and equally important for the development and integration of the naval air wing was a third factor, the human factor. Asada Sadao uses the terms "disarmament-faction" and "anti-disarmament-faction" to describe two major groups emerging within the Imperial Navy due to the Washington Treaty, each trying to affect the subsequent development of the navy.³⁹⁾ The former group was, if only reluctantly so, in favor of the treaty, though it imposed inferiority upon Japan in terms of vessels. The latter group opposed the treaty. A third group, referred to by David C. Evans and Mark R. Peattie as the "Gun Club," may in the context of this paper be considered a group of traditionalists in the sense that its members, which were found in the two factions described by Asada, adhered to the surface doctrine and the decisive encounter.⁴⁰⁾ Though it is an important aspect of the power of institutional tradition, interpersonal relations and factionalism within the Imperial Japanese Navy is a surprisingly neglected issue.⁴¹⁾

Of the two factions, the disarmament faction was the least aggressive. It was, however, never as united and never achieved institutional power similar to the anti-disarmament faction. It originally emerged around the head of the Japanese delegation to Washington, Admiral Katō Tomosaburō, who died in August 1923 worn down by fatigue and cancer accelerated by the exhausting negotiations in Washington.⁴²⁾

However, due to its disunited character by the time of his death, the faction never developed a core and nobody replaced Katō Tomosaburō to rally these comparatively moderate parts of the navy in opposition to the anti-disarmament faction. Furthermore, the position of the moderates was made even more difficult by the aggressive agitation from powerful extremists in the opposing faction, who even resorted to assassination to further their course.⁴³⁾

The anti-disarmament faction counted the largest number of adherents to the doctrine of heavy artillery and decisive engagement and probably presented the biggest single obstacle to the development of the air wing. Centered on Vice-Admiral Katō Kanji, a confirmed Mahanist, this faction caused the Japanese abandonment of the naval treaties. During his career, Katō Kanji held important positions, such as headmaster of the Naval Artillery Academy and later of the Naval Staff College, which allowed him to influence a significant number of rising officers. Further, his appointment as Vice-Chief of Staff in the year following the Washington negotiations allowed him to influence the assignments of his former students. He succeeded in putting together a strongly Mahanian Navy General Staff that believed in Japan's sovereign right to build a navy to secure national independence and that such a navy should be composed of big ships mounting giant guns. This power base within the Navy General Staff was maintained during the 1930s through retirements or reassignments and subsequent promotions of officers loyal to the tradition.⁴⁴⁾ Technological achievements in aeronautics did change the perception of aviation among these traditionalists, but never undermined their confidence in heavy ships, which suffused the negotiations for the third, fourth and even the fifth replenishment programs.

Consequently, aviation in the Imperial Navy faced several obstacles both before and even after its worth was recognized. A web of highly influential factors such as those mentioned above made it difficult for the air wing to get the credentials needed for further expansion and development. The naval air wing did achieve success that redirected the attention of those in power, but not in time for it to develop into the powerful naval air force that proponents hoped for. The acknowledgement of the potential of air power, the allocation of resources, and a break away from a traditional way of thinking were all too late to establish an air force that could withstand a protracted war against an enemy that on December 7, 1941, could muster 8,000 pilots against 3,500 Japanese pilots.⁴⁵⁾

Inside a New Force

Given a strong adherence to the surface doctrine in the Imperial navy, an obvious question is whether or not doctrinal articles of faith, such as superior speed, fire power, and quality, which collectively subordinated the air wing, were transmitted to the air wing and worked against it from the inside as well. That aviators of the Japanese Naval Air Force were aviators in heart and soul is beyond doubt.⁴⁶⁾ However, the aviator corps, the aircraft, and the strategies all show clear traces of the prevailing conventional doctrine.

In the case of the aviators themselves, a number of factors had a crucial impact on the number of pilots serving in the naval air wing, and later disastrously affected the

ability to counter growing aerial opposition as the Pacific War intensified. First, aviator experience was not a requirement to be assigned command of a carrier in the Imperial Navy, and supposedly the only officer ever in command of a carrier, who had an aviator's education, was Yamamoto Isoroku. He had taken flight training on his own initiative when he served as second-in-command at Kasumigaura Air Group.⁴⁷⁾ Consequently, officers had little urge for pursuing aviator skills since it did not enhance their chances for being assigned a command and, furthermore, removed them from more career enhancing "at sea" billets, should they choose to undergo flight training.

Combined with the second factor, that is, the recruitment of pilots being limited to from within the service, there were annual difficulties in procuring the air wing a sufficient number of pilots. Still preferring quality over quantity, an obsession that derived from the restrictions of the treaties, a new enrollment system allowing for recruitment from outside the ranks of officers was introduced. However, this being equally rigid, only a limited number of prospective pilots were accepted for aviation training on an annual basis, and even fewer graduated as aviators.⁴⁸⁾ Consequently, the Imperial Navy opened the Pacific War with a corps of probably less than 600 well-trained outstanding pilots, men who proved to be irreplaceable as the conflict began to make incisions into the pilot body. The system that had fostered these outstanding pilots in an obsession with superior quality could not provide a sufficient quantity of replacements.

As for the aircraft, the Japanese navy had various types available at the opening of the war, which likewise told a story of their own. The Zero fighter is of particular interest, as it had characteristics obviously traceable to the dominant thoughts in the Imperial Navy. When keeping in mind that a fighter was considered a defensive aircraft as opposed to a bomber, the specifications for what would become the Zero fighter as outlined by the Japanese navy in 1937 spelled out a contradiction when considered in a contemporary technological context.⁴⁹⁾ The Zero fighter was to be a highly maneuverable plane with superior speed and long range, and it was to be capable of delivering the enemy a severe blow. In other words, the Zero fighter was to be a defensive aircraft — an interceptor — with the capabilities of an offensive aircraft — an intruder — true to the prevailing doctrine of the navy.

A design team headed by Horikoshi Jirō at Mitsubishi Heavy Industries in Nagoya created the Zero fighter. This aircraft flew from victory to victory during the first months after it entered service, and was superior to any of its contemporaries. However, as the tide of war turned and the Japanese had to take the defensive, the strategic shortcomings of the aircraft appeared. Lack of armour, which had been sacrificed to minimize weight, proved fatal to the pilots. As the war progressed and opposition grew stronger, a light but insufficiently powerful engine proved difficult to replace without affecting performance significantly. Further, the light construction of the aircraft made it less resistant to the fire of increasingly heavy arms carried by enemy aircraft.

In other words, the Zero fighters and the corps of aviators that manned them were well prepared for and performed well in swift, offensive and decisive combat, in accordance with the conventional, or traditional, doctrine of the Imperial Navy. However, neither the plane nor the corps of pilot was capable of enduring a protracted

war. That war gradually exhausted the air wing as it did the surface force.

A Battle between the Past and the Future

The story of the gradual destruction of the Imperial Navy in the Pacific War is well known and need not be recounted here. Though both the Imperial Navy and its air wing were well prepared when aircraft took off from the carriers early in the morning of December 7, 1941, they were not prepared to fight an enemy that would respond with inexhaustible power. Years of practice and intensive studies based on successes of the past had given rise to a strongly held belief in the Imperial Navy that a war could be won by delivering the enemy one decisive blow. However, in planning accordingly, the Japanese prepared for battle, not for war.

To look into the future and predict what is needed to win future wars is beyond the powers of any military force. From this perspective the Imperial Navy's plans for attempting to outrange the enemy with heavy artillery like the guns carried by the *Yamato* class battleship were justified in the light of their conception being based on what was known and what was subsequently considered to be a logical development. However, the survival of any military force, or any other given institution, must be based on the ability of its leaders to judge the development and potential of the means available, the strategies and tactics applied, and the very same leaders' ability to expeditiously adjust when necessary. The aim of this paper has not been to suggest that the outcome of the Pacific War would have been different had the Imperial Japanese Navy challenged its own assumptions and departed on a new course in search of alternative means. However, the obstacles which the evolution of the naval air wing encountered in Japan serves as an example of the unwillingness to depart from what is known in favor of what is new.

This phenomenon is not unique to the Imperial Japanese Navy in the early twentieth century. But the case of the naval air wing shows how conservative adherence to what is known such as a surface doctrine in a navy, can obstruct progress, such as the rise of an air wing. Subordination of novelty, for example the development of the Imperial Naval Air Force, may also be seen as the struggle for the survival of what is conventional. Failing to constrain new ideas that might prove superior to a given conventional, or traditional, standard would render the said standard obsolete. That failure would consequently force adherents of the old ways to step down and leave the rudder to the promoters of progress.

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