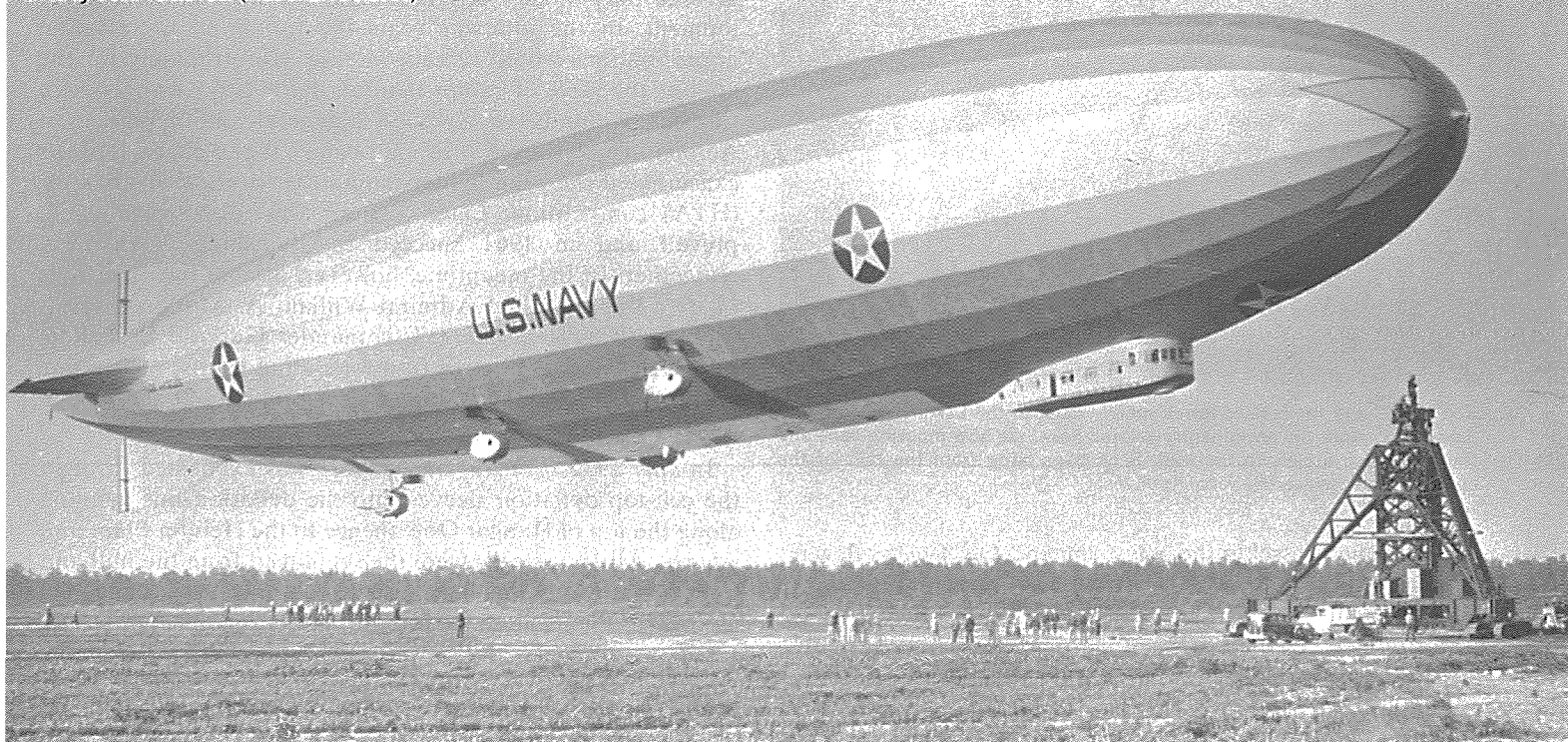


Released from the mobile mooring mast, the veteran U.S.S. LOS ANGELES rises on static take-off, Naval Air Station, Lakehurst, New Jersey. The photograph is dated 23 June 1932, one week before her decommissioning. The control car, fins and the nose have been painted yellow by Station riggers and a second star-in-circle added to the airship's starboard (and port) side as "visibility markings." LOS ANGELES retained this color scheme for about two years. The airplane hook-on trapeze amidships has already been removed. (National Archives)



THE DECOMMISSIONED U.S.S. LOS ANGELES

PART I: 1932-1940

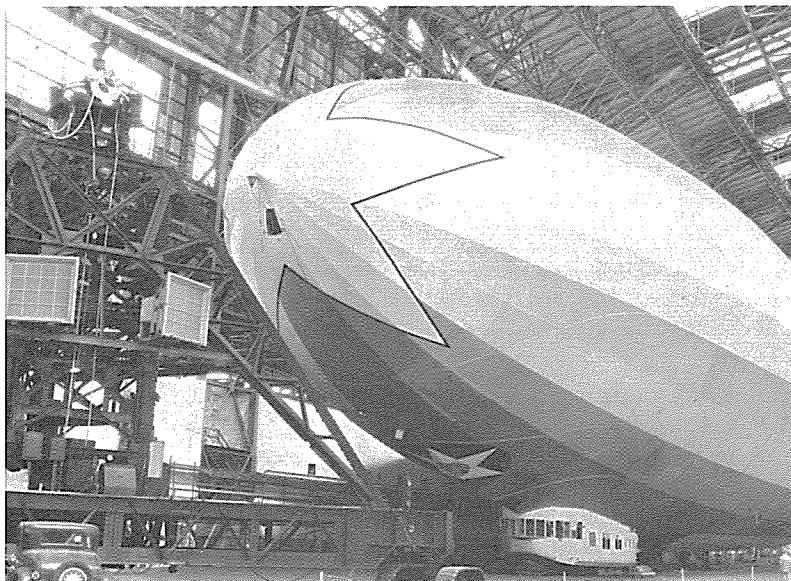
BY WILLIAM F. ALTHOFF

The rigid airship U.S.S. *Los Angeles* (ZR-3) was built by the Zeppelin Company in 1922-24, and delivered to the U.S. Navy as reparations in 1924. After a transAtlantic delivery flight of 81 hours, and attended by immense enthusiasm, the LZ-126 (the builder's number) settled onto the East Field of Naval Air Station (NAS), Lakehurst, New Jersey, on October 15th of that year. From her homeport at Lakehurst *Los Angeles* would be operated for nearly 8 years as a commissioned vessel of the Navy. Her lifespan, moreover, proved to be the longest of any rigid airship ever constructed. For the development and perfection of equipment and for the training of airship personnel, *Los Angeles* became indispensable to Navy lighter-than-air (LTA). Operational doctrine was exercised and refined with the ship and, between 1925-1931, *Los Angeles* provided a much-needed continuity to the Navy's rigid airship program.

During the in-commission years 1924-1932, *Los Angeles* was the test bed for several vital airship developments. Ground handling had always been the *bête noire* of the rigid airship. After a prolonged period of experimentation beginning in 1927, mechanical handling gear for airships on the ground was developed and refined with the ship. Tested

initially on *Los Angeles*, the development of airship/airplane hook-on gear had begun in 1929. Hook-ons to *Los Angeles'* trapeze soon became routine over Lakehurst; by 1932 the equipment was operational on the new U.S.S. *Akron* (ZRS-4) and would reach its ultimate refinement later on the U.S.S. *Macon* (ZRS-5). *Los Angeles* has been, moreover, an important public relations and "demonstration" airship, and by 1932 had been used in a great variety of other projects. These included radio direction finder calibration, scientific flights involving astronomy, meteorology and aerodynamics, sea rescue operations, and for innumerable tests and structural analyses applicable to the next generation of rigid airships.

With the arrival at Lakehurst of *Akron* in October 1931, the Navy's rigid airship program seemed to be one of bright promise. The Navy now possessed two commissioned rigids with a third under construction. These large, modern ships were a signal advance in airship design, construction and workmanship. With them the small airship organization would prove at last the efficacy of the rigid airship to a skeptical Navy, and it was an exciting and busy period at Lakehurst. The *Akron* was first commissioned on 27 October 1931. On 2 November and as *Akron's* first flight as a



The "L.A." and the tractor-towed mobile mast in the Lakehurst hangar, 3 June 1932. Note the prominently painted nose, the bow mooring cone and the bow-hatch access to the keel. Sand bags hang from the rails of the control car as ballast. (National Archives)

commissioned vessel in the Navy, she and *Los Angeles* flew in formation from Washington, D.C. to New York City—the first formation flying by rigid airships in the United States. Unfortunately for the history of the rigid airship in the Navy, this November flight would be the only such occurrence.¹ The nation was sliding deeper into the Depression; ever short of operating funds, the Lakehurst organization was ordered soon after the flight to decommission the veteran *Los Angeles*. Rumors of this action had already been circulating and were confirmed when some of the ship's complement received their orders of transfer. Some of these men went to the *Akron*; others to the *Macon* Detail. At the end of the 1932 fiscal year the order was carried out and *Los Angeles* was formally decommissioned on 30 June 1932. A small ceremony was held in Hangar One and the airship's commission pennant was struck for the last time. It was a solemn occasion for the crew of the *Akron*, now occupying the south side of the hangar, and for the other airshippers on board the Station, nearly all of whom had served on the "L.A." However unpopular, the decommissioning seems nevertheless to have been accepted philosophically. With the modern *Akron* now on board and her sister ship under construction in Ohio, most thoughts were with the two Goodyear-Zeppelin ships. Three years later, with both lost and the rigid airship program moribund and confused, the LTA community would push hard for *Los Angeles*' return to commissioned status—or for a new training airship to replace her.

The decision to retire *Los Angeles* was officially one of "economy"; this was supposed to be temporary but *Los Angeles* never flew again. Chronically short of airship appropriations and with *Akron* in commission, by 1932 there was little inclination in Washington to devote funds for the aging airship. The problem was compounded on 22 February 1932 when the *Akron*'s lower fin was badly damaged during a Lakehurst undocking. The repairs cost the Navy more than \$100,000 and *Akron* did not fly again until late April. In the meantime the air station's operating budget apparently was not sufficient to repair *Akron* and operate both airships

(much less the upcoming *Macon*) in the forthcoming fiscal year (July 1932-July 1933).

This chronic shortage of airship funds had its roots in politics as much as in economics. In the 1920s and into the '30s the Navy was dominated by the battleship element, who saw comparatively little value to airships or aeroplanes and favored only modest appropriations for their military development. In the interwar years the infighting for aviation appropriations would remain intense. Unfortunately for the airship, the voice of lighter-than-air in the Navy was always a tiny one; within Naval Aviation in general, and the Bureau of Aeronautics ("BuAer") in particular, the meager budgets exacerbated the keen lighter-than-air versus heavier-than-air (HTA) competition. Later, the airships' opponents would prevail and in 1961 succeed in abolishing Navy LTA altogether. In the meantime, however, despite the objections of then-Bureau Chief Admiral William A. Moffett and his remarkably able assistant, Commander Garland L. Fulton, *Los Angeles* was removed from operating status. As a flying classroom and for the continued development of doctrine and materiel, her decommissioning was an incalculable loss.

In July 1932, *Los Angeles*' helium was exhausted through the cell-top deflation sleeves into the deflation line running along the top of Hangar One, thence to the Helium Plant and storage. All 14 gas cells were then removed from the hull and stored in the nearby Gas Cell Shop. Here the controlled temperature and humidity would inhibit deterioration of the fragile material. The hull itself had been suspended from the hangar overhead by cables to each of her main frames. Equipped with dynamometers, the tensions in these cables could be adjusted to accommodate changes in the airship's static condition or the "breathing" of the hangar structure itself. As was the practice for major repairs and layups, the keel was shored from the hangar deck with cedar poles to each main and intermediate frame, and the wooden "high cradle" was moved into place beneath the control car. Her Maybach engines were removed to the hangar shops and support platforms were wheeled in and wedged under the five power cars. The ship was now in the custody of the air station's Assembly and Repair (A & R) Department. Except for maintenance, inspections and the routine hangar watch, little further action was required. Occasionally student officers were given brief inspection-instruction tours of the ship, but for the next 9 months hangar activity centered on the *Akron*. *Los Angeles* would remain on cradles (or "on the sticks") until December 1934.

A year after the decommissioning, in July 1933, a Board of Inspection and Survey convened to evaluate the condition of *Los Angeles*. Upon inspection the airship was found fit to fly, with modifications. These were estimated to cost \$15,000 but the Board did not believe even this paltry sum was justified and her disposal was recommended. In 1935 *Los Angeles* could still have been restored to a limited flying status for only \$75,000, but a penurious Navy Department was reluctant to request the necessary funding from Congress. The flying career of *Los Angeles* had ended.

In the latter part of 1934, the Navy Department authorized Lakehurst to conduct extensive tests with *Los Angeles*. The reasons for sponsoring this renewed activity are not entirely clear, but almost certainly research and design data for future airships was recognized as desirable. In this respect *Los*

Angeles represented an extraordinary opportunity: here was a full-scale test and experimental vehicle for scientific work. The *Macon* could not readily fulfill this function; her operating schedule demanded time with the Fleet.² In any case, the ship was based away from Lakehurst's facilities in California. If *Los Angeles* was to be serviceable, however, the airship would have to be in at least a semi-operable condition. In the Fall of 1934 the entire structure was examined and appropriate repairs and replacements effected. In particular, the gas-cell valves, major and minor controls, engines and ballast system had to be operating normally if the airship was to be "flyable" either in the hangar or at the mooring mast. The 14 cells were also inspected; operational helium purity was not essential but all gas cells would have to be reasonably airtight. Aviation Metalsmith (3/c) William "Bill" MacDonald and a few other sailors were kept busy replacing many of the girder lattices ("spoons") which had been damaged by personnel climbing the structure. During flight operations, broken or bent lattices had been tagged when found and replaced when the opportunity afforded. *Los Angeles* by this time had been laid up for more than two years; yet, except for some structural deterioration, the airship was in generally fine condition. MacDonald, for one, thought that the ship was "as sound as a dollar." *Los Angeles* was soon ready for reinflation.

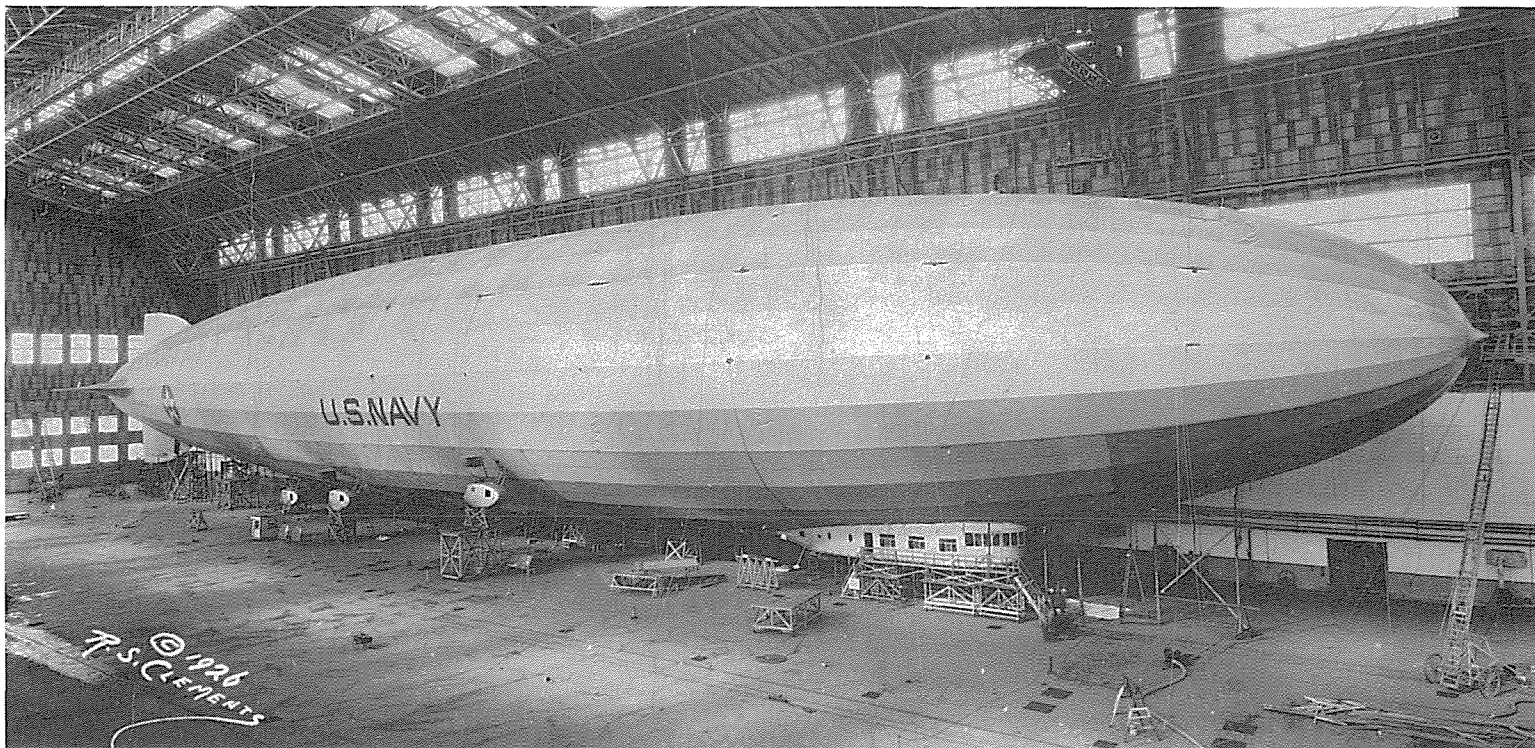
The actual reinflation was a major operation. In 1934 relatively few men remained at Lakehurst who had had airship experience of this kind. The *Akron's* complement had been scattered to other duties after her loss, many to the *Macon*; the *Macon* itself was operating from Moffett Field on the West Coast. A nucleus of perhaps a half-dozen airshipers, including such old hands as Chief Frederick "Bull"

Tobin of *Shenandoah*, assumed responsibility for the reinflation project. They were ably assisted by the LTA Enlistedmen School in session at that time; the work in Hangar One was excellent practical experience and very soon replaced classroom routines altogether. Lieutenant M.M. "Mike" Bradley was Officer-in-Charge of the reinflation. Including the enlisted men, approximately 20—perhaps as many as 30—men were involved in the repair and reinflation of *Los Angeles* in 1934.

The inflation technique was an interesting one. The gas cells were brought from the Cell Shop and laid out on canvas on the hangar deck beneath the hull. A flexible inflation hose from the hangar's helium lines was then connected to the inflation sleeve of each cell—and the cells were floated into place one by one through an opening in the bottom of the ship near the keel. The appropriate section of outer cover had been removed earlier for entry. The cell installation was a painstaking operation due to the delicate yet bulky nature of the gas cell material and the relative inexperience of the men. As each cell began to fill out and rise from the deck, positioning lines were tended from the deck and from above to guide the cell into its bay between the main frames. Once inside the hull each cell was carefully positioned and secured. When all cells were in place the general inflation of the airship proceeded. Gradually, as lift was gained from the in-flowing helium the shorings beneath the hull would loosen. At this point the civilian wireman working from the hangar overhead, Pete Ward, would be signalled to slack off the suspension cables supporting the hull from above until the shorings were again tight. This procedure was followed gradually and progressively until all the cables which had been supporting the framework were completely slack. At this time *Los Angeles* was more or less in equilibrium; that is, the

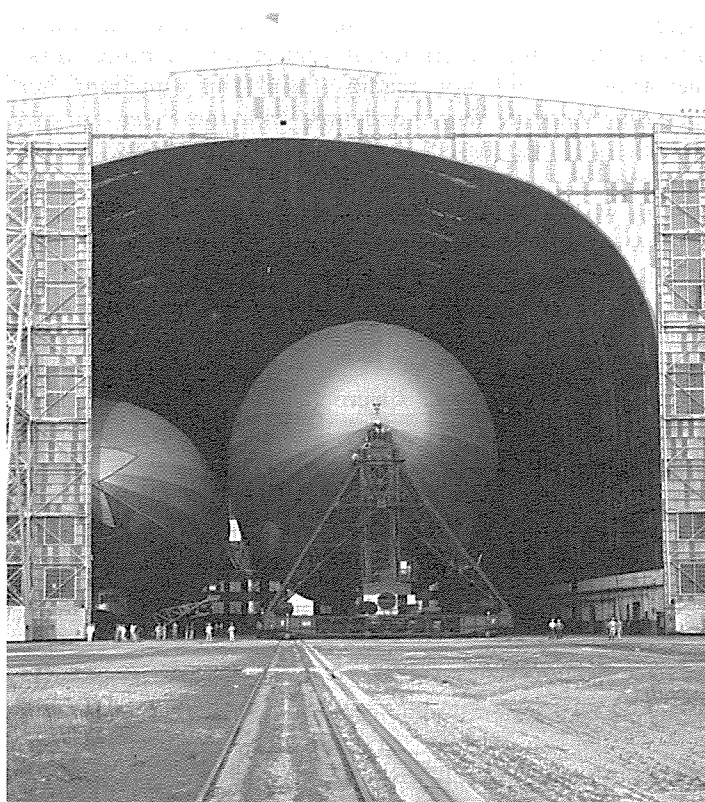
LOS ANGELES on cradles or "on the sticks" for major overhaul. A 1926 photo, the technique shown here was a routine one and used for the 1932 deflation. Cables from the hangar overhead support the airship's hull at each main frame. From below, the main and intermediate frames are shored

by cedar poles, and wooden cradles support the control car and 5 engine gondolas. Note the mobile ladder, the rails for the docking trolleys and the walkway alongside the control car. The work platform for the overhead crane is visible above the airship forward. (courtesy of H.J. Applegate.)



helium in her cells fully supported the weight of the airship. Finally, as the inflation continued, water and then gasoline ballast were pumped on board—completing the inflation operation. The work had required care, experience and patience; to Lieutenant Bradley and his men its completion was a satisfying moment. The reinflation of *Los Angeles* was completed on 14 December 1934.

Repaired and reinflated, *Los Angeles*' condition approximated that of an operational rigid airship and she could again be undocked. Beginning in the Spring of 1935 and at irregular intervals thereafter, *Los Angeles* was brought onto the West Field for "mooring out" experiments at the mast. Undocking was attempted only under ideal weather conditions; once the airship was on the field and properly secured, however, moorouts of several days duration were made. The undocking of any rigid airship was a demanding evolution and a large ground handling party would be mustered to the hangar. Inside, the airship was "weighed off" to determine her static condition³ and the mobile mooring mast was moved into the hangar and attached to the bow. The ground crew then manned the hand-rails on the control car and after-engine gondola, with smaller parties on the short handling lines and docking "trolleys." These mobile trolleys provided mechanical assistance to the ground crew and accompanied the airship on railroad-like docking rails which ran through the hangar and onto the landingsfield. When all was ready a tractor began towing the mast—and the "*L.A.*" moved bow-first onto the field. When well clear of the hangar the quick-release hooks of each trolley were tripped, the trolley-guys released and the ship was permitted to swing into the wind, the stern riding on a caster-wheeled dolly secured under No. 1 engine car aft. It then was a brief trip out to the mooring circle. This consisted of little more than a circular railroad track with ancillary equipment. When exactly centered within the circle the mast was anchored and water



The newly commissioned U.S.S. MACON berths in Hangar One alongside the decommissioned LOS ANGELES, 6 July 1933. Suspended from the hangar overhead and shored from the deck, LOS ANGELES has been deflated for one year. In October, MACON left Lakehurst for her new homeport at Moffett Field, California. The air station never again handled a commissioned rigid airship of the U.S. Navy. (National Archives)

NAS Lakehurst, in the Summer of 1935. Hangar One dominates this southeast view across the West Field towards the town of Lakehurst. The air station's facilities border the landing field at the north; the "high mast" has been demolished and only the winch house remains within the circle at center-right. Reinflated, LOS ANGELES is at the old mooring out circle for tests and a non-flight watch is aboard. (National Archives)



ballast, telephone and electric mast connections made to the airship. At the same time, the dolly was detached and a "riding out car" secured under the after-engine gondola. A metal structure resembling a small railroad flatcar, the riding out car rode the circle locked beneath the flanges of the mooring circle track. This stern-car was equipped with a scale to measure the vertical lift exerted by the airship, and also was weighted to prevent *Los Angeles* from "kiting." Once attached to the ship, the device was free to move around the circle as the airship vanned into the wind. With the "L.A." fully secured at this point, the ground crew was dismissed. On board, a non-flight 24-hour watch attended these riding out operations at the mooring circle.

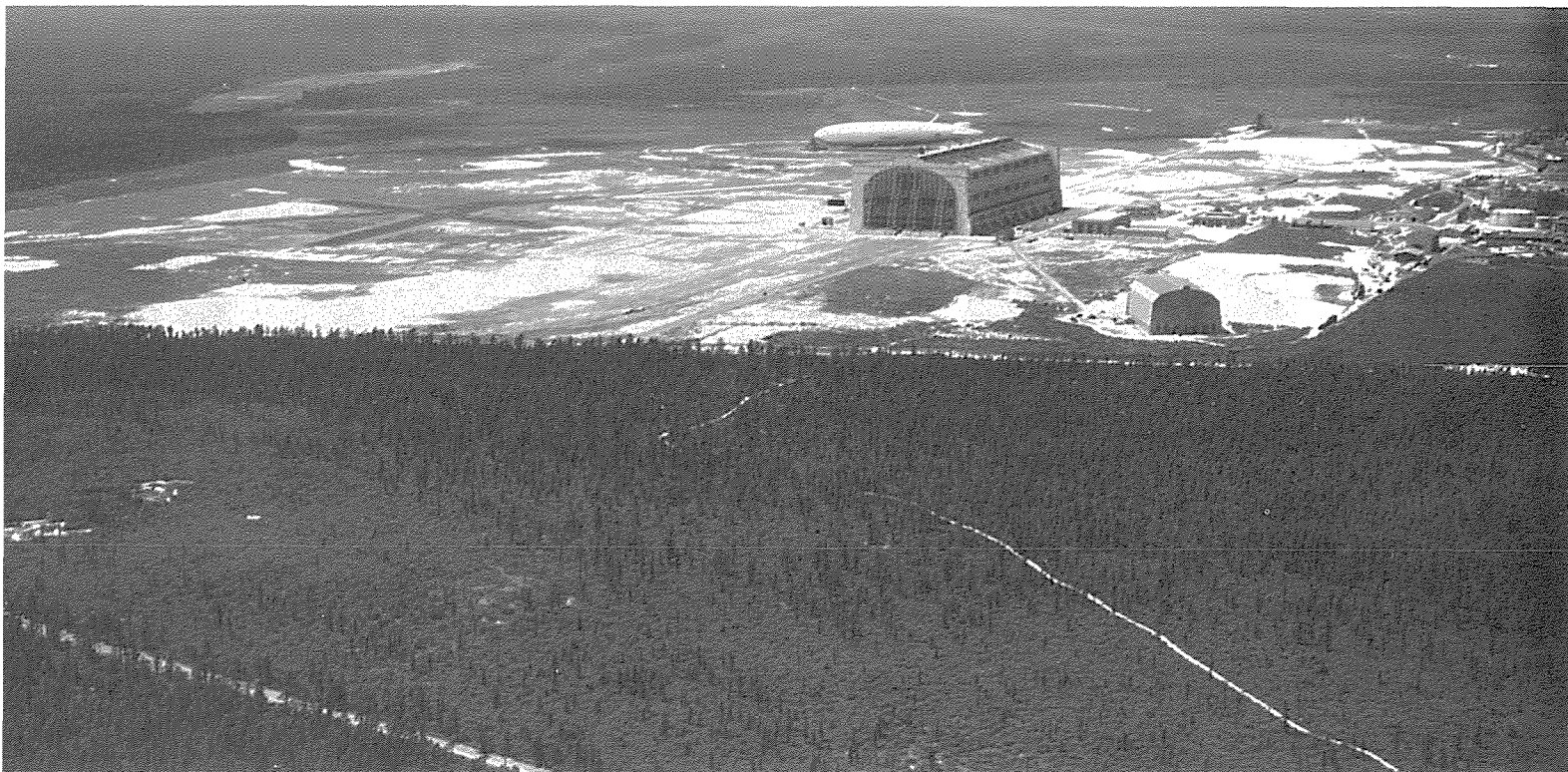
An extended period of ground tests and experimentation began. Prior to her departure from Hangar One or later during the tests as needed, *Los Angeles* was fitted with strain gauges and other instruments to read the forces applied to the hull. These were placed at her main stress points and at other locations of interest. Over the next four years, with Lieutenant Commander Charles W. Roland acting as Officer-in-Charge, a battery of tests were conducted for the Bureau of Aeronautics. While these were initiated locally or from Washington, all work was under BuAer's direction. Charles P. Burgess, one of the foremost airship design experts of his time, visited Lakehurst frequently from Washington and, with Commander Fulton, directed the experimentation schedule. With prospective airship designs in mind a voluminous amount of data was collected. Experiments included heaviness, lightness and cell fullness tests. An automatic telephone system was installed in the ship and, although somewhat heavy, demonstrated its application to the rigid airship. A 15- or 20-foot boom was installed at the bow just above the mooring point; equipped with an anemometer and

wind vane, it was used in conjunction with airflow and aerodynamic pressure distribution investigations. Various other ground gear and ground handling investigations also were carried out, as were outer cover experiments, structural tests and other research and testing projects. These would continue intermittently until the airship's dismantling in late 1939 when final strength tests were conducted in the hangar. The very last of these involved the over-inflation of Cell No. 7; when completed, this last gas cell was removed and the cutting down of the hull was begun.

After her reinflation in '34 nearly everything possible within the limitations of budget was done to keep *Los Angeles* from deteriorating. Responsibility for the maintenance, repair and servicing of the ship rested with the "Los Angeles Division." Including its very few officers, riggers, mechanics, non-rated men and civilian support, this unit consisted of perhaps 20 men and occupied the berth and shops along the hangar's north side. Non-rigid airship operations were more or less centered along the south side of Hangar One.

In Hangar One the normal in-hangar routines were conducted. At 8 A.M. most mornings *Los Angeles* was weighed off. To conserve funds in this period the helium purity in her 14 cells was allowed to drop below that required for flight operations. However, losses through valving and by diffusion through the cell walls were unavoidable and helium was added to the ship as needed. It is likely that one or more gas cells were also "purged" through the Helium plant for repurification. Occasionally, deteriorating outer fabric was stripped from the hull and new cotton panels laced into place and "doped" taut. At regular intervals the Division's "mechs" would run up their Maybachs and attend to the engines as required. Despite her decommissioned status and advanced age, a comparatively high degree of readiness was attempted and maintained throughout the 1930s. There is little doubt that with a modest amount of preparation *Los Angeles* could

Aerial oblique of NAS Lakehurst looking west. The grounded LOS ANGELES vanes into a southeast breeze, her after-engine car secured to a riding out car which rides the tracks of the mooring circle. (National Archives)



have flown.⁴ This decision, however, rested in Washington, with BuAer and with Congress. At Lakehurst, the general view was either pessimistic or, at best, hopeful that rigid airship activity would resume with a new program. The senior officers particularly, closer to the political realities and the prejudices of the Fleet, were scarcely optimistic. For the Navy's airship community it was a grim and uncertain period. Not until 1940-41 and the Battle of the Atlantic did Naval airships revive. But no rigids were built and all LTA activity passed to the non-rigid airships or blimps. In order to meet the demands of convoy escort and coastal patrol, NAS Lakehurst by 1942 was the operational, overhaul and training hub of a thriving organization.

Although *Los Angeles* was grounded and out of commission, her continued value for training was obvious. Beginning in 1936, when the (officer) LTA School was reconvened, *Los Angeles* again became an important part of the lighter-than-air training syllabus. Naval airship training had been centered at Lakehurst from the earliest years, but the School had been discontinued in 1933. In order to provide a continuity to Navy airship personnel, officer instruction on a small scale was resumed and Class X convened in June 1936.⁵

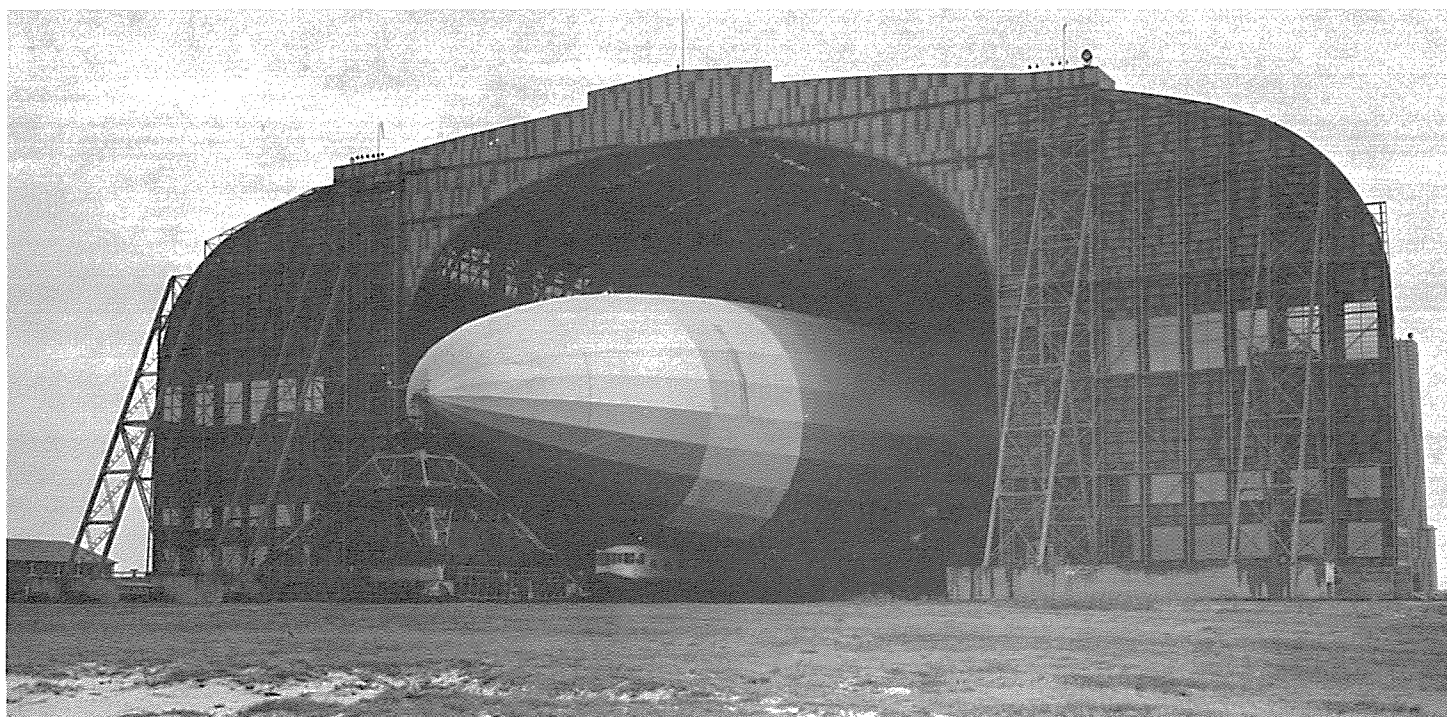
Typically, the school required about a year. As well as a comprehensive ground school instruction, student pilots received extensive training in free balloons,⁶ assisted in ground operations with all aircraft, and were required to qualify in the non-rigid airships then aboard. Familiarization classes were held on board the docked *Los Angeles*, the only rigid airship then in the Navy, to acquaint the students first-hand with rigid airship fundamentals. Student officers would observe and sometimes take part in the infrequent ground handling of *Los Angeles* between the hangar and the mooring circle. And at the circle, student officers often

comprised part of the watch.⁷

A 24-hour watch was maintained on board all rigid airships, both in the hangar and at the mooring mast. A rigid airship was, it must be remembered, a commissioned vessel in the U.S. Navy. On the decommissioned *Los Angeles*, the "hangar watch" consisted of at least two men. Those on duty made frequent inspections throughout the ship, taking cell fullness readings, noting her static condition and adjusting ship's ballast accordingly. The airship's tie-downs and cradles were also checked, any ship's papers maintained; in short, the functions of an officer-of-the-deck of all anchored or docked Naval vessels. (When in commission, the normal hangar watch complement had been one officer and six enlisted.) At-the-mast routines more closely resembled flight conditions and the watch consisted of "flying the ship at the mast." Temperature, wind and barometric pressure could change rapidly, requiring a prompt response to consequent changes in the airship's lift and trim. In the control car, the officer on watch would maintain a relative equilibrium, keeping the ship slightly heavy by dumping water or replenishing ballast bags as the airship responded to diurnal temperature changes. But things could happen quickly. On one occasion, probably in 1935, the tail kited, and *Los Angeles* lifted the riding out car and the mooring circle rails well into the air. The structure above the after-engine car was damaged and, although eventually repaired, kept the ship in the hangar for some time.

When moored out, the *Los Angeles* watch consisted of at least one officer—an airship veteran—and several riggers and mechanics to roam the keel and attend the engines, and be prepared to fly the ship should she break away from the mooring mast. One of the men would check the stern-car scale, report his readings to the control car and ensure that the circle track was clear. At least once each 4-hour watch the quick coupling atop the mast was checked. Occasionally the engines were run up. No formal instruction was conducted while on the field; instead, students would observe and assist

LOS ANGELES is undocked from the west end of Hangar One, 27 October 1935. The prominent yellow star at the bow has been removed and outer cover experiments are underway; in this case a so-called "camouflage strip" is conspicuous. Projecting forward from the bow and barely visible above the mooring mast attachment point is a boom-like structure.



as needed. Informal instruction on Navy rigids had always been the rule during flight operations when dozens of trainees, both officer and enlisted, had combined their classroom work with practical in-flight experience. The demands of the watch at the circle were quite routine and consisted of little more than "ship watching." During these long, dull and often uncomfortable hours of virtual inactivity, and on calm days and nights especially, many a sea story was traded in the control car and keel.

Out on the field and visible to all, *Los Angeles* was a physical reminder to airshipper, student and visitor alike of the era of Naval airships recently passed. As the decade waned and a revived program grew increasingly remote, veteran airshippers continued to believe in the efficacy of their vision. In a very real sense, *Los Angeles* symbolized the hope of the Navy's airship community.

After the loss of *Macon* in early 1935, the prospects for the rigid airship in the Navy retreated backstage into the Bureau. Here new ideas were explored, proposals made, and policies reviewed and recommended. But very little in the way of substantive support was promised or forthcoming. Valuable time was lost, and the progress already made was allowed to dissipate. Finally, in the Spring of 1939, after four years of studied indecision on airship matters, the Secretary of the Navy directed the Navy Board of Inspection and Survey to evaluate the air-worthiness of *Los Angeles*. These orders resulted directly from Captain Fulton's instigation and his determination to at last force the airship question off dead-center.⁸ Accordingly, a sub-Board of Inspection and Survey was convened at Lakehurst. Headed by Commander T.G.W. Settle, a former Executive Officer of the airship and now "X.O." of the air station, the Board's purpose was to determine the material condition of *Los Angeles* and to

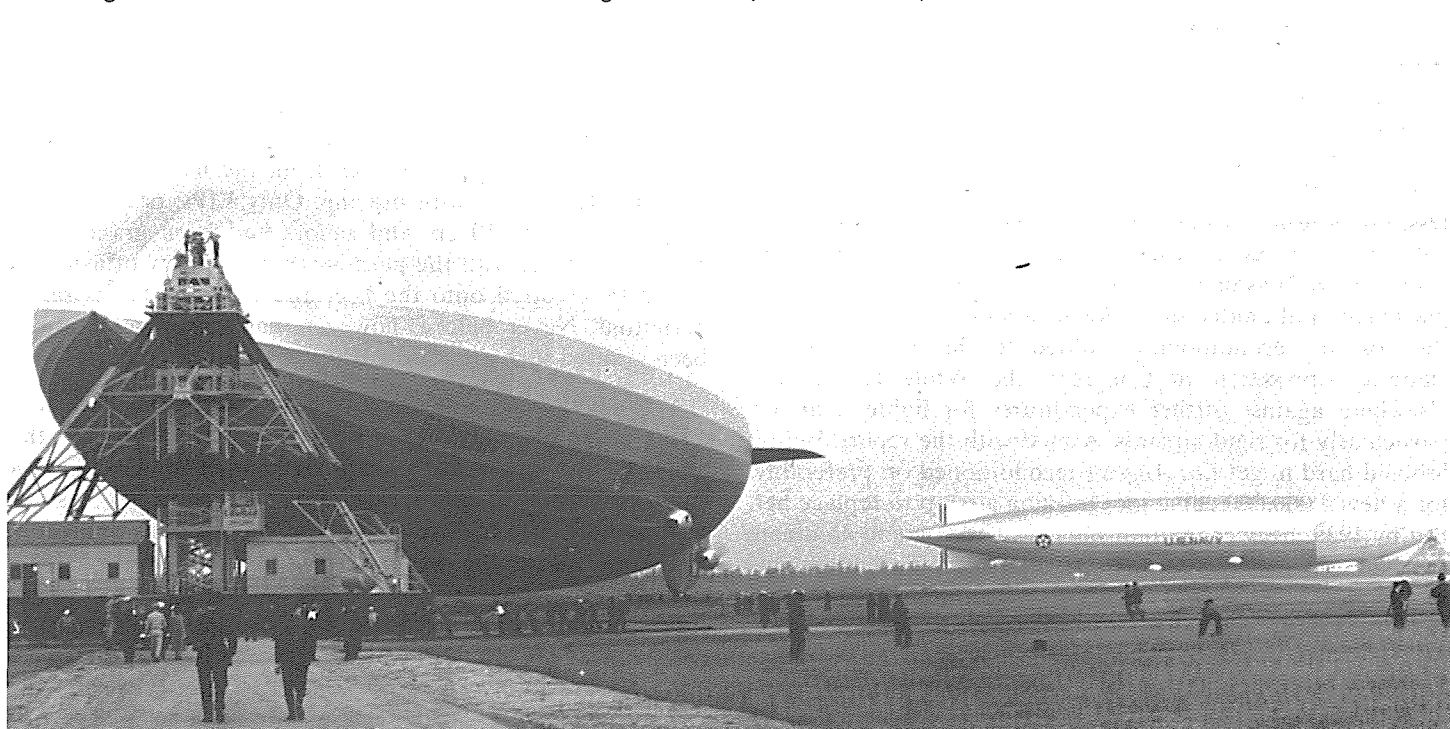
submit its Findings, Conclusions and Recommendations to the convening authority.

Assisted by the personnel and records of the Station's A & R Department, the Lakehurst Board conducted an extended inspection lasting many weeks. Samples of the airship's duralumin structure were taken from various parts of the hull and tested at the Bureau of Standards in Washington. Mr. Burgess had arranged for these; he was intimately associated with the Survey and up to Lakehurst several times to assist and advise the Board. Outer cover and gas cell samples were inspected and whole cells thoroughly inspected and tested. All systems and appurtenances: gas-cell valves, electrical system, major and minor controls, telephones, fuel and ballast systems and so on were carefully inspected as practicable on board or were removed from the ship for testing when necessary. It was, overall, a thorough effort; all of the Board members were eager to find out what the material condition of *Los Angeles* was, and were under no compulsion to ignore any evidence or to rush a judgment.

Board members were given specific parts of the ship, respectively, to survey in detail; Commander Settle, for example, took the airship's power plants, another the gas cells and outer cover. In addition, all members retained cognizance in the survey of the entire ship. The results of the individual inspections were welded near the end into a composite Report. The Findings were a summarization of the voluminous inspection and test results. The Board concluded that with specified exceptions *Los Angeles* was in substantially sound structural condition. Some of the gas cells and sections of the outer cover required replacement, as did a few of the airship's structural members. Although other items were also found in need of repair, overhaul and replacement, along with engine overhauls these were the notable repairs.

HINDENBURG arrives at Lakehurst for the first time, 9 May 1936. The airship is in the hands of the ground crew and is being walked to the self-propelled mooring mast. HINDENBURG would make 10 visits to the U.S. during her 1936 North Atlantic season. To avoid interfering with these

operations, in the Fall of 1935 a new mooring circle and track connection was constructed for LOS ANGELES at the west end of the field. "L.A." is at the mast for tests; note the outer cover on the forward part of the airship. (National Archives)





Visitors pause for the photographer beneath the decommissioned LOS ANGELES in Hangar One. A section of the outer cover has been removed, some of the airship's equipment has been labeled, and a platform access provided to the keel. Never before had the casual Lakehurst visitor been permitted onto the "catwalk" of a Navy rigid. Note the lacing cord for the adjacent panels of outer fabric. This photograph, dated 19 July 1939, is published here for the first time. (U.S. Navy photo courtesy of the late C.M. Ruth)

Girder scrap from the dismantled LOS ANGELES, December 1939 or January 1940. The dismantling required little more than two months, considerably shorter than had been anticipated by the Bureau. Except for her original Telefunken radio, a few structural joints, and miscellaneous items retained as souvenirs, little of LOS ANGELES was saved. As scrap the airship realized \$3667.80 for the Navy. This photograph is believed never before published. (Wide World Photo courtesy of LCDR L.E. Schellberg)

The Board went on to recommend that these corrective measures be carried out and that *Los Angeles* be recommissioned and used for flight operations. For a 16-year old aircraft this was remarkable indeed—and a tribute to the designers and builders in Friedrichshafen, and to her American operators.

The results of the 1939 Survey were no surprise to Fulton, Burgess or Settle. However, Fulton wanted his views corroborated and this had been the proper and official way to accomplish it. The Board's report now gave Fulton a better basis than he had had before to lobby with other elements in the Navy Department, BuAer and Congress for *Los Angeles'* re-commissioning or for a new training airship—and a new program. To implement the Board's recommendations only a modest investment of time and funds was required. Nonetheless, *Los Angeles* was not reconditioned. At this late date her value was considered questionable. As early as 1933 it had been felt in Washington that her comparatively small displacement and limited operational capability did not warrant the cost of reconditioning. Added to this was the long-standing opposition in Congress, the White House and elsewhere against further expenditures for lighter-than-air, particularly for rigid airships. Armed with the report, Fulton lobbied hard to get *Los Angeles* reconditioned or, preferably, for a new 3,000,000 cubic foot training airship to replace her. But by 1939, heavier-than-air interests had come to dominate the Navy and were all-powerful in BuAer. Throughout its history in the U.S. Navy, anti-airship hostility would bedevil the rigid airship; after the loss of *Macon* in 1935 the situation had become immeasurably worse. In short, the Navy's airship organization was as isolated as ever. The long-discussed training airship to replace *Los Angeles* was argued yet again



in 1938-1940, but would never be funded. Politically and militarily, by the end of the 1930s time had very nearly run out for the rigid airship in America. The "L.A." was no longer considered to have any value to the Navy; by 1939, its dismantling became inevitable.⁹

After the Board had rendered its judgment and it had become clear that the airship would not be reconditioned and flown again, *Los Angeles* was opened to the public. For the first time the casual Lakehurst visitor was given extraordinary access to the ship; the public was allowed to go on board and walk the keelway. Heretofore, the interior of Navy rigids had been strictly off-limits to the casual visitor; the narrow interior corridors were not easily negotiated and little would separate the misstepping novice from the hangar deck save for some fabric and wire bracing. Only VIPs, or the friends and relatives of officers and sailors had been granted this privilege before; with the permission of the duty officer they would be escorted onto the keel and taken as far as safety permitted. Never before, however, had the general public been granted such access to a Navy airship.

A wooden stairway was moved alongside the hull at a mid-ships frame, and canvas sides were provided along the "catwalk" forward to the control car. The weekend visitor was invited to park in the landing field immediately east of Hangar One. From there one could file inside through the east doors or at the hangar's northeast corner and walk alongside *Los Angeles*, which was normally in the north berth, to a visitors' desk. Here the public could file up the stars and onto the keel for the short walk forward. Along the keel and in the control car the various tanks, instruments, toggles, wheels and other items of interest were labeled for

the visitor. (In earlier years, the control-car appointments had also been identified for the visitor looking inside from a platform alongside the control car.) After a brief inspection, exit was made from the airship via the control car usually to the northwest corner of the hangar. Sailors on watch were available to answer visitors' questions and to see to it that the public went only where allowed, commensurate with their safety and that of the ship. This activity probably continued into October 1939.

Los Angeles was officially stricken from the Navy's inventory on 29 October 1939. The Bureau had expected the dismantling to occupy several months and had allocated funds accordingly. However, most of the airship's outittings and the outer cover were removed in November, and the hull itself was cut down frame by frame in December. By 3 January 1940, *Los Angeles* was gone. Her remains of steel wiring and aluminum girders were removed for scrap by the end of February.

This is the first of a two-part article on the decommissioned *Los Angeles*. The airship's dismantling will be discussed in a forthcoming issue.

NOTES

1. Except for a very few intervals, the U.S. Navy never had more than one operating rigid airship. After the delivery of LOS ANGELES in 1924, the Navy could not obtain sufficient helium to operate both SHENANDOAH (ZR-1) and LOS ANGELES simultaneously. Will Rogers remarked at the time that "The Navy has two airships, but only one set of helium." Their schedules were therefore alternated—one ship undergoing an extended overhaul and repair while the other operated for several months. The supply problem had not eased significantly when SHENANDOAH was destroyed in September 1925. The AKRON was lost on the evening of 3, April, 1933, less than three weeks before the first flight of her sister ship MACON.
2. For a variety of reasons SHENANDOAH, LOS ANGELES and AKRON had been deployed only tentatively with the Fleet; little effort had been made to integrate rigid airships into Naval strategy and valuable time had been lost. It was left to the MACON to come to grips with Naval Aviation doctrine and to "sell" airships as a useful adjunct of the Fleet. The hopes for the rigid airship in the Navy were riding, quite literally, with the MACON.
3. The weigh-off procedure was an integral part of airship operations; weigh-offs were also conducted on the field and in flight prior to landing. In the hangar, the airship was provisioned in accordance to the loading plan for the operation, and the ship's rails and lines were manned by the ground crew. The airship then was weighed off. On the Ground Handling Officer's megaphone orders "Weigh Off" or "Hands Off," the car parties' hands were taken off the rails and the tethering lines slackened. The airship's static condition and trim were then adjusted by dumping water ballast or by pumping water on board after the command "Hold." Thirty-pound sand bags and 55-lb. metal weights also were used as adjustable ballast when in the hangar. If the ship floated just off the hangar deck in even trim, the airship was said to be in perfect equilibrium. When in equilibrium the airship's weight was literally zero.
4. Documentation is required for a definitive answer, but most of the airshippers with whom the author has met are confident in their belief that LOS ANGELES was in generally sound condition throughout the 1930s and could have safely flown. Moreover, several who participated in the dismantling of the ship believe that the strength tests conducted at that time (as well as personal observation) confirmed her structural integrity as late as 1939. Opinions differ however as to the advisability of re-commissioning LOS ANGELES after the 1932 decision had been made.
5. Class X consisted of only two students: Lieutenants Richard S. Andrews and Richard N. Antrim, as part of their lighter-than-air training both assisted at Lakehurst in the ground handling of HINDENBURG and each made the "VIP Flight" during her last U.S. visit of the 1936 season. As official Naval observers, both also were scheduled to make a round trip from Lakehurst upon her first visit of the '37 season. The operations of HINDENBURG gave valuable experience to hundreds of officer and enlisted personnel in ground handling, mooring and general big ship operation.
6. Upon loss of engines from any cause an airship becomes a free balloon. This training was therefore basic for the student of lighter-than-air flight. Ballooning was also excellent practical training in aerology—obliging the student to observe weather conditions and trends, recognize their effect upon the aerostatic condition of his aircraft and to compensate for them. The training syllabus at Lakehurst required 10 balloon hops: 8 day flights of at least one hour each, a night hop and a solo flight of at least one hour. Ground School included the maintenance and repair of free balloons, rigging them for flight and making them up for the return to Lakehurst after a hop. Many of the airshippers with whom the author has spoken include free balloon experience among their most poignant recollections.
7. Although valuable experience for the student officer, watch duty on the moored-out LOS ANGELES did not qualify as rigid airship time. In the 1930s 150 hours on rigid airships were required for designation as "Naval Aviator (Airship)." Unfortunately, after February 1935 the Navy had no commissioned rigids and, by agreement with Deutsche Zeppelin-Reederei, student pilots under instruction accumulated flight hours on HINDENBURG. On her 10 Frankfurt-Lakehurst round trips in 1936, Naval officers were aboard HINDENBURG as a matter of routine. Following her loss in May, 1937 the opportunity for rigid airship flight time vanished; officers could qualify in airships but not be designated until 1940, when the requirement was eliminated.
8. As head of the Lighter-Than-Air Design Section of BuAer, Garland Fulton was the guiding hand of the Navy's endeavors in lighter-than-air for 15 years. Richard K. Smith in his excellent *The Airships Akron and Macon* summarizes (p. 170): "Relatively few persons associate Fulton's name with the airship. But those persons familiar with the Bureau of Aeronautics during 1924-1940 knew that he was the Man to see about all matters pertaining to lighter-than-air aeronautics." The abandonment of rigid airships by the Navy was a crucial factor in Fulton's voluntary retirement from the Navy in 1940, after a Naval career of 28 years.
9. The rigid airship's possible contribution to the war effort will always be arguable. There is much to be said for its anti-submarine and convoy escort capabilities. Airplane-carrying rigid airships could have operated far to seaward of the coastal blimps, supplementing harried destroyers at a time when surface carriers and airplanes were scarce. For the Battle of the Atlantic, the value of a patrolling LOS ANGELES or a replacement ship of similar displacement is not far-fetched. And as a very long range strategic scout, the "lighter-than-air carrier" continued to offer a unique performance in terms of speed, lift and endurance.

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This effort is dedicated to the men of the U.S.S. LOS ANGELES—it has been my privilege to know some of them.

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