



A breezy impression of the Short-Mayo composite aircraft taking off from the Tay.

SEAPLANE DISTANCE RECORD FOR BRITAIN

"Mercury's" 6,045-mile Flight to the Orange River

AS an alternative to another Atlantic flight, Imperial Airways and the Air Ministry decided some time ago to use *Mercury*, upper component of the Short-Mayo composite aircraft, for an experimental flight from Dundee, Scotland, to Cape-town, South Africa. It was hoped that she would break not only the world's long-distance record, held by a Russian A.N.T. monoplane, which flew 6,305 miles from Moscow to San Jacinto, California, but the distance record for seaplanes then standing to the credit of a Diesel-engined Dornier Do.18 flying boat, which made the 5,220-mile trip from Start Bay, Devon, to Caravellas, Brazil, in 43 hours. The crew selected were Capt. D. C. T. Bennett, who flew *Mercury* on her transatlantic flights, and First Officer I. Harvey, who is equally experienced as a wireless

operator and as a pilot, and who assisted Capt. Bennett in both capacities. Incidentally, he is probably the only officer in Imperial Airways who has joined the company twice, first as a wireless operator and then as a pilot.

Mercury and *Maia* flew independently to Dundee on September 21 after a slight mechanical defect in the upper component had been remedied, the intention being to start the flight two days later. However, southerly winds were reported along the first 2,000 miles of the route, and it was decided to postpone the attempt until the following day.

Further delays were occasioned by the international situation and more impossible weather. One gale, on October 4, reached a velocity of 60 m.p.h. with gusts up to 80 m.p.h. This necessitated lashing as well as locking of the two components. The following day brought an improvement, and on Thursday, the 6th, although the wind was still quite strong, conditions were such as to warrant a start.

Pilot's Views

Just before take-off Capt. Bennett, wearing the blue service tunic of Imperial Airways, was interviewed by our correspondent. He expected that the flight would take a little over 40 hours and that he would fly for the greater part of the trip at 10,000ft., averaging between 145 and 150 m.p.h.—rather less than the normal cruising speed because of the need for fuel economy. Capt. Bennett said he would be crossing Heston Airport, where he would be timed by an official observer. By nightfall he expected to be over the South of France. He added that he did not like the idea of Spain, and would fly just off the coast. Flasks of coffee, milk, and soup were stowed on board and were to be taken at four-hour intervals. The Captain seemed uncertain whether or not he and his first officer would get any sleep. First Officer Harvey said he felt fine

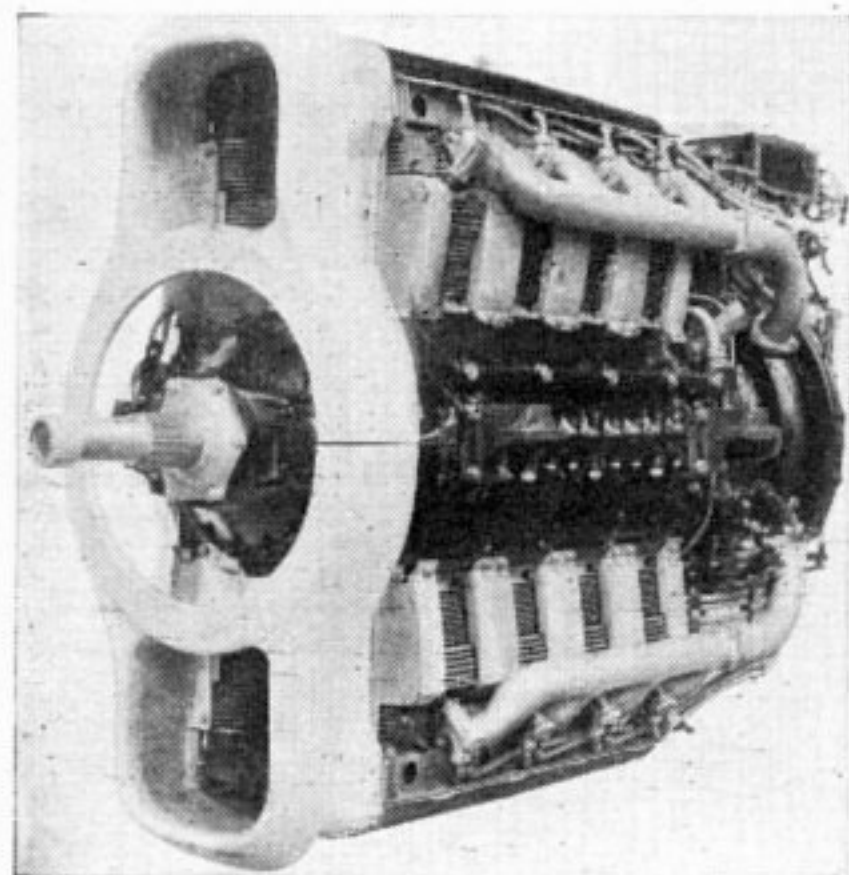


Capt. D. C. T. Bennett, who commanded *Mercury*. He was assisted by First Officer I. Harvey.

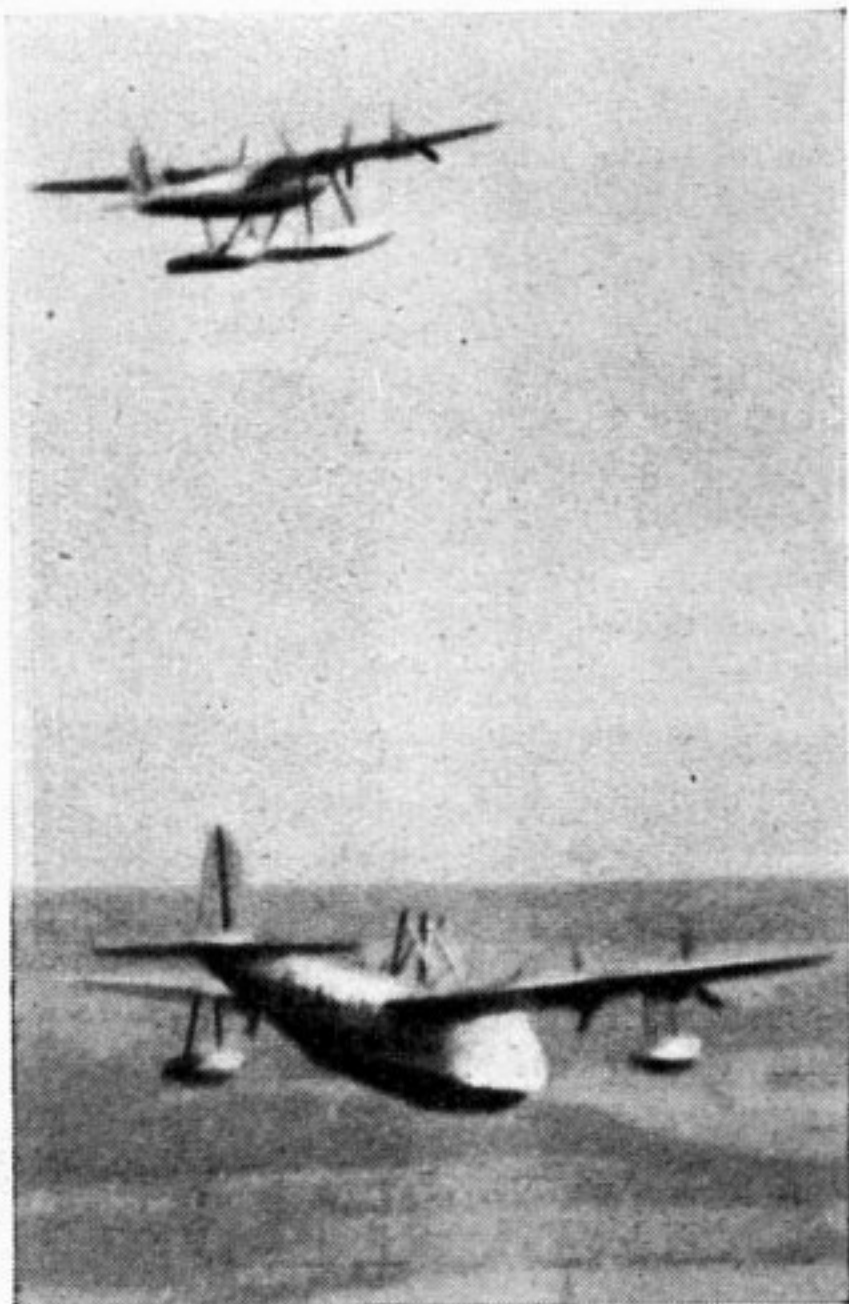
except for a cold which left him "firing on one cylinder."

According to our correspondent, the separation was made at 1.20 p.m. It was not witnessed by Imperial Airways' officials on the quay at Newport, whose first indication of the successful parting was the sudden appearance of *Mercury* about 6,000ft. up over the River Tay. The power loading at the moment of separation, with 2,135 gallons of petrol in the tubular spar and float tanks, was about 20 lb./h.p., and the wing loading about 45 lb./sq. ft.

Mercury set off on a SSW course, and *Maia* dropped low over Newport before landing on the Firth of Tay. On landing from *Maia*, Capt. Wilcocks and Major Mayo said that the separation had taken place at 4,700ft. six or seven miles north of Dundee between the city and Forfar. Clouds prevented it being made over Dundee Law Hill, as



A sixteen-cylinder Napier Rapier engine as installed in *Mercury*. The maximum power is 395 h.p. at 6,000ft.



An impression of the actual separation a few miles north of Dundee. Major Mayo was an observer in the lower component.

scheduled. Near Hatfield she was forced down to about 3,000ft. because of ice formation, but had climbed back to 5,000ft. by the time she crossed the coast at Newhaven at 4.13 p.m.

After being in the air for just over ten hours she had covered about 1,635 miles, and Capt. Bennett reported his position as 34 deg. 20 min. N. and 6 deg. 20 min. E. His height was 10,000ft. The bearings indicated that the machine was slightly north of Melghir Lake and that Algeria had been crossed. Radio stations on or near the route reported next day that *Mercury* had crossed Temassinin, Sahara (2,100 miles), Ghat, Libya (2,750 miles), Kano, Nigeria (3,185 miles), and Makakou (4,035 miles). Conflicting reports—possibly due to doubtful radio reception—make it impossible to quote accurate passing times at these places (one figure given in a newspaper worked out at an average speed of 322 m.p.h.). However, the attainment of Makakou marked the completion of about two-thirds of the journey in just over 26 hours.

According to Capt. Bennett, the fuel situation had become somewhat doubtful by the time he had covered half the distance. Severe tropical thunderstorms in West Africa made it highly improbable that the machine could reach Cape Town, and he considered coming down at Luderitz Bay. However, by continued throttling for economy it was possible to reach the mouth of the Orange River at 7.25 a.m. *Mercury* came in to alight through a cloud of flamingoes, and Capt. Bennett was watchful for hippopotami.

While taxiing the machine grounded comfortably on a sandbank and was refuelled prior to her departure for the Cape, which was reached at 4.35 p.m. G.M.T.

On landing, Capt. Bennett said that he had encountered icing conditions over Europe, which forced *Mercury* far below her optimum altitude. Crossing the Atlas Mountains in North Africa by moonlight, he could see the peaks below. Headwinds opposed *Mercury* all the way down Africa, and by 3 a.m. on Friday the speed had dropped to 128 m.p.h., but rose again to 146 m.p.h. by noon, giving

an average for the first 2,100 miles of about 140 m.p.h.

The Captain said that the flight was an unqualified success from the viewpoint of composite aircraft development. The following data on *Mercury* may be of interest: Span, 73ft.; length, 50ft. 11½in.; float track, 14ft. 6in.; wing area, 611 sq. ft.; total fuel capacity, 2,400 gal.; maximum cruising speed, 180 m.p.h. approx.

The engines are four Napier Rapier Series VIs, which have sixteen cylinders each arranged in four banks in the form of a letter H. During the Atlantic crossing these same engines each consumed only 13½ gal. of fuel per hour and 4 pints of oil. The makers claim that these low consumptions are a feature of the in-line engine, which has a large number of small high-compression cylinders and runs at a high engine speed with a great economy in frontal area. The rated and maximum powers of the engine are respectively 370 h.p. at 4,750ft. and 395 h.p. at 6,000ft.

The radio preparations for the flight are not without interest. It will be remembered that the Fairey long-range monoplane which set up a new world's long-distance record in 1933 by flying 5,341 miles from Cranwell to Walvis Bay took a route similar to that used by *Mercury*, but, apart from that, the stations concerned were comparatively unfamiliar with flights of this importance. Besides taking radio bearings, *Mercury's* crew had to receive constant weather information by wireless. As the wavelengths used by each station varied considerably, it was necessary to come to an arrangement about the wavelength to be used. Moreover, as many of them keep limited watch hours, it was imperative to give each one the times at which *Mercury* expected to pass in their neighbourhood.

Over the Sahara there are a number of short-wave stations, mostly at military posts, outposts such as Ouargla (5.02E, 30.03N), Fort Flatters, Tamanrasset (5.30E, 22.50N), and, just before the route crosses into British territory, Zinder.

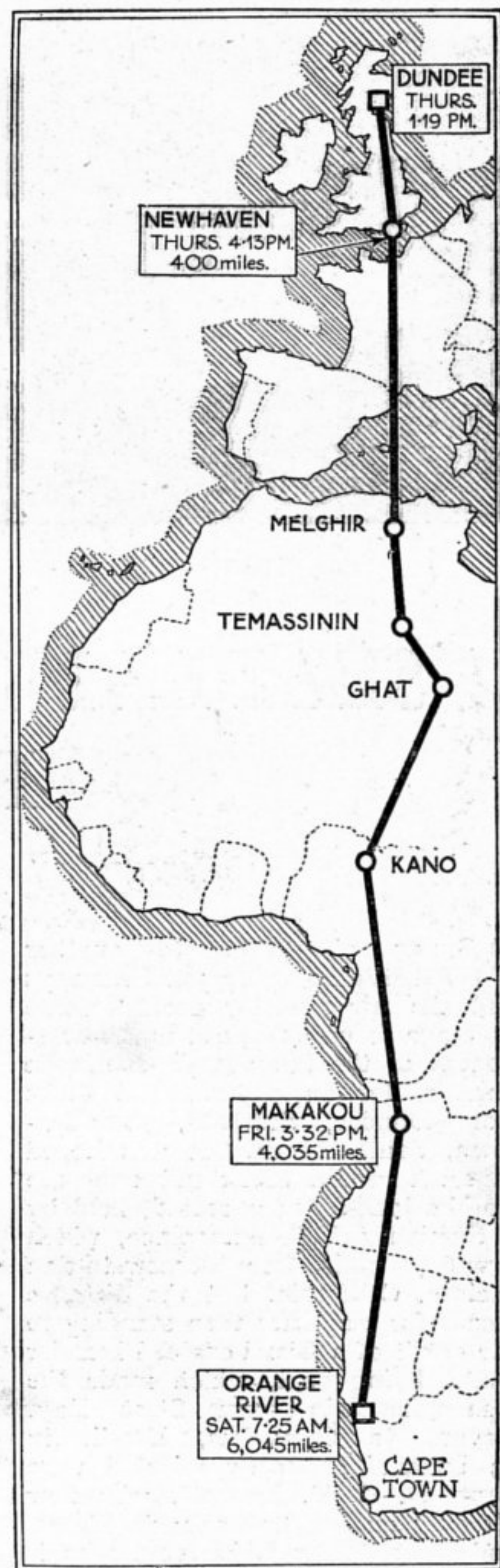
Working the Stations

Over the more southerly districts the route crossed Imperial Airways' Khartoum-Lagos line, and communication could be established with Fort Lamy (just over the Nigeria-Cameroons border) and Maiduguri and Kano in the northern provinces of Nigeria itself. Duala, in the French Cameroons, was the first coastal station to be picked up, and from then on, over the jungle lands as far as the Belgian Congo, marine stations were available as well as the aircraft stations used by the French and Belgian weekly services which operate down the West African coast.

Then for the 900 miles of the route in the Portuguese West African area there were seven stations along the coast, the chief of them being Loanda, about halfway between the mouth of the Congo and Benguela. On the route over South-west Africa Walvis Bay was an obvious station, and thereafter the excellent wireless facilities provided for South African Airways' Kimberley-Upington - Keetmanshoop - Mariental-Windhoek services were available.

Long-range short-wave communication was also possible with stations in England and on the regular Imperial Airways' Cairo-Durban route—roughly parallel to *Mercury's* route 1,500 to 2,000 miles away to the east.

Mercury's equipment includes a com-



A sketch map of *Mercury's* route from Dundee to the mouth of the Orange River.

bined short- and medium-wave transmitter for telegraphy and telephony, developed by Marconi; this is continuously adjustable for wavelengths from 15 to 200 metres in five ranges, and from 550 to 1,100 metres in one range. Two receivers are also carried—one for short, intermediate and medium waves, and one for medium-wave direction-finding. There is also a visual indicator attachment for homing. There are thus two receivers available for ordinary reception on medium wave. Direction-finding circuits are also provided on the upper medium waveband on the first receiver, thus giving an alternative direction-finding channel.

After spending the week-end at the Cape, *Mercury* was due to fly to Durban on Tuesday for a checking-over before returning to England towards the end of this week.

Some notes on items of *Mercury's* equipment appear on page 328.