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

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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 :—

1926

May 6	Aero Golfing Society, Meeting at Huntercombe
May 11	Capt. W. H. Sayers. "The Modern Theory of Aerofoils and its Application to Aeroplane Design," before Inst.Ae.E.
May 19	Inst. Ae.E. visit to the National Physical Laboratory, Teddington.
May 20–June 5	Royal Tournament, Olympia
May 30	Gordon-Bennett Balloon Race, Antwerp.
June 11–13	Belgian Light 'Plane and Touring Aeroplane Competition.
June 12	Inst. Ae.E. visit to Croydon Aerodrome.
July 9–10	King's Cup Race, Hendon.
July 11–27	German Seaplane Competition at Warnemunde.
Aug. 9–15	French Light 'Plane Competition.
Sept. 10–17	Two-Seater Light Aeroplane Competition, Lympne.
Sept. 18	Grosvenor Challenge Cup, at Lympne.

EDITORIAL COMMENT.

FROM the narrower, British, point of view, one of the most depressing books published in recent times is that entitled "The International Aerial Time Table" of which the first issue has just been issued by the Lep Transport and Depository Ltd. The book is depressing because, out of a tota of 32 pages of aerial time tables, fares, etc., but two are occupied by Imperial Airways Ltd. A more scathing comment on British civil, so-called "commercial," aviation it would be difficult to imagine. With all our resources, with all our "million pound monopoly company," with the best aeroplanes in the world, we can only manage four insignificant air lines. One of these is the London-Paris route, which was, of course, the first regular air route to be operated. The remaining three are the London-Ostend-Amsterdam, the London-Brussels-Cologne, and the Southampton-Guernsey.

A Depressing Book

If the British contribution to commercial aviation is disappointing as regards the bulk which it occupies, taking pages in the book as a basis, it is perhaps even more so if one enters into the study of the time table in detail. Selecting the London-Paris service first, it is seen that the time tables show three departures per day in each direction. Well and good, but index letters and foot notes reduce even these three services to *one* per day, the other two not being scheduled to come into operation until May 14 and May 15, respectively. The one service operated at the moment (we are writing, of course, without any reference to what increase in the services the abnormal conditions during the strike may call temporarily into being) leaves both London and Paris at noon. The other two, when they come into operation, will leave London at 7.55 a.m. and 5 a.m., respectively, and Paris at 1.45 p.m. and 5 p.m.

On the London-Ostend-Amsterdam route a daily service is scheduled to leave London at 8 a.m. and arrive at Amsterdam at 10.35 Amsterdam time. A Sunday service is also shown, extending as far as

Ostend only, but a footnote explains that this will not come into operation until July 18.

London-Brussels-Cologne is also a one-service-a-day route, which seems little enough in view of the intensity of the traffic to Germany, but the Southampton-Guernsey, our only seaplane service, is the Cinderella of I.A.L., with one service *per week* in each direction, both run on Wednesdays, and, judging from the time tables, so planned as to allow *one machine* to maintain the service. This solitary machine leaves Southampton at 10 a.m. arriving at Guernsey at 11.40 a.m. The return journey commences at 1 p.m., thus leaving plenty of time for looking over the machine, replenishing the tanks, etc., the arrival at Southampton being timed to take place at 2.40 p.m. What possible use such a service could be is not very clear. If there is sufficient traffic between Southampton and Guernsey to make it worth while operating a service, then it should be a daily one. If there is not sufficient traffic, then a weekly service is merely a farce, and can have no possible value except that of complying with the letter of the agreement between the company and the Government for the purpose of earning (or rather obtaining) the subsidy. The excuse cannot even be advanced that the service provides useful data and experience, for from the technical side all has been learned that can be learned from this service years ago, while from the commercial point of view, it seems doubtful if the route ever has been of a nature to give data of any value.

We are aware that we have harped on this subject of really useful seaplane services in and out of season for years, but in our opinion the development of the seaplane for commercial air work is one of the most important problems of the immediate future, and we therefore feel that we need make no apology for returning to it again and again. The Marquis de Pinedo, in his paper before the Royal Aeronautical Society, was emphatic on the very points which we have raised in FLIGHT time after time during the last few years. Mr. Cobham maintains that a large section of the Cairo-Cape Town route which he recently covered in both directions "is a seaplane job." In the Dominions, particularly Canada, seaplane routes could be organised under almost ideal conditions. Mr. O. E. Simmonds, in his paper before the Institution of Aeronautical Engineers, proved, to his own satisfaction at any rate, that the seaplane is not inferior to the landplane in the matter of useful or paying load per horse-power. The case for the seaplane thus seems to have been made out over and over again. Yet we go on with the Southampton-Guernsey route, getting absolutely no "forrarder."

However, to return to the International Aerial Time-table, if the picture which it gives of British civil aviation is gloomy, it is very different when one takes a wider view and contemplates civil aviation on a European instead of on a British basis. Air lines, either in actual operation or contemplated for the near future, are spreading their net throughout Europe, and are extending as far as Moscow, Belgrade, Bucharest and Constantinople to the east, and to Algiers, Tangier, Casablanca, or even Dakar to the south. France holds a leading position as regards long-distance services, while Germany, vanquished, down-trodden and tied down by restrictions, has either in operation or planned to start shortly no less than thirty-nine separate air lines.

A perusal of the International Time-table leaves one with a feeling of the greatest optimism as regards the future of civil aviation in general, but the picture which it gives of British civil aviation is far from being reassuring; in fact, it is distinctly gloomy.

* * *

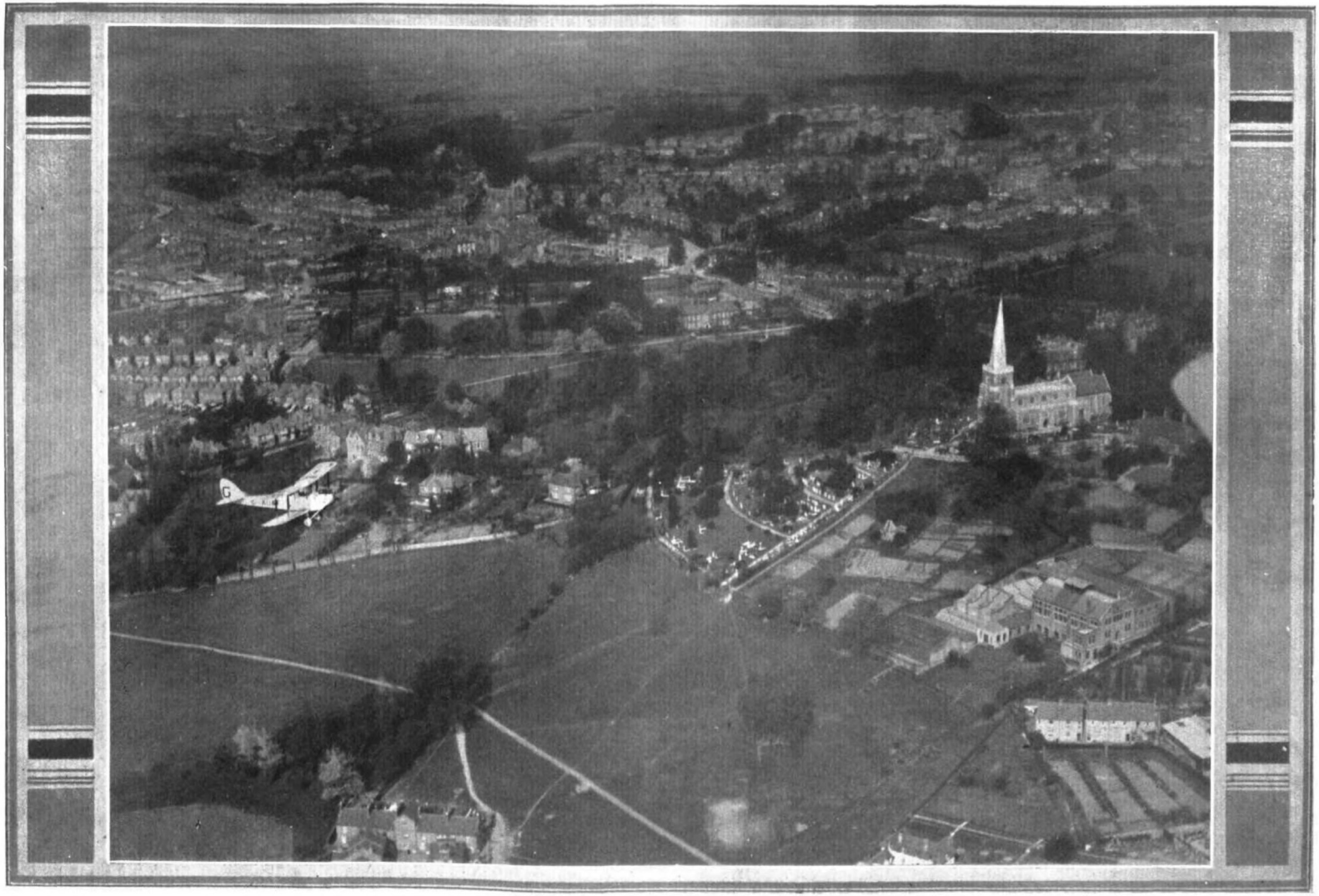
An Interesting Suggestion

A very interesting suggestion has been made by the French engineer, Monsieur Chaffort, of Toulouse, which, if it be found practicable to carry into effect, would seem to offer possibilities for further extending our knowledge of air flow around bodies. According to our excellent French contemporary *Les Ailes*, M. Chaffort's suggestion consists in making use of plastic models in place of rigid models for carrying out wind-tunnel tests. The suggested experiments are, in a way, reminiscent of some earlier experiments carried out by M. Bazin, who towed a square-section bar of soap on a line a considerable distance behind a motor boat so as to get it clear of the wake from the screw. After a time the bar of soap was hauled in, and it was found to have assumed a streamline shape, the author of the experiment maintaining that a body so towed would tend to assume such a shape that the pressure on it was equal at all points.

This idea M. Chaffort proposes to carry further by making aeroplane models (or other bodies, for that matter) of some plastic material, mounting them on the scales of a wind tunnel in the usual way. He suggests that if the material is of a suitable composition, and the air in the wind tunnel is heated to a suitable temperature, the model will, under the influence of the hot-air stream, gradually assume a different form, one conforming more to the air flow. M. Chaffort suggests as an alternative the making of quite rough models of aeroplanes, with their surfaces made sticky, and the introduction into the air stream of some powder, which would then, he believes, settle on the model and gradually build up to the form giving the least resistance. In the case of the "hot air" method (the term has a somewhat unfortunate sound) it is proposed that when the plastic model has assumed what is believed to be a shape of reasonably low resistance the hot-air stream is changed into a cold one, thus causing the model to "set," when it could be tested for lift and drag in the usual way. It is not difficult to foresee problems in the carrying into effect of some such scheme, but there may be ways and means of doing it, and some interesting results should be attained. What is required, of course, is that the model should be worn away in places and built up in others, so that sand-blasting, of which one is at once reminded, would hardly do the trick. Perhaps some ingenious British scientist will come forward with a solution.

NOTICE.

Owing to the General Strike, delay in the printing of "Flight" each week necessarily follows. Each issue weekly will, however, be completed, thus forming an unbroken weekly aeronautical record, and each issue will be distributed as speedily as the unprecedented circumstances will permit.—The Publishers.



["FLIGHT" *Photograph*

THE HARROVIAN: One of the De Havilland "Moths," with "Cirrus" engine, flying over Harrow-on-the-Hill, piloted by Captain Hubert Broad.

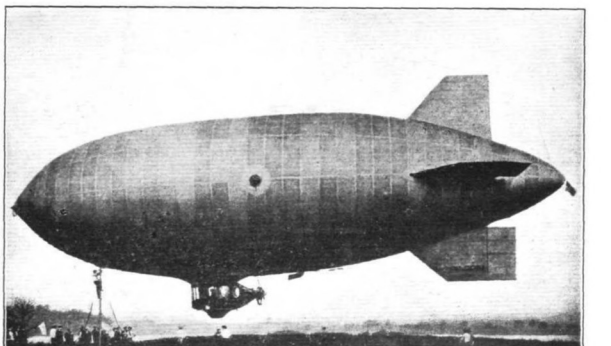
THE GOODYEAR "PILGRIM" AIRSHIP

A New American Sporting Dirigible

MR. H. T. KRAFT, Chief Aeronautic Engineer to the Goodyear Tyre and Rubber Company, of Akron, Ohio, gives some particulars in our American contemporary *Aviation* of an interesting little airship recently produced by his company and tested successfully last July. As the "Pilgrim"—which is the name given to this little ship—possesses many novel features, we think these particulars will be of interest to many of our readers.

The "Pilgrim" was designed for P. W. Litchfield, first vice-president of the Goodyear Company, and, while intended for pleasure cruising, it is also regarded by the manufacturers as a demonstration ship, and it will be employed in certain tests and experimental work. It is one of the smallest dirigibles in the world, being very much the same size as the Italian semi-rigid "Mr." previously described in FLIGHT. As regards type, it should, perhaps, be classed midway between the non-rigid and semi-rigid, for, although it possesses a keel, it is very similar to a non-rigid.

It is 105 ft. in length and about 45 ft. high, and has a capacity of just over 50,000 cub. ft., the gas employed being helium.



The Goodyear "Pilgrim" Type AD Airship: An experimental and sporting airship—one of the world's smallest dirigibles—constructed by the Goodyear Co. of America. It is fitted with a 60 h.p. Lawrence engine and is provided with a portable mooring mast.

Powered with a 60 h.p., three-cylinder, air-cooled radial Lawrence engine, this ship has a maximum speed of nearly 60 m.p.h. and a cruising radius of from 10 to 20 hours—the economy in fuel consumption being exceptionally good. Besides the pilot and mechanic, accommodation is provided for two passengers in an enclosed cabin-car suspended directly under the envelope.

A portable mooring mast has been devised for use with the "Pilgrim," which can be set up anywhere that 250 ft. of level ground is available, and attached to the mast the airship will revolve with the wind.

It is claimed that there is a great future for this type of airship, and its mooring masts should be found at country clubs, private estates, etc., while the holding of airship regattas—in the same way that motor boat and yachting clubs now have similar events—can also be held with success. Personally, we think this small "blimp" type of airship possesses great possibilities from the sporting point of view, as is the case with ballooning—although, of course, "blimping" comes out a trifle more expensive.

The general lay-out of the "Pilgrim" deviates considerably from past practice of non-rigid airship design, the principal changes being in the suspension, nose construction, keel construction, and fin design. This ship has some characteristics of the semi-rigid which allow it to be housed in the hangar at zero pressure without serious deformation of the hull, and thereby considerably reduces fabric tension and the occasion for high diffusion.

The keel is a magnesium girder of triangular section, 21 ft. long, tapering at the ends. It weighs but 30 lbs., and is laced on the inside of the envelope after the ship is inflated. It is readily removable, and full facilities are offered for adjusting any of the suspension cables that radiate to the top of the envelope and then spread out into two longitudinal catenaries. The result is that the hull maintains practically a circular cross section at all times, except for a slight indentation at the point of attachment at the top of the envelope.

The car is suspended to this keel by a series of wires, which are very short and rigid, and the difficulty of adjustment of these cables is entirely eliminated. At the rear of the car is a steel "wishbone" which fastens to the keel at the centre of gravity of the engine. This arrangement acts primarily as a torque arm to relieve the car of the torsional reaction of the engine.

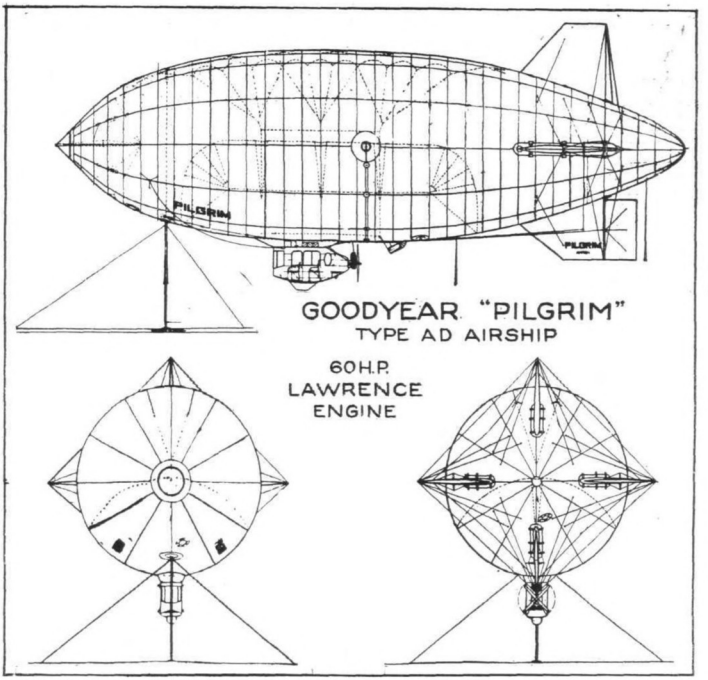
The engine is mounted to a combination rubber fabric base, which is fastened to the car, eliminating any direct mechanical connection between the power plant and the car. The upper end of the "wishbone" is also fitted with similar material to dampen the vibration, and incorporates a ball-and-socket joint to allow free articulation at the point of attachment to the keel. A Reed four-bladed propeller, with spinner, is fitted, giving a higher efficiency than the wooden type and weighing only 32 lbs. The engine is provided with a crescent-shaped exhaust manifold, terminating in an exhaust muffler, which considerably reduces the noise of the exhaust.

The car is constructed of steel tubing, of 0·75 in. diameter and 0·03 in. wall, with a covering of 0·02 in. magnesium sheeting. The windows are of watch-case crystal celluloid, of heavy gauge. Although very light, the car is strong enough to withstand severe landing shocks—one section having been tested with a static load of 5,000 lbs. before it failed. The interior of the car is upholstered in blue mohair velour with mahogany-finished veneer below the window lines. Seats are provided for one pilot, two passengers, and a cockpit at the rear accommodates the mechanic.

All instruments and controls are conveniently located on a board in front of the pilot, with throttle and spark control to the left. A rudder bar is provided for directional control, and a wheel, at the right of the pilot's seat, for vertical control.

The envelope, which has a capacity of 50,000 cub. ft. of helium, has an aspect ratio of 3·4 to 1. Two valves are provided, one for discharging gas in extreme emergencies, and the other for ballonet control. It is claimed for this ship that during all general flying conditions there should be no cause for valving the helium gas owing to the great controllability of the airship dynamically.

A radical departure from usual practice is to be found in the nose cone construction. The structure consists of a 16-ft. long tube, 3·5 in. diameter and 0·03 in. wall, carrying



THE GOODYEAR "PILGRIM" TYPE AD AIRSHIP: Side, front and rear elevations.

six radiating cables which attach to the interior of the envelope. These cables tend to hold the nose out, even at zero pressure. This arrangement is of the self-energising type—resembling a bow and arrow system, where the tube represents the arrow.

Stability being an item of importance on a small airship of this type, large surfaces, well streamlined, were decided upon to give the ship excellent manœuvring qualities. The envelope is 105 ft. 6 in. long and 31 ft. 6 in. diameter, this shape being selected on the score of having less resistance as well as being economical from the standpoint of surface area. But one ballonet is provided with its centre of volume located over the centre of disposable load, so there should never be any serious out-of-trim conditions during flight.

As regards performance, the "Pilgrim" has a speed of 51 m.p.h., and a fuel consumption of 4·6 gals. per hour. While provision is made for carrying two passengers and the pilot, the number carried depends upon the desired cruising radius and the desired ceiling. The petrol tank has a capacity of 32 gals.

The small mooring mast attachment on this ship consists of a 32-in. diameter aluminium spinner securely bolted to a fabric reinforcement located on the underside of the envelope near the nose. This arrangement was made for the purpose of simplicity of attachment and the satisfaction of having a mast that is but 16 ft. high, which can be easily transported and erected in a few moments. Release is either controlled from the ground or from the car, and the mechanism consists of a doll pin, which is withdrawn by a cord and permits the airship to be released at will.

The characteristics of the "Pilgrim" Type AD airship are:—

Length of envelope	105 ft. 6 ins.
Diameter of envelope	31 ft. 6 ins.
Volume (theoretical)	50,068 cu. ft.
,, (5 per cent. stretch) ..	52,570 cu. ft.
Height of ship	44 ft.
Width of ship	40 ft. 9 ins.
Fineness ratio	3·4–1
Surface area	881 sq. yds.
Ballonet volume	13,750 cu. ft.
Do. per cent. of envelope ..	275
Ballonet surface area	219·6 sq. yds.
Area of upper fin	127 sq. ft.
,, lower fin	98 sq. ft.
,, Horizontal fins	238 sq. ft.
,, Rudder	545 sq. ft.
,, Elevators	99 sq. ft.
Length of car	14 ft. 6 ins.
Width of car	3 ft. 9 ins.
Height of car	5 ft. 9 ins.
Weight of envelope	619 lbs.
,, ballonet	115 lbs.
,, tail surfaces	262 lbs.
,, accessories	312 lbs.
Total weight of hull	1,348 lbs.
Weight of complete car	675 lbs.
Gross lift (helium)	2,944 lbs.
Useful load	921 lbs.
,, ,, per cent. of lift ..	32·4
Endurance	6½ hrs. (full), 13 (half) hrs.
Range, miles	330 (full), 525 (half).

ROYAL AIR FORCE REORGANISATION

Formation of Air Defences of Great Britain

THE Royal Air Force gradually assumes coherent shape. Some months ago we commented on the fact that there was at least one Wing Commander in Great Britain who had a wing to command. Before many days have passed our Air Officer Commanding-in-Chief Air Defences of Great Britain, whom we have had with us now for quite a long time, will actually have an Air Defence Force to command-in-chief. The occasion has been seized to carry out a somewhat extensive reorganisation of the R.A.F. units in this country upon a novel basis, the results of which should be considerable simplification in many directions and more unified methods of training.

For the benefit of readers who have not studied the matter, it may be as well to give a brief sketch of the state of affairs which is now passing away. The R.A.F. units in this country were divided between two areas, the Coastal Area and the Inland Area. This applied to all units except Cranwell and Halton and the Special Reserve and Auxiliary Air Force, all of which were commands directly under the Air Ministry. The Coastal Area dealt, and deals, with marine aircraft, aircraft carriers, and naval co-operation in general. It is not affected by the new organisation. The Inland Area contained all the rest, and the units were various. They comprised all squadrons (fighter, bombing, communication, and army co-operation), all stores depots, flying training schools, other schools of instruction, the R.A.F. Central Band, the R.A.F. Officers' Hospital, etc. Some of the units were administered direct by Area Headquarters, among these being two squadrons of fighters, namely, Nos. 23 and 43, both stationed at Henlow. The others were administered by four Groups, numbered 1, 3, 6 and 7. These Groups had a geographical basis. No. 1 Group and No. 6 Group divided between them the stations round London, No. 1 extending through north Kent to include Manston and Eastchurch and westward to Ruislip and Ascot, while No. 6 had Kenley, Biggin Hill, Northolt, Hawkinge, and also threw out an arm northwards to include Duxford. No. 3 Group was mainly concerned with Lincolnshire and East Anglia, though Sealand and Aldergrove in Cheshire also came under it. No. 7 Group was mainly Wessex, stretching from Farnborough to Salisbury Plain. One result of this arrangement was that squadrons and other units whose work was of one particular class were distributed between different groups, and their training could not therefore be as uniform as is desirable. For instance, of the four army co-operation squadrons, three were rightly located within the jurisdiction of No. 7 Group and lived in close touch with the army at Farnborough and Old Sarum, while the other, No. 2, was at Manston and came under No. 1 Group. The defects of this system are obvious, although the geographical system may have simplified inspection by the Group Commanders. The Royal Air Force, at least as regards the regular units thereof, is not organised, as the army is, in a number of territorial units, such as the Essex Regiment, the Devon Regiment, etc. The R.A.F. rather resembles the Royal Navy in that any officer or airman may be transferred from one unit to another. The regular squadrons are not given territorial designations, and no attempt is made to appeal to territorial *esprit de corps*. That being so, there is no valid reason why the groups should be organised on a territorial basis. One of the main features of the new scheme is that this basis ceases to exist, and a functional basis is substituted. We may now proceed to examine the new state of affairs.

Home Defence

The Air Order, No. 1621 of 19/3/26, which deals with the reorganisation, gives the heading "Home Defence" to the force which now comes under the command of Sir John Salmond. It would be preferable to stick to the term "Air Defence," which explains to the taxpayer the purpose of the new force and lends it dignity. The fleet air arm and the four army co-operation squadrons are also being trained for home defence, but in their cases it will be naval defence and military defence, respectively. Sir John Salmond's force is for air defence, as apart from other forms of home defence.

The Air Defences of Great Britain absorbs all the fighter and bombing squadrons in the country except Nos. 15 and 22, both bombing squadrons, which are stationed at Martlesham Heath and are required there for special purposes. The Communication Squadron, No. 24, and the Communication Flight from Northolt, as well as the Night Flying Flight from Biggin Hill, are also taken over. Air Defences deals with no units except the Staff College, squadrons and flights. It has no stores depots. It is not what is called a self-contained force, and there is no reason why it should be so.

Air defences are divided into two areas—the Fighting Area and the Wessex Bombing Area. It may be noted that the second of these two has been given a territorial as well as a functional denomination. No doubt there will be other bombing areas in the not distant future. It must, however, not be thought that the word "territorial" is to be interpreted in too strict a sense, for the stations of Spittlegate and Bircham Newton are both allotted to this area, and even the greatest ignoramus at English history could not imagine that those places ever had anything to do with Wessex. Perhaps the pundits of the Air Ministry remember that at the army manœuvres last autumn Winchester was located in "Mercia," and want to go one better than the War Office in reducing these honoured names of the past to ridicule. The complete list of stations allotted to the Wessex Bombing Area is: Andover, Worthy Down, Netheravon, Spittlegate and Bircham Newton. As stated in FLIGHT recently the headquarters will be at Andover, and the Air Officer Commanding will be Air Vice-Marshal J. M. Steel. At present the units posted to this area are the Staff College and nine bombing squadrons. Two bombing squadrons, Nos. 15 and 22, which are stationed at Martlesham Heath, and are on a special footing, remain under the Inland Area, but will join Air Defences on mobilisation.

The Fighting Area will have its headquarters at Uxbridge, and will be commanded by Air Vice-Marshal H. R. M. Brooke-Popham. It comprises for the present 11 squadrons of single-seater fighters, No. 24 Communication Squadron (on Bristol Fighters), and the two flights mentioned above. The stations allotted to it are: Duxford, Northolt, Kenley, Biggin Hill, Hawkinge and Upavon.

In course of time the stations of the two areas of the Air Defences and of the three groups into which the Inland Area is being reorganised, will be kept entirely separate, and no unit will be located at a station which has not been allotted to the area or group to which it belongs. This means, among other things, that the Central Flying School will be moved from Upavon to one of the stations allotted to No. 23 Group of the Inland Area. For the present, however, for reasons of economy, this part of the programme is being deferred.

The two areas of the Air Defences are not on quite the same footing as the Inland and Coastal Areas, as the two latter are directly under the Air Ministry, whereas the Fighting and Wessex Bombing Areas are under the A.O.C.-in-C., A.D.G.B.

Air Defences also includes the Special Reserve and Auxiliary Command, under Air Commodore J. G. Hearson, with headquarters at Uxbridge. Renfrew, Turnhouse and Aldergrove are its stations, but this list will be increased as new squadrons of the Special Reserve and Auxiliary Air Forces come into being. Hendon will undoubtedly be the first addition to the list.

The Inland Area

The Inland Area remains under the command of Air Vice-Marshal T. I. Webb-Bowen, and before the end of May the headquarters will be moved from Uxbridge to the newly-acquired estate of Bentley Priory, Stanmore, than which few more pleasant residences can be imagined. The area will be organised in three groups on a functional basis, and to mark the commencement of the new order of things all the old numbers of groups are abolished. The three new groups will be known as No. 21, No. 22 and No. 23. No. 21 Group will be the Stores Group, No. 22 the Army Co-operation Group, and No. 23 the Training Group. To some extent No. 21 represents the old No. 1 Group, which has recently moved its headquarters from Kidbrooke to West Drayton, which station will be the headquarters of No. 21. The stations allotted to this group are Kidbrooke, West Drayton, Altrincham, Milton, Ickenham, Ascot, Uxbridge, Shrewsbury, Henlow, Martlesham and Orfordness. Henlow will cease to be an aerodrome, housing only the Home Aircraft Depot, and in course of time Nos. 23 and 43 Fighter Squadrons will be moved elsewhere. Martlesham, however, remains an experimental establishment and aerodrome, although grouped with Stores Depots and cognate units. No. 21 Group will be commanded by Group Captain P. L. W. Herbert.

No. 22 Group, under Air Commodore D. Le G. Pitcher, will have its headquarters at Farnborough, while its other stations will be Old Sarum and Larkhill, both on Salisbury

Plain. Larkhill is the station of the School of Balloon Training, and no doubt will remain so. The School of Army Co-operation and presumably No. 16 (A.C.) Squadron will remain there; but it appears that in due course Nos. 2 and 13 (A.C.) Squadrons will join No. 4 (A.C.) Squadron at Farnborough, where all three will be able to work together at their special task. The group also includes the School of Photography and the Experimental Section, R.A.E. This section is not especially concerned with army co-operation, but it is to be allowed to remain at its old quarters, and therefore it will be convenient to put it under No. 22 Group.

No. 23 Group, under Air Commodore I. M. Bonham-Carter, will have its headquarters at Spittlegate. The stations allotted to it are: Digby, Sealand, Eastchurch, Manston and Flowerdown. It will comprise the C.F.S., the three Flying Training Schools, the Armament and Gunnery School, the School of Technical Training (Men), and the Electrical and Wireless School.

The re-grouping of commands should be in full working order before the end of May. As stated above, the redistribution of stations will take place by degrees, and in the interim the new scheme will not produce its full effects. It is a scheme boldly conceived on broad lines, which should not only facilitate uniformity of training in each branch of the service, but should serve as a groundwork on which it will be easy to expand when expansion of the Royal Air Force comes to pass.

F. A. DE V. R.

THE ROYAL AERO CLUB OF THE U.K.

OFFICIAL NOTICES TO MEMBERS

GORDON BENNETT BALLOON RACE

GREAT Britain will be represented by three balloons in the Gordon Bennett Balloon Race to be held at Antwerp on May 30, 1926.

The following countries are competing:—Italy, Belgium, Spain, United States of America, France, Switzerland and Great Britain.

The following are the British Competitors nominated by the Royal Aero Club:—

"Bee"

Entrant, The Airship Club; *pilot*, G. F. Meager; *aid*, Flying Officer M. H. Steff.

"Miramar"

Entrant, C. W. Berry; *pilot*, C. W. Berry; *aid*, Capt. C. W. Spencer.

"Banshee"

Entrant, Mrs. John Dunville; *pilot*, Squad.-Leader F. A. Baldwin; *aid*, R. L. Dunville.

The Gloucestershire Aircraft Co., Ltd., owing to the large amount of experimental work in hand will not be able to take part in this year's Light Aeroplane Competition. They have, however, sent £100 to the Royal Aero Club towards the expenses of the Competition.

LIGHT AEROPLANE CLUBS

THE Gloucestershire Aircraft Co., Ltd., of Cheltenham have, with a view to assisting the development of private flying, notified the Royal Aero Club that they will give every facility to Members of all Aero Clubs alighting on their aerodrome at Brockworth near Cheltenham. No landing fees will be charged and all facilities will be given free of cost.

Offices: THE ROYAL AERO CLUB,
3, CLIFFORD STREET, LONDON, W. 1.

H. E. PERRIN Secretary.

LIGHT 'PLANE CLUB DOINGS

London Aeroplane Club

FLYING was possible on only two days during the week ending May 2, and the flying time was 7 hours, 10 mins.

The following Members had flying instruction:—Sir John Rhodes, Bart., E. D. Moss, A. Lees, A. R. Ogston, R. J. Bevington, Dr. Wall, E. Wallcousins, W. E. P. Johnson.

The following Members made solo flights:—J. S. M. Michie, P. G. Lucas, W. Hay, A. R. Ogston, R. J. Bevington, E. P. Brough.

The third D.H. "Moth" G-EBNP was handed over to the Club on Friday last. G-EBLI which has been in constant use since January last has been taken out of service for overhauling and for dual ignition to be installed in the engine. The total flying for the month of April on the one Club machine was 69 hours 48 mins. Mrs. Elliott-Lynn on her own D.H. "Moth" completed 82 hours 28 mins. during April.

The Newcastle-upon-Tyne Aero Club

THE weather was again very unfavourable, the whole countryside being enveloped in thick fog for three successive days. Sunday proved a welcome change, though there was a strong wind, until about 5 p.m., when the wind dropped and fog rolled over again, though Major Packman gave half an hour instruction in landings to Mrs. Marcks.

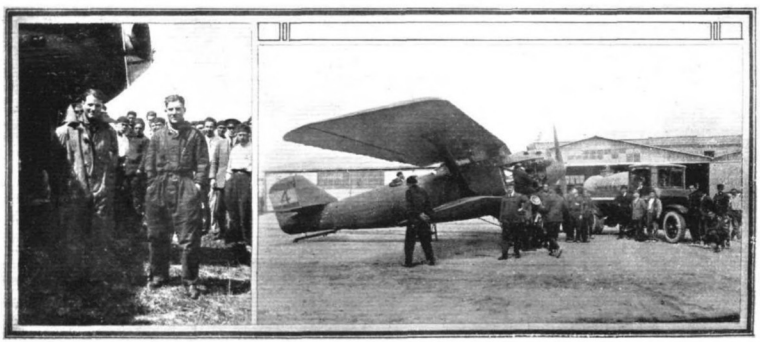
The times flown were as follows:— LX 14 hours 30 mins., LY 2 hours 55 mins., total 17 hours 25 mins.

The following members flew under instruction:—Miss Leathart, Mrs. Marcks, Mr. MacMillan, Mr. Miesegaes, Col. Sir Jos. Reed, Mr. L. Smith, Mr. C. Thompson, Mr. Ivan Sutherland, Mr. A. D. Bruce, Mr. Campbell, Mr. W. B. Harrison, Mr. W. Palmer, Mr. W. Todd, Mr. J. Bell.

Mr. R. N. Thompson flew with passengers on Saturday and Sunday. Mr. N. S. Todd took off with a passenger on Sunday evening in bright sunshine, but within 5 minutes a very heavy fog rolled over the aerodrome and he landed immediately after only 5 minutes flight.

The following flew as passengers with Major Packman, during the week:—Master Bell, Mr. Smith, Mr. and Mrs. Jack Hylton and Mr. Sampson.

The Club was honoured both on Friday and Saturday with visits from Mr. Jack Hylton and members of his orchestra. On Friday flying was impossible, but they were rewarded on their return visit on Saturday when Mr. and Mrs. Hylton and Mr. Sampson flew. Mrs. Hylton thoroughly enjoyed a full series of stunts.



THE SPANISH FLIGHT TO MANILA: Our first picture shows Capt. Estevez (left), leader of the Madrid-Manila flight, and his mechanic Calvo, who were lost in the desert near Amman for seven days before being found by a R.A.F. pilot. The second picture shows one of the three Breguet IX machines filling up with "Shell" at Madrid prior to the start on April 5.

WORLD'S AIR RECORDS

As our readers are probably aware, the Federation Aeronautique Internationale recently reviewed the conditions governing the aviation records recognised by the F.A.I., with the result that several modifications in the various categories were agreed upon. We think, therefore, this is a good opportunity to publish the following particulars of the revised categories under which Records will be recognised by the F.A.I. as from July 1 next.

CLASS A. (*Free Balloons*).—(For each of the categories of recognised cubic capacity) ; (1) Duration (without landing) ; (2) Distance (without landing) ; (3) Height.

(Irrespective of Categories).—(1) Greatest duration (without landing) ; (2) Greatest distance (without landing) ; (3) Height.

CLASS B. (*Airships*).—(1) Duration (returning to the point of departure without landing) ; (2) Distance (returning to the point of departure without landing) ; (3) Height (returning to the point of departure is optional) ; (4) Speed over a given distance in a closed circuit, without landing) OF 100, 500, 1,000, 2,000, 3,000 kilometres.

CLASS C. (*Aeroplanes*).—(1) Greatest duration (in a closed circuit without landing); (2) Greatest distance (in a closed circuit without landing) ; (3) Greatest distance in a straight line (without landing). (This record must be beaten by at least 100 kilometres). (4) Height (returning to the point of departure is optional) ; (5) Greatest speed over a straight line course ; (6) Speed (over a given distance), 100, 500, 1,000, 2,000, 5,000 kilometres. (Note, the 200 kilometres has been withdrawn) ; (7) Useful load with 500, 1,000, 2,000, and 4,000 kilos. (*a*) Duration ; (*b*) Distance ; (*c*) Height ; (*d*) Speed (over 100, 500, 1,000, 2,000 5,000, kilometres) ; (*e*) Greatest useful load transported to a height of 2,000 metres. (Useful load must be dead weight. The weight of oxygen cylinders and all accessories which can be used by the crew does not count in the useful load.) (8) Refuelling during flight.—(*a*) Greatest duration (in a closed circuit without landing) ; (*b*) Greatest distance (in a closed circuit without landing).

CLASS CA. (*Seaplanes*).—(1) Greatest duration (in a closed circuit without alighting) ; (2) Greatest distance (in a closed circuit without alighting ; (3) Greatest distance in a straight line (without alighting) ; (This record must be beaten by at least 100 kilometres.) (4) Height (returning to the point of departure is optional) ; (5) Greatest speed over a straight line course ; (6) Speed (over a given distance for 100, 500, 1,000 2,000, and 5,000 kilometres ; (7) Useful load with 500, 1,000, 2,000, 4,000 kilos for (*a*) Duration ; (*b*) Distance ; (*c*) Height ; (*d*) Speed (over 100, 500, 1,000, 2,000, 5,000 kilometres) (*e*) Greatest useful load (see 7 (*e*) Class C), transported to a height of 2,000 metres ; (8) Refuelling during flight.—Greatest duration (in a closed circuit without alighting) ; greatest distance (in a closed circuit without alighting).

CLASS D. (*Gliders*).—(1) Duration (returning to the point of departure without landing) ; (2) Distance (returning to the point of departure without landing) ; (3) Distance in a straight line (without landing) ; (4) Height (above point of departure) ; (5) Speed (in a closed circuit of not less than 1 kilometre without landing).

CLASS G. (*Helicopters*).—(1) Duration (returning to the point of departure without landing) ; (2) Distance (returning to the point of departure without landing) ; (3) Distance in a straight line (without landing) ; (4) Height (above point of departure).—Minimum 10 metres ; (5) Speed (over a given distance without landing) for 1, 10, 100, and 500 kilometres ; (6) Useful load (*see* 7 (*e*) Class C), with 200, 500, and 1,000 kilos for duration (in a closed circuit without landing) ; distance (in a closed circuit without landing) ; Height (above point of departure) ; Speed (in a closed circuit without landing) for 1, 10, 100, and 500 kilometres.

The following notes refer to details regarding the control of various classes of records.

Speed Records.—In all speed records, aircraft must pass the starting line in horizontal flight and not enter the course by diving.

CLASS C.5.—These records must be made over a straight line course of 3 kilometres, particulars of which must be deposited with the F.A.I. for approval. Two posts fixed in concrete shall indicate the two extremities of the course of 3 kilometres ; two other posts shall indicate a distance of 500 metres at each end of the course. The course must be covered twice in each direction in one flight and at a constant height of not more than 50 metres, which must also be the height of the machine for 500 metres before entering the course.

The height attained during the flight, from start to finish must not exceed 400 metres. This must be verified by the Officials and a barograph. The speed of each of the four flights over the course must be calculated, and the average of these four speeds shall be the speed for the record. The record must be beaten by at least 8 kilometres an hour.

CLASS CA.5.—Records for greatest speed over a straight line course for seaplanes, come under the same regulations as for aeroplanes (Class C.), except as regards the marking of the course of 3 killometres and the height at which the seaplane must fly over the course. The course must be marked out by two parallel upright posts 3 kilometres apart, and these must be clearly distinguished by two parallel lines in such a way that it is possible for the pilot to cover the course of 3 kilometres over the water.

The stipulation regarding the 500 metres before entering the course stands, and the maximum height allowed when flying over the course is 150 metres.

For the purpose of indicating the course, buoys may be placed on each of the lines, but the times taken between the two posts shall be the only times taken for calculating the speed. The buoys should mark the maximum distance from the land at which the seaplane may fly.

The posts used for observation and marking the course must be placed in concrete foundations.

Seaplanes shall only establish records for greatest speed over a sea course, and not on any course over land.

Particulars of the course must be deposited with the F.A.I.

It must be stated by the Officials that the seaplane started and finished on the water.

Control of Height Records.—The aircraft shall be provided with one or two sealed barographs which must be attached and sealed to the aircraft. Suspension by elastic is allowed. The barograph may only be detached from the machine by the Official observing the test, except in Class A, when it may be done by the pilot.

In the case of aircraft carrying two barographs, one of these shall be regarded as the official barograph and must be designated as such before the test. The second barograph shall only be examined if the official barograph has failed to record the flight. The examination of the barograph shall not be undertaken until 24 hours after the test.

The pressure reading shall be interpreted by calibration of the instrument under an air pump, in the course of which a diagram must be produced similar to the one to be verified. This calibration must be carried out at an official laboratory under the responsibility of the National Federation. A certificate of such calibration shall be attached to the documents. The pressure at the point of departure of the flight shall be taken as 760 m.m.

The height attained shall be determined by barometric pressure converted into metres by means of a standard table irrespective of the height of the point of departure and the pressure at this point at the time of the test. This table is published by the F.A.I., and must be used by all countries of the F.A.I.

The barograph must not be used for at least 24 hours either after a flight or after being under an air pump.

Height records must be beaten by at least 100 metres.

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Busk Studentship in Aeronautics

WE are notified that a vacancy has arisen for the Busk Studentship in Aeronautics for the year 1926-7. This Studentship, which has been established in memory of Edward Teshmaker Busk who lost his life in 1914 while flying an experimental aeroplane, is of the value of about £150, tenable for one year from October 1 ; but a student may be appointed on the same terms for a second year. It is open to any man or woman being a British subject and of British descent who has not attained the age of 25 years on October 1 next. The object of the Studentship is to enable the holder to engage in research, or preparation for research in Aeronautics, and the student will be expected to devote his whole time to research on a subject approved by the Trustees and at the close of his studentship to make to them and to the University of Cambridge a report on his work. Full particulars can be obtained from Prof. Melville B. Jones, Engineering Laboratory, Cambridge.

THE FIAT "A-20" AERO ENGINE

OFFICIAL Government (Italian) tests, which comprised 75 hours consecutive running at full power, were recently accomplished by a new aviation engine built by the Fiat Company, of Turin, with results which were satisfactory in every way, and which have maintained the good name always associated with this well-known Italian House.

This new engine, the Fiat A-20, which is a twelve-cylinder V-type engine with a direct-driven propeller, met all the preliminary requirements of the Italian Government test and considerably exceeded those requirements in the matter of weight, power output and fuel and oil economy. It was stipulated that the engine should develop 400 h.p. at 2,200 revolutions, with a weight not exceeding 340 kilogs. (749 lb.), water included. In its preliminary tests the Fiat developed 430 h.p. at 2,002 revolutions, and its weight was 320 kilogs., including cooling water, propeller boss and the starting device.

Under fuel consumption tests very satisfactory results were obtained, the petrol consumption being 220 grammes per horse-power-hour at an engine speed of 1,800 to 2,200 revolutious, and the oil consumption being 10 grammes per horse-power-hour. During the 75 hours' continuous test, when 370 h.p. had to be maintained at 2,060 revolutions, the average petrol consumption was 205 grammes per horse-power-hour, and the oil consumption did not exceed 10 grammes.

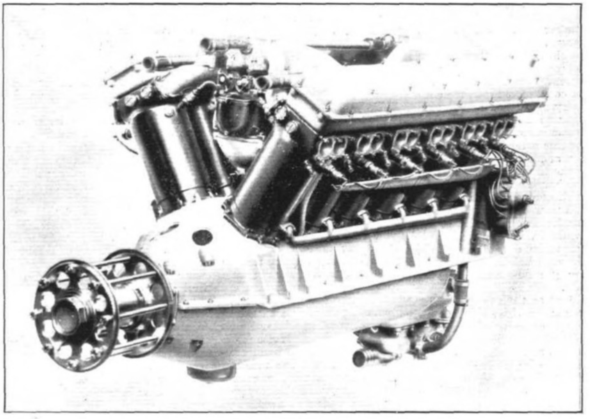
As the result of these trials the Fiat A-20 has been accepted with an international horse-power of 410 at 2,060 revolutions. By reason of its high horse-power and its low total weight, combined with its very low petrol consumption, it makes possible a flying range not hitherto attainable with big-powered commercial engines.

Other types of engines for use on air liners and long distance reconnoitring machines are now under construction at the Fiat works, thus proving that Italian vitality in aviation is just as great as in other branches of that nation's activities.

From the accompanying illustration it will be noticed that the Fiat A-20 is extremely clean in outward design. The valve operating gear, camshaft, etc., for each bank of cylinders are enclosed in a single casing. Two carburettors are provided, located between the cylinder banks, one at each end, and each supplying three cylinders on each bank.

The two magnetos, together with the camshaft drive, are located at the rear end of the engine, the water pump being mounted below the crankcase at the same end. Each cylinder is provided with two sparking plugs, one on the inner side and one on the outer.

The bore and stroke of the cylinders are 115 mm. and 150 mm. respectively. The overall length of the engine is 1,645 mm. (5 ft. 5 in.); the width 645 mm. (2 ft. 1·4 in.); and the height 845 mm. (2 ft. 9·3 in.). The weight of the engine complete and ready for starting is 317·5 kilogs. (700 lb.).



The F.I.A.T. A-20 Aero Engine: Italy's latest aero engine, a 12-cylinder water-cooled V developing 400 h.p. at 2,200 r.p.m. and weighing 320 kilogs. (705·6 lb.), including water, propeller boss, and the starting device.

R.A.F. Cairo-Cape-Cairo Flight

THE four R.A.F. Fairey IIID aeroplanes (Napier "Lions") under Wing-Commander Pulford, which left Cape Town on April 19, on the return flight to Cairo, reached Pretoria, on April 22, where they will remain for some time.

Danish Flight to Tokyo

IT is reported that Lieut.-Botved, the Danish pilot who is flying from Copenhagen to Tokyo in a Fokker machine, had a somewhat unpleasant time during his enforced stay at Ninghai, where he was forced to land owing to lack of petrol. His reception by the inhabitants was by no means friendly, although not actually hostile. Lieut. Botved and his mechanic got away on April 23, however, and arrived safely at Shanghai. Continuing on April 29, en route for Peking, engine trouble brought them down at Yuchang.

Spanish Flight to Manila

CONTINUING their flight to Manila, the two Spanish airmen, Capts. Gallarza and Loriga, left Bangkok for Saigon on or about April 25, then proceed to Hanoi, Capt. Loriga landing at Hue en route. On May 1 they left for Macao, where Capt. Gallarza damaged his machine on landing. His companion failed to get there, and at the time of writing there is no news of his whereabouts.

New Air Services into Switzerland

THIS spring will see several new services in operation running into Switzerland from various points. The aerodromes at Basle, Lausanne, Geneva, Chaux-de-Fonds, and Zurich will be linked up with London, Amsterdam, Lyons, Paris, Budapest, Vienna, Nuremberg, Karlsruhe and Berlin, as well as with many intermediate towns that lie along these routes. Several new services have been added this year, including an important line between Berlin and Zurich. It will now be possible to go by aeroplane from London to Basle direct, halting only at Paris. The various services are as follows:—Now in operation: Basle—Nuremberg, Basle—Zurich, Basle—Amsterdam, Basle—Karlsruhe, and Zurich—Budapest. Open May 3: Basle—Lyons, Geneva—Zurich, and Zurich—London. Open May 15: Basle—Chaux de Fonds (French Switzerland).

THE ROYAL ACADEMY BANQUET

Sir Samuel Hoare Responds for the Air Force

SIR SAMUEL HOARE, Secretary of State for Air, in responding on behalf of the Air Force on the occasion of the Royal Academy Banquet at Burlington House on May 1, referred to the fact that the President year by year did honour to a new Force that, although it was only eight years old, was not unworthy to be linked with the two great senior Services. Year by year, also, he honoured by this toast the great company of men of thought and action who, especially in these last years, had devoted their efforts, and often their lives, to the conquest of the air.

Was it not significant, said Sir Samuel, that the great adventure of flying had proved a magnet to the most alert thinkers of many succeeding generations—whether it be to such minds as the mind of Roger Bacon, the most original thinker of the Middle Ages, or to such imaginations as the imagination of Leonardo da Vinci, the furthest sighted prophet of the Renaissance? It was surely then not inappropriate that his (Sir Samuel's) audience, representing so worthily the arts and sciences of the country, should show its continued interest in a discovery and invention that so many great men had struggled to achieve.

As to the Royal Air Force, he was happy to state that it was substantially stronger than it was when he responded for this toast a year ago, its training was constantly developing, and every effort was being made to take full advantage of the teachings of British science in its equipment. Perhaps in view of certain intermittent criticisms, it was worth repeating that the Royal Air Force was the greatest flying force in the world. Although in size it was far from being the greatest Air Force in the world, according to the latest figures available, its hours of actual flying had exceeded, not only proportionally, but absolutely, the flying hours of any other Power. Let those critics who spoke of an Air Force tied to the ground remember this conclusive and unanswerable fact.

Just as the country was more and more fully realising the excellence of its air arm, so, he believed, was it beginning to grasp the value of air power in the field of Imperial defence. Hitherto, the British taxpayer, looking at the Service Estimates, had discovered the mournful fact that the most conspicuous result of the war to end war had been the addition of a third defence expenditure to the two that had formerly existed. If this piling of Pelion upon Ossa was to be stopped, some way must be found for using the new arm as a means of economy, and not as a cause of additional expense. Was the answer to this problem to be found in the great mobility of air power? Could we, by the use of Air Force in the Empire, help to get a quicker "turn over," to use a business metaphor, of our defence resources? This was a question of great importance and complexity, and he did not wish to give a dogmatic answer. He would only say that the first step towards an answer must be found in the organization of Empire air routes along which Air Force could be moved quickly and safely from one end of the Empire to the other. When the routes were marked out and prepared, and squadrons could pass swiftly from one Imperial territory to another, the country would, he believed, find that the mobility of air power had put into its hands an instrument of real economy. Let those who were interested in the problem follow the first efforts that they were already making in this direction. We were beginning to organize our long-distance routes. We were beginning to send service units upon long-distance flights in the ordinary course of their training. Such a flight was the flight of the three machines that at the beginning of last November flew from Egypt to Nigeria and covered in a few flying hours country that it would have taken months to traverse in any other way. Such a flight was the flight that was now more than half completed between Cairo and Cape Town. In this case we had witnessed four service machines flying in formation across the African continent, a distance of 5,289 miles, over every kind of country and through great variety of climate, with a regularity and punctuality that was worthy of a pre-war Bradshaw. The flight had already started without mishap upon its return, and he took this opportunity of announcing that, if all went well, the homeward journey would not end in Egypt, but would bring the machines and their crews to these shores, where in a few weeks we could give them the welcome that they deserved.

If he needed a further example of the mobility of Air Force and of its power to defeat time and distance, he would remind them of an incident of a different kind that had taken place during the last few weeks. The leader of the Spanish flight to Manila was, in passing over Trans-Jordania, lost in the desert. For six days he and his companion were missing. Hour after hour, 24 machines from the neighbouring commands scoured the desert, covering in their search some 16,000 square miles. At length they found Captain Estevez. Nothing but the search of aeroplanes could have saved this airman's life. Nothing but aeroplanes could have scoured in so short a time these great expanses of trackless country. He was proud to think that the British Air Force was able to give such ready and effective help to the officer of the sister force of Spain.

These incidents, concluded Sir Samuel, he had ventured to mention as illustrations of the way in which Air Force could, owing to its mobility, be used to the advantage of the British Empire and to the good of the world. It was for this generation to insist that the great discovery of flying, sought and won after many centuries of endeavour, should simplify and not complicate the problems of Imperial defence, should mean economy and not additional expense in the field of national expenditure, and should, instead of making war more terrible, make peace more secure by uniting the Empire and bringing the countries of the world more closely together.

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A Lithuanian Biplane The first aeroplane to be constructed in Lithuania, by Linenau and Co. Fitted with a Napier "Lion" engine it is stated to have a speed of 160 m.p.h. and to have reached an altitude of 17,000 ft. in 17 minutes.

FLIGHT

SIR SEFTON BRANCKER ON "AIR TRANSPORT"

Résumé of a Paper Read at the Junior Institution of Engineers

AIR VICE-MARSHAL SIR W. SEFTON BRANCKER, Director of Civil Aviation, gave much interesting and useful information concerning air transport on the occasion of the fifth Gustave Canet Memorial lecture, which he delivered before the Junior Institution of Engineers on April 30. Unfortunately, pressure on our space will only allow a comparatively brief résumé being published here, and much interesting matter must necessarily be omitted.

Sir Sefton explained the position of Imperial Airways, the national company, and showed by figures and maps the work it is doing with the aid of the Government subsidy. He said that in no case within Europe had air transport paid its way; it existed only by the grace of subsidies, the systems of application varying in each country. The British company had complete freedom in its policy, and had been restricted in its activities only by certain international difficulties, which seemed likely to vanish in the near future. The company, and its predecessors, had already carried over 70,000 passengers across the Channel, with only four fatal accidents.

The first Empire air link outside Europe was about to be established. Imperial Airways had accepted a contract to operate a fortnightly service between Cairo and Karachi via Baghdad, and the new enterprise would commence on January 1, 1927. In the contract four days were permitted for the voyage of 2,500 miles, but it was proposed ultimately to perform the journey in 30 hours. Meanwhile, it would be the responsibility of the Indian Government to carry on the route from Karachi to Calcutta and Rangoon, and connection would eventually be made with Australia.

The British Government had definitely decided to go on with airship development, and two big ships were at present on order. The present plan was to operate an experimental service to India with these two ships, with a base at Karachi and a temporary calling station at Ismailia.

The most difficult problem which confronted air transport was the reduction of costs to a level at which the new form of locomotion could pay its way without financial assistance from the Government. Available data went to prove that the total cost of carriage by air was about 5*s.* a ton-mile at 90 miles an hour. That was, obviously, too high a figure to attract any considerable volume of freight; it was very high, but not impossible, for passenger traffic, and it could be accepted as a legitimate charge for carrying first-class mail matter at high speed.

The predominant factors in the financial problem were overhead charges, operating costs, and revenue. Obsolescence and depreciation were usually estimated at 20 per cent. per annum, but that was not sufficiently high to meet the constant flow of improvements in design which offered themselves. Already, since 1919, two complete generations of aircraft and one of engines had passed away. Most of the existing machines ought to be replaced by all-metal craft fitted with air-cooled engines and provided with stability and economy devices.

As regards engine maintenance, it was to be noted that about 60 per cent. of engine defects were due to the water system, valve breakage or distortion, or oil circulation.

The development of the heavy-oil engine for use in the air was going on steadily. The engine was appreciably heavier than the normal petrol engine, but showed considerable saving in weight of fuel burnt per horse-power.

A comparison of fares and approximate times by ordinary means of transport and air transport indicated that there was an average of about 5*s.* extra cost for each hour saved, not counting the fact that the journey by air saved appreciably in tips, taxis, meals, and sleeping berths.

In conclusion, Sir Sefton said that mutual understanding and co-operation depended on time, not on space. With an airship service flying at a cruising speed of 60 m.p.h., New Zealand would be where Somaliland was to-day, Australia would come up to Aden, India to Egypt, and Canada two-thirds of the way across the Atlantic. These were possibilities which could not be neglected, no matter what it might cost to bring them about.

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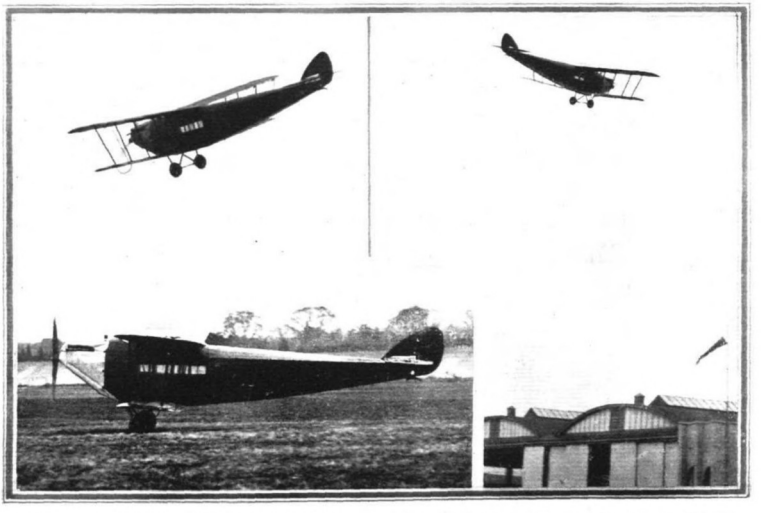

COMMERCIAL MACHINE FOR AUSTRALIA: The A.N.E.C. III taking off for a flight at Brooklands aerodrome. Inset, two views of the machine in flight. Note the very small rudder.

CORRESPONDENCE

The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.

SPEED AND USEFUL LOAD

[2134] In his letter in your issue of April 8, concerning the question of power loading as treated in his paper on "Civil Marine Aircraft," Mr. O. E. Simmonds made a reference to a formula used in our propaganda material as a basis of comparison for different commercial aeroplanes, and I shall be grateful if you will grant me an opportunity to express our views concerning this point.

If my memory serves me right the "flowers" to which Mr. Simmonds refers—that is, those "that bloom in the spring, tra-la, *had nothing to do with the case.*" The inference is that the introduction of the factor "speed" has nothing to do with a comparison of commercial aircraft.

I dare say that if one looks at the question simply from *this* point of view—that, given a certain load to be transported over a certain distance, the best solution is that which means the use of the smallest motor-power, irrespective of any consideration of speed—Mr. Simmonds is perfectly right.

However, in all transport problems the question of speed crops up in a most disconcerting manner, upsetting all those nicely-made calculations which are based on the assumption that the most economic solution is *per force* the best one.

There are fast steamers and slow ones; there are express trains, fast freight trains and slow freighters, etc.; and in every branch of transport we encounter the same problem—in how far does speed rank equally with load transported per horse-power? The answer is really always the same—the relative importance of the speed factor depends solely on the nature of the load to be transported.

Now Mr. Simmonds maintains that "it will be a long while before speed as such will rank equally with load carried per horse-power," and for that reason seems to be of opinion that our firm should refrain from urging the use of a formula for comparison in which speed enters on the same basis as load per horse-power, but I believe that those who have had to do with civil aviation will agree that "speed as such," if not the only, is certainly one of the advantages of this mode of transport, and that the very nature of the load to be transported asks for speed.

In the first period of civil aviation there has been a tendency to *overestimate* this value of speed. Experience has been gained and we now know that—as Mr. Fokker said in an article in No. 15 of *Airways*, 1925—"there is a relation between the cost of speed and the value of time-saving," and that thus no good can result for civil aviation from the use of machines, in which the attainment of high speed has been the *chief* consideration.

But, on the other hand, it is obvious that we should not make the equally bad mistake of *underestimating* the importance of speed and, although I do not suppose that Mr. Simmonds makes this mistake himself—still, the wording of his letter might easily lead others to make it.

All commercial machines have to fulfil some conditions, which are practically the same all the world over, and of which the most important is, perhaps, that the rate of climb fully loaded at sea level should be more than 400 ft. per minute.

What we contend is simply the home truth that of any two commercial machines fulfilling such fundamental requirements and carrying the same load per horse-power, the one which has the better speed is the most efficient, or that of any two machines, having the same speed, the one which carries the bigger load per horse-power, is to be preferred, and that if both speed and load per horse-power are different, the machines should be judged on the combined merits of both. Our formula does not overestimate the value of speed, for in those cases where "speed as such" has been obtained at the detriment of carrying power, this will show in the result, because the necessary motor power is proportional to the cube of the speed, while carrying power, other considerations being equal, depends on the square of the speed. Our formula simply indicates, whether from considerations of aerodynamical "finesse" one machine is better than the other.

Mr. Simmonds also reproaches our formula for the "usual slovenliness," and in this respect we agree to a certain extent.

The original form of our formula was, as far as I am aware, first published in a paper, which Mr. Fokker read before the Royal Institution of Engineers at Amsterdam on March 17, 1925 (published in the proceedings in *De Ingenieur*, 1925, No. 44), and referred then to the product of "route-speed" by paying load per 100 h.p. for a given distance.

Speaking of this efficiency in his already-mentioned article in *Airways*, Mr. Fokker says:—

"Efficiency, of course, is not only a question of high lift, but there is also the factor of speed to be considered. A high-speed machine is not economical in the sense which we attach to that word, nor is a very slow machine, though it may be highly efficient inasmuch as it takes a large paying load, because it gets into serious difficulties when flying against a strong head wind.

"If one compares a number of machines all equipped to fly a given distance with their ordinary route-speed (by which I do not mean cruising speed, but actual average speed over a given route from start to finish), and have them loaded up with a paying load, one can form a better idea of their economic efficiency by comparing: the product of their route-speed with the number of tons paying-load per hundred horse-power."

Without a doubt this way of expressing efficiency will find approval in Mr. Simmonds' eyes: at least it does not suffer from the "slovenliness" which he finds in our formula.

There is, however, a drawback to its application—it is practically impossible to get the necessary data for this comparison.

When Mr. Fokker read his paper before the Royal Institution of Engineers, he showed a slide on which for a number of machines of different makes the efficiency according to the "route-speed by tons per 100 h.p. paying load for given distance" method was calculated, but this was only possible through the courtesy of different civil-aviation authorities, who could supply exact data of these "route-speeds," *actual* paying loads (being total loads minus pilots, equipment and fuel and oil weight for the given distance of, say, 400 miles) and so on.

Such data are very rarely obtainable, and then only of machines that have been in service for some time on regular air-lines and, therefore, it is generally not feasible to use the formula in its original form.

For that reason we have gone to the next best solution, which is the formula as propounded in our propaganda-bulletin.

The load carried is composed of paying load + pilots + fuel and oil, and as the type of engine(s) used is known, it is possible to estimate approximately what part of the total load will be taken up by fuel and oil for a certain number of flying hours or for a certain distance.

Also the use of the factor maximum speed is not illogical, as it is clear that the higher the maximum speed, the higher will be the "route-speed."

Therefore the formula as applied by us, although suffering in a slight degree from that slovenliness to which Mr. Simmonds objects, is none the less useful as a basis of comparison. We do not contend that the "efficiency coefficient" thus obtained has any scientific value, but it certainly has its practical value for the aeroplane-user in that it gives him an insight in the fundamental characteristics of the machines under comparison.

As this is what we have been aiming at, we think that, notwithstanding Mr. Simmonds' objections, we will continue the use of it, at least until more detailed data of commercial machines than those at present available, will be common knowledge.

B. STEPHAN

N.V. Nederlandsche Vliegtuigenfabriek
"Fokker."
Amsterdam, April 22, 1926.

◈ ◈

The Care and Maintenance of the "Cirrus" Engine

WITH the ever-increasing use of the D.H. "Moth" biplane, fitted with the 27-60 h.p. A.D.C. "Cirrus" engine—quite apart from the fact that this engine is establishing itself in other spheres of activity—the little brochure entitled "Notes on the Care and Maintenance of the 'Cirrus' Engine," just issued by A.D.C. Aircraft, Ltd., of Kingsway, London, W.C. 2, should be much in demand. The book is well compiled, and contains, together with numerous illustrations, much technical information, both practical and interesting, on this remarkably successful engine.

The first section deals with a complete description of the engine, then follows some notes on the lubrication, ignition and carburettor systems. The remainder of the book is devoted to the dismantling, examining and assembling of the engine, valve timing, running instructions, maintenance, etc.

FLIGHT

THE ROYAL AIR FORCE

London Gazette, April 27, 1926

General Duties Branch

The following Flying Officers are granted permanent commns. in this rank :—M. W. C. Ridgway ; Jan. L. E. N. T. Edwards (Lieut., R.A.); April 28. The following Pilot Officers are promoted to rank of Flying Officer :—L. A. Eggleshell ; Feb. 8. H. Walker ; Feb. 8. A. C. Evans-Evans (Sec. Lieut., Northants R., T.A.) ; March 8.

Flying Officer on probation A. P. K. Hattersley is confirmed in rank ; March 30. The following Pilot Officers on probation are confirmed in rank :—A. E. Hamilton ; March 22. J. E. Bolt, E. G. Cayley, R. E. Hall ; March 28. L. A. Anderson, F. F. Barrett, F. N. Garthwaite, D. J. Harrison, E. A. T. Murray ; March 30. W. G. W. Fahey ; April 7.

The following Flying Officers are transferred to Reserve, Class A :—K. R. Thomas ; April 28. W. N. Lancaster ; April 30. Flight-Lieut. A. Wombwell (Lieut., Lines R., R.A.R.O.) relinquishes his short service commn. on ceasing to be employed, and is granted permission to retain rank ; April 25. Flying Officer C. C. Musselwhite (Lieut., Middx. R.) relinquishes his temp. commn. on return to Army duty ; April 24.

Accountant Branch

Flight-Lieut. L. J. Marden is transferred to the Reserve, Class C ; April 21.

Medical Branch

Flying Officer G. P. O'Connell, M.B., is promoted to rank of Flight-Lieut. ; April 23. Flight-Lieut. J. B. Woodrow is transferred to Reserve, Class D.2 ; April 24.

Memoranda

Gazette of Sept. 1, 1925, concerning Capt. C. Lawrence is cancelled.

Reserve of Air Force Officers

The following are granted commns. as Pilot Officers on probation, General Duties Branch (April 27) :—*Class A.*—D. P. Jones. *Class C.*—J. McA. Allan.

Pilot Officer J. T. Newton relinquishes his commn. on completion of service ; April 20.

AUXILIARY AIR FORCE

Accountant Branch

The following to be Pilot Officer :—No. 601 *County of London (Bombing) Squadron.*—D. H. W. Arnot ; April 27.

ROYAL AIR FORCE INTELLIGENCE

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

Stores Branch.

Squadron Leader G. Stevens, O.B.E., to No. 3 Stores Depot, Milton, 21.4.26.

Flight Lieutenant E. W. Lawrence, to No. 1 Flying Training Sch., Netheravon, 22.3.26.

Accountant Branch.

Flying Officer R. T. Rich, to No. 13 Sqdn., Andover, 1.4.26.

Pilot Officer J. E. Welman, to No. 19 Sqdn., Duxford, 30.3.26.

Medical Branch

Squadron Leaders T. J. Thomas, M.B., to R.A.F. Depot, Uxbridge, 12.4.26 ; I. M. A. Costello, M.C., M.D., M.Sc., to No. 22 Group, H.Q., S. Farnborough, 29.4.26.

Squadron Leader J. Rothwell, M.B., to H.Q., Wessex Bombing Area, Andover, 12.4.26.

Flight Lieutenants : (Hon. Sqdr. Ldr.) W. R. Reith, M.D.A.M., to No. 7 Sqdn., Bircham Newton, 26.4.26. Hon. Sqdn. Ldr. F. W. Squair, M.B.T.D., to No. 12 Sqdn., Andover, 10.4.26.

Flying Officers : R. S. MacLatchy, to No. 14 Sqdn., Palestine, 22.3.26. R. T. F. Grace, M.B., to No. 41 Sqdn., Northolt, 19.4.26. L. C. Palmer-Jones, M.B., to R.A.F., British Hospital, Iraq, 22.3.26. R. J. I. Bell and R. G. Freeman, to Research Lab. and Med. Officers' Sch. of Instruction, Hampstead, on appointment to Short-Service Comm., 14.4.26 ; S. Strachan, M.B., to R.A.F., Depot, Uxbridge, 15.4.26.

Flying Officer (Q.-Mstr.) W. Gambles, to No. 1 Stores Depot, Kidbrooke, 1.5.26.

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IN PARLIAMENT

Aircraft Fuel Tanks

Mr. HANNON, on April 28, asked the Secretary of State for Air whether, seeing that two years ago a test was carried out under the auspices of the Air Board for tanks for use in aeroplanes which would not leak when crashed from 100 ft. or when perforated with machine-gun bullets, and that certain tanks satisfactorily passed all the tests imposed, but in spite of this have not been put into general use by the Air Ministry, he will explain why these tanks are not being used in view of the recent serious accidents which have occurred ?

Sir Samuel Hoare : The production for use in service aircraft of a petrol tank which will be proof against fire has been the subject of many experiments and these experiments are being, and will be, steadily pursued. There are, however, considerable technical difficulties which have not been overcome, and I cannot accept my hon. friend's suggestion that a type of fireproof tank suitable for service use is already in existence. He may rest assured that the importance of producing a fireproof tank is fully realised.

R.A.F. and Communist Propaganda

Lieut.-Commander KENWORTHY, on April 29, asked the Secretary of State for Air, how many officers and airmen, respectively, of the Royal Air Force have refused duty or been guilty of other acts of insubordination during the last 12 months, as a result of supposed Communist propaganda and incitement ; and whether he has traced any weakening of the discipline of His Majesty's Royal Air Force as the direct, or indirect, result of such alleged incitement and propaganda ?

Sir Samuel Hoare : As regards the first part of the question, it is impossible to trace all the motive causes which may have contributed to any particular act of insubordination, and the answer to the second part is, therefore, in the negative.

Lieut.-Commander Kenworthy : May I ask the right hon. gentleman if he has noticed any increase of acts of insubordination from any cause at all in the Royal Air Force ?

Sir S. Hoare : No, Sir ; I have not.

Lieut.-Commander Kenworthy : Then why does the right hon. gentleman not admit that this propaganda has had no effect whatever ?

Sir S. Hoare : For the reason I have given—that in any case of insubordination it is impossible to assign exactly the motives that have caused it.

Lieut.-Commander Kenworthy : Is it not due to the honour of the Royal Air Force to say there has been no weakening of discipline owing to this propaganda ?

Sir S. Hoare : I cannot add anything further to my answer. I have given the hon. and gallant member an answer to his question, and I have nothing to add to it.

R.A.F. Airship Hangar, Karachi

Colonel DAY, on May 3, asked the Secretary of State for Air the approximate price likely to be spent on the construction of the new airship hangar at Karachi ; and the proportion of such amount that will be spent on materials of British manufacture ?

Sir S. Hoare : The answer to the first part of the question is £170,000, and to the second, £90,000, these figures being approximate estimates. The difference between them represents the cost of freight, insurance, import duties, foundation work and erection at site.

Pilots' Instruction

Colonel DAY asked the Secretary of State for Air if he will, with a view to the greater safety of Royal Air Force pilots, cause instructions to be given that will result in such officers being given more adequate instruction on the type of machine they are to fly before being allowed to change over from one type of machine to another ?

Sir S. Hoare : The Regulations contain explicit instructions on the point raised by the hon. and gallant Member. Briefly, they are to the effect that before a pilot flies an unfamiliar type of aeroplane, he must either be given dual instruction in its use before flying solo, or, if it is a type in which dual instruction cannot be given, must satisfy his Commanding Officer that he is accustomed to flying corresponding types, and must also be given ground instruction by a responsible officer conversant with the type in regard to its characteristics in flight, and the systems of engine and petrol control which it embodies. I am advised that a pilot of average experience should find little or no difficulty in changing from one type of aeroplane to another, since the principles of flying and flying control are the same for all types of aeroplanes. This is borne out by experience, and I do not consider that further instructions on the subject are necessary.

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SOCIETY OF MODEL AERONAUTICAL ENGINEERS (S.M.A.E.)

THE flying meeting held at the Sudbury ground on April 24 was well attended and the two competitions down for this date were duly flown off. The first of these, for the Weston Challenge Cup, was for fuselage gliders and nine machines took part. The result was as follows :—

		Duration.
1st, H. T. Jackson	.. ..	24 secs.
2nd, F. de P. Green	.. ..	19 ..
3rd, R. N. Bullock	.. ..	17½ ..

For the second competition, which was open to all members who did not win a first prize during last year, there were eleven entrants and below are given the first three places :—

		Points.
1st, B. K. Johnson	.. ..	99
2nd, J. van Hattum	.. ..	51
3rd, C. A. Rippon	.. ..	45

The machine entered by Mr. J. van Hattum was sent over from Holland by air-mail and was flown in the competition by Mr. R. N. Bullock. Mention should also be made of Mr. C. A. Rippon's new machine which he flew in this competition ; the twin propellers on this model received their power by means of a flexible drive from a central rubber motor.

Capt. G. de Havilland kindly presented the prizes for the Weston Cup competition.

The next flying meeting is to take place at Wimbledon Common on Saturday, May 8, at 3 p.m., when the two following competitions will take place :—

(1) K. and M.A.A. Cup—Distance competition for fuselage models. (Open to all—entrance fee to non-members 2*s.* 6*d.*).

(2) Pilcher Cup.—Duration competition for fuselage models rising off ground. (Open to members only.)

Members and others are referred to the April issue of the S.M.A.E. Journal for further details of the rules for these two competitions.

Enquiries should be addressed to 58, Norton Road, Wembley

B. K. JOHNSON (*Secretary.*).

AIR POST STAMPS

By DOUGLAS B. ARMSTRONG

Air Post Collecting

WHEN the Aero Philatelic Club resumed its meetings on October 16, Mr. R. E. R. Dalwick exhibited what is probably a unique collection of Swiss air post stamps and vignettes, including the rare Olten semi-official series of May, 1913, in entire sheets.

The spread of air-post collecting was betokened by an announcement made at this meeting to the effect that an Air Post Society had been formed in India, under the Presidency of Mr. H. A. Outhwaite.

It is noteworthy that apart from the regular Air Post clubs, displays of air post stamps and covers figure prominently in the programmes of most leading philatelic societies nowadays. Even the conservative Royal Philatelic Society, London, devoted one of its evenings to consideration of Mr. C. W. Roberts' important collection of Imperial air-mail covers. On November 17 the beautifully arranged and extra-illustrated air post collection of Mr. T. A. Chaplin delighted and intrigued the members of the Herts Philatelic Society.

Air post collecting was also well to the fore at the Third Canadian Stamp Exhibition held in Montreal recently. Here the very comprehensive collection of air post covers formed by the Rev. Thatcher Kimball of Hyde Park (Mass.), gained a well-deserved Gold Medal, whilst the Silver Medal in the same class fell to Prof. R. de L. French, of McGill University. The third air mail award, a Bronze Medal was carried off by Mr. T. H. Hinton, of London, with his highly-specialised collection of Pigeon Post Stamps of Great Barrier Island, the precursors of aero stamps.

THE cult of the winged missive takes on a new and deeper significance when air post letters provide permanent records of epoch-making flights. Comparatively recent additions to the air post collection include postal souvenirs of two of the most sensational aerial events of 1925, viz., the Italian World Flight and that of the Japanese aviators from Tokio to Paris.

Cobham Flight Souvenirs

A SOUTH African correspondent reports that intense interest was aroused in the Union by the arrival of the FLIGHT souvenir cards, which accompanied Mr. Alan Cobham on his great flight from London to the Cape. Several South African newspapers illustrated the card with its striking vignette of Hope receiving a carrier pigeon, and there was an eager rush by local collectors to obtain specimens. Unfortunately most of them were disappointed, as the majority of the cards were addressed to personal friends and correspondents. About ninety cards in all were posted by Mr. Cobham on his arrival at Capetown, and some half a dozen from Lyons, Milan, Brindisi, Cairo, Khartoum and Jinga *en route*.

On the return flight one or two personal letters only were carried, in addition to that from the Earl of Athlone (Governor-General of South Africa) to H.M. the King, and these were posted by Mr. Cobham in London on March 15. Although they cannot be considered as in any way "official," the London-Capetown cards and covers must of necessity rank high amongst the postal souvenirs of aerial progress.

* * * *

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THE Postmaster-General announces that the letter air mail route, London-Berlin and Konigsberg-Moscow, has been reopened. The connection between Berlin and Konigsberg will be more reliable this season. The Konigsberg-Helsingfors service is still suspended. The chief countries served directly or indirectly by the air route, and the probable times of normal transit thereto, are as follows: North-east Germany (Konigsberg, 24 hours), Danzig (24 hours), Memel (1½ days), Lithuania (Kovno, 1½ days), Lettonia (Riga, 1½ days), Esthonia (Tallinn, 2 days), Russia and beyond (Smolensk and Moscow, 1½ days). For particulars as to the time of closing the mail at the General Post Office, London, and the rates of special fee payable, reference should be made to the Air Mail Leaflet (December, 1925, edition), a copy of which can be obtained on application at any post office.

Royal Air Force Flying Accidents

THE Air Ministry regrets to announce that as a result of an accident near Lakeit, Iraq, to a D.H.9A, of No. 84 Squadron, Shaibah, on April 15, Flying Officer James Eric Tomes, the pilot of the aircraft, and No. 348244 L.A.C. Frank Edward Leatherdale, were killed.

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PUBLICATIONS RECEIVED

The Air Pilot Monthly Supplement. No. 18. *April*, 1926. The Air Ministry, Kingsway, London, W.C.2.

Le Moteur Farman 500 *CV dans le Raid Paris-Téhéran-Paris*, 1925-1926. Avions H. and M. Farman, 151-169, Rue de Silly, Boulogne-Billancourt (Seine), France.

The Science of Flight and Its Practical Application. Vol. I. Airships and Kite Balloons. By Capt. P. H. Sumner. Crosby Lockwood and Son, 7, Stationers' Hall Court, London, E.C. Price 16*s.* net.

From Cape to Cairo by Car. Crossley Motors, Ltd., Gorton, Manchester.

Aeronautical Research Committee, Reports and Memoranda No. 984 (*Ae.* 196).—The Representation of Aircraft Performance Tests. Using Non-dimensional Variables, with Special Reference to the Prediction of the Effects of Change of Loading on Performance. By R. S. Capon. November, 1925. Price 4*d.* net. *No.* 986 (*Ae.* 198).—On the System of Vortices Generated by a Circular Cylinder in Steady Motion through a Fluid. By C. N. H. Lock. November, 1925. Price 4*d.* net. *No.* 983 (*Ae.* 204).—Note on the Minimum Speed from which the Direction of a Gliding Aeroplane can be Changed to a Horizontal Path for Landing. By F. W. Meredith. June, 1925. Price 4*d.* net. H.M. Stationery Office, Kingsway, London, W.C.

Revue Juridique Internationale de la Locomotion Aerienne. January-March, 1926. Per Orbem, 4, Rue Tronchet, Paris.

International Aerial Timetable. No. 1. *May*, 1926. Lep Transport and Depository, Ltd., Sunlight Wharf, 37, Upper Thames Street, London, E.C.4. Price 6*d.*

Aeronautical Research Committee, Reports and Memoranda No. 991. (*Ae.* 202.) Full Scale Determination of the Lift and Drag of an Avro Type 504 K at Large Angles of Incidence and Comparison with Model Results. By R. G. Harris and C. Howarth. April, 1925. H.M. Stationery Office, Kingsway, London, W.C.2. Price 9*d.* net.

Notes on the Care and Maintenance of the Cirrus Engine. A. D. C. Aircraft, Ltd., 89, Kingsway, London, W.C.2.

The Accessory. Vol. 12. *No.* 126. *April*, 1926. Brown Brothers, Ltd., Great Eastern Street, London, E.C.2.

Transactions, 69th Session, 1925-26. *Vol. LXIX., Part VI. April*, 1926. The Institution of Engineers and Shipbuilders in Scotland, Elmbank Crescent, Glasgow.

* * * *

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 1925

Published May 6, 1926

467. J. TWARDUS. Dirigible balloons. (250,310.)
512. J. B. IMMERS. Aeroplanes. (250,313.)
538. M. BRITZKES. Flying machine. (250,315.)
789. AIRSHIP GUARANTEE CO., LTD., B. N. WALLIS, and C. D. BURNEY. Lighter-than-air aircraft. (250,330.)
1,901. AIRSHIP GUARANTEE CO., LTD., and B. N. WALLIS. Lighter-than-air aircraft. (250,348.)

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36, GREAT QUEEN STREET, KINGSWAY, W.C.2.

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Telephone: Gerrard 1828.

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CONTENTS

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:—

1926		
May 19	....	Inst. Ae.E. visit to the National Physical Laboratory, Teddington.
May 30	....	Gordon-Bennett Balloon Race, Antwerp.
June 11	....	Independent Force (R.A.F.) Dinner Club Annual Re-union Dinner, Connaught Rooms, Great Queen Street, Kingsway.
June 11–13		Belgian Light 'Plane and Touring Aeroplane Competition.
June 12	....	Inst. Ae.E. visit to Croydon Aerodrome.
July 8–24	....	Royal Tournament, Olympia
July 9–10	....	King's Cup Race, Hendon.
July 11–27	....	German Seaplane Competition at Warnemunde.
Aug. 9–15	....	French Light 'Plane Competition.
Sept. 10–17		Two-Seater Light Aeroplane Competition, Lympne.
Sept. 18	....	Grosvenor Challenge Cup, at Lympne.
Oct.	....	Schneider Cup Race at Norfolk, Virginia, U.S.A.
Nov.–Dec.	....	Paris Aero Show.

EDITORIAL COMMENT.

TUESDAY, May 4, 1926, is likely to be regarded as a red-letter day in more ways than one. On that day commenced the general strike which has now for more than a week caused inconvenience, to put it very mildly, to millions of people in the British Isles, and which, at the moment of writing, does not show any signs of coming to an end. As far as British aviation is concerned, the date is significant because on that date, for the first time in history, His Royal Highness the Prince of Wales returned from Paris to London by air, thus putting the hall mark, as it were, on civil aviation as a recognised and safe means of transport. This is not, of course, the first time His Royal Highness has flown. In fact, during the war, it is known that the Prince of Wales did quite a considerable amount of flying, but it is the first time he has returned from abroad by air. In view of the fact that, had he so chosen, His Royal Highness might easily have been conveyed home by some special vessel of the Royal Navy, but that he chose the quicker and very much simpler way of returning by air, direct to the London Terminal Aerodrome at Croydon, shows that he is fully alive to the position of air transport at the present time, a fact which has been known for a long time, but of which the flight on May 4 was the outward and visible proof. Imperial Airways are to be congratulated upon having received such distinguished official recognition, as are also the makers of the aeroplane, Handley Page, Ltd., and of the engines, D. Napier and Son, Ltd. The pilot who had the honour of bringing His Royal Highness home was Capt. O. P. Jones, and it is worthy of note that during the greater part of the trip the Prince of Wales sat in the pilot's cockpit, alongside the pilot, to whom, at the end of the flight, he expressed his satisfaction with the trip.

A Red-Letter Day

Among the members of his staff who accompanied His Royal Highness on the flight were General Trotter, his Private Secretary, and Wing Commander Smyth-Pigott, D.S.O., British Air Attaché in Paris.

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The Science of Flight and Its Practical Application. Vol. I. Airships and Kite Balloons. By Capt. P. H. Sumner. Crosby Lockwood and Son, 7, Stationers' Hall Court, London, E.C. Price 16*s.* net.

From Cape to Cairo by Car. Crossley Motors, Ltd., Gorton, Manchester.

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