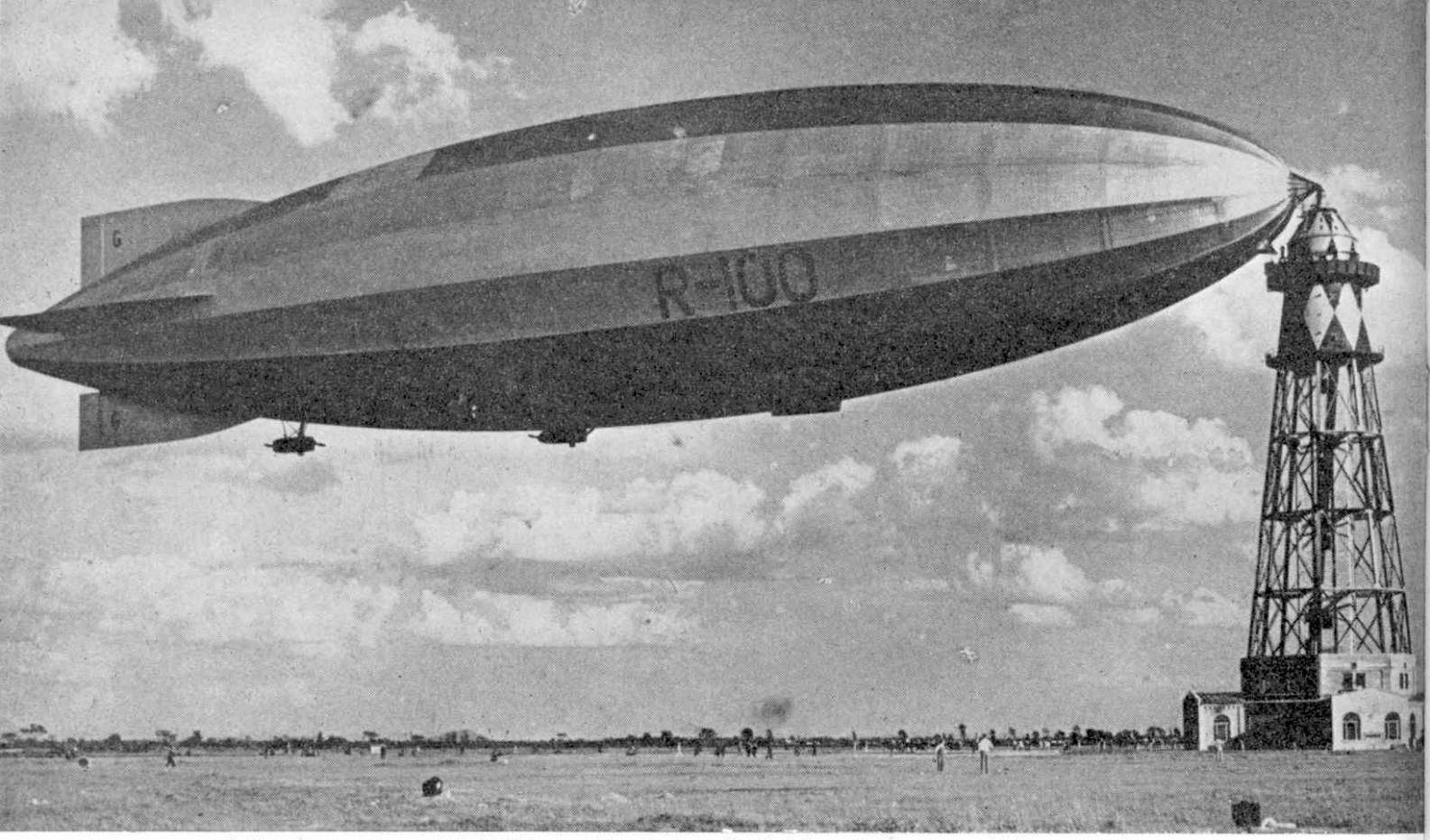


Riding at her mooring mast, the R.100 is seen in her later form after the tail cone had been removed following its collapse

the trailblazer they steamrollered

BACK in 1922, the possibility of flying from England to Australia seemed as remote to the average person as does a rocket trip to the Moon today. Three years had passed since the first airline services were opened between London and Paris, using converted bombers, but few people believed that passenger airliners would ever fly further than about 2,000 miles or faster than 95 m.p.h.

So, when Sir Dennis Burney put before the government a scheme for regular airline flights to India, he intended to do the job with a fleet of giant airships, each carrying up to 100 passengers. Such craft, although slower than aeroplanes, were able to lift much greater loads and could stay in the air 24 hours a day on long journeys. They were also safer than aeroplanes in an age when navigation and landing aids were almost unknown. In particular, they could be brought in to land gently, at a crawl, even in fog.

Just as the government was about to give Burney's Airship Guarantee Company the go-ahead to build six airships, it was defeated in Parliament. The new Labour government, under Ramsay MacDonald, cut back the order to a single airship, and decided to have a second 'ship, of similar size, designed and built at the Royal Airship Works, Cardington.

Burney's company, which was backed by Vickers, set up its headquarters on the derelict airship station at Howden, in Yorkshire. Design of its airship, known as the *R*.100, was entrusted to Dr. Barnes Wallis, who was already experienced in this work and is famous now as the inventor of the Dambusters' weapon and the Swallow "swing-wing" aeroplane.

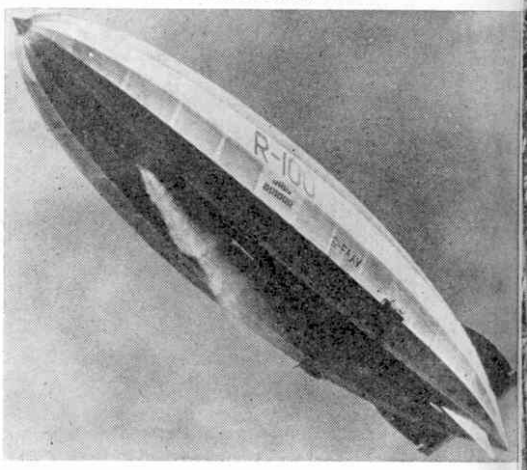
The task he faced was not easy. *R*.100 was to be twice as big as any airship flown up to that time, with a volume of over five million cubic feet. Few ocean liners exceeded her length of 709 feet, and she was to be 133 feet in diameter at the widest part of her streamlined hull. This meant that the men working on her duralumin framework had to have a good head for heights, being nearly 150 feet above the floor at times.

When completed, the airship had an empty weight of about 102 tons; but the enormous volume of hydrogen in her gas-bags gave a total lift of around 156 tons, so she was able to carry 54 tons of fuel, oil, ballast, crew and passengers.

It was intended originally to fit special engines, running on hydrogen and kerosene. When it became clear that these would not be ready in time, a switch was made to diesel engines of the kind chosen for the *R*.100's Cardington-built sister, the *R*.101. Most people believed then that petrol engines, as used in aeroplanes, were unsuitable for aircraft designed to fly to tropical countries, because of the fire risk. Hence the preference for diesel engines. However, the *R*.101 diesels were so heavy that Wallis refused to ruin the performance of his airship by fitting them, and used six 660 h.p. Rolls-Royce Condor petrol engines instead.

This was not the only difference between what became known as the 'capitalist' and 'socialist' airships. *R*.100 was simple in design and the Secretary of State for Air was asked in Parliament if he was sure that photographs of her were

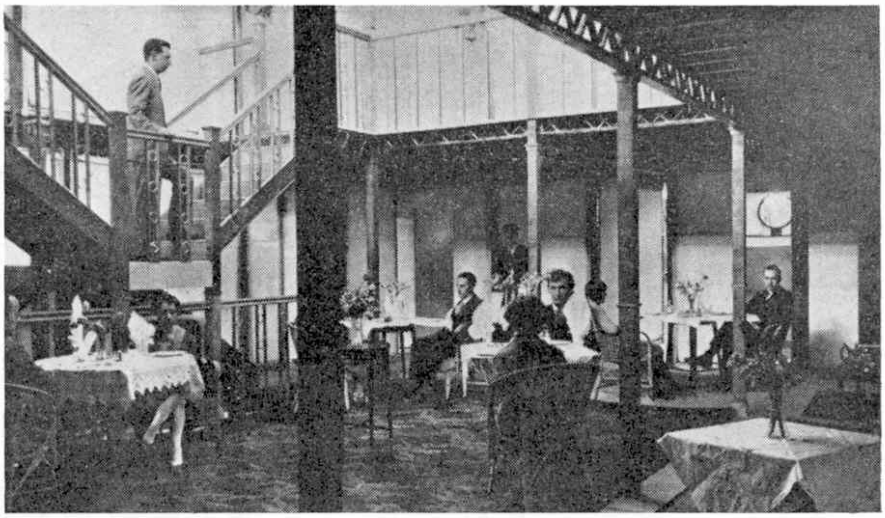
Airborne! The R.100 drops ballast to increase her buoyancy



not really 'enlargements of some schoolboy's essay with a No. 3 Meccano set'. When completed, she contained about 11 miles of tubing, five million rivets and 400,000 small bracing pieces, yet the main structure was built of only nine basic and 50 different parts. By comparison, the Cardington team put many novel ideas into their 'ship, which became an expensive, experimental research vehicle—and this probably contributed to her sad fate.

*R.*101 flew first, on October 14, 1929. She was 15 feet longer than the *R.*100, but had a total lift of 148 tons and could carry a useful load of only 35 tons, so was less efficient than her sister. She was also underpowered and proved to be about 10 m.p.h. slower.

The *R.*100 left her shed at Howden for the first time on December 16, 1929. Four hundred troops were needed to help her out, as there was only a few feet of clearance on each side. All went well, and after emptying a ton of ballast, the huge silver 'ship rose gracefully into the air for her first, six-hour, flight to Cardington. Soon afterwards, she exceeded her required performance by reaching 81 m.p.h. At that speed, the outer covering of doped fabric lifted away from the structure in a curious wave-like formation, but this was not considered serious as it did not happen at cruising speed.



The fantastic lounge of the R.100 with the famous novelist Neville Shute on the stairs. He was Chief Calculator to Mr. Barnes Wallis, Designer of the R.100

After further trials, she was prepared for her first long proving flight to Canada. It was quite an adventure, as only one aeroplane had made a non-stop east-west crossing by that date. Nevertheless, the great aircraft droned fairly effortlessly over the Atlantic at about 60 m.p.h.

The finest modern airliner cannot match the comfort that she offered. The cabins, lounge, restaurant and other passenger accommodation were located in a three-storey 'coach' inside the hull about one-third back from the nose. Large windows gave a clear view downward from the promenade decks and there was little noise, as the nearest engines were 120 feet further aft. In fact, it was so quiet that a man who snored in the next cabin could be a real nuisance at night, as the dividing walls were of fabric.

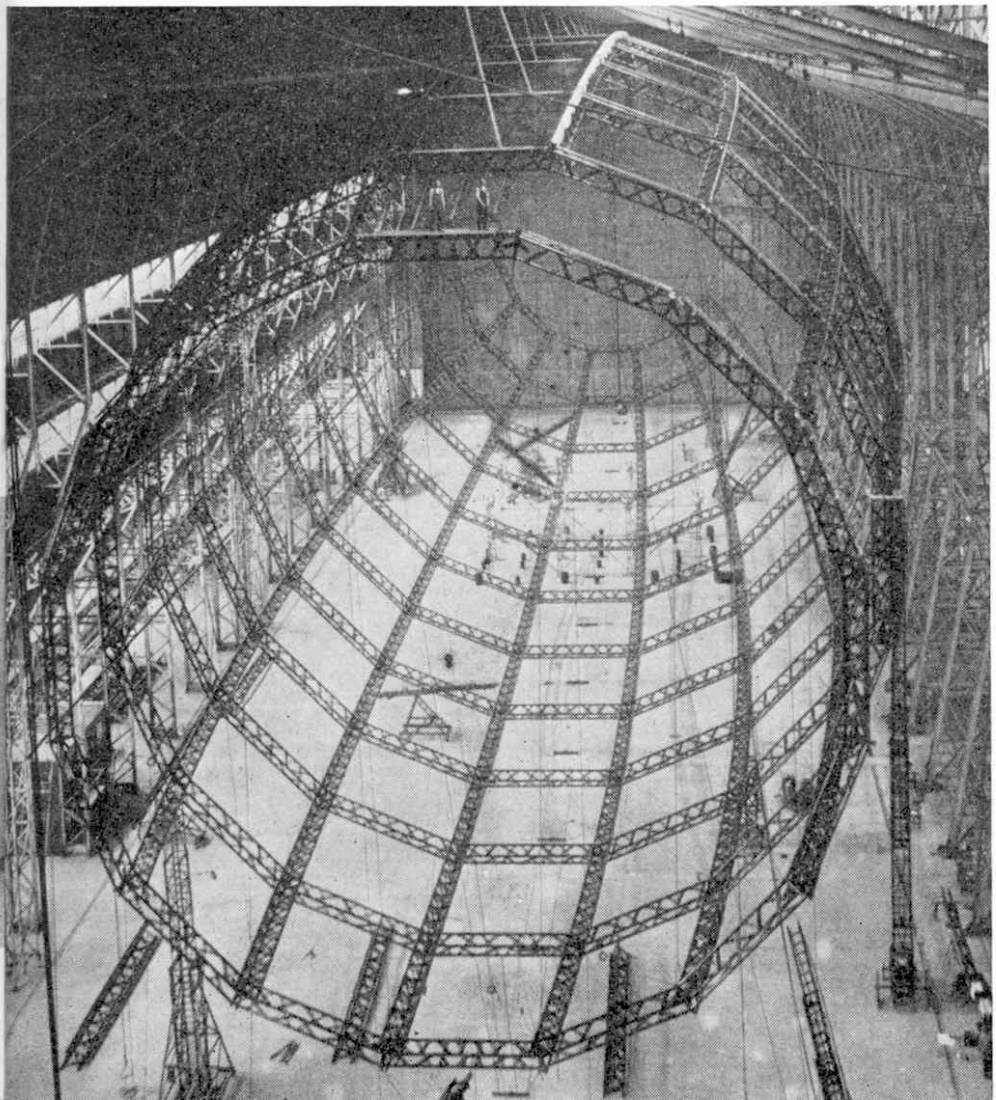
A catwalk ran the full length of the airship's interior, and it was possible to inspect every part of the structure in flight. More venturesome members of the crew could even go for a walk outside, along a foot-wide plank above the hull, from a small cockpit at the nose to a hatch near the stern. Some of them spent hours up there, sitting in the sun by the fins, when they were off duty.

The last part of the journey was less relaxing. *R.*100 ran into violent turbulence and thunderstorms, and at one stage became 35 degrees nose-down in a strong vertical gust. The lights went out and fabric was torn off the fins, leaving a hole big enough to drive a bus through one of them. But by the time the aircraft reached Montreal, the damage had been patched by the crew.

The return trip was less eventful—but the *R.*100 was never to fly again. On October 4, 1930, her sister, the *R.*101, left Cardington on her proving flight to India. At nine minutes past two next morning, she crashed on a hillside near Beauvais, in France, killing all but six of the 54 persons on board, including the Air Minister, the Director of Civil Aviation, the Director of Airship Development and her designer. The dream of a network of airship services, linking all corners of the British Empire, died with her, for all further work on airships was abandoned in Britain. The remains were broken up and flattened by a steam roller.

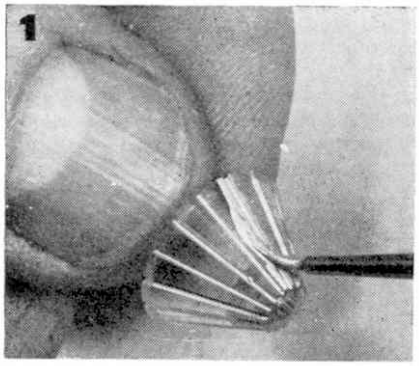
John W. R. Taylor

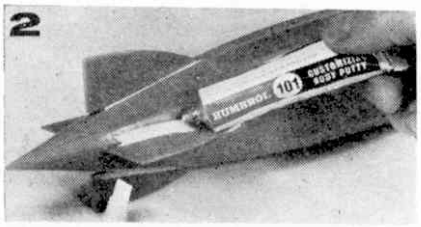
Like a huge Meccano structure, the R.100 is seen here in the assembly shed. Scale is given by the two men on the top girder piece

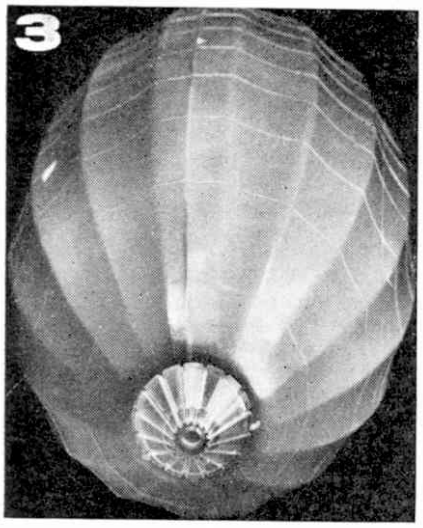


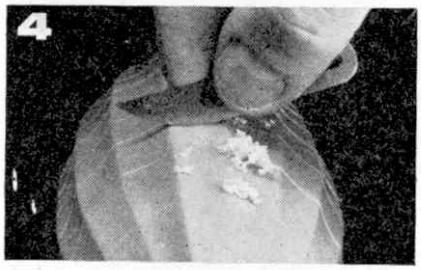
Riding at her tall mooring mast with its colourful red harlequin patterned top the Frog R.100 makes a real off-beat addition to your collection of plastics

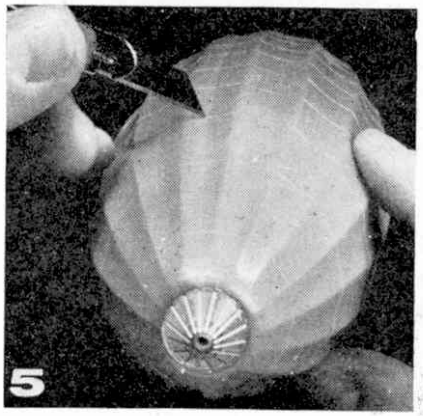
BUILDING OUR R100











1 The 'nose cone', moulded in clear plastic, represents the open girder structure of the real R.100, with deeply engraved grooves in its surface. Paint the whole cone silver and then wipe off the surface leaving the paint only in the grooves

2 Make a really smooth fairing between fins and hull by using Body Putty, spreading it fairly thickly. *When it is quite dry* use fine abrasive paper to smooth it to shape (like the top fin fairing)

3 **FOR EXPERTS ONLY!** The two-part hull moulding process prevents the true 'concave' section being achieved between the hull stringers along the side joint lines

4 A better appearance results if you scrape the hull with a curved blade, holding the blade almost at right angles to the surface, making long smooth strokes and pressing quite hard

5 Do not take too much plastic off or you'll be left with a hole (body putty can be used to fill a small one). Before painting, smooth the work off with No. 400 Wet or Dry paper. Bulkhead position lines should now be replaced using a sharp knife and a ruler (C)

NOTE

Before starting this operation be *sure* the cement joining the hull shells is quite dry—*it will need a full twenty four hours at least*