falls or rapids. for such boats can alight on any moderately sheltered water, and require no special aerodrome.

Following are a few comparative weights relating to the F., P. and N. types already described.

Since the F.5 and P.5 boats are of similar dimensions, and designed to lift the same weight, 12,000 lbs., the lightest hull adds greatly to the operational value of the boat.

The total weight of each of two F.5 boats built by different firms, from official plans, only differed by 4 lbs., the average weight being 2,174 lbs., including wing roots, cloche, seats, and tank seats; deducting 333 lbs. for cloche, seats, etc., leaves a weight for bare hull of 1,841 lbs. The P.5 hull only weighs 1,321 lbs. with the same fittings, therefore the F.5 is nearly 40 per cent. heavier than the P.5.

The rate of production of the various types of boats built in one shipyard show the following figures :—

Ten men built an N.4 hull in from 12 to 13 weeks, three of these being experienced boat-builders, five joiners, and two apprentices. The construction of an F. boat required two skilled boat-builders, and the rest as in the previous case—seven men in all—and they took from 11 to 11½ weeks.

As the N.4 has 1,320 sq. ft. of planking on the main hull, compared with 560 sq. ft. in P.5, which is the same size as F.3, the saving on man-power hours is very much in favour of the larger boat and its particular construction. The increase in area between 1,320 sq. ft. and 560 sq. ft. is roughly 236 per cent. ; while the increase of highly-skilled labour is 50 per cent., and 40 per cent. semi-skilled, with an increase of time of under 10 per cent. Boats of the F. type took 4,830 man-hours for 560 sq. ft. ; while on the N.4 there were 7,500 man-hours for 1,320 sq. ft., equal to 8.6 man-hours per square foot on the F. and 5.6 for the N.4. The N.4 shows a saving in man-hours per square foot of surface of over 34 per cent. when compared with the F. type.

The F. boats are propelled by two Eagle Rolls-Royce engines, each developing 345 h.p., giving a speed of 100 m.p.h. The wings have no appreciable dihedral angle or stagger, and are almost square at the wing tips. The span of the top wing is 102 ft. Small wing floats are fitted underneath, and almost at the extremities of the lower planes. The rudder is ear-shaped, the bottom of which is in line with the bottom of the boat.

The N. boat has an overall length of 70 ft., carries a crew of nine, and a thousand gallons of fuel. Her wings are of the variable camber device, and the span is 142 ft. She is fitted with four Rolls-Condor engines, each giving 640 h.p. under dual control, and has a sea-level speed of 110 m.p.h., while her ceiling will be from 17,000 to 18,000 ft.

Fig. 13 illustrates in outline the profile and sections of various types of flying boats.

Figs. 14, 15, and 16 show photographic views of a hull in frame, a hull nearing completion, and a hull ready for mounting the wings and engines respectively.

The following tables show the relationship between the performances of some of the boats :—

P.5.	
Two Eagle VIII Rolls 352 h.p., 1,800 revs.	
	lbs.
Weight empty	7,347
Petrol, 100 galls.	
Oil, 20 galls.	915
Miscellaneous	138
Crew	720
Total weight	9,210
Weight per sq. ft. of surface	7.12
Weight per horse power	13.10
Climb to Mins. Secs.	
2,000 ft. 2 40	
5,000 ft. 7 55	
Speed at Knots.	
2,000 ft. 91	
5,000 ft. 89	

F.3.	
Two Eagle VIII Rolls 345 h.p., 1,800 revs.	
	lbs.
Weight empty	7,958
Petrol, 100 galls.	
Oil, 10 galls.	836
Miscellaneous	238
Crew	720
Total weight	9,752
Weight per sq. ft. of surface	6.82
Weight per horse power	14.13
Climb to Mins. Secs.	
2,000 ft. 3 12	
5,000 ft. 9 3	
Speed at Knots.	
2,000 ft. 81	
5,000 ft. 80	

F.5.	
Two Eagle VIII Rolls 345 h.p., 1,800 revs.	
	lbs.
Weight empty	8,023
Petrol, 80 galls.	
Oil, 10 galls.	688
Miscellaneous	199
Crew	720
Total weight	9,630
Weight per sq. ft. of surface	6.83
Weight per horse power	13.95
Climb to Mins. Secs.	
2,000 ft. 2 45	
5,000 ft. 7 30	
Speed at Knots.	
2,000 ft. 88	
5,000 ft. 87	

No Service Aircraft for Peace Flights

THE Air Ministry announces, in order to prevent useless applications and to avoid disappointment, that it will not be possible to permit Service aircraft to be lent for the purpose of giving exhibition flights during the Peace and other celebrations.

R.A.F. Dental Surgeons

THE Air Council invites applications from duly qualified men for appointment as commissioned dental officers at a salary of £1 per diem, together with a War bonus of 28s. per week, and certain allowances where quarters are not available. Successful applicants will be required to engage under contract for twelve months, or until their services can be dispensed with, whichever will happen first, and will be granted an outfit allowance of £30. Applications should be made to the Secretary, Medical Department, Air Ministry, London.

Mr. W. M. Hughes on Imperialism

AT the farewell dinner given last week in London to the Australian Prime Minister, before his departure for Australia, Mr. Hughes said we must hope that somehow means would be found whereby the great confederation of free nations calling itself the British Empire would work, live and develop together in the highest interests of civilisation and the welfare of mankind.

Apart from spiritual ties of tradition, race, and common ideals, he added to the two great links—defence and trade—the means of communication. Every step that we took that brought the widely scattered portions of the Empire closer together was a safeguard against disintegration and a greater assurance of unity. The present means of transport and communication, good as they were, fell far short of that which was imperatively necessary. With marine engineering, even as it stood to-day, there was no reason why we should not travel from Fremantle to London by steamship in from 18 to 20 days, by aeroplane or airship in much less. An Imperial fleet of swift steamships, ploughing and encircling the oceans of the earth, aeroplanes and airships still more swiftly piercing the upper air, were imperatively necessary—and, not less so, a chain of powerful wireless stations supplementing cables and enabling every part of the Empire to be more fully conversant with each other's thoughts and actions.

In the not distant future Sydney and Montreal would speak to London and hear its voice over the great wastes of water. Thus drawn together by an effective Imperial Defence and trade policy, and by improved means of communication, bonds of Empire would be so firmly cemented that neither corroding time nor the rude buffets of adversity would shatter them.

Air Services in the Orient

ACCORDING to a message from Paris, the French Chamber will vote additional credits for the establishment of an Aviation Mission in Turkey, entrusted with the organisation of the following postal lines : Constantinople, Smyrna, Grecian Archipelago ; Constantinople, Palestine, Messa, Egypt ; Constantinople, Armenia, Caucasus, Persia ; Constantinople, Bucharest, South Russia ; Constantinople, Salonika, the Balkans. It is stated that these lines will be carried on by the military until French air navigation companies have been floated.

Propellers as Souvenirs

THE Government are offering for sale singly a number of aeroplane propellers at York House, Kingsway. These propellers are made up of the finest walnut and mahogany, and can be used for a variety of purposes, such as hat stands, with a clock or barometer inserted in the boss, and can also be made into picture frames, jewel and clock cases. The four-bladed ones are being sold at 30s. and the two-bladed at 25s. Arrangements for delivery can be made. These propellers are all quite new, the engines for which they were made having become obsolete.