The company's factory and laboratory at Bracknell, Berks

SPERRY 50 YEARS 1913–1963

Fifty Years of British Sperry

BRITISH Sperry operations began in 1913 at a small factory in Pimlico, London. The first customer was the Admiralty, and HM Submarine E.1 was the first of many British warships to have a marine gyro compass. Adoption of this aid by the merchant service followed the Great War, the first British ship so fitted being RMS *Aquitania* in 1919. These practical developments of the gyro compass were largely attributable to Dr Elmer Sperry, on whose brilliant inventiveness the American Sperry Company was founded. His work was the subject of 362 patents, covering such activities as an electric coal digger, a mining locomotive, a motor carriage, searchlights and a railcar flaw detector.

In 1915 Sperry in Britain became the Sperry Gyroscope Co Ltd, with head offices in Victoria Street, London. Two years later, to meet increasing demand, production facilities were transferred to larger premises at Shepherds Bush. The development of flight instruments and automatic flight control proceeded concurrently with the marine applications. In 1914 Lawrence Sperry, Dr Sperry's son, flew "hands-off" over Paris with his mechanic standing between the wings while the aircraft was being controlled by the Sperry "airplane stabilizer." Lawrence was awarded a prize of 50,000 francs for his contribution to flight safety, and it is sad to recall that he met his death in an aircraft accident (due to engine failure) off Rye, Sussex, in 1923.

By the latter year Sperry had introduced the ships' gyro pilot—subsequently dubbed "Metal Mike"—and today over 70 per cent of world shipping navigates with the company's compasses and gyro pilots. Growing demand for their products led to a further move to the Great West Road, Brentford, premises which are today the headquarters of Sperry in Britain. Production at Brentford started in 1931, by which time the company's aero instrument business was becoming substantial. The Sperry blind-flying panel set the standard for instrument flying from that time until after World War 2. During the latter, Sperry was heavily engaged in the production of AA gunfire predictors, and this activity is today reflected in automatic fire-control contracts for the Admiralty which form an important part of the Stonehouse factory's work.

Sperry had pioneered the first aerial torpedo—a true guided missile—in 1914. Patent rights were handed over to the Air Ministry in 1924, but today the company has many GW interests, including the ship-to-air missiles Seaslug 1 and Seaslug 2, a ship-borne-equipment development contract for Seacat, and now the new CF.299 guided-weapon system for small ships. British Sperry also manufactures ships' inertial navigation systems for the Admiralty.

Today the company is a recognized leader in control "On Land, At Sea, in the Air and in Space." Among many important accomplishments, the following are outstanding: 1948, the first harbour-supervision radar in the world, at Liverpool; 1954, the first British inertial navigation system to fly; 1960, the first British ballistic-missile navigation and control system; 1961, the first aircraft in space, the X-15, flies with British Sperry accelerometers; 1962, the Seaslug ship-to-air weapon enters service and the GPO commission their first automatic exchange, with Sperry memory store.

Traditional aero and marine skills are now being extended to cover new applications, not only in the glamorous fields of missiles and space but also in industrial automation. The work of Sperry in Britain is now covered by nine groups, employing 3,500, at Brentford and Isleworth, Middlesex (marine, industrial and service groups); Bracknell, Berkshire (aero, guided weapons, stable platforms and R&D); and Stonehouse, Gloucestershire (naval/military and nuclear). The company is responsible for almost half Britain's exports of aero and marine navigation instruments, and has customers in over 30 countries.

1—"ENGAGE AUTOPILOT"

By NEIL SULLIVAN, BSc, AInstP, FRAeS*

THE Wright brothers succeeded, where so many others had failed, in achieving successful powered flight, principally because they made their Flyer slightly unstable. This enabled the weak control moments—which were all that they could apply—to manœuvre the craft; but it also demanded constant attention from the pilot to prevent unwanted, and therefore dangerous, divergence from the desired line of flight. In rough air—which in those days meant anything above a flat calm—the pilot's mastery over the elements was at best marginal.

Only six years later, in 1909, the first aircraft flew with a gyroscopic stabilizer. Development of their device culminated in the Sperry Gyroscope Co taking the Grand Prix in the *Concours par l'Union pour la Sécurité en Aéroplane en France* (French Safety in Aircraft Competition) in 1914. As the aeroplane developed, particularly under the impetus of the First World War, manual control was rationalized; and the need for artificial stabilizers receded, as a new generation of aircraft appeared, the best of which practically flew themselves.

In subsequent years the Royal Aircraft Establishment, which had played the leading part in this work of improving stability and control, was responsible for the resumption of automatic-pilot development in this country. But the purpose was now rather different; the aircraft were reasonably stable in themselves, and all that was required was the gentle correction of cumulative errors to maintain a compass course and altitude. This work produced the long series of RAE autopilots which gave yeoman service throughout the world up to the end of World War 2. In America, Sperry had a spectacular success in enabling Wiley Post to fly solo round the world in eight days in 1933. The equipment he used was developed

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