

A busy time lies before the works of the Supermarine and Rolls-Royce firms. The engines of the "R" type are now giving much higher horse-power than they gave in 1929, which was to be expected. Engineers always find plenty to do in the last seven months before a race. Between now and September ways may be found to get still further power out of the "R" engine, and we may expect that well over 2,000 h.p. will be produced.

There are in existence two Supermarine-Rolls Royce S.6. seaplanes. It is only reasonable to presume that they will be reconditioned, and to some extent modified. By the time they come to face the starter, they will, we may be sure, embody the results of the two years' experience which has been acquired while flying these machines at Felixstowe. The machines will be old types developed, but they will embody the latest results of research, and may well be regarded as 1931 types. But, despite their new features, they have experience behind them, and they may inspire a confidence which cannot always be accorded to an entirely new type. We remember that in the last two contests only one Italian seaplane finished the course, and that was a two-year-old machine flown at the Solent by Dal Molin. In both contests the new types produced by the Italians failed in some way. We do not suggest that such a thing will always happen; but the record is such that the use of tried types, even though reconditioned, gives a feeling of confidence.

The contest this year will be of a different character from any held for some years past. Both the seaworthy tests and the speed test will take place on one day. This has one great advantage in that only one fine day is needed to get the whole contest through. Even in Italy two consecutive suitable days cannot be reckoned upon, and in 1927 the speed test could not be held on the advertised day, a Sunday, as the surface of the Adriatic was too rough for safety if one of the racing seaplanes had to alight through engine trouble during the race. This caused great disappointment to thousands of quite poor people who had poured into Venice from all parts of Italy to see the race. In Great Britain the weather is even less dependable. In September, 1929, we had quite extraordinarily good luck in the weather, two consecutive days being absolutely ideal for flying high-speed seaplanes. The same can be said of 1923, when the race was also held over the Solent. We could hardly expect British weather to behave itself so well a third time.

In 1919, at Bournemouth, the whole contest was got through in one day, the seaplanes being obliged to make so many landings during the actual race. This ruled out any possibility of establishing speed records, though in other respects there was much to be said for this way of making an interesting spectacle and testing the skill of the pilots.

This year the competing machines will have to go through their tests of taking off and alighting, and then will start on the speed course. This means that they will have to go through the take-off and landing tests with enough petrol on board to carry them round the speed course. In the last two contests at least, that is to say, since enormous speeds have been attained, and enormous loads of petrol have had to be

carried, no British pilot has ever had to land his machine with a full load of petrol on board. They practised landing with fairly heavy loads, but never with full loads. The nearest thing to a landing with full load effected by any pilot was the landing of Lieut. Monti in his second lap in 1929. Though he was suffering from scalds, he put his machine down quite safely. It was a fine feat of piloting, though in difficulty and danger it was certainly not such an amazing performance as when Flight Lieut. Carr landed his Horsley at Martlesham with enough petrol on board to take him to India. So we may conclude that the rules for the 1931 contest do not ask an impossibility from the pilots, though they do demand a very high degree of piloting skill.

As for the choice of British pilots, nothing can be said at present, and speculations cannot take us anywhere. Squadron-Leader Orlebar is at Felixstowe, but is commanding the Flying Boat Development Flight. Flight-Lieut. Waghorn is also on the staff at Felixstowe, but it is most unlikely, and against all precedent, that the last winner should be allowed to fly again in the contest. The experimental flying has been carried out by three other officers, but that does not necessarily mean that they will provide the new team. The probability is that a new team will be selected. The Royal Air Force has plenty of suitable pilots, and one of the benefits of entering for this race is that it gives a number of officers experience of high-speed work. It is well to give this experience to as many as possible.

The most important person in a high-speed flight is the C.O. He does not race himself, or at least he has not hitherto done so, but success depends to a great extent on his personality. No one could have filled that difficult post better than did Orlebar; but we hope that another officer as good as he will be selected. That we can find three pilots as good as any who have appeared in the race in the past there is no manner of doubt.



The pilot of an aeroplane had a remarkable escape last Monday when his machine struck an overhead electric cable in a fog and caught fire. This draws attention to a serious danger to aircraft. For some years past overhead power cables have been spreading rapidly over various parts of Europe, and recently they have begun to make their appearance in Great Britain. It cannot yet be claimed that the utility of aircraft is so great as the utility of electric power, though the time may come when the positions will be reversed. But we may point out that there are certain advantages in laying the cables underground. The original laying will be more expensive (in one case in England it has recently been claimed to cost no more), but the costs of maintenance and the risk of damage are much less. The disadvantages of the overhead system are beginning to be realised in Denmark and Scandinavia. There is still time for Great Britain to consider the point, and the safety of aircraft is certainly a matter which should not be disregarded.

**Aircraft and  
Overhead  
Cables**





**LE RENARD METALLIQUE:** The Fairey all-metal "Fox" with Rolls-Royce F type engine is a high-performance bomber. Its excellent qualities have received recognition recently in the form of substantial orders from the Belgian Government. The machines for Belgium will be almost identical with the British version shown above. (FLIGHT Photographs.)

## THE SCHNEIDER TROPHY

AS reported in our Parliamentary column, the Prime Minister made an announcement in the House of Commons, on Thursday, January 29, in reply to a question by Commander O. Locker-Lampson. He said that, although the Government were strongly averse from perpetuating these contests between rival Governments, they were so interested in the race that they were prepared once again to authorise the defence of the trophy by the Royal Air Force, provided that a definite undertaking were given immediately that the necessary funds would be available from private sources.

The Committee of the Royal Aero Club held a meeting the same evening and announced that they proposed to appeal to the public for funds. They stated that the amount which would be required would be somewhat larger than the sum of £80,000 originally mentioned. Some said that it might be £100,000.

Thereupon, Lady Houston telegraphed to the chairman of the Royal Aero Club to the effect that she would guarantee the full amount required by the Government, and she asked him to fly down to Southampton this week, so as to meet her on her yacht and discuss the whole situation. Pending this interview, she requested that the question of the public appeal should be suspended. This generous and patriotic offer will be received with feelings of the deepest appreciation and gratitude by all those who have at heart the maintenance of British prestige.

With regard to the charge of dilatory action, the club issued the following statement on January 28:—

"Mr. Ramsay MacDonald, in throwing responsibility for the delay in preparation on the Royal Aero Club and the Society of British Aircraft Constructors, is scarcely supported by the facts. The root of the trouble was the attitude of the International Aeronautical Federation. The British proposal was that the closing date for entries should be July 31, 1930, but in June the Federation suddenly decided

from insistence on the strictest observance of its own rules governing the contest and laid the way open for the wearisome and long drawn-out squabble with potential foreign challengers over entry procedure. Further, the final date by which entries must be received was put back till December 31.

"Actually, therefore, it was not till December that any valid challenge was received by the Royal Aero Club. Till then we were not certain that any foreign challenge would materialise. Obviously, the Royal Aero Club could not take steps till the challenges were received. The Secretary of State for Air, the late Lord Thomson, was fully informed, in June last, of the difficulties which had arisen owing to the dispute with the International Aeronautical Federation. Far from leaving the matter till the last few days, technical investigations by the individual aircraft and aero engine firms interested in the contest began early in 1930, and communication was established with the Air Ministry on the subject in March. During the year it became evident that the measure of assistance to be given by the Government to a potential private defender was impossible of application.

"The Government's reservations on the question of insuring the machines, and the refusal to supply pilots, made it virtually impossible for the Trophy to be defended. Technical investigation, nevertheless, has continued right up to the present day, and it is because of the steps taken by individual firms that it is now possible for us to consider participation at all. It has been forgotten that the aircraft industry has never yet entered the Schneider Trophy co-operatively as an industry; it is, therefore, unreasonable to expect the industry to take collective action. On the other hand, the firms interested in the building of the racing machines and engines have maintained constant touch on the subject with each other, and with the Air Ministry.



"SECOND THOUGHTS ARE BEST. Distinct improvement in Schneider Trophy Design": This very amusing cartoon by "Poy" appeared in the London "Evening News" on January 29.

## HESTON AIR PARK

ONE of the airports about whom we hear very little is Heston. In a way, it seems a pity that they do not make more song about their achievements, because this lack of publicity tends to make people think that not very much has been or is being done, though actually, of course, very much the reverse is the case.

It might be well, at this stage, to look back and see what enormous development there really has been since Heston Air Park was first started in April, 1929. Eighteen months later, in September last year, that is, we find that they have already flown 3,209 hours on instructional work; seventy-four "A" licences have been obtained; a Customs House has been built with a resident Custom Officer who has cleared some 416 aircraft on their way to the continent. They have installed a complete wireless outfit which at a later date it is hoped to operate as an intermediate meteorological station, and this set, incidentally, is the first one to be installed in a privately-owned aerodrome.

On the east side of the administrative buildings and club-house there is now the large all-concrete Jackman hangar and then three further hangars built by William Bain which are divided into private lock-ups, the majority of which are already full, and which house among other things, over 20 privately-owned Puss Moths. On the west side there are the commercial showrooms—of Henlys, where Avians are demon-

strated; Brain Lewis and C. D. Barnard, where anything from Hannibal to the Hobo may be bought; and finally, Auto Auctions, who specialise in Bluebirds. Beyond them, again, is the new Lamella type semi-circular hangar which is one of the first to be built in this country by the Horschler Bridge & Engineering Co. Ltd., on the Junkers Lamellendach patent system. The aerodrome itself, it will be remembered, was prepared by Hunters of Chester, and therefore little need be said about its excellence.

From the very start they have at Heston engendered the right sort of feeling, and have gradually drawn unto themselves a clientele, all of whom are "flat-out" for flying. There is no doubt, that Heston Air Park has really fulfilled a want since at Croydon privately-owned aircraft are not only not wanted, but are definitely discouraged in many ways, but for this class of flying there is always a welcome waiting at Heston, and before very long, we imagine that privately-owned aircraft whether they are clearing customs for a continental trip or merely proceeding to the north, will always do so from Heston in preference to Croydon. No efforts have been spared by Messrs. Norman & Muntz who are responsible for Heston and its developments, and among their very latest schemes is the formation of service depots in other parts of the country. The first of these is now in operation at Bristol Airport where repair and maintenance can be undertaken.



# PRIVATE FLYING AND CLUB NEWS



## CINQUE PORTS Flying Club.—

The weather was kinder this week and the time rose accordingly. During the week a father and son, Messrs. R. and A. Russell, respectively received instruction.

On Saturday, the third of the new "Gipsy's" G-AAKM, was delivered, but G-AAFS had to be returned for a small adjustment by the makers.

On Saturday, 31st, Mr. R. H. Wynne, who had been with the club since its inception, vacated the post of ground engineer. The club owes Mr. Wynne a debt of gratitude for the very large amount of hard work which he has put in and the manner in which he has kept down expenses in connection with petrol and oil consumptions and engine overhauls. Mr. Wynne was also a capable "A" licence pilot, having been trained by the club in the early part of 1930. His successor has not yet been appointed.

Total flying for the week ending January 31 was 15 hr. 25 min., made up as follows:—Dual instruction (7 members), 4 hr. 15 min.; advanced dual (6 members), 2 hr. 30 min.; "A" pilots (8 members), 6 hr. 45 min.; tests, etc., 1 hr. 55 min.

HANWORTH Club look like having a new lease of life as the result of a meeting of their members last Sunday. As we mentioned last week, a committee of members has been formed and this committee, under the able chairmanship of Mr. M. L. Bramson, has already instituted a series of development measures. The first thing they have done is to issue an invitation to all other flying clubs to visit Hanworth and informing them that they will be honorary members during the time of their stay. Then all instructors of other flying clubs have been made permanent honorary members. A landing competition has been started whereby members are able to take out a sort of weekly card on payment of a small fee for which they are allowed three attempts at landing on a pre-determined mark. A form of cross-country competition is also being investigated, as is an advanced flying course not for those who necessarily wish to take a "B" licence but merely for those who want to feel that they are really competent pilots. The first of a series of lunches to bodies interested in aviation will be held at Hanworth on Sunday, February 8, and will be for the Air League. Formation flights of members are also being formed and last, but



"CAMEL-FLAGED": We are indebted to Mr. Grenville G. O. Manton for this photograph of a Sopwith "Camel," until recently his property, which he had modified somewhat. It was fitted with a 40-45 h.p. Anzani engine, and flew quite satisfactorily, though naturally, with a greatly reduced performance.

not least, shelters are being erected for those pupils and their friends who are waiting for instruction. There is no doubt that these innovations have all been sadly needed at Hanworth and no doubt the club will become a brighter place in consequence.

FINE weather and the locality. It is well known that certain localities have more than their share of fine weather and when aerodromes are situated in or near such places, they would do well to advertise the fact, because the majority of those who wish to fly only have certain times when they can get away to do so and cannot choose their weather. Such a well-favoured locality should be even more valuable to those who own or are operating a commercial aerodrome or airport, and if the municipal authorities were to show that their aerodrome was blessed with a greater percentage of flyable days than other such aerodromes they would have a very telling argument for the operation of schools or taxi work or joy-riding from their aerodrome. On this subject we have received communication from Southern Aircraft Ltd., Shoreham-by-Sea. A large aerodrome adjacent to theirs will shortly be opened by the municipalities of Brighton, Hove, Shoreham and Worthing and therefore, the following figures, showing the few number of days during the greater part of December and January when it was impossible to fly, should be of great interest:—

1929: December, 5, 10, 22; and 1930: January, 8, 10, 13.



A SUCCESSFUL FRENCH LIGHT 'PLANE: The Farman F. 230, with 45-h.p. Salmson, which is another version of the F. 231 (100-h.p. Renault), on which Lalouette and de Permangle established the light 'plane long-distance record recently.



# GLIDING



## THE BRANT "SCUD" INTER-MEDIATE GLIDER

**A** FEW weeks ago we made brief mention to the "Scud" glider, manufactured by Brant Aircraft, Ltd., of Croydon, and this week we are able to give further details, together with general arrangement drawings, of this glider.

The "Scud" has been designed as a British attempt to meet the requirements of gliding clubs and private owners for a practical glider of greater efficiency than the primary or Zögling type, and capable of soaring, but without the high first cost and practical difficulties of operation of the super-efficient sailplanes as produced in Germany for record purposes.

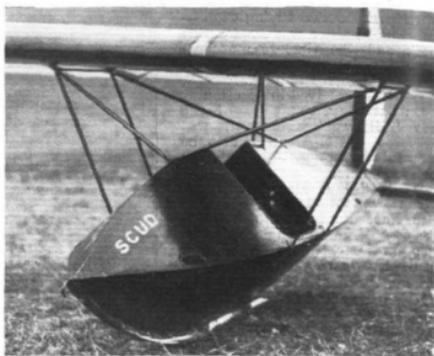
It is a machine for the "B" or "C" licence pilot who is sufficiently skilled to appreciate and take advantage of really effective controls, and who wants to practice soaring flight as distinct from gliding down a hill on a machine with little or no control. It is at the same time a machine which embodies features of a practical nature, such as ease of operation, handling on the ground, and dismantling and ease of repair.

This has been achieved by a design which results in a very much smaller machine than contemporary German machines, and of little more than half the weight. One of the advantageous results of this feature is that the machine has not the sluggishness of control usually characteristic of gliders, caused by their relatively large moment of inertia and low air speed.

From a practical point of view a small light craft has also many advantages; it is possible, for instance, for four persons to carry the machine with ease, and to facilitate this four hand holes are provided, the weight to be carried by each person being only about 26 lb.

A further advantage of a light machine is the smaller launching party required. Furthermore, the small size of the machine, obviously, has many advantages from the all-important dismantling and stowing point of view, and a good deal of care has been taken and many features embodied in the design which should greatly facilitate this usually very tedious part of glider operation.

The attachment of wing to fuselage, for instance, is such that the complete wing may be detached by the withdrawal of four bolts locked by wing nuts, the struts remaining in position on the fuselage and the wing stowed as either one unit, or the wing may be separated into two halves by disconnecting the centre joint, as when it is necessary to pack the machine in a trailer. In the latter case the struts may also be folded down against the fuselage; moreover, when taking the wing off it is only necessary to withdraw two pins in order to disconnect the aileron controls from the



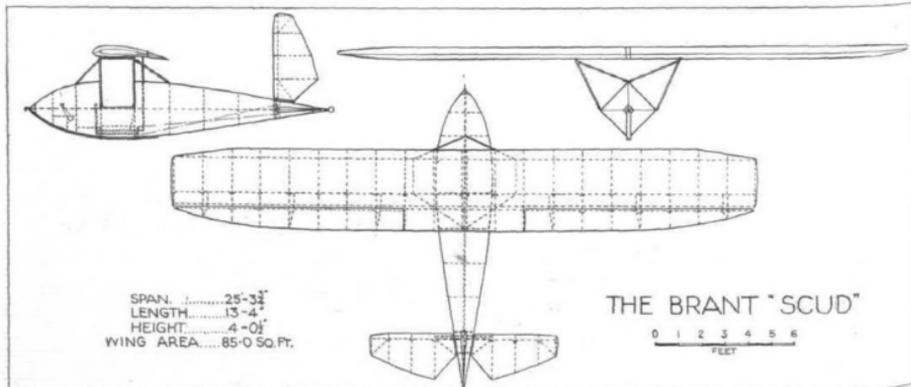
Front view of the "Scud" showing the triangular fuselage. (FLIGHT Photo.)

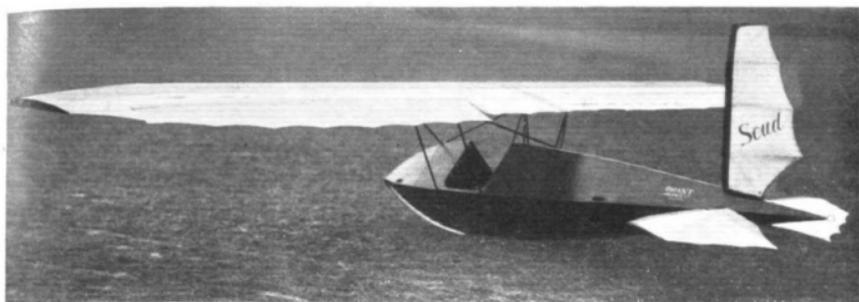
fuselage; and on separating the wing into two halves it is not necessary to make any further disconnection in the aileron control, as the ailerons are operated by independent shafts in the wing connected to push-and pull rods from the fuselage. Provision is made on the push rods for adjusting aileron trim, if necessary. There are no wires in either the wing truss or aileron controls.

The complete tail unit may be dismantled with even greater facility and without disconnecting any of the controls. There are no fixed surfaces, and the two elevators and rudder may be withdrawn from the short stub tubes which project from the fuselage by pulling out two draw-pins provided on each unit, and which are normally held in position by leather straps—the controls remaining attached inside the fuselage to the stub tubes. The complete tail unit may therefore be dismantled without the use of tools in about three minutes.

The elevator and rudder control cables run inside the fuselage direct to the controls without pulleys being necessary, and provision is made for ease of access in the event of adjustment being necessary.

The fuselage is an extremely simple and robust design, which in the event of damage should be very easy for the amateur to repair. It consists of a flat-sided rectangular-box construction, having four ash longerons and ply covering, and is arranged in a diagonal diamond-like position such that one corner of the square section forms the keel, to which





Three-quarter rear view of the "Scud" glider. (FLIGHT Photo.)

is attached the skid chassis. The top longeron is necessarily cut away in way of cockpit, but the wing-truss struts are so arranged that virtually they form a continuation of the top longeron over the cockpit—the top longeron, as a stressed member, thereby becoming redundant between the wing-drag strut attachments fore and aft.

Owing to the light structure weight of the machine, it is not necessary for the pilot to be much in front of the centre of gravity, and it has therefore been possible to arrange the pilot's seat upon the two fuselage bulkheads which form the points of attachment of the wing-lift struts and the skid shock-absorbers. This concentration of the main loads on to the two central bulkheads of the fuselage results in a particularly stiff and light structure capable of dealing with severe landing loads. The design of the fuselage also lends itself to dealing with launching loads—both the hook and the release attachment on the tail—without putting strains other than direct tension on the longerons.

The wing is a simple cantilever construction covered with ply forward of the rear spar, the ply skin dealing with drag and torsional loads and forming with the two spars a box construction, particularly stiff in torsion.

The trailing edges are of cord, as a reminder to those handling the wing on the ground that this part of a wing, even when provided with a stiff trailing edge is quite unsuited for either handling or supporting the wing.

The landing skid is attached to the fuselage at the three points: in front, at the launching hook, in such a way that any side movement can take place without straining the attachment or the fuselage; the two shock absorbers under the main bulkheads form the other two points of attachment.

The shock-absorbers consist each of two sausage-shaped rubber blocks resting in a cup-like fitting on the skid, with the fuselage seating, at the apex of its V-shaped bottom, between the two blocks—giving a self-centring arrangement

which, with a side load due to drift while landing, does not put a twisting strain on the shock-absorber assembly or its attachment to the fuselage. The only positive attachments of the skid at these points to the fuselage are leather side-pieces whose main function is to prevent the skid from falling away from the fuselage when the machine is off the ground. These leather attachments are each secured to the fuselage by one through bolt only, which on withdrawal permits the skid and shock absorbers being dropped clear for repair or the renewal of the rubber blocks, which may then be dropped into place on the skid fittings.

The principal characteristics of this glider are:—

*Dimensions—*

Span .. .. .	25 ft. 3 $\frac{1}{4}$ in.
Length o.a. .. .. .	13 ft. 4 in.
Height .. .. .	4 ft. 0 $\frac{1}{2}$ in.

*Areas—*

Main plane (including ailerons) .. .. .	85 sq. ft.
Elevators .. .. .	10 "
Rudder .. .. .	5 "

*Weights—*

Tare weight .. .. .	103 lb.
Pilot .. .. .	160 "
Gross .. .. .	263 "
Wing loading .. .. .	3.1 lb./sq. ft.

*Performance—*

Gliding ( $L/D$  maximum): Optimum gliding angle, 15-1; machine speed, 35 m.p.h. = best gliding speed for maximum duration (calm air).

Soaring ( $L^2/D^2$  maximum): Minimum rate of descent, 3.23 ft./sec.; machine air speed, 31 m.p.h. = best soaring speed for maximum climb and duration (minimum up-current required, 3.23 ft.-sec.).



FOR THE BUENOS AIRES EXHIBITION: This Avro "Avian", "Cirrus-Hermes" II engine, has been shipped to Argentina, where it will be used for demonstration flights at El Palomar aerodrome.



# AIR TRANSPORT

## THE CANADIAN VICKERS "VANCOUVER II" FLYING BOAT An Eight-Seater Machine for Air Transport Work

SINCE we described (in our issue of November 22, 1929) the "Vancouver, Mark I" flying boat produced by Canadian Vickers, Ltd., of Montreal, the Mark II model has made its appearance. The Mark II is similar generally to the Mark I, but several modifications and improvements have been introduced, resulting in better performance.

The "Vancouver" is particularly suitable for commercial air services on medium routes, although it is primarily intended for forest-fire patrol work. In fact, five of these flying boats (the Mark II) were built for the Department of National Defence, Ottawa, last year to replace obsolete aircraft used by the Royal Canadian Air Force on forest fire patrol. Three of these machines were fitted with Armstrong Siddeley geared "Lynx" engines, and the other two with Canadian Wright J-6 300-h.p. engines.

### VICKERS "VANCOUVER," MARK II

#### Dimensions

Length	.. .. .	38 ft.
Height	.. .. .	15 ft. 7 in.
Span	.. .. .	55 ft.
Chord (both wings)	.. .. .	7 ft. 6 in.
Wing area	.. .. .	783 sq. ft.

#### Weights (with Wright J-6 engines)

Weight empty (fully equipped)	.. .. .	5,027 lb.
Main fuel (110 Imperial galls.)	.. .. .	795 "
Oil (12 Imperial galls.)	.. .. .	120 "
Pay-load and pilot	.. .. .	1,658 "
Total all-up weight	.. .. .	7,600 "

#### Performance

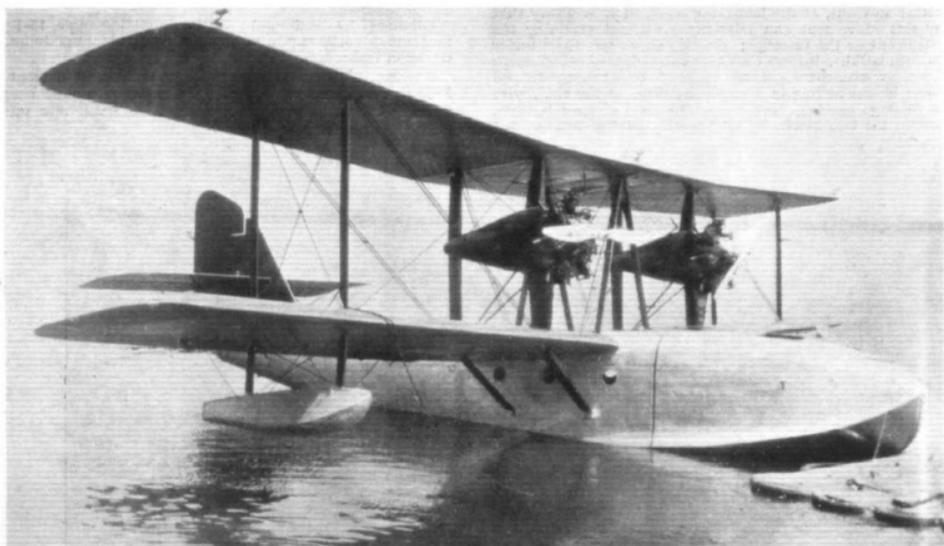
Top speed	.. .. .	113 m.p.h.
Cruising speed	.. .. .	90 "
Landing speed	.. .. .	53 "
Rate of climb at ground level	.. .. .	800 ft. per min. (approx.).
Service ceiling	.. .. .	12,000 ft.
Range	.. .. .	400 miles.
Time to get off	.. .. .	15 sec.

Note.—All weights and performance figures to plus and minus 5 per cent. Tanks are provided for increasing the fuel capacity to 160 Imp. galls. and range to 600 miles.

The machine is a twin-engined flying boat with accommodation for six passengers and two pilots. The passenger accommodation consists of a completely enclosed cabin provided with port-holes, while the pilot and mechanic are accommodated in cockpits in the forward part of the hull. The hull is entirely of metal construction, all frames and stringers, as well as the outer skin, being of duralumin.

Entrance to the cabin is obtained from a rear hatch, and a connecting door is fitted giving access from the pilot's cockpit to the cabin. A hatch is provided in the extreme forward part of the hull for ease of mooring.

The power plant consists of two Wright J-6 300-h.p. engines. However, two Armstrong-Siddeley geared "Lynx" engines or Pratt and Whitney "Wasp" 400 h.p. engines can be installed, if desired. The engines are placed as tractors



THE CANADIAN VICKERS "VANCOUVER," MARK II: A metal-hull flying boat accommodating six passengers and two pilots. Two Canadian Wright J-6 300-h.p. engines are fitted as standard, but Armstrong Siddeley "Lynx" engines can also be fitted.

between the top and bottom wings at some distance either side of the hull. Oil tanks are fitted in the nacelle and the main fuel tanks in the top wing. Auxiliary fuel tanks are provided as standard equipment, although Eclipse electric starters and generators can be fitted, if desired. Adjustable metal propellers are standard equipment.

The wing structure is of the biplane type. The wings are of wooden construction, fabric-covered, with duralumin tube compression struts and wire internal bracing. The interplane struts are of steel tube with streamline wire bracing, wing-tip floats being of duralumin construction.

The following are fitted as standard equipment:—*Instruments*—Airspeed indicator; altimeter, turn and bank indicator; rate of climb indicator; eight-day clock; P-3 compass; two r.p.m. indicators; two oil-pressure gauges;

two oil thermometers; two fuel contents gauges; two fuel-pressure gauges; complete set of mooring and navigation lights. *Miscellaneous Equipment*—45-lb. anchor; boat hook; wing lines; set of canvas cockpit covers, and four fire extinguishers. Other instruments, such as voltmeter and ammeter for electric generator, etc., if installed, can be fitted at extra cost.

An easily demountable undercarriage type of beaching gear can be supplied at extra cost. This beaching gear, which is equipped with two main wheels and tail wheel, can be readily fitted or removed by the crew of the machine without the assistance of a landing party, enabling the machine to be run on the beach or runway under its own power. Handley Page automatic slots can be fitted to the machine, if desired, at extra cost.

## BRITISH AIR MAIL TRAFFIC

**D**URING the quarter ended December 31, 1930, 24,740 lb. of letter air mail were carried from this country as compared with 21,037 lb. during the corresponding quarter of 1929, an increase of 17½ per cent. The carryings to India were again larger than those to any other country, viz., 9,330 lb. as compared with 7,955 lb. in the December quarter of 1929, an increase of just over 17 per cent. The Christmas mail carried by the Indian Air Service in December, 1930, amounted to 4,450 lb. as compared with 3,800 lb. in 1929. The mail of December 13 weighed nearly 1,800 lb., which constitutes a record for a single flight by this or any other air service from this country.

The traffic to various destinations for the December quarters—1929 being in brackets—was as follows: Indian Air Service (including Egypt, Iraq, Palestine, etc.), (10,770 lbs.) 13,496 lb.; Iraq (air from Gaza), (2,313 lb.) no service; Australian Internal Service (1,072 lb.) 1,208 lb.; South African Internal Service (1,133 lb.) 2,393 lb.; Other Extra-European Destinations (1,148 lb.) 1,502 lb.; Continental Air Services (4,601 lb.) 6,141 lb.; Total (21,037 lb.) 24,740 lb.

The development of the Imperial Air Services was satis-

factory, and the proportion of mail for Empire destinations amounted to more than one half of the total mail carried during the quarter. The traffic for European countries continued to grow, and showed an increase of 33 per cent, as compared with the December quarter of 1929. There was a slight decrease in the amount of parcels carried by air to European destinations, the figures being 31,669 lb. in the December quarter 1930, as against 34,477 lb. in the corresponding quarter of 1929. So far as the year 1930 was concerned, the total weight of air letter mails despatched was 41 tons as compared with 30 tons in 1929, an increase of about 37 per cent. The traffic for all Imperial destinations was 43,715 lb. in 1930 as compared with 23,708 lb. in 1929, an increase of 84 per cent. The proportion of the Imperial mails to the total mails grew from 35 per cent. in 1929 to 48 per cent. in 1930. The Continental Air Services carried 26,200 lb. of mail as compared with 18,653 lb. in 1929, or an increase of 40 per cent. The weight of air parcel mails despatched in 1930 was 65 tons as compared with 58 tons in 1929, an increase of 12 per cent. The weight of all air mail, letters and parcels despatched during 1930 was 106 tons as compared with 88 tons in 1929, or an increase of 20 per cent.

## THE LONDON CHAMBER OF COMMERCE, THE G.P.O., AND AIR MAILS

**W**E have already recorded in FLIGHT the activities on the part of the Aviation Section of the London Chamber of Commerce regarding the development of our Air Mails, and it will be remembered that a deputation from the Chamber was received on December 16 last, by the Postmaster-General. The latter promised to consider the various suggestions put forward, and below we publish his considered reply together with a further letter from the Chamber to the P.M.G. The post office communication is as follows:—

"I am directed by the Postmaster-General to refer to the Deputation from your Chamber which visited this office on the 16th December last, to discuss various questions in connection with Air Mail Services, and to say that the suggestions made on behalf of the Chamber have received careful consideration.

"*Night Air Services in Europe.*—With reference to the suggestion that the Post Office should organise a series of night air mail services from London to the European capitals, I am to observe in the first place that at the present stage of development, air services cannot offer the same reliability and regularity as ordinary land or sea services; night air services are peculiarly liable to cancellation or delay on account of adverse weather conditions, and the recent experience of this Department indicates that, in winter at any rate, it is not possible to guarantee even so much as a 50 per cent. regularity of arrival. The suggested system would, therefore, be likely to attract only a very small proportion of the total letter traffic to European countries, since regularity and punctuality of arrival of mails are regarded by the posting public as of even greater importance than speed of transmission.

"In the second place, the organisation of a network of night air services across Europe would involve very large expenditure and could obviously be undertaken only by the collaboration of the various countries affected. As explained to the Deputation, the matter had already been discussed at an International Conference held in October last. That

Conference decided to take steps to obtain full data from all countries concerned and to hold a further Conference, at which every country in Europe would be represented, during the present year. The chamber will realise, therefore, that this question must rest in abeyance for the moment.

"*Control of Air Subsidies.*—As regards the suggestion that the Post Office should undertake the responsibility of subsidising the air services from this country, the Postmaster-General would point out that Parliament has imposed this duty upon the President of the Air Council by the Air Transport (Subsidy Agreements) Act, 1930. In considering the institution and extension of air services, regard must be had not only to the carriage of mails, but to the needs of ordinary freight and of passenger traffic, and also to questions of policy which lie wholly within the domain of the Air Minister. The function of the Post Office is to keep in close touch with the development of Air communications, whether British or foreign, and to offer to the public the use of any service which offers material advantages for the conveyance of mails. The present system ensures that the control of the development of British aviation, and the payment of subsidies shall be vested in a single authority, and this arrangement appears to be the one most likely to secure economy.

"*Air Mail to India.*—The question of accelerating the service to India is a matter for the consideration of the Air Minister; but in this connection I am to say that, while a gradual improvement in speed is to be hoped for, the Post Office would be reluctant to see the adoption of an accelerated schedule which could not be regularly maintained in practice. Irregular arrival, so far as the users of the service are concerned, is the most fruitful cause of criticism; and an accelerated but irregular service would undoubtedly fail to attract more traffic than one which allows a suitable margin for the occasional delays which are inevitable on a long distance flight.

"*Completion of Air Route to Australia across India.*—The Postmaster-General sympathises with the desire of the Chamber for the extension of the air service across India

but the matter lies solely within the competence of the Government of India, and is not one in which this Department has any ground for intervening.

*"Insufficiently Pre-paid Correspondence.*—As regards the treatment of insufficiently pre-paid air correspondence, I am to explain that the International Convention explicitly forbids the transmission by air of correspondence on which the full air fee has not been pre-paid. This rule can only be waived by mutual agreement between the countries concerned; but it has been suggested to the Indian Post Office that such correspondence should be sent between England and India by air, the surcharge of double the deficiency being collected from the addressee. The Postmaster-General is awaiting a reply from India to this suggestion.

*"Uniform Charge for Air Mail Letters.*—As the Chamber of Commerce are aware, the problem of framing a schedule of combined rates to cover both air fee and postage for Extra-European services, in the same way as has been done for European services, has been under examination for some time. The question, owing to the different units of weight for postage and air fee (1 oz. and ½ oz. respectively), has proved very intricate; but satisfactory results have now been obtained and details of the proposed new charges will shortly be announced. Briefly the scheme provides for a combined postage and air fee per ½ oz. to each country of destination—that for the first half-ounce being slightly higher than that on subsequent half-ounces—and will in many cases result in a definite lowering of the charges. For example, the rate to Karachi will be 6d. for the first half-ounce, and 5d. for subsequent half-ounces. The Postmaster-General is glad to have been able to adopt in this respect the suggestion made to him some little time ago by the Council.

*"Reduction of Minimum Weight Unit to ¼-ounce.*—The question of reducing the minimum weight for air letters to ¼-ounce has been fully considered. The experience of the Department has shown that the introduction of the half-ounce rate, which is itself a recent innovation designed to meet the needs of the air service, gives rise to difficulties in weighing and in assessing the fees due on letters intended for despatch by air, with consequent friction with the public. These difficulties would be very seriously increased by the introduction of a quarter-ounce scale. I am to point out that there is only one service in which the question of a lower weight unit has been seriously considered by any country, viz., the French service to South America. The normal units of weight for air mail charges in other countries are 20 grammes (in certain services in France 10 grammes) which approximate to the half-ounce units employed by this country and by the United States in their overseas air services. The rates charged for air transport on the service to South America are about 10 times the Indian rates, and are much in excess of those charged not only in India, but in all other comparable services, both from Europe and from the United States of America. Moreover, it will be appreciated that it would not be financially possible to fix a quarter-ounce rate at one half of the corresponding one-half-ounce rate, and that the adoption of such a unit would not only result in higher charges than at present on a large number of letters, but would effectually prevent the framing of any workable system of combined rates to which reference is made above and which it is the common desire of the Chamber and of the Postmaster-General to see put into force as soon as possible. Finally, a scrutiny of air mail posting which has been maintained for some time past indicates that a quarter-ounce unit would be of little service for commercial correspondence: it would exclude urgent commercial documents and would only provide for brief communications, such as could be written on a small single sheet of specially thin paper.

*"Propaganda.*—As regards the question of propaganda on behalf of the Air Mail services, the Postmaster-General has considered the suggestion that the Post-Office cancelling stamps and mail vans should be used for further advertising the service. There are, however, several other Post-Office services which have a good claim to be advertised by these means; and in view of the difficulties which would arise in attempting to meet all these claims equally it has been necessary to make it a rule that the cancelling dies and the mail vans shall not be used for the purposes of advertising save in a few very exceptional cases. But, even if these methods cannot be adopted, Air Mails are already widely advertised by the issue of the Air Mail Leaflet, the insertion of references in Post Office publications such as the Post Office Guide and the Daily List, the inclusion of Air Mail Labels in the 3s. stamp book, the publication of information in the Press, and indirectly by the erection of special blue posting boxes in Central London. It will thus be seen that

the Air Mail Service already receives more publicity than any other Post Office Service."

To this, the Secretary of the London Chamber of Commerce sent the following reply:—

"I have to refer to your letter No. 92486/30 of the 15th January which has now been considered by the Chamber's Civil Aviation Section.

*"Night Air Services in Europe.*—Whilst the Chamber has not yet in its possession any data as to the regularity and reliability of the night flying services that have been in operation between London and Continental cities during 1930, it wishes to offer the following observations:—

"The development of any new service must depend upon the results obtained by actual experience. Difficulties must be overcome by adequate organisation and the only way to prove or disprove the advantage of night flying is to try it out upon certain good and well organised routes. My Committee feel that experience derived from the present Sabena (Belgian) service to this country cannot be regarded as conclusive, the route being in one of the worst fog belts in Europe. Moreover, the present ground organisation in this country is not up to the standard of that provided by other countries with air routes organised for night flying, so that it is impossible to form a judgment of the results likely to be obtained with adequate equipment.

"The Chamber is, however, glad to know that the Post Office proposes to pursue this matter further at an international Conference later in the year.

*"Control of Air Subsidies.*—The Chamber's attitude on this matter is that the initiative for the provision of air mail transport, as in the case of certain special railway transport for mails, should be taken by the Post Office in an attempt to fulfil efficiently the monopoly that has been granted, and that as Government assistance in the shape of subsidies or otherwise is admittedly necessary at the present stage of development, the provision of such Government assistance cannot be a matter of indifference to the Postmaster-General. Under which particular estimate in the national accounts this charge falls is, of course, a matter of internal administration with which the Chamber is in no way concerned.

*"Air Mail to India.*—The Chamber must definitely join issue with the Postmaster-General in his suggestion that increased speed involves greater risk of irregularity. Over long distances such as that to India, running through countries not subject to fog, the greatest causes of delay and irregularity are head-wind and adverse weather. The Chamber deduces from the Postmaster-General's remarks that allowance is made in the present schedule for such head-winds. It must, however, point out that a 20-mile-an-hour head-wind is of greater moment to a machine cruising at 80 m.p.h. than to a machine cruising at 150 m.p.h., and it seems to the Chamber obvious that greater speed must lead to greater regularity. Moreover, although the Postmaster-General does not mention the subject of reliability in this connection, technique of design is now such that for aircraft carrying large loads over long distances, the mere provision of speed must in itself give a great increase in safety and reliability.

*"Completion of Air Route to Australia across India.*—The Chamber trusts that the Government will make, and will continue to make, most urgent representations to the Government of India that internal considerations should not be allowed to delay the completion of a route of vital importance to the Empire as a whole. Whilst it is appreciated that purely internal postal arrangements in India are the concern of that Administration, it is submitted that the holding up of the development of one of the great Empire Air Mail routes must afford grounds for intervention by the Imperial Government in carrying out the policy accepted by the last two Imperial Conferences.

*"Insufficiently pre-paid correspondence.*—The Chamber notes that the Postmaster-General is in communication with the Indian Post Office with a view to the transmission by air of correspondence on which the full air fee has been not pre-paid, double the deficiency to be collected from the addressee.

*"Uniform Charge for Air Mail Letters.*—It is very greatly appreciated that the Postmaster-General has been able to see his way to adopt the suggestion made to him some little time ago by the Council of this Chamber, that combined rates to cover both air fee and postage should be introduced on the Empire routes.

*"Reduction of Minimum Weight Unit to ¼-oz.*—The Chamber is keenly disappointed by the view taken by the Postmaster-General on this question. It is convinced that an important factor in popularising the air mail is a low initial charge and this under the conditions of aerial transport necessarily implies a low initial weight. The air service to India has at present only succeeded in attracting 5 per cent.

of the Indian Mail. Whilst this no doubt is largely due to the failure to utilise fully the speed of which aircraft are capable it is also a question of cost. The Chamber is convinced that an initial weight of quarter-ounce with a substantial reduction in charge would attract more than double the present trifling percentage of the Indian mail carried by air.

"So far as the French Aeropostale Service to South America is concerned, it was stated by the Chairman of the Argentine Section at the last meeting of the Council that British firms engaged in the Argentine trade were actually sending their letters for South America to France to be posted there. In this way they were able to get the benefit of the 5-gramme initial rate of 1s. 6d. instead of being obliged to pay 4s. 2d. from this country for a half-ounce letter, when a letter weighing 5 grammes was quite sufficient for their requirements. It is a matter of special regret to the Chamber that the Post Office should not have seen its way clear to assist the present national effort to obtain a larger share of the South American market, by introducing the quarter-ounce unit.

"It is not clear why there should be greater difficulties in weighing and assessing fees in the case of quarter-ounce than of a half-ounce rate.

**Five Years' Air Traffic on Imperial Airways**

THE air traffic returns for the last five years show that the season 1928-9 still holds the record for the number of cross-Channel flights, passengers carried, and total mileage, the number of passengers per machine being just over 8. Figures for the last 11 months of 1930 show a slight decline, both in the number of flights and passengers carried, but the average number of passengers per flight was over nine. The bulk of the work of Imperial Airways was again carried out by the Armstrong Whitworth Argosies. The fleet was launched in 1926, and increased, three years later, the latest figures showing the total distance flown as 1,636,180 miles for a flying time of 18,165 hr. 48 min. As 1,000 hr. are equal to 250 days, the machines have spent over 750 days in the air! Comparing the last 11 months of 1930 with the previous 12 months, the Argosies flew 540,975 miles, as against 602,475 miles.

Year.	Flying Hours.	Miles Flown.	Channel Flights.	Passengers Carried.	Total Mileage.
1926-7	686-34	63,800	3,737	17,000	736,030
1927-8	1,776-37	160,815	3,534	25,865	739,740
1928-9	2,952-16	268,115	4,215	34,537	876,900
1929-30	6,665-05	602,475	3,764	28,138	820,575
1.4.30 to					
31.11.30	6,058-16	540,975	2,611	25,915	606,700
Total	18,165-48*	1,636,180*	17,861†	131,455‡	3,779,945‡

\* Argosies. † All flights. ‡ All European.

**Manchester's New Airport Hotel**

MANCHESTER'S airport, which has so swiftly come into prominence as an important feature in the life of the city, now offers further amenities to air passengers in a new and excellently appointed hotel, situated close to the road and next to the Airport Office and Control. Members of the Airport Committee, and a party of guests, took lunch at the Airport Hotel, at the invitation of the management, on Thursday, when general admiration was expressed for the luxurious comfort of the spacious rooms and for the splendid cuisine. The air services, we understand, have met with such success that they are to be widely extended during the coming season, and it is expected that a steadily-increasing number of travellers by the various routes will take advantage of the facilities offered by an hotel so conveniently situated. Seven first-class bedrooms are available and meals can be supplied at all hours, so that, without travelling further afield, good food and comfortable accommodation are immediately within reach of each passenger when, his flight ended, he steps from the 'plane. The new hotel is under the management of the Grand Hotel Manchester, Ltd., the well-known firm of hotel owners, whose reputation is second to none in the north of England.

**The African Airway**

MAJOR G. WOODS HUMPHREY, managing director of Imperial Airways, Ltd., read a paper on "Air Communications in Africa" before the Dominions and Colonies section of the Royal Society of Arts on January 27. He recalled a saying that if Cecil Rhodes had lived a generation later it is doubtful whether he would have dreamed of a Cape to Cairo railway, but rather of an airway. It had been observed that the day for such a railway had passed, as heavy freights must, and always would, find their way to the nearest sea-

"It is further submitted that any scrutiny which may have been made of the existing air mail posting, could give no indication of the extent to which a quarter-ounce unit would be utilised, if such were in existence. So long as the public are obliged to pay for half-ounce, they cannot be expected to take steps to reduce their mail much below that weight, and further the Chamber contends that a type of letter which does not at present go by air mail would be attracted by the reduced charge.

"Propaganda.—It was understood at the deputation that the Postmaster-General felt it his duty to keep the public informed of the services which were available. In the case of new services, this involves wider publicity than in the case of those which have been established some time and are consequently well known. It can hardly be maintained that the public at large have a reasonable knowledge of the air mail services, when it is found in practice that the servants of the Post Office are themselves not infrequently at a loss.

"The fact that the Post Office has a number of new services which it wishes to advertise would not appear to be a cogent argument for its neglect of those advertising media which lie so ready to its hand at a negligible cost."

port for the cheaper sea transport. Thus, there were railways from all the chief seaports into the interior, which were generally not connected with each other. There was a great trunk line from Capetown to Broken Hill, but, as a rule, heavy freights did not go by this line. There seemed little doubt that the value of Rhodes' plan was the improvement of the speed of communications from the outside world to the trading centres in Africa, rather than as a transportation system. Such duties could be carried out more effectively by an air service, which would be cheaper to establish and to operate, much faster, and could be varied according to conditions, at small cost.

Air transport was reaching a stage, he said, when for a period, mail and passenger services might be partially separated. There was no doubt, however, that as the aircraft improved and the human being adapted himself, passenger traffic would assume larger proportions, and the two forms of traffic would again join together. At first it was to be the air mail that the Africa route looked for its chief load and revenue, as had been the case on the India route. There would also be a demand for travel by business men, holiday makers, sportsmen, and officials, as well as for the carriage of express parcels such as press photographs, films, surgical supplies, etc.

**Anglo-Dutch Air Agreement**

ACCORDING to an announcement made in the Hague Chamber by the Foreign Minister, on February 3, the Dutch and British Governments are to co-operate in arranging facilities for new air mail services from Holland to the Dutch East Indies and from Australia to other parts of the British Empire. Agreement had been reached in the matter of reciprocal recognition of British and Dutch certificates of airworthiness by the respective governments, and also as to the conditions of the proposed air mail services. In return for facilities granted by the British Government and the Government of India for the Royal Netherlands Air Mail Service between the Netherlands and Batavia, the Dutch Government would undertake to grant reciprocal facilities, when applied for later, for a British service across the Dutch East Indies to Australia.

**The France-Indo China Air Service**

THE first air-mail on the regular service from France to Indo-China arrived at Saigon on January 27, having made the journey from Marseilles in 10 days, according to schedule. **Wireless Service from Aircraft**

A REGULAR wireless telegraph service between aircraft in flight and recipients on the ground was opened by Luft Hansa on the Berlin-Dresden-Prague-Vienna route on February 2, when a machine inaugurated the service with telegrams to the Ministers for Communications and Posts. In this service, telegrams handed in by passengers are dispatched by the operator on board and transmitted by the ground wireless station to the nearest telegraph office in intervals between the exchange of weather and position reports.

**Parachute Air Mail**

FOLLOWING successful experiments, arrangements are being made for the 'planes operated by the Japan Air Transport Company to serve intermediate cities on its air routes with express mail. Letters for these towns will be enclosed in special packages attached to a parachute, which will be dropped as the 'plane flies over.

## 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.]

## BRITISH AIRCRAFT IN CANADA

[2361] As a reader of your excellent periodical and an interested follower of aviation I venture to write briefly my impressions of the situation of the British Aircraft Industry as related to the development of commercial aviation in this part of Canada.

As one glances at the small developments seen in Eastern Canada in the past few years the most striking feature is the absence of any effort on the part of the British constructors to interest Canadian enterprise in their products. The mails are flown to the Magdalen Islands—by American machines. Air surveys are carried out—by American or at least by American-designed machines. A Sydney, N.S.—St. John's, Newfoundland mail service is projected—with American machines. Why not British machines for these services? Machines that are famous the world over for performance and mechanical reliability. Canadians, submerged beneath a flood of American periodicals are for the most part totally unaware that such machines are procurable for their services. Our one rather unsatisfactory Canadian aviation monthly is so poorly informed concerning British aviation as to be practically worthless.

It remains for the British Constructors or the British aviation publications to bring before the Canadian public the excellence of British products and the intensive development noted therein during recent years.

Lastly, I wish to express my appreciation of your interesting articles on the various squadrons of the Royal Air Force. Let us by all means have more of these articles which hold great interest for those of us connected with the Active Militia of Canada. Your paper is certainly a boon to Canadians who wander in a land where aviation literature is scarce and usually worthless.

H. G. SCOTT,

(Lieut. First Bn. Pictou Highlanders).

Pictou, N.S., Canada. Dec. 14, 1930.

## THE AUTOGIRO

[2362] With reference to your Editorial on January 2, may we point out that we consider the question of landing the Autogiro in windy weather to be almost entirely a matter of correct handling. The machine should always be landed as near as possible into the wind, and on taxiing in the wind should be as far as possible kept on the starboard side or dead astern.

Your correspondent, Mr. Louis Mann, raises the question of the Autogiro's suitability as a mountain aircraft in this week's issue of FLIGHT. It is interesting to note that Mr. de la Cierva, during a tour in an Autogiro which he undertook last autumn in France and Spain, made a landing in stormy weather on a very small field in the mountains between Santander and Madrid, and was able to take off again without any difficulty whatever.

THE CIERVA AUTOGIRO CO., LTD.,

London, W.C.2. R. BLAKE, Secretary.

January 10, 1931.

## KING'S CUP, 1931

[2363] The 1931 regulations for the King's Cup call for comment among those interested in this contest.

It is, virtually, the only race of importance in the whole season, and it therefore behoves all concerned to keep the racing at the high level demanded, and doubly so by virtue of the fact that the contest is associated with H.M. the King.

This year, however, we find the race excludes all professional pilots, and that the intention is to limit it strictly to amateurs. Nevertheless, pilots of the Royal Air Force will be allowed to compete? How can the R.A.F. be considered amateurs? Does not the fact that the R.A.F. are allowed to compete put the civilian pilots at a disadvantage? Everyone is most anxious to see the R.A.F. compete, but it seems most unjust to include the latter and to exclude the professional pilot, who has in the past invariably put up a good show.

I venture to predict that the Royal Aero Club will find itself deeply involved in that most complex of decisions, as to what constitutes an amateur. Whatever their findings may be, heart-burnings can but result.

Of greater importance than this, however, is the fact that, if professional pilots are excluded, the race will lose a great percentage of its importance and public attraction. I

have, as an amateur, invariably experienced an acute sense of the "amateurish" on the occasion of any event in which I have competed, which was restricted solely to amateurs. The whole proceeding has invariably had an amateurish sense about it and, with all due deference, such an atmosphere does not constitute the keenest field of competition.

For competition to be keen, one must compete against professionals and this adds zest to the contest and immeasurably raises the standard of the race. As regards the chances of an amateur successfully competing against professionals, I have no hesitation in saying that the amateur who takes his work, or recreation (whichever you like to call it) seriously, can compete successfully with a professional.

Rather than come to these questionable decisions, the Royal Aero Club should have devoted their energies to (1) perfecting 1930 King's Cup starting and timing arrangements, the failure of which robbed the race of its value during the latter stages and reduced the performance at the starting line, towards the end, to a dog fight; (2) Severer handicapping is most necessary, obviating the possibility of old engines and aircraft being "hotted up" in such a manner as to hood-wink the scrutineer.

One further point, which no doubt will find little support, is as to why this race should be restricted to British aircraft. Is the Derby restricted to British horses? Are any of the international motor races restricted to British cars? I consider that such a restriction is altogether against improving the breed. Restrict the race to British pilots, but let them fly any aircraft they wish. Only by a fair comparison with foreign products can we finally produce the inevitably superior British article

London, W.I.

January 20, 1931.

GLEN KIDSTON.

## BRITISH AIR SERVICES IN THE WEST INDIES

[2364] With regard to the proposed Atlantic air route via the Azores and Bermuda, may I suggest that Imperial Airways, Ltd., undertake first a Bermuda-North America service?

Our flying-boats are the finest in the world, and have been flying over similar distances for some years.

The passenger traffic to this British possession, during the season, is considerable, and an air service would net a handsome profit; at the same time, enough experience would be gained to negotiate, later, the entire Atlantic route.

Statistics show us to be fifth in aviation, when our place is at the top of the list.

It is evident that we must arouse ourselves from lethargy and pursue vigorously plans for extending our airways.

The scattered position of our Empire makes this an easy matter, but if we permit others to get there before us, we have no one but ourselves to blame.

It is therefore up to us to have Britannia rule the air, as she rules the waves.

New York,

January 10, 1931.

JOSEPH RALPH.

## FLIGHT CONDITIONS OF GLIDERS

[2365] In your issue of January 9, you published an article entitled "Flight Conditions of Gliders," by Mr. Howard Flanders in which the writer raised two points which have caused a tremendous amount of discussion in this club.

The points are: (1) That it is possible to fly with a negative angle of incidence. And (2) that it is possible under certain conditions for the centre of pressure to be behind the Trailing edge.

Now, none of us understand how either of these conditions can be possible and we are divided into two camps, those who accept Mr. Flanders's word and those who don't.

I wonder, if in view of the undoubted interest this article has aroused, you would ask Mr. Flanders to explain these two points, either through the medium of your columns or direct to this Club.

I may say that we are avid readers of your excellent paper and debate such points keenly.

The Cononley and District Aero Club.

pp. H. M. SELLERS, Hon. Sec.

178, Skipton Road,

Keighley, Yorks.

January 24, 1931.

## CROYDON WEEKLY NOTES

THE week under review has had very little of interest to relate, the weather having been reasonably good, with the sole exception of Friday afternoon when it turned decidedly bad, and Croydon was out of bounds in so far as incoming machines were concerned. It was one of those beautiful yellow-hued afternoons when the whole aerodrome looked as if it was suffering from a severe attack of biliousness. Actually the ground visibility was sufficient for landing, but apparently all the approaches to the aerodrome were closed in. Everyone expected to see some snow, but this did not materialise, luckily appearances were deceptive. The best place for snow is on picture postcards, Penhurst again received practically all the incoming traffic on this day, and the outgoing Sabona aircraft lost his bearings and landed on the Lewes racecourse. I can entirely sympathise with him because his eventual take-off must be very limited.

The Air Union have two new "Liore of Olivier's" in commission, and there will undoubtedly be others, so *apropos* to one's remarks last week, unless Imperial Airways look to their laurels they will be left to face wholesale competition this summer. With all the misfortunes of the Air Union in the past, it must be admitted that, since the introduction of the "Liore" type, they have maintained a very efficient service. Safety, comfort and speed is a term well applied. Forced landings have been very few and far between. On an average they are faster than an "Argosy" by at least 15 min. on the London-Paris route. If a forced landing does occur, and there is likely to be a long delay, this company do not hold their passengers up, they immediately send a spare machine from the nearest home station and transfer loads, and there is seldom a delay of much more than one hour. Consequently their passengers are quite happy about things. After all, this is the correct way to operate an air line, passengers are the first consideration every time; they quite realise things cannot always go on without a little trouble, but so long as the company makes a genuine endeavour to see them through, they are prepared to take the rough with the smooth. It is wrong in the case of a forced landing to try and convince your passengers that you will get them to their destination, and then in the end turn round and apologise for letting them down after it is too late to catch trains, boats, or any other transport. Relief machines are the only sure and practical way. Passengers themselves can be heard to remark when they have forced landed, and perhaps have lost about 16 hours or so on a journey: "Why on earth wasn't another machine sent to pick us up?" Fortunately, forced landings

are few and far between, but even so, passengers who at any time are involved, talk about it, and their conversation spreads, and it is sure to keep away potential passengers from the air lines, if they think there is a chance of their being let down.

We have had half the Elstree colony here during the week shooting scenes for the new film the "Flying Fool." We have seen more cinema cameras and microphones than have been seen for a long time. The hero of this film is a certain gentleman who did great service during the late war. When the film is released it will be appreciated how a film company can so easily go wrong—for instance whoever has heard of fog horns bellowing forth their mournful note on a terminal aerodrome when air liners are expected? The director of the film was well advised to listen to a certain amount of technical advice before "shooting" quite a number of his scenes—after all, Croydon Aerodrome is nominally the Chief Civil Aerodrome, and its employees do know something about the inner workings thereof. The Rollason Aviation Co. has now taken over a Desoutter Mk.II for taxi work, in addition to their Gipsy I Moth, and we wish them the best of luck in the forthcoming season. Joyriding at the moment seems very much at a standstill, but no doubt the weather is not at all favourable.

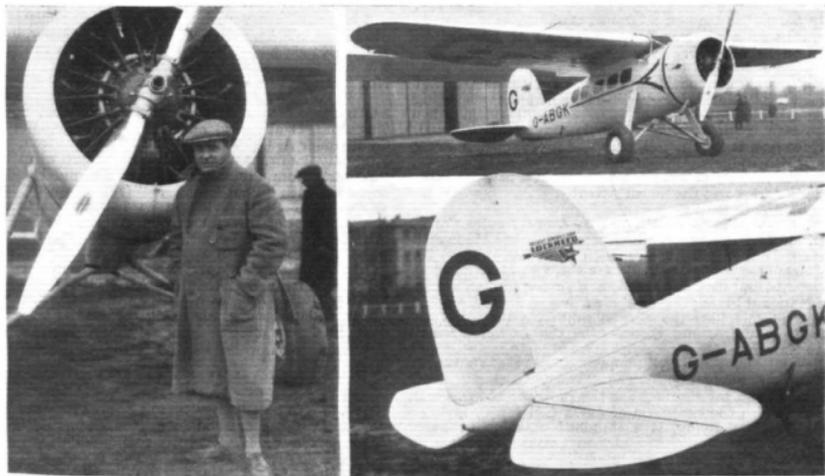
The Robinson "Redwing" commenced a "show the flag" tour of the home counties this week, and it is understood that several orders will shortly be forthcoming.

Saturday morning saw some successful first flights of Lieut. Comdr. Glen Kidston's Lockheed "Vega" flown by the owner. The take-off was good, and the landing was excellent. I understand that the cruising speed is at least 10 m.p.h. below the speed expected.

Mr. Mayers, an undergraduate of Cambridge University, left Lympne at 16.35 hours for Heston on Monday, the 2nd instant, and although all the Croydon Aerodrome lights were displayed the pilot landed at Dagenham, having apparently lost his way. The aircraft eventually caught fire.

What is wrong with 1931? Judging by these first few weeks, it does not offer a very bright outlook, as there has been far too many nasty accidents already. Let's hope this is not going to last throughout the whole year, or the figures next December will be appalling. Unfortunately the accidents to private aircraft do not help to instil confidence in the public to use the airlines, which are really safe.

The traffic figures for the week were, passengers, 258; freight, 28 tons. P. B.

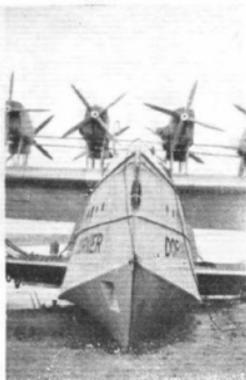


Lt. Comdr. Glen Kidston (left) with his Lockheed "Vega" monoplane (450 h.p. Pratt and Whitney "Wasp") which he "tried out" at Croydon last week. Lt. Cathcart Jones also took a turn at the "stick." Note, from the two views on the right, the N.A.C.A. cowling and the very neat metal mono-coque fuselage. (FLIGHT Photos.)

# AIRISMS FROM THE FOUR WINDS



THE DO. X AT LISBON: A Reader sends us the above "snaps" of the Do. X beached for repairs.



## Do. X Starts for America

FURTHER trial flights with the German flying boat Do. X were carried out at Lisbon, on January 28, when she took off in 112 sec. with a weight of 55 tons. On January 31 the flying boat left Lisbon for the transatlantic flight, but, owing to unfavourable weather conditions, she did not stop at Madeira as planned, and flew direct to Las Palmas. In addition to half a ton of mail, she carried six passengers, including Rear-Admiral Coutinho, Portuguese Naval chief of staff; Capt. Christiansen was in command. The 930 miles from Lisbon was covered in 6½ hr. On February 1 an unsuccessful attempt was made to take off from Cape Verde, and the next day she taxied to Gaudo Bay, 14 miles south of Las Palmas, when another attempt was made. This, also, was unsuccessful, and the flying boat sustained structural damage which will necessitate a delay of a week or two.

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

THE FOUR Vickers "Victoria" troop carriers of No. 216 (Bomber) Squadron, under the command of Sqd.-Ldr. H. W. G. J. Penderel, are nearing the end of their outward journey to the Cape. On January 29 they reached Broken Hill, Northern Rhodesia, and arrived at Bulawayo on February 1. When flying to Pretoria the following day, they were forced to land on a farm at Boshhoek, near Rustenburg, owing to a storm. They were able to proceed to Pretoria on February 3.

## Mrs. Victor Bruce

IT APPEARS that the Hon. Mrs. Victor Bruce was not hurt when her "Bluebird" overturned whilst she was taking off from Baltimore, on January 27. She will continue her flight to New York as soon as repairs have been effected. Mrs. Bruce has, it is reported, accepted an invitation to fly to the British Industries Trade Exhibition at Buenos Aires, and she will probably start from London, in a new machine, and fly via Africa and the South Atlantic.

## A New Flight to India

MR. FINCH WHITE, of the Indian Army Service Corps, and Mr. Michael Pearce, who are members of the Hanworth Club, started out on a flight to India on Thursday, January 29. Special arrangements were made for them to clear customs at Hanworth, and they left at 8.30 a.m., escorted by a formation of National Flying Services' machines as far as Croydon. They intend to follow the normal route via France, Italy and Tunis to Cairo, and thence take the Indian air mail route to Karachi. Mr. Pearce has learned to fly recently, and both he and Mr. Finch White have taken the Hanworth course of air navigation. The "Gipsy-Spartan" light aeroplane chosen for the flight is the property of Mr. Finch White and, with the exception of extra fuel tanks, giving a range of 7 hours' flying, is a standard machine in every respect. Unfortunately, the airmen crashed at Tunis on February 3 and Mr. White was injured.

## "Rangoon" Flying Boats for Basra

THE "Rangoon" is the name adopted by the Air Ministry for the Service version of the Short "Calcutta," with three "Jupiter" engines. Three boats of this type have been built for the Royal Air Force by Short Bros., Ltd., of Rochester, and they are to be flown in formation out to

Basra, where they will be taken on to the strength of No. 203 (Flying Boat) Squadron, which has hitherto been equipped with Supermarine "Southampton" (two Napier "Lions"). Group Captain W. L. Welsh has been appointed to command the squadron, and he will command the flight of the "Rangoons" out to Basra, which is due to start from Felixstowe this week. The route chosen is Bordeaux (Hourtin), Marseilles (Berre), Malta, Crete (Mirabella), Alexandria, Baghdad, and down the Tigris to Basra.

## A Polish-African Flight

TWO Polish airmen, Capt. Skarzynski and Lieut. Markiewicz, left Warsaw, on February 1, for Egypt in an aeroplane of Polish construction, in which they will attempt to make a circuit of Africa. They propose to fly 15,000 miles in 44 days and 24 stages.

## Italian Atlantic Squadron Promotions

AS A REWARD for their services in the recent Italian seaplane flight to Brazil, over 20 persons have been given medals or promotion.

## Aeroplane Wreckage Found in Atlantic

WRECKAGE believed to be that of the *Trade Wind*, the aeroplane piloted by Mrs. Beryl Hart and Capt. W. S. MacLaren, which vanished while on a flight from New York to Paris, has been sighted 275 miles north-west of the Azores.

## Airships

THE GERMAN airship *Graf Zeppelin* has, it is reported, a busy programme before it this year. By arrangement with Luft Hansa, she will make a number of trips to South America, and it is hoped to carry letters across the Atlantic in five and a-half days. The new airship shed at Friedrichshafen is nearing completion, and it is hoped that construction of the new Zeppelin LZ128 will commence very soon now. Much has been heard lately of Soviet Zeppelins. Collections are being made among the officers and soldiers of the Red Army for the construction of a Soviet Zeppelin, and it is officially stated that the amount thus collected already exceeds 1,000,000 roubles (nominally £10,000). This airship will be called the Voroshiloff, after the Commissar for War. Also, Herr Wilcke, chief assistant of Dr. Eckener, has already visited Russia and delivered lectures on the construction of airships.

## No. 205 (Flying Boat) Squadron

SQUADRON LEADER G. E. LIVOCK, D.F.C., A.F.C., who has been commanding No. 205 (Flying Boat) Squadron at Singapore, is about to make over the command to Wing-Commander A. C. Wright, A.F.C. The squadron, which was originally known as the Far East Flight when it flew in formation from Plymouth to Australia and Hong Kong, is equipped with "Southampton" (twin Napier "Lions").

## Director of Civil Aviation in India

THE POST of Director of Civil Aviation in India has been offered to Capt. F. Tyms, M.C., in succession to Col. Shelmerdine, who has been appointed to the corresponding post in Great Britain. Capt. Tyms has been chief technical assistant to the D.C.A. in the Air Ministry. Previously he was Air Ministry representative on the Cairo-Karachi service. He is a distinguished air navigator, and is very popular in British flying circles. His Military Cross was won in January, 1917, while serving with the South Lancashire Regiment.

## Crash of an "Iris" Flying Boat

WE regret to record that on Wednesday, February 4, at 11.45 a.m., an "Iris" flying boat, belonging to No. 209 (F.B.) Squadron crashed in Batten Bay, Plymouth. Wing-Commander C. G. Tucker, commanding the squadron, and Sergt. Pilot E. W. H. Wilson, and L.A./C.'s W. H. Stark, L. C. Oates, H. C. Ongley, W. S. Rutledge, W. Stevens, and C. Davies were reported missing. F/O. F. K. Wood was rescued, seriously injured, but died the same afternoon. Flight-Lieut. M. H. Ely was seriously injured, and P.O. C. Ryley was slightly injured, and Corp. W. M. Barry was rescued uninjured.

## DECK FLYING

By SQUADRON-LEADER W. R. D. ACLAND, D.F.C., A.F.C.

(Concluded from page 103.)

THERE were only three successful landings on this deck, but looking back the reason is not far to seek. The air disturbances caused by the mast, bridge and funnel, all of which were directly in the line of flight, made it so "bumpy" that the pilot had to fly faster than would ordinarily have been necessary. Further, halfway down the deck the natural wind was so blanketed by the superstructure that it ceased to have any effect on the aircraft, which was thus deprived of a very large proportion of the relative wind. For instance, assume the aircraft is landing into a relative wind of 30 knots composed of ship's speed 15 and natural wind 15. Half way up the deck the natural wind was almost completely blanketed by the funnel, mast and bridge, so that the relative wind at this point suddenly dropped by as much as 10-15 knots, a serious matter when the aircraft had to be brought in rather fast because of the bumps caused by the superstructure. Fortunately for the pilots a strong rope net was fixed to the forward end of the landing deck so that no one hit the funnel, although many made determined attempts to break through the net.

The lessons deduced from these early attempts were:—

- (1) The aircraft must have a clear run so that if the pilot found he was unlikely to touch the deck until too far up he can put on his engine and go round for a second try.
- (2) It was far easier to approach from right astern in spite of bad bumps than to have to drift round the bridge and land forward.
- (3) That in spite of the many cases of aircraft overshooting, with a clear run arresting rear was not necessary.

Owing to the high wastage of machines and that these lessons could be better tried out in *Argus* which, with its flush deck, was then nearing completion, no further landings were then made in *Furious*.

A few preliminary landings were made in the *Argus* without any arresting gear at all, but the fore and aft wires were retained and placed so as to pass over the centre lift. When flying off was in progress the lift was right up so that all wires were flat on the deck and afforded no hindrance whatever



H.M.S. "Furious" with after flying deck added. (R.A.F. Photograph, Crown Copyright.)

to taking off. For landing the lift was lowered about 9 in., and a sloping ramp fitted on the forward end. The aircraft on landing ran along the deck, and dropped into the well, so pushing the hooks into the wires. Upon running up the other side it was securely held. In calm weather this proved to be a success, and it was retained for the fleet's cruise to the Mediterranean in 1920 when landings for the first time were made in rough weather. These landings were far from successful but they seemed to show that in rough weather the aircraft must be caught when they landed. Altogether 25 landings were made under service conditions at sea, but of these 12 were crashes. This was partly attributed to the fact that the "well" was narrow and slightly off the centre line so that the aircraft did not in every instance drop into it. The gear was accordingly altered and made to extend all over the deck and in the subsequent months about 500 landings were completed with only one aircraft over the side, but of these 500 arrivals on the deck, 40 were write offs and 90 involved minor damage.

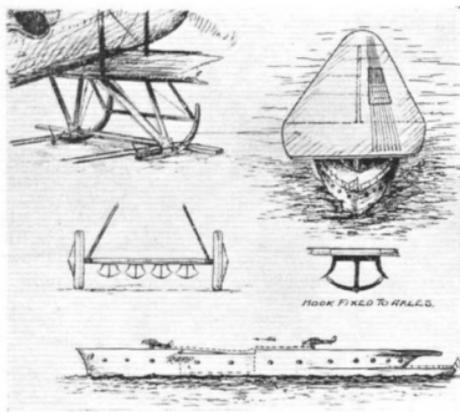
During the early trials in *Argus*, a canvas and wood structure representing a funnel and bridge was erected on the starboard side about amidships to find out if it would be possible to land with such a structure on either side of the deck. The advantages of having the funnels in this position instead of carrying them right aft were:—

- (i) It made a much simpler proposition for the constructors;
- (ii) The heat of the funnels did not render the hangars extremely hot as is the case with the funnels running aft; and
- (iii) The width of the hangars was not restricted.

No difficulty was experienced and so the first carrier to be constructed with an "island," the *Eagle* was completed for trials. In this carrier another very important modification was introduced, a modification to the shape of the after end of the deck, which has gone far to simplify the last stage of the approach during deck landing. In *Argus* and *Furious*, the landing deck ended in a straight edge. This caused pilots to land too far forward, as an approach which ended in the aircraft reaching the after limits of the deck too low even a few inches, resulted in the undercarriage being severely damaged,



The first flush-deck aircraft carrier, the "Argus." (Photograph reproduced by courtesy of the Admiralty.)



**SKIDS AND HOOKS:** Sketches of a skid undercarriage and wheel undercarriage with hooks. The sketch in the upper right-hand corner shows the arrangement of the wires along the deck and over the centre lift indicated in side view in the lower diagram. This experiment was carried out in H.M.S. "Argus."

and in some cases in the aircraft crashing into the sea. In the *Eagle* the after end of the deck was curved down so that there was no longer any need to worry about approaching so as to give the end of the deck a wide clearance. This "round down" gave the pilots confidence to land well aft with the result that during the trials in *Eagle* larger and faster landing aircraft were successfully landed, including a D.H.9 and a D.H.9A, and the round down has now been permanently adopted.

In spite of the success of the *Eagle* trials it was obvious that, although it was in 1924 only seven years since the first landing had been made, the actual process of deck landing remained the same and the number of accidents due to the deck gear, while not serious, were numerous enough to handicap efficiency. Fleet aircraft were still handicapped by the extra structural strength required merely to withstand the shock of landing into the wires and knocking down the supporting flaps which had replaced the wooden blocks for holding the wires up. Further, the deck hooks not only reduced the performance considerably, but also, by virtue of their catching up the wires and so exerting a force to keep the aircraft on a straight course when it was inclined to swing, so twisted the undercarriages that they were often strained or rendered so weak as to prevent further flying before repairs had been executed.

During rough weather landing when the ship was rolling these minor accidents were more frequent than ever and we therefore appeared to be some way still from achieving our object of so increasing the ease, safety, and standard of deck landings that they would approach the standard of simplicity of landing on an aerodrome.

Upon detailed investigation it became apparent that the most prevalent cause of minor accidents was the deck gear itself and it was decided that although there were undoubtedly cases where the wires prevented a machine going over the side, they also in about nine cases out of ten turned a moderately good landing into a bad one, with the result that some damage was sustained by the aircraft.

Fore and aft wires were therefore abandoned. This assisted in the improvement of the design of Fleet aircraft since they were no longer hampered by all the extras, entailed by using the fore and aft wires, which increased weight and head resistance. The undercarriage also no longer had to be increased in height out of all proportion in order to give the propeller

clearance from the wires. Lastly, a plain deck was also a step towards making the conditions for deck landing more nearly resemble those of an aerodrome. The problem of deck landing now resolves itself into alighting on the centre line of the ship and keeping on it. If for any reason a pilot finds he is off this line he must at least keep parallel to it, for to swing off will put the aircraft across the high relative wind, which is likely to be as much as 30 knots, and the inevitable tendency to drop one wing will arise, so further increasing the swing until the aircraft runs over the side.

So long as the aircraft has considerable way on, it is not difficult to keep it straight and the modern addition of independently-operated brakes has increased directional control. There are, however, occasions, such as in rough weather, when the aircraft will swing so that some means have had to be devised to stop the aircraft going overboard without curtailing the amount of deck space available for alighting on.

This has been done by the provision of sloped palisades fitted to the edge of the deck at its forward end. These palisades consist of stanchions spaced about 8 ft. apart with wires strung between them, and they extend for about 150 ft. on both sides of the deck in a carrier without an island (in the island type the island itself forms part of a palisade) on one side. They are sloped up at an angle of about 30° from the horizontal, thus forming a fence which prevents machines running over the side. They do to some extent restrict the width of the deck available for landing upon since it is quite possible for an aircraft to land successfully with one wing tip over the side. With the control available in modern fleet aircraft, however, there is little excuse for landing far off the centre line of the deck.

Aircraft under these conditions can alight on the deck quite successfully in rough weather when the ship is rolling and pitching to a considerable extent. Extra care has, however, to be exercised and the pilot must not only aim at landing about the centre of the ship, where the motion will be least, but he must also so time his landing that the aeroplane touches the deck when the ship is approximately on an even keel.

Whereas a few years ago there were a considerable number of accidents of one sort or another, I think it is a fair statement to say that to-day under all conditions about 99 per cent. of the landings are quite successful. With the number of carriers now in commission and the number of types of aircraft in use with the fleet, some thousands of landings must be done every year, and this high percentage of successful landings may be reasonably interpreted to prove that with modern aircraft to fly and modern carriers to alight upon, landing on the deck is now under favourable conditions comparable with the simplicity of landing on a given mark on an aerodrome.

It may now perhaps be of interest to state briefly the actual process of landing on and attempt to show what features are



**H.M. AIRCRAFT CARRIER "EAGLE":** This was the first carrier to be constructed with an "island." (R.A.F. Official Photograph, Crown Copyright.)

desirable in the aircraft to make this as easy as possible.

The position from which to approach should be such that the aircraft will cross the stern about 20 ft. up. This position is for a normal aircraft about 150-200 yards astern. The ideal aerodrome landing would then be to switch off and land without the use of engine but the air disturbances astern of the ship, the high relative wind speed and the forward movement of the ship itself necessitates the use of the engine spasmodically or continuously during the approach. The pilot must watch the deck and so adjust his height by using his engine so as to cross the stern at the required height. With some types it is possible to fly straight in, keeping the same level throughout, but with a heavily-loaded machine or in rough weather when the stern may be rising and falling considerably, a high approach is advisable.

As most aircraft do not afford a view directly ahead, an approach from slightly to port or starboard enables the pilot to keep the after end of the deck in view continuously. As soon as the aircraft is passing the stern the pilot must throttle down and make an ordinary landing, taking very special care to keep head into wind and as near as possible to the fore and aft line of the ship amidships.

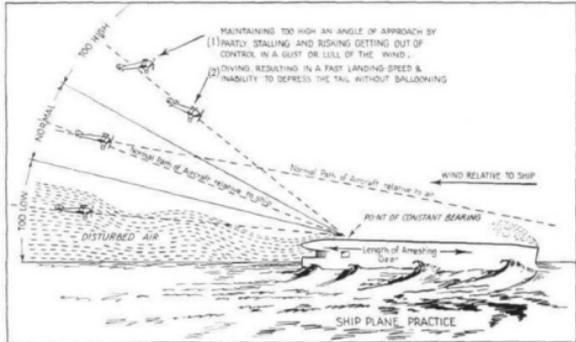
Variations in the speed of the wind, and smoke bumps, are liable to cause the approaching aeroplane to move out of the direct path towards the centre of the deck. Thus, if a downward bump is encountered the engine must be opened up and the height lost regained, or *vice versa*, to lose height the pilot should throttle down, since the other methods of sideslipping and S turns are difficult to execute without finding oneself off the correct course when the required height has been reached. The deck provides ample length for landing almost any type: it is the narrowness, compared with the space available on an aerodrome, which calls for extreme concentration on the part of the pilot and creates such difficulties as exist.

My own experience is that, provided great care is taken over each landing, there is no difficulty, but once care is relaxed a bad landing is inevitable, and this is borne out by the fact that even with experienced D.L. pilots, after about four or five successive landings the standard begins to fall and in time a really bad landing occurs.

I will conclude with a few remarks upon the special characteristics required in an aircraft to be used for deck flying.

The view is most important. The ideal is, of course, an uninterrupted view straight ahead. Where this is not possible a very long cowling from the nose to the pilot should be avoided as this will block out all view of the deck as the aircraft flattens out, and in any case a nose sloping away from the pilot is most desirable.

The attitude which the aircraft assumes whilst being flown on to the deck affects the pilot's view very considerably.



The majority of modern aircraft at slow speeds fly with the tail down. Any attempt to improve the view by pushing the nose down immediately results in a considerable increase in speed.

In those aircraft, therefore, where the pilot is not seated in front of the planes, the designer should aim at giving him as good a view as possible over the sides and reaching as near to the fore and aft line of the aircraft as possible.

Good control on elevator, rudder and ailerons at slow speeds is particularly necessary so that the aircraft may be kept on its course during the last stages of the approach and any tendency to swing after touching the deck may be instantly checked.

A broad undercarriage assists stability while running on the deck.

Independently and easily operated brakes are of value not so much for reducing the run but in the greatly increased directional control.

In the larger types the aircraft must be designed to fold so that the maximum number may be stowed in the limited space available in a carrier.

The methods of locking the wings should be easily and quickly operated, preferably without mechanics having to climb up on to the aircraft.

Special consideration should also be given to such details as:—

- (i) The adequate protection against the weather. Fleet aircraft may often be required to spend long periods embarked on ships other than carriers where no protection is afforded.
- (ii) Lashing down points, by which the aircraft may be secured in the hangar or to the catapult.

Finally, as my closing words, if any of those present intend to design a machine for the Fleet Air Arm, don't forget that accidents happen even in the best regulated families and also in the finest aircraft flown by the most skilled pilots, especially in deck landing. An aircraft which will float and which is so constructed that you can get out is more than desirable."

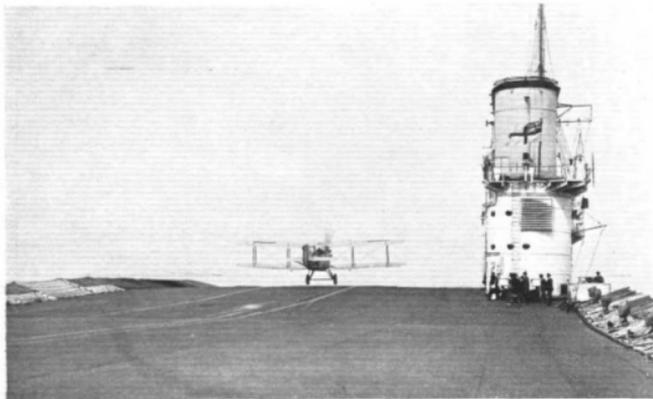
At the end of the lecture, Squadron-Leader Acland showed three films, of which the first gave a very excellent idea of the method of landing Avros and D.H.9's with the use of the wire system. The "fiddle bridge" supports of the wires gave the undercarriages some nasty blows. The second film was of an unusual nature in that the camera was on board the machine and had recorded, in slow motion, the appearance of the deck of the aircraft carrier as it, seemingly, approached the aircraft. The third film was modern and recorded a visit of the First Lord of the Admiralty to one of our latest types of carrier. The smartness with which the machines got away was much admired.

**The Discussion**

The Chairman, Mr. C. R. Fairey, said he was pleased to be the first to congratulate Squadron-Leader Acland on his excellent paper, and to thank the Air Ministry and Admiralty for permission to have it read before the Royal Aeronautical Society.



H.M. AIRCRAFT CARRIER "COURAGEOUS": In this aerial view the "round down" at the stern, and the forward lower flying deck can be clearly seen. (R.A.F. Official Photograph, Crown Copyright.)



THE "ISLAND" ABEAM: A Fairey IIIIF taking off from the deck of H.M.S. "Glorious". (FLIGHT Photograph.)

There were one or two questions he would like to ask the lecturer. For instance, he wondered why no mention had been made in the paper of the first landing by pre-war aircraft of the pusher type. He also thought the credit for having been the first to fly off a vessel should be given to the American, Ely.

Group Captain Cave-Browne-Cave said he would like to ask two questions. One referred to the remark of the lecturer that the length of the aircraft carrier was ample, but it was the narrow width which caused trouble. If that were so, why should it not be possible to reduce the speed of the aircraft carrier (as the extra length of run could be tolerated), thereby reducing the bumps set up by the speed of the vessel? The second question dealt with the reference to making provision for the pilot to escape in case he had to come down in the sea. He would like to know in which direction this means of escape should be.

Group Capt. Miley took up the defence of the use of wires. The undercarriages of early machines were weak, and when they got better undercarriages many safe landings were made. The supports for the wires were bad. One difficulty was that a pilot did not know whether or not his hooks had caught in the wires and so he dared not risk taking off again.

Mr. Roy Chadwick said it was a good many years since he had anything to do with deck flying aircraft, and so his knowledge was possibly somewhat out of date. His recollection was that it was not so much the undercarriage which suffered, but rather the tail end of the fuselage which used to get damaged. He agreed that the use of hooks and wires gave a certain degree of security if the undercarriages were strong enough.

Flight-Lieut. Hylton complained that the lecturer had concealed the fact that he (the lecturer) had instigated the early tests and had carried out the first flying tests himself. On the question which was the best type of ship, he thought the "island" type gave the pilot a good guide as to his height, but the flush deck showed up to advantage in rough weather. He asked whether it would be possible to apply gyro-stabilisers to aircraft carriers. Rolling of the ship was the worst problem the pilot had to face, and if this could be reduced by some form of gyro-stabiliser he thought it might be of advantage. He agreed with the lecturer that view was important, but he thought control, and especially directional control, was just as important. As regards the landing of float machines, it had been found that a float plane would land on the deck quite safely, but it had a tendency to skid sideways. The floats had to be specially designed, the heels having to be high in order to permit the machine to get the tail down. In conclusion, he pointed out that there was available at the Air

Ministry a vast amount of information on deck flying problems and deck flying aircraft, and any firm interested should make the fullest possible use of that information.

Squadron-Leader Tom England asked why it had been decided always to put the island of aircraft carriers on the starboard side. Most pilots when landing looked over the port side, and he would have thought that the port side would have been the logical place for the island. On the subject of undercarriages he suggested that possibly the revival of the old Bleriot type undercarriage might be worth while. In this undercarriage a machine could slither sideways, and the fact that the wheels had a castor action enabled them to accommodate themselves to the lateral travel without tipping the machine over. On the question of wires, he thought these were useful for holding the machine down after it had touched.

Mr. Duncanson pointed out that the tendency was for the load to be carried by aircraft operating from carriers to become heavier as the machines improved, and this made the problems more difficult. He pleaded for research into wings giving a very high lift, and suggested that although there was much information dealing with older wing sections, a lot still remained to be done in the way of research into very high lift sections, applying modern knowledge of aerodynamics and possibly incorporating the use of such aids to high lift as slots, flaps, etc.

Major Kennedy asked whether any tests had been made with the Autogiro for deck landing.

Wing Commander Howe said that an essential of modern operation of aircraft carriers and their machines was rapidity, and this ruled out the use of wires. As regards view, the introduction in modern machines of adjustable seats helped to enable the pilot to get a better view. Such aids to controllability as automatic slots were also valuable. As regards wing folding, the operation had to be carried out hurriedly, and it would be an advantage if the wing locking mechanism could be automatic, so that men did not have to climb about on the machine. A point that should also be kept in mind was the necessity for quick starting to get the machines away, and anything which enabled them to get their engines started quickly would be valuable.

Comm. L. C. Sharnan, R.N., complained that there was no reference in the paper to deck landing at night. The first experiment in this had been made by Wing Commander Howe. On the subject of quick engine starting he pointed out that the water-cooled engine took longer to heat up



SAFELY DOWN: A Fairey IIIIF at the moment of being "caught" by the deck landing crew. Note the palisades along the side of the deck. (FLIGHT Photograph.)

than" the air-cooled, and therefore caused some delay in getting away.

Comm. Mackintosh, R.N., said he had done deck flying as a passenger only, and he did not quite agree with the lecturer that ability to float was desirable in machines operating from carriers. He thought it was absolutely essential!

Squadron-Leader Acland, in replying to the discussion, said he regretted that he had omitted the reference to the early experiments in landing by Air Commodore Samson and others. As regards the American, Ely, being the first man to fly off a vessel, that must have happened long before his time, and he was afraid he did not know of it. As regards the suggestion that slowing down the aircraft carrier might be permissible and might reduce the bumps, etc., while this was possibly true in the case of certain machines, it should be remembered that more and more load was being carried by modern deck flying aircraft, which again put their landing run and landing speed up, and also the captain of the aircraft carrier naturally wanted to keep up with the fleet. As regards the narrow width of the carrier's deck, this was a very real problem. On an aerodrome if a pilot misjudged his landing a bit, he could simply turn round, and merely felt an ass, but if that happened on the deck of an aircraft carrier, the pilot would feel thoroughly wet! To the question in which direction exits should be provided for the crew, what he had in mind was that the cockpits were often very small, and it was difficult for the occupants to get out quickly.

One speaker had referred to damage to the tail of machines rather than the undercarriage. He could not call to mind seeing a single instance of damage being done to the tail, but very many of damage done to the undercarriage. On the subject of flush deck or island type of ship, he quite agreed with Flight-Lieut. Hylton that the flush deck type was the one and only. In reply to Squadron Leader England, he thought the answer to the question why the island was on the starboard side was exactly that given by Squadron Leader England himself, that the pilot looked over the port side, and thus did not see the island! He did not consider the gyro-stabiliser worth while. If one landed in the centre of the ship, that was as good as could be hoped for. He thought the reason for the great increase in the percentage of safe landing was due to the flat deck rather than to the palisades. They were useful, however, in that they gave the pilot the assurance that if he misjudged his landing he would not go over the side. On the question of reviving the Blériot undercarriage, he was averse to go back to wires and so did not think that type of undercarriage was required any more. Another point against the use of wires was that if the aircraft carrier were under fire the use of any arrester gear would increase the time which had to be spent on deck.

The Chairman then asked the audience to express their appreciation in the usual manner, a request which was heartily complied with.

## MODELS

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

THE Annual General Meeting of the Society of Model Aeronautical Engineers was held at the Y.M.C.A., Tottenham Court Road, London, W.C., on Thursday, January 29; Dr. A. P. Thurston (vice-president) occupied the chair.

The Hon. Secretary, in his report, referred to the loss of their President, Air-Vice Marshal Sir Sefton Brancker, K.C.B., A.F.C., whose tragic death was greatly felt. They had, however, been honoured by the acceptance of Col. The Master of Sempill to the presidency. It was worthy of note that enthusiasm for model aircraft construction and flying was increasing in a most encouraging way, and clubs were being formed all over the country, also "durations" had improved considerably during the year and many records had been broken. He, the Hon. Secretary, wished to thank the press, on behalf of aeromodellists, for the space they were allotting to club notices and descriptions of models. The Hon. Treasurer, in presenting the financial report and balance sheet, pointed out that the accounts of the Society were very satisfactory and that the outlook for the future was particularly bright. The balance sheet and report were unanimously adopted, coupled with a hearty vote of thanks to Mr. W. E. Evans for his hard work as Hon. Treasurer and editor of the "S.M.A.E." Journal.

The following were then unanimously elected by the meeting as officers for the ensuing year:—

President, Col. The Master of Sempill; Vice-Presidents, Dr. A. P. Thurston, R. M. Balston; Chairman, A. F. Houlberg; Vice-Chairman, W. E. Evans, B. K. Johnson; Hon. Treasurer, W. E. Evans; Hon. Secretary, S. G. Mullins; Technical Secretary, R. N. Bullock; Competition Secretary, J. Van Hattum; Council, J. E. Pelly-Fry, H. E. Onions, D. A. Pavely, W. J. Plater, T. H. Newell, R. Langley, G. R. Pocklington, Capt. C. E. Bowden, D. B. Mincher, A. J. Stevens.

An extraordinary general meeting of the Society will be held at the Y.M.C.A., Tottenham Court Road, W.C., on Thursday, February 19, at 8 p.m., for the purpose of discussing various revisions to the General Competition and Amblition Rules of the Society.—S. G. Mullins (Hon. Sec.), The S.M.A.E., 72, Westminster Avenue, Thornton Heath, Surrey.

### THE MODEL AIRCRAFT CLUB (T.M.A.C.)

The inaugural meeting of the first Wing (Squadrons 1, 2, 3) will take place on Hampstead Heath Extension (near the "Bull and Bush"), on Sunday February 15, under the supervision of Mr. W. R. Burnett. Flying will commence at 11 a.m.

It is to be hoped that all members who are desirous of joining this Wing will make a special effort to be present.—A. E. Jones, Hon. Secretary, 48, Narcissus Road, West Hampstead, N.W.6.

### WESTLAND AIRCRAFT SOCIETY, MODEL SECTION.

MR. W. RIGBY, of London, whose articles on making of model aeroplanes are well known, gave a very interesting lecture to some 40 members of the Model Section of the Westland Aircraft Society at the Three Choughs Hotel on Thursday, January 22.

Two films, showing both indoor and outdoor model aircraft meetings in London, were projected. The performance of model machines in the Horticultural Hall was particularly good.

Mr. Rigby gave blackboard illustrations of ideas for model making, and answered many questions, and expressed his admiration for the models exhibited by some of the members.

The lecturer demonstrated several paper models made by himself, which put up quite good performance in the Lecture Room, and mentioned that an order for 450,000 of one design had just been placed with him for distribution with a popular publication for boys.

Mr. V. S. Gaunt thanked Mr. Rigby for bringing the films and for his interesting lecture, which together had made the evening very pleasant. Further time was spent by members discussing models personally with the lecturer and demonstrations of the smaller models.

### BOURNEMOUTH MODEL AIRCRAFT SOCIETY.

**Cup Offered for Duration Flight.**—At the last meeting of the Bournemouth Model Aircraft Society, the secretary informed members that Mr. George Baster had offered to put up a Five Guinea Cup or Trophy for a duration contest for model aircraft conforming with the S.M.A.E. formula.

Mr. Baster explained that he had made the offer in order to encourage development of the type of machine capable of winning back the Wakefield Cup from America.

### Enthusiastic Juvenile Required.

THE enthusiast desires to hear from a capable juvenile who can unquenchingly devote an unlimited amount of time to the Junior Section. Preference will be given to one with some experience in Model Flying and a general knowledge of Aeronautics. The selected applicant must become a member of the Society:—H. F. Weller, Hon. Secretary, Bournemouth Model Aircraft Society, 18, Madison Avenue, Bournemouth.

## BOULTON &amp; PAUL PATENTED CLOSED-JOINT TUBES.

ONE of the more interesting of the Boulton & Paul products developed in connection with their scheme for standardised aircraft components, is the closed-joint tube. The Boulton & Paul system manufactures these tubes from strip by a patented process, whereby lengths up to 70 ft. (in thicknesses down to 0.005 in.) can be produced in almost any material.

In the case of steel, a range varying from ordinary mild steel to 100 tons per square inch steel may be used. The high-tensile properties of the latter is established after the formation of the section by the Boulton & Paul patented heat-treatment process.

Closed-joint tubes made of duralumin, aluminium, monel, etc., have all been successfully produced in diameters ranging from  $\frac{1}{4}$  in. o.d. In standardising the circular tubes of this class, the Boulton and Paul system provides for sizes between 1 in. and 3 in., ascending from the 1-in. diameter in  $\frac{1}{4}$ -in. steps. A few small sizes are made, i.e.,  $\frac{1}{4}$ -in. o.d.  $\frac{3}{4}$ -in. o.d. and 1-in. o.d. in 0.007 and 0.010 in. thickness materials for use in such members as the bracing posts on ribs.

The advantages claimed for these tubes made from strip compared with the solid-drawn tube may be summarised as follows:—

(a) *Cheapness.*—These closed-joint tubes are generally cheaper than the equivalent solid-drawn tubing, the difference being most pronounced in the case of the thinner gauges.

(b) *Concentricity.*—As they are made from strip, for which the tolerance across the width is something quite small, the bore of these tubes is practically concentric. Quite a large tolerance is permitted in the specification for solid-drawn tubes, which adversely affects their design strength, as the design of any strut must be based on the assumption of maximum eccentricity permitted by the specification. In other words, these closed-joint tubes carry, it is claimed, greater end loads than the equivalent area solid-drawn tube of the same material.



### An Interesting Engine

As our readers will know, the Pobjoy engine has now gone into production at the new works of Pobjoy Airmotors, Ltd., Hooton, Cheshire, and those who are interested in it should make a point of seeing an engine now being exhibited at Selfridge's. This particular model has done over 400 hr. flying, including a large amount of racing and full throttle work and has stood the test perfectly. It is an extremely interesting engine, as in spite of its low weight it is geared and therefore gives manufacturers of small aircraft a chance to build something fast and efficient.

### The Royal Air Force Display

This year's Royal Air Force Display, the Twelfth, will be held on Saturday, June 27th, at Hendon. As before, the gates open at 10 a.m., and the programme is completed at about 5.30 p.m. Details of the programme are not, of course, available just yet—but please note the date. It may be of interest to record that the attendance in 1930 surpassed all previous years—154,120 persons and 10,837 cars were admitted to the aerodrome and official car parks.

### British 'Planes for Japanese Newspaper

THE de Havilland Aircraft Co., Ltd., has received instructions to supply two "Puss-Moth" cabin aeroplanes to *The Asahi*, one of Japan's most important newspapers, published in Osaka and Tokio. It is understood that these 'planes will be used for the rapid transport of reporters, papers and photographic negatives, and perhaps also for aerial photography.

### Gipsy Moths in Switzerland

THE de Havilland Company has received an interesting letter from Herr R. Herzig, Assistant Manager of the aerodrome at Basle, of which the following is a summary:—

(a) The "Moth," with "Gipsy I" engine, supplied to the Basle Aero Club in 1928, has now completed 467 hours flying, during which 4,071 landings have been made. Although the de Havilland Aircraft Co., Ltd., as manufacturers of the "Gipsy" engine, recommend a complete overhaul after 450 hours flying, the "Gipsy" engine of this "Moth" has never been completely overhauled. So far it has given no trouble whatsoever. (b) The "Moth," with "Gipsy I" engine, privately owned by Herr Schetty, has completed 111 flying hours and has made 703 landings. It has had no overhaul of any kind, and no replacements have been effected. The owner reports it to be "working to his full satisfaction."

### Autogiro Developments

As a result of demonstrations with an American-built Autogiro, given recently to Mr. David S. Ingalls, Assistant

(c) *Adaptability.*—The process by which these tubes are made is equally applicable to steels or light alloys such as duralumin, etc. Also, by the combined patented process of forming the tubing from the soft strip and afterwards heat treating, it is possible to obtain these tubes in very thin gauges and in very high-tensile strength material. An example occurs in the case of  $1\frac{1}{4}$ -in. o.d. by 27 gauge stainless steel of about 100 tons per square inch tensile strength, which can be made in 70-ft. lengths and which were, in fact, used in the airship R 101 structure in lengths of 45 ft.

(d) *Lengths available.*—As these tubes are made from strip, the length of tube which can be produced is in general limited by the draw-bench length, which in the case of the Boulton and Paul system is 70 ft. There are few occasions, of course, when such long lengths are required, but the fact that they are produced in these lengths and afterwards cut to suit customers' requirements enables designers to dispense with joints so far as other conditions permit.

(e) *Stainless Steel.*—As indicated in (c) above, this process of tube manufacture is equally applicable to the manufacture of stainless steel tubes, which can be produced in the whole of the range referred to above.

(f) *Special Sections.*—In addition to the circular tubing described above, the Boulton and Paul system of manufacture enables a similar type of member to be made in a variety of shapes. Particularly noteworthy amongst these shapes are:—

- (1) Square tubing.
- (2) Streamline tubing.

These members in general have all the advantages of the circular tubing.

The company will be pleased to supply further details concerning the range of sizes available, etc., on application to Boulton and Paul, Ltd., Norwich.



Secretary to the Navy for Aeronautics, the U.S. Navy have purchased an Autogiro fitted with a 300-h.p. Wright "Whirlwind" engine. It is thought that the Autogiro presents many possibilities as regards operation with ships at sea, owing to its ability to take-off from and alight on confined areas. We understand that this side of the Autogiro's qualities is also being considered in this country. Another sphere of activity in which the Autogiro is thought to possess possibilities is that of aerial fire-fighting. Col. L. Coll, Chief Fire Warden of the State of New Jersey, is, we learn, investigating the matter following a demonstration on one of the latest Autogiros produced by the Pitcairn-Cieva Autogiro Co. of America.

### British Empire Trade Exhibition

THE Department of Overseas Trade calls our attention to the fact that a memorandum entitled "Hints for Commercial Visitors to the Argentine Republic" has been prepared by the Commercial Counsellor to His Majesty's Embassy at Buenos Aires. The memorandum, which is numbered C 3451, can be obtained from the Department of Overseas Trade, 35, Old Queen Street, London, S.W.1. The following points should be borne in mind by those intending to visit the Argentine specifically in connection with the Exhibition in 1931:—The weather in Buenos Aires at this time of the year is generally comparable to English Summer weather, and similar clothing should, therefore, be brought. The vaccination regulations usually enforced will be waived for visitors to the Exhibition travelling 1st and 2nd class or by Tourist ship. Special arrangements have been made by the Exhibition Authorities to enable the introduction, free of duty, of samples and propaganda materials and literature, provided these are intended solely for use or distribution at the Exhibition. Further details of these arrangements can be obtained at the London Office of the Exhibition, 5, Parliament Mansions, Victoria Street, London, S.W.1. Advance hotel bookings are already heavy, and intending visitors are advised to make the necessary arrangements in this connection as quickly as possible.

### Bert Hinkler's Loss

It is reported that Mr. Bert Hinkler has suffered the loss of all the medals and trophies he has won. They were stolen in Detroit, on January 30, while he and his wife were dining in a restaurant.

### Gold Medal for Miss Amy Johnson

THE Society of Engineers has awarded the President's gold medal to Miss Amy Johnson for her paper on "The attention that I gave to 'Jason's' engine during my flight."

# THE ROYAL AIR FORCE

London Gazette, January 27, 1931

**General Duties Branch**

Major V. D. Cheshire, A.R.C.O., is granted a short service commission, as Pilot Officer (probation, with effect from and with seniority of Jan. 4; Major V. D. Malloy, M.C., R.A.R.O., is granted a short service commission, as Flight Lt. (Hon. Squadron Leader) on the Supplementary List, with effect from Jan. 15, and with seniority of Oct. 19, 1923; Lt. A. D. C. J. Miller, 17th/21st Lancers, is granted a temp. comm. as Flying Officer on being seconded for duty with R.A.F. (Jan. 13). The follg. are granted temp. comm. as Flying Officers: R.A.F. appointments to R.A.F. (Jan. 18)—Lieutenants, R.N.—A. F. Black, J. G. Stames, C. P. Wade. Sub-Lieutenants, R.N.—J. H. T. Boteler, J. C. Cockburn, J. L. G. Evans, V. D. Gask, P. L. H. D. Irven.

The follg. Pilot Officers are promoted to rank of Flying Officer (Dec. 28, 1930)—N. Alexander, G. Burne, G. N. Warrington. Flying Officer C. H. A. Colman relinquishes his short service comm. on completion of service (Jan. 17); Lt. D. R. C. Hodson, R.N., Flying Officer, R.A.F., relinquishes his temp. comm. on return to Naval duty (Jan. 18). Flying Officer F. W. W. Wilson is transferred the Service by sentence of General Court-martial (Dec. 3, 1930) Gazette Aug. 15, 1930, concerning Flying Officer G. H. W. Selby-Lowmies is cancelled.

**Stores Branch**

Pilot Officer on probation W. A. Lee is confirmed in rank and promoted to rank of Flying Officer (Jan. 10).

## ROYAL AIR FORCE INTELLIGENCE

**General Duties Branch**

Wing Commanders: W. Hicks, F.G.S., is promoted to rank of Wing Commander, as Assistant to the Director of Personal Services; 23.1.31. A. G. R. Gardrod, M.D., D.F.C., to H.Q., Iraq Command, for Air Staff (Operations) duties; 17.1.31. A. C. Wright, A.F.C., to No. 205 Sqn., Singapore, pending taking of temp. comm.; 17.1.31. G. L. H. B. Maitland, to R.A.F. Uxbridge, whilst attending course at R.N. Staff College, Greenwich; 13.1.31. A. J. Cappel, D.S.O., D.F.C., to R.A.F. Depot, Uxbridge, whilst attending course at Army Staff College, Camberley; 22.1.31. Wing Commanders: W. B. Farrington, D.S.O., to R.A.F. Depot, Uxbridge; 13.1.31. J. C. Slosser, M.C., to R.A.F. Depot, Uxbridge; 21.1.31. A. H. Brown, A.F.C., to R.A.F. Depot, Uxbridge; 24.1.31. L. G. G. B. Croker, to No. 100 Sqn., Dunfermline; 10.1.31. B. M. Forcett, to No. 205 Sqn., Singapore; 17.1.31. O. W. de Putron, to H.Q., Iraq Command; 17.1.31. W. Mackey, H. E. P. Wigglesworth, D.S.O., A. C. Collier, H. G. W. Lock, D.F.C., A. C. E. V. Darter, R. A. George, M.C., and G. P. Smylie, D.S.C., to R.A.F. Staff College, Andover, for staff course; 19.1.31.

Flight Lieutenants: D. P.H. Humphreys, G. M. Knocker, W. S. Allen, to R.A.F. Base, Singapore; 17.1.31. W. E. Stabon, M.C., G. H. Smith, M.C., to No. 205 Sqn., Singapore; 17.1.31. G. B. Swain, to No. 2 Indian Wing Station, Risalpur; 23.12.30. J. G. Franks, to H.Q., R.A.F., India; 19.1.31. W. A. Franklin, M.C., to Armament and Gunnery School, Eastchurch; 20.1.31. H. N. Thastum, to R.A.F. Depot, Uxbridge; 21.1.31. W. E. Beak, F. L. B. Hebbert, P. L. Plant, J. S. Chick, M.C., A.F.C., G. G.

**Vacancies for Apprentice Clerks, Royal Air Force**

The Air Ministry announces that vacancies exist in the Royal Air Force for well-educated boys, between the ages of 15½ and 17, to enter as apprentice clerks in April, July, October, and January next. The appointments will be made partly by the direct entry of boys who have obtained an approved school certificate, and partly by means of open competitions which will be held by the Civil Service Commission in April and October at various centres. Detailed information regarding the apprentice clerk scheme can be obtained from the Secretary, Air Ministry (Appointments Clerks' Department), Gairney House, Whitehall, S.W.1. Successful candidates will be required to complete, in addition to the training period, 12 years' Regular Air Force service after reaching the age of 18. At the age of 30 they may return to civil life or may be permitted to re-engage to complete their pension. Boys entered under this scheme undergo a two years' course of training in clerical duties, typewriting, shorthand, book-keeping and practical office-work, during which time their general education is continued under a staff of graduate teachers. The apprentice clerks are paid 1s. a day for the first year and 1s. 6d. a day afterwards. The subsequent commencing rates of pay, varying from 30s. to 46s. 6d. a day (21s. to 31s. 6d. a week), depend upon the degree of success they achieve at their final examination. In addition, they receive free board and lodging and a uniform allowance.

**Vacancies for Aircraft Apprentices, Royal Air Force**

The Air Ministry announces—Five hundred aircraft apprentices between the ages of 15 and 17, are required by the Royal Air Force for entry into the Schools of Technical Training at Halton, Bucks, and at Cranwell near Stamford, Lincs. They will be enlisted as the result of an open competition, the nature of a limited competition, and these competitions will be held in accordance with the Civil Service Commission and the Air Ministry regulations. Boys in possession of an approved first school certificate may also be admitted on other educational examinations. Successful candidates will be required to complete a period of 12 years' regular Air Force service from the age of 18, in addition to the training period. At the age of 30 they may return to civil life or may be permitted to re-engage to complete their pension. Full information regarding the dates of the respective examinations, the methods of entry, and the aircraft apprentice scheme generally can be obtained upon application to the Secretary, Air Ministry (Aircraft Apprentices' Department), Gairney House, Whitehall, S.W.1. The apprentices' commissions, warrant officers, and senior N.C.O.'s of the three services will give special consideration.

The scheme offers a good opportunity to well-educated boys of obtaining a three years' apprenticeship course of a high standard and of following an interesting technical career. Already over 6,000 aircraft apprentices have completed their training at the technical schools of the Royal Air Force, and the annual output is approximately 1,000. The apprentices' commissions offer the principal trades open to boys are: metal rigger, a new trade brought into existence by the introduction of the metal aeroplane, which involves the construction of the fuselage, sheet-metal work; fitter (aero engine); fitter (aero engine); wireless operator-mechanic and electrician. The apprentices' commissions are a thorough training in their trade by highly qualified technical staff of graduate teachers.

The follg. Squadron Leaders, R.A.F. Majors, Army Dental Corps, relinquish their temp. comm. on return to Army duty (Jan. 11)—A. K. Macdonald, M.D.S.C., H. O. Sumnerling, L.D.S.

**RESERVE OF AIR FORCE OFFICERS**

**General Duties Branch**

Flying Officer C. H. A. Colman is granted a comm. in this rank in Class A on relinquishing his short service comm. in the R.A.F. (Jan. 17). The follg. Flying Officers are transferred from Class A to Class C—T. Buchanan (Oct. 27, 1930); G. M. Pitts-Watson (Jan. 9). Flying Officer C. G. H. E. Lumsden is transferred from Class C to Class A (Dec. 9, 1930), (Substituted for Gazette Dec. 19, 1930.) The comm. of Pilot Officer on probation W. C. Farr is terminated on cessation of duty (Jan. 6).

**AUXILIARY AIR FORCE**

**General Duties Branch**

No. 601 (COUNTY OF LONDON) (ROMBER) SQUADRON.—Pilot Officer N. R. W. Seely to be Flying Officer (Oct. 9, 1930); Flying Officer J. S. Schreiber resigns his comm. (Jan. 13).

Banting, H. N. Hampton, D.F.C., J. W. Baker, M.C., D.F.C., J. C. Barraclough, L. W. Richardson, A. K. Webb, G. D. H. D. H. D. Davies, A. H. Love, and J. M. G. Fairweather, D.F.C., all to R.A.F. Staff College, Andover, for staff course; 19.1.31.

Flying Officers: G. H. W. Selby-Lowmies, to R.A.F. College, Cranwell; 13.1.31. F. C. Edley Harter, to No. 101 Sqn., Andover; 8.1.31. H. R. Hughes-Hallett, to No. 205 Sqn., Singapore; 17.1.31. D. C. J. Miller, to No. 2 Flying Training Sq., Digby, on appointment to a temp. comm.; 13.1.31.

Pilot Officers: J. S. Hamilton, to R.A.F. Depot, Uxbridge; 19.1.31. H. M. Boves-Lyon, to No. 27 Sqn., Kohat; 17.12.30. H. F. Clayton-Dunham, to No. 205 Sqn., Risalpur; 24.12.30. C. Cheshire, to No. 4 Flying Training Sq., Abu Suer, on appointment to a short-service comm.; 4.1.31.

**Stores Branch**

Squadron Leader A. E. Sutton Jones to R.A.F. Staff College, Andover, for staff course; 19.1.31.

Flight Lieutenants: A. C. H. Pownall, to No. 2 Flying Training Sq., Digby; 22.1.31. F. A. Skoulding to R.A.F. Staff College, Andover, for staff course; 19.1.31.

Flying Officers: F. J. H. Starling, to No. 26 Sqn., Catterick; 30.12.30. P. S. R. Kitchard, to R.A.F. Base, Singapore; 17.1.31.

**Accountant Branch**

Flying Officer V. Matveeff, to R.A.F. Base, Singapore; 17.1.31.

During the training period the rate of pay is 1s. a day for the first two years and 1s. 6d. a day thereafter until the apprentice has both attained the age of 18 and been posted to a unit on completing his training. When he is posted to a unit for duty as an aircraftman, the commencing rate of pay varies from 36s. 3d. to 55s. 6d. a day (22s. 9d. to 38s. 6d. a week), according to the marks obtained in the passing-out examination. He also receives free board and lodging and a uniform allowance. Subsequently, there is the prospect of promotion, on passing certain prescribed tests. A few appointments of special promise proceed to the Royal Air Force College (all their fees there being remitted) for training with a view to becoming commissioned officers.

The Open Competition is conducted by the Civil Service Commissioners at the following centres:—

London, Belfast, Edinburgh, Plymouth,  
Birmingham, Chatham, Cardiff, Portsmouth,  
Plymouth.

The Limited Competition is conducted at numerous centres selected by the various Local Education Authorities to bring the examination as near as possible to the neighbourhood in which their candidates reside.

For the remainder, opportunities arise later to volunteer to qualify in flying and become airman-pilots. Between 100 and 120 of the latter are selected annually from volunteers of all trades. From amongst airman-pilots a few are periodically selected for commissioned rank.

**R.A.F. SPORT CROSS-COUNTRY**

THE Air Ministry Cross-Country Championship was run off at Risulip on Wednesday, January 21. The order of finishing was:—  
1, H. Still (Kidbrooke A.C. and Kent A.C.), 35 min. 4 sec.; 2, F. S. Bryant (Hemel Hempstead A.C.), 35 min. 14 sec.; 3, A. R. Dudgeon (Blackheath H.), 38 min. 13 sec.; 4, S. A. W. Evans (Orion H.), 38 min. 18 sec.; 5, H. C. Watson (Blackheath H.), 38 min. 50 sec.; 6, D. A. Pratt, 37 min. 39 sec.; 7, J. F. McClellon (Polytechnic H. and Loughton A.C.), 37 min. 49 sec.; 8, L. W. Davies, 37 min. 53 sec.; 9, L. E. Fletcher (Helgarve H.), 38 min. 30 sec.; 10, M. Noekles, 38 min. 40 sec.; 11, E. J. Pike (Orion H.), 41 min. 3 sec.; equal 12, P. H. V. Lacey (Fourstore A.C. and Finchley H.) and P. E. Halliwell (Kent A.C.), 43 min. 6 sec.

**HOCKEY**

**Civil Service.**—R.A.F. The R.A.F. at Duke's Meadow, Chiswick, by five goals to love on Wednesday, January 21. The sides were:—  
**Civil Service.**—K. M. Hancock (Exchequer and Audit), goal; D. K. Daniels (Colonial Office) and F. Brundrett (Admiralty), backs; M. Gates (Foreign Office), J. H. Evans (Admiralty), and T. L. Rowan (Colonial Office), half-backs; D. H. Gates (Friendly Societies Registry), H. A. Wade (Inland Revenue), F. I. Connell (Admiralty), H. D. Scrogins (Exchequer and Audit), and H. P. Pope (Army Agency), forwards.  
**Royal Air Force.**—Corpl. C. Butler (Stanton), goal; Corpl. N. Foreman (North Weald) and Corpl. L. G. Beeton (Hemlow), backs; L. A. C. L. R. Hobbs (Uxbridge), Sergt. W. C. Maher (Upavon), and L. A. C. D. R. Lodge (Worthy Down), half-backs; Flying Officer D. F. Lascelles (Sealand), Flight-Lieut. N. H. Hampton (Andover), Flying Officer H. E. Sales (Hicestor), Flying Officer C. S. Burton (Sealand), and L. A. C. G. Stevenson (Hemlow) forwards.

## IN PARLIAMENT

### Light Aeroplane Clubs

Mr. MONTAGUE, on January 22, in reply to Mr. Everard, said fourteen light aeroplane clubs have been approved for financial assistance under the Air Ministry scheme; in addition, six clubs are affiliated to National Flying Services, Ltd., and thereby benefit by grants paid by the Air Ministry. The agreement with that organisation. The number of new pilots trained by these clubs during the present financial year, up to the end of November, was 365.

### Schneider Trophy Race

Mr. MONTAGUE, in reply to Rear-Admiral Suter, said the decision of the Government in support of the Schneider Trophy contest precluded the Air Council from allowing any serving officer of the Royal Air Force to take part as a competing pilot.

### Flying Clubs

Mr. MONTAGUE, on January 27, in reply to Mr. Mander, said: I believe that several non-assisted flying and gliding clubs have been started during the last twelve months, but I have no official information regarding them. As regards assisted clubs, one club—Blackpool (and Fylde)—which has started since January 1, 1930, is affiliated to National Flying Services, Ltd., and will thereby benefit by grants paid by the Air Ministry to that organisation. Three clubs—Leicestershire, Northamptonshire and South— which started before that date have now been approved for direct financial assistance under the Air Ministry Light Aeroplane Clubs schemes.

### Royal Air Force, Northern Ireland

Mr. MONTAGUE, in reply to Mr. Ross, said: There is only one Royal Air Force unit in Northern Ireland; it is a cadre squadron and consists partly of regular and partly of Special Reserve personnel. The strength of the squadron is 28 officers and 188 airmen; of these, 14 officers and 81 airmen belong to the Special Reserve.

### Warships (Aeroplanes)

Mr. ALEXANDER, on January 28, in reply to Lt.-Com. Kenworthy, said: one British battleship and one British cruiser in commission, are fitted for launching aircraft from catapults and actually carry aircraft. Four other British cruisers in commission actually carry and operate aircraft, but they are not yet fitted with catapults they do not launch them in the full sense of the word.

### Air Ministry

Mr. MONTAGUE, in reply to Capt. F. Balfour, said the numbers of civilian staff employed at the Air Ministry on January 1, 1930, and January 1, 1931, were 1,706 and 1,719, respectively. During the year 1930 seven civil servants were appointed to posts previously held by Royal Air Force serving officers. Several similar replacements are now under consideration and will probably be made during 1931. There is a certain policy for the substitution of civilians for officers in places where the particular qualifications and experience of service officers are no longer required.

### Trans-Atlantic Air Service (Subsidy)

Mr. MONTAGUE, in reply to the Under-Secretary of State for Air whether, with regard to the proposed agreement between Imperial Airways and Pan-American Airways, Incorporated, for an Atlantic air service, any subsidy had been applied for or is contemplated; and whether the use of British aircraft will be a condition of the granting of any subsidy from public funds? Mr. MONTAGUE: No formal proposals for a Trans-Atlantic air service have as yet been submitted to the Air Ministry by Imperial Airways, Limited. As regards the second part, the point mentioned will be borne in mind if and when any such proposals are received. The point is observed in existing agreements.

### All-Metal Machines and Buoyancy

SIR RENNELL ROSS asked the Under-Secretary of State for Air whether any practical results have been obtained from the experiments undertaken with a view to giving buoyancy to the all-metal machines used by the Royal Navy for long range flights at sea?

Mr. MONTAGUE: The experiments undertaken have been successful and an order has been given that the all-metal Fleet Air Arm aircraft are all to be equipped with a new form of emergency downing gear. A large proportion of the aircraft are now being equipped, and in the case of new types, buoyancy is being included in the design.

### Accident Inquiries

MARQUESS OF CLYDESDALE asked the Under-Secretary of State for Air if he will take steps to ensure that a public inquiry should immediately be held on every commercial air accident, as is the case in rail and steamship accidents.

Mr. MONTAGUE: The whole subject of the investigation of aircraft accidents is being carefully considered by the Air Council and I am therefore not in a position at present to make any statement of policy on the points raised in the questions.

### Aircraft and the Royal Navy

Mr. ALEXANDER, First Lord of the Admiralty, in reply to Mr. D. G. Somerville, said the present number of aircraft available for service with the British Fleet is 142. Accurate figures showing the aircraft available for service with the Royal Navy and Japanese Fleets are not known, and cannot therefore be given, but from published information available it is estimated that the number for United States is 255, excluding 51 first line aircraft, which with their crews are carried in fleet tenders, and excluding also the shore based aircraft of the United States Naval Air Service.

### Schneider Trophy Race

COMMANDER OLIVER LOCKER-LAMPSON, on January 29, asked the Prime Minister whether he could make a statement respecting the Schneider trophy?

The Prime Minister, in reply, and to a question by Capt. P. MacDonald said: I have received representations from a deputation of Members of this House to the effect that the money required will be raised from private sources so that no expense will fall on public funds. The Air Ministry has also had a further consultation with representatives of the trade. The Government express regret that the attempts within the last 15 months to interest those concerned have been so little attended to that very little preparation is now so very short, and our latest information, even this morning is that there is no certain guarantee that the funds can be raised. Although this delay must be the disadvantage of the British entry, and although His Majesty's Government are strongly averse from perpetuating these contacts between rival Government teams, they are so interested in the race that they are prepared under the circumstances once again to authorise the defence of the trophy by the Royal Air Force, and the provision of assistance as in 1929, provided that a definite undertaking is given immediately that the necessary funds will be available from private sources.

Sir Philip Sassoon: May I ask whether that means that all extra expense incurred by the Government in organising and running this race shall be borne by the Royal Aero Club?

The Prime Minister: A deputation did me the great honour of coming to see me the other day, and we discussed those points. If the Royal Aero Club is prepared to guarantee the sum that they wish to spend, then the details will be subject to negotiations between the two; but I want to emphasise that the whole thing must be done immediately, as we cannot wait another month or two.

Sir P. Sassoon: I am anxious to make clear that the expenses normally incurred by the Air Ministry, whether the race is run or not, will, of course, fall upon the Royal Aero Club.

The Prime Minister: I do not want to have any quibbling about this. A sum was mentioned at the interview, and that sum was to cover the expenses, which were, again, to be covered by private subscription. That is the way we stand by.

Sir Samuel Hoare: Does the Prime Minister realise that it is very difficult to distinguish between the expenses which would be normally borne by the Air Ministry and the extra expenses of the race, and will he give an undertaking that he will look sympathetically at this question, so as to see that the sum is kept down to the lowest possible amount?

The Prime Minister: Understood, that there was no dispute at all about exactly what the situation was, and I would put it in this way: That the Royal Air Force are willing to waive their great objections to the 1929 situation in view of the circumstances that exist to-day and of their desire to see the race run with Great Britain on an entrant, but the Government are not prepared to find the expenses over and above what would be normally incurred by the Air Force and by the Admiralty in the use of ships if they were not brought there specially for that purpose, and so on; in other words, so that the running of the race will not involve a public charge.

Commander Locker-Lampson: May I ask whether the Prime Minister is aware how very much we are obliged to him for his courtesy and good will in receiving us, and how I personally, and those acting with me, will do our very best to raise any money we can?

### Indian Mail Service

Mr. MONTAGUE, in reply to Mr. Manders, said representatives of the British and Italian Air Ministries recently settled in Rome the details of an agreement under which, in return for certain reciprocal facilities, the Italian Government will permit Laperuta Airways, Limited, to resume operation by their former route over Italian territory. The question of taking advantage of this permission is now under consideration by the company.

## PUBLICATIONS RECEIVED

*Little America.* By Rear Admiral R. E. Byrd (U.S.N. Ret.) London: G. P. Putnam's Sons. Price 21s. net.

*Canada's Fighting Airmen.* By Lieut.-Col. G. A. Drea. Toronto: The Maclean Publishing Co., Ltd. Aldershot and London: Gale and Polden, Ltd. Price 22s. 6d. net; 1s. 10d. edition 30s. net.

*Brassey's Naval and Shipping Annual, 1931.* London: William Clowes and Sons, Ltd. Price 25s. net.

## NEW COMPANIES REGISTERED

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## AERONAUTICAL PATENT SPECIFICATIONS

(Abbreviations: Cyl. = cylinder; i.e. = internal combustion; m. = motors. The numbers in brackets are those under which the Specification will be printed and abridged, etc.)

- APPLIED FOR IN 1929**  
*Published February 5, 1931*
- 30,377. F. R. WENK. Instruments for indicating the rate of ascent and descent of aircraft. (341,076.)
- 35,956. M. J. B. BARBAROU. Aircraft driving-gear. (341,206.)
- 39,923. NIEUFORT-ASTRA. Metallic construction of aeroplanes. (341,251.)
- APPLIED FOR IN 1930**  
*Published February 5, 1931*
- 1,964. ECLIPSE AVIATION CORPN. Engine starting. (341,270.)
- 1,967. ECLIPSE AVIATION CORPN. Engine starting. (341,271.)
- 2,581. C. SMITH & SONS BOLT CO. and J. W. SMITH. Hydroplane vessels. (341,282.)
- 8,173. E. HEINSEL. Launching devices. (341,334.)
- 8,445. R. P. PESCARA. Securing cyl. covers of i.c. engines. (341,341.)
- 8,486. C. COHEN-VENEZIAN. Means for transporting the dismounted wing of aeroplanes. (341,377.)
- 8,566. G. L. R. J. MESSIER. Means for controlling brakes upon an aeroplane. (341,407.)

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