

England's Second Large Airship Ready To Take Flight

Aeronautics

WITH the completion of the rigid airship, R-100, England now has the two largest airships in the world. Like the R-101, which has been in the air for about two months, the new ship has a capacity of 5,000,000 cubic feet, as compared with the 2,600,000 cubic feet of the Los Angeles and the 3,708,000 cubic feet of the Graf Zeppelin.

The R-100 was constructed for the British Government by the Airship Guarantee Co. at Howden in Yorkshire, and will soon be turned over to the government authorities. It will be flown to the airship station at Cardington, near Bedford, about 50 miles northwest of London from which test flights will be made. At Cardington are two huge hangars, one for the R-101, which was made there, and the other for the new ship, in addition to a mooring mast.

For several months the R-101 has been making test flights, from the Cardington mooring mast, 200 feet high. Our cover picture, taken recently by a member of the Science Service staff, shows the entrance to the R-101, at the top of the mast. A corridor from this opening leads to the passenger's and crew's quarters amidships. In flight, the "gang-plank" closes the opening.

The turning over of the R-100 to the Air Ministry will mark the completion of one of the main stages of England's airship program commenced in 1924 to determine the practicability of airships in long distance transport. For the British Empire, with its far-flung dominions, this is a particularly important problem. Besides the construction of two 5,000,000 cubic foot airships, each almost twice the size of any others built up to that time, this program called for careful preliminary experimental flights to India by way of Egypt. Completely equipped airship stations have been established at

Karachi, India, and Ismailia, Egypt. Another will soon be completed at St. Hubert, Canada, while the site has been surveyed for one at Groutville, near Durban, South Africa.

According to present plans, both ships will be fully tested on flights of gradually increasing duration, until by next spring they will be ready for their long flights. Probably the R-101 will make the first flight to India, as it is powered with Diesel engines, and supplies of oil will be available. The R-100 uses gasoline engines, and will probably make the first flight to Canada. These experimental flights may be the forerunner of regular commercial service, and the Airship Guarantee Co. has the option of purchasing the R-100 back from the government should such a service be started.

As in the case of the Graf Zeppelin and Los Angeles, the framework of the R-100 is made from duralumin. That of the R-101 is largely of stainless steel, said to be stronger, weight for weight, than duralumin. The R-100 framework is novel in one important respect, however. The girders are so attached that they can easily be removed or replaced. In other airships damage to a girder required that it be completely cut out and a new piece riveted in.

The passenger quarters on the R-100 are even more commodious than on the government-built R-101.

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They are on two floors. Cabins with four or two berths each provide sleeping space for 100 passengers, with as much room as on a steamship. The dining room seats 50 persons at a time. Two promenade decks provide a clear view of the territory below, while the lower one is equipped for dancing. There is also a separate recreation saloon. The crew and officers are housed on a third floor below those for passengers. A normal crew of 25 is carried. The navigating cabin is entered through the crew's quarters.

Gasoline is carried in tanks within the envelope, which can normally carry fuel for a 5,000 mile flight if necessary. Ordinarily, however, about 30 tons of gasoline will be carried, sufficient to run the ship for 50 hours at a speed of 75 miles per hour, or about 3,750 miles. This would provide for a paying load of 100 passengers, figuring seven to the ton, and ten tons of freight.

In answer to a recent question in the House of Commons, the Under Secretary of State for Air gave some figures on the cost of the new ships. The original estimates of the R-101 had been 527,000 pounds or \$2,600,000, but that it was expected that final figures would show this to have been exceeded. The contract price of the R-100 was set at 350,000 pounds, or \$1,800,000.

The large airships of the world are:

Airship	Capacity Cu. Feet	Length Feet	Diam. Feet	Horse- power
AMERICAN				
Los Angeles.....	2,600,000	658.4	90' 8"	2000
ZRS-4 and ZRS-5.....	6,500,000	785	132' 9"	4480
BRITISH				
R-33 and R-34..	1,960,000	640	78.75	1250
R-38	2,724,000	694.5	85.50	2100
R-100	5,000,000	709	131.00	3900
R-101	5,000,000	732.3	131' 8"	2925
GERMAN				
Graf Zeppelin....	3,708,000	776	100	2650
LZ-128	5,500,000	5000

The ZRS-4 and the LZ-128 are under construction, and the ZRS-5 is under contract.

Science News-Letter, December 14, 1929



SCIENCE NEWS-LETTER, The Weekly Summary of Current Science. KNOWLEDGE. Published by Science Service, Inc., the Institution for the Popularization of Science organized under the auspices of the National Academy of Sciences, the National Research Council and the American Association for the Advancement of Science.

Edited by Watson Davis.

Publication Office, 1918 Harford Ave., Baltimore, Md. Editorial and Executive Office, 21st and B Sts., N. W., Washington, D. C. Address

all communications to Washington, D. C. Cable address: Scienservc, Washington.

Entered as second class matter October 1, 1926, at the postoffice at Baltimore, Md., under the act of March 3, 1879. Established in mimeographed form March 13, 1922. Title registered as trade-mark, U. S. Patent Office.

Subscription rate—\$5.00 a year postpaid. 15 cent a copy. Ten or more copies to same address, 5 cents a copy. Special reduced subscription rates are available to members of the American Association for the Advancement of Science.

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