

the navigability and seaworthiness trials, and had to be removed from its buoy to prevent it from sinking, it would thereby be disqualified from taking part in the contest. All the six seaplanes passed the tests without trouble.

## The 1929 Machines

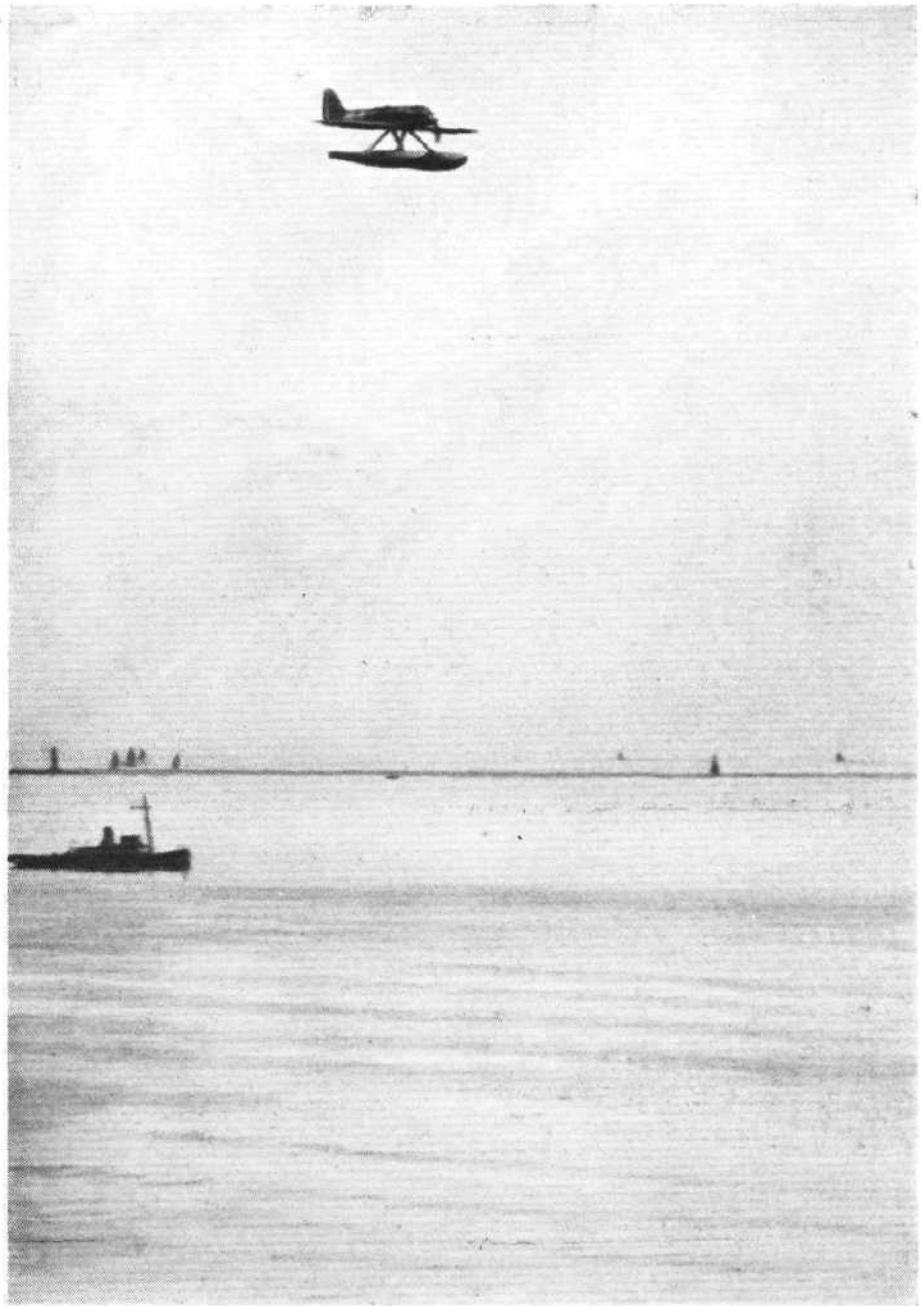
Four aircraft were ordered by the British Air Ministry for the 1929 Schneider Contest, two Supermarine S.6 all-metal monoplanes with Rolls-Royce "R" type racing engines, and two "Gloster VI" monoplanes with Napier racing engines. As each country is entitled to send but three machines into the contest, this meant three machines to be selected, with one in reserve. The Supermarine S.6 machines were ready first, and but for certain minor troubles with porpoising tendencies, which were overcome, required practically no modifications. The "Gloster Napier VI" monoplanes were completed rather later, and when they came to be tested, certain troubles with the induction were encountered. It will be realised that high-speed forced induction racing engines are liable to be very sensitive to such items as size and arrangement of air intakes, not to mention the considerable difficulties which may be encountered in the operation of blowers for forcing into an engine a larger amount of charge than the engine would normally aspirate. Time was too short for remedying these difficulties, and the two "Gloster Napier VI" monoplanes had to be left out of the contest. This was a cause for the most sincere regret, as the Gloster and Napier companies had always been well to the fore in racing aircraft, and had done a great deal towards maintaining British prestige in this direction. However, there was no help for it, and one of the Supermarine-Napier S.5 monoplanes built for the 1927 contest was nominated to take its place in the team as third machine.

The 1929 Supermarine Rolls-Royce S.6 was an all-metal twin-float monoplane, with the wing placed low on the fuselage, and braced by streamline wires to top of fuselage and to floats. Fuel was carried in the floats, and was lifted to a small gravity tank by engine-driven pumps. As the distance which the fuel had to be lifted was considerable, and as centrifugal force during a turn is such as virtually to double or treble that distance, the pumps would fail to supply the necessary quantity of fuel during a turn, and the gravity tank in the fuselage was relied upon to supply the engine during a sharp turn, until the pumps were able to resume their work when the machine straightened out.

The wing surface radiators were a new feature, and were made as the wing covering. They consisted of two thicknesses of Duralumin with a very narrow waterway between them.

The lubricating oil was cooled by being passed along specially constructed oil coolers forming the sides of the fuselage. The oil tank was housed in the vertical tail fin, which, being in the propeller slipstream, contributed considerably to the cooling.

The 1929 Supermarine S.6 machines had a wing span of 30 ft., a wing area of 145 sq. ft., and weighed 4,030 lb. empty. They carried in the contest, in addition to the pilot, 115 gallons of petrol and 10 gallons of oil, and a certain quantity of cooling water, which brought the gross weight up to 5,250 lb. and gave a wing loading of 36.2 lb./sq. ft. During the race the Rolls-Royce engines were giving 1,900 h.p., so that the power loading became 2.76 lb./h.p. only.



**THE WINNER: Flt.-Lt. Webster crossing the finishing line on the Supermarine-Napier S.5 at Venice in the 1927 Contest. (FLIGHT Photo.)**

Developed from the 825-h.p. Rolls-Royce "H" engine, the Rolls-Royce "R" engines of 1929 were 12-cylinder water-cooled engines with the cylinders placed at an angle of 60 degrees to each other. They had a cylinder bore of 6 in., and a stroke of 6.6 in., and weighed 1,535 lb., which gave a specific weight of only 0.805 lb./h.p. A special supercharger of entirely novel design was developed for these engines, and proved entirely successful. Small frontal area was another feature which contributed to their success, while a reduction gear gave very high airscrew efficiency.

The machines sent by Italy included two Macchi M.67 monoplanes, a Macchi M.52 monoplane, a Savoia-Marchetti S.65 twin-engined monoplane and a very diminutive Fiat low-wing monoplane.

After various troubles and tribulations with the latest types, the captain of the Italian team was obliged to nominate for the actual contest the two Macchi M.67 machines and the old Macchi M.52, on which de Bernardi had established a world's speed record some time before.

## The 1929 Contest

The six pilots and their machines, in the order of starting, were: 1, F/O Waghorn, Supermarine Rolls-Royce S.6; 2, Marshal Dal Molin, Macchi M.52 (Fiat); 3, Flt. Lt. D'Arcy Greig, Supermarine-Napier S.5; 4, Tenente Cadringher, Macchi M.67 (Isotta-Fraschini); 5, F/O Atcherley,