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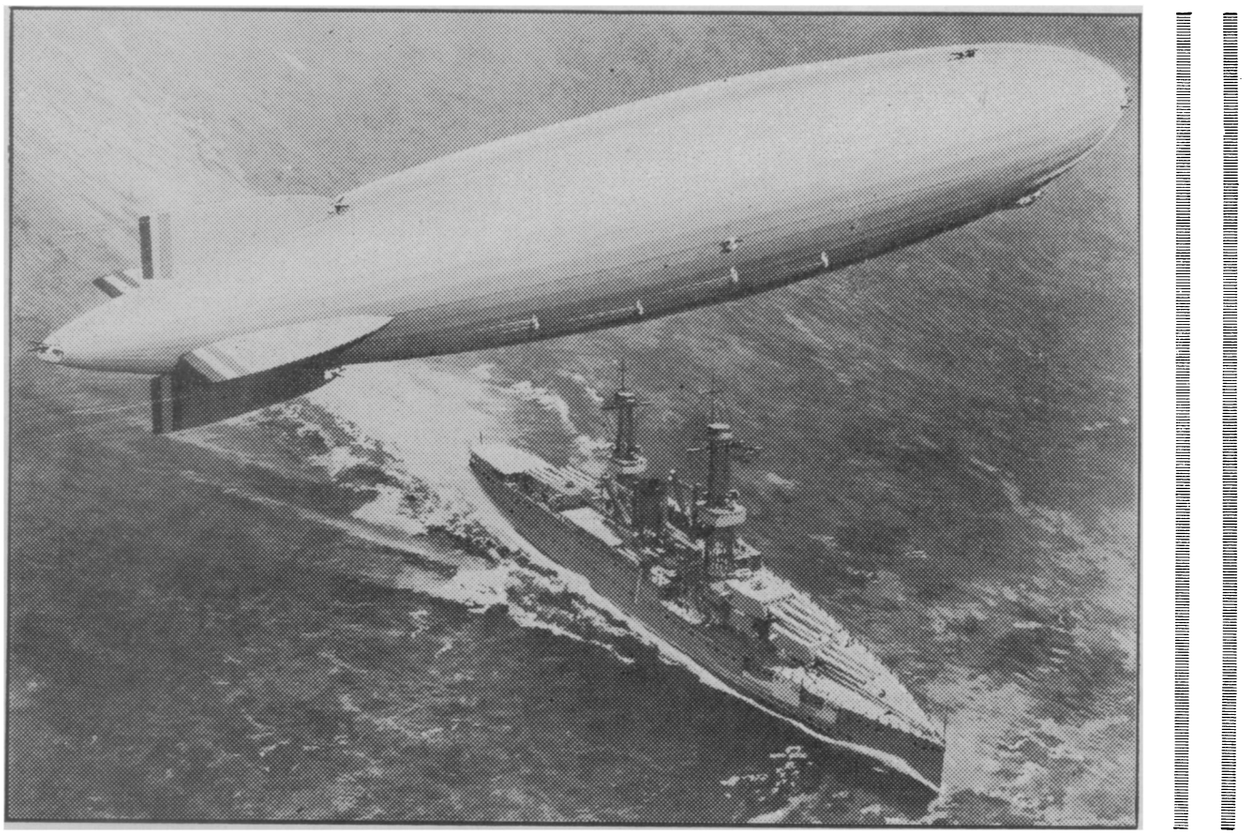
AVIATION

$4,500,000 Dirigible to Give U. S. Air Lead



THE PROPOSED $4,500,000 *AIRSHIP OF THE U. S. NAVY, as an artist conceives that it would look when flying with the fleet*

By James Stokley

Airplanes have held the limelight lately!

With such a heavier-than-air machine Lindbergh flew to Paris. Also with airplanes, Chamberlain and Levine traveled to Germany; Maitland and Hegenberger to Hawaii, and Byrd and his crew to Ver-sur-Mer.

But when Colonel Lindbergh returned to his native shore and sailed up the Potomac on the Memphis, there circled around above him America's chief example of the other type of air vehicle. This was the Los Angeles, our only rigid airship.

It may not be long, however, before we have another, and still larger dirigible. Congress has authorized the construction of an airship two and a half times as large. It will cost an estimated $4,500,000. On July 1, an appropriation of $200,000 for starting it became available. The Goodyear Tire and Rubber Company, of Akron, Ohio, has been adjudged the winner of a competition for the design for the new craft over a field of thirty-seven. And so the way seems clear for the actual award of the contract for this great ship of the air, and its completion within three years.

Dirigibles Oldest

Despite the fact that the dirigible balloon, or airship, as it is called, to distinguish it from the airplane, has occupied a back seat lately, it is the airplane's big brother. Count Zeppelin built and flew the first of the modern dirigibles in 1900, before the airplane had advanced much further than a dream of the Wright brothers.

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New Dirigible

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From this beginning, Germany has gained more experience than any other country in building airships. It was at Friedrichshafen, the Zeppelin works, that our own Los Angeles was built. When that ship was turned over to the United States, it was thought that it would be the last big airship to be built there for a long time. But a year or so ago, the allied restrictions on the size of ships that Germany might build were removed.

The Los Angeles has a capacity of 70,000 cubic meters, or about 2,500,000 cubic feet. Already the Zeppelin works have started the construction of a ship of 100,000 cubic meters capacity. The limit to the size of the new ship is the size of the shed in which it is being constructed. This is the 127th to be started by the firm, and it will be completed within a year.

Natural Gas for Fuel

For the first time, the new German airship will make use of a gas similar to ordinary illuminating gas, as an auxiliary fuel, and until it is burned in the engine, it imposes no additional burden. Gasoline will also be carried, but with the partial use of gas, a longer cruising radius will be possible than if gasoline only were used for fuel, and hydrogen alone for lifting.

Fortunately for us, the United States has a virtual monopoly on helium. This is the non-inflammable gas, obtained from natural gas wells in Texas. The use of helium in American airships has removed one of the chief dangers. The German ship will not be able to use helium, and will depend on hydrogen. There is an advantage, however, in using gas in conjunction with helium in our own airships. Maybe the German idea will be adopted.

One disadvantage of helium is that its lifting capacity is about eight per cent. less than pure hydrogen. American airship experts think that this is more than compensated by the greater safety. But helium and fuel gas both might be used, each in their own compartments. The inflammable fuel gas would be surrounded completely by the bags of helium, so that it would be protected from practically all danger of ignition. In fact, it has been suggested that an inner gas bag full of hydrogen might be surrounded with helium, and so would be gained greater safety than with pure hydrogen. But this is not likely to be adopted in the American ship, though the gas fuel supply surrounded by helium may be. With such a plan the safety would be nearly as great as with helium alone, and far more than with hydrogen alone, or with hydrogen and fuel gas.

Plan South American Line

The new German airship—it will be known as the LZ-127—will not be the only airship effort of that country. Some years ago an airship line from Spain to Argentine was planned, but was finally shelved for lack of funds. Now word comes from abroad that it has been revived with German capital, and a subsidy from the Spanish Government.

The company is called "Transpaeria Espanola." Three passenger airships are to be built at Friedrichshafen. Perhaps the LZ-127 will be used as one of them. The line will run from Seville, Spain, to the vicinity of Buenos Aires. At first the ships will be operated by German crews, but it is provided that after four years the staffs must be 90 per cent. Spanish or Argentine. Such a line would make the trip in about 80 hours, as compared with the 15 days now required for the fastest mail service between Europe and Argentine, or even New York and Argentine.

Another feat that the German airship makers plan with the LZ-127

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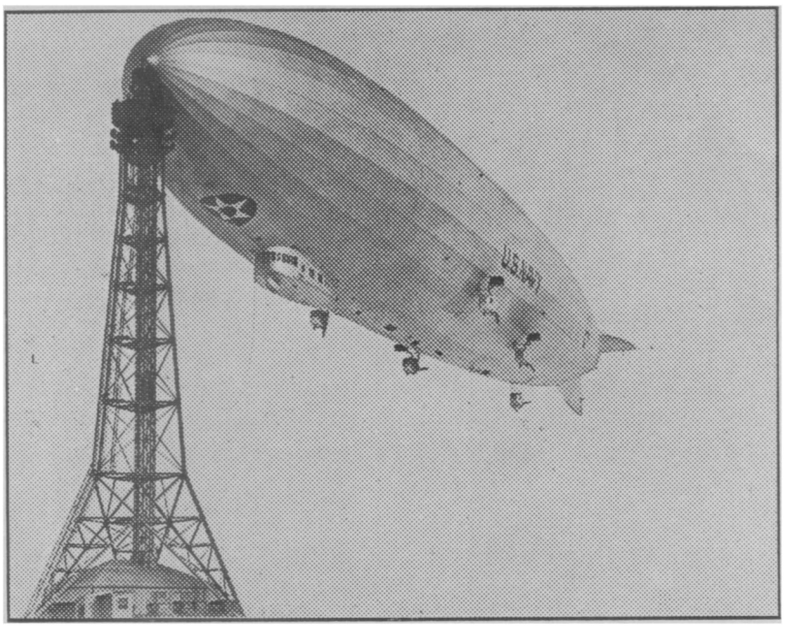

THE LOS ANGELES, at a mooring mast. The development of these mooring masts, which obviate the dangerous and difficult process of putting an airship into its hangar, has been a great forward step towards the commercial use of dirigibles

New Dirigible

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is the first airship circumnavigation of the globe. According to Dr. Hugo Eckener, who piloted the Los Angeles from Friedrichshafen to Lakehurst, the new ship will be used next summer in a flight around the world in three or four great hops and a flying time of about 300 hours. Before this, it is planned, however, to make several flights back and forth across the Atlantic.

England's Plans

England, also, is interested in airships. After the war, when economy was the watchword, she practically abandoned airships, but now her interest has been reawakened. Two ships of 5,000,000 cubic feet capacity are now being constructed. One is to be finished within a year, the other within eighteen months. One is being built by the Air Ministry, the other by the Vickers works. While they are supposed to be passenger ships, it is hardly to be doubted that in the event of war they would be used to perform much the same function as the ships of a merchant marine. At the imperial conference held in London last fall, attended by representatives from all the dominions and colonies, some facts about the airships were revealed.

These ships will comfortably accommodate 100 passengers each, according to the official published memorandum of the British Air Ministry. This will be in addition to baggage, and 10 tons of mail. There will be sleeping cabins with two or four berths, promenade decks, lounges and smoking room; and dining rooms with seats for 50 persons at a time. A suggested layout of these accommodations shows an arrangement very similar to that on a steamship. It is pointed out, however, that an airship is much more comfortable than a steamer: it flies with less rolling and pitching than a vessel, and in the British airships, vibration from the engines will be reduced to a minimum, because the motors will be carried in separate cars slung away from the main structure.

Line to India

It is the belief of British air officials, and their views are shared in the United States and other countries as well, that the airship is particularly adapted for long distance flights, comparable with those now made by ocean liners, or through trains. The chief field of usefulness of the airplane is in shorter flights.

In order to fully test its possibilities, Sir Samuel Hoare, the British Secretary of State for Air, has announced that the first of the new ships will be employed in a regular service between India and England. When this service has been carried out long enough to test airships under practical conditions, the ship will then be used for a series of demonstration flights to various parts of the British empire.

As a preparation for the India line, a new mooring mast has been constructed at Cardington, which will be the British terminus. A refueling station with a mooring mast has also been constructed at Ismailia, Egypt, a point about midway in the route. The Indian end will be at Karachi, on a site provided by the Indian Government.

Special weather observations along the entire length of the proposed route have been made to see how the regularity of the service might be affected, and at which time of year they would be safest. When all the meteorological conditions are known, it is possible to avoid the storms. Three tentative routes on the England-Egypt stage of the India route has been laid out, so that the best one can be decided just before each flight. And then, as the pilot of the airship will be in constant touch by radio with the ground weather stations, his route can be adjusted even in flight.

New American Airship

Though England and Germany are putting forth their strongest efforts to gain and hold airship supremacy, the United States also has a chance to gain it by the construction of the $4,500,000 dirigible that Congress has authorized. As the ship is authorized, as a sum of money for its start has been appropriated and become available, and as the design of the ship has been decided on, the way to this great ship now seems clear.

The ill-fated Shenandoah was the only American home-built big rigid airship. Though it was lost, its use gave aviation engineers much needed experience. The new ship is intended to replace the Shenandoah, but new features will be incorporated in the design.

Most noticeable to the layman is that the new ship will be much more corpulent than the slender Shenandoah. The Los Angeles was thicker than its sister, and the new ship will be even thicker than that. It will only be about 15 per cent. longer than the Los Angeles, but about 50 per cent. thicker. This will make for greater strength.

An improvement adopted in the design of the Los Angeles will be carried further in the new airship by completely eliminating hanging cars. In the Shenandoah, the pilot's cabin, as well as the cars containing the engines, were suspended from the hull. In the Los Angeles, the pilot's car was made an integral part of the ship, but the engines were left suspended. In the new ship, the engines also will

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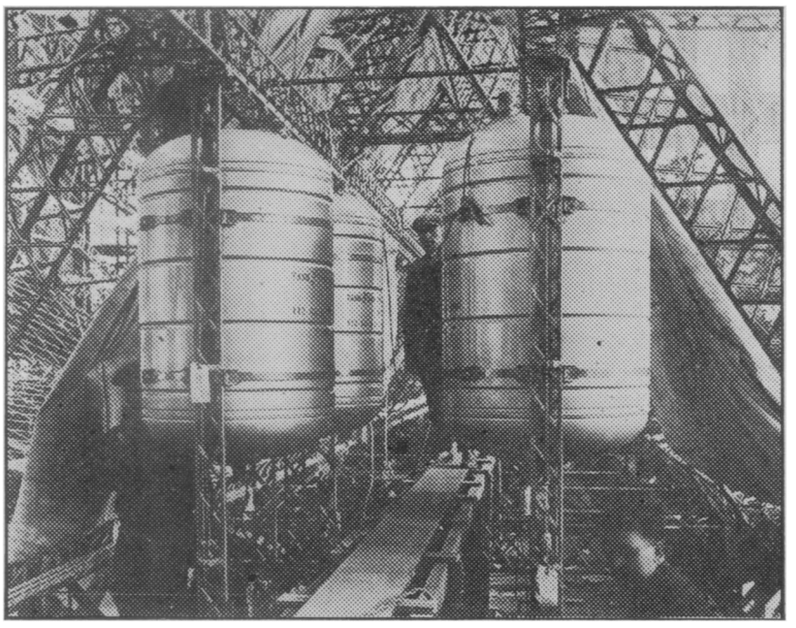

GASOLINE TANKS IN THE SHENANDOAH. With the use of fuel gas in new airships, weightless gas bags will largely replace these metal tanks

New Dirigible

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be within the hull, and only the propellors will project. In this connection, it is recalled that the only men whose lives were lost in the wreck of the Shenandoah were those not within the hull.

The engines of the new craft will give a total of 4,800 horsepower. These will carry it at a speed of 90 miles an hour, and it will be able to fly from 5000 to 8000 miles with a full military load, without refueling. The ship will have two covers, one within for the gas, and another outside for protection from the weather. The metal framework will be between the two, so that any part of the ship will be accessible, for minor repairs or examination, even in flight. It will be fitted with tilting propellers, a great aid in suddenly forcing the ship up or down. It will also be capable of carrying four to six airplanes, which can take off from it, or be taken on again while in flight. When not in use, the planes will be drawn up into the hull, so as not to interfere with the ship's lines.

When this ship is completed, America will once more be at the forefront of rigid airship development, as it is now in the field of heavier-than-air craft. True, the airship is not primarily passenger in character, like the ones being built in Germany and England. The $4.500,000 ship is frankly a naval craft, and will be armed with machine guns, and light cannon. But with the example of such a ship, the world's largest, being built in an American factory, the development of a commercial airship industry in the United States, and American airship lines stretching to all parts of the globe, would be but the next step.

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