R. E. Purves, chairman and managing director of the Fairey Aviation Company of Australasia Pty. Ltd. He influenced the Fairey decision to come to Australia.

FAIREY IN AUSTRALIA—I

The Aircraft Division

Extending to Australia in 1948, Fairey's now have Divisions at Bankstown and Salisbury. This introduces the Bankstown works.

FAIREY Aviation first entered the Australian scene March 1948 when, in partnership with the Cl Engineering Co. Ltd., Fairey Clyde Aviation was forn to undertake the repair and maintenance of the Fir and Sea Fury aircraft to be operated by the Air Arm the RAN, then in the course of formation.

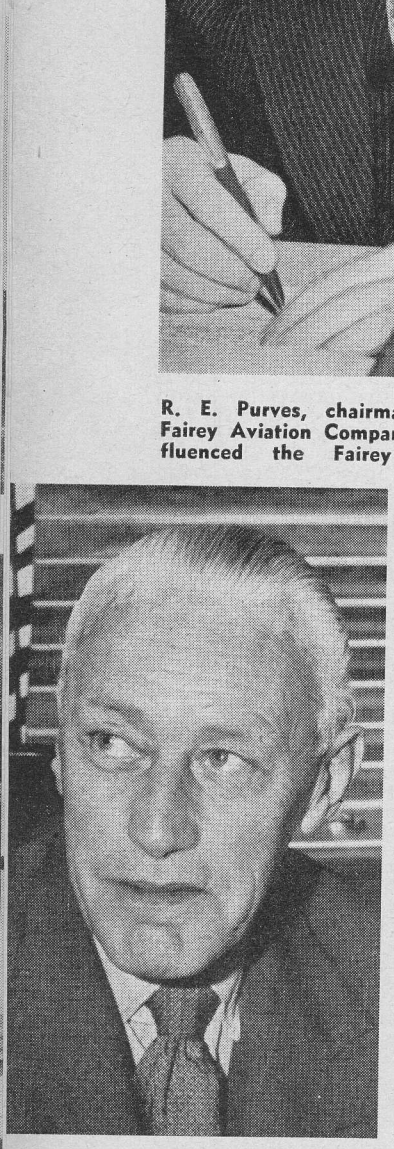
The partnership was influenced by the vision of R. E. Purves, chairman and managing director Clyde, and the desire of Faireys to come to Australia support the development of naval aviation in the RA The result was the Fairey Aviation Company of A tralasia Pty. Ltd., of which Mr. Purves is also chairm and managing director.

The new company at first occupied a small Banksto hangar where Clyde Engineering had overhauled serv aircraft throughout the war years. A move was m into much larger premises early the following year, time for the arrival from England in *HMAS Sydney* of first carrier air group.

Shortly after the move took place the company s fered a tragic blow when the three top executives, Commodore F. Kirk, general manager, Eric Turner, wo manager and F. H. Ordidge, chief engineer, were involv in a car accident, in which Mr Ordidge was killed and Commodore Kirk and Mr Turner suffered injuries wh put them out of action for many months. Despite t handicap the company continued to expand rapidly und the guidance of Mr L. C. Williams, who had then recen arrived in Australia from the parent company in Engla and who stepped into the breach and carried on until Commodore Kirk recovered from his injuries sufficien to return to duty.

In addition to the work on the naval aircraft the co pany, about this time, started to extend its activities in the civil aviation field by manufacturing small parts TAA and obtaining a further contract to overhaul number of Catalinas for Trapas, the French Colon airline.

In November 1950, Air Commodore Kirk retired a



LEFT: Air Commodore C. B. Wincott, RAF (ret.), general manager of the Aircraft Division, Fairey, Australasia. RIGHT: From left are F. O. Walker (production manager), J. R. Sainsbury (secretary), and L. C. Williams (engineering manager) discussing a model of the Gannet which will be serviced by Fairey's when it becomes standard RAN anti-submarine equipment next year. First jet aircraft squadrons of the RAN were inaugurated at a ceremony at the Royal Naval Air Station, Culdrose, Cornwall, last month. They will return next year in the angled deck carrier HMAS Melbourne.

Air Commodore C. B. Wincott replaced him as general manager. The following year Clyde Engineering disposed of their holding and the company's name was changed to Fairey Aviation Company of Australasia Pty. Ltd. in November 1951.

In addition to routine maintenance and overhaul work Faireys have undertaken, for the Navy, the conversion of an ex-RAAF Dakota into a flying classroom, equipped with all the navigational aids needed for anti-submarine and observer training, the conversion of a number of Firefly Mk. 5s into Mk. 6s and a small batch as target tugs. A major task has been the production of a Firefly Trainer known as the Firefly T Mk. 5 Trainer. This has been achieved by converting a standard Mk. 5 airframe and involved considerable redesign. The third of these aircraft is now nearing completion and Faireys claim, with justifiable pride, that they are the most advanced piston engined trainer produced in Australia.

Civilian overhaul activities have continued to expand and in June last year a contract was entered into with ANA to carry out complete overhauls on DC-3s. This work has now reached the stage where a DC-3 is turned out on the average every three weeks. C of As have also been carried out on aircraft operated by other companies including Mandated Airlines and the Zinc Corporation.

Faireys are anxious to further expand their facilities to cater for airline aircraft larger than DC-3s such as DC-4s and 6s, but are handicapped by the lack of all weather runways at Bankstown. The aerodrome is capable of handling these aircraft in dry weather, but the grass surface becomes very soft after periods of rain. Airline companies are naturally reluctant to risk having their aircraft marooned at Bankstown, due to aerodrome unserviceability, after the scheduled date for return to service.

The Bankstown factory now consists of three large hangars with a fourth smaller one used as a dope shop and a well appointed office block. Security measures are strict and the whole factory area is surrounded by a high wire fence and patrolled by security police and watch dogs. Productive floor space now occupies 106,000 sq. ft. and is sectioned off into bays where work is carried out on various types of components and assembled airframes, a well-fitted electrical shop and a radio/radar test room which has been equipped to handle the full clearance of radio and radar installations in Service aircraft. The plant is equipped to handle all types of work other than complete engine overhauls.

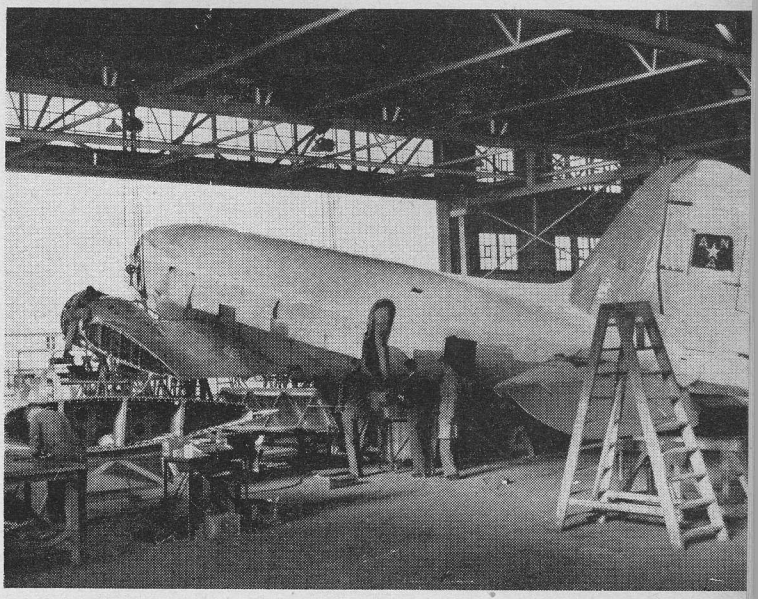
Preparations are now being made for the provision and installation of the necessary jigs and test equipment to undertake the repair and maintenance of the Fairey Gannets, due next year. Production manager F. O. Walker and chief technician R. A. Manuel have recently returned from England, after having made a study of the new aircraft in preparation for its introduction into the RAN.

Fairey's plan for the future includes the complete manufacture of aircraft in Australia and, in this connection, a design study was undertaken of a proposed new elementary training aircraft suitable for use by Australian Aero Clubs. An attractive looking 2-seater low wing monoplane, somewhat reminiscent of the prewar Fairey Tipsy, this aircraft would be a useful addition to the very restricted range of training aircraft now available to Australian flying schools. Unfortunately, this project has been shelved, for the time being at least, due to a decision that it would be uneconomical to produce in the comparatively small numbers that the Australian market is considered capable of absorbing.

The general manager, Air Commodore C. B. Wincott, CBE, has had a long and distinguished career in aviation. Commissioned in the RNAS in 1916 he learnt to fly in that year. He was in Australia from 1936 to 1938 on exchange posting from the RAF and during that time commanded No. 5 Squadron, RAAF. During the 1939-45 war he served in various posts at the Air Ministry, Ministry of Aircraft Production and with the British Air Commission in the USA. In 1947 he was Air Attache in Moscow.

Mr L. C. Williams, now engineering manager, learnt to fly in the Oxford University Air Squadron in 1928. From 1934 until 1943 he was chief technician and assistant chief designer with General Aircraft Ltd. and then joined Faireys in the UK as chief flight development engineer. He held this post until sent out to Australia in 1949.

Production manager at Bankstown, Frederick O. Walker also transferred from the parent company, where he was chief estimator from 1942 until 1951, joining the Australian company in that year. The company secretary, Mr J. R. Sainsbury, joined Faireys in January, 1951 and was previously manager and a director of Aircraft Industrial Marine Instrument Co. Pty. Ltd. Operating the Melbourne office is Eric Turner whom many in the industry will recall as one of the early members of Holyman Airways engineering staff and later ANA. Mr. Turner was manager of the Aircraft Division of Clyde at the time of the merger and is now well placed to represent the company's activities in aviation and weapons development with the appropriate Government departments and airlines. END

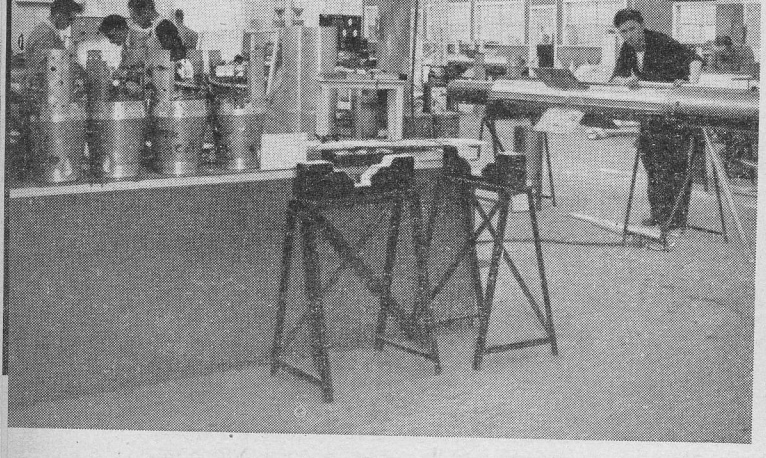


An ANA DC-3 receiving a new coat of paint near the completion of a major overhaul in the Fairey workshops.

RAN Fireflies and Sea Furies on the reconditioning line. Repair jigs for both aircraft are located at the far end of the hangar fitted with three 2½-ton overhead gantries. Hydraulic, electrical and plating sections are in the side bays.

LEFT: Lt. Colonel Reginald T. Elvish, general manager of Special Projects Div. RIGHT: F. R. Green, chief technician.

L: F. Cannon, instr. mgr. R: J. McMullen, works mgr.



LEFT: Portion of the assembly bay showing RTVs nearing completion. In background are laboratories for pre-firing preparation and calibration checks. RIGHT: Rocket test vehicle undergoing final guidance, control, and telemetry checks.

FAIREY IN AUSTRALIA—2

Special Projects Division

Based at Salisbury, this section of Fairey's pioneered guided missile and associated activities in Australia.

FAIREY Aviation Company of Australasia's Special Projects Division at Salisbury, South Australia, has grown considerably since its beginning six years ago.

Originally set up as a trials base for the parent company in the UK, the Division closely co-operated with advance units at Woomera Rocket Range in early trials of the Fairey Vertical Takeoff Aircraft (VTO).

From that point the Division embarked on a programme of pioneering the guided missile industry in Australia. First step towards this came when the Australian Government awarded the first contract for a number of Rocket Test Vehicles (RTVs) with the understanding that the Australian content of the weapons should at all times be the maximum possible.

Many of the items for the first half of the programme were supplied by UK authorities while Faireys carried out necessary planning and development of techniques to produce such items as gyroscopes, accelerometers and precision parts for the second half of the programme.

It was also decided that the Division should extend its activities into the field of pre-firing preparation and the present position is that the company can supply test vehicles to the Government authorities completely prepared and ready for firing at Woomera.

Parallel with the development of the RTV itself, recognised as the standard test vehicle at Woomera Rangehead other work has been proceeded with. The company has carried out engineering design and manufacture of special aerodynamic test vehicles for the investigation of wing flutter characteristics, the investigation of wing drag and rockets for assessing the efficiency of special air intakes which could be used for turbojet engines at high Mach numbers. The company has also produced several types of small rocket motors to be used in conjunction with trials being carried out by the Government's Propulsion Laboratories at Salisbury. Policy has been to carry out as much development work as possible in conjunction with the manufacturing activities.

Several new items have been developed as part of this programme, particularly in relation to the design of small electro-mechanical mechanisms. They include several types of gyros which differ in many respects from those normally available from the UK. In the main these are being adapted for special purpose applications. Miniature fractional horsepower motors have been designed and manufactured and are now in small scale production. These motors are as small as 1/300 or 1/100

HP, 400 CPS rating and can be used for small servo mechanisms, miniature actuators and the like. Techniques associated with precision resistance windings for telemetry and other purposes have been developed also and expansion of this work into the fields of laboratory instruments is now in hand.

The Division has also carried out a development programme in the use of solid, foamed and reinforced plastics as they apply to the guided weapons industry. This technique has been applied to the encapsulating of small electronic components so as to ensure that this type of equipment is not subject to vibration, humidity or temperature conditions which could seriously jeopardise efficiency. It is also being used in conjunction with the manufacture of special commutators associated with sensing mechanisms. On a much larger scale, the technique is being employed to manufacture reinforced glass fibre tubing as a particular application to tooling in industry.

Further expansion is already planned by the Division and it has been granted the first private industrial site in the new satellite town now being built by the SA Housing Trust adjacent to the Weapons Research Establishment. On this a factory will be built to produce in quantity those items which have already been developed and are suitable for commercial application. It is hoped this factory will be ready within 12 months and equipped to begin production, in the first instance, of small electro mechanical instruments.

General manager of the Special Projects Division is Lt. Col. Reginald T. Elvish, who was appointed to this position after demobilisation from the Australian Army. He was a senior official at the Rocket Propulsion Department, RAE, Westcott, for some time and after graduating at the Royal Military College of Science, UK, was appointed Assistant Director of Armament, AHQ, Melbourne. Past president of the Guided Weapons Contractors Committee, comprising all the private contractors at Salisbury, Col. Elvish is also keenly interested in the "little Farnborough" idea in Australia.

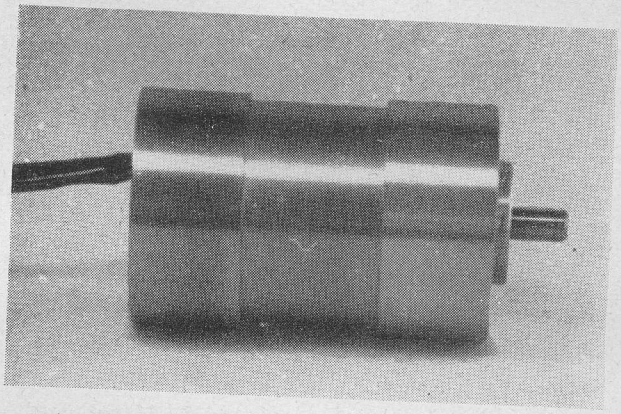
The Division's works manager is Mr J. A. McMullen, who joined the company four years ago. Previously with Government Aircraft Factories, Fishermen's Bend, Melbourne, he was project engineer on the Pika.

Instrument manager, Mr F. H. Cannon, is responsible for instrumentation design and manufacture. Prior to joining Faireys 12 months ago, he was engineer in charge of mechanical engineering in AWA's telecommunication department, Sydney. He had earlier experience with Muirheads, Marconis and GEC.

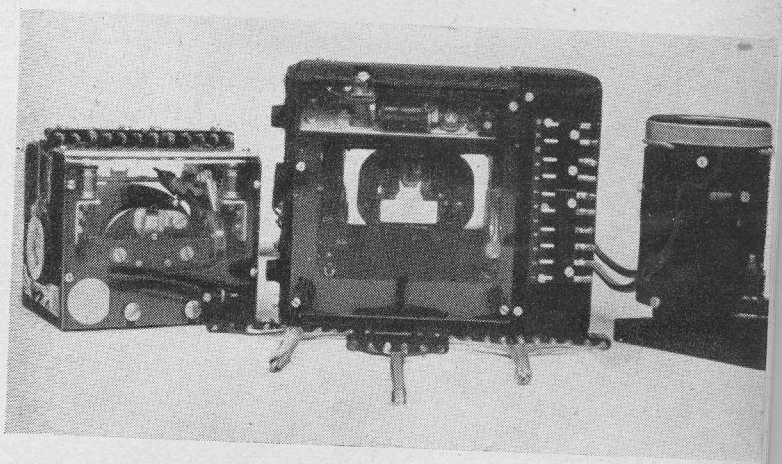
Chief technician is Mr F. R. Green, who has been with the Division since its inception and who worked with the parent company in the UK for two years previously on various projects associated with the guided weapons programme. Earlier he was a senior stress engineer with Bristol and has also had experience with CAC.

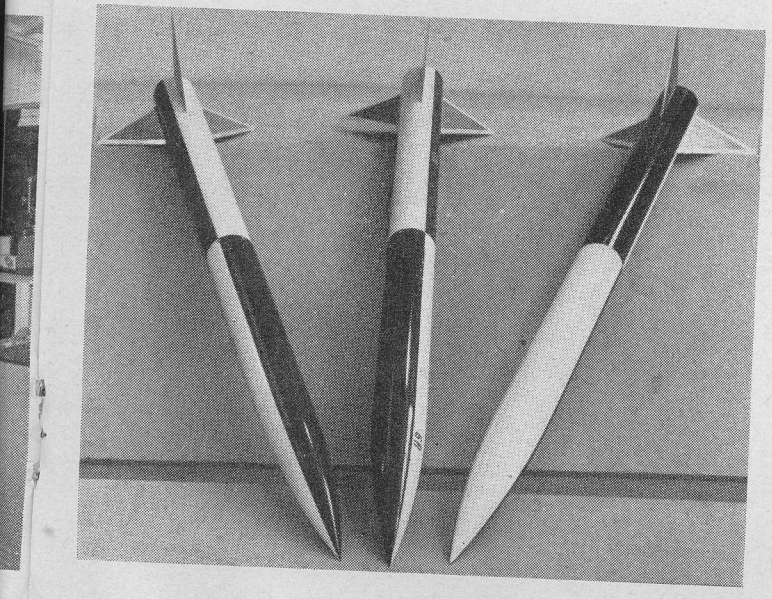
Works secretary is Mr A. H. Davis, who had wide experience in accountancy with several big SA industrial firms before joining Faireys.

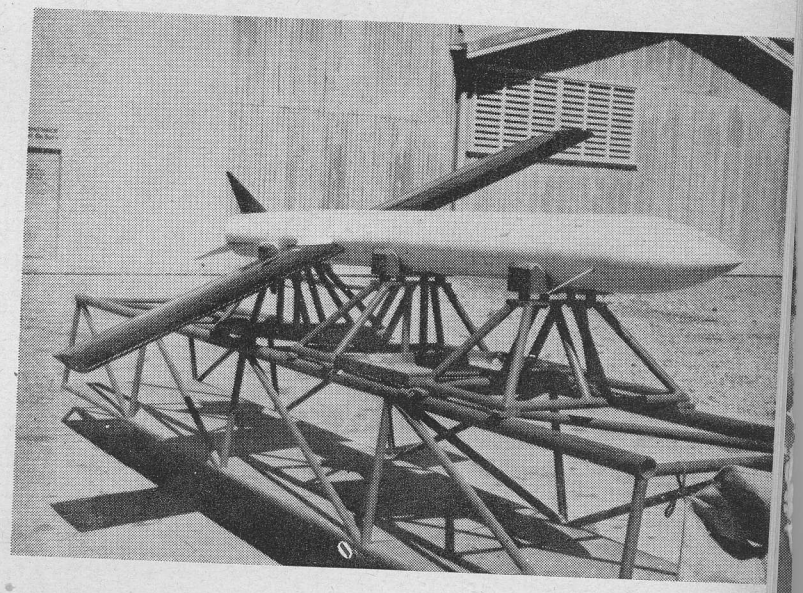
Proof of the efficiency of this team, backed by plant employes, is that less than six years from the inception, the Division was able to exhibit a completely Australian-built guided weapon (RTV) at last year's SBAC Show at Farnborough together with a number of highly intricate mechanisms which won high praise for Faireys. END



ABOVE: 1/300 HP motor is soon to be made in quantity at Salisbury. BELOW: Instrumentation now manufactured in Australia includes gyroscopes for measuring rate of roll and displacement of rocket vehicles (left and centre) and (right) pressure arming switch used with explosive circuits.



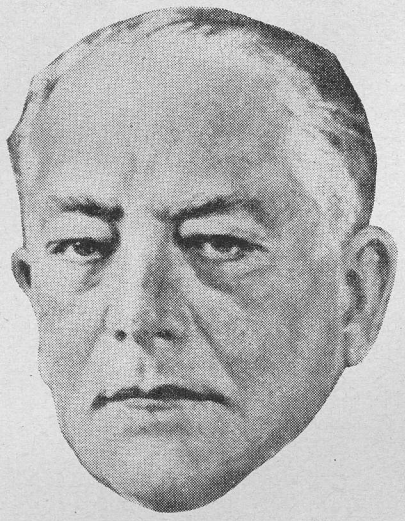




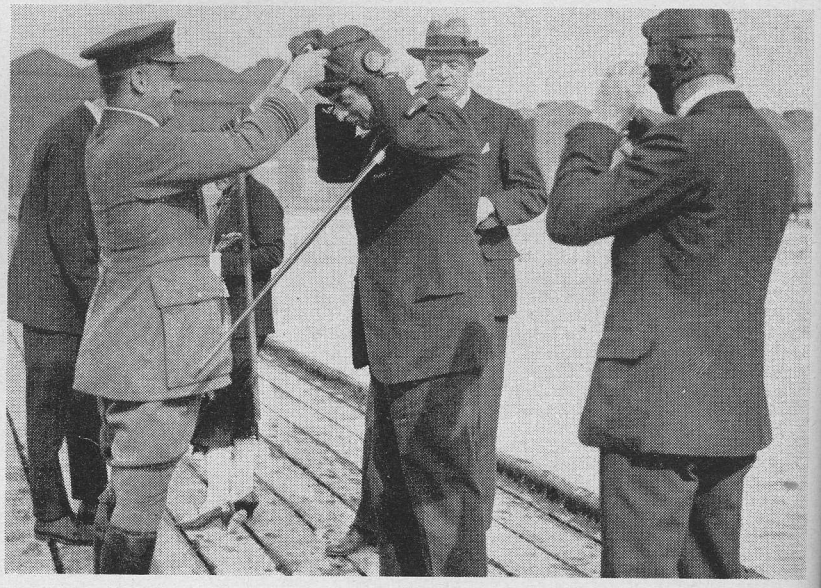
LEFT: Basic drag test vehicles used to establish aerodynamic criteria for comparison with winged vehicles with same configuration. RIGHT: Aerolastic test vehicle featuring composite metal-wood wing for investigation of flutter characteristics.

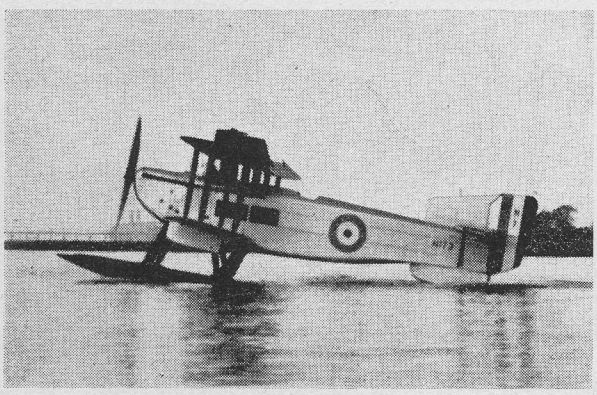
FAIREY TALE

Forty years in aviation — a survey by Captain Norman Macmillan, MC, AFC, one-time Fairey test pilot and now AIRCRAFT's Chief UK Correspondent.



Sir Richard Fairey MBE, Hon FRAeS, Hon. FIAS—founder, chairman and managing director of the Fairey Aviation Co. Ltd.—reproduced from a recent portrait. In the group at right, taken at the Marine Aircraft Experimental Establishment, Felixstowe, in 1924, Sir Richard (then Mr C. R. Fairey) is second from right. On his left is Norman Macmillan, then sole Fairey test pilot and author of this article. Being fitted with helmet by W/C C.E.H. Rathborne, Commanding RAF Felixstowe, is Crown Prince Carol of Rumania.

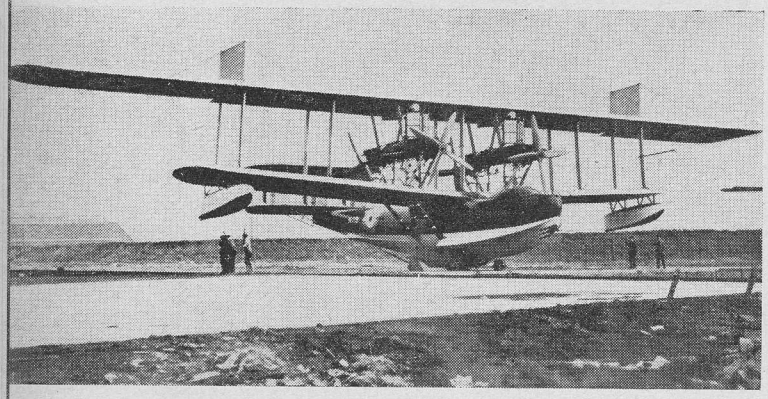




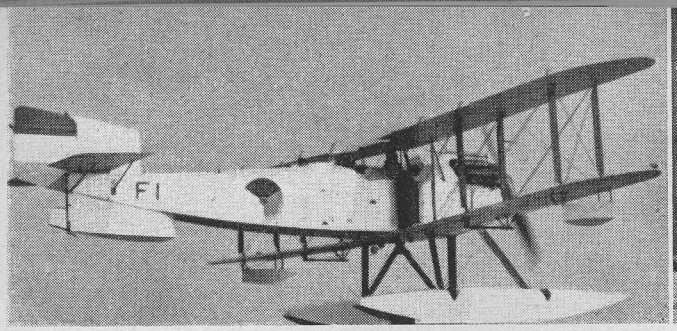
The Freemantle (650 HP R-R Condor III) civil seaplane had an all-up weight of 12,550 lb., carried crew of four.

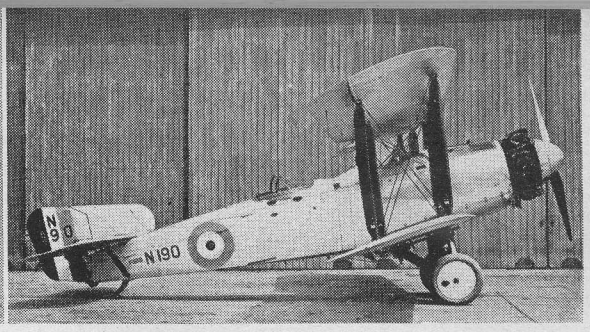
IF ANYONE asked you: "Do you believe in Fairey's?" I am sure you would have to answer: "Yes." Because a firm that has grown in 40 years from small beginnings into one of the large aviation groups has done more in the years than lightly press the blades of grass into dewy fairy rings. There is a solid load of aviation achievement behind the facade of the modern company, of which Sir C. Richard Fairey, MBE, Hon. FRAeS, and Hon. FIAeS was the founder and is the current head at the age of 68. It needs but simple arithmetic to arrive at the correct conclusion that he was 28 when he founded his own company as a private limited concern. First, then, a word about the man himself.

Known to his friends as "Dick" Fairey, he is tall — about 6 ft. 3 in. — fair-haired, with pale blue eyes, clean shaven, and a plentiful share of good looks whether seen full face or in profile. Today, his mouth has rather a grim set, the facial record of the years of application to problems of organisation and planning. As I remember him when he was 30 or more years younger than he is today, the lines of his face were less determined. But today there is still the quick and natural smile, lighting the eyes as it softens the lines of the



LEFT: The Atalanta flying boat of 1928 fitted with four Rolls Royce 650 HP Condor III engines paired in tandem. AUW was 30,500 lb, span 139 ft, length 66 ft, service ceiling 14,100 ft. RIGHT: The Flycatcher, an outstanding deck-operating fighter of the 1920s. Fuselage "broken-back" gave big wing angle when tail-down with short undercarriage.



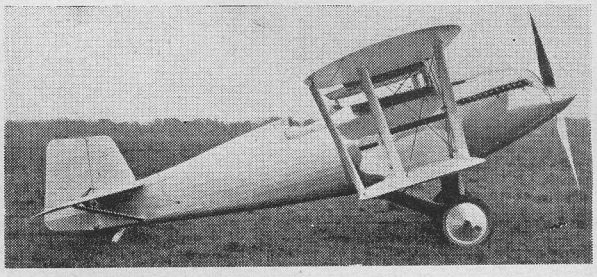


LEFT: One of four IIID reconnaissance floatplanes supplied to Royal Netherlands Navy for service in Indonesia in 1925, piloted by Norman Macmillan during acceptance test with RNN officer as observer. RIGHT: The Ferret 3-seat Naval bomber-reconnaissance aircraft, with a 400 HP Siddeley Jaguar 14 engine and Fairey-Reed metal airscrew.

mouth, which used to play readily over the face of the younger man; and an onlooker might say, here is one who can be both generous and resolute, kind yet tempered to deal with tough situations too. So we find that he has many able men around him who have served in his company since or almost since its inception, who hold him in the highest regard, and to whom he has offered advancement as the prosperity of the firm has developed and its factories have expanded.

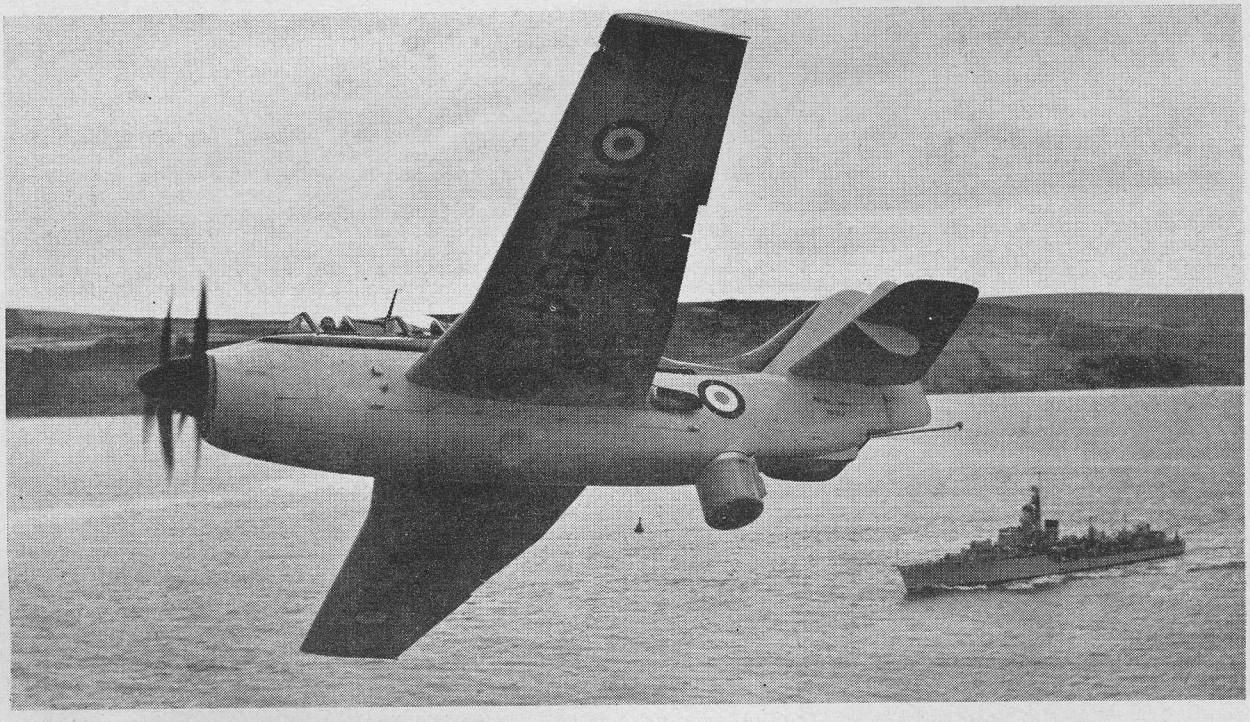
William Broadbent joined the company soon after it began and started work on the bench. He became works manager within three years, and in another 11 years he joined the board of directors when the firm became a public company in 1929, and is still serving on it now. Charles Hibbert, who is manager of the factory in Halifax, Nova Scotia, was at the Hamble works in the mid-1920s as a charge-hand in command of the handling parties for flight tests of floatplanes. He was always an able and industrious leader of his team, and a fine cheerful type, and he must today provide the firm with a capable and sound leader of the branch in eastern Canada. Ernst O. Tips, the present manager of Avions Fairey at Gosselies near Charleroi in Belgium was the quite outstanding leader of the outside engineers who dealt with new experimntal landplanes in the early days, and he has made a great success of what was the first Fairey subsidiary overseas. The story of how he rescued much of the firm's assets from under the noses of the advancing German armies in 1940 is a story worth space to itself, which unfortunately there is not room for here in an overall story of the company.

Yet among all his associates on the board and in positions of responsibility within the company, Sir Richard Fairey himself towers always distinguishable as the undisputed fulcrum of the organisation, its leader, centre of inspiration, driving force, and organising genius. Apart from his own business, over the years he has occupied other important public appointments as chairman of the



Firefly prototype of 1925, with 430 HP Curtiss D-12 engine (named Fairey Felix in UK) and Fairey-Reed airscrew.

Fairey Swordfish landed-on HMS Courageous. Note extended landing arrester cable attached to hook. Date 1938.



The Fairey Gannet 3-seat carrier-based anti-submarine aircraft, powered by an Armstrong Siddeley Double Mamba is being delivered for service with RN and RAN. This view shows radar scanner aft of bomb-bay in extended position.

Fairey's have engaged in extensive helicopter research. This is the Jet Gyrodyne for tip-jet propulsion experimentation.

SBAC, president of the RAeS, a member of the Aeronautical Research Committee, and of the grand council of the Federation of British Industries. In 1940 he was in the United States, where he was appointed technical adviser to the British Purchasing Commission and then became Director-General of the British Air Commission in Washington from 1942 to 1945. In 1942 he was created a knight bachelor. He had received membership of the Excellent Order of the British Empire for his servics in World War One, and between the wars Belgium conferred upon him the degree of Commander of the Order of the Crown.

Naturally, he has prospered exceedingly with the growth of his business. And as he has advanced he has moved from one to another of three houses, each of greater degree in land value and dignity. His second house was one where at one time King Edward the Seventh was a not infrequent guest. Today, his chief residence stands on the famous trout river Test, at Bossington, in one of the loveliest parts of Hampshire, and his estate encloses a considerable stretch of that delectable water for dry-fly fishermen. His love of games and sport has developed through the years, from tennis in his younger days, through the sailing of racing yachts and of a large cruise-type motor-ship, to river fishing and shooting. His abilities in aircraft designing and construction and his business acumen have gone hand in hand with his genius for enjoying some of the most delightful pastimes of sportsmen; in all, he has shown himself to be an outstandingly good all-rounder.

This, then, is my pen-picture of the man who founded the Fairey Aviation Company in 1915 and who has guided its fortunes through the years into its current strong position in the expanding industrial world of aviation, in fixed and rotary wings, guided missiles, and other modern projects in the field of defence and civil aviation such as airscrews, power controls, aerial survey, with current investigation into the application of nuclear energy into air defence and other things of ultra-modern and ultra-secret nature.

Born in 1887, C. R. Fairey was educated at Merchant Taylors' School, and afterwards studied electrical engineering and chemistry at Finsbury Technical College, both educational centres in London. He first came into the limelight with the Fairey Monoplane, a rubber elastic-driven model which he entered in a competition organised by the Kite and Model Aeroplane Association. The competitors assembled on Wimbledon Common, on London's south-western fringe then, on June 4, 1910. The Fairey Monoplane won the challenge trophy. and gold medal in the Longest Flight and Stability Competition, and the 1st Gold Medal in the open Steering Competition. Doubtless his height gave him some advantage in launching his model aircraft, but its consistent performance showed its value.

In the following year he joined John William Dunne, the inventor of stable sweptwing aeroplanes of tailless design, at Eastchurch, flying centre of the Royal Aero Club, as both manager and chief engineer. Two years later, by which time it was evident that the Dunne aeroplanes were so stable as to lack the essential controllability for manoeuvre required by military aircraft, Fairey joined Short Brothers organisation as chief engineer. Two more years passed and he founded his own concern as a limited liability company, bearing his own surnam in the formula that is still used by the parent firm.

During the prewar period at Eastchurch Fairey cam into friendly contact with three young Cambridge unde graduates, F.G.T. (Wuffy) Dawson, a Canadian, Vince Nicholl, a very English gentleman, and Maurice E. Wright, all of whom later joined the Fairey Aviatio Company in that order as directors. But, first, whe the 1914 war began, these three joined the Royal Nav Air Service as pilots. Dawson was soon invalided o after serving in the Mediterranean, and he joined the ne aviation company at the very beginning, aiding its fi ances by investing in it.

Nicholl left the Service with a DSO and DSC soo after the war ended, and straightway became a directo and sole test pilot in the Fairey Aviation Co. Ltd. Wrigl continued in the RAF, first as an Air Ministry test pilo then as a technical officer, until 1925 when he resigned h commission and joined the firm as a director. Nicho suffered from intermittent ill health, and in 1921 I teste the Pintail Mark II, and in 1923 a batch of productio Flycatchers, and in January 1924 I joined the compan as sole test pilot when Nicholl turned over to adminis trative duties as assistant managing director. He die in 1927.

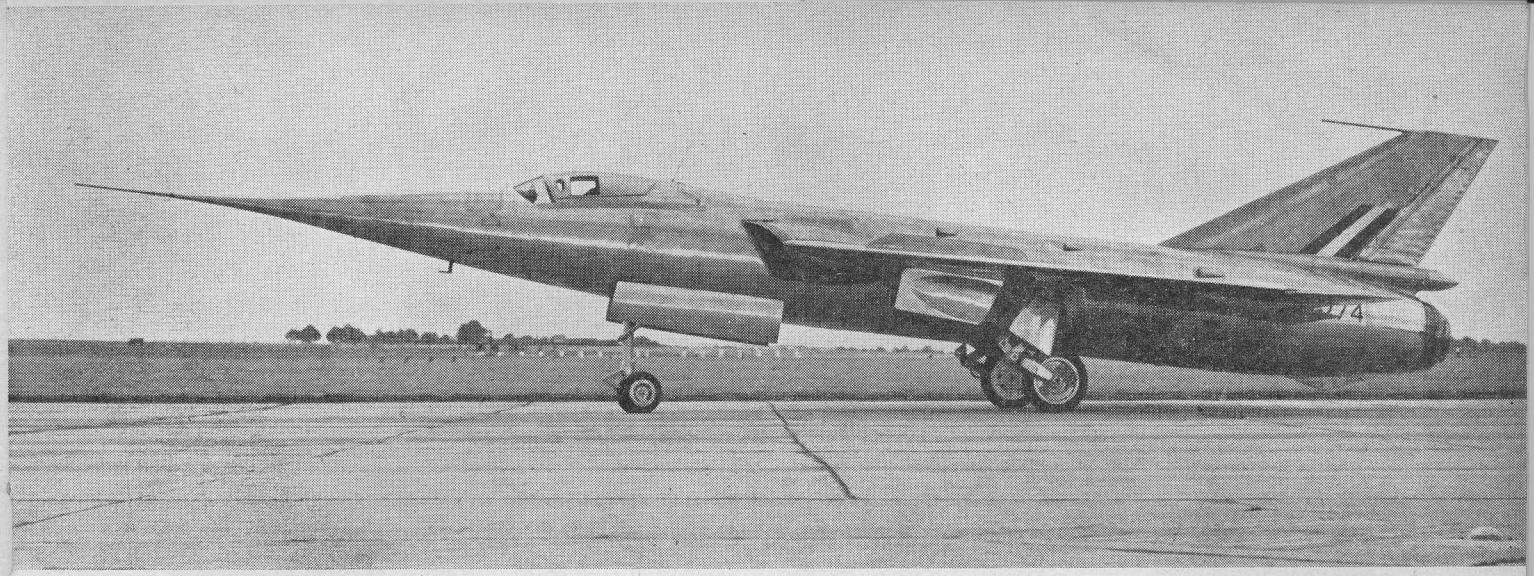
During its 40 years of existence the Fairey Aviatio Company has stuck fast to a policy of designing an building to customers' requirements, the chief custome being the Air Ministry and Admiralty — more recentl through their buying organisations the MAP and MoS Not often has the company ventured on to side path but Nicholl flew a modified floatplane in the 1919 Schnei der Trophy contest when fog intervened to rob all en trants of the chance of victory, and I flew a modifie IIID floatplane into second place in the 1924 King Cup Air Race, the only time a floatplane has ever bee flown for the King's Cup. The Fairey Long Range mono plane which took the world's straight line non-stop recor in 1933 by a flight from Cranwell to Walvis Bay in Sout West Africa, a distance of 5309 miles in 57 hr. 25 min was ordered under Air Ministry contract.

First Overseas Subsidiary

The greatest example of Fairey private adventure wa in the creation of the Fox bomber of 1925, a story whic I shall tell presently. From it, indirectly, sprang the firs overseas Fairey subsidiary in Belgium, thus showin how one private venture may lead to another and i time set a trail around the world, as has the Faire Aviation Company by its subsidiaries of today in Canad and Australia.

When the Fairey Aviation Company was founded i mid-1915, a drawing office was set up in Piccadilly, Lon don (not far from the Admiralty in Whitehall) and wood shed was obtained from the Army Lorry Com pany at Hayes. At that time most of the aeroplanes use by the Royal Flying Corps were Royal Aircraft Factor designs, or of French origin, with few exceptions: on calls to mind the BE2C, the FE2B, the RE5 and RE7 the Morane, Farman, and among the exceptions th Vickers Gunbus. Dick Fairey's experience with Short had been on Admiralty work, chiefly concerned wit floatplanes, and so it was natural that he should see his outlet on the marine branch of aviation. Ever since its foundation the company has been famous for its naval aircraft, and some of its most successful genera purpose products for the RAF first saw service with the Fleet Air Arm or with Coastal Area (the early name for Coastal Command). In 1915 the Hamble River base of the Fairey Aviation Company was acquired from the Admiralty, and Fairey seaplanes have been flight tested from there ever since. The Hamble factory's chief pride was its own venture into aircraft design in the smart little Seafox floatplane with Napier Rapier engine, which was the only aircraft in the *Graf Spee* action off the River Plate.

The first order received by the new company was for 12 Short type 827 floatplanes, and Sydney Pickles, the Australian pilot, tested them at Hamble, and so became the first test pilot for the company although he was not exclusively a Fairey Aviation Company pilot, for there was not then enough work to occupy any pilot full time. By 1916 the Hamble shops had begun to make wings and floats, to carry out repairs and maintenance, and begin its long and continuous series of experimental projects for seaplane development. A typical example of this work was the testing of metals against the corrosive action of sea water. It was found that the worst conditions for corrosion did not result from continuous immersion, but from alternate wetting and drying, and so samples of various kinds were placed at the half tide mark on the slipway where they remained for long periods under the worst conditions. Various kinds of steel, including stainless steel (chromium ferrous metal), were tested with and without anti-corrosion coatings of



Special characteristics of the FD.2 supersonic research tailless delta include exceptionally thin wing section into which main wheels retract; hinged nose for improved vision. FD.2 will fly again soon after emergency landing last year.

paint and electrolytically applied surfaces such as chromium and cadmium. Light alloys were also tested with several kinds of protection, including straight anodising. From the results obtained the experimental department of the company was able to develop the most effective metal fittings for the early wooden structure marine aircraft, and progress towards the subsequent adoption of composite and then all-metal manufacture. It has always been the policy of the company, under the direction of C. R. Fairey, to progress by rational development on scientific lines, not by sudden leaps into uncertainties.

In 1916 it became necessary to find larger premises at Hayes, and a factory was obtained from the Army Lorry Company. But the site which now forms the company's main executive, design, and aircraft experimental and production centre is where the first-acquired wood shed stood. Until 1918 this shed was used for the erection of the aircraft built in the other factory. Close to the erection shed an open parcel of ground was occasionally used for aircraft to fly off, but it was from the beginning too small to be regarded as an aerodrome, and there was no possibility of its enlargement because of existing roads, the main Great Western railway track, other factories, and housing. On this site now stands the main Fairey headquarters, which has grown from the first small development when the drawing office was transferred to it from Piccadilly in 1917, through the building of the first factory there in 1918, followed by a steady process of growth, development and reconstruction to meet the expanding needs of the company itself and of continually developing aircraft design and engineering production. In 1935, with the first large expansion of the RAF to meet the threat of the Third Reich, the company reached the capacity of its Hayes site for the further development of production, and the Willys-Overland Crossley motorcar factory at Heaton Chapel, Stockport was taken over, and a flight erection and test section for it was set up at Manchester's Ringway Airport.

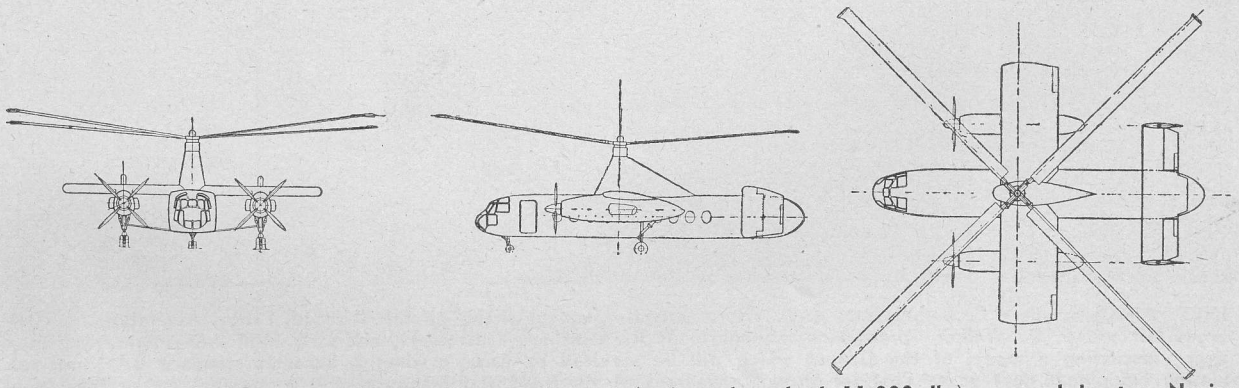
Today the Fairey Group of companies includes also the Guided Missiles Division at Heston, London, Aeroplastics Ltd. in Glasgow, Weatherley Oilgear Ltd. in Biggleswade, Bedfordshire, Fairey Marine Ltd. at Hamble (since seaplanes have become outmoded by land-and-carrier-based land-chassis aircraft the Hamble base has switched to the manufacture of well-streamlined small pleasure sailing craft), and the Air Survey Company's head offices in London; overseas are Avions Fairey S.A. at Gosselies in Belgium (founded in 1931); Fairey Aviation Company of Australasia Pty. Ltd. established March 3, 1948, with two divisions, one at Bankstown, Sydney, for the repair, maintenance and conversion of R.A.N. and civil aircraft, and the other Special Projects Division at Salisbury for guided weapons and associated projects — see following features; Fairey Aviation Co. of Canada Ltd. with repair and maintenance divisions at Halifax, Nova Scotia and Vancouver; and the overseas stations of the Air Survey Co. Ltd. (acquired by the Fairey Aviation Co. Ltd. in 1929) at Dum Dum, Calcutta and Karachi in Pakistan, and at Vancouver in Canada. Truly a mighty development in 40 years from a small London office in Piccadilly and a single wood shed at Hayes, Middlesex.

It has never been easy to set up a new aviation company and get orders for the firm's own designs straight away, so it is not surprising to observe that after the 12 Short seaplanes, the next production order the Fairey Aviation Company received was for 100 Sopwith 1½-Strutter fighter-reconnaissance biplanes with 110 HP Clerget rotary engines. To build them the firm took over in 1916 a temporary factory from the Army Lorry Company, and they were built in six months. They were test flown at the now extinct Kingsbury aerodrome, long-since a built-up area of north London.

The first original Fairey design was known as the F.2. It was a twin-engined two-bay biplane with top-wing overhang. Powered by two Rolls-Royce Falcon engines of 190 HP, it carried a crew of three. There was a gunner in the fuselage nose, and another gunner aft of the wings, each with a Lewis gun mounted on a Scarff rotatable and elevating gun-ring. AUW was 4680 lb. and wing loading 6.8 lb/sq. ft. Designated a multi-gun fighter it did 93 MPH all out, too slow for the time, because the single-seat DH2 was already doing 100 MPH, and the German Albatross III was faster still. So only the prototype F.2 was built.

Why it was called the F.2 is a conundrum. It has been suggested that the figure F.1 was given to a batch of wings, but it has not been disclosed what these wings

(Continued on page 54)



Three-view drawing of the Rotodyne, a large helicopter (estimated payload 11,000 lb.) powered by two Napier Eland turboprops and four tip-mounted pressure jets. Economical cruising speed approx. 150 MPH, range 250 miles.

FAIREY TALE

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were for, and it seems rather curious that mere wings should be given the proud designation of the new firm's letter and numeral F.1. One wonders if Dick Fairey was not still (and with reason) proud enough of his winning model Fairey Monoplane of 1910 to desire to give it the honor of the F.1 and so gave the second place to the multi-gun fighter. But there were many anomalies of this kind in those days: the first aeroplane squadron of the RFC was No. 2 because No. 1 squadron was an airship squadron. The first jagdstaffel of the German Flying Corps in 1916 was also numbered 2 instead of 1 for Staff reasons.

The Fairey F.2 had floatplane qualities, although it was purely a landplane. Its wing structure resembled that of earlier floatplanes, and its four-wheel bedstead undercarriage gave it the alighting characteristics of a floatplane. This aircraft was flown from the small Harlington "aerodrome" near the erection shed, where the main Fairey factory now stands. But there was risk attached to experimental flying from so small a field, and the company sought and received permission to use Northolt military aerodrome, about five miles away, which had been set up by the War Department in 1915. Thereafter, aircraft had to be transported from factory to the flight test assembly hangar at Northolt, with the fuselage towed behind a lorry whose truck contained the wings carried in wood cradles. Almost all prototype and production landplanes were thereafter tested from Northolt until in 1929 the company was warned by the Air Ministry that the lease of the hangar and facilities for flying could not be extended. Search for a private aerodrome ended with the purchase of farm land at Harmondsworth and its conversion into the Great West Aerodrome, now swallowed up in the vast London Airport. In 1930 this private Fairey aerodrome was used occasionally by Flight Lieutenant E. H. ("Mouse") Fielden when he was instructing the Royal Princes in flying, and at various times the Prince of Wales, Prince Henry and Prince George (then not yet Royal dukes) landed there.

After the taking over of the aerodrome for London Airport the Fairey Aviation Company moved its flight test centre to White Waltham, near Maidenhead, where are the headquarters of RAF Home Command. Since the evacuation of Northolt aerodrome as a civil airport in the autumn of 1954, the Fairey Aviation Company has again moved in to use it as an erection base whence its production Gannets are flown to White Waltham for test before delivery.

The Fairey Patent Flap Gear for which Sir Richard Fairey was awarded the Simms Gold Medal of the Royal Aeronautical Society was invented by him to enable the Hamble Baby floatplane meet a tough Admiralty specification for a seaplane that needed small stowage room and could alight slowly with a load big for that time. The Fairey flap gear formed part of a normal wing section, all the surface behind the rear spar of the two-spar wing being hinged to the rear spar. This complete movable surface could be adjusted by the pilot by a handwheel in the cockpit through a wide range of angles relative to the normal chord line. In practice I found that the best setting for takeoff was about 8 degrees down, and for landing about 14 deg. Sometimes top speed could be increased by raising the flaps to a slight negative (or up) angle, probably because the reduction in wing flap trimmed the fuselage and wings to their flight attitude of minimum drag while the lift loss was compensated by the increment in speed. During the approach to land the flaps also acted as air brakes. At all times the ailerons were controllable differentially by the pilot, irrespective of the flap setting, but naturally they were rather less effective when large flap angles were used, as they did not incorporate slots. The flaps remained in any position as set by the pilot, who was provided with an indicator which showed him the flap setting.

When used intelligently, the Fairey flap gear made a substantial difference to the speed range, and it converted the Sopwith Baby into the still more useful Fairey Hamble Baby, of which 107 were built as floatplanes and 75 as wheel-chassis floatplanes, and in whose production the Bristol firm of George Parnall and Company (then the aircraft section of Avery, a firm of shop-fitters) played a bigger part than the parenting firm.

During the 1914-1918 war the 2-seat Fairey Campania floatplane was used for naval patrol duty. With a span of 61.625 ft., and weight varying between 5250 and 5670 lb., according to the power of engine fitted, top speed was between 80 and 85 MPH. On the prototype models, the engines were the developing marks of the Rolls-Royce Eagle, but the production aircraft carried the Sunbeam Maori of 260 HP. One hundred of these aircraft were built to meet an Admiralty specification issued in 1916, and were delivered in 1917 and 1918. The name Campania was that of a floatplane carrier ship, used before the advent of the flat-top aircraft carriers.

Two experimental floatplanes intended for the floatplane carriers were type-distinguished as the N.9 and N.10. The first had an overhung top plane, and the second had equal span upper and lower wings. They were powered by a 190 HP Rolls-Royce Falcon and a 260 HP Sunbeam Maori engine respectively. Both were 2-seaters, with three-float chassis, and carried the then standardised Fairey dual radiator blocks mounted outside the fuselage on either side behind the engine. Neither went into production, but the N.10 foaled a landplane which Faireys designated the III, why no one now seems to know, but it was the progenitor of a long line of sturdy landplanes and floatplanes whose production built up the fortunes of the firm.

Guide to Prototype Names

This is an example of the peculiarity of the sequence of Fairey prototype aircraft. Most firms have a progressive numerical design number, or a distinctive type name to distinguish their aircraft. Sometimes a jump was made to higher numbers, as when the early Avro company called its number 5 type the 500 because the bigger number looked better from a sales point of view. But with Faireys there seems to be no logical index. We get the Series III with letter variants from A to D, miss the E and jump to F; then the same aircraft in development becomes the Seal and Gordon as floatplane and landplane versions, and in many ways one might reckon the Swordfish and Albacore as the final developments of the Series III. The name Firefly was used for two different aircraft of 1925 and 1928 and was again applied to quite a different type in 1941.

The only real way to distinguish Fairey types is by the works serial number, which includes all aircraft built, whether prototypes or production (presumably in the rotation in which work began on them, or in which works numbers were allotted to production orders). This provided a simple way for the firm to know its total output at any given date, but it offers a hopeless means to plan a description of the list of prototypes, for of these there is no logical sequence to follow.

The same N.10 aircraft with its Series III birth-mark was modified into four different versions, three for various experimental tests and one for entry in the 1919 Schneider Trophy. The IIIA got a production order in 1918 as a shipplane with wheel/ski undercarriage and a Maori engine, and the IIIB, similar but with increased upper wing span, also received a production order in 1918, some with the Sunbeam Cossack engine of 320 HP. These phased into the IIIC of 1918-1922 with Rolls-Royce Eagle VIII of 375 HP, some being converted from IIIBs. About 300 aircraft were built in World War I by the Fairey Aviation Company. And up to and including the IIIC the floats were built of wood frames covered with plywood, unsuitable material except for temperate climates and with regular servicing, as I was later to learn to my cost when I attempted to fly eastwards from Calcutta in a IIIC in 1922. Afterwards Fairey floats were boat-built in mahogany and later still in metal.

With the end of the 1914-1919 war the Fairey Aviation Company, like all firms in the British aircraft industry, faced critical times, and building truck bodies brought some grist to the mill. During this period the IIID was developed, and six were delivered to the RAN with RR Eagle VIII engine; many were supplied to the British Fleet Air Arm and Coastal Area in both float and wheel chassis versions. One, with increased span and extra fuel, was flown across the South Atlantic from Lisbon to St. Paul's Rock in 1922 by Commander Saccadura Cabral with Admiral Gago Coutinho as navigator. Cabral damaged the seaplane when landing in the swell, and the flight on from there to Brazil was made later in another and standard IIID. In 1926, led by W/C C. W. H. Pulford, a RAF team flew four IIIDs from Cairo to Cape Town and thence to England, traversing Africa as landplanes but flying from Alexandria to England with floats. In a IIID W/C Goble contributed to air navigation by his circumcontinental flight around Australia.

New Fairey designs began to appear after the war. First came the Pintail, an amphibian floatplane with four variants, the fourth supplied to the Japanese Navy, the first three to the RAF. The Pintail got no production order, but its design formed the basis of a new landplane called the Fawn, which went into RAF service as a recce-bomber. The Flycatcher single-seat Fleet fighter proved the first big postwar success of the company. It was a popular little aircraft, with a Siddeley Jaguar engine of 400 HP, rising later to 450 HP. It continued in production until 1929, and every pilot who flew it liked it. It was convertible to float or to wheel-in-float-amphibian chassis.

On a Flycatcher I made the first official dive tests ever called for by the Air Ministry. They were witnessed by technical officials, who had been perturbed about the

structural strength of the aircraft following reports from some Service pilots of Flycatchers flying one wing low. During a series of flight trials with one which had been complained of and returned to Faireys for investigation, I traced the cause of the trouble to wear in the tail-plane actuating gear and tail-plane bracing stays. This allowed the tail-plane to warp in the slipstream, and then it acted as does an aileron. My dive tests demonstrated that there was nothing wrong with the structure of the aircraft. After tail-mounting modification no further trouble was experienced in the Service. The Fleet Air Arm pilots loved to stage dive-bombing shows at air displays, and these always thrilled the audiences because the aircraft were wonderful divers. The prop tips fluttered when pulling out, so the noise was terrific, relatively much greater than the speed, and giving an illusion of added speed.

During this period several other aircraft appeared from the Fairey organisation—the Freemantle, a large float seaplane built to a civil specification which might have been used for a round-world flight if the American Army Douglas team had not got there first; it was pleasant to fly, but unexciting. The Atalanta and Titania flying boats were of composite effort, both with Linton Hope design hulls made by two different firms, and with Fairey designed aerostructure also made by two different firms. In their day they were the largest flying boats in the world, but it is difficult to apportion credit where due for their design and construction because so many firms were concerned with them. Then came the Ferret in three prototypes, two for the Fleet Air Arm as recce aircraft and the third for general purpose RAF duty. These were the first aircraft built by Faireys with all-metal frame structure, fabric covered. Previously metal frame wings had been made and tested on a IIID, and although very flexible they were successful. The Ferret carried that process to its logical complete development, but as an aircraft it seemed under-powered for its duties with either the 400 HP Jaguar IV engine or the 425 HP Jupiter. The Jaguar version was also made as a wheel-in-float amphibian with two floats, but the power was so low that it demanded delicate handling to coax it off the water. It never went into production.

Curtiss Engine Licence Acquired

Meanwhile, in 1923, Dick Fairey saw Lieut. David Rittenhouse win the Schneider Trophy at Cowes IOW for America in a Curtiss racing seaplane with Curtiss D.12 engine. His quick appraising eye noted the clean lines of the fuselage, the surface radiators, the Reed dural airscrew. Here was a machine with all the knobs cut off. That was the secret of its startling performance. Why, he thought, not apply this to military aircraft? He left for America some time later to get the licences for the Curtiss motor, the Reed airscrew, and whatever else was needed. When the war ended the company had about £7000 in the kitty, and by careful husbandry this had increased to about £23,000 by the end of 1923. By the time he had secured the licence rights and built the aeroplane he visualised to incorporate the new knowledge, all the firm's liquid working capital was sunk in this private venture. I flew the Fox prototype at Hendon (Northolt was waterlogged) on Jan. 3, 1925. Apart from the insufficiency of the surface radiators it was a winner. All the gadgets beloved of the gadgeteers were stripped from it. No bulky Scarff gunring stuck out in the slipstream; instead a Fairey patent streamlined gun-mounting dropped into a recess except when in use. The exterior of the whole machine was carefully streamlined, even to the use of balsa wood fairings at strut ends. Top level speed was 156 MPH with the 430 HP motor, faster than contemporaneous fighters, 50 MPH faster than the Fawn which had been decorated like a Christmas tree by the Service gadgeteers.

The Air Ministry technicians who dealt with aircraft specifications had had no hand in the Fox. They were confronted by its then spectacular performance. The CAS, Air Marshal Sir Hugh Trenchard, came to Northolt that summer to see me fly it—my passenger was Marcelle Lobelle who had been responsible for the detail design in conjunction with P. A. Ralli, head of the Fairey stress department. After the flight the CAS took me aside and asked my private opinion of the Fox. The CAS was always a believer in seeking the pilot's opinion.

My replies were made easy by the excellence of the aeroplane. We returned from the airfield to the apron and he then said to my chairman: "Mr Fairey, I have decided to order a squadron of Foxes."

The Firefly followed with the same engine, a delightful little fighter which never went into production, probably because of its American engine. Rolls-Royce had seen the red light and were already working hard on the engine that was to become the Kestrel, the forerunner of the Merlin that won the Battle of Britain and powered the Lancaster bombers of World War II. The Fox equipped only one squadron, No. 12 (Bomber) RAF. The Fairey intention to build the Curtiss motor in the UK as the Felix never came to fruition, and 12 squadron was re-equipped with its second lot of Foxes fitted with early Kestrel engines, which pushed its speed up to 160 MPH. The Air Ministry issued a new specification, based on the Fox principles of clean design. Faireys did not receive this specification or a request to tender until Dick Fairey, learning of their issue, called on the CAS to protest. By that time, Fairey has disclosed, his firm was handicapped by a late start. The Hawker Hart was selected, largely I believe because of its squared tube construction, which facilitated maintenance, in which respect it scored high marks. The Hawker Fury also won the fighter competition (with the same construction). This left the Mark II Fox and Firefly free for sale overseas, which led the Fairey Aviation Company to enter into competition in Belgium, where both bomber and fighter defeated all comers, were chosen by the Belgian Air Force, and the Fairey subsidiary was set up at Gosselies.

Meanwhile, the IIID had been superseded by the IIIF, which, in a class by itself, virtually without competition, secured repeat orders for Fleet bomber-recce, Coastal floatplane, and RAF GP duties. It led on to the Gordon, Seal, Swordfish, Albacore, Fulmar, Barracuda, the new Firefly, and now the Gannet, and a steady succession of naval orders, that have maintained the Fairey Aviation Company's reputation as one of the chief suppliers of naval aircraft in the world. If the tale of the Mark II Fox had been different, this might have led the company along other paths, and the Fleet Air Arm might have been the poorer in consequence, for lack of the production of these well-known aircraft.

By 1935 Hitler's Reich was threatening all Europe, and the Fairey Battle bomber (then called a medium bomber) was ordered into production by the Air Ministry. With the main factory engaged on Fleet aircraft, the Battle went into production at Stockport. An advanced design then, by 1940 it was overtaken by fighter design and suffered heavy losses with the Advanced Air Striking Force. It bombed the bridges at Maastricht, and to its aircrews the first air VCs of the war were awarded. It then became a trainer. The tale of the Swordfish is a last war classic. By attacking the Italian Fleet in Taranto harbour with torpedoes they destroyed Axis naval numerical superiority in the Mediterranean. The Bismarck was crippled by Swordfish, which enabled the Fleet to destroy her. Barracudas damaged the Tirpitz in a Norwegian fiord. The antisubmarine value of the Swordfish was great, both in shore-based aircraft and with the escort carriers and the MAC-ships. Fulmars were the Fleet's first 8-gun fighters, Albacores were as big brothers to the Swordfish. The Spearfish, designed at the end of the war, never went into production. Today, the Gannet is the turbojet successor to the ubiquitous Swordfish.

Australian and Canadian subsidiaries were set up to provide the essential on-the-spot services for aircraft in world-wide use by Commonwealth navies. The setting up of the Woomera Range and the firm's entry into the guided missile field from VTO projects demanded another division in Australia to cover that activity also.

The helicopter field has been covered experimentally by Faireys since the end of the war, with designs which combine good horizontal speed with adequate lift performance. The company has experimented in the manufacture of rotor tip efflux units, both powered and for nozzle discharge from remote gas pressure generators. There is a current order for an ultra-light AOP 2-seat helicopter whose details have not yet been disclosed. And there are the experimental military and civil versions of the Rotodyne, of a gross weight of 33,000 lb., to carry 44 passengers, and equipped with two Napier Eland gas producers of 3159 EHSP each.

The propeller division of the company, founded when the Fairey-Reed airscrews were first made for the original Fox, has been maintained and expanded to include CS fully-feathering electrically operable hubs. The hydraulics division of the company has produced power controls, using the basic principles of steam engine valve gear made to astonishingly fine limits, as power jacks for many of Britain's modern military aircraft. And the Air Survey Company, which was acquired from Ronnie Kemp and Fred Raynham in 1929 has consistently carried out its work over a wide field, although its trumpets do not make much sound.

Altogether, all connected with the Fairey Aviation Company can look back with pride over the 40 years of its existence, pride in a job carried through with a consistent integrity of products that have made the name of Fairey integral with sound workmanship, skilful design, and by these qualities have raised it from small beginnings to a great industrial organisation, well within the lifetime of its founder. And that has been done without the purchase or absorption of any other aircraft firm, but always by solid private enterprise in setting up new ventures in the design and manufacturing field that have been Faireys from the start.

END.