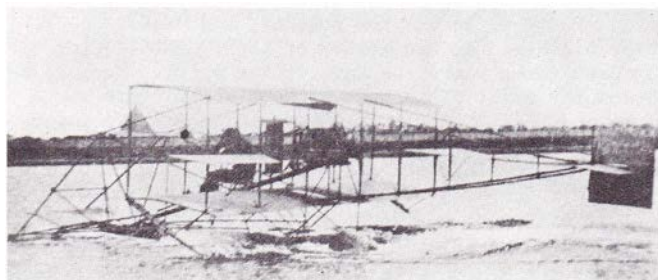


Flight from the Water

By HAROLD E. MOREHOUSE

With a view toward greater personal safety some of the first followers to conduct flying experiments after the Wrights, preferred to do so over water. Reasonably smooth and level areas of land large enough for flying, without trees and obstructions, were scarce, whereas bodies of water provided very suitable and ready-made flying fields. Landing on water was softer and safer, with little serious risk beyond a ducking in the event of a fall, while a crash over land was almost certain to result in bodily injury.

The Wrights experimented with float developments on the river at Dayton as early as March, 1907. This was a float test rig only, using a Wright engine and the usual twin pusher chain-driven propellers. The experiment was abandoned, evidently due to the lack of suitable bodies of water in that vicinity for actual flight attempts.



Glenn Curtiss was interested in flying from the water very early in his pioneer work. He was fortunate at Hammondsport in having wonderful Lake Keuka at his doorstep, while fields suitable for flying were scarce in that section of New York State. As a result, the first flying by the Aerial Experiment Association was made from the ice when Lake Keuka was frozen over. In the fall of 1908 Curtiss tried to fly from the water with twin canoe-like floats attached to his JUNE BUG, as shown in photo above. These tests were not successful, due in part to insufficient power, as well as the fact that the suction of the water under the floats was greater than anticipated. Due to urgency of other work Curtiss did not find time to conduct further serious water flying experiments until January 1911, but the desire to do so, and the related problems of possible accomplishment, were always uppermost in his mind.

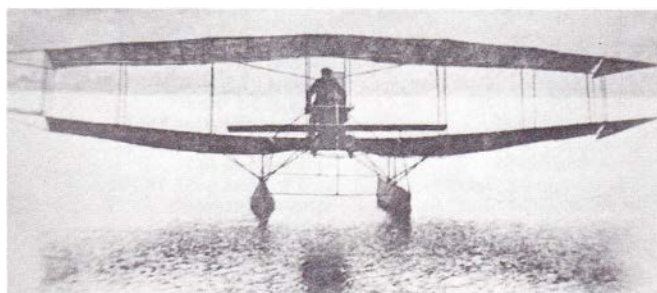
Wilbur Wright lashed an Ordinary canoe, covered over with canvas, to the underside of his plane as a precaution when he made his celebrated flight in New York from Governors Island up the Hudson River past Grant's Tomb and return on October 4th, 1909, during the Hudson-Fulton Celebration. Fortunately, a forced landing did not occur.

The very first successful flight from the water in the world was made in France by a young engineer, Henri Fabre, near Martigues, on March 28th, 1910. Reportedly his landings were not successful, and after some additional short flight attempts through May, this plane was completely wrecked by a storm and further experiments were abandoned. This unusual CANARD, or tail-first type plane, was powered by a 50 hp Gnome engine.

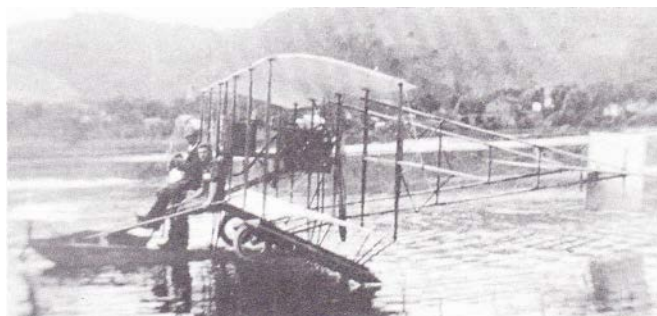
In early May, 1910 Curtiss was preparing a land plane to attempt his celebrated flight from Albany to New York down the Hudson River. As a precaution he

attached two metal cylindrical tanks under the lower wings as flotation in case of a forced landing on the river. In a preliminary test flight he flew over the lake at Hammondsport and successfully landed on the water, to become the first person to accomplish this feat. On the actual Albany-New York flight, however, such an emergency landing was not necessary.

During this period Curtiss had been trying to interest the Navy Department in water flying experiments, but they merely listened. He had been able to land on water, but could not take off. There could be no Naval Aviation until there was marine aircraft-



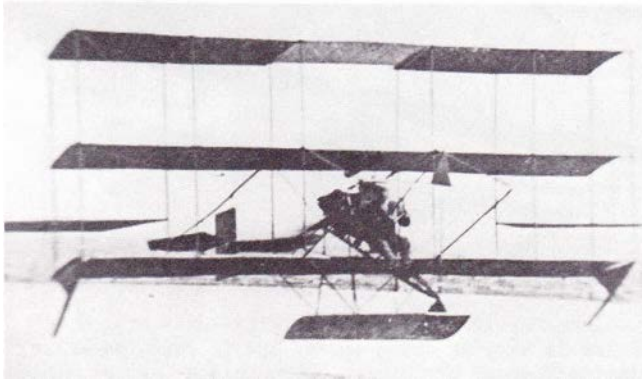
Curtiss had been making test equipment during the summer and fall of 1910 and he decided to devote the winter months that year to the problem of flying from the water, so made arrangements to move his operations to Southern California where he could work under summer-like conditions. He leased North Island- in San Diego Bay and established camp there about January 1st, 1911. At Curtiss' invitation the Navy Department sent Lieut. Theo G. Ellyson to witness and report on these experiments. There, with Ellyson and a few devoted associates, Curtiss succeeded in getting off the water on January 26th, 1911 after many trials and tribulations, to become the second person in the world to do so and the first in the United States. The machine used is shown, in Photo above. Lt. Ellyson was of material assistance to the project and was delighted to have the opportunity to help overcome Navy skepticism. While there he was taught to fly by Curtiss - the first United States Naval Aviator.



Development work continued and the following month Curtiss demonstrated the first amphibian-type plane when wheels were added to their successful hydro. With this plane Curtiss flew from North Island and alighted on the water, then took off and landed back at their

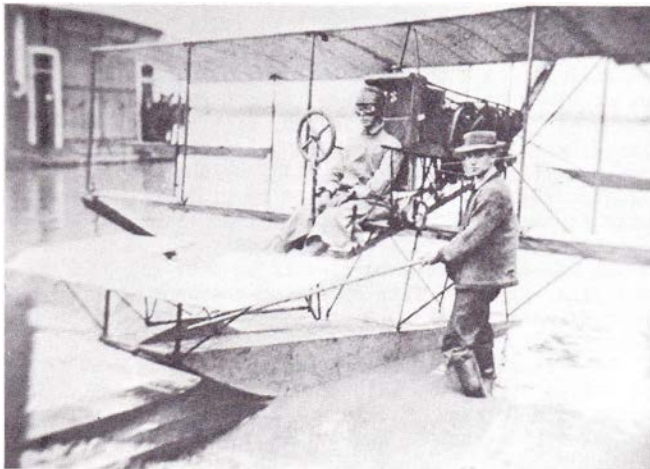
camp. This plane appears at start of paragraph.

Following these successful experiments the Navy Department worked closely with Curtiss in water flying developments and through the years to follow undoubtedly contributed greatly to his overall accomplishments.



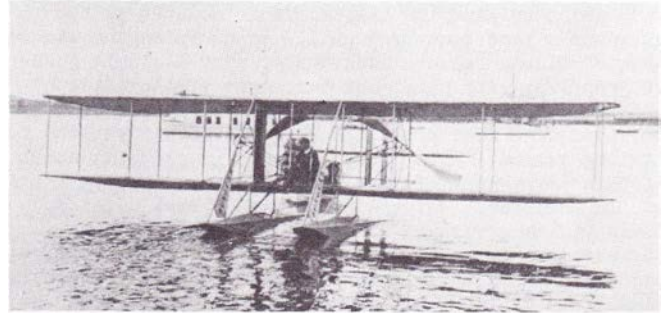
Soon the Navy was interested in being able to take off with more load so a third wing was added to demonstrate this ability. This machine is shown above. As the experiments progressed, more power was needed and larger engines were developed that year. Various configurations of floats were tried but a single long one was eventually found most adaptable to the purpose.

By early spring of 1911 Curtiss began to fly some exhibitions with his new Hydro and when operations were moved back to Hammondsport, a series of water flying experiments were continued at Lake Keuka during the summer months. In May, 1911 Curtiss developed a dual control side-by-side seating arrangement for flight training.



By July, 1911 Curtiss began to equip some of his exhibition pilots with Hydros, Hugh Robinson being the first of these to give water flying exhibitions. Robinson was the only water flying contestant at the famed 1911 Chicago Meet, held at Grant Park in August. There his consistent daily flying over the lake, back over the Park, circling boats and landing alongside, attracted much attention and in general demonstrated for the first time before huge crowds the useful and appealing possibilities of over water flying. In October, 1911 Robinson made a noteworthy Hydro trip down the Mississippi River from Winona Lake, Minnesota to Rock Island, Illinois, carrying mail and stopping at all major towns where he put on exhibitions to promote interest in over water flying. The photo above shows Robinson and his plane during that trip. That summer and fall Curtiss

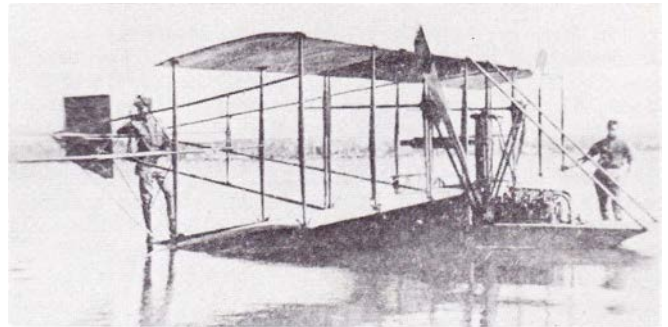
and members of his exhibition team gave hydro demonstrations at many points throughout the United States.



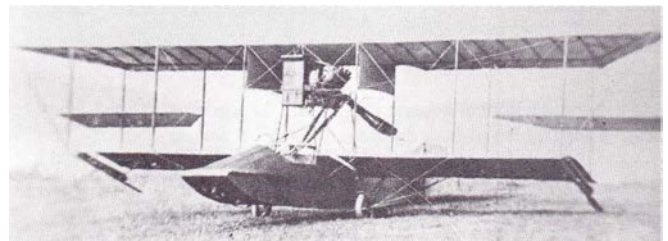
In October, 1911 the Burgess Company and Curtiss at Marblehead, Massachusetts, attached floats to a Burgess-Wright biplane, as shown in the photograph above, and flight tests were successful there through November and December.

That fall, Wright pilot Frank Coffyn had a pair of floats made for Russel Alger's Wright biplane and he successfully operated this machine from the water in New York Harbor through the late months of 1911 and into the spring of 1912.

Grover Loening, Hugh Willoughby, E. R. Brown and others were also experimenting with water flying craft in late 1911 and Curtiss' success that year inspired further French and British attempts.



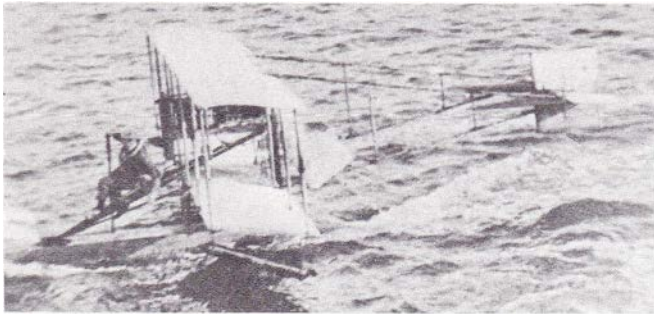
By this time, Curtiss had become convinced that the ultimate objective of water flying was not an aeroplane with floats, but a boat with wings. As a result he built a new experimental machine, obviously the beginning of his long line of flying boats to follow--see above. It consisted of a long and larger central float, or hull, attached directly under the lower wing. Outriggers were still used to carry the tail surfaces and two tractor propellers were chain driven from a 60 hp Curtiss engine mounted forward in the hull. Pilot and passenger sat side by side behind the engine.



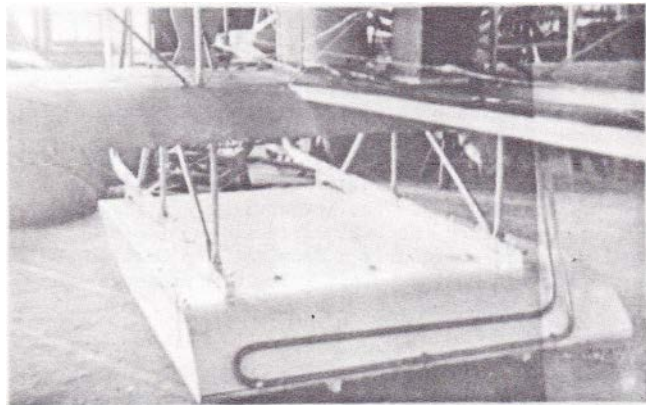
Curtiss started testing this machine at San Diego in January, 1912 and its operation first seemed successful but difficulty was later experienced with the chain drive transmission and tests were discontinued. It was

returned to Hammondsport and rebuilt with considerable change after which Curtiss resumed tests there in July. This time it was a "real flying boat." The outriggers were abandoned and the tail surfaces mounted at the stern of a true boat-type hull. An 80 hp engine was mounted midway between the wings driving a single pusher propeller with pilot and passenger sitting side by side low in the hull forward of the wings. It was also provided with wheels to fold up for beaching while taxiing ashore. This plane is shown in photo at start of this paragraph. It was successful at once.

In December, 1911 the celebrated French aviator, Louis Paulhan, visited Hammondsport for the express purpose of inspecting the Curtiss water flying developments and while there took the French agency for Curtiss planes and Hydros. As the year ended Curtiss sold one Hydro to the United States Navy and one to the Russian government.



In January, 1912 Curtiss began to seriously commercialize his new developments. That winter he operated flying schools at San Diego, California and Miami, Florida, giving hydro instruction at both places. Later in the month Curtiss sent Hugh Robinson to France to demonstrate water flying for Louis Paulhan before sportsmen and military authorities. Robinson's successful showing at that time paved the way for a considerable foreign market for Curtiss planes in the future. Photo above shows him maneuvering on the water at Bice, France.

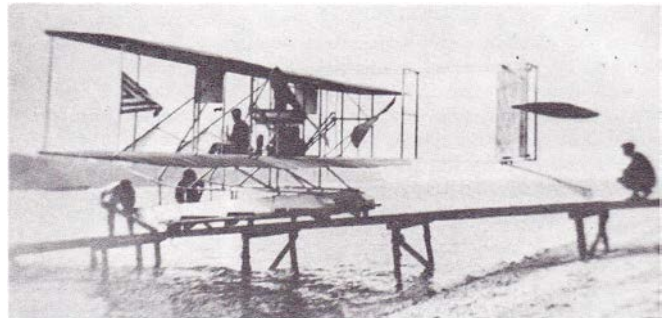


Early in 1912 other American aeroplane firms were also showing rapid progress in their water flying developments. That winter the Burgess Company had Phil Page, Cliff Webster and Walter Brookins in Florida with Burgess-Wright Hydros, training and carrying society passengers. The Wright Company also exhibited floats for their planes at the New York Aero Show that spring, as shown above. Grover Loening also displayed his new Air Boat, built by the Queen Aeroplane Company. It comprised a boat-like hull with a Bleriot monoplane wing, powered by a 50 Gnome engine. This Boat later made some successful short flights at Bayonne, New

Jersey. As a result of Brookins' demonstration flights in Florida during the winter months, the Burgess Company sold a Burgess-Wright biplane on floats to William Scripps of the Detroit Daily News, and Brookins was sent to Detroit to teach him to fly it.



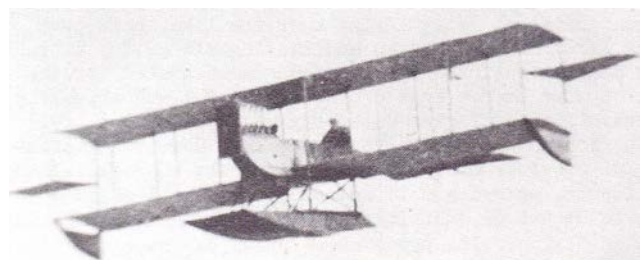
Glenn Martin started to fly with floats at Los Angeles in May, as shown above, and in June the Mills Aviation Company of Chicago introduced a Curtiss biplane copy on floats successfully flown by Nels Nelson. During June the Benoist Company of St. Louis, Missouri, started flying one of their tractor biplanes on floats, operated by Tony Jannus.



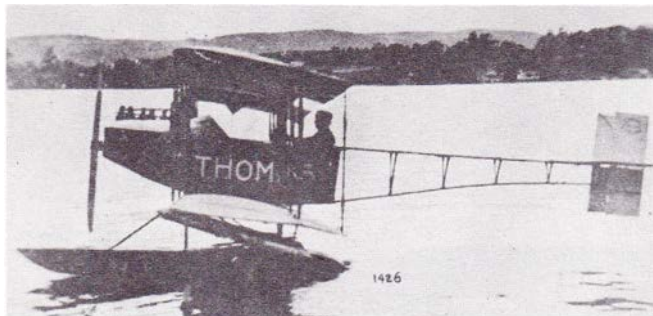
In July, 1912 the Wright Company began to operate one of their Model C Biplanes, with 6 cyl. engine, on floats at Glen Head, Long Island, with Charles Wald flying, as a demonstration agency. A hangar was built, complete with ramp, and active flying started in early August. The idea was to attempt to promote interest in water flying among wealthy Long Island yachtsmen. Demonstrations were arranged at various yacht clubs and social passengers were carried in an over-all plan to sell water flying. This operation continued through the remainder of the 1912 flying season. The plane is shown in the photo above.

In September 1912 the first Hydro Flying Meet in the United States was held at Grant Park, Chicago. Competing were Curtiss, Martin and Benoist Hydros, flown by Beckwith Havens, Al Engel, Glenn Martin and Tony Jannus.

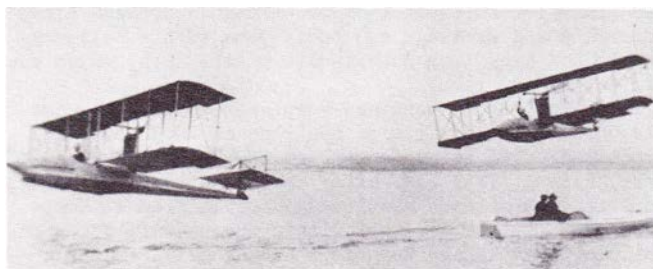
On November 6, 1912 Tony Jannus started one of the most remarkable flights of the year, from Omaha, Nebraska to New Orleans, Louisiana, over water, down the Missouri and Mississippi Rivers, flying a Benoist



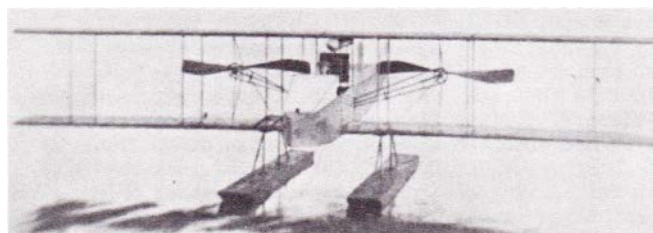
Tractor Hydro with 6 cyl. 75 hp Roberts engine. This great early flight was to demonstrate and sell water flying, with exhibitions given and passengers carried at all major towns along the route. He reached New Orleans on December 16th flying the same plane and engine. This was a new World Hydro distance record of 1,973 miles. His total flying time enroute was 31 hrs. 43 min. The longest daily distance covered was 181 miles and 42 exhibitions were flown enroute.



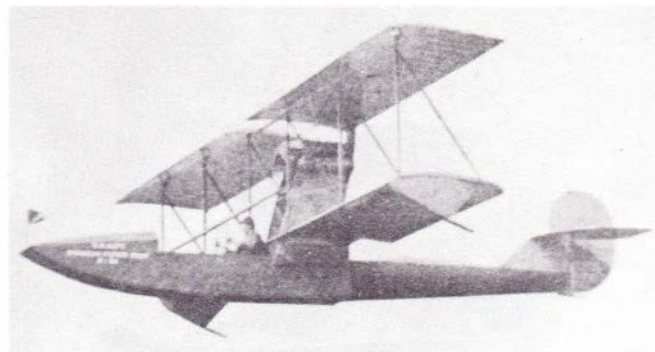
That fall the Thomas Bros. Company of Bath, New York brought out a Tractor Hydro, as shown above, and the Columbia Aeroplane Company of Washington, D. C. completed a new Flying Boat using an 80 hp Gyro rotary engine for Wright pilot Marshall E. Reid of Philadelphia, Pennsylvania. Silas Christofferson started flying a Curtiss Hydro copy, using a Hall-Scott engine at San Francisco. By the fall of 1912 the Curtiss Company was making rapid progress with their flying boat developments, and sold one to the United States War Department. In November Hugh Robinson left the Curtiss Company and joined the Benoist Company in St. Louis, Missouri, becoming a partner in the firm. That winter Curtiss, Martin and the Burgess Company were all operating water flying schools in California and Florida.



Early in 1913 the Benoist Company introduced their first Flying Boat, above, under the guidance of Hugh Robinson. The type, successful at once, soon became one of the leading water machines, and much notable flying was accomplished with the model. The Burgess Company brought out a twin-float Hydro with Wright wings and propellers, but having an enclosed fuselage, see below.

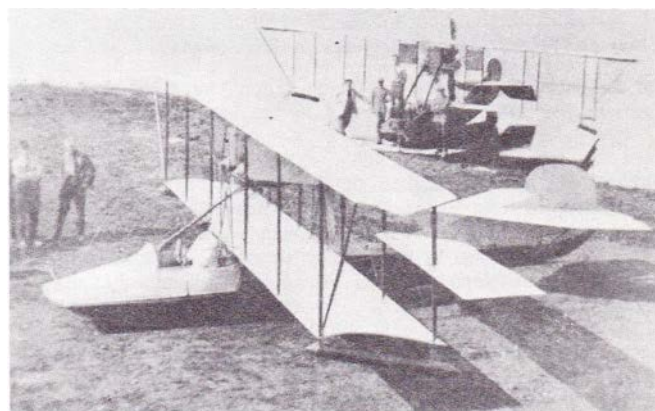


This was followed by the Burgess Flying Boat with a French Renault 70 hp engine, top next column. The Sloane Aeroplane Company of New York also brought out a Flying Boat and when the Curtiss summer school started at Hammondsport about May 1st, the class was filled

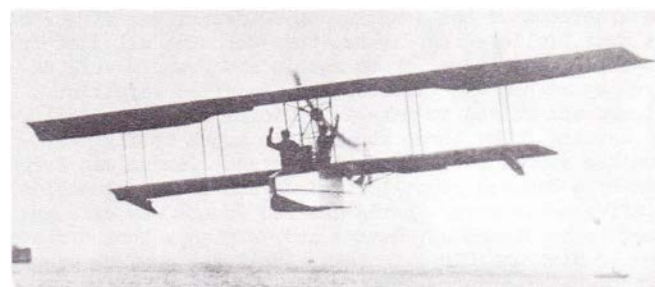


to capacity with water flying students with more waiting.

That spring Curtiss began to really exploit water flying to wealthy yachtsmen around the country and by mid-summer had sold Flying Boats to Harold McCormick and L. A. Vilas of Chicago, William Scripps and Barton L. Peck of Detroit, J. B. R. Verplanck, G. M. Heckscher and G. Von Utassy of New York, Gerald Hanley of Providence, Rhode Island and Robert Glendinning, Clark Thompson and Marshall E. Reid of Philadelphia. Some of these men went to Hammondsport to take Flying Boat in-

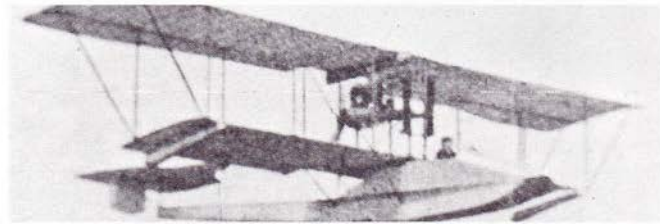
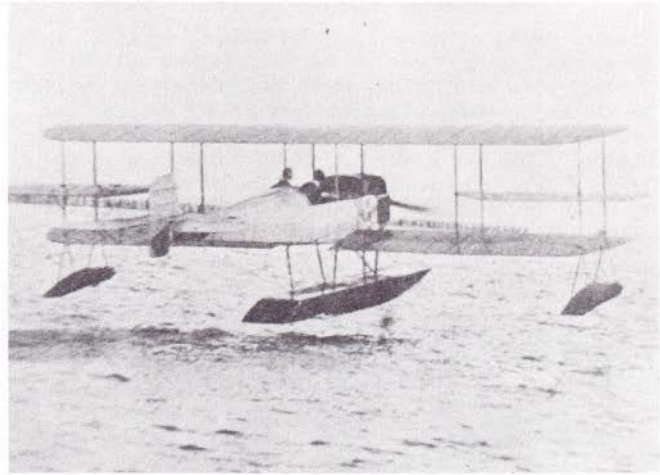
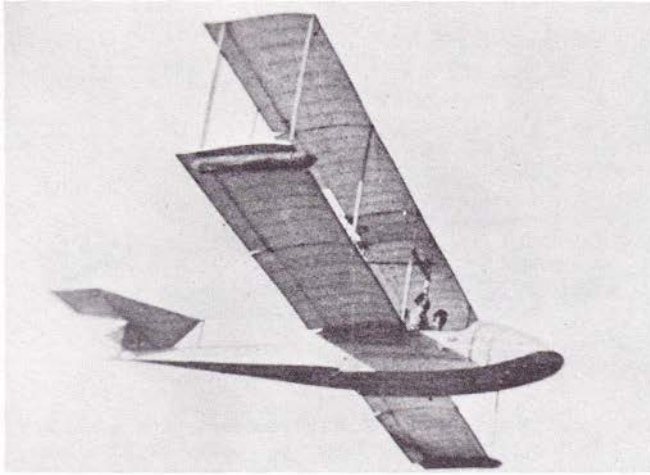


struction themselves (typical Hammondsport activity shown above), others employed the services of some well known pilot to fly for them or sent a man to take instruction to operate their machine when delivered. This was really the beginning of public interest and acceptance of water flying as a sport in daily use.



Curtiss built both pusher and tractor type Boats that year and Silas Christofferson brought out a Flying Boat with Hall-Scott engine at San Francisco, above. Weldon B. Cooke built a tractor Boat at Sandusky, Ohio using a Curtiss engine. Some of the other aeroplane firms built and sold a few water craft that season, all of which served as a really worthwhile incentive toward gaining public confidence in aviation.

Easily the outstanding flying event of the 1913 season was the Aero and Hydro Great Lakes Reliability Cruise. This water flying race was from Chicago to



The four main, competing aircraft in the Aero and Hydro Great Lakes Reliability Cruise of 1913 were the Benoist Boat (upper left), the Martin Hydro (upper right), the Paterson-Francis Boat (lower left), and the Thomas Boat.

Detroit via the Straights of Mackinac, following the shore line of the Great Lakes. Reportedly Bill Pickens, well known exhibition flight promotor, conceived the idea as a nation-wide publicity event to promote water flying, and he persuaded E. Percy Noel, the publisher of Aero and Hydro Magazine, to sponsor the race, with build-up publicity in his publication. This noteworthy event started at Chicago on July 8th, with the following starters: Beckwith Havens, flying J. B. R. Verplanck's Curtiss Flying Boat with Verplanck as co-pilot; Tony Jannus in a Benoist Flying Boat carrying Paul McCullough; Walter Johnson in a Thomas Flying Boat carrying Earl Beers; Glenn Martin in a Martin single-float Tractor Hydro carrying Charles Day, and Roy Francis in a Paterson-Francis Flying Boat carrying James Irving. Weldon B. Cooke and L. A. Vilas were also entered but did not start.

One of the worst storms in many years in the Chicago area very nearly put an end to the entire event on the afternoon of the starting day. Jannus was first to get away, followed by Havens, then Johnson, all just in advance of the storm. Both Martin and Francis were delayed by mechanical difficulties, remained safely at Chicago and waited to make an official start the following morning. The three who started hoped to fly away from the storm, but near Gary, Indiana, Jannus was forced down by a damaged propeller and Havens landed alongside to offer assistance. Being assured Jannus was safe and about to be picked up, Havens and Verplanck took off and flew to Michigan City, Indiana, the first control stop. Johnson had mechanical difficulties and put in at Robertsdale, Illinois outside of Chicago, and Jannus was picked up by a tug boat, taking his disabled plane in tow. Later, however, when the fury of the storm hit, the plane was wrecked and totally lost, which put Jannus out of the race.

Francis flew from Chicago to Michigan City on the 9th, then he and Havens flew to South Haven, Michigan where they were stranded with high winds and extremely rough water until the 11th, when they flew from South Haven to Pentwater, Michigan. Martin started from Chicago and flew to Lake Harbor, near Muskegon, Michigan

that day. High winds again hampered the flyers on the 11th and 12th and caused some damage to the planes, necessitating minor repairs. On the 14th Havens flew on to Charlevoix, Michigan, while Francis remained at Pentwater and Martin flew from Lake Harbor to Pentwater. On that day Francis decided to call it quits and packed his plane for shipment back to Chicago. Johnson hit some floating wreckage and badly damaged his hull trying to get away from Robertsdale on the 12th, which put him out of the race.

On the 15th, Havens and Verplanck pushed on, passing through the Straits of Mackinac at 10:30 A.M. and proceeded on to Point Lookout in the Bay of Au Gres on Lake Huron at 7:35 P.M. after their best day of flying, covering 260 miles. Martin was disqualified at Pentwater for failing to start within the specified period. This left Havens and Verplanck as the only remaining contestant. On the 16th, they flew on to Winonah Beach, Bay City, Michigan where another bad storm kept them grounded. On the 17th the weather was clearing but not flyable until midday when they started out again. About fifty miles away they ran into another terrific storm and were buffeted about for some time in wind, rain and lightning until they ran out of gas. Havens was able to make a safe landing near shore. Verplanck remained with the plane while Havens walked some three or four miles for gas, after which they flew on to Port Sanilac above Port Huron, Michigan, where they spent the night.

On June 18th they left Port Sanilac at 9:45 A.M. and arrived at Belle Isle, Detroit, at 3:30 P.M. to complete the race. Well known Detroit sportsman pilot William E. Scripps flew out to meet them on their arrival and escorted them to the finish of the race in his Burgess-Wright Hydro. Considering that the race was held during the toughest summer weather on the Great Lakes in many years, it was indeed a most remarkable accomplishment and proved Havens' extensive experience and knowledge in flying water craft, and the fact that the Curtiss "F" Flying Boat was at that time much better developed than any competing machine, all of which were new and untried for this event. Actually, they were but one day late in completing the race

according to schedule, with a total flying time of less than 15 hours. Havens and Verplanck received the Aero Club of Michigan Silver Challenge Trophy, The Aero Club of America Medal of Merit for the outstanding flight of the year and the Curtiss Gold Medal rewarding them for their marvelous achievement.

After completing the race, Verplanck returned to New York leaving Havens and his Boat in Detroit, where for some time he carried passengers and demonstrated water flying to many marine minded local sportsmen. While there, he also gave instruction to William Scripps and Barton L. Peck, both of whom had recently purchased Curtiss Boats.

Following this Havens flew to Toledo, Ohio, where he made similar demonstrations, then on to Put-In-Bay where he competed in the Perry Centennial Hydro Races. After this event Havens demonstrated the Boat at Cedar Point and Sandusky, Ohio, then flew on to Cleveland for more demonstrations. From there he proceeded on to Buffalo, New York, where he entered another water flying event and gave further public demonstrations. After this the Boat was shipped to Albany, New York.

On October 7th Havens and Verplanck flew the Boat from Albany to Staten Island, New York to complete the flight from Chicago to New York via the water route. The completion of this extensive over-water flight with the same plane and engine was acclaimed everywhere as THE FLIGHT OF THE YEAR, certainly an outstanding achievement with the early equipment of that era, and it probably greatly influenced the growth of marine aviation to follow.

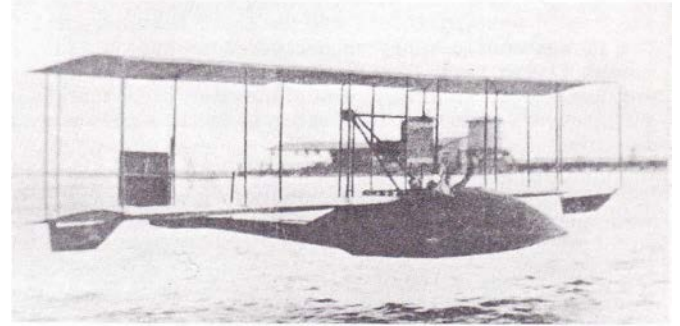


During the mid-summer of 1913 the Wright Company brought out a new single-float Hydro, then as the year ended, their first flying boat, as shown above.

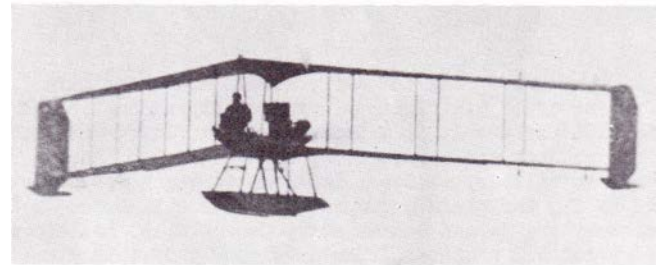


In the early months of 1914 Curtiss developed higher horse power engines for flying boat use and sold several boats to the United States Navy and one to Great Britain. Nels Nelson, Sloane and others, also built and experimented with new water craft, making it the first "big year" for marine aviation. In January 1914 Curtiss completed a monoplane flying boat for Raymond V. Morris, as shown above. This was a special single-seater built for speed and competition flying.

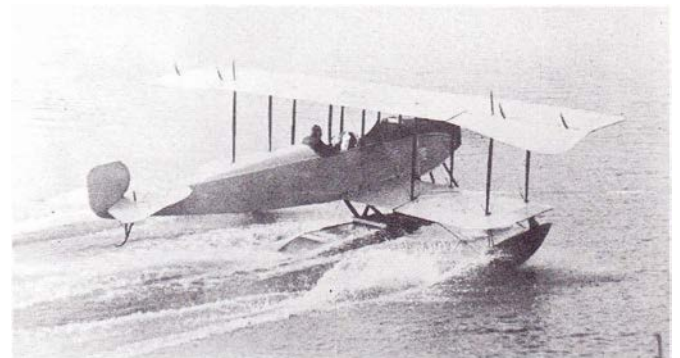
Also that month the Benoist Company started their very early flying boat airline from Tampa to St. Petersburg, Florida. This unique Airline operated daily scheduled flights between the two cities front



January 2nd to April 27th, 1914, carrying passengers, express, mail and food commodities. Only four days were lost during that time due to weather or equipment difficulties. In this period over 11,000 miles were flown and 1,205 paid passengers carried. A winter flying school was also carried on with several pupils in the class. The pilots for this operation were Tony and Rodger Jannus and Weldon B. Cooke. Benoist Flying Boats were used, as shown above.



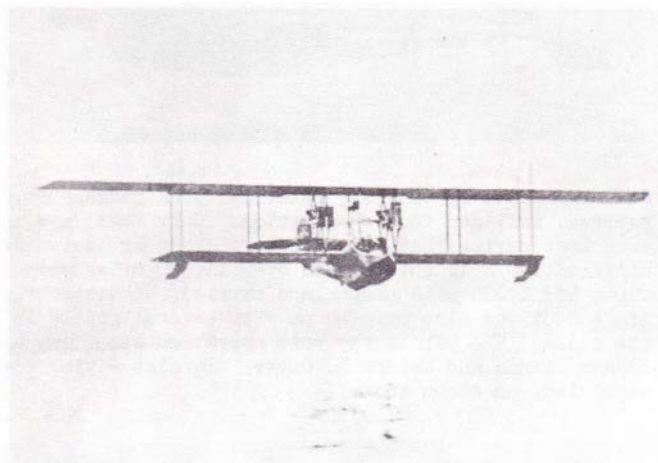
That spring, the Burgess Company started flying their first Burgess-Dunne single float Hydro at Marblehead, Massachusetts. This was a pronounced VEE tail-less, inherently stable biplane, built under license in the United States from British patents. This unusual plane is shown in flight above.



During the early summer months Curtiss started shipping Curtiss Flying Boats to Russia, and in May flying of the new "J" Military Tractor on floats was started at Hammondsport. This was the forerunner of the famous World War I "JENNIES" and it is interesting to note that the first experimental flying of this famous plane was made from the waters of Lake Keuka, as shown in the photo above.

During the summer of 1914 all the major flying schools included water flying instruction, and the Thomas Brothers, the Sloane Aeroplane Company and the Boland Company, all brought out new flying boats, and the Curtiss Company began to investigate the possibility of flying the old "Langley Airdrome." It was re-conditioned, floats added, and in June Curtiss did

succeed in getting it off the water at Hammondsport, but it was considerably underpowered to accomplish normal flying tests. Accordingly, a Curtiss engine was installed, following which a number of satisfactory flights were made from the water with this famous early machine.



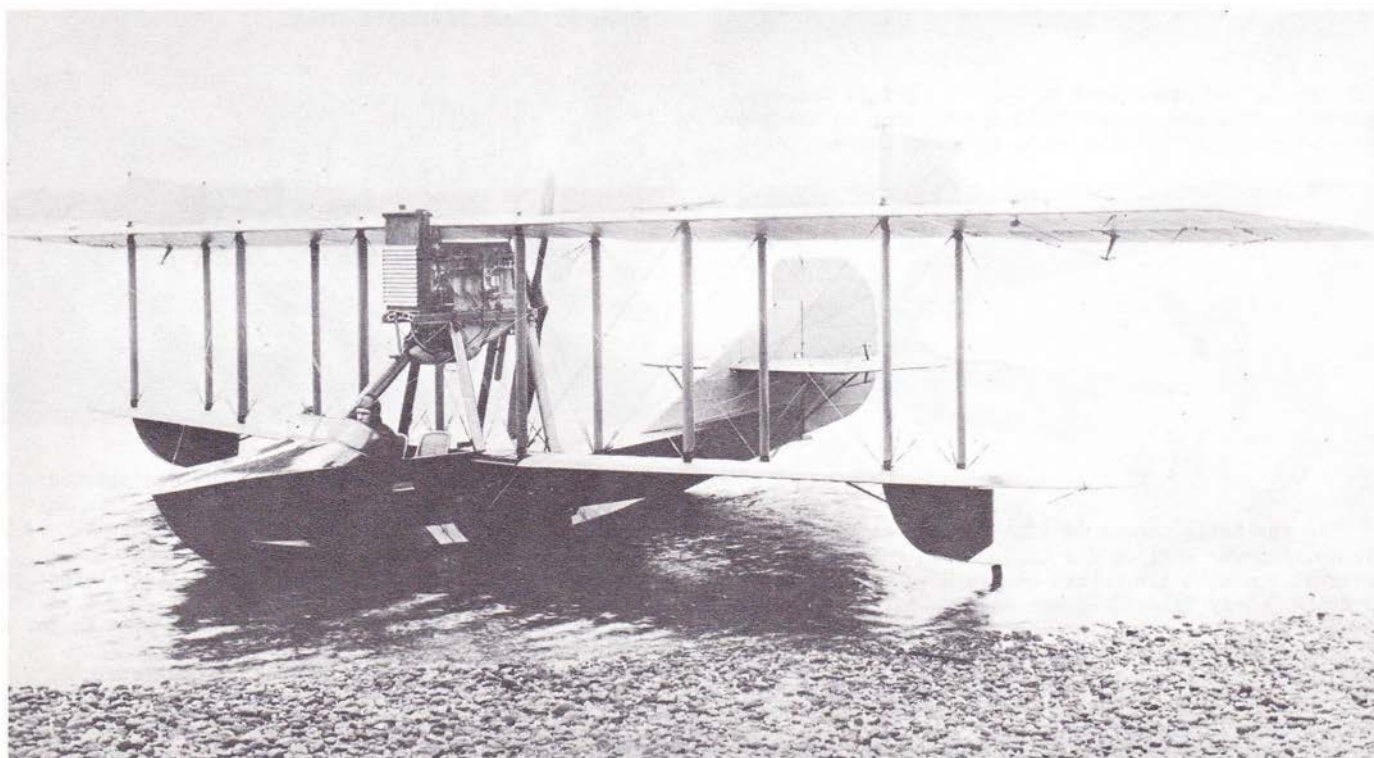
Over the spring and early summer months of 1914 Curtiss built his first twin engine flying boat, "THE AMERICA" intended for a trans-Atlantic flight attempt. This project was sponsored by John Wanamaker, and an English military aviator, Lt. John C. Porte was selected to fly the plane accompanied by our well-known U. S. pioneer engine man and aviator, George E. A. Hallett as co-pilot and engineer. The development of this plane to its required load carrying and take-off capabilities involved much more time than anticipated, and as the war clouds of World War I began to develop in Europe, the flight was abandoned. This famous plane is shown in flight in photo above.

During the fall of 1914, the Jannus Brothers formed a company in Baltimore, Maryland to develop and manufacture a Flying Boat of their own design. Also during 1914 Comm. H. C. Richardson conducted a series of tow basin tests of Float and Hull models at the Washington Navy Yard, which was the start of a more scientific approach to marine aviation efficiencies. That year the Gallaudet Company also brought out a Flying Boat.

In 1915 water flying continued to grow. The Jannus Brothers brought out their new flying boat, equipped with a 75 hp Maximotor, Vincent Astor and other wealthy sportsmen continued to buy flying boats and Curtiss obtained broad basic patents on many of his water flying developments. At this time he also originated the Curtiss Marine Endurance Trophy Race for the longest flight from and over water in ten hours of the day selected. This famous national annual flying event was continued for several years.

Marine aviation made tremendous strides during World War I and was extensively used by all the major military forces. With the advent of larger engines, water flying craft grew in size and usefulness, and after the war, the famous NC Boats accomplished the heralded Atlantic crossing.

For some time during the 1920s, water flying continued to grow in popularity for sportsmen's use, and about the last of the popular size Curtiss Boats was the SEAGULL. Some water flying developments continued into the 1930s, but as the trend of rising prices and inflation progressed, the sport was eventually priced beyond the scope of its usefulness and this type of craft virtually disappeared from the market. Float conversion equipment is still available for some of today's light commercial planes, but all of this is so expensive, it is beyond the means of the average individual, and the small flying boat is practically unknown to the present generation. To the author, who well remembers the early days of water flying, it seems a pity that our so-called modern inflationary trends have totally destroyed the rare and exhilarating sport of water flying.



Last of the popular size Curtiss Boats was the SEAGULL, a post World War One modification of the Navy MF, powered by a Curtiss K-6 engine. (Photo - Peter M. Bowers Collection)