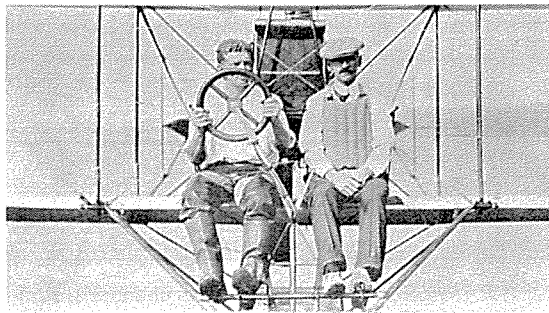


DR. GERALD E. WHEELER

Training the FIRST NAVAL AVIATOR



Lt. T.G. Ellyson (Photo- Curtiss-Wright Corp.)



Ellyson and Curtiss (Curtiss-Wright Corp.)

Theodore Gordon Ellyson was the Navy's first designated "Navy Air Pilot", a designation granted officially on January 21, 1915. He had been an aviator for four years when he was so recognized. In its letter of transmittal, the Bureau of Navigation wrote that:

"It was considered that owing to your excellent work in connection with aeronautics in its very infancy in the Navy that you were deserving of the first certificate issued."

Along with most young graduates of the Naval Academy class of 1905, Ellyson spent the first six years of his new career at sea. He saw service in battle-ships as a passed midshipman, then turned to submarines where he had begun to make his name as a submarine expert when the aviation "bug" bit him. He was at the Norfolk Navy Yard on November 14, 1910 when Eugene Ely flew a Curtiss biplane off a deck improvised on the Cruiser BIRMINGHAM. Stealing a march on a classmate, Kenneth Whiting, Ellyson wrote a letter to Captain Washington Irving Chambers, USN, and offered his services for aviation duty. In fact, he presented the letter personally. His timing was excellent.

Captain Chambers, just two months before, had been designated by the Navy Department to keep it informed on progress in the aviation field. He read deeply, collected books, corresponded with aviation organizations like the United States Aeronautical Reserve, visited aviation meets held on the East Coast, and made sure that he met most of the great flyers of that day. After attending several large aviation meets, Chambers recommended that the Navy buy one or more planes "in order to develop their use for naval purposes." He convinced the Department that it should take part in the experiment to launch a plane from a ship; and with the experiment a success he suggested to Glenn H. Curtiss that he offer to train a pilot or two for the Navy. Curtiss could see the possibilities for him in aircraft sales to the Navy and jumped at the suggestion. On November 29, 1910, he invited the Secretaries of War and Navy to send

officers to San Diego for him to train in flying. On January 2, 1911, Lieutenant Theodore G. Ellyson was ordered to join Curtiss on the West Coast.

Though Ellyson has been dead 32 years, having perished in a crash on his 43rd birthday (February 27, 1928), and despite the fact that there is no full biography of him, an excellent account of his flight training exists in a series of letters exchanged between him and Captain Chambers. Ellyson wrote weekly to Chambers describing his activities as a student and later as officer-in-charge of the Navy Aviation Camp at Annapolis. These letters, preserved in the "W.I. Chambers Papers" at the Library of Congress, give the aviation historian today a wonderful view of flight instruction in its earliest form and suggests why early aviators were generally described as "daring" or "death defying".

When Ellyson joined Curtiss in Los Angeles in early January, 1911, the famed airman was looking for a place to establish an air field for flight and experimental work. Curtiss loved Hammondsport and the Lake Keuka region of New York, but he despised the heavy winters. He needed good flying weather, a location close to water for hydroplane (hydroaeroplane) experiments, and a climate warm enough to work out-of-doors. The San Francisco region was ruled out because of weather. Los Angeles had some appeal, but the lack of open country and a sheltered water area made it undesirable. In San Diego, however, Curtiss found everything he needed and selected a site on North Island for a training camp.

The aviation camp was set up in the middle of January by Curtiss' employees from Hammondsport, with W.J. Shackelford doing most of the work. All hands cleared stretches through the underbrush to provide training areas, and tents were erected along the estuary between North Island and Coronado known as Spanish Bight. Besides Ellyson from the Navy, Curtiss had three Army officers assigned to him: Lt. Paul W. Beck, Lt. C.E.M. Kelly, and Lt. John C. Walker, all from West Coast Army units. Charles Witmer, a civilian, was also at the San Diego camp for instruction. Eugene Ely and Hugh Robinson, both Curtiss demonstration pilots, were at the camp off and on, thus Ellyson received his instruction from

the finest Curtiss airplane pilots in the business.

Having Ellyson as a pupil had its advantages for Curtiss. Because of his Academy engineering training, Ellyson knew machinery. He was a good mechanic, both practical and inventive. He had determined that he would learn everything about the aviation business he could and not confine himself just to flying. This naval officer worked on the aircraft engines until he could almost "field strip" the Curtiss 4 cylinder and also the 8-cylinder engines with the ease of cleaning a service revolver. He kept a daily journal and noted everything he learned from work and from conversation. With Ellyson's attitude and willingness to get dirty, Curtiss quickly turned to him for assistance in his "hydro-aeroplane" design experiments. William Gilmore, a San Diego boat builder, did most of the float fabricating and Ellyson and the other students provided the muscle-power whenever Curtiss tried his "hydros" in the bight. On January 26, 1911, Curtiss finally lugged his biplane hydro into the air and flew it safely back to the water. Ellyson learned a great deal about the "trial and error" approach to experimental work, and the Navy had a new frontier to explore.

Ellyson was taught to fly in a manner that had become fairly well standardized with Glenn Curtiss. He had three or more planes available at North Island and kept one of his 8-cylinder planes equipped with a 4-cylinder engine. The heavier plane with a lower horsepower engine was hard to get airborne, and thus Curtiss kept his pupils pretty well tethered to the ground until he was positive they were safe to begin flying at any altitude. To prevent "accidental" flights Curtiss inserted a block in the throttle control so that half-power was about all the student could get out of the engine.

Curtiss taught aircraft control through straight-away grasshopper-type flights, a technique called "grass-cutting." After carefully explaining the use of each control and how to use power, Curtiss and his student would move up and down the cleared area on North Island in short hops, never more than a foot or two off the terrain. Once directional control, that is holding the plane straight, was achieved through fast taxiing, then Curtiss would move the block and allow a little more power to be applied and the "hopping" phase began. This forced student concentration on the elevators and the control of attitude. Because of the controlled engine performance, Curtiss did not have to ride on every instructional flight. Once the student understood the functions of the elevators, rudders, and inter-plane ailerons, he could "grass-cut" alone. Occasionally the neophyte students became accidentally airborne, but seldom for any great distance. Ellyson had this occur in his second week of instruction and he experienced his first, but not last, crash. Neither he nor the plane was badly hurt, and it did teach him a bit about "air holes" and turbulence. To avoid rough air, Curtiss had his pupils do most of their flying in the three hours following dawn and the hour before sunset. It did mean a long day for Ellyson and the rest.

Among a host of good qualities, safety-consciousness was one of Curtiss' most important. He drove this into Ellyson. Every flight was preceded by a careful examination of the plane. Because each plane was a product of hand labor, the pilots came to know every wire, piston, and square-inch of fabric. Within six months Ellyson had developed a written set of instructions to be followed in checking a plane for acceptance by the Navy. He also developed a standard pattern for inspecting a plane before each flight.

Back in Washington, Captain Chambers came to value Ellyson's inherent caution and conservatism. Aviation throughout the country was being heavily criticized because of the large number of deaths from exhibition flying. Ellyson himself began his training just a few weeks after the death of one of the great exhibition pilots, Arch Hoxsey. Thus when Curtiss wrote to Chambers that Ellyson "... will make an excellent instructor, being conservative and using rare judgment as to what the aviator should and should not attempt to do," Chambers knew he had a man he could trust. Later he was to offer Ellyson the position of Director of Naval Aeronautics, an offer which Ellyson politely refused.

Though still a student, Ellyson had the responsibility of advising the Navy Department on how it should proceed with aviation training. Curtiss could not be expected to train every pilot in the future. In the end Lieutenant Ellyson suggested a duplication of the Curtiss approach. He recommended that the Navy buy a 4-cylinder plane for approximately \$4,000 and an 8-cylinder model, equipped for water flying, to cost around \$7,000. Relaying an idea of Curtiss', he suggested to Chambers that the Navy establish an aviation camp near Washington. This would be close enough to Hammondsport to get help from Curtiss when needed, and it would be a good location to sell the more conservative naval officers on the values of aviation. Ellyson also recommended that Chambers ask the Wrights if they would like to train a pilot for the Navy, and sell the Navy a plane as well. Chambers convinced the Navy Department on the wisdom of Ellyson's suggestions; and by the fall of 1911 the Navy had its own training camp across the Severn from the Naval Academy. It had received \$25,000 to purchase two Curtiss and a Wright plane, and Lieutenant John Rodgers was being trained in Dayton, Ohio, by the Wrights.

Ellyson was a bit concerned about his own progress. Curtiss had kept one 8-cylinder model tied up with experiments and thus Ellyson was still flying the 4-cylinder model by the first of March. At Curtiss' instigation, he asked Chambers if he could go East to Hammondsport with Curtiss when he closed his camp in San Diego. There he would be able to study the building of planes and engines more thoroughly by being at the Curtiss factory, and he could get full instruction in the hydroplane, "Triad" (an amphibian hydro), and new 8-cylinder models as they were developed. Chambers wanted Ellyson in the East for advice on establishing the camp at Annapolis and thus readily agreed to his proposition.

Curtiss did get around to instructing the naval officer in the 8-cylinder plane before the San Diego camp was closed. Ellyson described his 8-cylinder flights in glowing terms. The plane was extremely sensitive to the controls, in fact it took determination to hold it down. To reduce the plane's power Curtiss had blocked the throttle and added a panel to the top wing, but the plane, particularly when flown solo, was still a lively performer. In one letter Ellyson described the problems of controlling the tendency of the 8-cylinder plane to "Dutch-roll". In today's parlance the lieutenant was experiencing torque and then over-controlling; the result was a rolling motion about the plane's longitudinal axis as it flew. Curtiss also insisted that his students learn how to handle his biplanes in gliding flight since engine failures were fairly common. He forced them to descend without power from ever-increasing heights and constantly preached the doctrine of remaining

over open country. On March 17 this paid off for Ellyson when he made his first "dead-stick" landing after the 8-cylinder radiator boiled, grounded the magnetos, and killed the engine. The operation was a complete success.

On March 31, 1911 Curtiss sent the Navy Department a telegram stating that Lieutenant Ellyson had qualified in "practical aviation" and was competent to instruct others. Ellyson was more modest in a follow-up letter. He noted to Chambers that he had not flown the hydroplane and that it would take a good deal more flying before he could land on a designated spot or safely handle a plane in gusting and turbulent air. What Ellyson had written to Chambers the week before was still true on the day Curtiss said he was a pilot:

I am not getting the opinion that I know how to fly, but simply want you (Chambers) to know the progress that I am making. I am more anxious than ever to remain with Mr. Curtiss as long as possible, because he made suggestions after every flight which showed me just where I did the wrong thing, or how I could have done it better.

During April, 1911, Curtiss closed his aviation camp in San Diego and returned to his Hammondsport factory. Ellyson received instruction in the hydro and in turn began teaching some of Curtiss' students, though he never took them to the airborne stage. By June Ellyson was flying a newly developed hydro regularly while waiting for the Navy planes to be finished. He noted that the lower seat and controls and the lack of front elevators made the plane a lot safer in the event of water crashes. The pilot would be thrown clear of everything! Safety belts were still in the future.

On June 27, Lieutenant John H. Towers reported to Ellyson for instruction at Hammondsport. Ellyson was now ready to begin the creative process by instructing his first student - the Navy's third naval aviator. On July 1, 1911 Ellyson formally qualified as a pilot under Aero Club of America rules and on September 14, 1911 Lieutenant Towers was similarly licensed. Lieutenant John Rodgers had become the second pilot to be designated when

he completed the Wright course in August 1911. The Navy then had the nucleus of its future naval aviation - Ellyson, Rodgers, and Towers.

Unlike most who came after him, Ellyson did not remain in aviation throughout the remainder of his naval career. He continued with the Annapolis aviation camp through the fall of 1911 and then took it to San Diego for "winter quarters" beside the Curtiss group. He stayed with the program through 1912, helping mightily with the development and testing of the catapult, and then in 1913 he went to sea duty. During World War I he spent a few months supervising the training of aviation mechanics in Annapolis, and then he returned to surface craft for anti-submarine operations. After the war Ellyson was assigned briefly to the new Bureau of Aeronautics in 1921 and then went abroad on naval duty outside of aviation. He returned to flight duty in 1926 when he was assigned as Executive Officer of the seaplane tender "Wright" attached to the Scouting Fleet in the Atlantic. Ellyson was killed in a crash while flying from Norfolk to Annapolis in the early morning of February 27, 1928. He rests today in the Naval Academy cemetery.

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CAPT. H. C. RICHARDSON DIES

One of the Navy's famous aviation figures died in September, 1960 at the Naval Medical Center, Bethesda, Md. He was 82, and during his lifetime had seen, and participated in, the growth of the Navy's air arm from its inception. He was Captain Holden C. Richardson, USN (Ret.), the Navy's first engineering test pilot and famous designer of seaplanes.

The Cover Photo for this JOURNAL shows the twin tractor seaplane, A-82, built at the Washington Navy Yard. The picture was taken in October, 1916. It was the Navy's first design and has always been known as the Richardson Biplane.

Richardson was born at Shamokin, Pa. and graduated from the Naval Academy in 1901. He took further training at M.I.T., receiving his M.S. degree in 1907. He became the Assistant Naval Constructor the following year but did not learn to fly until 1915 when he received his wings at Pensacola and became Naval Aviator No. 13.

Captain Richardson designed the first catapult to operate successfully, and it launched Lt. Ellyson in a trial flight at about 35 mph. He became the

Navy's representative on the Advisory Committee of the Langley Aeronautical Laboratory in 1913, which led to his appointment to the National Advisory Committee for Aeronautics when that body was founded in 1915. His reputation was now established as an authority on seaplanes and he superintended the activities of the Curtiss Aeroplane Company for the Navy at Buffalo during 1918, the height of war construction. Thus he was responsible for the Curtiss flying boats, the NC-1, -2, -3 & -4, and went on to fame as the pilot, with Cdr. John H. Towers, of the NC-3 in its epic crossing of the Atlantic in 1919. Although forced down short of the goal, near the Azores Is., they made their way on the surface another 205 miles to Ponta Delgada. For this he was awarded the Navy Cross.

Capt. Richardson headed the Design Division of the Bureau of Aeronautics 'til he retired in 1929, only to come back as an advisor to the Department in 1934. He remained on active duty until he retired again in 1946, an officer who has forever left his mark of influence upon the Navy's history.