Twenty-one Years of Flight Refuelling

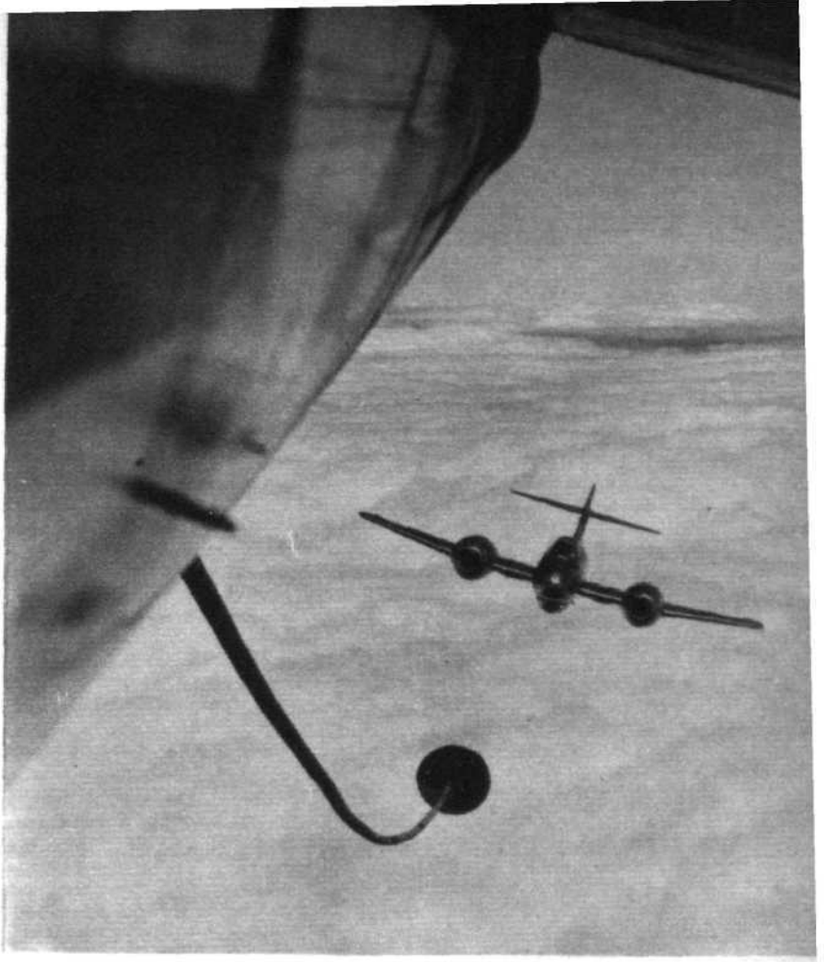
A HISTORY of Flight Refuelling, Ltd., is a success story in the truest sense of the word. What began as a casual experiment or a publicity stunt was taken up by Sir Alan Cobham and developed into a technique, and a range of equipment, which makes available to all those who have the vision to use it the full potential offered by in-flight refuelling. In 21 years of work, Sir Alan and his many associates and workers have reached the point where the air forces and naval air services of two of the world's largest air arms have placed, or are likely to place, extensive orders for the latest versions of his products. But equally significant with the process of development is the fact that, in this year of success, the company has the industrial capacity to produce the equipment which has been ordered from it. Flight Refuelling has available a group of technicians and an extensive background of commercial activity which, even without the much sought-after probe and drogue equipment, would assure the company a worthy place in the British aircraft industry.

In fact, Flight Refuelling, Ltd., in England—there are three more companies producing the firm's equipment abroad—consists of four major sub-divisions. The first (but not at the moment the largest) is engaged in developing and producing the probe and drogue equipment now destined for the V-bombers and other British Service types. The second division originally sprang from the first, since air refuelling required a series of automatic shut-off valves, float switches, and other similar equipment, which the company designed and perfected on its own account. When, in 1950-51, pressure-refuelling from bowsers became mandatory, because of the large quantities of fuel which had to be shifted after each landing, the company already had available the wide range of equipment needed for this type of work, and it therefore soon achieved the status of consultant to the industry on fuel systems. The second division, therefore, is in full production with a wide range of equipment for practically every modern British aircraft. In addition, the Canadian subsidiary, Flight Refuelling (Canada) Ltd., of Toronto, and the French licensee, Carburateur Zenith, are also in full production with this type of equipment. It is, in fact, often the case that the company are called in in the early design stages to assist in the preparation of a new aircraft's fuel system.

The third division, which occupies a large part of the airfield facilities at Tarrant Rushton, the company's present main base, deals with the major overhaul, retrospective modification, and Category 4 repairs of military aircraft—at present mostly Meteors. In the past, Brigands, Lancasters and Vampires have been similarly dealt with.

Finally, a fourth division of the company has been engaged for the last 15 years on a variety of M.o.S. development contracts dealing with almost anything, from the towing of fighters during World War 2, through the development of thermal de-icing equipment, to the establishment of metal strength standards. For this purpose a complete design office and test laboratories are available, but little can be said of their work, since so much of it is, of course, covered by security. Not content with this, the company has also engaged in manufacture of aircraft components under sub-contract, and, having just completed a large batch of Sea Hawk after-fuselages for Armstrong Whitworth Aircraft, Ltd., has now begun on the production of external fuel tanks for Vickers Supermarine.

Some of the men behind the ideas, Michael Cobham, director (commercial), Sir Alan Cobham, chairman and managing director, C. Tonge, director (finance) and H. C. Harrison, director (engineering).



The probe and drogue system, the most flexible and compact of the company's developments and the one which has been extensively adopted by the U.S.A.F., the U.S. Navy and the R.A.F.

The company has even moved outside the aircraft field to produce equipment for the latest armoured fighting vehicles, and for fast marine craft, such as high-speed gas-turbine-driven patrol boats. Agents and representatives are located at points all over the world, and the company's equipment has been employed in such a variety of aircraft as the French S.N.C.A.S.E. Baroudeur and Caravelle, the S.N.C.A.S.O. Vautour, on certain Avro Canada aircraft, in the Finnish Valmet Vihuri, the Fokker Friendship and Dutch- and Belgian-built Hunters, the Swiss P-16 fighter, Italian Aerfer types, and the Australian Jindivik pilotless aircraft. It is also a little-known fact that, some five years ago, the Argentine Government was very seriously interested in fitting up a number of Lancaster tankers to refuel Meteor fighters. This scheme was unfortunately abandoned before it came to fruition. More recently, however, South America has again figured in Flight Refuelling affairs with the supply of certain ground equipment for refuelling the Hunter 4s ordered by the Peruvian Air Force.

It was in 1932 that Sir Alan Cobham became seriously interested in flight refuelling, the object being to achieve a form of assisted take-off. In earlier years as his trusty D.H.9, overladen with fuel, ground its way towards the far hedge without any signs of becoming airborne, Sir Alan had wished fervently for something which would help him to avoid such unpleasant moments. His solution was to take-off with a light fuel load and to receive the majority of his fuel in the air at a time when the aircraft could comfortably fly at a weight much greater than that at which it could get itself airborne.

Sir Alan's work, however, was not the first in the field of flight refuelling, since the U.S. Army Air Corps had, in 1923, tried a quite crude form of air refuelling with some success and, using it as a means of staying airborne, had made a flight of 37 hr 15 min. The French had also tried it in the same year, but interest had lapsed until 1929, when the U.S. Air Corps achieved an endurance of 150 hours with the Fokker tri-motor "Question Mark." Then the business caught on as a stunt and many flights were made in America, culminating in the staggering endurance of 647½ hours by Jackson and O'Brine in a monoplane called *Greater St. Louis*. In 1930 S/L. (later A-V.M.) Atcherley visited the United States to take part in the National Air Races. He saw some of this stunt work in progress, and returned to his squadron with the idea of developing the technique and improving equipment. Later he devised a system where the receiver aircraft trailed a long line astern, and the tanker, trailing a shorter line, passed behind it so that the two lines crossed and became united by grapnels at their ends. With the two aircraft formating, a hose was then drawn across from the tanker and fuel passed.