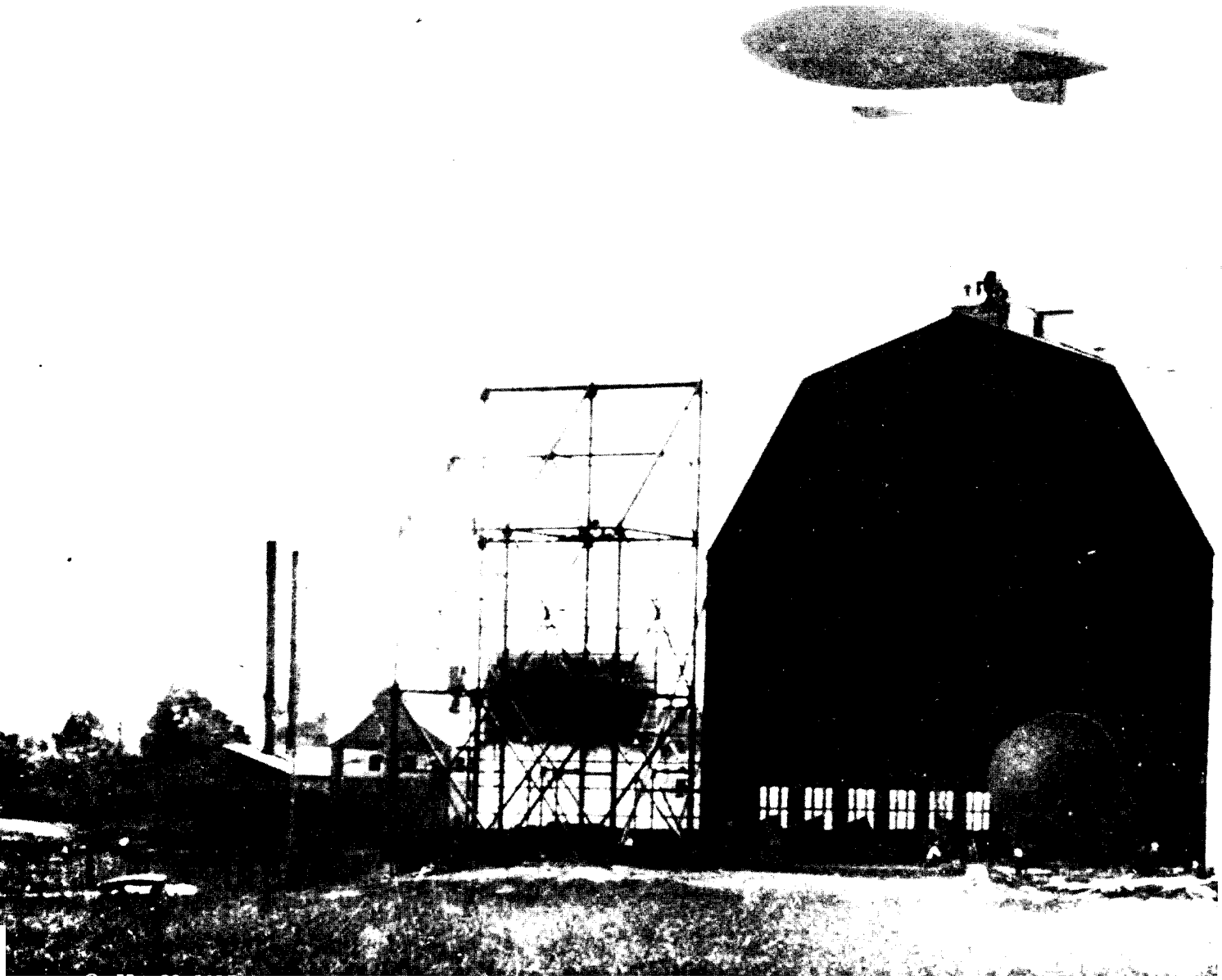
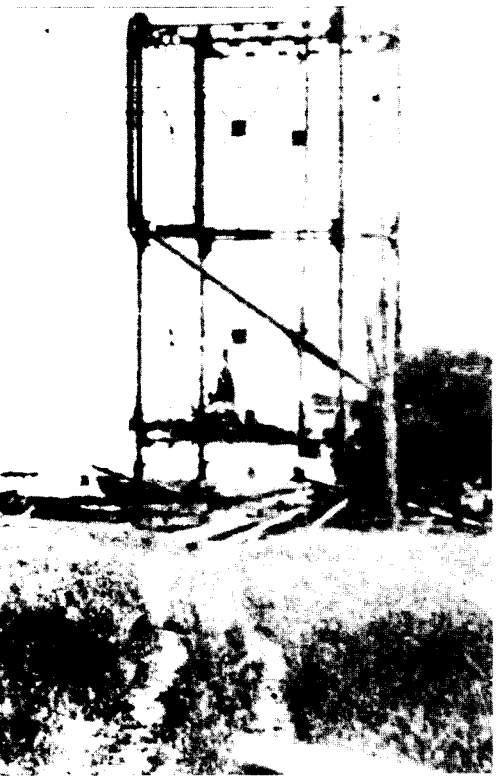
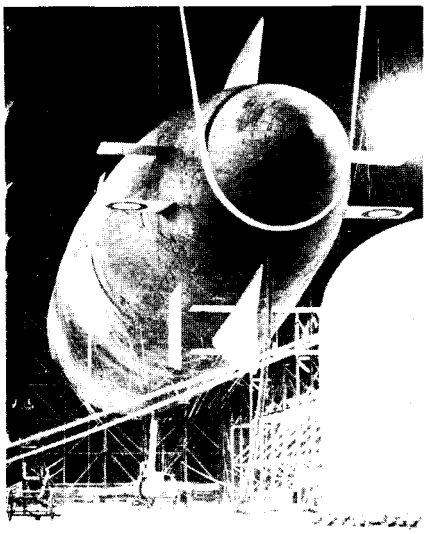
By W. L. Hamlen



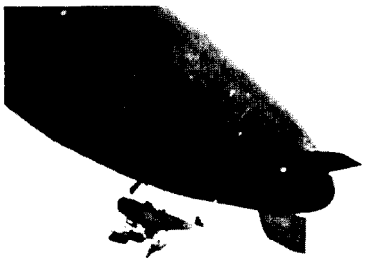
On May 29, 1917, the Navy made a contract with the Goodyear Tire & Rubber Company of Akron, Ohio, to train 20 men in free ballooning and in the operation of kite balloons and dirigibles. Negotiations for this training began before the declaration of war. Goodyear had already started construction of a training field and, when the contract was signed, was ready to receive the students. The story of the first men to be trained there is told by one of them, Naval Aviator No. 101.

First Lighter-Than-





LOOKING SOUTH *from the landing field at Akron (left); above, the French dirigible "Capitaine Caussin," a sight well known to Akron men reporting for duty in France.*



A TRANSFER *at sea off NAS Key West, Fla., where some of the Akron students reported for duty after completing their training.*

Air Class at Akron

LIKE hundreds of young Americans in the spring of 1917, I wanted to fly—and I wanted to fly Navy. All I had to back up the desire was less than a year of college and five years of weekend ballooning as a member of the Flight Club at Akron, sponsored by Goodyear. I was working in Chicago at the time and I haunted the local recruiting office and the Great Lakes Training Station, seeking a way in.

In mid-May I received my call. A letter from Great Lakes, stating that I was eligible for enrollment as a Seaman 2nd Class, Class 4, for training in aviation, instructed me to report for a physical. I reported and I flunked—underweight! My only recourse was to request a waiver, but no one knew how long that would take or if indeed it would be granted.

One of the circulars accompanying the letter from Great Lakes referred to "work to be done about aircraft (airplanes, seaplanes, balloons and dirigibles)." This indicated to me that Goodyear might be involved. Since Akron was my home and I was a former Goodyear employee, I got on the phone and learned that extensive plans were being formulated for Navy lighter-than-air training at Akron and that Goodyear was indeed involved. Details would have to come from the Navy Department, but Navy personnel in Chicago were helpful to the point of indicating that the program was to get underway on June 1st. They also suggested that I go to Akron to see the senior naval officer. They gave me a letter dated May 26, 1917, addressed to that officer, stating that waivers on weight had been requested and that I was otherwise qualified.

On arrival in Akron, an inquiry or two revealed the senior officer's name, Lt. Louis H. Maxfield, and his current headquarters. An early phone call on a

First Lighter-Than-Air Class at Akron

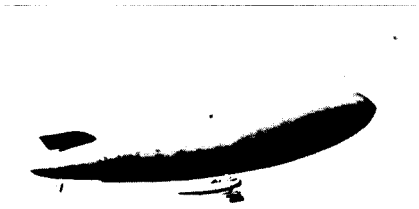
rainy morning announcing the arrival of his first trainee, who was not even enrolled in the Navy, was, he told me later, somewhat of a surprise. Lt. Maxfield instructed me to meet him next morning at 0830 for a trip to the "station" located at Fritsche's Lake (later Wingfoot), a few miles southeast of Akron. After reminding me not to discuss my un-enrolled status with anyone, we took off in a pickup truck assigned to the unit by Goodyear. En route, we speculated on where the rest of the trainees were and when they might arrive.

The station area was a sea of mud. However, a landing field had been cleared and leveled, a hangar measuring 400x100x100 feet was almost complete, shops had been built and equipped, a hydrogen plant was ready for use and barracks for the students and quarters for the officers were finished. A temporary mess hall had been provided in a farm house on the property and work was being rushed on larger barracks, mess halls and other facilities necessary to house the station complement of enlisted men when they arrived. All this construction on al field of roughly 720 acres was done in an incredibly short time by contractors working night and day under Goodyear supervision.

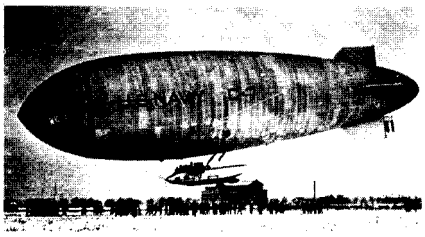
I learned that arrangements as they stood at the time were that Navy would provide the trainees and Goodyear would do the rest. This included furnishing the equipment and supplies, providing instructors for flight training and for some of the ground school subjects such as elementary physics and meteorology, and responsibility for the day-to-day operation of the field. Naval officers would teach navigation, seamanship, signaling, communications and—Drill! Later many of these subjects were transferred to special Ground Schools such as the one at MIT, but for our gang, Wingfoot Lake was it.

Returning to town, we found that three officers and one trainee had arrived. The officers were: Ltjgs. Emory W. Coil and Ralph G. Pennoyer and Ens. Frederick P. Culbert, all of whom would serve on the staff; the trainee was Colley Bell. Next day we moved to the station. Ens. Culbert drove his own car, the rest of us piled into the pickup. I don't know how the officers worked out the assignment of quarters, but Bell and I had free choice in the barracks and we picked bunks in the corner, where there was good cross-ventilation, and far away from the stairs and showers.

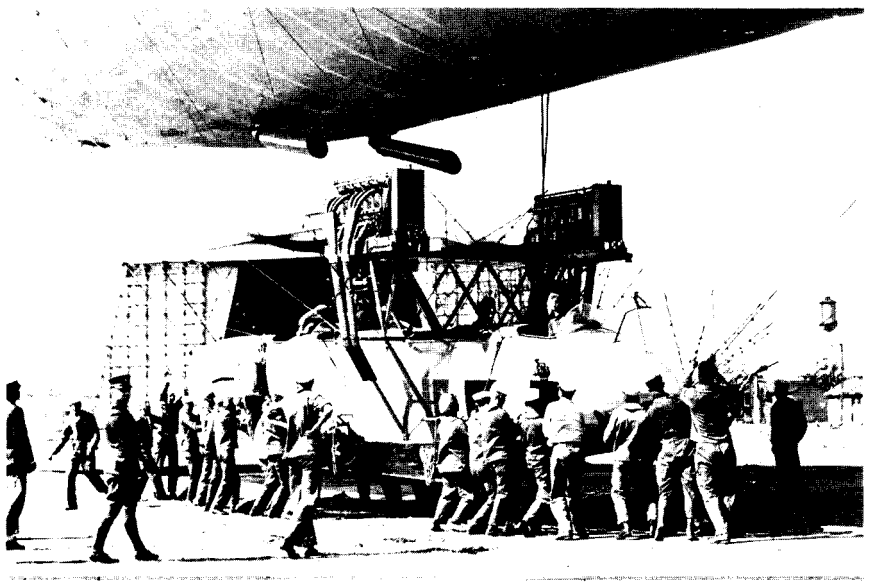
Before too long, we were called below—pleasantly enough, this being the first time—and asked what experience we had in drill. Our answer was negative. Every day from then until the rest of the group arrived, the two of us marched and countermarched, forward and to the rear; we advanced as skirmishers, faced right, left and about; and soon could do the grand right and left by squads with our eyes closed. We heard many a snicker and guffaw from the civilians, but our officers appeared to take it seriously, as indeed we did. Neither one of us will ever forget Ens. Culbert.



B CLASS AIRSHIP



NAVY'S C-7



AT PENSACOLA, *April 1920, ground handling crew holds the C-7, later to become the first airship inflated with helium. The C ships arrived too late for extensive use in the war.*

AFTER ONLY a few days, which seemed like weeks to Bell and me, the main body of the first class arrived. As finally constituted there were 12 members, as follows: Colley W. Bell, Arthur D. Brewer, Noel Chadwick, George Crompton, Merrill P. Delano, Richard C. Gartz, Warner L. Hamlen, Charles G. Little, Ralph M. Strader, Andrew B. Talbot, William P. Whitehouse and Arthur S. Williams. Of the 12, seven were from Harvard.

After reporting aboard, the scrambling for bunks ended up with all hands reasonably satisfied. Compared with some of the quarters in those early days, we were well off, as many of us were to learn in future assignments. Class schedules were now posted, notebooks broken out, and we were ready for the serious business of learning to fly.

We started on the ground with classes in Theory of Flight, Meteorology, Signaling and Radio, Engines,

much of which was practical work, and—Drill. Flight training was in three types of lighter-than-air craft. We began with kite balloons which were tethered by a cable to a winch on the ground. Three flights were required at between one and two thousand feet, primarily to accustom us to the sensation of being in the air but also to give us some experience in reading instruments. From these, we graduated to free balloons. These ride the air and wind currents and can be controlled only to the extent of changing altitude to meet air moving in the general direction of desired travel. The balloon rises when ballast is dropped; descends when gas is valved. We made three flights as passengers in these balloons and then two solo flights of about one hour each. On the latter, the student supervised inflation, directed the start and, after landing, deflated and packed the balloon for return to base in a pickup truck.

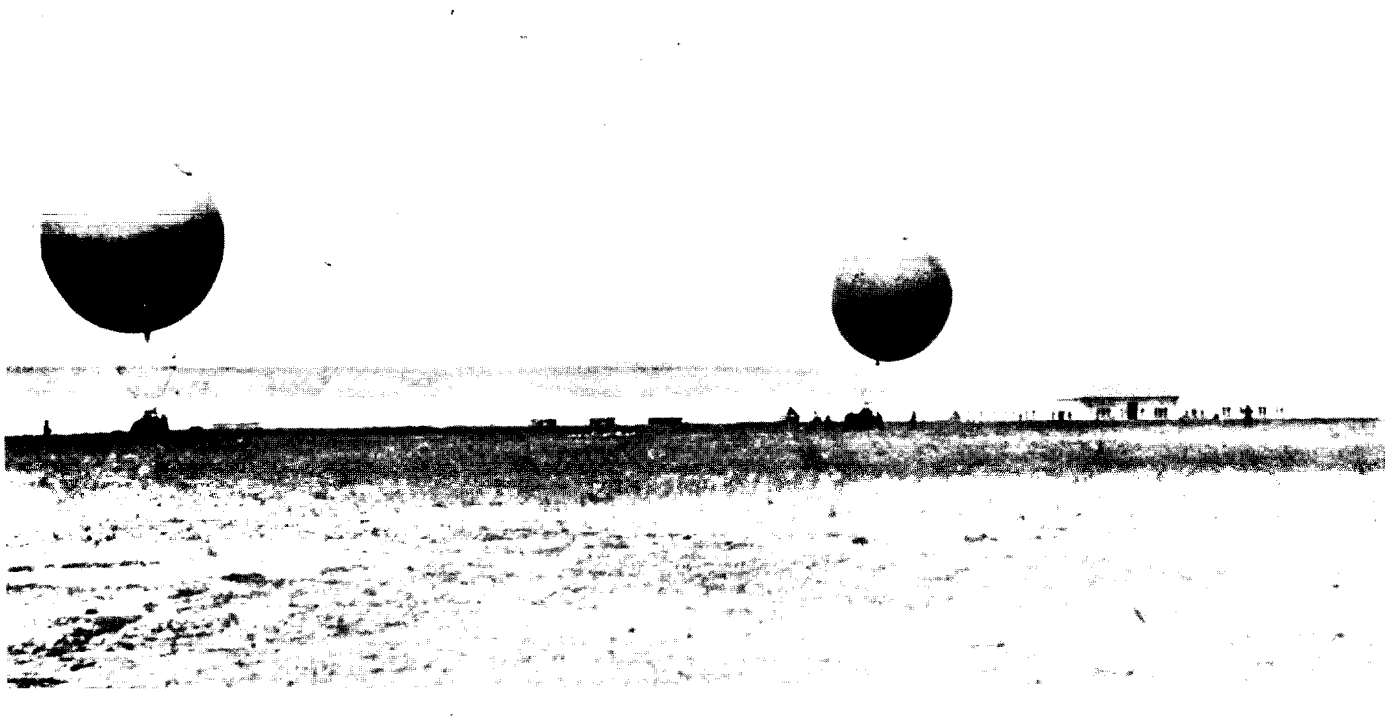
One of my darkest moments occurred during my first free hop. Lt. Maxfield was the skipper and there were two others in the basket with us. Lift-off was uneventful. We sailed along, keeping an eye on the ground crew following us in the pickup truck. It carried two students who would exchange places with us as we made two intermediate landings. On the first landing I was to be first out and, in spite of my previous experience in ballooning, all I could think of was the "step lively" instruction given by the skipper. I was out before my replacement had a chance to get aboard and with the load suddenly lightened the balloon went up, fast, to almost 9,000 feet, before the skipper could stop the ascent. I didn't dare look up. They lost so much gas stopping that further flight had to be abandoned and I had to face the stony silence of all of them as we packed up the balloon and loaded it on the truck for return to the station.

From balloons we progressed to blimps. The first we flew were the A type, slimmer and more pointed than those of later years. Then we moved on to the B's, but there were many modifications of both. The earliest had three ballonets inside the envelope, the center for hydrogen and those fore and aft for air. The air bags were separately connected to a blower engine in the car. By blowing air into or exhausting it from these ballonets, the nose or the tail could be made heavy or light to bring the nose up or down. The volume of air also provided pressure to compensate for the expansion and contraction of the hydrogen gas during ascent and descent, thus retaining the shape of the envelope and the tension on all cables to the car. In later models the arrangement of the ballonets was modified and an air scoop set in the prop wash replaced the blower engine, but the principle of operation remained the same. The car was simply a modified Curtiss *Jenny* fuselage, complete with OX-5 engine, slung under the bag. Skids with small pneumatic bumper bags underneath were used instead of wheels. Three-place affairs, the forward seat was for the mechanic, the after seat for the aide and the center seat for the pilot. Progress of the student determined his place. The course required 18 flights in all. On the first five, the student served as mechanic with responsibility for starting the engine and watching over it generally. On the next five, he rode in the back seat from which point he operated the blower motor, if the blimp had one, and began operating the dual controls under direction of the pilot/instructor. Assuming he was ready, he then took over as pilot with the instructor in the after seat, and, after a few flights in full command, he was ready for the final qualification flights.

Our first muster was something to see. Uniforms were only things to dream about and look forward to. Nothing matched anything; black shoes—brown shoes, yachting caps—pancake caps, wrap-arounds—leather puttees—no puttees, jodhpurs—slacks; each outfit reflected individual personality. Not a few Adam's apples bobbed up and down as our officers

THE FIRST CLASS. *Students standing: Gartz, Whitehouse, Delano, Williams, Talbot, Little, Brewer, Hamlen, Strader, Crompton and Chadwick. Sitting: Pennoyer, Norfleet, Culbert, Preston (of Goodyear), Maxfield (C.O.) and Coil. The mascot is Maxfield's Lanny.*

First Lighter-Than-Air Class at Akron



looked us over. Lt. Maxfield took appropriate action. Within the week, a naval tailor from Washington promised an early appearance which he made, complete with tapes, chalk, measurement pads, swatches and photographs gallore—to show how we would look. Visions of khakis, greens and dress blues, leather puttees, shoulder boards and caps with assorted covers were just too much for some of us. All evening the phone was kept hot as families, sweethearts, girl friends and business friends had to be told the good news. It was mid-July, however, before the uniforms arrived. Having them perked up our appearance considerably; we all stood a little taller and straighter.

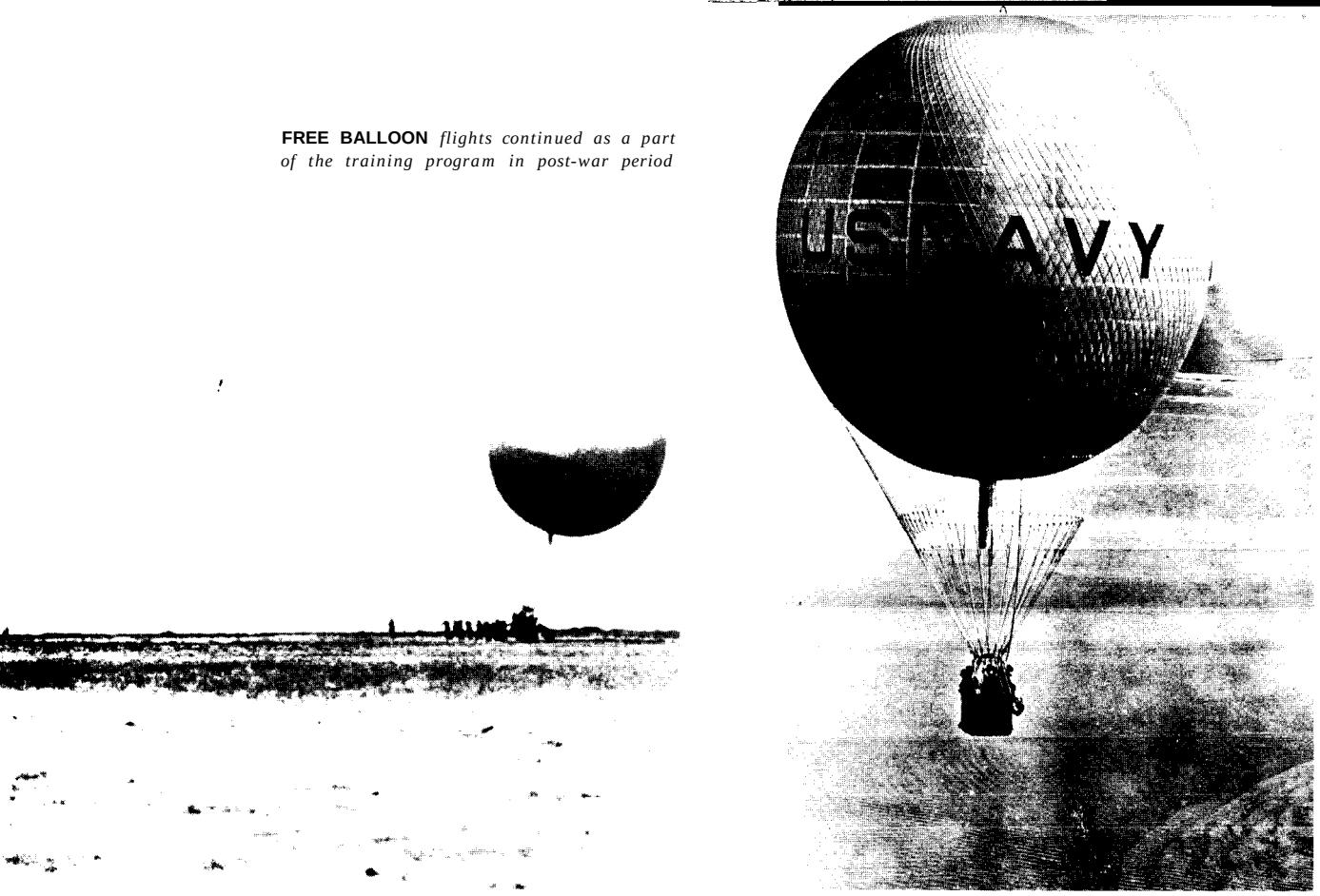
On June 22nd, Lt. Maxfield issued orders involving actual flying of naval aircraft to all of the group—except me. I was still not enrolled. But on that same day, I was notified that my request for waiver had been granted and I could now be sworn in. After better than three weeks of hard active duty, I was finally in the Navy.

Training went along on schedule. With preliminary ground school well underway, we started in kite balloons on June 16, moved to free balloons the next week and then progressed to blimps about the middle of August. We accomplished some things that loom important today but at the time none of us knew enough to realize it. We did know what was going on, however—we were flying like crazy. This was particularly true after a distinguished looking, middle-aged gentleman arrived on the station, carefully carrying a glass tube or bottle some 20 inches tall. We had no idea what it was but it looked exactly like today's radio tube in a giant economy size. It was Dr. Lee DeForest who, with Lt. James Lavender, was engaged in a research project associated with ground-to-air communications. Between training flights, we took them up or helped handle the lines, day after day. Sometimes they would scarcely be clear of the ground before the "land" signal was given and down they would come again. It was exhausting work but it gave us what we know now was an opportunity to participate in a small way in an important development.

Eventually these experiments were completed and our training continued. By now we were flying on longer and more frequent flights. Night flights came into the picture and, although we had all been up at night in a balloon, a night flight in an airship was an interesting experience. Finally we began to qualify. On September 21, the first eight men successfully passed the final tests and when the recommendation of our commanding officer was approved by the Secretary of the Navy on October 5, 1917, they were designated Naval Aviators (Dirigibles). The others qualified not too long afterwards.

By late October, shoulder boards and cap devices could be broken out and our uniforms were complete. We were now Ensigns, USNRF, and ready for any operational task to which the Navy might decide to assign us.

The detachment of our commanding officer, LCdr. L. H. Maxfield, and Ltjg. F. P. Culbert on September 27, and the assumption of command by Lt. E. W. Coil was the beginning of the change. But for us the real break-up began on October 7. On that day, seven of us destined for immediate assignment overseas were given leave



FREE BALLOON *flights continued as a part of the training program in post-war period*

to await further orders. They came on November 2. We were ordered to France with several stops en route. It turned out to be quite a tour.

On November 9th, we gathered at the Brooklyn Navy Yard—Strader, Talbot, Whitehouse, Brewer, Little, Delano and Hamlen—and sailed aboard the American liner *St. Louis.* The monotony of the voyage was tempered by the company of young ladies of the Red Cross, chaperoned by Mrs. J. Borden Harriman, en route to service in France. After landing at Liverpool, we "Reported Aboard" to the American Consul at Liverpool; to Admiral Sims and the Naval Attache at London; to the Commander, U.S. Naval Aviation Forces, France, and the Naval Attache at Paris; to the Commandant, Centre d'Aviation Maritime and the U.S. Navy Senior Officer Present at Rochefort; to the Commandant, Patrouilles Ariennes de la Loire at St. Nazaire; and to the U.S. Navy Command at Center de Dirigible, Paimboeuf.

Although there was little chance of getting lost on this one-week journey, what with the "tabs" being kept on us, there was at least one bright spot—and one dark one. The first was a pleasant reunion with LCdr. Maxfield at Rochefort which carried on to duty at Paimboeuf under his command. The shocker was our first lunch at the Officers' Mess at Rochefort where we were informed that we were to speak only French in the Mess as well as elsewhere on board, as quickly as we could get a working vocabulary in shape. The second was that the entree at our first meal was escargots—snails, by whatever other name, to me! Thank goodness there was plenty of *vin rouge* available.

Those less fortunate than we were assigned to duty at lighter-than-air patrol stations along the Atlantic Coast. Gartz went to Cape May, Bell to Rockaway, Crompton and Williams to Montauk Point, and Chadwick, who would eventually go to Key West, stayed on at Akron to help train the next class. It was considerably larger than ours and included many of the enlisted men who had handled our lines and kept us flying.

Others who took training with this class while serving on the staff or in other capacities included L. H. Maxfield, E. W. Coil, F. P. Culbert, R. G. Pennoyer and W. G. Child, all of whom qualified before leaving, and Ralph Kiely, Zachary Lansdowne and J. P. Norfleet, who completed their training at other locations.

Training continued at Akron through the war period and as more men acquired the necessary skills, the Navy gradually took over more of the responsibility for instruction and upkeep. When graduates of the Ground School at MIT began arriving, some reduction in the length of the course was possible by eliminating some of the ground subjects already covered at that school.

This was the first airship pilot-training program established by the Navy. Through the war, Akron remained the main source of LTA pilots, although some were trained at other stations. The Company and the many people of Goodyear, who undertook this program without previous experience in airship design and with very little background in their operation, deserve credit and praise for their enterprise, their contribution to the war effort and, above all, their work in making this the true launching of the Navy's lighter-than-air program.

AFTER SIX MONTHS OF WAR

The program was beginning to roll. Units were being organized, stations were going into operation, war patrols were being flown and the number of qualified aviators was about to be quadrupled. Much remained to be done but actions taken early in the war were producing tangible evdence of steady progress toward expansion.

OCTOBER 1917

1—An Act of Congress transferred control of the Aircraft Production Board from the Council of National Defense to the War and Navy Departments, enlarged its membership for greater service representation and changed its title to the Aircraft Board.

6—The Secretary of War authorized the Navy to use part of the Army field at Anacostia for a seaplane hangar. Terms of use were within those of a revocable license, beginning 1 November 1917, for the duration of the war and six months.

14—The Marine Aeronautic Company at Philadelphia was divided into the First Aviation Squadron under Capt. W. M. McIlvain, USMC, and the First Marine Aeronautic Company under Capt. F. T. Evans, USMC. On the same day, the latter command transferred to Cape May, N. J., for training in seaplanes and flying boats; three days later, the First Aviation Squadron transferred to the Army field at Mineola, Long Island, for training in landplanes.

15—NAS ROCKAWAY BEACH was commissioned with LCdr. Warren G. Child in command. Originally established for seaplane patrol and kite balloon training, facilities for LTA patrol were added before many months.

16—Only 67 days after ground was broken for construction of the Naval Aircraft Factory, its first power-driven machine went into operation.

21—The 12-cylinder Liberty engine was successfully flown for the first time in a Curtiss HS-1 flying boat at Buffalo, N.Y. This and other successful demonstrations led to adoption of both engine and airplane as standard service types.

22—Special courses to train inspectors of aeronautical material were added to the Ground School program at MIT with 14 men enrolled.

24—Instruction began at NAS MOUTCHIC, France, a U.S. training station serving naval air units in Europe, with organized classes in the Ground School and dual instruction in the Flight School.

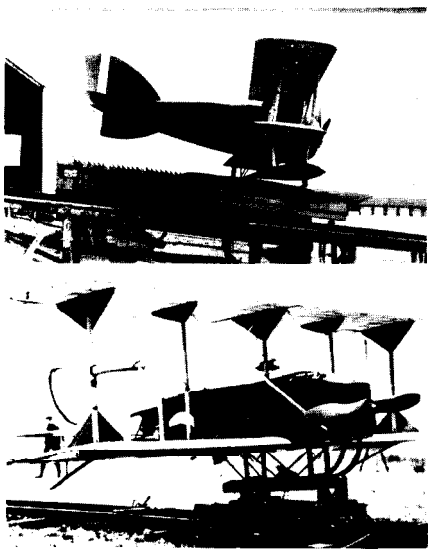
24—United States Naval Aviation Forces, Foreign Service, was established over all Naval Aviation forces abroad under command of Captain H. I. Cone.

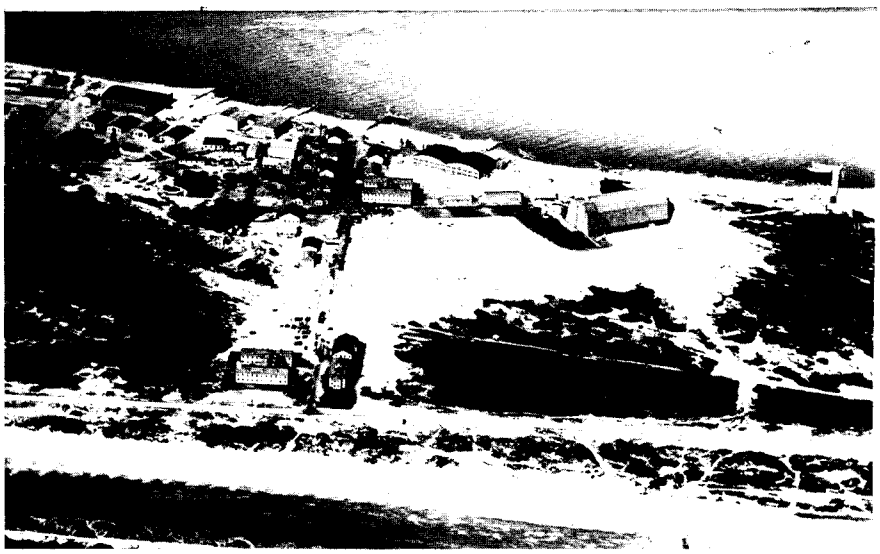
NOVEMBER 1917

2—Twelve men who had organized as the Second Yale Unit and had trained at their own expense at Buffalo, N. Y., were commissioned as ensigns and soon after were designated Naval Aviators.

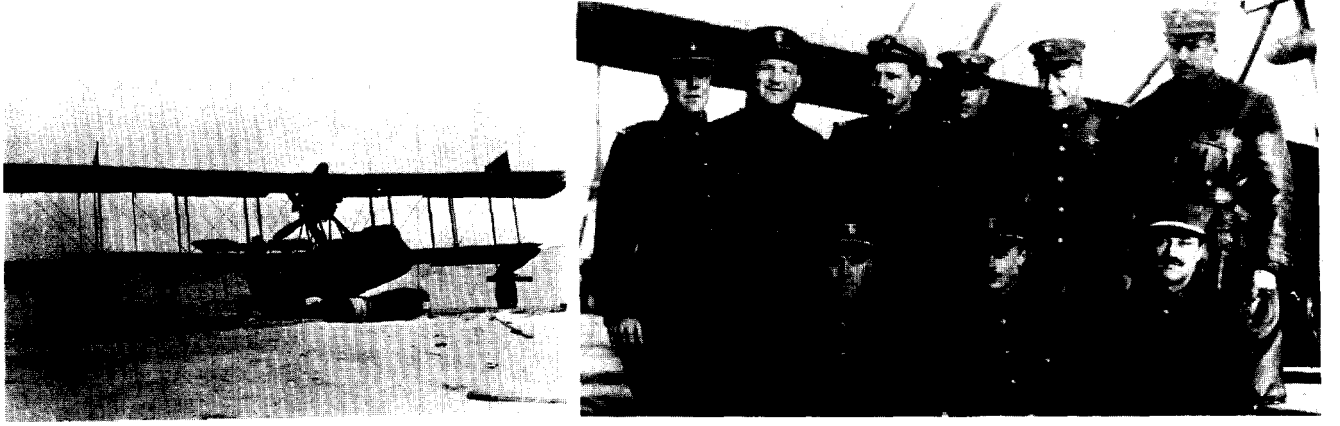
5—To coordinate the aviation program within the Navy Department, Captain N. E. Irwin, Officer in Charge of Aviation, requested that representatives of bureaus having cognizance over some phase of the program meet regularly in his office to discuss and expedite all pertinent matters.

9—Permission was received from the government of Argentina to use three officers of the Argentine Navy, recently qualified as U.S. Naval Aviators, as instructors in the ground school at NAS PENSACOLA. The men were: R. Fitz Simon, Ceferino M. Pouchan and Marcos A. Zar, numbered 95 a, b and c respectively in the precedence list of Naval Aviators.





CURTISS *HA initiated the Navy's development of fighter aircraft. The Flying Bomb was an early attempt to develop a guided missile. NAS Rockaway supported seaplane and blimp patrol of approaches to New York Harbor; was later starting point of NC trans-Atlantic hop.*



HS-1 *Curtiss patrol plane was test bed for 12-cylinder Liberty. Men at Le Croisic upon commissioning, back: C. Wheatley (MC), Paymaster J. C. Bequette, W. M. Corry (C.O.), R. H. Bush (X.O.), S. S. Walker, R. G. Coombe; front: K. R. Smith, H. H. Landon and interpreter.*

10—A Navy "flying bomb," manufactured by the Curtiss Company, was delivered for test to the Sperry Flying Field at Copiague, Long Island. Also called an aerial torpedo and closely related to the guided missile of today, the flying bomb was designed for automatic operation, carrying 1,000 pounds of explosives at a specified range of 50 miles and top speed of 90 miles per hour. In addition to this specially designed aircraft, N-9's were also converted for automatic operation as flying bombs that were closely related to the guided missile of today.

14—A major step in assuring the success of the Navy's WW I aircraft production program was taken when the Secretary of War, Newton D. Baker, approved a recommendation "that priority be given by the War Department to naval needs for aviation material necessary to equip and arm seaplane bases."

15—A Committee on Light Alloys, with Naval Constructor J. C. Hunsaker a member, was established within the NACA (National Advisory Committee for Aeronautics) to intensify the effort to develop light metal alloys for aeronautical use.

21—A demonstration of the Navy N-9 flying bomb at Amityville, Long Island, which was witnessed by Major General George O. Squier, USA, led the Army to establish a parallel project.

22—A Tellier seaplane, piloted by Ens. K. R. Smith with Electrician's Mate Wilkinson and Machinist's Mate Brady on board, was forced down at sea on a flight out of LeCroisic to investigate the reported presence of German submarines south of Belle Isle. Two days later they were rescued by a French destroyer and minutes after being taken aboard, their damaged plane sank to the bottom. It was the first armed patrol by a U.S. Naval Aviator in European waters.

24—In discussing the development of aircraft torpedoes, the Chief of Naval Operations pointed out that available aircraft could carry a load of not more than 600 pounds and thus were incapable of delivering by this means an explosive charge large enough to seriously damage a modern warship. This problem, the size of an effective torpedo versus the capabilities of aircraft, retarded torpedo plane development in WW I and continued as an important factor in post war years.

27—NAS LECROISIC, France, was commissioned with Lt. William M. Corry in command. Located just south of the Breton Peninsula, the station provided seaplane patrol over convoys entering the Loire River. It was the first overseas patrol station to go into operation.

DECEMBER 1917

1—NAS PAUILLAC was commissioned as an assembly and repair and supply station for all U.S. naval air stations in France. Ens. R. F. Nourse was acting commanding officer until Lt. Henry B. Cecil arrived in February.

4—NAS CAPE MAY, N.J., was commissioned as a seaplane and LTA patrol station. The First Marine Aeronautic Company trained here from 14 October until it departed for duty in the Azores in January.

5—The policy regarding helicopter development was established by the Secretaries of the War and Navy Departments on the basis of recommendations made by the Joint Technical Board on Aircraft. Basically, need for improvement in power plants and propellers was recognized as necessary, but actual support of development efforts was to be limited to moral encouragement until a vendor had demonstrated a helicopter of military value.

7—The development of fighter type aircraft was initiated with the Secretary's authorization for the Curtiss HA or "Dunkirk Fighter." This single-pontoon seaplane was equipped with dual synchronized machine guns forward and dual flexible machine guns in the rear cockpit.

7—The Naval Aeronautic Station Pensacola was redesignated a Naval Air Station.

15—The Marine Aeronautical Detachment, under command of Capt. Roy S. Geiger, was organized at Marine Barracks, Philadelphia Navy Yard.

18—NAS KEY WEST was commissioned. Used chiefly as an elementary flight training station, it was also a base for patrol operations.

22—The addition of an Aerography School to the training program at MIT, in which a major portion of the instruction was carried out at the Blue Hill Observatory at Harvard University, was marked by the start of classes with one student enrolled.

31—The First Aviation Squadron of the Marine Corps, under command of Capt. W. M. McIlvain, transferred from Mineola to another Army facility, Gerstner Field, Lake Charles, La., for advanced training in landplanes.