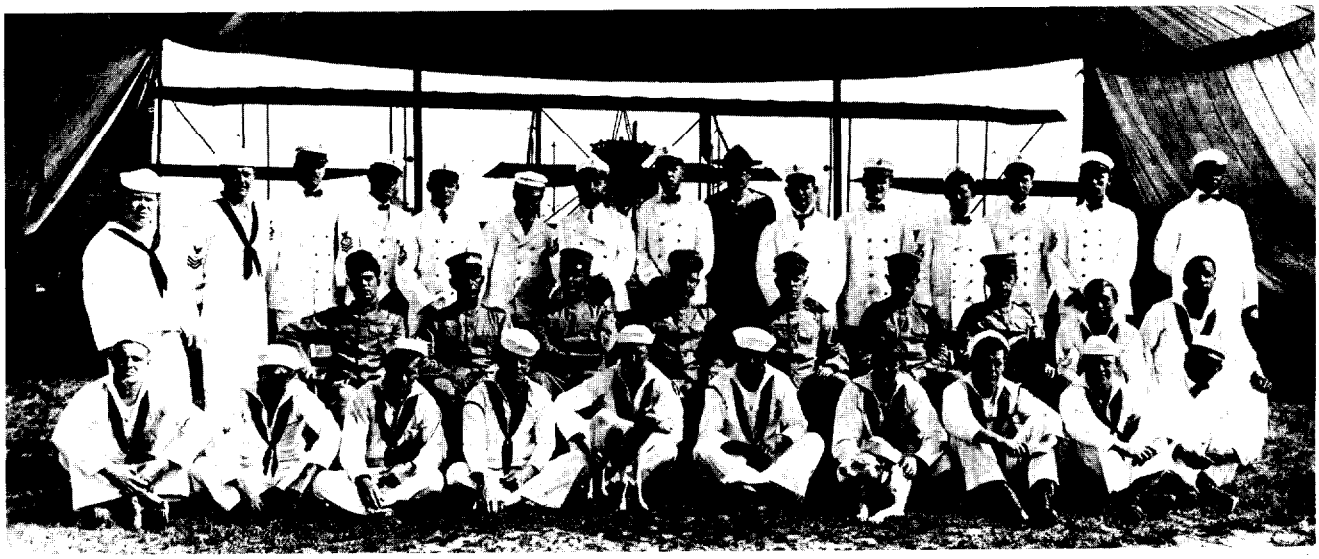


AT GUANTANAMO 1913 *fleet games, early Naval Aviators, in dark uniforms, are (L) Victor D. Herbster (NO. 4), Bernard L. Smith, USMC (6), Alfred A. Cunningham, USMC (5), John H. Towers (3), P.N.L. Bellinger (8), W.D. Billingsley (9), and G. deC. Chevalicr (7).*

Evolution of Aircraft Carriers

THE AEROPLANE GOES TO SEA

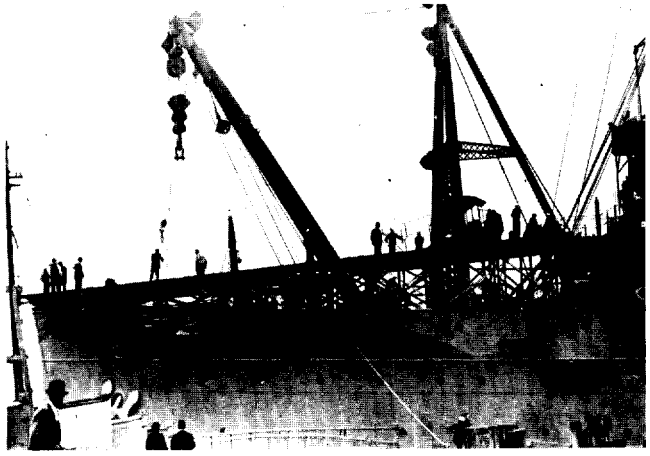
First Article in a Series

By Scot MacDonald

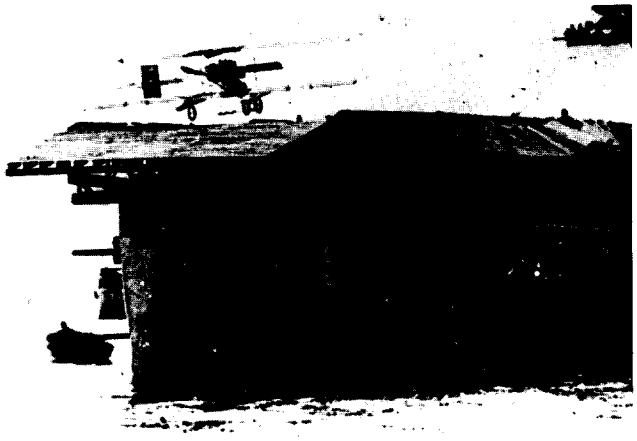
'The striking successes of carrier warfare in the Second World War are well known. Not so well known, but equally important in its own right, is the story of the evolution of sea-air power as a dominant segment in our military establishment. The formative years began almost with the birth of the aircraft itself, for the Navy was prompt to assess the value of the newest weapon in its arsenal.'—James V. Forrestal, SecNav, 1944-1947; SecDef, 1947-1949.

JULES VERNE, author of startling science-fiction during the last half of the 19th century, would have relished some of the sketches, plans, and ideas for "aeroplanes" that crossed the desk of Capt. W. Irving Chambers in 1910. Capt. Chambers had recently been assigned as Assistant to the Secretary's Aid for Material, and was given the collateral duty of liaison between the Navy and the swelling number of letter-writers who were eager to advance their own schemes or designs involving aviation.

Less than seven years earlier, the



ELY'S AIRCRAFT is *loaded aboard a special platform in USS Birmingham at Norfolk for first take-off from ships, in 1910.*



FIRST LANDING *at sea aboard a Fleet ship is made by Eugene Ely in 1911 aboard USS Pennsylvania at San Francisco. Vessel was anchored.*

Wright brothers had launched their pusher biplane into a brief but impressive flight. In the intervening years, advocates of aviation fought for recognition—and money.

At first, the Navy's interest in aviation was skeptical, if not openly discouraging. Twelve years before Chambers entered the picture, "The Joint Army Navy Board to Examine Langley's Flying Machine" was formed at the urging of Assistant Secretary of the Navy Theodore Roosevelt. A Navy member reported favorably on it to the General Board. But the Secretary, upon the advice of another Bureau in the Department, decided "the apparatus as [it] is referred to pertains strictly to the land service and not to the Navy."

On at least two important occasions between then and 1910, the Navy participated in or observed the fledgling "apparatus" in flight-in the 1907 Jamestown Exposition and the 1908 tests by the Wright brothers at Fort Myer, Va. But the Navy Board held to the attitude that "aeronautics" had "not yet achieved sufficient importance in its relation to naval warfare" to warrant Navy support.

It was not until 1910 that specific action was taken to alert the Navy to the potentials of aviation. In one incident, pioneer Glenn H. Curtiss successfully flew a prize-winning flight between Albany and New York. At its conclusion, he prophesied publicly:

"The battles of the future will be fought in the air. The aeroplane will decide the destiny of nations." And he added, "Encumbered as [our big war vessels] are within their turrets and military masts, they cannot launch air fighters, and without these to defend them, they would be blown apart in case of war."

The "battleship controversy" was on, puffed by publicity in a competitive press. Curtiss added weight to his argument by a series of tests in which he lobbed 15 out of 22 "bombs" into targets as large as and shaped like battleships near Hammondsport, N.Y.

There was a rumor that France was building an aircraft carrier. More to the point, a growing group of enthusiasts, the U.S. Aeronautic Reserve, asked the Navy to appoint a representative who would handle aviation matters. Since this civilian organization enjoyed semi-official status, Capt. Chambers was assigned to handle all correspondence on the subject.

Chambers' job proved far from easy. He was given no space to work in, no clerical help, no operating money, no authority, and precious little encouragement. Despite this, he later wrote to Lt. T. G. Ellyson, "I am endeavoring to start an office of aeronautics here in such a way that things will run smoothly without having them all get into one Bureau and made a mess of as was the submarine question."

In October 1910, the Navy was invited to send the corps of midshipmen to Halethorpe, Md., where an aviation meet was to be held. Instead, Chambers and two other officers were sent; for the Navy, Chambers, and Naval Aviation, it was a fortunate decision. There he met Curtiss and the Curtiss-trained pilot, Eugene Ely. At that time, the Navy had neither an aircraft nor a designated pilot. In a series of startling tests, Chambers, Curtiss and Ely demonstrated that this situation must change, and soon.

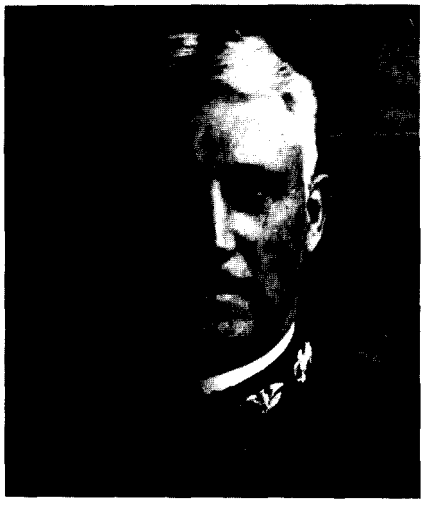
Several problems nagged Chambers. There was not conclusive proof, for instance, that it was feasible to launch and land aircraft at sea. And if there was to be any future for aviation in the Navy, it had to be demonstrated aircraft could be operated in, and were important to, the Fleet. Navy officials, military and civilian, were still apathetic about the program and gave it token and grudging cognizance—when they treated it with any degree of seriousness at all.

The first test was prompted by plans of a German merchant line to launch a plane from one of its ships in order to speed up its mail service. Chambers was appalled that such an advance might be made by a foreign power when the aircraft had been, in fact, developed by this country. He obtained permission to make a similar attempt at launching from the deck of the cruiser *Birmingham*. The Wright brothers were contacted, but they demurred; Ely was eager.

A temporary wooden platform was erected on *Birmingham* at the Norfolk Navy Yard. The German line, mindful of the Navy's experiment, moved

CAPT. W. I. CHAMBERS *was O-in-C of Naval Aviation jrom 26 Sept. 1910 until 17 Dec. 1913.*

CAPT. M.L. BRISTOL *relieved Chambers, served until March 1916, led aviation in Gitmo games.*



CAPT. NOBLE E. IRWIN *was next leader, held title, Director U.S. Naval Aviation in WW I.*

AT VERA CRUZ *aviation camp, Mexico, pilot Bellinger, right, poses with ground crew.*

up its target date in an effort to be the first to launch, and thereafter bask in the honors of claiming a significant aeronautical first. Luck was not with them, however. An accident aboard, caused by a careless workman, forced a delay of the experiment.

Chambers' plan went ahead without a hitch. On Monday, 14 November 1910, *Birmingham* pulled into the waters off Hampton Roads, in company with three torpedo destroyers. Aboard was pilot Ely and his biplane. Weather was unsatisfactory; visibility was dropped by a low cloud cover and there were light showers mixed with hail.

Ely was not discouraged. He slipped into the seat of his aircraft near three in the afternoon and signalled his handlers to let loose. The plane roared off the platform, took a dangerous dip when it left the platform, then swung into the air. In the take-off, the skid framing and wing pontoons of his plane struck the water, nearly aborting the flight. The prop tips were splintered and water splashed over his goggles. This brief baptism, and a steady rain, blanketed his vision and for a moment he swung dizzily in the air. Finally, he spotted the sandy beaches of Willoughby Spit and touchdown, ending a 2 1/2-mile flight.

The flight was an extraordinary success, but Chambers tempered his jubilance with native conservatism. Said he: "After [Ely] had demonstrated his ability to leave the ship so readily, without assistance from the ship's speed, or from any special starting device, such as that formerly used by the Wright brothers, my satisfaction with the results of the experiment was increased."

He admitted to pre-experiment perturbation: "The point of greatest concern in my mind, carrying out the original program, was the uncertainty of stopping the ship or changing the course in time to prevent running over the aviator in case he should land in the water.

"His demonstration, that an aeroplane of comparatively old design and moderate power can leave a ship in flight while the ship is not under way, points clearly to the conclusion that the proper place for the platform is aft. An after platform can be made longer, will not require a lessening of the stays of any mast and its essential supports can be so rigged as a permanent structure of a scout cruiser as to cause no inconvenience in arranging the other military essentials of the ship's design."

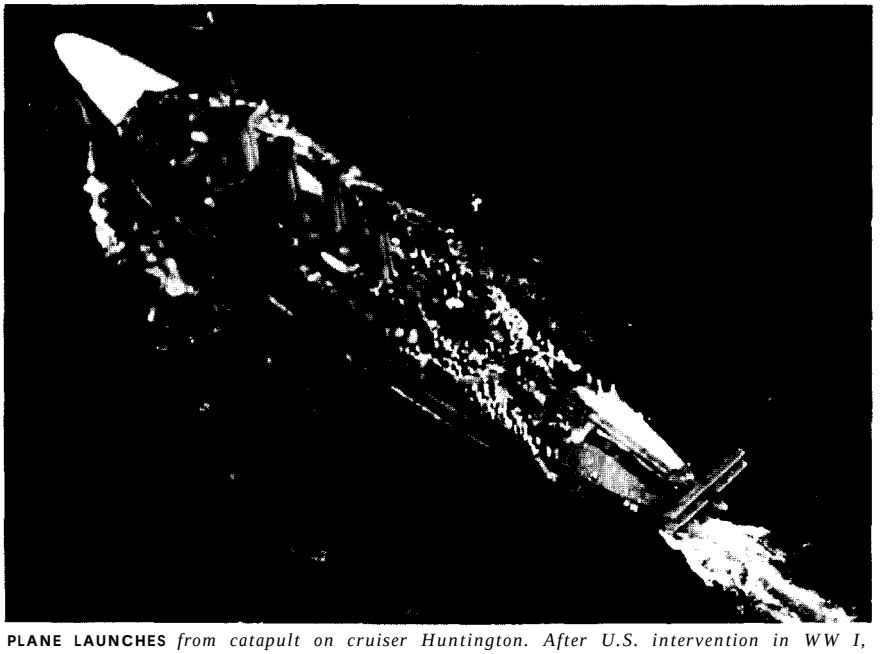
News of the feat inspired a New York Navy Yard worker to design a light movable platform for installation above the turrets in battleships for the purpose of launching aircraft at sea. Some Navy officials were enthusiastic, but Chambers was not quite so ready for this innovation. "Recognizing the practicability of Quarterman Joiner [E. C.] Keithley's idea," he wrote, he could "not contemplate the use of aeroplanes from turret ships in the immediate future."

Chambers' reasoning was cautious. As a result of the *Birmingham* flight, he did not think it necessary to launch aircraft into the wind. He had already gone on record as supporting the placement of the platform in the aft section of the ship and saw no reason to take a different stand. The safety of pilots was another determining factor: he feared they would be run over by the ship if the plane, forced to ditch, landed forward of the carrier.

Though Ely's flight opened a few Navy eyes, it did not loosen the Navy's purse strings. Glenn Curtiss, at this time, offered to teach a Naval officer the mechanics of flying, absorbing the expense himself. Chambers recommended the immediate approval of the plan and Lt. T'. G. Ellyson was ordered to Curtiss' San Diego camp. A series of experiments followed, in conjunction with the pilot's training.

Chambers, immensely pleased with the *Birmingham* launching, was now interested in proving it practical to land a plane aboard a Naval warship. Another platform was constructed at Mare Island and permission was obtained to install it on the armored cruiser USS *Pennsylvania.* While the vessel was anchored at San Francisco on 18 January 1911, Ely launched from a shore airdrome.

"There was never a doubt in my mind that I would effect a successful landing," Ely is quoted in a March 1911 Naval Institute *Proceedings* article. "I knew what a Curtiss biplane could do, and I felt certain that if the weather conditions were good there would be no slip."



PLANE LAUNCHES *from catapult on cruiser Huntington. After U.S. intervention in WW I, catapult was removed from all U.S. ships. Huntington spent war years in convoy escort duty.*

A simple arresting gear had been installed on the ship's platform. It consisted of 22 weighted lines stretched across the deck. On Ely's plane, a number of special hooks were fitted, designed to catch the lines as the plane made its rollout. In event the jury-rigged experimental arresting gear failed, a canvas screen was fitted to the end of the platform as an emergency stop.

The landing was, of course, a complete success, and Chambers was now armed with more ammunition in his battle to prove the feasibility of employing aircraft at sea. He vowed to take every opportunity to emphasize this fact to officers in the Fleet.

Just 31 days after the *Pennsylvania* landing, Curtiss taxied a seaplane from his North Island base to the same ship, then in San Diego Harbor. The plane was hoisted aboard, returned to the water, and taxied back to its base. This experiment indicated the eventual liberation of aircraft from being anchored to shore bases, a necessary advancement if the aeroplane was ever to join the Fleet.

The Navy ordered its first aircraft the following May. SecNav George vonL. Meyer had earlier supported appropriations for Naval Aviation. In a meeting of the House Naval Affairs Committee he requested and received $25,000 for aeronautics.

Chambers was against the development of the true aircraft carrier by the U.S. Navy at this time. He vehemently opposed the seaplane carrier or hangar ship concept, classifying them as "auxiliary ships." He stated, "I do not believe that we need such a vessel, even if we could get it," considering it "superfluous and inefficient."

With the hydro-aeroplane, Chambers hoped to find a method of getting a plane in the air from a fast-moving vessel without being forced to slow down the ship or stop. His solution was to devise a catapult system. Langley, the Wright brothers, and Chanute had pioneered in this field, but none of the systems developed quite met the needs of Naval Aviation.

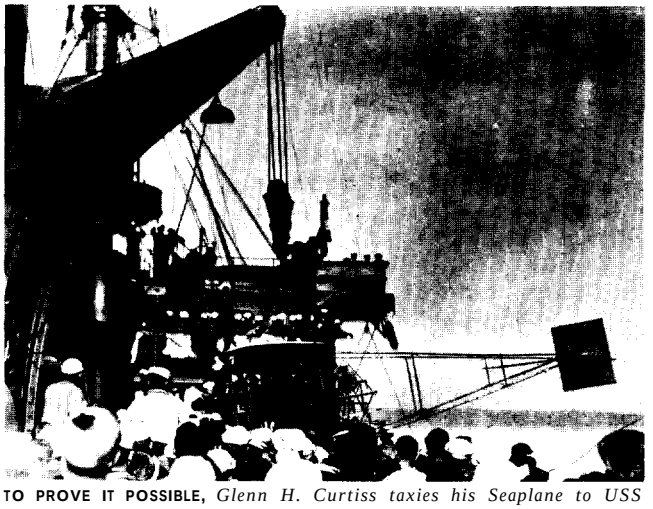
The catapult was a challenge. Chambers proposed a device using compressed air for thrust. The first test of it was made at Annapolis, with Ellyson at the plane's controls. The experiment was a failure operationally, but Chambers learned much from it. He turned the project over to Naval Constructor H. C. Richardson who, with suggestions from Ellyson and Chambers, developed it further.

Three months later, they were ready to try again. On 12 November 1912, Ellyson launched in a hydroplane, the **A-3,** from a catapult installed in a barge off Washington Navy Yard. This time, they met with success. Curtiss, who witnessed the demonstration, considered it a significant achievement.

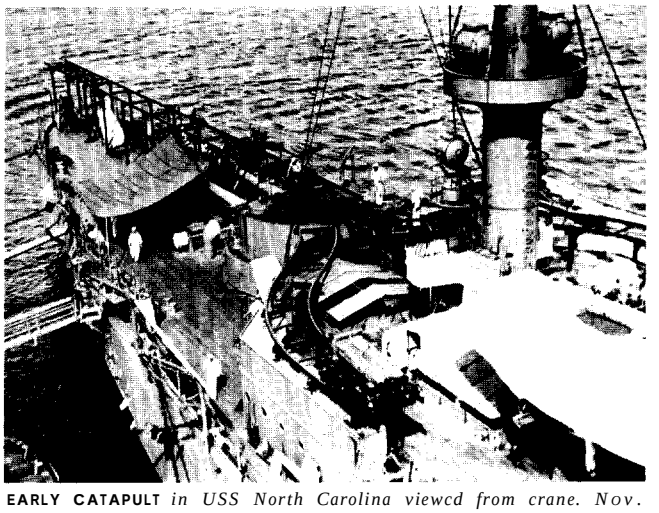
The following January, aviation joined the Fleet. Chambers sent the entire aviation unit to Guantanamo Bay, Cuba, to participate in Fleet operations for the first time. During the eight-week period beginning 6 January 1913, the unit conducted scouting missions and exercises in spotting mines and submerged submarines. Under specific instructions from SecNav and Chambers, the unit, led by Lt. J. H. Towers, demonstrated the operational capabilities of the aircraft to stimulate interest in aviation among fleet personnel. More than a hundred "training" flights were made, carrying interested line officers on local hops to demonstrate the safety and maneuverability of aircraft, as well as to point out the superiority of aircraft in scouting and reconnaissance tactics.

Other nations, especially in Europe, were moving faster in the development of aviation for their navies, allocating more money than the U.S. for experiments. In the same month that Chambers was officially retired, in June 1913, the British reconfigured the cruiser *Hermes* by placing a launching platform on it and using this ship actively in maneuvers that followed. The nations vied with each other in building up their air arms; in the offing were the faint rumblings that soon would swell to a roar, eventually erupting into the outrage of war.

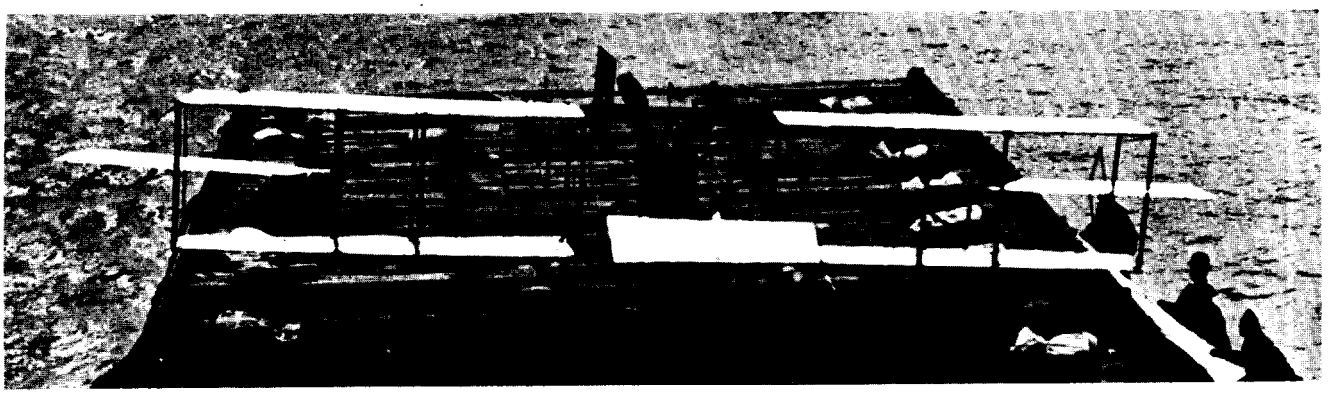
In April 1914, Naval Aviation went into action for the first time. A crisis developed in Mexico when a U.S. naval party was placed under arrest by Mexican police. Pilots and planes were embarked in *Birmingham* and *Mississippi.* Those in the former were dispatched to Tampico and saw no action. But Lt. Patrick N. L. Bellinger, leading the *Mississippi* detachment, continued down the coast to Vera Cruz and conducted daily reconnaissance flights.



TO PROVE IT POSSIBLE, *Glenn H. Curtiss taxies his Seaplane to USS Pennsylvania, is hosted aboard, then returns to water and his base.*



EARLY CATAPULT *in USS North Carolina viewcd from crane. Nov. 1915, LCdr. H. C. Mustin was first to launch from curlier model.*



PRIMITIVE ARRESTING GEAR *comprised of 22 taut ropes weighted by 5O-pound sandbags were strung four inches off the deck of USS Pennsylvania for Eugene Ely's historic landing. Plane had three hooks beneath it to catch ropes. DFC was awarded Ely posthumously in 1933.*

On 5 November 1915, RAdm. W.S. Benson, the Navy's first Chief of Naval Operations, visited the *North Carolina* and a decision was made to launch the AB-2 aircraft from a new and temporary catapult installed aboard. LCdr. H. C. Mustin, who headed the Naval Aeronautic Station at Pensacola, was also aboard. He climbed into the aircraft and a successful launch was made. Though Mustin's launching was satisfactory, obvious improvements in the system were necessary. Other pilots tested the catapult, changes were made in the unit's mechanism, and finally, the catapult was removed altogether. Later a permanent catapult was installed.

Great Britain was the undisputed leader in number and operation of aircraft from ships at this time. As the U.S. was experimenting with *North Carolina,* the Royal Navy already had five vessels from which aircraft operated. First of these were *Hermes,* a cruiser converted to carry three seaplanes. Three others, formerly used as cross-channel turbine steamers, were outfitted with hangars and partial flight decks. These were *Engadine, Empress,* and *Riviera,* pre-*Langley* "carriers." The fifth was a converted tanker, *Ark Royal.*

Capt. Mark L. Bristol relieved Chambers in the winter of 1913. Mindful of Great Britain's progress in carrier experiments, he shot off a memorandum to SecNav:

"I desire to suggest the taking up of this question at once," he wrote, "along the line of purchasing a merchant ship and converting her into an aircraft ship, and at the same time considering the plans for a special ship of this type, developing these plans as more information is received from abroad. It is strongly recommended that the bureaus consider the question of including in the estimates for the coming year money for the purchase and fitting up of such a ship with an idea of recommending to Congress the appropriations with the provision that it become immediately available without waiting until [1 July 1916]."

The memo went through the Chief of Naval Operations who sensibly felt such a venture premature. In his endorsement, he wrote: "It appears to the Department that the more immediate need of the Aeronautic Service is to determine by experience with the USS *North Carolina,* now fitted to carry aeroplanes, the details of such service upon which the characteristics of special aircraft ships, if needed, could be used." RAdm. Benson concurred with Chambers: it was not wise to spend large sums of money on carriers when the aircraft itself had not reached an acceptable state of development. There was still much to learn.

Undeterred, Bristol asked for funds for two three-million dollar carriers in his estimates for fiscal year 1917. It was a futile try. Next, he requested permission to take the command of naval air to sea and, upon receiving it, moved aboard *North Carolina.* He retained command over the Navy's aircraft, their development, the shore establishments connected with aviation, and the shaping of the air service.

Shortly after he assumed command of *North Carolina,* Bristol sailed for Guantanamo Bay to participate in war games with the Fleet. This 1916 exercise proved the most important participation of naval aircraft in any Fleet problems to date. By end of the exercise, the four planes aboard had logged more than 3890 miles in a series of tests that proved instructive and, at the same time, emphasized the lack of equipment available and that coordination and planning left much to be desired.

In the summer of 1916, the organization, morale, equipment and prospects of Naval Aviation reached the ebb tide mark. The status of naval air so exasperated the normally reticent Bellinger that he wrote to SecNav a detailed, realistic summation of equipment available and experiments conducted. "Aeroplanes now owned by the Navy," he noted, "are very poor excuses for whatever work may be assigned them." Viewing current catapults, he continued, they are "by no means the finished mechanism desired in some of [their] essential features." The letter was frequently quoted by officers in the Aviation department.

With war imminent, the Appropriations Act of 29 August 1916 helped pull Naval Aviation out of the doldrums. Granted a million dollars the year before, this Act now allotted an additional $3½ million to the development of naval air.

In October, Towers completed a tour in London as assistant naval attaché and reported to the Executive Committee of the General Board to inform it of European progress in aviation. He spoke glowingly of zeppelins, advocated the assignment of land planes on capital ships, and discouraged the direction of attention toward aircraft carriers.

"Aeroplane ships cannot keep up with the Fleet," he reported, echoing a widely held conviction. "If [the British] build a ship big enough and powerful enough to keep up with the Fleet, its cost is so high that they do not

consider it worthwhile. They are rather giving up the idea."

Towers' recommendations weighed heavily with the Board. In its subsequent recommendations, it requested over 500 planes, in addition to kite balloons, non-rigid dirigibles, and an experimental zeppelin. No recommendation was made for the fitting out of a major ship of the line for the operation of aircraft on the scope of an aircraft carrier.

The U.S. entered WW I in April 1917. In the years prior to this, Naval Aviation concerned itself with the development of aeronautical design and a continuing series of studies was implemented to determine the adaptability of planes on ships. The war interrupted these studies. Instead, emphasis was on expansion in aircraft inventory, increase in the number of trained pilots and ground crew men, and anti-submarine warfare.

In April 1917, RAdm. W. S. Sims, heading the European naval forces, recommended to SecNav that, since German U-boats were sinking tremendous tonnages, attention be directed toward acquiring large numbers of seaplanes for anti-submarine reconnaissance. He also asked for the development of seaplane carriers for small seaplanes. Going a step further, he advocated the development of vessels from which seaplanes could be launched directly from their decks.

This emphasis on ASW was a reflection of the experiences of the Allied nations. Expectations of the British were high. Sims, in answering SecNav's request for information on what Allied nations' requirements for naval air support were, revealed the British preoccupation with ASW problems. Through Sims, they requested four seaplane carriers, with a capacity of six two-seater planes, six single-seaters, and a speed of at least 18 knots. They also requested four or more seaplane tenders, 100 kite balloons with necessary manpower to operate and maintain them, "any number of trained pilots," and a good 300-hp engine.

But Sims appended a note of caution to these requests. He did not advise the U.S. Navy to develop this line of aeronautics if it would interfere with the completion of anti-sub programs already in progress.

Though the British pioneered in aircraft carriers, their emphasis in WW I —and that of U.S. Naval Aviation— was on the development of seaplanes. Throughout this war, seaplanes and their tenders achieved far greater attention than any other weapon in the naval air arm arsenal.

The U.S. looked for the super seaplane, one that would be large enough to carry enough fuel aboard to make a trans-ocean hop feasible. This was an attempt to circumvent the worrisome number of sinkings of cargo ships by German U-boats; with the stricken ships went a large number of aircraft built for flight against the enemy in Europe. This plane was given the designation NC and was later to prove such a flight possible.

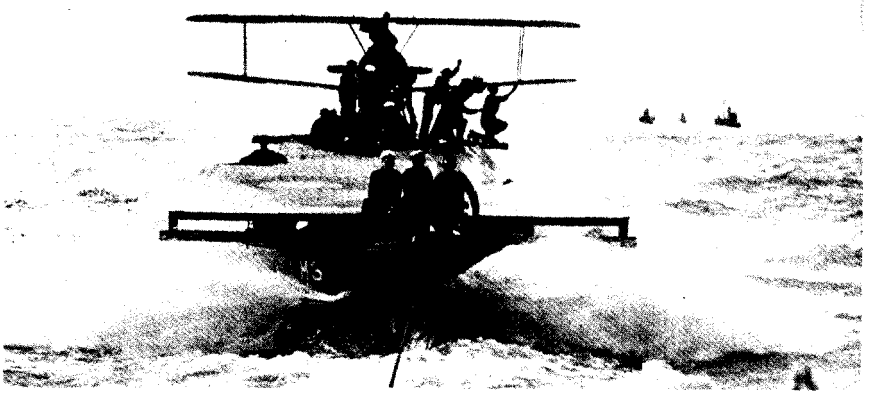
In the summer of 1918, the General Board showed considerable interest in the future of aircraft carriers. It called before it most of the leading Naval Aviators of the day in an effort to determine how much importance to attach to this development. Testimonies presented offered a wide range of thought on the subject. Several wanted carriers for ASW work. Towers suggested the conversion of a merchant ship—for experimental purposes. Others pointed out that aircraft aboard *Huntington* were smashed by concussion when that ship fired a practice salvo. Only a ship with the major mission of launching and landing aircraft at sea would do.

The Board deliberated and in September recommended a six-year program of expansion in all branches of the fleet. For Naval Aviation, it recommended that six carriers be built within that time span, each having a 700-foot flight deck, with an 80-foot beam "absolutely clear of obstructions." Designed top speed was to be 35 knots, with a cruising range of 10,000 miles.

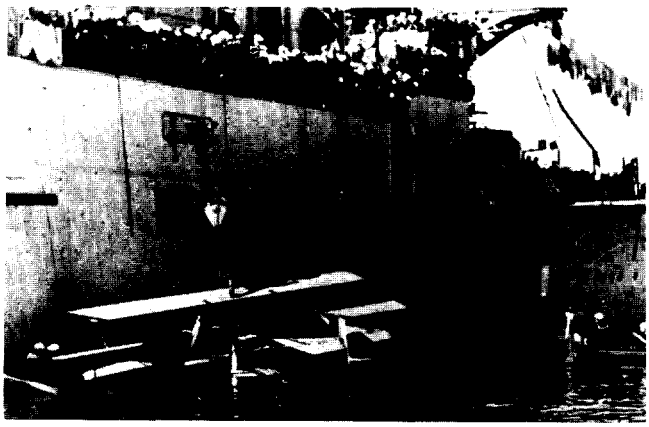
The bright future darkened swiftly on 2 October when SecNav Josephus Daniels temporarily put an end to the project. "The question of building aircraft carriers of special construction is held in abeyance," he wrote, "and no action will be taken until the military characteristics considered advisable by the General Board are submitted, and no action will then be taken of a positive character unless it appears probable that these vessels can be completed and made serviceable during the present war." This did not put a period to the program, simply a series of suspension dots . . . until the Armistice.

The British had been mulling over the problem of ASW and in October 1918 proposed a possible solution to it. The proposal, at the same time, gave a keen revelation of the effectiveness of its carrier operations. Since most submarine sightings and sinkings (there were few of the latter) made by aircraft were from shore-based seaplanes, the Royal Navy suggested planes be given a much wider range than they enjoyed. They proposed a plan to tow the planes on lighters or barges to within striking distance of the targets selected. A rear compartment in the barge would be flooded sufficiently to float the plane. The aircraft would then take off, bomb its target and return to home base.

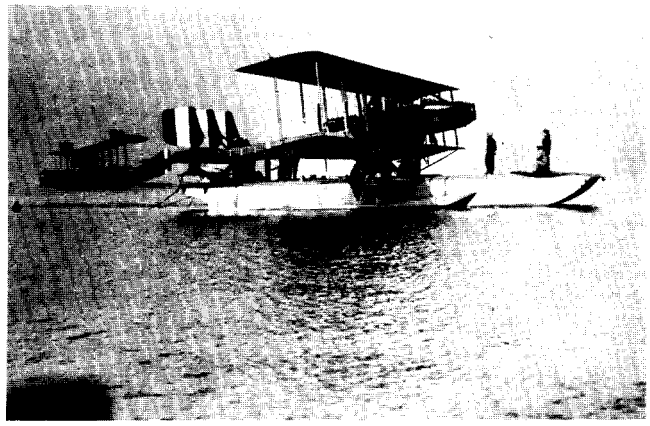
Surprisingly, the plan met with favor. The British volunteered to contribute 50 of the lighter units and asked the U.S. to provide 30, along with 40 planes. By the end of July 1918, the towed-lighter project saw the commissioning of a base at Kill-



DURING W W I, *British developed a towed lighter from which planes were launched. Rear compartment was flooded for seaplanes. Here landplane is towed, later launched.*



NAVYMEN ABOARD *USS Pennsylvania stare incredulously as a Curtiss seaplane is brought alongside and hauled aboard by ship's crane.*



A MUSTIN SEA SLED *holds a Caproni bomber in post-WW I tests at Hampton Roads. Sled was designed to add launching power to planes.*

ingholme, Ireland, with an American detachment in command. In a dress rehearsal for the scheduled bombardment of the submarine base at Helgoland, a German zeppelin appeared on the scene and photographed the entire operation. The secret type of attack no longer secret, the British called off the campaign in August.

The first draft for Naval Aviation's request for appropriations after the war contained no provision for the construction of aircraft carriers nor the conversion of a current ship of the line to carrier characteristics. But on return from Europe of Capt. Noble E. Irwin, who then had the aviation desk in the Office of the Chief of Naval Operations, the entire budget was revamped, new estimates were made, and the Navy was subsequently authorized to convert the collier USS *Jupiter* into the first experimental carrier.

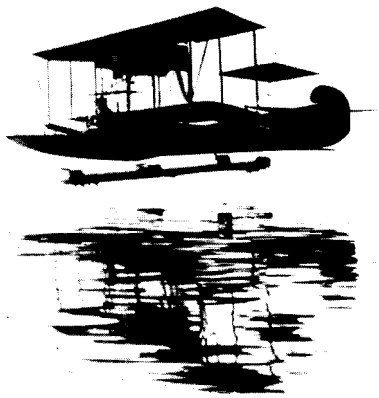
The British, at that time, had three operating carriers, two training carriers and two under construction.

In 1919, the General Board met again, this time centering its attention on Naval Aviation. It was an exhaustive inquiry from which was produced a report on "Future Policy Governing Development of Air Service for the United States Navy." In it the Board stated, "The development of Fleet Aviation is of paramount importance and must be undertaken immediately if the United States is to take its proper place as a naval power."

At the close of the war, the evolution of thought on carrier designs centered on the development of two types, one a fast vessel with large radius for scouting operations with scout cruisers, and the other a larger, slower vessel to operate with battleship units as a base for launching torpedo plane attacks.

The experiments and experiences of the British Navy in operating aircraft carriers influenced American thinking when design and performance were considered. Their carrier *Argus* weighed 18,000 tons and flew 20 Sopwith planes carrying 1000-lb. torpedoes. Its speed was 21 knots. Two other British carriers, *Furious* and *Cavendish,* were designed for scouting missions, travelled at 32 knots, and carried reconnaissance planes.

Arguments continued during the Board meetings. One faction wanted to convert battleships instead of colliers, but were out-argued by Irwin who pointed out the lack of stowage space below decks, the smoke menace amidships, the small headroom between decks, and the additional personnel needed for the fire room. One admiral protested the conversion. "l believe the development is going to be so rapid that by the time you get your carriers you will find you have to make all your ships carriers." But another voice was heard, that of LCdr. E. O. McDonnell: "A plane carrier would carry 15 torpedo planes and, in my opinion, would be a menace to a whole division of battleships and in the same way a fleet of carriers could attack a place like Hawaii."



FIRST SUCCESSFUL *launch of a flying boat was made at Washington Navy Yard in Dec. 1912.*

Congress considered converting cruisers. Merchant ship possibilities were renewed, but the Board prevailed; the collier *Jupiter* was selected.

Even at this late date, a new threat developed. After Congress authorized the carrier, RAdm. Benson shelved the project. Capt. Thomas T. Craven, who had by then relieved Irwin, found himself in the awkward position of facing a Congressional hearing and admitting that the appropriated money would not be used. He consulted Daniels who at once reversed the CNO's decision and ordered work to proceed immediately. In January 1920, Daniels allocated $500,000 for the conversion and the future of *Jupiter-Langley* was assured.

Several years later, LCdr. B. G. Leighton commented on the controversy surrounding the selection of *Jupiter* for the first conversion to a carrier design. "There is no good reason," he said, "why a battleship *might* not become an aircraft carrier, or an aircraft carrier a cruiser.

"The *Langley,* 14 knots, no guns, 400 officers and men—a converted collier—is an aircraft carrier. The *Saratoga,* 33 knots, eight-inch guns, three times the size of the *Langley* with three times as many men—a converted battle cruiser—is an aircraft carrier. The British *Argus*— a converted passenger ship—is an aircraft carrier. 'Aircraft carrier' may 'mean almost anything!"