FLIGHT
The AIRCRAFT ENGINEER & AIRSHIPS

First Aero Weekly in the World
Founder and Editor : STANLEY SPOONER
A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport
OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM

No. 841. (No. 6, Vol. XVII.) FEBRUARY 5, 1925 [Weekly, Price 6d. Post free, 7d.

Flight

The Aircraft Engineer and Airships

Editorial Offices : 36, GREAT QUEEN STREET, KINGSWAY, W.C. 2.
Telegrams : Truditur, Westcent, London. Telephone : Gerrard 1828
Annual Subscription Rates, Post Free :
United Kingdom .. 30*s.* 4*d.* Abroad .. .. 33*s.* 0*d.**
These rates are subject to any alteration found necessary under abnormal conditions and to increases in postage rates
* *European subscriptions must be remitted in British currency*

CONTENTS

	PAGE
Editorial Comment	
That "Air Sense"	63
British Aerodromes : Aerial View of Croydon Airport	65
New De Havilland Air Liner	66
Wright Aero Engines	69
Cobham's Everest Flight	70
Light 'Plane and Glider Notes	71
Light 'Plane Club Doings	72
Bristol "Jupiter" 100-Hour Test	73
Croydon Disaster Inquiry	74
Royal Air Force	75
R.A.F. Intelligence	75
Air Post Stamps	76
Side-Winds	76

DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list :—

1925

Feb. 5 .... **Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., A.F.R.Ae.S. : "The Operation of Flying Boats in the Mediterranean," before R.Ae.S.**

Feb. 6 .... **Mr. H. L. J. Hinker : "Flying in Australia," before I.Ae.E.**

Feb. 11 .... **W. S. Farren, Esq., M.A. : "The Process of Aeroplane Design," before C.U.Ae.S.**

Feb. 12 .... **Colonel F. Searle : "The Maintenance of Commercial Aircraft," before R.Ae.S.**

Feb. 18 .... **Air Chief Marshal Sir H. M. Trenchard, Bart., G.C.B., D.S.O. : (Subject to be announced later), before C.U.Ae.S.**

Feb. 19 .... **Lieut.-Col. L. F. R. Fell : "Light Aeroplane Engine Development," before R.Ae.S. (Society of Arts).**

Feb. 20 .... **Professor E. G. Coker, D.Sc., F.R.S. : "Photo-Elastic Methods of Measuring Stress," before I.Ae.E.**

Feb. 25 .... **H. Richardo, Esq., M.A.: (Subject to be announced later), before C.U.Ae.S.**

Mar. 4 .... **Alan Chorlton, Esq. (Managing Director of Messrs. Beardmore, Ltd.) : "The All Steel Aircraft," before C.U.Ae.S.**

EDITORIAL COMMENT.

IT has been stated so often that by now everybody believes it, that if we are to make any real headway with aviation, commercial no less than service aviation, it is essential to develop in the general public the "air sense" and to make Great Britain a nation of aviators much in the same way that in the past we have been a nation of sailors. With that very excellent sentiment few will probably quarrel, and that our young men (and the not-so-young as well, for the matter of that) have an aptitude for flying was abundantly demonstrated during the War, when our pilots were admitted on all hands to be the finest in the world.

That "Air Sense"

In spite of these facts, however, what is the position in practice? It is that at the present moment there are hundreds of young men keen on learning to fly, but without any possibility of doing so because of the financial obstacles with which most of them are faced. The light 'plane clubs were calculated to *changer tout cela*, but, although the various clubs that have been formed all over the country have had very good response and already number quite large memberships, it has to be admitted that, practically speaking, these young men are no nearer their heart's desire than they were many months ago.

We understand that a meeting has been called, to take place at Leeds on Saturday next, February 7, between representatives of all the clubs approved by the Air Ministry to discuss the position, and this therefore appears to be a good opportunity for examining the main causes of the present deadlock. It will be recollected that, briefly, the Air Ministry scheme was to assist each approved light 'plane club with a grant of £2,000, provided the club subscribed a similar amount, and that the clubs were only to use light aeroplanes approved by the Air Ministry. On the face of it this appeared a not unreasonable proposition, but in working out practical details several snags have cropped up. The main obstacle has, of course, been that the Air Ministry decided, after last year's Lympne competitions, that the machines, or more particularly the engines, were not

yet in a sufficiently developed and perfected form to be handed over to light 'plane clubs.

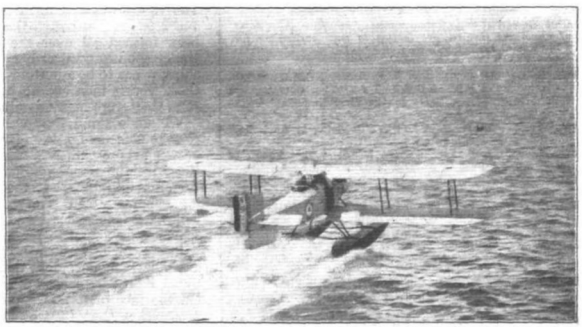
There was a feeling that the Air Ministry should, in order to get things on the move, approve of other types for the time being, such as the Avro 504, but under the terms of the scheme the Air Ministry did not see its way to comply with this wish, mainly because a fundamental condition was that light 'planes should be used. Unfortunately, there is as yet no official ruling as to what constitutes a light 'plane, and while we are making up our mind on that point things are at a standstill. In our Light 'Plane Notes this week we give a brief description of the new de Havilland D.H.60 "Moth," which represents that company's interpretation of what a low-power aeroplane, cheap to build and to run and easy to fly, should be. But, and this is a very big *but*, this machine has been built without the official blessing of the A.I.D., and will be fitted with an engine of much larger capacity than hitherto deemed permissible in a light 'plane. There is thus no guarantee that the "Moth" will ever be given an airworthiness certificate, although it might have been thought that a firm of the standing of the de Havilland Aircraft Company could be trusted to produce a safe machine. At any rate, the first example will be ready and flying in about a month's time, and our advice to the light 'plane clubs is to keep in the closest touch with the firm, as the machine promises to be a particularly useful type for the work for which it was designed. If the clubs take a strong stand and are unanimous in their demands, we have little doubt that the Air Ministry will agree to some arrangement acceptable to both sides. We do not necessarily mean that the clubs should limit themselves to this particular machine, but the ruling on the D.H. "Moth" will establish a precedent, and it is therefore of the greatest importance that the clubs should reach unanimity on the subject. Incidentally, the de Havilland Aircraft Company deserves the thanks of the whole aircraft industry and of members of the clubs for their willingness to undertake the construction of a machine entirely "off their own bat," which may or may not be accepted later on.

Another stumbling-block has been the question of insurance. The light 'plane clubs have found that the cost of insurance is, in most cases, more than the clubs can bear, and we do think that if the Air Ministry is really serious in its desire to see these clubs started, arrangements might be made to assist them in the matter of insurance—which, after all, is but one small drop in the insurance of the future of our Empire. It would not mean much to the country, but would make all the difference to the clubs.

What makes the problem of getting started one of real importance is that other nations, notably France and Germany, are making strenuous endeavours to build up, not only a reserve of pilots, but what amounts almost to a nation of aviators. Germany is running a number of flying schools and is giving every encouragement to young men to become efficient pilots. Permanent gliding schools exist in the Rhön and elsewhere, and, although not all those who learn to fly obtain their licence, the "air sense," of which we in this country have spoken so much but for which we have done so little, is being developed at a great pace. In France there has for some time been in existence a scheme by which people can learn to fly *gratis* by agreeing to be placed on the reserve list for a certain number of years. The response to this scheme has been extraordinary, and today France is without a doubt much more imbued with the spirit of flying than we are.

Just recently the French Aerial Association has made arrangements with the Vauville council for the establishment of a permanent gliding centre at Vauville, to be known as the "Camp Maneyrol," where instruction in flying will be given and where a caretaker will be in residence the whole year so that experimenters may go to Vauville at any time and carry out tests. We have always regretted that gliding was dropped in this country, and even now it is not too late to revive it. That, however, although intimately linked with the question of light 'plane clubs, is "another story," and at present we must be content to consider the light 'plane question only. We sincerely trust that Saturday's meeting at Leeds will bear fruit.

◈ ◈ ◈ ◈



The Fairey-Napier III.D at Work: The photograph herewith depicts one of the Fairey III.D seaplanes fitted with a 450 h.p. Napier "Lion," of the R.A.F., carrying out duties at Malta. This type of machine is used with very satisfactory results in all parts of the world. Recently one of these machines was stationed at Hong Kong for five months, during which time there was not a single engine failure or forced landing. On another occasion in the Dardanelles area one of these seaplanes carried out a continuous flight of 500¾ miles in 6¾ hours, with a load of over 2½ tons, when the petrol consumption was only 15½ gals. per hour. It was for this type of machine that the Dutch Government placed a large order with the Fairey Aviation Co., as previously reported in "Flight."

[Copyright Aerial Photograph by Aerofilms Ltd., The London Aerodrome, Hendon, N.W. 9

BRITISH AERODROMES I: Aerial view of Croydon Airport. The aerodrome is in the right-hand foreground, while Plough Lane divides the photograph diagonally. Beyond Plough Lane is the second piece of land which it is hoped to add to the existing aerodrome.

NEW DE HAVILLAND AIR LINER

D.H.54, with Rolls-Royce "Condor," to Carry 14 Passengers

AMONG the new commercial aeroplanes planned for 1925 and now nearing completion, is the 14-passenger de Havilland 54, which is to be fitted with a single Rolls-Royce "Condor" engine. This machine, the construction of which is expected to be completed in about a month's time, is a typical de Havilland in its general lines, and might be described briefly, although not very accurately, as an "overgrown D.H.34." The general lay-out and many of the constructional features are the same, but a closer inspection reveals certain not inconsiderable differences.

The general arrangement drawings published on the next page show the lines of the D.H.54, from which it will be seen that the machine is a normal two-bay biplane, with the top plane straight and the lower set at a considerable dihedral angle. A feature of the D.H.54 will be the provision of camber gear similar in principle to that first tried out on the type D.H.50 with such success. This gear, it may be recollected, consists in a hinged trailing edge pulled down by the action of springs and rising under increased air pressure with increase in speed. The gear is entirely automatic in action as regards the variable camber function, but the flaps are divided, the outer portions retaining their differential movement and aileron action. The advantage of this flap gear is two-fold: it reduces the stalling speed considerably, and, what is almost of as great importance for a passenger machine, it allows of approaching the aerodrome with the fuselage practically horizontal, because the effect of the camber gear is to increase the angle of incidence as well, so that with the tail down but a few degrees the wings are at the angle of maximum lift. There may be a third and less obvious advantage with the sprung flaps in coming out of a stall. Certainly, in the D.H.50, the drop is very small before the machine flattens out after a stall, and it is thought that the D.H.54 may to some extent have the same characteristics.

Constructionally, the D.H.54 follows previous de Havilland practice in that the fuselage is a ply-wood-covered structure devoid of wire or tie-rod bracing. In the new machine, however, a departure from usual practice is to be found in that the fuselage is in two sections, so as to facilitate ground transport. The joint in the fuselage occurs just aft of the cabin door, and actually the two spare seats and the lavatory are in the tail portion of the fuselage. The joint is in the form of bolts through the longerons, with fish-plates inside and out. Each portion is a complete structure in itself, and the joint between the two portions is covered with a fabric strip so as to make the fuselage watertight—at any rate, the cabin portion of it and the first two bays aft of the joint, at the end of which is a watertight bulkhead.

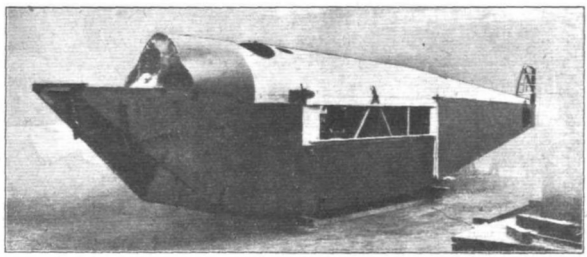
The rear portion of the fuselage is provided in each bay with large openings in the bottom, the object of which is to give access to the interior for purposes of inspecting the structure. In actual use these openings will be covered over with doped fabric.

Unusual head-room characterises the main cabin of the D.H.54, in which there will be seating accommodation for 12, or possibly 14, passengers. The roof structure shows curved beams of built-up box section, and even under these beams the head-room is about 6 ft., while between the beams the distance from floor to roof is some 6 in. more. The permanent seats are arranged in three rows, two close together on one side and a single row on the other, with a narrow gangway running between. Behind the permanent seats, and against the rear wall of the cabin, is another spare seat with room for two passengers. Aft of the cabin is a large lavatory with the usual fittings. The door to the cabin is placed on the starboard side, and provision is to be made for making a watertight joint between door and door-frame, so that in case the machine should be forced to alight on the sea, it will, it is expected, keep afloat for many hours if need be. It may be recollected that experiments were carried out at Felixstowe last year with a D.H.18 in order to determine how long a land machine with its cabin made watertight would remain afloat. The D.H.54 will incorporate the experience thus gained.

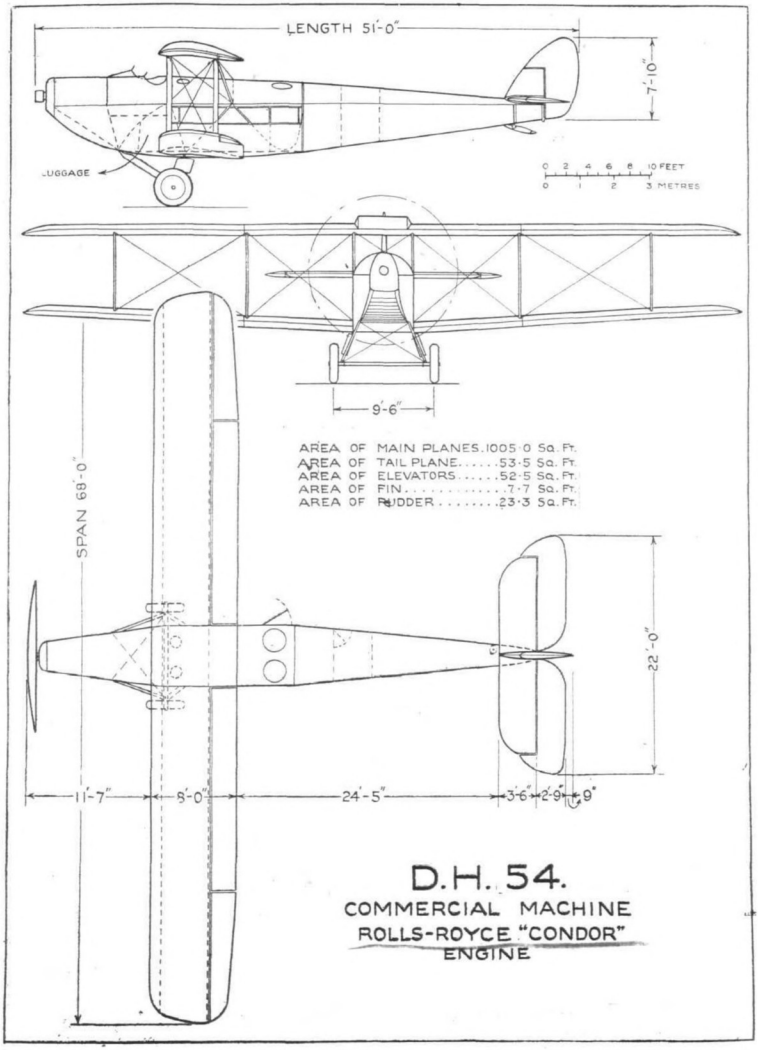
One of the difficulties of preventing an aeroplane from submerging on alighting on water is that the undercarriage usually causes the machine to nose over, so that a fair amount of water gets into the cockpits and cabin. In the D.H.54 this will be guarded against by arranging the undercarriage so that it, or at any rate part of it, can be dropped when the pilot realises that a forced descent on the water is unavoidable. This is accomplished as indicated in the accompanying sketches. The undercarriage, which is of the usual De Havilland Vee-type, except that the shock-absorbing gear is in the form of rubber blocks working in compression and incorporating oleo damping gear, has its front legs cross-braced in the usual way, but the rear bay has no such bracing. At their upper ends the rear legs are attached to the lower longerons by means of a substantial bolt, and this bolt can be withdrawn by the pilot by means of the mechanism shown in the sketch and a lever in the cockpit. When the bolt is withdrawn the undercarriage is free to drop, and in so doing the hook attachment of the axle to the front chassis struts allows the former to fall free, the front struts and their bracing remaining in place on the machine, but swinging free so that on impact with the water they will be forced back and up against the bottom of the fuselage. It is not thought that the presence of these struts will cause any appreciable tendency to nose over.

The cabin of the D.H.54 is lighted by large windows in the side, and heating and ventilation has been arranged for, hot air from a muff around an exhaust pipe being admitted through a diffuser near the floor, and fresh air, forced in by a scoop placed in the roof, being admitted through another diffuser placed at head level. The amount of hot and cold air admitted can be regulated by the passengers themselves, a regulator being placed on the front wall of the cabin. Emergency exits are provided in the roof, and take the form of circular openings covered with fabric.

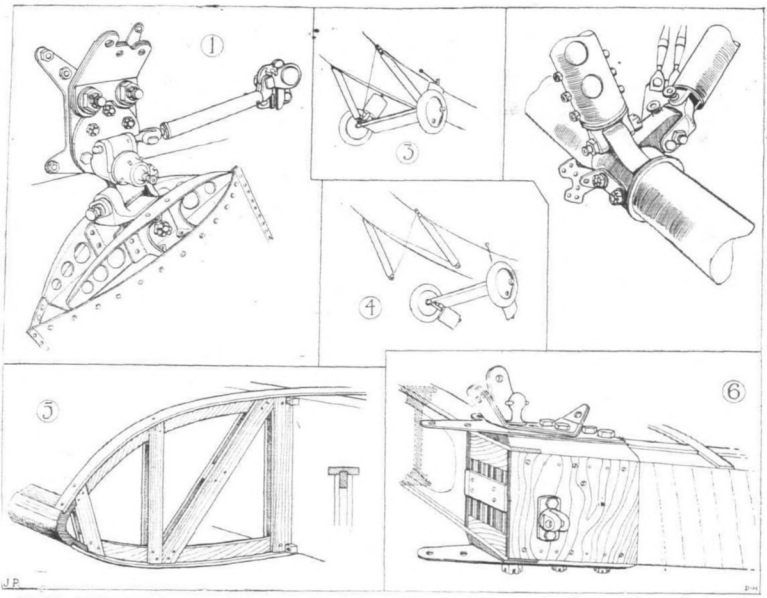
The pilot's and navigator's cockpit is situated ahead of the top plane, between it and the engine, and as the pilot's seat is raised and the coaming around it forms a "hump,"



The D.H.54 Commercial Aeroplane (Rolls-Royce "Condor" Engine): The fuselage nearing completion in the Stag Lane shops.



THE D.H.54 COMMERCIAL AEROPLANE: General Arrangement drawings, to scale.



SOME CONSTRUCTIONAL DETAILS OF THE D.H.54 : 1, The rear chassis strut is attached to the lower longeron by a fork-end and pin ; when the pin is withdrawn, by means of the crank and rod shown, the leg is free to drop ; 2 shows details of the hook attachment of axle to front chassis strut ; while 3 and 4 are diagrammatic representations of the manner in which the undercarriage drops. The front struts remain on the machine, but swing free. 5 gives details of the rib construction, and 6 shows a spar root, with strut attachment and wiring lugs.

the view forward and laterally should be quite good. The Rolls-Royce "Condor" engine is mounted on a composite wood and metal structure, and the nose of the fuselage terminates in a nose radiator provided with shutters for varying the cooling.

Direct gravity feed is provided, the petrol tank, which is in the form of a deep wing section, occupying the whole of the top centre section, with direct supply to the engine.

It is not yet possible to give complete details of the D.H.54, but it may be stated that the total loaded weight will be in the neighbourhood of 11,000 lbs. As the wing area is 1,005 sq. ft., this will give a wing loading of very nearly 11 lbs. sq. ft., which seems quite high enough. A top speed of 110 m.p.h. is expected, and a cruising speed of 100 m.p.h. On a basis of 700 b.h.p. the power loading is 15·7 lbs./h.p., and the power expenditure, for full load, will be only 50 h.p. per passenger, which is a very reasonable figure in view of the high cruising speed. We have not seen the performance curves of the machine, and so do not know what the horse-power required at cruising speed is. There seems, however, to be reason to believe that this is fairly low, as the machine is of clean lines, and it may therefore be expected that the D.H.54 will be a really commercial machine, and will bring the day closer when civil flying becomes self-supporting.

◈ ◈

Airship Route to India

AIR VICE-MARSHAL SIR SEFTON BRANCKER, who arrived in Burma by steamer from Calcutta, met the committee of the Burma Chamber of Commerce on February 3, and explained the scheme for a proposed airship service between England and India. On the Rangoon-Calcutta route, he said, a three-engined flying boat is to be tried. He had no doubt that flying was possible during eight months of the year, but he was doubtful of the effect of the very heavy monsoon rainfall in Burma during the remaining four months. It would be quite easy to establish a daily air service between Rangoon and Calcutta if a private company were formed. If a daily service were not required a weekly service could be arranged in connection with the incoming and outgoing English mail. He had come to Rangoon to select seaplane and aeroplane bases and an airship mast site, as Rangoon would be an important port of call when the air service was extended to Australia. The view of the Chamber of Commerce is that it is hopeless to expect a private company to operate an air service between Calcutta and Rangoon before the practicability and financial success of such a venture had been proved. It is understood that the discussions on the choice of a base in India for the airship service will be settled in favour of Karachi, and that Bombay will be a halting place with a mooring mast.

◈ ◈

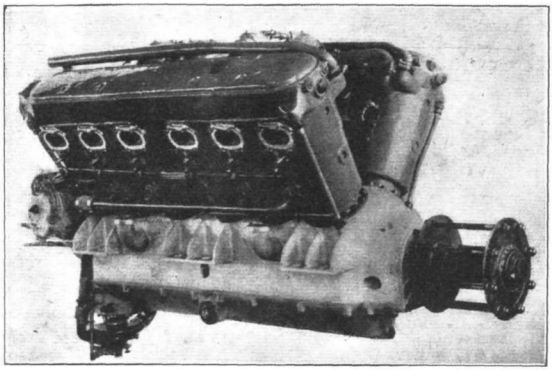
The French Saharan Flight

THE De Goys mission, which is flying from Paris to Bangi, *viâ* Lake Chad, and back on two four-engined Blériot biplanes—"Roland Garros," piloted by Capt. Pelletier d'Oisy and "Jean Casale," piloted by Col. Vuillemin—reached Colomb Béchar on January 25. As slight repairs were needed and spare petrol pumps were required from Toulouse, the flight was interrupted here until January 28, when the journey across the Sahara was resumed at 8 a.m. One of the worst portions was successfully accomplished at this stage, when they covered 106 miles of difficult country, to Beni Abbes, in one and a half hours. It is stated that satisfactory repairs had been made without waiting for the spare petrol pumps, which were to be sent on to Adrar by air. On January 30 the Mission left Beni Abbes at 7.30 a.m. and arrived at Adrar, in the Tuat Oasis, 200 miles distant, at 10 a.m. They left Tuat at 10.50 a.m. on February 3 for Wallen, a distance of about 312 miles.

TWO AMERICAN AERO ENGINES

The Wright "Cyclone" and the "Tornado"

IN the current issue of the *Aircraft Builder*, a monthly "House" journal published by the Wright Aeronautical Corporation of Paterson, N.J., U.S.A., some particulars—which we quote below—are given of a new big air-cooled radial aero engine, the "Cyclone," just produced by the Wright Company. The same issue also contains some details, which we also give, of the successes of the model T-3 Wright engine—now known as the "Tornado."



The Wright "Tornado" (T-3) Aero Engine: This is a 600 h.p. 12-cyl. water-cooled V engine which has many notable successes to its credit.

Something over a year ago, the U.S. Bureau of Aeronautics of the Navy Department felt the need of an air-cooled power plant to replace the "Liberty" engine in certain types of 'planes, principally torpedo and observation 'planes. This requirement necessitated an air-cooled power plant of larger displacement than had been constructed in America before. To add to the difficulty of designing such an engine, a limitation was placed on the diameter in order to keep the parasite resistance as low as possible.

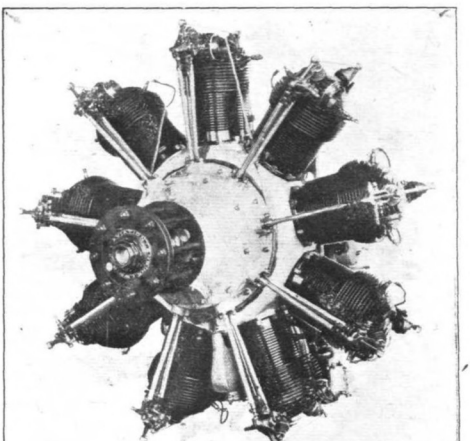
A contract was given the Wright Company for the development and construction of three such engines, into which have gone the combined experience of the Lawrence as well as the Wright Companies. In this connection it is interesting to note that the Wright Company, in 1920, won an Army design competition for a 300 h.p. air-cooled radial engine, and subsequently built three engines, known as the model "R-1," which were the first large air-cooled engines to be built in the United States.

The "P-1," or "Cyclone," is a fixed radial, with nine cylinders having a 6-in. bore and 6½-in. stroke. The total displacement is 1,650 cub. ins., which is the same as the "Liberty" engine. The external appearance of the engine, as may be seen from the accompanying illustration, is remarkably clean. One unique feature, that is at once apparent, is the valve gear. The valves, instead of being located in a plane at right angles to the crankshaft, are located in the plane of the crankshaft, with the exhaust valve forward and the inlet valve to the rear. The operation of the exhaust valve is orthodox by means of a push-rod and rocker arm, but the inlet valve is operated by a pull-rod across the top of the cylinder. The valve gear is located in front of the engine, and all the accessories at the rear, including carburettors, magnetos, pumps, strainers, etc.

The development of this engine followed the usual practice of the Wright Co.—namely, the design and development of a single cylinder, followed by the complete design of the engine and the construction of the first one. It was found that the original limitation of diameter was detrimental to the proper operation of the engine, so that it was necessary to increase the length of the cylinder slightly, although even with this slight increase the diameter of the engine from the tops of the cylinders is very much less than any engine of this power heretofore constructed.

A 50-hour test has recently been completed, which was run in accordance with the U.S. Navy's Specification E-4-D. Unfortunately, as this engine has been developed for the Bureau of Aeronautics, Navy Department, further details of this engine are not available.

As regards the "Tornado" (or T-3) model, this is a 600-675 h.p. 12-cylinder water-cooled V engine, and is a development



The Wright "Cyclone" (P-1) Aero Engine: This engine, the latest production of the Wright Aeronautical Corporation of Paterson, N.J., is a 9-cyl. air-cooled radial, designed to replace the 400 h.p. "Liberty" engine in certain types of aircraft.

of the T-2 model produced a year or two ago. As can be seen from the accompanying illustration, the "Tornado" is of exceptionally clean design, the overhead valve gear being completely enclosed in cam boxes. Briefly, the salient features of this engine are as follows:—Large diameter crankshaft carried entirely in the upper half of the crankcase by seven main bearings; each bank of six cylinders consists of two blocks of three cylinders, of aluminium castings, with steel liners held in the block castings by a threaded portion at the top, the bottoms of the liners being flanged for attachment to the crank-case; the carburettor and intake system form a single unit located in between the two banks of cylinders.

The Wright model T engines have numerous successful achievements to their credit. For instance, the T-2 engines fitted in the U.S. Navy P.N.7 twin-engined flying boat first accomplished 55 hours flying without any overhaul or repairs; and then the same type of engine put up a phenomenal record of 279 hours without overhaul during the cruise of the P.N.7 to southern waters last winter. Both engines were examined after their remarkable achievement, and the official report on each of the engines ended with the statement that "the general condition of this engine was excellent."

After this a new pair of engines was installed in the P.N.7, and at the Baltimore Air Pageant last October Lieut. Henderson established world's speed records for 250 kgs. and 500 kgs. over 100 and 200 kms., and for duration and distance with 1,000 kgs. useful load. On the same occasion Lieut. Hardison, on another P.N.7 fitted with this type of engine, established a record for distance and speed over 100 kms. with a load of 1,500 kgs. and also with 2,000 kgs.

The world's records for non-stop seaplane flights were recently broken by two U.S. naval 'planes fitted with T-3 engines. The flights took place at the Naval Air Station at Anacostia, and the best record was made by the C.S.2 seaplane, which remained aloft for 20 hrs. 28 mins., with a fuel consumption of less than 30 gals. per hour. This was, however, an unofficial record, as it was not observed by the National Aeronautic Association (the American representative of the F.A.I.). About the same time Lieuts. Lyon and Crinkley, flying an S.D.W.1 seaplane fitted with the T-3 engine, remained in the air for 20 hrs. 10 mins. 10 secs. This flight was timed by official observers, and therefore stands as the world's record, beating the previous record of 14 hrs. 53 mins. 44 secs. established by Lieuts. Weed and Price, on a C.S.2, last summer.

◈ ◈

ALAN COBHAM'S EVEREST FLIGHT

◈ ◈

ALAN COBHAM'S latest exploit is undoubtedly one of the most interesting—and, we think, not altogether unimportant—accomplishments in connection with aviation that has occurred for some time. As reported last week, on January 25, Cobham flew the D.H.50 from Calcutta to Jalpaiguri, near Darjeeling, with the object of surveying Mount Everest from the air, on the following morning, accompanied by Capt. Fisher, he set out on his wonderful flight amid the eternal snows, 17,000 ft. up, of the Himalayan mountains. We quote below Cobham's own description of the flight, which he sent to our contemporary, *The Daily Mail*:—

"We flew from Calcutta to Jalpaiguri with the object of surveying a possible air route to the hill station of Darjeeling. The journey at present is a tedious one, lasting nearly 20 hours by train, but by a system of aeroplanes and a motor-car for the last stage up to the hill the time of the journey would be reduced to six hours. At the same time we intended to find out the possibilities of an aerial survey of Everest and adjoining peaks.

"We stayed the night at Jalpaiguri. Next morning after stripping the aeroplane of all equipment and lightening up as much as possible (for the machine since leaving England has done 8,000 miles under trying conditions), I took off with Capt. Fisher in the cabin. No aeroplane had ever flown in this region before, and we were warned against air pockets and down currents. We took off in the morning mist and started to climb. After a few minutes the mountains came into view. The ground rises from nearly sea level in only 50 miles to 29,000 ft., and as we continued to climb dozens of snowy peaks loomed up above us. The higher we rose the thinner the air became and consequently the slower the climb. We flew towards Kinchinjunga, which is 28,000 ft., and on looking to the north-west we saw the Everest group, with Makalu (27,000 ft.) looking even higher than Everest because it was nearer to us.

"At about 12,000 ft. I began to experience difficulties, and found that the machine would not climb. Fearing to cross a ridge, which is 12,000 ft., at too low an altitude and run the risk of being pushed down on to the mountain by down currents, I turned away from the mountains and eventually found a calmer atmosphere.

"Then I started to climb again very well. At 15,000 ft. I turned back and crossed the Phaloot Mountain (14,000 ft.) in a calm atmosphere.

"We continued to climb to 17,000 ft. (more than 3 miles). At this altitude we had difficulty in keeping our height. The air was extremely rarefied—far more than under similar conditions at home. My passenger had difficulty in breathing and was panting hard.

"Everest stood out clear, and seemed but a few miles as we flew westwards. Away to the north were all the highest mountains in the world—Kinchinjunga (28,170 ft.) almost hanging over us, Mount Jano (25,000 ft.), Kabru (24,000 ft.), Everest (29,000 ft.), Makalu (27,000 ft.), and many others. Consequently, the air was quite warm at 17,000 ft., and as we descended to lower altitudes it gradually became cooler, and at 12,000 ft. it was icy cold.

"The flight has proved to me that with the right type of machine the whole of the Himalayan range could be accurately surveyed by aeroplane photographs.

"After a three hours' flight we returned to Jalpaiguri at nearly sea level, and to-day (January 27) returned to Calcutta."

◈ ◈ ◈ ◈

CORRESPONDENCE

AIRSHIP RECORDS

[2087] I notice in your issue of January 29 that you give a list of records recognised by the F.A.I. In Class B (Airships) you say that the speed record is held by the Italian Semi-rigid P.5 with a speed of 40·2 m.p.h.

Surely that is not quité correct, for Naval airship No. 3 (Astra-Torres) in September, 1913 (the date I am not sure of, being away from books), attained a speed of 51·2 m.p.h. at Farnborough airship station while undergoing her trials for the R.F.C. Naval Wing. This record was, anyway, recognised by the Royal Aero Club, and surely by the F.A.I.

Although not recognised by the F.A.I., it may be interesting to readers of FLIGHT to know that in 1915 an SS airship, piloted by Flight-Lieut. MacEwen, reached some 10,000 ft.—at Polegate, I believe. The Conté was of some 250,000 cub. ft. and the SS 60,000 cub. ft., so the SS's performance was a fine one.

On further examining these "records," surely they are rather out of date?

R.34, under Maj. Scott, holds the airship duration record by flying for over 100 hours, and N.S.11 also flew over 90 hours when piloted by Capt. Warneford. In any case, during June and July, 1913, the French airship "Adjutant Vincénot" carried out a duration record of over 30 hours when piloted by Capt. Joux.

Taunton, January 30, 1925. A. F. DE MOLEYNS

[The records published in FLIGHT were compiled from the Official Bulletin of the F.A.I., and probably the reason for the absence of certain record flights is that these were not officially observed and consequently have not been homologated.—ED.]

◈ ◈

Biggin Hill Air Station

ON February 2 Mr. Churchill, Lord Balfour, and Lord Carson visited Biggin Hill Air Station with Sir Philip Sassoon, Under-Secretary for Air, where they inspected a part of the training which the new home defence squadrons are required to undergo, including the methods of co-operation employed in anti-aircraft operations with Royal Artillery and Royal Engineers sections. Air-Marshal Sir John Salmond, Air Vice-Marshal Sir Ivo Vesey, Major-General E. D. Ashmore, Air-Commodore E. R. Ludlow-Hewitt, and Group Captain W. F. MacNeece were also present.

FLIGHT

LIGHT 'PLANE AND GLIDER NOTES

PROGRESS is not very rapid in the matter of light 'plane clubs, and in fact things may be said to have reached practically a deadlock. The two-seater light 'planes from last year's Lympne competitions, and more particularly the engines, were not considered by the Air Ministry as being satisfactory to such a degree as to make them suitable for use by the light 'plane clubs, and in the meantime, although generally speaking the response as regards enrolment of members has been excellent all over the country, further progress is naturally stopped pending a decision. There is, we believe, a feeling in certain quarters that the Air Ministry might allow the clubs to use larger machines so as to get going, and the Avro training machine, the famous and faithful 504, has been suggested as a suitable type. The Air Ministry has, however, refused to sanction any such scheme, as the original stipulation made when it was decided to award a grant was that light 'planes were to be used.

* * *

Now one obstacle is that nobody has yet defined what a light 'plane is, and so far as we are aware no ruling has been given on how and when a light 'plane ceases to be a light 'plane. A somewhat curious state of affairs seems to have arisen, two schools of thought being in agreement on one point only—that the present light 'plane is not the right solution. One school maintains that the present maximum engine capacity of 1,100 c.c. is sufficient, and that with a little development the 1,100 c.c. engine can be made to do all that is required. The other can see nothing but trouble and expense arising from using high-grade high-speed engines, and urges that we should not bother about capacity, but should define the minimum performance which the light 'plane must have, and limit, for instance, the petrol consumption, or, in other words, stipulate that the machine, in order to be considered a light 'plane, must be capable of covering a certain distance on a certain quantity of fuel.

* * *

THERE is a great deal to be said for both points of view, but it does seem to us that the latter is likely to offer the better solution, if for no other reason than that it leaves designers much greater freedom. If the only limitation, always provided a certain specified performance is met, is on petrol, or, in other words, mileage per gallon, the larger capacity slower-running engine will have an equal chance with the faster-running engine of smaller capacity, provided its fuel economy is good enough. And after all, capacity is not in itself of any importance whatever. What is of importance is the fuel consumption, and if an engine of large capacity can be made to give as good mileage as one of smaller capacity there can be no possible objection to the larger engine.

* * *

As an instance of what we have in mind, reference may be made to the famous Avro Baby, with 35 h.p. Green engine, on which Hinkler flew from London to Turin non-stop. That machine, or rather that type of machine, although its engine capacity was far and away above the 1,100 c.c. now regarded as the maximum permissible, did, we believe, something like 30 miles to a gallon of petrol, and that at a fairly high cruising speed. The Baby was, of course, a single-seater (a two-seater version was built), and in view of the fact that the type is now several years old there is little doubt that a two-seater could now be built which would give as good mileage, and the figure of 30 miles per gallon might possibly be taken as a reasonable basis for discussion.

* * *

THE mileage per gallon basis is, of course, capable of variations and of extension. For instance, it might be stipulated that a light 'plane must be capable of covering a certain distance on a certain number of gallons at a certain cruising speed. In practice some difficulty might be experienced in obtaining accurate figures, but this should not be insuperable. At any rate, some such basis is more likely to lead to real progress than a limitation on engine capacity, and if we are to have another light 'plane competition this year, the mileage, or range, basis might well be chosen.

* * *

IN the meantime, the de Havilland Aircraft Company is producing a machine which is their version of what a low-power aeroplane should be to be cheap, reliable and comfortable and easy to handle. This is the D.H.60 "Moth," to which reference has previously been made in these columns. The machine is a normal one-bay biplane with Raf 15 wing section and streamline wire wing bracing. The machine is now in an advanced stage of construction at the Stag Lane works of the company.

* * *

THE fuselage of the D.H.60 "Moth" is of usual de Havilland construction—*i.e.*, a flat-sided three-ply covered box, which has been found to give such good service on commercial aeroplanes for a number of years, and which the firm has therefore thought worth retaining. The top, as usual, is cambered or faired, while the bottom is flat. The two seats are arranged in tandem, and dual controls are provided. Behind the rear seat is a compartment for luggage, so that the machine can be used for touring as well as for instructional purposes.

* * *

PERHAPS the most interesting feature of the D.H.60 "Moth" is its engine, a "Cirrus" air-cooled, about which hitherto great secrecy has been maintained. This engine, originally conceived by Captain Geoffrey de Havilland, has been designed by Major Halford, of B.H.P. fame, and is a four-cylinder in line vertical. The cylinders, which are those of the R.A.F. engine, and of which many thousands are probably in existence and to be had cheaply, have overhead valve gear and aluminium heads. The "Cirrus" is rated at 60 h.p., which power is, we believe, developed at about 1,850 r.p.m. At a cruising speed of 65 to 70 m.p.h., the engine is, of course, throttled down, and at that speed should be very reliable. In fact, the aim of the designers has been to produce an engine which shall be as reliable as a car engine, and very nearly as silent. It is probably not generally realised how gravely engine noises add to the discomfort of those who fly, and in the D.H.60 an attempt is to be made to reduce noise as far as possible. Mainly for this reason the radial type of engine was considered unsuitable.

* * *

THE undercarriage will be of simple Vee type, with rubber blocks working in compression. Considerable wheel travel will be provided, so as to give good shock-absorbing qualities, a very useful feature in a school machine.

* * *

IN order to avoid the dangerous practice of "prop swinging," a starter is to be provided for the "Cirrus" engine. This will take the form of a lever in the pilot's cockpit, which, on being pulled up, operates a cable running over rollers to a starting mechanism on the rear end of the engine. In other words, it will be a form of "kick-starter," but operated by hand.

* * *

THE D.H.60 will, it is estimated, have a weight of 1,350 lbs. "all up," which is considerably more than the weight of the Lympne two-seaters, but still a good deal less than the weight of the training machines hitherto in general use. The top speed of the machine will probably be about 85 or 90 m.p.h., and it is expected that a mileage of somewhere in the neighbourhood of 20 miles per gallon will be obtained. The machine has been produced without the blessing of the A.I.D., and at the moment there is no guarantee that it will ever obtain its airworthiness certificate. That, however, the firm is prepared to risk, and perhaps by the time the D.H.60 has flown for a few hundred hours and has proved itself thoroughly sound in wind and limb, the powers that be may be persuaded to close one eye. Certainly, so long as the Air Ministry insists upon constructors building under A.I.D. supervision, we shall never see the low-priced aeroplane, and, as we have so repeatedly urged in this journal, constructors can be trusted not to produce machines which are dangerous. Their reputation is at stake, and this fact should be a much better safeguard than any amount of official meddling. In any case, the possession of an airworthiness certificate is no guarantee, and machines designed to the official safety factors have been known to fail.

* * *

IT is good news to learn that France is to establish a permanent gliding centre at Vauville, to be, as a matter of fact, a counterpart of Germany's Rhön. A permanent hangar of large size is to be erected, and there will be general offices, as well as a small workshop, in which minor repairs can be effected. A caretaker will be in residence on the aerodrome, so that experimenters will be able to go to Vauville at any time of the year to carry out experiments. The Vauville Council have rendered every assistance in the matter of land, and the site that has been secured by the energetic action of l'Association Française Aérienne is regarded as eminently suitable for experiments in gliding and soaring flight. The most difficult part of the task of preparing the site is that of making a track up the side of the hills to facilitate the return of the machines to the top, but this is being done with all speed. What are *we* going to do?

LIGHT 'PLANE CLUB DOINGS

WE shall be pleased to have reports regularly from Club Secretaries, or those directly connected with new Light 'Plane Clubs, so that by keeping our readers informed on this matter the whole movement may be helped forward to the benefit of the clubs and the popularising of "that Air feeling."

Light 'Plane Clubs are being, or have been, formed at :—

London.—Lieut.-Com. H. E. Perrin, Secretary, Royal Aero Club, 3, Clifford Street, W.1.

Birmingham.—Major Gilbert Dennison, Hon. Secretary, Midland Aero Club, Handsworth, Birmingham.

Glasgow.—J. Allison, Esq., Jnr., 219, St. Vincent Street.

Lancashire.—C. J. Wood, Esq., Secretary, Lancashire Aero Club, c/o A. V. Roe and Co., Newton Heath, Manchester.

Newcastle-on-Tyne.—Alex. H. Bell, Esq., Hon. Sec., Newcastle-on-Tyne Light 'Plane Club, County Hotel.

Yorkshire.—Prof. G. Brodetsky, Yorkshire Aeroplane Club, Leeds University.

We have received the following report on the progress being made :—

An Inter-Club Conference of all the clubs approved of by the Air Ministry is being held at the Queen's Hotel, Leeds, on Saturday next, February 7, at 5 p.m. Tea will be served between 4.30 and 5 p.m.

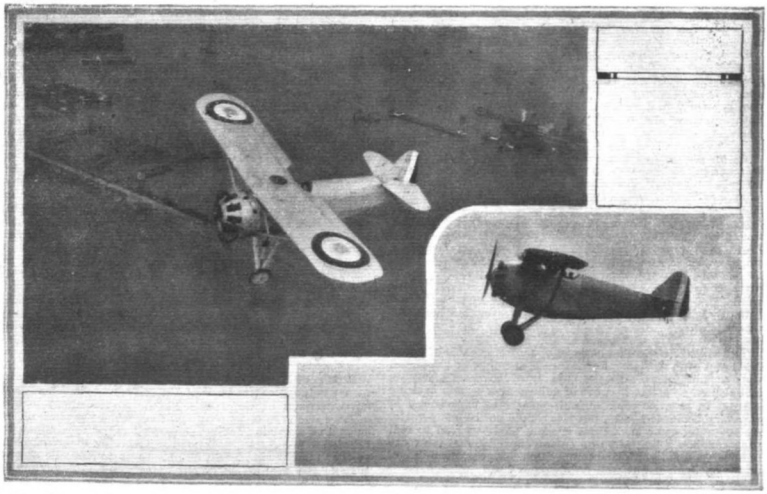
Lancashire Aero Club.—The accompanying sketch shows the Badge recently issued to Members of the Lancashire Aero Club. The propeller blades and letters are in gilt, the outer circle in blue, and the rose in the centre in red. It only measures just over an inch across the blades, the circle being smaller than a threepenny bit. Any Member may obtain this badge from the Hon. Secretary; the charge is 2*s.* for each badge. Fully qualified pilots who are giving their services to the Club as instructors may have a tiny letter "P" above the rose. A badge of this kind helps to make the Club known, and is also a way of introducing Members who do not know each other. The German Glider and Light 'Plane Clubs all have badges, and find them an advantage.

THE LANCASHIRE AERO CLUB : Sketch of the badge just issued to members of this go-ahead Light 'Plane Club.

Newcastle-on-Tyne Light 'Plane Club.—Progress is very sure, but nothing of a definite nature has taken place as yet, nor does the Club anticipate the commencement of activities until something is fairly certain regarding the probable time machines will be available. The Club has under consideration the purchase of a training machine pending the perfecting of the two-seater light aeroplanes, but certain developments in some directions are awaited before doing anything of a final nature—settled weather conditions are not yet due!

The following is a programme of lectures to be given during the present session :—

February 5.—"Metal Construction in Aircraft." Mr. C. H. W. G. Anderson, B.Sc.
February 19.—Club dance.
March 5.—"Internal-Combustion Engines." Mr. A. D. Bruce.
March 19.—"Parachutes." Mr. L. de Loriol.
March 26.—"Models and Model Flying." Mr. A. H. Bell.
April 2.—"Elementary Principles of Flight." Mr. John Bell, A.I.Ae.E.



A RECORD BREAKER : Two views, from another aeroplane, of the Koolhoven F.K.31, with Bristol "Jupiter" engine. A machine of this type, built in France by the de Monge-Buscaylet firm under licence, recently established three world's speed records over 100 kms., 200 kms., and 500 kms., carrying a useful load of 500 kgs.

THE BRISTOL "JUPITER" 100-HOUR TYPE TEST

FROM time to time we have published in FLIGHT reports on various tests that have been carried out with the Bristol "Jupiter" 400 h.p. radial air-cooled aero engine. (See FLIGHT for April 24, October 2, October 16, 1924, and January 8, 1925.) On each occasion this remarkable engine has improved on its previous performance, and now once again we have received some brief particulars of another big test from which the "Jupiter" has emerged with success. We find ourselves asking the question: What *can* be coming next?

This latest achievement of the Bristol "Jupiter" is the completion of the new 100-hour Air Ministry type test. Perhaps the outstanding feature of this test is the fact that although the engine—No. JX 1000—had run for 77 hours before the tests were commenced, the power curve showed an increase in performance at the end of the test as compared with the beginning. Also, the test was carried out at a rated h.p. of 425, while at the end of the test the engine was stripped and its condition was found to be excellent.

We reproduce herewith the power curve taken on this test, from which our readers can obtain the main characteristics of the run. The following, however, is a synopsis of the test, and a few further details as regards fuel consumption, etc.

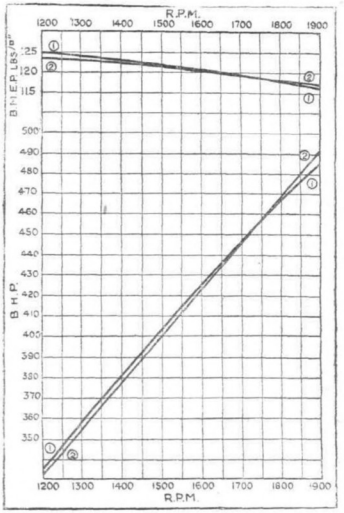
The engine was run:—1½ hours on Froude (1st power curve); 40 hours on Froude (383 B.H.P.—90 per cent.—at 1,650 r.p.m.); 50 hours on hangar (383 B.H.P.—90 per cent.—at 1,650 r.p.m.); 9 hours on Froude (383 B.H.P.—90 per cent.—at 1,650 r.p.m.); 1 hour on Froude (429 B.H.P. at 1,650 r.p.m.); 1 hour on Froude (304 B.H.P. at 1,820 r.p.m.); 1 hour on Froude (466 B.H.P. at 1,825 r.p.m.); 1½ hours on Froude (2nd power curve); total running time, 105 hours.

Details of the 100-hour test at 1,650 r.p.m. are as follows:

Run.	Hours, non-stop.	H.P. at end.	Fuel, gals.	Consumptions. Fuel, gals. p. hr.	Oil, pints.	Oil, pts. p. hr.
1	10	418	277	27·7	144	14·4
2	10	419·5	278	27·8	146	14·6
3	10	416	275	27·5	131	13·1
4	3·7*	421·3	277	27·7	142	14·2
5	10	Hangar	275	27·5	155	15·5
6	10	,,	280	28	135	13·5
7	10	,,	275	27·5	120	12
8	10	,,	275	27·5	110	11
9	10	,,	275	27·5	112	11·2
10	10†	429	2·0	28	80	8

* Test-stand breakdown. † Last hour full throttle.

The total consumptions for the 100 hours was 2,767 gallons of fuel and 1,259 pints of oil; the average pints per B.H.P. per hour was 0·578 fuel and 0·033 oil. There was no falling off in power during the run, on the final power curve at the conclusion of the 100-hour test the engine developing 435 B.H.P. at 1,650 normal r.p.m., and 473 B.H.P. at 1,825 maximum r.p.m.



BRISTOL "JUPITER" 100-HOUR TYPE TEST: Power curves. (1) Taken before test. (2) Taken after test. Barometer, 29.94: 5 mins.-readings.

The Paris-Dakar Non-Stop Flight

ALL preparations are now complete for the non-stop flight from Paris to Dakar, which is to be attempted by the two French officers, Captain Lemaitre and Lieut. Arrachard. The distance is approximately 2,610 miles, and will, it is expected, occupy about 25 hours. The machine to be used is a Breguet XIX A.2, similar to that used by Pelletier d'Oisy on his Paris-Tokio flight, but the engine fitted for the flight to Africa is a 480 h.p. Renault. Specially large petrol tanks have been fitted, with a total capacity of 2,300 litres (506 gallons), which, it is estimated, should suffice for about 26 hours' flying. Much will, of course, depend upon weather conditions, as a slight following wind would be of the greatest assistance. In fact, if the two gallant aviators were to meet with head winds for any length of time the flight would be impossible. The start will probably be made from Etampes (Villesauvage), and the route to be followed is as follows: Etampes, Biarritz, Lisbon, Tangier, Casablanca, Cape Juby, Port Etienne, Saint Louis, and Dakar. Should the complete flight planned be found impossible for any reason the aviators will attempt at least to reach Port Etienne, a distance of more than 3,000 kms. (1,865 miles).

"Aripa"

AVIATION in Roumania is making rapid progress, both in the military and the commercial branches, but up to now this country has not possessed a journal devoted solely to aviation. Readers of FLIGHT will be interested to learn that, thanks to the efforts of a group composed of well-known Roumanian pilots and aeronautical engineers, Roumania is about to produce a weekly—probably bi- or tri-weekly later on—aviation journal, known as *Aripa*, which will be devoted to the interests of aviation, aviators, and the industry in Roumania. We take this opportunity of wishing our allied contemporary a hearty welcome.

Air Service to Ireland

AN air service to Ireland will be operated this year by Northern Air Lines, Ltd., commencing on March 3. The service will run between Carlisle and Belfast, except during the winter months, when the terminus on the English side will be Stranraer. The chief pilot will be Capt. R. Mackintosh, and one D.H.50 and two D.H.9's will be employed.

Aerial Survey in Canada

FOLLOWING on the successful extensive aerial survey of the Reindeer Lake District, north of Manitoba and Saskatchewan, carried out last year, the Royal Canadian Air Force will make further surveys this year. As a result of these aerial surveys the Government will have reliable maps of all the territory in this part of Canada from Hudson's Bay to the Churchill River source.

French Aero Engine Works Closed

OWING, it is stated, to the failure of the French Government to pass an order, promised last year, for 50 engines, the Salmson factory has had to close down, thereby throwing some 2,500 men out of employment.

Brussels-Congo Flight

THE three-engined Handley Page biplane (one Rolls-Royce "Eagle" and two Siddeley "Pumas"), on which M. Thieffry will attempt to fly from Brussels to Belgian Congo (probably starting this week), was christened on February 3, at Evère Aerodrome, by Princess Marie-José.

CROYDON DISASTER INQUIRY

THE third day of the public inquiry into the Croydon air disaster was resumed on January 27, at the Law Courts, before an independent chairman (Sir Arthur Colefax) and two assessors (Prof. B. M. Jones and Mr. J. Swinburne, F.R.S., M.Inst.E.). Evidence was first given by Mr. Spencer, representing the makers of the Tell Chart engine revolution counter, who said he examined the records of the engine from December 18 up to the morning of the accident, and that the chart corresponding to the flight from Amsterdam to Ostend, on December 23, was the best he had ever seen. The run from Ostend to Lympne was also very good, and from Lympne to Croydon, on December 24, was quite normal. Asked by Mr. Trevor Watson (representing the Air Ministry) what his opinion was as to the condition of the engine during the period December 18–24, he replied that he thought it was perfectly normal.

W. G. R. Hinchliffe, who has been engaged with Imperial Airways since its inception, and had been flying the crashed machine before Captain Stewart took it over, said that he was instructed to fly on December 18 from Croydon to Amsterdam and return the same day. During that flight there was oil fluctuation, and the engine was rough when he left Croydon, but he arrived at Amsterdam in normal time. He reported the engine to the mechanic Scott, of Imperial Airways, at Amsterdam. He had flown for half-an-hour on the way back to London when oil fluctuations recommenced in an aggravated form, pressure dropping to 25 lbs., and the engine became slightly rougher. The combination of the two things decided him to return to Amsterdam. The engine gave perfectly good revolutions. The mechanic then gave the engine another overhaul. He was told that specks of white metal were found in the oil filter, which might indicate trouble in a bearing, so he carried out a flight test, and found the engine perfectly satisfactory, though still rough. On December 19, he restarted for Croydon, and again oil fluctuations began after half-an-hour. He carried on a little longer, but as the weather was bad and he had no confidence in the engine, he returned again.

The oil system was again overhauled, but he did not proceed owing to bad weather conditions until December 23, when he flew to Ostend, and then on to Lympne, proceeding to Croydon the next morning. From Amsterdam to Lympne the engine gave very good revolutions, and the oil pressure now fluctuated on the higher end of the scale, not dropping below 58 lbs. The engine was rough during the whole period of his time away from Croydon.

On landing at Croydon he reported verbally the condition of the engine to Major Brackley, and to two mechanics, and he also wrote out a report. He also found the mechanical superintendent, Mr. Hall, to tell him of his experience of the engine, and met Captain Stewart, and told him about the trouble, saying that Captain Stewart should take care because he had had trouble.

Asked as to his opinion of the engine, he said he had flown better engines in which he had more confidence, but after examination by experts, if they found no further trouble, would have flown it.

Ernest Scott, the mechanic stationed at Amsterdam, next gave details of the extremely thorough examination he made of the engine at Amsterdam on each occasion the pilot reported oil fluctuations. Gilbert E. Clark, inspector of engines at Croydon, for Imperial Airways, also gave evidence as to the happenings at Croydon on the occasion of the overhauling of the machine on its return from Amsterdam, on December 24. He gave it as his opinion that the roughness of the engine was due to atmospheric conditions.

At the resumed hearing on January 28 Mr. Hunter Gray (Imperial Airways) said that, so far as his present knowledge went, the position his clients took up was that they were unable to say definitely the cause of the accident. Their view was that, so far as the defect in the pipe was concerned, that would have to be ruled ont—subject, of course, to any further evidence which might be forthcoming. The general view of Imperial Airways was that the peculiar combination of very difficult circumstances, weather and otherwise, had militated so much on that particular day as just to bring the machine down to a set of conditions which might not occur again.

Mr. G. E. Clark resumed his evidence, and read considered reasons for his decision that the engine was fit for service as follows :—

(1) Had the cause of the roughness been due to any actual defect in the running of the engine, the pilot would most probably have been able to locate it.

(2) Mr. Stirling ran a ground test and found the engine to be running satisfactorily.

(3) The inspection carried out failed to reveal any defect which would cause roughness due to malfunctioning of the engine.

(4) The Tell Chart failed to reveal any signs of erratic running of the engine.

(5) The ground test which he carried out personally showed the engine to be running perfectly satisfactorily.

(6) He had flown with a pilot in this type of machine on good, bad, and very bad days, and had noticed frequently that on bad days an impression as of a rough engine was created.

Capt. F. L. Barnard, Imperial Airways pilot, who gave evidence next, repeated the evidence he gave at the inquest. He said he did not agree with the course of the machine as given by Maj. Cooper, nor with the statement that the pilot made an S turn, and stated emphatically that he did not agree with the suggestion that everything pointed to engine trouble, adding that the reasons which might make a pilot wish to turn back were a fault in the load, a fault in the machine, or a fault in the engine. Asked if he had any theory as to the accident, Capt. Barnard said he thought very possibly that some sort of fluctuation in the oil pressure was indicated on the gauge, and the pilot, having been warned of this by Mr. Hinchcliffe, thought that the best thing to do was to return to the aerodrome. He did not mean to suggest that necessarily there were fluctuations of oil pressure in the engine, but only that they were indicated on the instrument. These fluctuations, in his view, made the pilot decide that to return was the best thing to do, particularly as Stewart had not had so much experience of commercial machines as some of the other pilots.

Capt. Arthur Newman, D.F.C., an underwriter for the British Aviation Insurance Group, said that he was perfectly satisfied with the precautions taken to ensure the safety of the pilots, machines, and passengers of Imperial Airways. He was satisfied that the accident was in no way due to negligence on the part of Imperial Airways, and the claim for the machine would be admitted.

The inquiry was then adjourned until January 29. We will conclude our report on the inquiry in next week's issue.

City of London Territorials

AT a meeting of the City of London Territorial Association, the Lord Mayor presiding, held at the Mansion House on February 3, Colonel Evelyn Wood (the secretary) reported that preparations were now going actively forward for the inauguration of the City of London squadron of the Auxiliary Air Force. There would be 27 pilots on the establishment, and he was now registering candidates. It was further reported that it had been agreed, as between the association and the Air Council, that three officers of the Royal Air Force and three co-opted members to represent Air Force interests, should be added to the association.

Mapping London from the Air

AEROFILMS, LTD., of the London Aerodrome, Hendon, N.W.9, have now fixed up a contract to make an aerial photographic survey of the whole of greater London, and the work will be started upon within the next few weeks, directly weather conditions are favourable. Over 1,000 exposures will be made, and it is expected that the resultant mapping and fitting together of the photographs will take the company's mapping department many weeks to complete. Considerable interest has already been expressed by many public bodies, and there is not any doubt that the results will prove of great value. Every endeavour will be made to have the City and West End sections of the map ready for the re-opening of the Wembley Exhibition.

Trans-Pacific Flight

IT is rumoured that the proposed Trans-Pacific flight from San Francisco to Sydney will take place this year, and that the U.S. Bureau of Naval Aeronautics is having a large seaplane constructed for this flight.

R.A.F. Fatal Flying Accident

THE Air Ministry regrets to announce that, as a result of an accident at Hal Far aerodrome, Malta, to a Fairey "Flycatcher" of No. 403 (Fleet Fighter) Flight Mediterranean, on January 29, 1925, Flying Officer Richard Lewes, the pilot of the aircraft, was killed.

THE ROYAL AIR FORCE

London Gazette, January 27, 1925

Group Capt. L. W. B. Rees, V.C., O.B.E., M.C., A.F.C., is appointed Deputy Director of Training, Air Ministry (Jan.1) (vice-Group Capt. P. L. W. Herbert, C.M.G., C.B.E., relinquished the appt. Dec. 31, 1924).

General Duties Branch

The following are granted permanent commns. as Pilot Officers, with effect from Jan. 17, and with seny. of Jan. 17, 1924 :—C. R. Hancock, J. H. Powle, C. H. Tighe, A. H. Wheeler. The following are granted short service commns. as Pilot Officers on probation with effect from and with seny. of Jan. 17 :—R. D. Adams, E. Addis, C. A. Bell, R. L. Burnett, J. G. Chamberlain, E. L. Drew, T. D. Egan, S. A. V. Evans, W. E. Fleming, D. S. Green, A. J. Holmes, N. K. Howard, C. M. Inglis, F. M. Kellaway, H. W. Miller, W. L. Mummery, J. C. Noel, L. F. T. Price, J. H. C. Purvis, A. F. Satchwell, D. C. Shaw (Midshipman, R.N.R.), E. Stanier, C. P. Vines, D. R. Way.

Lieut. A. R. Hamilton (Lieut., Highland L.I.) is granted a temporary commn. as Flying Off. on seconding for four years' duty with the R.A.F. (Jan. 17). Pilot Offr. D. E. Godwin is promoted to rank of Flying Offr. (Jan. 14).

The following Pilot Offs. on probation are confirmed in rank :—G. R. A. Pallin (July 31, 1924) : R. H. Holmes, I. W. C. Mackenzie, W. F. Parkinson (Dec. 30, 1924.)

Flying Offr. H. L. Beatty is placed on half-pay, scale B. (Feb. 1) ; Flight-Lieut. F. Leathley, M.C., is placed on retired list (Jan. 27) ; Flying Offr. M. W. Nolan is placed on retired list on account of ill-health (Jan. 28) ; Flight-Lieut. E. J. Cooper, D.S.C., relinquishes his short service commn. on acct. of ill-health (Dec. 10, 1924) (substd. for *Gazette* Dec. 9, 1924) ; Flying Offr. E. C. K. Kingston relinquishes his short service commn. on acct. of ill-health, and is permitted to retain his rank (Jan. 28) ; Flying Offr. K. Loughlin is removed from the R.A.F. on conviction by the Civil Power (Jan. 28).

Stores Branch

The following are transferred to Stores Branch, on probation (Jan. 19) :—*Flight Lieut.*—A. Latimer. *Flying Offrs.*—E. N. D. Worsley, R. M. Thomas, E. A. Slater, F. W. van Blommestein, J. R. Brown.

Medical Branch

The following are granted short service commns. as Flying Offrs., with effect from, and with seny. of, the dates indicated :—H. C. Patterson (Jan. 14) : F. L. White (Jan. 16). Flying Offr. G. R. Nodwell, M.B., is promoted to rank of Flight-Lieut. (Jan. 29).

Princess Mary Royal Air Force Nursing Service

Miss I. M. Tench resigns her appointment as Staff Nurse (Dec. 29, 1924.)

Reserve of Air Force Officers

The following are granted commns. on probation in General Duties Branch, in the ranks stated (Jan. 27) :—

Class A.—Flying Offrs.—W. E. Gandell, M.M., R. B. Tapp.

Class B.—Flying Offrs.—W. E. G. Cutler, L. E. Owen, R. B. B. Sievier, M.C. *Pilot Offr.*—W. G. Robinson.

Class B.B.—Pilot Offrs.—E. F. S. Hughes, C. R. A. Page, E. M. Stewart.

Pilot Offr. T. L. I. Bell is promoted to rank of Flying Offr. (Jan. 27) ; Pilot Offr. J. P. Crawford relinquishes his commn. on acct. of ill-health, and is permitted to retain his rank (Jan. 28). The commn. of Pilot Offr. on probation, R. Michaelis, is terminated on cessation of duty (Dec. 19, 1924.)

Memorandum

The permission granted to Sec. Lieut. R. P. Coton to retain his rank is withdrawn on his conviction by the Civil Power (Jan. 1).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified :—

General Duties Branch.

Air Commodores : J. G. Hearson, C.B., C.B.E., D.S.O., to R.A.F. Depot (Non-effective Pool), on relinquishing the appointment as Air Officer Commanding Special Reserve and Auxiliary Air Force. 19.1.25. C. L. N. Newall, C.M.G., C.B.E., A.M., A.D.C., to H.Q., Coastal Area, on appointment as Air Officer Commanding Special Reserve and Auxiliary Air Force. 19.1.25.

Group Captain : A. D. Warrington-Morris, C.M.G., O.B.E., to H.Q., Iraq, for Tech. Staff duties. 9.1.25. W. G. S. Mitchell, C.B.E., D.S.O., M.C., A.F.C., to No. 1 Sch. of Tech. Training (Boys), Halton, for administrative duties. 19.1.25.

Squadron Leader N. F. D. Duckeridge, to R.A.F. Depot, on transfer to Home Estab. 4.1.25. W. J. Y. Guilfoyle, O.B.E., M.C., to No. 9 Sqdn, Manston. 19.1.25. H. V. Champion de Crespigny, M.C., D.F.C., to No. 39 Sqdn., Spittlegate. 26.1.25. H. Stewart, to Sch. of Tech. Training (Men), Manston. 16.1.25. W. W. Hart, M.B.E., to R.A.F. Depot, on transfer to Home Estab. 24.12.24. H. Dawes, M.B.E., to No. 99 Sqdn., Bircham Newton. 2.2.25.

Flight Lieutenants :—R. A. Birkbeck, D.F.C., to No. 2 Flying Training Sch., Digby. 15.1.25. W. S. Watson, to Sch. of Naval Co-operation, Lee-on-Solent. 15.1.25. W. J. Umpleby, to No. 4 Sqdn., S. Farnborough. 15.1.25. J. W. Woodhouse, D.S.O., M.C., to Inland Area Aircraft Depot, Henlow. 14.1.25. A. L. Neale, M.C., to R.A.F. Depot. 15.1.25.

Flight Lieutenants : J. C. M. Hay, to H.Q., Cranwell. 20.1.25. W. E. Theak, to R.A.F. Depot, on transfer to Home Estab. 24.12.24. A. H. Stradling, O.B.E., to H.Q., Iraq, instead of to Rest Camp, Iraq, as previously notified. 27.11.24. W. Underhill, D.S.C., to No. 45 Sqdn., Iraq. 9.12.24. A. W. Symington, M.C., to Rest Camp, Iraq, instead of to H.Q., Iraq, as previously notified. 27.11.24. J. E. MacLinnan, to No. 6 Armoured Car Co., Iraq. 1.1.25. D. Gilley, D.F.C., to No. 208 Sqdn., Egypt. 16.1.25. J. R. Cassidy, to H.Q., Egypt. 16.1.25. J. C. M. Hay to remain at R.A.F. Depot instead of to H.Q., Cranwell, as previously notified. R. B. Waite, M.B.E., to R.A.F. Depot (Noneffective Pool). 21.1.25. R. E. Meek to H.Q., Cranwell. 24.1.25.

Flying Officers :—S. F. Cole, to H.M.S. "Argus." 10.1.25. R. M. Thomas, to R.A.F. Depot. 19.1.25. C. R. Stewart, to No. 12 Sqdn., Andover. 1.2.25. E. A. Slater, to R.A.F. Depot. 19.1.25. G. L. Gandy, P. Hill and C. G. C. Woledge, to R.A.F. Depot, on appointment to Short Service Commns. pending embarkation overseas. 6.1.25. E. A. Blake, M.M., to Sch. of Naval Co-operation, Lee-on-Solent. 20.1.25. F. Jezzard, M.B.E., to H.Q., Coastal Area. 12.1.25. A. B. Ball, to R.A.F. Base, Leuchars. 15.1.25. N. H. D'Aeth, to Sch. of Naval Co-operation, Lee-on-Solent. 15.1.25. H. L. Beatty, to R.A.F. Base, Leuchars. 17.1.25. A. R. B. Howell, to H.M.S. "Argus." 17.1.25. W. Smith, to Electrical and Wireless Sch., Flowerdown. 21.1.25. G. H. Smith, to No. 7 Sqdn., Bircham Newton. 14.1.25. R. Beresford, to No. 39 Sqdn., Spittlegate. 19.1.25.

Flying Officers : J. Durwood and S. H. Cooper, to R.A.F. Depot, on transfer to Home Estab. 24.12.24. S. T. B. Cripps, D.F.C., to Meteorological Flight, Duxford. 9.1.25. R. H. W. Empson, to Aircraft Depot, Iraq. 9.12.24. A. E. Thompson, to Basrah Group H.Q., Iraq. 1.1.25. E. R. C. Hobson, D.F.C., to No. 70 Sqdn., Iraq. 1.1.25. T. H. French, D.F.C., to No. 14 Sqdn., Palestine. 3.12.24. D. R. Dawson, to Aircraft Depot, Iraq. 1.1.25. H. A. L. Pattison, to R.A.F. Trans-Jordania H.Q., Palestine. 16.1.25. H. J. Adkins, to Stores Depot, Egypt. 16.1.25. H. K. Goode, D.S.O., D.F.C., A. C. Tremellen, G. L. Gandy, P. Hill, and C. G. C. Woledge, to No. 4 Flying Training Sch., Egypt. 16.1.25. C. R. Smythe and M. H. Steff, to Boys' Wing, Cranwell. 26.1.25. A. R. M. Brain, to No. 100 Sqdn., Spittlegate. 26.1.25. A. E. Beilby, H. S. Davidson, L. H. Brooke, Hon. Flight Lieut. W. F. R. Gough, Hon. Flight Lieut. R. S. T. Fleming, F. H. Woolliams, A. F. Lingard, A. G. Hill, and H. V. Kerckhove, M.C., to Central Flying Sch., Upavon. 19.1.25.

Pilot Officers :—The undermentioned Pilot Officers are all posted to the R.A.F. Depot on appointment to Short Service Commns., pending embarkation overseas, with effect from 6.1.1925 :—K. C. Baker, C. S. J. Bowman, W. F. Bryanton, P. B. Chubb, P. K. Copperthwaite, G. W. Cripps, E. J. Ellis, T. P. F. P. Fagan, H. D. Gunton, A. E. Hamilton, F. S. Homersham, D.C.M., M.M., J. A. E. Inkster, L. B. McGoverne, G. P. Mee, B. E. Moody, G. M. E. Shaw, D. C. Sherman, W. A. Shorten, V. J. Sofiano, E. G. D. Stewart, M.C., A. C. Watkins, E. T. Wiltshire, H. A. Evans-Evans, C. W. Woodbyrne.

Pilot Officers : H. M. S. Wright, to Meteorological Flight, Duxford. 9.1.25. The undermentioned Pilot Officers are all posted to No. 4 Flying Training Sch., Egypt. 16.1.25. K. C. Baker, G. S. J. Bowman, W. F. Bryanton, P. B. Chubb, P. K. Copperthwaite, G. W. Cripps, E. J. Ellis, T. P. F. P. Fagan, A. E. Hamilton, F. S. Homersham, D.C.M., M.M., J. A. E. Inkster, L. B. McGoverne, G. P. Mee, B. E. Moody, G. M. E. Shaw, D. C. Sherman, W. A. Shorten, V. J. Sofiano, E. G. D. Stewart, M.C., A. C. Watkins, E. T. Wiltshire, H. A. Evans-Evans, and C. W. Woodbyrne. G. R. M. Clifford, to Central Flying School, Upavon. 19.1.25.

The undermentioned Pilot Officers are all posted on appointment to Permanent Commns. from the R.A.F. Cadet College with effect from 17.12.24 : A. H. W. J. Cocks and P. McK. Terry, to No. 7 Sqdn., Bircham Newton. C. B. Beardsworth and N. S. Allinson, to No. 13 Sqdn., Andover. J. H. McN. Campbell, J. G. Franks and J. R. Adams, to No. 56 Sqdn., Biggin Hill. S. H. Hardy, G. R. Beamish and G. W. Hayes, to No. 100 Sqdn., Spittlegate. S. H. V. Harris and R. J. A. Ford, to No. 25 Sqdn., Hawkinge. I. M. Scott and A. H. Montgomery, to No. 32 Sqdn., Kenley. The Earl of Bandon, to No. 4 Sqdn., S. Farnborough. M. E. de L. Hayes and G. F. G. Cox, to No. 39 Sqdn., Spittlegate.

Stores Branch

Squadron Leader : P. M. Brambleby, to H.Q., Iraq. 9.1.25.

Flight Lieuts. : D. Barron, to No. 1 Sch. of Tech. Training (Boys), Halton. 27.1.25. G. F. Law, to Aircraft Depot, Iraq. 24.12.24.

Flight Lieutenants : E. L. Ridley, to No. 4 Flying Training Sch., Egypt ; 27.12.24. A. H. Comfort, to Stores Depot, Egypt ; 5.1.25. A. E. Sutton-Jones, to No. 4 Stores Depot, Ruislip ; 2.2.25.

Flying Officers : H. A. Williams, to No. 4 Sqdn., S. Farnborough, on transfer to Home Estab. 20.1.25. A. J. Grant, to R.A.F. Depot, on transfer to Home Estab. 24.12.24. W. St. J. Littlewood, to Aircraft Depot, Egypt ; 27.12.24. H. J. Thomas, to No. 4 Stores Depot, Ruislip ; 16.2.25.

Accountant Branch

Flying Officers : E. W. Horncastle, to Stores Depot, Iraq, instead of to No. 1 Sqdn., as previously notified. 27.11.24. E. V. Humphrey, to No. 6 Sqdn., Iraq, instead of to Aircraft Depot, as previously notified. 27.11.24. F. M. Hall, to No. 30 Sqdn., Iraq, instead of to No. 70 Sqdn., as previously notified. 27.11.24. H. Hedderwick, to H.Q. Accountant Office, Iraq ; 19.12.24. J. C. Brice, to Sch. of Balloon Training, Larkhill ; 5.2.25. L. de L. Leder, to No. 3 Stores Depot, Milton ; 5.2.25. F. C. Chalmers, to No. 9 Sqdn., Manston ; 5.2.25. B. E. Hume Wright, to No. 3 Sqdn., Upavon ; 5.2.25. H. E. Cardwell, A.F.C., to No. 1 Stores Depot, Kidbrooke ; 5.2.25.

Pilot Officers : A. E. West, to Inland Area Aircraft Depot, Henlow ; 26.1.25. J. R. Thomas, to Mechanical Transport Repair Depot, Shrewsbury ; 26.1.25. S. C. George, to No. 2 Flying Training Sch., Digby ; 26.1.25. S. W. Hill, to H.Q., Cranwell ; 26.1.25. R. W. Collinson, to Sch. of Tech. Training (Men), Manston ; 26.1.25. L. M. Spicer, to No. 1 Sch. of Tech. Training (Boys), Halton ; 26.1.25. R. C. Dickinson, to R.A.F. Depot ; 26.1.25.

Medical Branch

Wing Commander : H. E. Whittingham, M.B., D.P.H., D.T.M., and H. to R.A.F. Pathological Lab., Halton, for duty as Director of Pathology. 20.1.25.

Squadron Leaders : P. T. Rutherford, O.B.E., to H.Q., Egypt ; 1.12.24. R. H. Knowles, M.D., D.P.H., to H.Q., Egypt ; 16.1.25.

Flight Lieutenants : H. J. Higgens (Dental), to H.Q., Egypt ; 28.12.24. W. E. Barnes, to H.Q., India ; 28.12.24. E. F. N. Currey, to R.A.F. Base, Malta ; 26.1.25. T. J. X. Cauton, M.B., to Air Ministry. 16.1.25.

Flying Officers :—H. W. Corner, M.B., to Research Lab. and Med. Officers' Sch. of Instruction, Hampstead. 11.1.25. J. McC. Kilpatrick, M.B., to Research Lab. and Med. Officers' Sch. of Instruction, Hampstead, on appointment to a Short-Service Commn. for short course. 7.1.25.

Flying Officers ; R. S. MacLatchy, to R.A.F. Trans-Jordania H.Q., Palestine. 17.12.24. H. W. Corner, M.B., to R.A.F. Pathological Lab., Halton. 20.1.25. H. C. Patterson, to Research Lab. and Med. Officers' Sch. of Instruction, Hampstead, for short course, on appointment to a Short Service Comm. 14.1.25. F. L. White, to Research Lab. and Med. Officers' Sch. of Instruction, Hampstead, for short course, on appointment to a Short Service Comm. 16.1.25.

Flying Officers : F. W. G. Smith, M.B., B.A., R. W. White, A. Dickson, M.B., and S. S. Proctor, M.B., to R.A.F. British Hospital, Hinaidi, Iraq ; 27.12.24. R. L. C. Fisher, M.B., to Aircraft Depot, Iraq ; 27.12.24. J. McC. Kilpatrick, M.B., to R.A.F. Base, Gosport ; 28.1.25.

Flying Officer (Dental).—V. P. Ellis, to R.A.F. Depot, on appointment to a Temporary Commn. 8.1.25.

Chaplains' Branch

Rev. T. Browne, D.D., Ph.D., to Aircraft Depot, Egypt ; 27.12.24.

AIR POST STAMPS

By DOUGLAS B. ARMSTRONG

First Air Post Auction

A NOTABLE event in the annals of air post-collecting was the sale by auction of the well-known collection formed by Mr. H. H. Taylor, which took place at the Old Bond Street Galleries, on January 19. Prices on the whole were eminently satisfactory, and served to demonstrate particularly the rising values of early flown covers. Bidding was keen for the scarcer items, and the total amount realised was in the neighbourhood of £500. The "Hawker" cover, signed by Mackenzie Grieve, touched a new high level at £45, whilst a rather indifferent specimen of an "R 34" letter maintained the previous highest price of £32. Other notable prices were :—

Australia, 1914.—Melbourne-Sydney souvenir card, £12 10*s*.

Denmark, 1919.—Nestved-Copenhagen semi-official stamp, £12.

Fr. Guiana, 1921-2.—Flown cover with semi-official stamp (Champion's type "C"), £15.

Fr. Guiana, 1921-2.—Flown cover with semi-official stamp (Champion's type "d"), £18.

Fr. Guiana, 1921-2.—Flown cover with semi-official stamp (Champion's type "e"), £18.

Fr. Morocco, 1911.—"Petit Journal" flight, special cachet, £4 15*s*.

Germany, 1913.—Card posted on Zeppelin "Viktoria Luise," £6.

Germany, 1913.—Bork-Bruck semi-official stamp (complete sheet of 10 copies), £12 10*s*.

Germany, 1913.—Flown cover with single stamp, £3 15*s*.

Germany, 1912.—Gotha-Erfurt flight. Semi-official stamp on flown card, £6 6*s*.

Germany, 1912.—Regensburg. Flown card with souvenir stamp, £10 10*s*.

Germany, 1924.—Berlin-Angora flight. Special 2 Mk. stamp on flown cover, £1 8*s*.

Great Britain, 1911.—Windsor–London. Two flown cards in green and red-brown, £1 12*s*.

Monaco, 1914.—Rally-Aérienne. Flown card Monaco-Rome with souvenir stamp, £2 2*s*.

New Zealand (*Gt. Barrier Island*), 1898.—1*s*. pigeon post stamp on flown message (rare), £12 12*s*.

Panama (*Canal Zone*), 1918.—Flown cover. Christobel to Balboa Heights with special cachet, £7 5*s*.

Switzerland, 1913.—Flight Aurau-Olten-Lenzbourg. Semi-official stamp on flown cover, £4.

Switzerland, 1913.—Flight Vevey-Villeneuve. Flown card with special cachet (rare), £25.

South Africa, 1918.—Cape Peninsula aerial post. Flown card with special cachet, £7.

U.S.A., 1911.—First official flight Garden City Estates, Brooklyn. Flown card with cachet, £2 6*s*.

U.S.A., 1918.—New York-Washington (first flight), £3.

Uruguay, 1921.—25 c. air-post stamp with rare *black* ovpt., £10 10*s*.

Consideration of the foregoing list will reveal two very important factors in the present state of air-post collecting. First, that despite the carpings of certain critics, hide-bound by philatelic conventions, semi-official stamps and cachets are as eagerly sought after by aerosemists as are their official prototypes, and with the exception of the two *pieces de resistances* (the Hawker and R 34), actually commanded proportionately higher prices. Second, the relative scarcity of "first flight" covers.

On the whole, air post collectors have reason to congratulate themselves upon the excellent progress that the hobby has made in a very short period of incubation.

*

Answers to Correspondents

E. A. S. (Southall).—Although express instructions were issued by the U.S. Postmaster-General for the back-stamping upon receipt of all mail brought by the ZR3 on its maiden trip, it is, of course, possible that a few letters may have escaped this attention. Genuinely flown covers should, however, bear the Friedrichshaven postmark (Luftpost) of October 10, 1924, the actual date of departure in addition to any other cancellation, as well as the special oval cachet "Mit Luftschiff ZR3 befordert." Letters transmitted by any other route would not show this cachet. The mail was actually closed on September 3, and in the majority of cases at least letters received at Friedrichshaven subsequent to that date were returned to the senders and postage refunded in full. It is not known what disposal was made of the balance of the mail, so that I am unable to say by what steamer (if any) it was forwarded to U.S.A.

SIDE-WINDS

MR. ALAN COBHAM, who is flying Sir Sefton Brancker on his aerial survey of the projected air-route to India, and who has now covered nearly 10,000 miles without trouble or delay of any description, has cabled Messrs. C. C. Wakefield and Co., Ltd., as follows :—

"ARRIVED CALCUTTA CONTINUING FLIGHT RANGOON BEFORE TURNING HOMEWARDS SIDDELEY PUMA ENGINE RUNNING PERFECTLY ON CASTROL C. KEEPING LOW OIL TEMPERATURE AND MAINTAINING REGULAR OIL PRESSURE FOUND SUPPLIES EVERYWHERE OF THIS PERFECT LUBRICANT—ALAN COBHAM."

* * * *

PUBLICATIONS RECEIVED

Aeronautical Research Committee : Reports and Memoranda No. 922.—Notched Bar Impact Tests at Low Temperatures. By Dr. L. Aitchison. October, 1924. H.M. Stationery Office, Kingsway, London, W.C.2. Price 9*d*. net.

Report No. 194.—Investigation of Slipstream Velocity. By J. W. Crowley, Jun. *Report No.* 197.—A New Relation Between the Induced Yawing Moment and the Rolling Moment of an Airfoil in Straight Motion. By M. M. Munk. *Report No.* 197.—Astronomical Methods in Aerial Navigation. By K. H. Beij. U.S. National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A.

* * * *

NEW COMPANIES REGISTERED

BORDEWICH (ENGINEERING), LTD.—Capital £2,000, in £1 shares. Objects to promote the sales of marine, stationary and aeronautical engines of all types, to carry on the business of engineers, etc. First directors, P. R. Bordewich, Mrs. Margaret T. Bordewich, and C. T. Bordewich. Secretary, C. T. Bordewich.

LIGHT METAL AIRCRAFT CO., LTD., 38, Victoria Street, Westminster, S.W. 1.—Capital £1,000, in £1 shares. Engineers, manufacturers of and dealers in machinery and plant, and in particular aeroplanes and aircraft and internal-combustion engines of all kinds, etc. First directors, A. Rohrbach, E. Lerp, A. E. L. Chorlton, and J. G. Girdwood.

* * * *

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations : Cyl. = cylinder ; i.c. = internal combustion ; m. = motor

The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

APPLIED FOR IN 1923

Published January 29, 1925

21,902. J. DEMOCRATIS. Parachutes. (226,851.)
21,980. E. EVANS and G. M. WILLIAMS. Screw propellers. (226,853.)
24,048. A. LAMBLIN. Radiators for aircraft motors. (206,819.)
24,063. H. BOLAS and G. G. PARNALL. Control mechanism of aircraft. (226,871.)
24,404. A. R. SMITH. Smoke-producers, for use on aircraft. (226,881.)

Published February 5, 1925

18,178. H. LEITNER. Detachable blades for airscrews, etc. (227,141.)
24,992. H. O. SHORT. Petrol supply control. (227,174.)
27,433. E. W. WALTER. Flying-machine. (227,234.)

APPLIED FOR IN 1924

Published January 29, 1925

9,488. C. DREVET. Rotary engine. (227,030.)
19,262. M. SALTER. Screw propellers. (227,064.)

Published February 5, 1925

1,148. H. M. DAVIDSON. Eye-screens, goggles, etc. (227,280.)
2,525. DORNIER METALLBAUTEN GES. and C. DORNIER. Means for securing planes to aircraft. (212,525.)
8,818. R. ESNAULT-PELTERIE. Packing-rings for pistons. (214,969.)

FLIGHT

The Aircraft Engineer and Airships

36, GREAT QUEEN STREET, KINGSWAY, W.C. 2.
Telegraphic address : Truditur, Westcent, London.
Telephone : Gerrard 1828.

SUBSCRIPTION RATES

"FLIGHT" *will be forwarded, post free, at the following rates :—*

UNITED KINGDOM			ABROAD*		
	s.	*d.*		*s.*	*d.*
3 Months, Post Free..	7	7	3 Months, Post Free..	8	3
6 ,, ,,	..15	2	6 ,, ,,	..16	6
12 ,, ,,	..30	4	12 ,, ,,	..33	0

These rates are subject to any alteration found necessary under abnormal conditions and to increases in postage rates.

* *European subscriptions must be remitted in British currency*

Cheques and Post Office Orders should be made payable to the Proprietors of "FLIGHT," 36, Great Queen Street, Kingsway, W.C. 2, *and crossed London County and Westminster Bank, otherwise no responsibility will be accepted.*

Should any difficulty be experienced in procuring "FLIGHT" *from local newsvendors, intending readers can obtain each issue direct from the Publishing Office, by forwarding remittance as above.*