

Flight, October 29, 1915.

FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the interests, practice, and progress of Aerial Locomotion and Transport.

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EDITORIAL COMMENT.

Air Raids and their Antidotes.

What the position of London is, in regard to the attacks from the air, has almost ranked during the past fortnight upon a par with the unrest which the new developments in the Balkans have created. Which goes to demonstrate how far the sense of proportion is absent from the majority of those who are intimately concerned with the question, and how little is realised the critical position which is being disclosed by this new offensive in the near East. No doubt it is but natural that the immediate troubles of London should find expression in a desire to see the effect of the air raids mitigated, but the remedy will hardly be found in the mere reiteration, by however many of the public, of the parrot cry that the Zeppelin airships' depredations *must* be stopped. The counsels which have been put forward by all and sundry are the very barest bones of any practicable suggestions, by reason of the entire absence of knowledge of what the problem demands. In the appointment of Sir Percy Scott, as we have previously pointed out, the Government has given

the people a good sheet-anchor on to which to fasten their hopes, and we believe that, given a reasonable time for the establishing of his cordon of anti-aircraft defences, Sir Percy will be found to have evolved an antidote to the objects of the German air pirates. The trouble is that most folk appear to imagine that these sort of operations can be brought into being as readily as the ordering of a six-course meal at the Savoy or Carlton. They in no sense realise the many channels which have to be set in motion before even the first effects of such a new *régime* can be felt. It is true that all these precautions should have been thought out long ago, when it was quite evident the object of the earlier voyages to this country were but feelers by the air pilots in the direction of ultimately making London the bull's-eye of their target. Those in authority should have grasped the meaning of those earlier visits. It was not for the want of it being pointed out that they have remained so dense. But the easier way was at the time to "wait and see," and so procrastination gained the day until solid facts and agitation have compelled the adoption of an active policy of protection. What Sir Percy Scott's exact plans are it is not possible to divulge, but as officialdom has allowed it to transpire that part of the scheme is the increase in the *number* of the guns available at various points, and a change in the *character* of the artillery, we may hope the next raiders may have a somewhat warmer reception than they have hitherto experienced, since part of the revised plan of campaign is already in being. Want of experience in the gunners no doubt has accounted in the past for some of the shortcomings of our defences, but with the material at their command the blame in this direction requires to be very much qualified.

For a moderate and reasoned statement of the position as it is, Lord Sydenham's speech in the House of Lords last week, in connection with the questions raised by Lord Strachie upon the air raids on the Metropolis, stands out in striking contrast to the vague and irresponsible outpourings of the gasbags who are stumping London, ostensibly in the interests of the London inhabitants, but in reality in support of their own personal notoriety.

Lord Sydenham's opening remarks at once commanded respect when he pointed out that in order to get effective practice at night several complicated conditions have invariably to be fulfilled. The attacking

Zeppelin must be found by an electric beam, or else it cannot be shot at. When a beam has found it, that beam must continue on the Zeppelin as it passes rapidly over London, or hand it over to another beam. The range of an electric light beam is considerably less than the range of a gun and may be sharply affected by atmospheric conditions. In some conditions of atmosphere its range is very short indeed. Then the gunner must know the range within very narrow limits of accuracy, and the range will change as the Zeppelin moves. The time fuse of the shell must be set very accurately in order that the shell shall burst at the proper distance from the object. There are also difficulties with sighting, because sights are based upon range tables calculated for terrestrial targets, and therefore they are wrong when you begin to shoot up into the air.

To put untrained and unpractised men to work guns under such conditions, Lord Sydenham suggested, was like expecting a man who had never before fired a gun to bring down driven grouse. What was wanted, he said, was for men who had been firing frequently at aircraft from the trenches to be brought over here, when very different results would be obtained. It is to be hoped this advice has in a measure already been followed, or some of our gunners from here drafted over to the trenches to get a little practical experience on their own. Lord Sydenham was not very concerned with the danger from our using anti-aircraft guns, as the shrapnel from time-fuse shells falls at such low velocity as to be practically harmless, except to those in the streets—and in this connection, the hint should be accepted to follow the instructions so persistently given by the police authorities, that the safest place for all and sundry is within doors. In regard to the past want of effort by those in power to forestall the visits of the Zeppelins, Lord Sydenham was in accord with us when he said that "what must astonish us most is the long delay in maturing any proper organisation to oppose these raids. We had ample warning, and threats in abundance. Yet nothing was done until recently to take the question in hand and deal with it properly."

He also with sound reason criticised the divided authority which appeared to exist, his concluding remarks being to the effect that he was not quite sure that even now we could count on such a sound and complete organisation as would prevent any question of a division of responsibility, which implied in the long run that there was no responsibility at all. He hoped that this neglect had been entirely remedied, and that measures had at length been taken which would make these cowardly and brutal enterprises too dangerous to be undertaken. He was strongly opposed to reprisals in kind, but he believed that by proper organisation and proper handling of guns by men who knew how to use them we could soon assure ourselves that these raids would never be attempted again. All which sentiments we heartily applaud.

When the subject cropped up again the next day in the Commons, the point raised was as to the advisability of the whole of the London area being publicly warned of any approaching raid, and we cannot help but be in thorough accord with the decision come to by the Government, as expressed through the Home Secretary, that of the two evils they preferred to select the lesser, and not announce a possible attack from the air. Already the general public have proved quite unconcerned in regard to seeking refuge indoors. Their one idea is to get into the street and see the show. As this procedure has definitely been found to be their

own undoing by adding considerably to the victims of the bombs, it would appear as the only possible course to pursue to let the brutes announce themselves when they have succeeded in reaching points which they consider worthy of their attention. As Sir J. Simons said: "After all, if you do tell the men, women and children of this metropolis that, it may be, in the course of an hour or two hours' time we shall be honoured with a visit from a Zeppelin, what exactly is it which the men, women, and children of London are expected to do? Of course, if those who conducted those invasions were careful to do no damage to civilian life, if they really were prepared and were able to take precautions not to strike private property, it would be a very reasonable thing to secure that everybody went home, but our experience goes to show that, from want of will or want of power, the Zeppelin does not take the slightest consideration of that. . . . The view which is presented by the Admiralty, and which we have felt it right to adopt, is that on the whole it is better not to attempt to warn people of the suggested approach of these Zeppelins. The public must, therefore, understand that they must take their risk if they go to places where numbers of people are assembled at night."

"This has not been some hasty, careless edict, part and parcel of what some people call the deliberate policy of the Government to conceal from the people of England the truth. It is nothing of the kind. This is a policy which has been adopted after most carefully weighing the pros and cons of the matter."

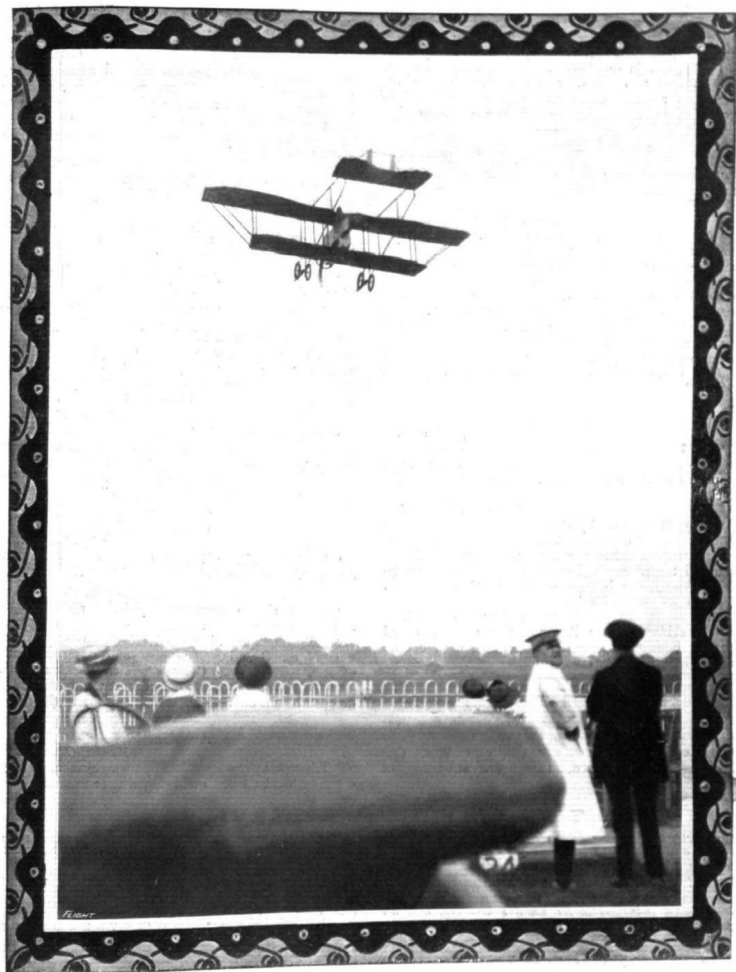
"I believe there are some areas in England where the alternative policy has been tried. In one such area I know that the number of false alarms which have been given has produced a very great deal of consternation, and the total result is, to say the least of it, extremely doubtful from the point of view of promoting public safety."

"Londoners may be perfectly satisfied that everything that can be done will be done in order to minimise the risk to which they may be put. Nobody can feel more keenly than the Government do the seriousness of the individual tragedies which have been created by these horrible attacks, but, after all, it is a risk which we here have got to bear. Great as the risk is, it is small in comparison with the daily and nightly risk run by our heroes in battle."

This sound wind-up to a sound speech was greeted by the whole House with cheers, which we most heartily re-echo and commend the good advice given to the whole of our readers.

The Work of the R.F.C.

Feathers indicate fairly clearly which way the wind blows, and so the relative importance of activities at the front is naturally reflected in the official despatches and *communiqués* which come from the various headquarters of the opposed Armies. In this connection the reports published this week are worthy of note. The official *communiqués* from Sir John French, from Paris and from Berlin, all show a remarkable preponderance of space allotted to the work of the Flying Services. In the British report of the 24th eight lines out of eighteen refer to the R.F.C. doings; in the German despatch published the next day, eight lines out of eleven is the proportion, and in the French official *communiqué* of the 26th no less than seventeen lines out of nineteen are devoted to the work of the French air pilots. And aviation is as yet but in its swaddling clothes!



"Flight" Copyright.

The finish of a fine spiral *vol plané* by Mr. J. H. Moore at Hendon.

AIRCRAFT WORK AT THE FRONT. OFFICIAL INFORMATION.

British.

General Headquarters, Oct. 24th.

"On the 22nd inst. four of our pilots had engagements in the air, and in each case the enemy's machines were either forced to descend or driven away. One of the German aeroplanes dived head first from a height of 7,000 feet into a wood just behind the enemy's lines."

French.

Paris, Oct. 22nd. Afternoon.

"A group of our aeroplanes bombarded the German aviation park at Ounel, between the Argonne and the Meuse."

Paris, Oct. 26th. Evening.

"One of our pilots, on a monoplane, chased to the north of Dormans one of the enemy's machines, which he attacked at short range after catching it up. The motor of the German machine was struck more than once by machine-gun bullets, and the airman was obliged to come down near Jaulgonne, in the Marne Valley."

"The two officers in the aeroplane, one a captain and the other a lieutenant, were captured as they were about to destroy the machine. We succeeded in capturing it intact. It was a high-speed biplane of the very latest pattern."

Russian.

Petrograd, Oct. 20th.

"Our Ilya-Murometz aeroplanes yesterday made a raid on the station of Friedrichshu, south-west of Mitau, and dropped several dozen bombs on the buildings and rolling stock."

Petrograd, Oct. 21st.

"Near Mitau our Ilya-Murometz battle aeroplanes dropped several dozens of bombs. According to information from a reliable source the bombs seriously damaged the railway and enemy stores. In the region of Olai our troops brought down a German aeroplane. The aviators were killed."

Petrograd, Oct. 24th.

"On Friday night a Zeppelin flew over Riga and dropped bombs on several parts of the town, but no military buildings were damaged."

Italian.

Rome, Oct. 20th.

"Yesterday a flotilla of our aircraft again flew over the enemy aviation ground at Aisovizza, throwing many bombs, with results which were visibly excellent. Our aircraft returned uninjured, although fired at by many of the enemy's guns."

Rome, Oct. 21st.

"Yesterday morning, in adverse atmospheric conditions due to fog and strong wind, our air squadrons carried out further bold raids over the Carso. The aviation centre at Aisovizza was bombed, as were enemy columns near Birhula and Temmica, an artillery emplacement in the Doberdo zone, the railway station at Daino, and the viaduct north of that place. Our airmen escaped from the fire of the enemy's numerous anti-aircraft guns, and returned safely."

Rome, Oct. 25th.

"Soon after ten o'clock last evening two attacks at brief intervals were made on Venice by hostile aeroplanes, which threw several bombs on the town, some of them incendiary. One bomb struck the roof of the Church of the Scalzi, bringing down the ceiling, which contained precious paintings by Tiepolo."

"Another incendiary bomb fell in Piazzetta San Marco, without doing any damage. Five others fell partly in the water, partly in some districts of the town, causing very slight damage."

"In the course of a third attack, made an hour afterwards, three bombs were thrown on the town, two of which did no damage, while another, which dropped in the courtyard of an almshouse, set fire to a pile of wood. There were no casualties in all these attacks."

Rome, Oct. 26th.

"On Sunday we effectively bombarded the enemy's encampments on the Bainsizza and Carso plateaux. An enemy Aviatik was attacked by one of our aeroplanes with machine-gun fire and put to flight. All our aeroplanes returned undamaged to our lines."

German.

Berlin, Oct. 20th.

"At Middelkerke an English flying machine was shot down. The occupants were taken prisoners."

Berlin, Oct. 24th.

"Enemy airmen unsuccessfully bombarded Ostend and the railway station of Noyon."

"A British biplane, in an aerial fight, was shot down west of St. Quentin. The pilot and observer, both officers, were killed. German airmen attacked, with apparently good effect, a British camp at Abbeville, and dropped bombs on Verdun. Hits were observed."

Austrian.

Vienna, Oct. 25th.

"Trieste was yesterday visited by enemy airmen, who, by dropping bombs, killed 2 and wounded 12 inhabitants."

THE BRITISH AIR SERVICES.

UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

Royal Naval Air Service.

The following appeared among the Admiralty announcements of the 20th inst.:-

Temporary Flight Sub-Lieut. A. M. Waistell transferred to Permanent List. Oct. 18th.

The following have been entered as Probationary Flight Sub-

Lieutenants, for temporary service, with seniority of Oct. 19th: G. G. A. Armitage (Temporary Sub-Lieutenant, R.N.V.R.) and A. L. Thorne.

Temporary commissions have been granted as follows: R. Saville, as Lieutenant (R.N.V.R.), with seniority of Oct. 19th; E. B. C. Betts and R. M. Inge (both Signalmen) as Sub-Lieutenants (R.N.V.R.), with seniority of Oct. 14th; G. Hazellon and A. H. Hendman as Sub-Lieutenants (R.N.V.R.), with seniority of Oct. 19th.

The following appeared among the Admiralty announcements of the 21st inst.:-

Lieut. Commander (R.N.) T. K. Elmsley to "President," additional, for R.N.A.S. Oct. 9th.

Lieut. (R.N.V.R.) R. G. St. John (temporary) to "President," additional, for K.N.A.S. Oct. 20th.

The following have been entered as Probationary Flight Sub-Lieutenants (temporary), and appointed to "President," additional, with seniority as follows: E. R. Grange, Sept. 22nd; G. C. V. Hewson and C. Day, Sept. 24th; K. M. van Allen, L. Ewing-Smith, T. W. Webber, G. E. Hervey, and J. Robinson, all Sept. 30th; G. Thom and A. O. Brissenden, both Oct. 3rd; M. Lyon and R. F. Maitland, both Oct. 20th.

The following appeared among the Admiralty announcements of the 22nd inst.:

Probationary Flight Sub-Lieut. (temporary) R. H. Nicholson, appointment as Probationary Flight Sub-Lieutenant (temporary) terminated, Sept. 30th, and granted temporary commission as Lieutenant (R.N.V.R.), and appointed to "President," additional, for R.N.A.S.; and C. J. A. Moles, appointment as Probationary Flight Sub-Lieutenant (temporary) terminated, Oct. 21st, and granted temporary commission as Sub-Lieutenant (R.N.V.R.), and appointed to "President," additional, for R.N.A.S.

Sub-Lieut. (R.N.V.R., temporary) R. L. Allport to "President," additional, for R.N.A.S. Oct. 21st.

The following have been entered as Probationary Flight Sub-Lieutenants (temporary), with seniority of Oct. 24th, and appointed to "President," additional, for R.N.A.S.: A. W. Davie, C. J. Moir, E. O. Cream, J. D. Steele, G. Moore, and R. S. de Q. Quincy.

C. Harrison granted temporary commission as Lieutenant (R.N.V.R.), with seniority of Oct. 21st, and appointed to "President," additional, for R.N.A.S.

J. A. Macnab entered as Sub-Lieutenant (R.N.V.R.), temporary, with seniority of Oct. 26th, and appointed to "President," additional, for R.N.A.S.

The following appeared among the Admiralty announcements of the 23rd inst.:

Lieut.-Commander (Acting Squadron-Commander) E. T. R. Chambers granted the acting rank of Commander (temporary), with seniority of Oct. 21st.

G. F. C. Saunders entered as Probationary Flight Sub-Lieutenant, for temporary service, with seniority of Oct. 22nd, and appointed to "President," additional, for R.N.A.S.

The following appeared among the Admiralty announcements of the 26th inst.:

Assistant Paymaster G. H. Thomson to "President," additional, as Secretary to Director of Air Service. To date Oct. 22nd.

Assistant Naval Store Officer R. E. V. Jelliffe, entered as Flight Sub-Lieutenant on probation, for temporary service, with seniority of Oct. 25th, and appointed to "President," additional, for R.N.A.S.

Royal Flying Corps (Military Wing).

The following appeared in a supplement to the *London Gazette* issued on the 20th inst.:

Memoranda.—R. S. Wittchell to be Temporary Second Lieutenant, for employment with the Royal Flying Corps, Military Wing. Oct. 2nd, 1915.



The Roll of Honour.

THE Secretary of the Admiralty has announced the following casualty:—

Under date October 19th:

Missing.

Flight-Lieutenant Lionel D. McKean, R.N. (Assistant Paymaster, R.N.).

The following casualties in the Expeditionary Force have been officially reported from General Headquarters:—

Under date April and May:

Wounded.

1st Class Air-Mechanic G. F. Bullen, 2nd Class Air-Mechanic J. K. Evans, 2nd Class Air-Mechanic A. M. Leslie, 2nd Class Air-Mechanic C. R. Tindale, 2nd Class Air-Mechanic R. Warton, and Corporal G. Wingfield, all Royal Flying Corps.

Under date October 16th:

Wounded.

1st Class Air-Mechanic J. Shaw.

Undated:

Previously reported Missing, now reported Wounded and Prisoner of War.

Captain F. B. Binney, R.F.A., attached R.F.C.

Supplementary to Regular Corps.—Second Lieut. Claude H. Fries-Greene resigns his commission. Oct. 21st, 1915.

Frank E. Goodrich to be Second Lieutenant (on probation). Sept. 10th, 1915.

The following appeared in a supplement to the *London Gazette* issued on the 21st inst.:

Special Reserve of Officers.—To be Second Lieutenants (on probation): William A. Harvey; Sept. 28th, 1915. Frank G. Pinder; Oct. 2nd, 1915.

The following appeared in a supplement to the *London Gazette* issued on the 22nd inst.:

Supplementary to Regular Corps.—Hon. M. Baring from Temporary Lieutenants, to be Lieutenant. Sept. 27th, 1915.

Sydney Dalrymple to be Second Lieutenant (on probation). Oct. 11th, 1915.

The following appeared in a supplement to the *London Gazette* issued on the 23rd inst.:

Flying Officer.—Second Lieut. D. Gilley, Devonshire Regt., and to be seconded. Oct. 8th, 1915.

Supplementary to Regular Corps.—Second Lieutenants (on probation) confirmed in their rank: Ernest S. Bramham and Thomas W. Winter.

The following appeared in the *London Gazette* of the 26th inst.:

Flying Officer.—Aug. 28th, 1915: Second Lieut. H. R. D. Simpson, 6th (Inniskilling) Dragoons, and to be seconded; Temporary Second Lieut. A. I. Burnie, The Buffs (East Kent Regt.), and to be transferred to the General List; Second Lieut. G. G. Hubbard, Special Reserve; Second Lieut. P. E. L. Gethin, Special Reserve. The initials of Temporary Second Lieut. C. E. Foggin, General List, are as now described and not as stated in the *Gazette* of Oct. 22nd, 1915.

Balloon Officer.—Sept. 5th, 1915: Lieut. E. J. E. Hawkins, Indian Army Reserve of Officers. Lieut. Hon. H. Lygon, Suffolk (Duke of York's Own Loyal Suffolk Hussars) Yeomanry, T.F. Temporary Lieut. F. H. Cleaver. Lieut. F. C. Raffles, Royal Welsh Fusiliers, Special Reserve, and to be seconded. Temporary Second Lieut. G. C. H. Dorman, R.E. Second Lieut. G. O. Hayne, Special Reserve. Second Lieut. G. S. Sansom, Special Reserve. Second Lieut. W. H. Furlonger, Special Reserve; Sept. 6th, 1915. Temporary Second Lieut. J. A. G. Swaine, R.A., and to be transferred to the General List; Sept. 9th, 1915, but with seniority as from July 3rd, 1915. Temporary Second Lieut. W. S. de Ropp, Duke of Edinburgh's (Wiltshire Regt.), and to be transferred to the General List; Sept. 14th, 1915. Capt. F. H. Shaw, A.S.C., T.F.; Sept. 17th, 1915. Second Lieut. B. H. Radford, Special Reserve; Sept. 20th, 1915. The appointments of Second Lieuts. E. B. Broughton and L. E. Brown-Greaves, Special Reserve, notified in the *Gazette* of Sept. 20th, 1915, are antedated Sept. 14th and Sept. 5th, 1915, respectively. Sergt.-Major George Laing to be Quartermaster with the honorary rank of Lieutenant; Sept. 21st, 1915.

Supplementary to Regular Corps.—Charles L. Wilcox to be Second Lieutenant (on probation); Sept. 20th, 1915.



Previously reported Missing, now reported Killed. Lieutenant W. H. Wallace, Rifle Brigade (5th Batt.), attached R.F.C.

Died of Wounds.

Captain N. C. S. Simon, R.G.A., attached Anti-Aircraft Section.

Previously reported Missing, now reported

Prisoner of War.

Captain N. C. Spratt, Royal Flying Corps.

Missing.

Second Lieutenant J. Gay, Royal Flying Corps.

Previously reported Missing, now reported Killed.

Lieutenant W. H. Nixon, King's Own (Royal Lanc. Regt.) and R.F.C.

Previously reported Wounded, now reported

Died of Wounds.

Flight-Sergeant W. Burns.

Wounded.

Corporal E. P. Roberts, Royal Flying Corps.

From news received from Lieutenant S. Wilson, now a prisoner in Germany, it appears that Lieutenant S. C. Caws, officially reported missing, was shot dead in a fight with German machines when they were 11,000 feet in the air, a bullet passing through his neck and down to the heart.

It has been unofficially announced that Captain A. V. Newton, Somerset L.I., attached R.F.C., and Second Lieutenant A. T. Tallentine, Artists Rifles and R.F.C., were accidentally killed while flying on October 20th.

THE 1916 THOMAS FLYING BOAT.—TYPE B.

IN the several years which have elapsed since the Thomas Brothers produced their first flying machine, every new type turned out, first at the Bath Works, N.Y., and more recently at the new extensive shops at Ithaca, N.Y., has incorporated some improvement suggested by the experience gained with the preceding machine. Their experience, too, has not been confined to a single type, but they have, as the pages of "FLIGHT" bear witness,

panying illustrations show, the upper main plane, which has a larger span than the lower, is straight, while the lower is set at a very pronounced dihedral angle.

The hull or boat is built up of a framework of ash covered with mahogany planking, and the bottom, which is slightly "Vee"-shaped in front, flattens out gradually towards the step. From there to the stern, the boat is flat bottomed. Slightly ahead of the wings and inside



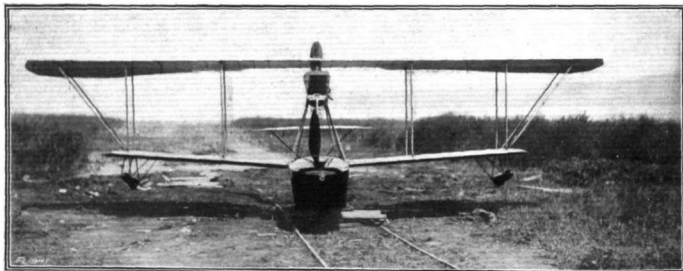
Side view of the new Thomas flying boat.

produced both tractor and "pusher" land machines and flying boats. This week we are able to bring the series up to date with photographs and particulars of the latest Thomas flying boat, which was finished and tested a few weeks ago.

Considered purely as a type, the new Thomas flying boat does not show any radical changes from general practice in flying boat design, but great attention has

the hull are arranged the pilot's and passenger's seats, side by side, while a little farther back, between the spars of the lower planes in fact, is a second cockpit, with accommodation for additional passengers and extra petrol. All seats are upholstered with black leather and designed with a view to provide a maximum of comfort for the occupants.

In front of the pilot are the controls, which consist



Front view of the new Thomas flying boat.

been paid to the detail construction, and the finish, we are told, is of a very high quality.

In its general arrangement the 1916 model Thomas flying boat follows along the lines of its prototypes, having a boat-shaped hull in which accommodation is provided for pilot and passengers as well as for the main petrol tanks, while the engine is mounted comparatively high in the gap between the main planes. As the accom-

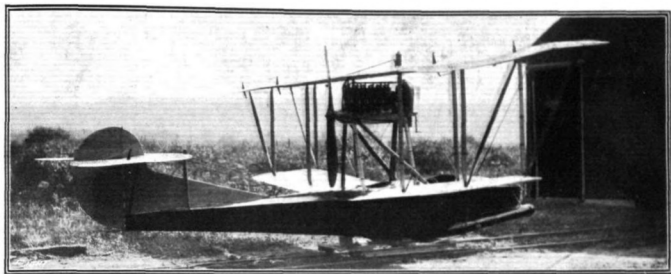
of a rotatable hand wheel mounted on a single pivoted column. A to-and-fro movement of the wheel operates the elevator, and rotation of the wheel works the rudder. The ailerons are connected up to two pedals fitted with stirrups to prevent any possibility of the feet slipping off. As in motor car practice, the throttle control of the engine is mounted on the steering wheel, and on a dash in front of the pilot is a neatly arranged

set of instruments, including engine revolution counter, air speed indicator (Pitot tube), altimeter, inclinometer, hand-operated pressure pump, pressure gauge for the petrol, and a clock.

For purposes of transport the main planes are made up in six sections as follows:—Two upper plane extensions, two top planes, and two lower planes. They are built up of ribs over I-section spruce spars, the whole

stabiliser is hinged a divided elevator, operated in the usual manner through cables running from the control lever to short crank levers on the elevator.

At present the engine fitted is a 90 h.p. Austro-Daimler, which is supported on two engine bearers of ash, resting on four streamline ash struts that are secured at their lower extremities to the gunwales of the hull. In order to provide the necessary rigidity, and to take the stresses



Three-quarter rear view of the new Thomas flying boat.

being covered with high-grade Irish linen, and "doped" with seven coats of Emaillite. In order to preserve the dope and to make the fabric absolutely water and moisture proof, a coat of varnish is finally applied, giving a highly glossy finish to the wing covering. Two pairs of streamline spruce struts on each side connect the main planes, cross bracing being effected by means of stranded cables manufactured by Roebling.

set up by the momentum of the engine when alighting two spruce struts are placed diagonally, running from the rear of the engine bearers to a point on the gunwales slightly ahead of the place where are attached the main front engine struts.

Great attention has, as we have already pointed out, been paid to the general finish of this machine. All internal wooden parts are treated with a waterproofing



Front portion of the hull and engine mounting on the new Thomas flying boat.

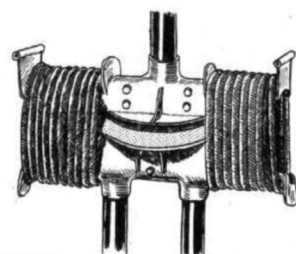
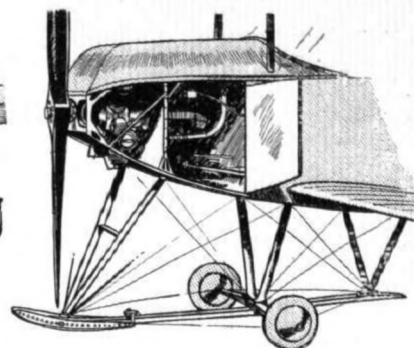
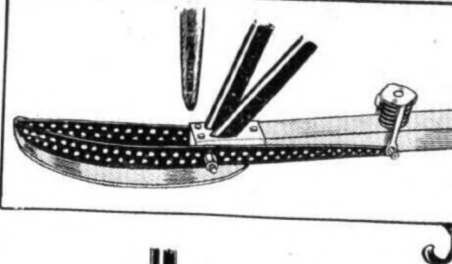
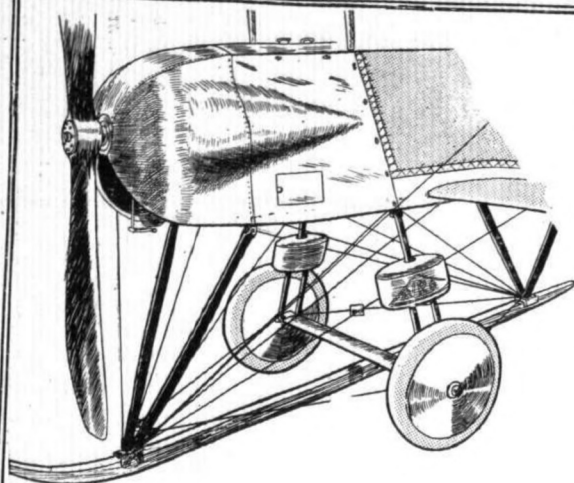
The tail planes are of the usual form. A vertical rudder is pivoted round an extension of the stern post of the boat, and to balance the side area in front, presented by the flat sides of the hull, a large vertical fin is fitted, running forward from the rudder post to a point slightly more than half way between the stern and the semi-circular cockpit. The horizontal stabilising plane is of semi-circular plan form, and is carried on stanchions running up from the deck of the rear part of the hull. To this

solution, while external parts of wood, such as struts and hull, are finished in natural wood. All metal parts are made rust proof by painting them with an anti-corrosive composition.

The chief characteristics of the new Thomas flying boat are: Span of top plane, 39 ft.; span of lower plane, 28 ft.; chord, 5 ft.; gap, 6 ft.; over all length, 28 ft. 6 ins.; area, 360 sq. ft.; loading, 4'3 lbs. per sq. ft.; weight empty, 1,250 lbs.; speed, 65 to 70 m.p.h.

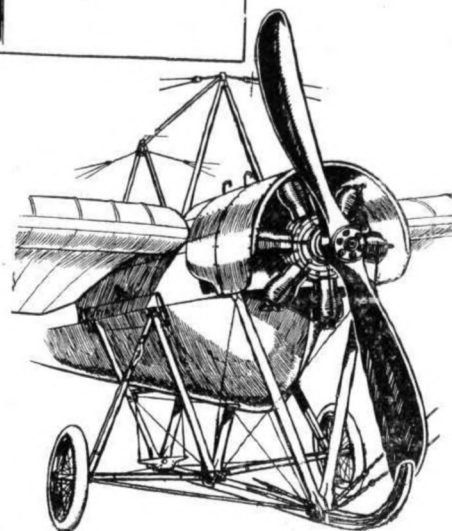
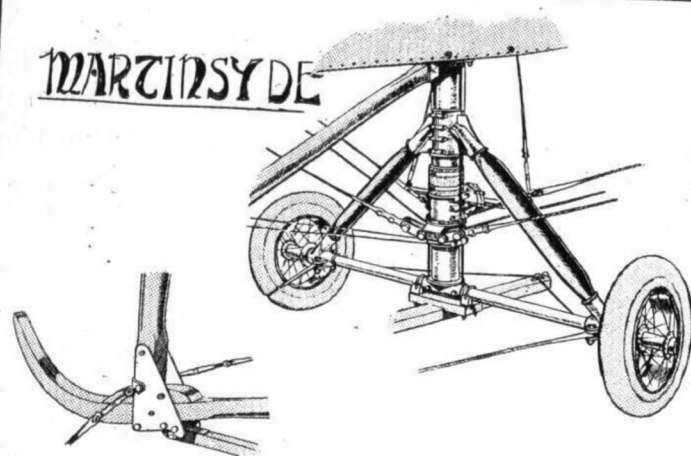
CONSTRUCTIONAL DETAILS.—VIII.

FLIGHT

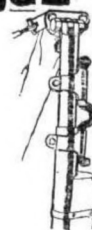


AYR2

MARTINSYDE

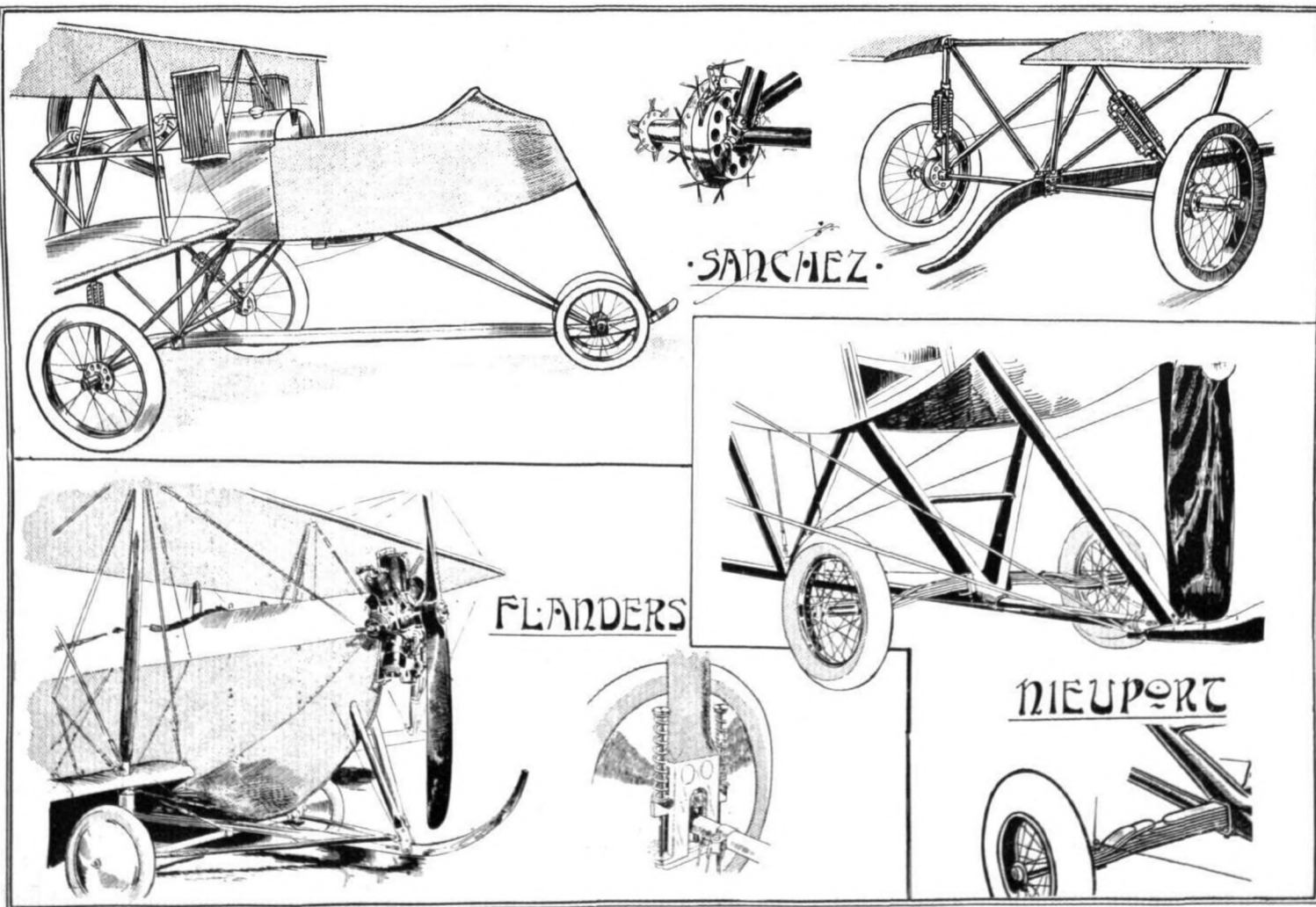


HANDLEY
PAGE



Various types of single-skid undercarriages. (See text, page 828.)

OCTOBER 29, 1915.



Various types of single-skid undercarriages. (Continued from page 826.)

CONSTRUCTIONAL DETAILS.—VIII.

IN our full-page illustrations of constructional details last week various undercarriages were shown, which incorporated in their construction two main skids. This week we continue the series with two pages of illustrations of undercarriages of the single skid type. Our reason for arranging the seven types with their correspondent detail sketches in two pages is that a number of readers have written, asking us to reproduce these constructional sketches somewhat larger so as to avoid losing many of the little details that are apt to be confused in the reproduction if the reduction be too great.

In the double skid type of chassis illustrated in our last issue the suspension is generally fairly simple, since it is possible to sling the wheel axle by means of strands of rubber from the two skids. When a single, central skid is employed it is no longer possible to solve the problem of elastic suspension quite so simply. There are, however, two or three alternative ways of providing the necessary flexibility. One of these is to make the axle itself flexible. This is generally obtained either by building up the axle in the form of a transverse laminated steel spring which carries on its extremities the two wheels, or by mounting the wheels on two short stub axles, which are then in turn connected at their outer ends to a transverse spring mounted immediately above the axles. In one of the accompanying pages of illustrations will be found two examples of the transverse laminated spring axle. One is the French Nieuport monoplane, and the other the older type Avro biplane. These two undercarriages are similar in type, but differ somewhat in detail. The construction will, we think, be clear from the sketches without needing any explanation, except that in both cases the chassis struts are streamline steel tubes. In the Nieuport the central skid is a steel tube, whereas in the Avro this member is made of ash.

The second alternative referred to above is to obtain the required springing of the alighting wheels, not by making the axle itself flexible, but by running extra chassis members from a point on the axle just inside the wheel up to some portion of the body of the machine, and to incorporate with these members some form of shock absorbing device. This device may either be in the form of coil springs or rubber shock absorbers. An illustration of the former method is shown in the sketch of the undercarriage of the Handley-Page monoplane. Here the coil springs are enclosed in telescopic steel tubes, and the short piece of rubber shown in one of the detail sketches serves the double purpose of taking up the shock of the rebound and of preventing the inner tube from slipping out of the outer when the machine leaves the ground.

London's Gunner Defences and a Warning.

AT an inquest held during the week on a woman who had died as a result of injuries received during the last Zeppelin raid on London, an official representing the Admiralty stated that Sir Percy Scott authorised him to make the following statement:—"The number of guns for defence against aircraft had been recently increased, and further improvements as to the position, number, and character are in immediate contemplation."

Sir Percy Scott also wished to warn people of the danger of being struck by fragments from our anti-aircraft guns in the streets.

Aeroplanes from Zanzibar.

IT has been announced that the £10,000 presented by the Government of Zanzibar towards the expenses of the war is to be spent in the provision of four fighting aeroplanes which will be named "Zanzibar No. 1," "II," "III," and "IV" respectively.

Captain O. W. Watt Wins Distinction.

MENTION was made in "Eddies" last week of the fact that

When the shock absorbers take the form of rubber cord, several types are, of course, available. Two of these have been shown in the accompanying sketches. In the later Avro biplanes the members running from the axle to the body are three in number on each side. Two run from the axle to the shock absorbers, and one from the body to the shock absorbers. The two lower tubes carry on their upper ends a cross-piece, and a similar cross-piece is secured to the lower end of the upper single tube. The latter passes through an opening in the "Tee" piece of the two lower tubes, and rubber cords wrapped around the cross-pieces provide the springing. A rubber pad or cushion is interposed between the cross-pieces, and serves to take care of the shocks due to rebound.

In the sketches of the undercarriage of the Bathiat-Sanchez biplane is illustrated another method. Here the stub axles, which are universally pivoted to the central skid, are sprung by telescopic tubes both of which carry cross-pieces, to which are attached the rubber shock absorbers. The cross-piece of the inner tube works in a slot in the outer tube, the action being easily understood from an examination of the sketch. A refinement worth noticing in this undercarriage are the wheel brakes illustrated in the detail sketch. By means of these brakes, which are operated from the pilot's seat, the machine can be held back while running the engine, so that it is possible, by the aid of the brakes and the starting handle with which the motor is fitted, to start the machine without any outside assistance.

Somewhat unusual in arrangement was the undercarriage of the old Flanders biplane shown in one of our sketches. This chassis, it will be seen, is extremely simple, and offers a minimum of head resistance. The body is very deep in front and of pentagonal section, so that the hickory skid can be fastened directly to the lower fuselage member. Anchored to the keel are the two stub axles that carry the wheels. The method of springing is shown in the detail sketch, which is, we think, self-explanatory.

An undercarriage differing entirely from any of the others shown was that of the Martinsyde monoplanes, and which is illustrated in one of the sketches. The weight of the whole machine is taken by a single large diameter steel tube that is built into the body at a point just forward of the centre of gravity. Landing shocks are taken by the tube travelling vertically against the tension of the rubber shock absorbers, the sliding collar guiding the tube on its travel. A skid of hickory, shaped like a hockey stick, extends forward below the propeller to protect it, and is supported in front by a stout ash strut coming down from the body.

Captain O. W. Watt, the Australian pilot serving with the French Army, had been mentioned in French Army Orders. A translation of the citation follows:—

"A fine officer. A pilot of great daring and imperturbable coolness. Never hesitates to fly above the enemy's lines at a low altitude whenever circumstances require it. Has made numerous most dangerous reconnoissances, and his machine has frequently been struck by shell-splinters. Although wounded in the head on August 8th, he continued his reconnoissance with greatest coolness."

An Echo of the Friedrichshafen Raid.

THE *Daily Mail* correspondent at Vevey reported on October 20th:—"The raid on Friedrichshafen by British airmen last November has had its sequel before the Supreme Court at Leipzig, where a Swiss subject named Rieser has been sentenced to eight years' imprisonment for high treason. Rieser was stated by the prosecution to have furnished information to the Allies which led to the raid being undertaken at the most propitious moment."

The Royal Aero Club of the United Kingdom

SPECIAL COMMITTEE MEETING.

A SPECIAL MEETING of The Committee was held on Tuesday, the 26th inst., when there were present:—Prof. A. K. Huntington, in the Chair, Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Flight Lieut. C. F. Pollock, R.N.A.S., and the Assistant Secretary.

Election of Members.—The following New Members were elected:—

William Kennedy Boyne.
George Arthur Coulson.
Major Edmund William Furze, R.A.
David Edgar Hawes.
Frank Herbert Hodson.
Flight Lieut. Bernard Crossley Meates, R.N.A.S.
Capt. Francis Hesketh Prichard, R.G.A.
Frederick Stuart Sage.
Lieut. Thomas Atkinson Tillard (Norfolk Yeomanry).
Douglas William Thorburn.

Aviators' Certificates.—The granting of Aviators' Certificates Nos. 1820 to 1891 was confirmed.

The granting of the following Aviators' Certificates was confirmed:—

- 1892 2nd Lieut. Godfrey Wigglesworth, A.S.C. (Maurice Farman Biplane, Military School, Shoreham). May 29th, 1915.
- 1893 Flight Sub-Lieut. Brian Anthony Millard, R.N.A.S. (Caudron Biplane, Royal Naval Flying School, Eastchurch). Aug. 23rd, 1915.
- 1894 Flight Sub-Lieut. Arthur John Whetnall, R.N.A.S. (Caudron Biplane, Royal Naval Flying School, Eastchurch). Sept. 6th, 1915.
- 1895 Lieut. Charles Joseph Mackay (Leinster Regt.) (Maurice Farman Biplane, Military School, Shoreham). Sept. 25th, 1915.
- 1896 Lieut. Gerard William Hodgkinson (Westminster Dragoons) (Maurice Farman Biplane, Military School, Norwich). Sept. 28th, 1915.
- 1897 Capt. Ivo Frank Fairbairn-Crawford, R.E. (T.F.) (Caudron Biplane, Ruffly-Baumann School, Hendon). Oct. 13th, 1915.
- 1898 2nd Lieut. Albert Ball, N.M.D.C.C. (Caudron Biplane, Ruffly-Baumann School, Hendon). Oct. 15th, 1915.
- 1899 Capt. Cuthbert Trelawder Maclean (7th Royal Fusiliers) (Maurice Farman Biplane, Military School, Montrose). Oct. 16th, 1915.
- 1900 2nd Lieut. George Ranald Macfarlane Reid (4th Argyll and Sutherland Highlanders) (Maurice Farman Biplane, Military School, Montrose). Oct. 16th, 1915.
- 1901 Lieut. Cyril Herbert Gardner, R.F.A. (T.F.) (Maurice Farman Biplane, Military School, Montrose). Oct. 16th, 1915.
- 1902 2nd Lieut. Christopher Humphrey Tancred, R.F.A. (Maurice Farman Biplane, Military School, Montrose). Oct. 16th, 1915.
- 1903 Arthur Bedward Spencer (Caudron Biplane, Royal Naval Flying School, Eastchurch). Oct. 16th, 1915.
- 1904 Wilfrid Eagles Marsden (Maurice Farman Biplane, Military School, Brooklands). Oct. 16th, 1915.
- 1905 Alfred de Bathe Brandon (Hall Biplane, Hall School, Hendon). Oct. 17th, 1915.
- 1906 2nd Lieut. Phillip Bernard Prothero (4th Argyll and Sutherland Highlanders) (Caudron Biplane, Ruffly-Baumann School, Hendon). Oct. 17th, 1915.
- 1907 2nd Lieut. Samuel Howard Ellis (15th Northumberland Fusiliers) (Grahame-White Biplane, Grahame-White School, Hendon). Oct. 17th, 1915.
- 1908 Edward Guy Landon (Maurice Farman Biplane, Military School, Brooklands). Oct. 17th, 1915.
- 1909 Flight Sub-Lieut. Philip Welsby James, R.N.A.S. (Grahame-White Biplane, Grahame-White School, Hendon). Oct. 17th, 1915.
- 1910 Basil George Watson (Hall Biplane, Hall School, Hendon). Oct. 18th, 1915.
- 1911 Flight Sub-Lieut. Willoughby Arlingham Davies, R.N.A.S. (Grahame-White Biplane, Grahame-White School, Hendon). Oct. 18th, 1915.

- 1912 Flight Sub-Lieut. Philip Sydney John Owen, R.N.A.S. (Maurice Farman Biplane, Royal Naval Air Station, Chingford). Oct. 18th, 1915.
- 1913 John Raymond Boscawen Savage (Maurice Farman Biplane, Military School, Brooklands). Oct. 18th, 1915.
- 1914 Rodney Wilfred Heath (Maurice Farman Biplane, Military School, Brooklands). Oct. 18th, 1915.
- 1915 Flight Sub-Lieut. Arthur Fellowes Buck, R.N.A.S. (Caudron Biplane, Royal Naval Flying School, Eastchurch). Sept. 16th, 1915.
- 1916 1st Class Air Mechanic George Crowther, R.F.C. (Maurice Farman Biplane, Central Flying School, Upavon). Oct. 13th, 1915.
- 1917 2nd Lieut. Geoffrey Victor Randall (Maurice Farman Biplane, Military School, Farnborough). Oct. 13th, 1915.
- 1918 Lieut. William Warren Carey-Thomas, R.F.C. (Maurice Farman Biplane, Military School, Norwich). Oct. 15th, 1915.
- 1919 Guyon Kenneth Macdonald (Maurice Farman Biplane, Military School, Shoreham). Oct. 16th, 1915.
- 1920 2nd Lieut. Leslie John Mann, A.S.C. (Maurice Farman Biplane, Military School, Shoreham). Oct. 16th, 1915.
- 1921 2nd Lieut. Thomas Alfred Oliver (10th Royal Welsh Fusiliers) (Maurice Farman Biplane, Military School, Shoreham). Oct. 17th, 1915.
- 1922 Lieut. Cecil Ireland Blackburne-Maze (8th Royal West Kent Regt.) (Maurice Farman Biplane, Military School, Farnborough). Oct. 17th, 1915.
- 1923 Flight Sub-Lieut. Trevor Ratcliffe Hackman, R.N.A.S. (Grahame-White Biplane, Grahame-White School, Hendon). Oct. 18th, 1915.
- 1924 2nd Lieut. John Oliver Andrews (Royal Scots) (Maurice Farman Biplane, British Flying School, Le Crotoy, France). Oct. 19th, 1915.
- 1925 Flight Sub-Lieut. Frederick Denham Till, R.N.A.S. (Graham-White Biplane, Graham-White School, Hendon). Oct. 20th, 1915.
- 1926 Flight Sub-Lieut. Cecil Murray, R.N.A.S. (Maurice Farman Biplane, Royal Naval Air Station, Chingford). Oct. 20th, 1915.
- 1927 2nd Lieut. James Geoffrey Selby, R.A. (Maurice Farman Biplane, British Flying School, Le Crotoy, France). Oct. 23rd, 1915.

The following Aviators' Certificates were granted:—

- 1928 2nd Lieut. William James Guilfoyle, R.F.A. (Maurice Farman Biplane, Military School, Shoreham). Oct. 14th, 1915.
- 1929 Gerald Graham (Maurice Farman Biplane, British Flying School, Le Crotoy, France). Oct. 23rd, 1915.

Aeronauts' Certificates.—The granting of Aeronauts' Certificates Nos. 45 and 46 was confirmed.

Extension of the Hours of Opening the Club.

The Club is now open from 9 a.m. to 10.30 p.m. each day, including Sunday.

New Members.

Members are reminded that, according to the Rules, the Annual Subscription of any New Member they may propose, who is elected between November 1st and December 31st of this year, will cover the period up to December 31st, 1916.

THE FLYING SERVICES FUND administered by THE ROYAL AERO CLUB.

The Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of

the Royal Naval Air Service and the Royal Flying Corps who are incapacitated on active service, and for the widows and dependants of those who are killed.

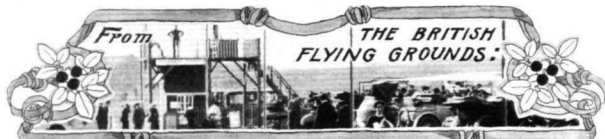
The Fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers and men.

Forms of application for assistance can be obtained from the Royal Aero Club, 166, Piccadilly, London, W.

Subscriptions.

	£	s.	d.
Total subscriptions received to Oct. 20th, 1915...	9,886	5	2
Employés of A. V. Roe and Co., Ltd., for five weeks ending September 30th, 1915	42	5	0
Staff and Workers of Gwynnes, Ltd.	7	3	4
Collected at the Westland Aircraft Works, Yeovil (Sixth contribution)	0	12	6

Total, October 27th, 1915 ... 9,936 6 0
166, Piccadilly, W. B. STEVENSON, Assistant Secretary.



London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School (R.N.A.S.).—Straights last week with instructor: Probationary Flight Sub-Lieuts. Cross, Moody and Ovens. Circuits with instructor: Probationary Flight Sub-Lieuts. Aplin, Davenport, Graham, Gammon, Man and Sadler.

Certificates during week: Probationary Flight Sub-Lieuts. Davies, James and Hackman.

Grahame-White Civilian School.—Straights with instructor: Messrs. Francke, Gammon, Jones, Howe and McConnell. Straights alone: Messrs. Fraser and Horridge.

Instructors during week: Messrs. Mantou, Pashley, Russell and Winter.

Beatty School.—The following pupils were out during last week:—Messrs. Baker, Begg, Brown, Brynildsen, Campbell, Collier, Cowper, Cumming, Davison, Duffus, Fawcett, Fellows, Fox, Gayner, Hodgson, Hughes, L. F. Jones, Kirkwood, Lashmar, Mellings, Middleton, Nash, Nicholson, Owen, Patterson, Podmore, Samter, Schollaert, Smith, Stagg, Symington, Thompson, Halford-Thompson, Willmet and Whincup.

The instructors were Messrs. G. W. Beatty, W. Roche-Kelly, R. W. Kenworthy, G. Virgilio, A. E. Mitchell



SOME PUPILS AND INSTRUCTORS AT THE RUFFY-BAUMANN SCHOOL.—Left to right, top row: Messrs. Cuthbertson, E. Baumann (instructor), F. Ruffy (instructor), C. May, Capt. J. F. Fairbairn Crawford, Lieut. V. O. Rees and Mr. Liddell. Bottom row: Messrs. P. A. F. Bolton, Johnson, Lieut. McBeane, Messrs. Vernon, Sherwood, Bolton, and D. Harkness.

Copyright, F. N. Birkett, from the F.N.B. Series of Aviators.

and L. L. King, the machines in use being Beatty-Wright dual-control and single seater propeller biplanes and Caudron tractor biplanes.

Exhibition flights were given on Saturday.

Hall School.—The Hall school put in excellent practice during the past week, and the following pupils received instruction:—With H. F. Stevens: Messrs. Hamer, Bangs and Broad. All doing circuits, figures of eight, and *vol plans*. With C. M. Hill: Messrs. Cook, Hall, Nicolle, Butterworth, Drew, Wilkins, Punnett, Seward, Stirling and Dodd. All doing circuits or half-circuits, and landings. With Charles Bell: Messrs. Bond, Dresser, Wooley, Shum, Lieut. Bell, Evans, Manly, Cumberbirch, Rattray, Redford, Mann, Lake, Smith and Ormerod.

The Royal Aero Club certificate was secured by Hamer, who took a very neat *brevet*.

B. Watson, who qualified at the Hall school a week ago, has now been appointed as pilot to the Sopwith Aviation Co., Ltd., and is already busy putting new machines through their tests for the Government.

London and Provincial Aviation Co.—Pupils doing rolling last week: Messrs. Brain, Burgess, Heyn, Atkinson, Woods, Thorpe, Dawson, Lees and Hardy. Doing straights: Messrs. Lewis, Lockett, Jowett, Law, Little and W. Warren, jun. Circuits and half-circuits: Messrs. Northrop and Little.

Instructors: Messrs. W. T. Warren, M. G. Smiles and C. M. Jacques.

Mr. J. E. Northrop took his certificate this week, making a good steady flight and landing on the mark.

Ruffy-Baumann School.—Pupils with instructor last week: Cole (26 mins.), Harkness (26), Vernon (24), de Grauw (20), Flanders (10), Coppens (30), Wood (16), Cuthbertson (12), Bolton (34), Launoit (34), Tomson (34) and McBeane (20). Straights or rolling alone: Cole (12 mins.), de Grauw (46), Coppens (8), Stewart (54),

Liddell (45), Griffiths (40), Baily (40), McBeane (54) and Sherwood (38). Eights or circuits alone: Capt. Fairbairn-Crawford, who recently passed his *brevet* tests at this school, has been flying one of the 50 h.p. Caudron type for extra practice.

Instructors: Edouard Baumann, Felix Ruffy, Ami Baumann and Clarence Winchester.

Machines: Three Ruffy-Baumann tractor biplanes, 50 and 60 h.p.

Northern Aircraft Co., Ltd.

The Seaplane School, Windermere.—With instructor last week: Lieut. Manning (22 mins.), Ruthven (14), Coats (41), Ingham (20), Lieut. Stubbs (16), Inglis (12), and Jeffreys (9). With instructor as passenger: Shaw (14 mins.), Robinson (18) and Robertson (11).

Instructors: Messrs. W. Rowland Ding, J. Lankester Parker and W. Laidler.

Machine: N.A.C. propeller biplane 80 Gnome.

The weather was bad during the week, and even when fair was poor for tuition.

On Tuesday Mr. Coats was up with J. Lankester Parker, making bomb-dropping tests. From 1,300 ft. they were able to get within 2 ft. of a 6 ft. mark, several other shots being exceedingly close.

For a long time the possibility of flying overland and landing in another lake has been considered feasible, and on Wednesday Mr. Coats and Mr. Parker put this stunt into effect. They landed on Esthwaite Water, and returned successfully at over 2,000 ft. After leaving Esthwaite Water the engine showed signs of trouble, and Parker had to turn back and attempt another landing, but luckily the engine picked up and he was able to bring his task to a successful issue.

On Friday, at eleven o'clock at night, there being a moon and the wind seemingly having dropped, Mr. Parker went up with a pupil with the intention of carrying out tuition, but the wind proved to be very strong over 50 ft. and it was not possible to give more than one lesson.



LAST Saturday afternoon was not a particularly inviting one for flying, as it was cold and rather windy, but, for all that, plenty of visitors were at the drome, and some good flying was put up. Apparently M. Osipenko previously "set" his G.-W. 'bus like an alarm clock, for at 3 o'clock sharp it started off—with him aboard, of course—and roused several other pilots into activity, as immediately after various machines got going. Osipenko's mount was one of the new school 'buses fitted with a 60 h.p. Le Rhone. The improvement in this machine upon the older types was most marked. The second pilot to ascend was W. Birchenough, who made a very nice test trip on a new "longhorn" Maurice Farman. Then Marcus D. Manton, C. Pashley, and J. S. B. Winter got away with passengers on the G.-W. school 'buses, whilst a Curtiss and a B.E.2c "flew around some" with unknown pilots in charge. W. Roche-Kelly next came out on the 50 h.p. Beatty-Wright, and shortly after R. Kenworthy took up a

new Beatty-Wright, also fitted with a 50 h.p. Gnome. The Beatty School, by the way, now has quite a nice little collection of 50 h.p. Gnomes, so there ought to be busy times—or perhaps it would be more correct to say times busier than ever—at this go-ahead school. Having put the Maurice Farman to rest, Birchenough brought out the 80 h.p. De Havilland gun 'bus and took it up, with a passenger, for about ten minutes or so. In the meanwhile A. E. Barrs ascended, also with a passenger, on the 125 h.p. Mann biplane. At one time Birchenough on the De Havilland flew a circuit or two behind Barrs on the Mann, but not having a slide-rule, &c., about me I could not work out which of the two possessed the greatest speed. It should be noted, however, that the Mann 'bus was fitted with the old propellers which knock off several m.p.h. of its speed.

On Sunday the "lawn" was well watered, and so flying was suspended.



REGULAR visitors to Hendon may find the flying up there at times a little monotonous, being mainly in the nature of school work, and it is therefore something of a treat, one of the few that are still allowed, to see an occasional outsider paying the 'drome an aerial visit. One day last week the "star" turn, although outside the programme, was Mr. F. P. Raynham, who was putting a government machine, built by Hewlett & Blondeau, through its paces. It is really something of a mystery how Raynham manages to get through the testing of so many machines. If I am not mistaken he is, and has been for months, testing the entire output of several firms, and I can only conclude that his tireless energy must be derived from spending the greater part of his waking hours in the invigorating air of high altitudes.

x x x

However, to return to his flying at Hendon the other day. After getting through with the usual routine tests, Raynham got going on some amazing tail slides. When he had landed I had a good look at the 'bus, and although I have often had the pleasure of inspecting the workmanship of the Hewlett & Blondeau firm, I was particularly impressed by it again on this occasion. It would be invidious to say it was better than the best, but I can with emphasis assert that I have never seen better. In this particular machine, which is not new as a type, a different undercarriage had been fitted, one that must have offered considerable difficulties in the way of construction. Needless to say, Hewlett & Blondeau had acquitted themselves of the task in a most admirable way.

x x x

Among other firms who have been fortunate enough to secure the services of Mr. Raynham for testing their

whatsoever of this startling machine, much as I may desire to do so. In this respect I fancy my feelings are very much like what one can imagine would be those of a *chef* who has just produced a new "palate tickler" only to find that his customers have, one and all, been put on a milk diet. However, the new Martinsyde really is something quite out of the ordinary and I have no hesitation in saying that its like has probably never been seen in any other country, certainly not in this. And the remarkable thing about it is that the excellent results it has already given have been obtained without making it in any way a freak, simply by sheer good, sound, commonsense design.

x x x

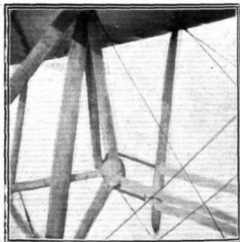
There is quite a race going on between the two brothers Barnwell, one of whom, Harold, is, and has been for a number of years, associated with the Vickers firm, while the other, F. S. Barnwell, is designer of the Bristol scouts. First F. S. will bring out a new 'bus, which for a time will give him the place of honour, only to give way presently to the introduction of a "startler" designed by Harold. It is difficult to say which at present will score the greater success, but the race is highly useful inasmuch as it spurs the two designers on to renewed effort, much to the benefit of our flying services, and, let us hope, the designers themselves as well as other firms.

x x x

It has not taken long for Mr. A. E. Barrs to get a feeling of quite-at-homeness on board the "Mann" biplane. The two accompanying photos. will bear witness to the fact, if proof were needed. These were taken by Barrs at a height of 4,000 ft. Mr. Mann, the designer of the machine, who was in the passenger's seat, not



Two snapshots taken from the Mann biplane by Mr. A. E. Barrs at a height of 4,000 ft.—Left: Mr. Mann in the passenger's seat of his machine. Right: Part of the transmission gear on the "Mann" biplane.



'buses are Martinsyde of Brooklands whose output has lately been such as to occupy the greater part of Raynham's time not taken up by putting Avros through their paces. A little while ago a new Martinsyde made its first appearance, but with an avenging sword, in the shape of the censor's stern edicts, hanging over my head I am debarred from giving my readers any description

knowing of Barrs' intention of taking the snaps, his attention had to be called by some means or other. As shouting was of no avail in the roar of the 125 h.p. Anzani engine, Barrs tried to roll the 'bus from side to side. The first time Mann took no notice, thinking that Barrs was only testing the *ailerons*, but a renewed attempt had the desired effect. Mann looked over his shoulder and

Barrs in a moment had camera in position and pressed the button. The result is shown in one of the photographs. Taking both hands off the controls Barrs then calmly changed his plate and took a snap of the transmission gear. All the while the 'bus was flying by herself. As the photograph shows, there is no vibration noticeable, although the speed at which the chain was travelling is stated by the Mann and Grimmer firm to have been something like 20 m.p.h. These chains, by the way, have recently been examined at the works of the makers, Messrs. Hans Renold of Manchester, and it was found that the stretch of each, if indeed there had been any, was not noticeable. This after having transmitted the 125 h.p. of the Anzani engine for a run that is stated by the makers of the machine to have been over 600 miles. But of course they are Renold's chains. Enough said.

When passing the offices of the L. and P. Aviation Co. in Colindale Avenue the other day I caught a glimpse at one of the windows of a face which, although familiar, was not filed in the pigeon-holes of my memory as particularly associated with Hendon. On opening the door I was greeted with the smiling face of one Fletcher, until recently with the Martinsyde firm at Brooklands, but who has now transferred his activity to the L. and P. Co. By way of explaining his unexpected presence up Hendon-way Mr. Fletcher planked down a pile of drawings, which on closer examination proved to be the general arrangement and some details of a new machine for the L. and P. Co. Judging from the drawings it promises well. Nothing fanciful, you understand, but just a good, sound, straightforward job, which, backed up by the excellent workmanship rigorously maintained at the L. and P. shops, should prove a valuable asset to the school.

Reference has been made from time to time to the developments at the Thomas Bros.' works at Ithaca, N.Y., from where two new types of machines will soon make their first appearance. One of these is the first of the new seaplanes fitted with a Sturtevant motor, that are being constructed for the U.S. Navy. The other is a

Military tractor, type D2, which will be fitted with one of the new Thomas Aeromotors, 135 h.p. The first of the batch of these engines coming through the works has, I am told, done well on the test bench, where it has been run, on and off, daily during the last few weeks, in order to discover if there are any weak points. It is said to have developed on occasions as much as 150 h.p., but for continuous work the makers recommend to run it at a speed at which it will develop 135 h.p.

In connection with the testing of these new Thomas machines it will be of interest to "FLIGHT" readers to hear that the pilot who has been chosen for the job of putting them through their trials is no other than our old friend Walter L. Brock. There will be very few readers who will fail to remember the little Chicago pilot who, in the summer of 1914, "chewed" his way to victory in the greatest British races, the Aerial Derby, the London-Manchester-London, and the London-Paris-London. Brock, it may be recalled, returned to his native land during the earlier part of the war, and was entered for the big American race that never materialised. Since then little has been heard of him over here until now in the capacity already mentioned, for which he is eminently suitable. As a pilot of land machines, Brock has had extensive experience of a number of types, including Deperdussins, Blériots, and Moranes. As a seaplane pilot he did some very good work on Capt. Bass's Curtiss flying-boat down in the Mediterranean, in the interval between leaving the British Deperdussin firm and joining up with the Grahame-White Aviation Co.

It is welcome news to hear that that other old-time Dep. pilot, Capt. Norman Spratt, who had been previously reported missing, is now known to be a prisoner of war. That's bad enough, but it's better than having your ticket cancelled for all time. It has not yet transpired whether or not Spratt is wounded or injured, but at any rate it is good to hear that he is alive. All going well, we shall therefore hope to see him amongst us once more some day.

"ÆOLUS."

German Bombs on Switzerland.

THE Political Department of the Swiss Confederation published the following *communiqué* on October 24th:—

"The German Minister to-day informed the Political Department that a military inquiry has proved that the aeroplane which bombarded Chaux-de-Fonds was German, and that the pilot had completely lost his way, and believed that he was over French territory. The aviator and the observer have both been transferred and punished, and German air squadrons have once more been warned against flying over Swiss territory. Aviators have also received the strictest orders not to throw bombs except when they are without any possible doubt over enemy territory.

"The German Imperial Note expresses to the Federal Council its deep regret for the incident and also to the injured persons, and further promises to pay an indemnity for the damage done and in recognition of the moral wrong. A Note in this sense has been handed to the Swiss Minister in Berlin."

Zeppelins and British Submarines.

REPORTS from Copenhagen show that Zeppelins and aeroplanes have again been searching the Baltic for British submarines. On the morning of the 20th aeroplanes off Sassnitz observed a submarine flotilla, two of the submarines being not far from the ordinary Sasnitz-Trelleborg route. The aeroplanes signalled to a Zeppelin, which in turn warned the naval station at Sassnitz. German torpedo-boats immediately started in pursuit, but the submarines had submerged by the time they arrived on the scene.

German Aircraft Losses in the Baltic.

ACCORDING to information published in the Russian *Bourse Gazette* the German losses in aircraft in the Baltic region to date

consist of two Zeppelins, four Albatros and twelve Taube aeroplanes, and one hydroplane.

A Protest from the Pope.

It was reported from Rome on Tuesday that the Pope had telegraphed to the Patriarch of Venice for details of the Austrian air bombardment, and that he intends to protest against the wanton destruction of churches.



Transporting a German aeroplane by road.



A Little Gentle Admonishment and Other Things. I HAVE a cold. In that respect I can suppose that I am not very different to my fellow man at this season of the year, but I have got what some genius in search of new relative adjectives called a thundering cold. They are dosing me with something that smells innocent and tastes worse; some dreadful chemical compound or mixture.

Science has made great strides of late years, and a mixture of ammonia and quinine is doubtless much better for a cold than hot punch. But when I am not well, I want "mothering" in the old-fashioned style, and so I demand a big fire and a shawl and hot punch. It may not be a scientific remedy, but it is comforting: I stop shivering.

I wonder why the fire is getting so small, and receding to such a great distance, dimly I realise that they are cheating me of my comforts. I attempt to rise, and find my feet fixed firmly to the ground: I am standing up to my ankles in wet clay, and my clothing is in a shocking condition.

"Mr. Dreamer, I believe." I am confronted by a captain of artillery.

"You had some rather pointed remarks to make last week with regard to the marksmanship of our gunners, which you were pleased to designate as rotten, or words to that effect. You were probably only a little ungenerous from want of knowledge. You did not know that it is practically impossible for a gunner to know the altitude and the length of baseline when called upon to hit a Zeppelin, which you appear to think so easy. You do not realise that amidst all the bursting shells it is hard to know which one was fired by any particular gunner, and so mark his range.

"You see that red-bricked farmhouse out there, a mile and a-half inside the German lines? My battery is more than a mile in your rear. The enemy is using those buildings to-day, and I want you to watch."

He went to the telephone and rang up his battery, afterwards returning to my side.

"We know the range to an inch, our aeroplanes and markers have given us that, an advantage the anti-aircraft gunners have not. It is now one minute to three. Keep your eye on that farmhouse at three o'clock. One shot only—watch."

I did not hear the sound of the gun at the rear, but exactly on the tick of three, I heard the long, souging sigh of the six-inch shell high overhead, and a few seconds later that farmhouse just leapt into the air, a mass of red bricks surrounded by black smoke. Then came the boom, and I sprang from my chair to replace the burning log that had fallen into the fender.

Also I had dreamed something which was not a dream, but had really happened before, and been recounted to me by a certain captain at Hendon on Saturday, when he gently reproached me for being unkind to a set of men doing their best under very difficult conditions.

I have been wondering, also—and it is but my own silly wondering—whether, up to now, our gunners have really been trying to fetch a Zeppelin down when over

London, or whether they have only been shooting to disable, and give the murderers a taste of what we could do, in the hope of instilling an object lesson, and so causing them to think. Should a Zeppelin be brought down a blazing mass in the very heart of London, it would be sheer great luck in reference to the place fallen upon, if it did not do an immense amount of damage with its cargo of high-explosives, and some six hundred gallons of petrol, to say nothing of the mass of metal including four heavy engines.

Even so, should my premise be correct, we are prepared as a people to accept even this great danger, and bear the consequences with what fortitude we can summon, rather than that they should be allowed to come and go at will. The cry for reprisals of a like nature I cannot give ear to with composure. We do not make war on women and children. If we cannot win the war without that, I am perfectly sure we cannot win at all.

We know, we in London, what comparatively little effect these raids have on us. Horrible as it is to contemplate the unfortunate death of our individual fellow citizens and their families, we know that the dread of the murderers coming causes us but a modicum of uneasiness, and that twenty-four hours after their visit all is as before so far as anything untoward can be noticed in our streets, our stricken families being left to mourn in that quiet dignified way which is inborn to the British character.

Zeppelin raids must be, can be, and will be stopped. Just how it is going to be done, I do not know. Neither did I see how submarines were going to be prevented from carrying on their activities. It looked at the time just such a hopeless task as this, yet I cannot think that their later quietude is brought about from any respect for ourselves except that respect which is driven well home in the same way that we shall one night drive home a lesson to the air raiders.

Reprisals we shall make, I feel sure, but it will not be on the innocent, except so far as cannot be possibly avoided.

We respect treaties, we honour women, we protect children. Ours may be the slower road, but it is our road, the only one we care to travel, the only one we ever have travelled. We are slow—admittedly, but we are very sure, and every man in our services is a fortress. We may be slow to strike, but when we do strike, we strike home and keep striking. I do not know the position of affairs in the countries of our enemies, but I do know the position here; the effect the war is having upon our British manhood. It is this:—the harder the task, the greater the difficulties appear to become, the more men we lose, the greater is the determination of the manhood of Great Britain to fight through to a victorious finish. The great mistake is in not letting us know where we are—where we stand. Do the authorities so misjudge the character of British men that they think it wise to keep us in the dark as to our real position? Tell us that we are doing nicely, and we are content to hope on. Tell us things are bad—if they really are bad—and they can have every man in the country capable of bearing arms. GOD SAVE THE KING.

THE DEFENCE OF LONDON.

THE question of the defence of London was raised in the House of Lords on the 21st, when Lord Strachey addressed the following questions to the Civil Lord of the Admiralty:—

"1. Whether the anti-aircraft guns were of any more effect on October 13th than they were during the previous Zeppelin raid on London.

"2. Whether the great reduction of the lighting of London was of any real value during the last raid in comparison with the previous one.

"3. Whether any steps have been taken to give London as far as possible the same protection from aircraft which Paris enjoys; and if not, why not.

"4. Whether the anti-aircraft guns here were not used effectively against the Zeppelins as they might have been for fear of doing damage to persons or buildings."

He also said that he was informed that there was no landing place for aeroplanes nearer to London than Hendon; surely Hyde Park was large enough for that purpose, and if the trees were said to be an obstacle, some of them could easily be removed.

The Earl of Portsmouth urged that when a raid was anticipated an official warning to the public should be issued by the Admiralty. He also asked for an assurance that the valuable treasures housed in public buildings in London would be removed to a place of safety.

Lord Sydenham said the great difficulties of obtaining protection against aircraft bombs had not been appreciated. The Zeppelin must first be found by the searchlights, the range of which was often considerably less than that of the guns, and was influenced by the atmospheric conditions. The gunner must know the range within very narrow limits of accuracy, and the time fuse of the shell must be set very accurately in order that the shell should burst at a proper distance from the object. The sighting of guns, too, was calculated upon terrestrial targets, and, therefore, it was wrong when one began to shoot in the air.

Unless all these and other conditions were remembered, it would be seen that to put untrained and unpractised men in charge of guns like those was very much like expecting a man who has never fired a gun before to bring down driven grouse. His own impression from watching the shooting last week was that there was a good deal of random shooting, some of the shells bursting nowhere near the Zeppelin. If the men using the guns had come from the trenches, where they had been able to get actual practice, very different results might have been obtained.

The danger to our own population from using anti-aircraft guns was very small provided a time-fuse was used. The fragments of the burst shell were very small, and they would fall at low velocities, so that except for the small risk of hitting an individual in the street there was nothing to fear. Buildings would be entirely immune.

The question of the illumination of London was a very difficult one. On clear nights it was impossible to prevent a Zeppelin crew knowing they were over a city of the size of London, but they must be prevented from accurately locating themselves so as to be able to select a target. If the illumination was kept so low as to prevent the identification of special objects, nothing more would be gained by decreasing it. The lower the illumination the more prominent became our searchlights, which helped to guide the Zeppelins, and the more easy it would be for the crew to see signals which any aliens in our midst might be flashing.

He thought we had done a little better than was necessary in the low illumination of the town. When the fogs came traffic in the streets will be extremely difficult and dangerous, though, if the fogs spread far into the country around London, then a Zeppelin, being entirely navigated by dead reckoning, would be entirely baffled.

The suggestions that aeroplanes should cruise about London when Zeppelins were expected was useless. In the only two cases in which Zeppelins had been brought down by aeroplanes bombs were used. Lieutenant Warneford had to drop five or six bombs before he effected his object, and if a contest of that kind went on over London our own bombs would be added to the danger of the Zeppelin bombs. We had already lost some lives and damaged a great many aeroplanes by sending them up on wild-goose chases in the dark.

"The real chance of the aeroplane is to find the Zeppelin when it strikes the coast before the light fails or when it passes some point on its course which it must pass before dark comes."

The conditions in Paris were very different from those in London. Paris was surrounded by a chain of forts, heavily armed, and no doubt provided with a large number of anti-aircraft guns. One legitimate cause of complaint, he thought, was the long delay that occurred before there was anything like a proper organisation for defence against air raids. It was only lately the whole question was taken in hand, and he was not sure even now that there was not divided responsibility.

He was strongly opposed to reprisals, but he believed that with proper organisation and proper handling of the guns by men who know how to use them we could soon assure ourselves that these raids will never be attempted again.

The Duke of Devonshire (Civil Lord of the Admiralty) replied that the speech of Lord Sydenham had, to a large extent, answered the question on the paper.

He had heard the question of giving warning of the approach of Zeppelins discussed, but he thought the probable effect of such a course would be to bring a larger number of people on to the streets than now. It was anticipated that any such warning would probably lead to the emptying of theatres and the collection of large crowds.

With regard to the question on the paper he had to say:

1. There is no evidence in the possession of the Admiralty to show that any Zeppelin was brought down by gun-fire in either of the two raids on London.

2. This clearly must be a matter more or less of speculation, but the information of the departments concerned is that the reduction of the lighting in London was of value.

3. The cases of Paris and London are not exactly on all fours. We are thoroughly cognisant of what is done in Paris, and we are making every effort, with the means at our disposal, for the protection of London.

4. I am in a position to state that there is no foundation for the suggestion contained therein.

He could give the assurance that the Admiralty would not rest content until every step had been taken to render the protection of the Metropolis as efficient as they possibly could. The problem was by no means simple. It required great consideration. They had availed themselves of the best information they had got. No effort had been spared to get the best material, and he hoped they would be in a position to make the defence of London satisfactory.

The matter was raised in the House of Commons on the 21st, when, in reply to questions by Mr. Annan Bryce, Mr. Balfour (First Lord of the Admiralty) said the degree to which it is desirable to use aeroplanes for night defence against Zeppelins is a difficult matter, and cannot properly be dealt with in answer to a question, but under no circumstances do the authorities consider that adequate defence against night attacks by Zeppelins can be provided by aeroplanes. As regards the action of aeroplanes on the 13th inst., the weather conditions in London rendered it impossible for any large number to go up.

In reply to further questions as to the anti-aircraft corps, Mr. Balfour said there had been no change in the personnel. The guns' crews work for 24 hours every other day, and are paid 4s. 2d. a day, finding their own food and lodgings. Searchlight crews work from dark to daylight every other night. Two crews divide the night, and they are paid 2s. 1d. per day, finding their own food and lodgings. The officers go through a short course at a gunnery school, and the men are being sent to the Chatham gunnery school. Arrangements are also being made for men to be sent for training to the British Army in France. Experienced naval ratings are attached to the guns and searchlights.

Questioned by Mr. Anderson as to the possibility of giving warnings of Zeppelin raids, Sir John Simon, the Home Secretary, said: The question whether public warning should be issued by the authorities in advance of the arrival of the Zeppelins in the London area was a question which has been more than once most carefully considered by the authorities responsible. Indeed, the last occasion when it was minutely examined was so lately as that morning, when he had the advantage of hearing in detail the views of the department at the Admiralty which answered for the gun defence of London. There was really no confusion between the responsibilities of one department or another. The defence of London from Zeppelin attack was in charge of the Admiralty. The way in which the Home Office came into the matter was this—that as a consequence of such attacks there might very well be special and most urgent action to be taken by the police, and there was also the question of the regulation of lights. These were necessarily police matters, and it was those matters of a non-military character which the Home Office endeavoured to administer, but always subject to the advice of the anti-aircraft department of the Admiralty. How did this matter of warning the public as to the approach of Zeppelins stand? He would say at once that his anxiety in it was not that London would become panic stricken. Nothing was more remarkable, nothing was more worthy of praise than the consistent coolness with which the population of the Metropolis had taken the visits of these aerial strangers when they happened to drop in. That was not really the difficulty.

The difficulty was a twofold one, and he would like to put it quite plainly to the House. First of all, it must not be supposed that when the authorities first had reason to think that there might

be a Zeppelin attack on a given night they were in a position to assert that there was going to be a Zeppelin raid in the London area. The first news, of course, which the authorities were able to collect, was news of the passage of these Zeppelins, it may be across the North Sea, or across what some people used to call the German Ocean. It had constantly happened that Zeppelins had been out for a nocturnal airing, and had never got inland at all, and it had constantly happened that, although they did touch some portion of the coast of this land, they had wandered about in a perfectly aimless way and dropped destructive bombs on various agricultural areas, or sometimes, whether by accident or design, on perfectly innocent people in various provincial towns and villages. The House would see, therefore, that when one spoke of the authorities knowing there was going to be a Zeppelin attack, the first thing that was known was nothing more than that there were some of these visitors on the way; but whether they would ever get here, or whether, if they did get to England, they would succeed in making their way to this particular area of London, was a thing no one could possibly prophesy with confidence. Therefore, if you were going to give warnings to the public, you must face this, that nine times out of ten—choosing a round figure—he did not know whether he should express it rightly when he said the public would be disappointed. That was the first difficulty, and it was its connection with that fact, of course, that arrangements were made to protect, not only London, but other parts of the country, as rapidly as the information at the command of the authorities permitted. He did not think this was a matter on which public interest required that one should preserve complete silence, and he was most anxious that the public should understand how very thoroughly and systematically this problem was being studied and attempts at a satisfactory solution were being made. It was a matter of the greatest importance that we should not ourselves, by foolish gossip, and indiscreet statements, assist these invaders in the slightest degree to identify the part to which they had come.

But there was not the slightest reason why the public should not understand the sort of way in which this invasion was sought to be dealt with. As soon as it was known that there might be such an attempt, and long before it was known with any certainty that London was going to be the objective, of course steps were taken in order that all possible observation should be kept by those whose duty it is to keep that observation on the different areas of the coast. If they reached the coast steps were at once taken so as to control the railway traffic in the area affected in order to reduce to a minimum the risk of trains acting as guides to this place or that. That did not mean, of course, that at a moment and in a flash all the trains coming to and from London were stopped, but it meant that the traffic was controlled. The most careful arrangements were made in advance to secure that this was effectively done. Arrangements were made in advance to do this in such areas as were material to the purpose for checkmating the invader. It might be that at a later stage some better and more certain judgment could be formed as to whether the London area was likely to be reached. That sometimes happens, and sometimes it does not. Of course there were some things which obviously ought to be done and are done as a precaution forthwith. At a suitable moment the special constables were warned. The system by which is secured the service of doctors in London at different suitable points was also put in motion. You could not tell what portion of the London area was likely to be attacked, for the best of all reasons, that the Zeppelin itself had not the remotest idea, and there were strong reasons for believing that it had not only no idea in advance but a very hazy idea after the event. Consequently you had to arrange in the London area that a series of precautions of that sort were quietly taken.

But it had been thought, after the most careful consideration, that it was better not to make a preliminary announcement at large to the public, for instance, by the ringing of church bells or the sounding of a hooter. A better guide could not be imagined for a Zeppelin wandering about the fifts in Essex or about Epping Forest than suddenly hearing the unanimous chorus of all the church bells and steam whistles of the Metropolis. That was the first difficulty they had endeavoured to face, and that was the conclusion to which they had come. But there was a second point. He had said that it was not panic trains which disturbed them. After all, if you do tell the men and the women and children of the Metropolis that it may be that in the course of an hour or two hours' time they would be honoured with a visit from a Zeppelin, what is it exactly which the men, women, and children are expected to do? Of course, if those who conduct these invasions were careful to do no damage to civilian life, if they really were prepared and were able to take precautions not to strike private property, it would be a very reasonable thing to secure that everybody went home. But their own experience went to show that the Zeppelin did not pay the slightest attention to things of that sort. Supposing you tell the population of London that there might be a Zeppelin coming, he could not help suspecting that

what most of them would do would be to go out into the streets and have a look at it, and experience had really confirmed that. It was an instance of the coolness and courage and of the contempt with which the Londoner regarded these dastardly outrages. But that did not assist to protect the lives of Londoners. He asked the other day that the papers should be analysed in order that he might know in regard to the different casualties in the London area whether they had occurred in the open air or in the houses, and the House might be interested to know that a very substantial proportion of the casualties, both fatal and otherwise, had occurred in the streets, and they would observe that all these attacks occurred at night and at a time when the larger part of the population would naturally be under cover. That went to show that the probable consequence of telling everybody that there might be a Zeppelin to-night would not reduce the number of people suffering injury.

He would say frankly that there had been one or two cases in which he had been much puzzled as to what would be the better course to take. It might happen before they had done with these invaders that a theatre got struck, and the people assembled there for perfectly peaceful and innocent enjoyment might suddenly find a bomb dropped among them. If unfortunately that did happen, it might do damage to a number of innocent people, and, great as the coolness of the Londoner is, that might create some sort of local panic. He thought at one time that it might be desirable that they should arrange with the theatres that in certain circumstances they should be closed.

But he asked the House to consider the arguments the other way. In the first place, it was questionable what the effect would be on a theatre audience. He heard of a case at a cinema where there was some such intimidation given, and he believed the proceedings were stopped, and afterwards one or two persons present bitterly complained that, having paid their money, they wanted their money's worth. A great many more people thought the alternative attraction was too good to be missed, and promptly went into the streets. Perhaps these people might be urged to go home, but a large number of them go home by train. If there was any immediate risk of a Zeppelin attack on the London area the trains are stopped, and the result would be that if you were able to warn the peaceful population, a large proportion of them would assemble at the termini of the railway stations. The trains could not run out, and the consequence would be that you would have a great collection of people under another roof which, if the enemy paid any regard to ordinary military considerations, would be a more suitable object for his attention than a theatre or a music-hall. There were all sorts of other assemblies. He was glad of the opportunity of telling hon. members publicly that the view was presented by the Admiralty and which they had felt it right to adopt, always subject of course to consideration in the light of further and greater experience, was that, on the whole, it was better not to attempt to warn people of the suggested approach of the Zeppelins. The people must therefore understand that if they felt, as some of them very naturally might do, that this left them in more than one sense in the dark, they must really take their own risk if they choose to go to places where a number of people are assembled together at night, and they would be able to estimate the extent of that risk, and he had no doubt that they would act in the matter reasonably and fairly. This was a matter in which the man in the street was very naturally and closely concerned. He (Sir J. Simon) was anxious to show to the House that it had not been some deliberate policy of the Government to conceal from the people of England the truth. It was a deliberate policy adopted as a practical decision after most carefully weighing the pros and cons of the matter.

He might say in conclusion that he believed there were some areas and towns in England where the alternative policy had been tried. He had had no representations from members representing those areas as to how it was worked, but in one such area he had reason to know, the number of false alarms that had been given had produced a very great deal of consternation and disappointment, and the total result, to say the least of it, was extremely doubtful from the point of view of promoting public security and safety.

The truth was that in this and other matters, since we were at war and since our enemy chose to adopt these devices, we had to show him that it was not an idle boast, but a genuine fact, that English men and women, Londoners no less than others, were prepared to face even the tragic incidents of war with courage, calmness, and resolution. Londoners and others might be perfectly satisfied that everything that could be done would be done in order to minimise any risk to which they may be put. Nobody could feel more keenly than the Government did the seriousness of the individual tragedies which had been created by these horrible attacks, but just as it was the determination of our people to carry this war to a victorious conclusion, so this was, after all, an incident, though a very grave incident, which we at home had got to bear,

and which was small in comparison with the daily and nightly risks run by our heroes on the field of battle.

Replying to Sir H. Dalziel and others on Tuesday, Mr. Balfour said the Admiralty are responsible for the defence against aircraft of both London and most parts of the country. There are, however, certain places—for example, fortified ports—for the defence of which responsibility rests with the Army. He need hardly say that this division of responsibility did not imply that the Navy and Army do not endeavour by wholehearted co-operation each to assist the other in their respective tasks.

The Army co-operates so far as its means permit, but the primary responsibility for London, under an arrangement made last year, rests with the Admiralty.

AIRCRAFT AND THE WAR.

INFORMATION received by the *Telegraf* from Brussels on the 18th showed:—

"On Sunday afternoon two aeroplanes of the Allies flew over Berchem at a considerable height. They were unsuccessfully fired at, and they dropped some bombs. On Monday morning another aviator appeared above Berchem and dropped bombs on some military buildings."

The Rome correspondent of the *Echo de Paris* in a message on the 18th said:—

"Recently King Victor Emmanuel was watching the firing of a battery on the Carso when an enemy aeroplane flew over the Italian troops, passing just over the spot where the Sovereign was standing. The officers accompanying the King begged him to leave, but the King reassured them with a smile and remained calmly where he was, witnessing with great interest an engagement which took place between Italian aeroplanes and the enemy aviator. The latter threw a number of bombs, some of which fell two hundred yards from the King."

According to the Nish correspondent of the *Temps* a hostile aeroplane squadron has succeeded in blowing up a bridge near Vranje.

The *Daily Mail* correspondent in Milan, writing on the 19th regarding the fighting in Serbia, said:—

"German aeroplanes are flying over Serbia throwing bombs on towns and villages and killing innocent women and children in the hope of terrorising the people."

The *Morning Post* correspondent at Petrograd, writing on October 20th, said:—

"The German hydroplane captured between Lake Babit and Riga a week ago has proved perhaps the rarest prize yet captured in this war. According to the *New Freepress* this plane, which is now at Riga, is one of very few of the newest pattern possessed by Germany. The hydroplane came down in a pine wood, and reached the ground practically uninjured. Russian outposts who marked it down betimes arrived on the scene before the aviators had an opportunity to destroy even their papers. They attempted to hack the propeller to pieces, knowing that it is a matter of extreme difficulty to fit a new propeller to a machine all of whose coefficients are an unknown quantity to strangers. Happily the propeller was shot with brass, and was not ruined."

"The aviators next tried to fire the main machine by revolver shots into the enormous tanks, but evidently their nerves were too shaken by the fall, and this also failed. The Russians took both the aviator-lieutenants prisoners unharmed. Their splendid hydroplane, which was perfectly new, had only left the Libau aviation base a few hours before. It is of the Albatros type, but it is replete with improvements and novelties. The most important is a gas escapement arrangement which renders the movement noiseless. The engine is a Zeppelin motor of 160 horse-power, bearing the mark 'Flugmotor Malsbach.' The benzine tanks are of unusual capacity, giving a full ten hours' range at a speed of 80 miles an hour."

"All the necessary manipulating parts of the machinery are made luminous at night with a radium composition. There is a special newly invented level to facilitate handling the plane in darkness. The and a special compass, and seats are provided for three. The hydroplane carries a searchlight, a Maxim, and a rifle, with an adequate supply of ammunition, and ten bombs, five on each side, of ten pounds weight apiece. The whole equipment was taken uninjured, and Russian aviators gleefully declared they would be flying over Germany within a month. Aviation specialists in Petrograd have, however, petitioned to have this exceptional modern flying machine turned over to them as a subject for profitable study before it is put to further use."

No attempt has been made to increase the number of aeroplanes in consequence of the last raid, but there has been a steady and rapid increase in the number of aeroplanes, and that increase is going on quite irrespective of the defence of London or of any other part of the United Kingdom. It is part of the general policy of the Government.

The Admiralty are quite ready to state, so far as the public interest permits, what had occurred on the day of the raid, but all subsequent statements, he thought, should be made by some other office directly connected with facts. For instance, the public were naturally anxious to know the number of casualties. The Admiralty have no information as to that except what they get from the Home Office. It would be better for the Home Office to supply that information direct.

A despatch from General Headquarters to the *Daily Telegraph*, under date of October 22nd, said, regarding the fighting round Loos:—

"So difficult was it for the enemy to bring up the necessary reserves at the moment that we broke their line that, so runs the story, empty railway trains were passed backwards and forwards behind the lines in order to deceive our aerial scouts into the belief that a great reinforcement was taking place."

From its Brussels correspondent the *Telegraf* has received the following:—

"A proclamation has been issued by Governor von Bissing accusing the inhabitants of communicating to enemy airmen the location of buildings in which German troops are housed, and which have recently been the object of frequent attacks by airmen."

"The proclamation says that if attacks continue, Governor von Bissing will find himself compelled to quarter German troops in the houses of citizens, and the 'promise made that officers and men would not be lodged in citizens' houses hereby lapses.'"

"This promise also lapses if, after October 25th, arms or ammunition are found in the possession of inhabitants of Greater Brussels."

The *Gazette de Hollande* on October 22nd stated:—

"A squadron of Allied aviators have bombarded the big bridge across the Scheldt called the Count Wurttemberg Bridge at Termonde, completely destroying it."

The *Echo Belge* reported on the 24th:—

"Allied aviators have made another daring raid over the Belgian province of Luxembourg. At Marche bombs were dropped, which killed thirteen Germans, whilst eight were injured. On October 10th Allied aviators dropped bombs on Herxheim, where a bridge across the Scheldt was hit. Bombs were also dropped at Lokeren and Termonde, doing considerable damage and killing or injuring several Germans."

Writing from Milan to the *Daily Telegraph* on Monday, Mr. A. Beaumont said:—

"Austrian aeroplanes appeared over Venice yesterday morning shortly after ten o'clock, and made two attacks, dropping explosive and incendiary bombs, most of which, however, fell into the lagoons. Curiously enough, the evening before a banquet had been given to more than 200 guests at the ex-Restaurant Pisen, in honour of the French and Italian aviators who had been specially assigned as an aerial guard over the old city of the Doges. The Mayor of the town made a speech, in which he highly lauded the undaunted courage of the aviators who risked their lives daily in defending the town, with all its historic treasures, against the enemy's aerial incursions."

"It was no reflection, indeed, on the gallant aviation corps of Venice that the enemy's flight squadrons were able to approach the town yesterday, as the sky was slightly covered by mists, and the enemy's machines took advantage of the situation. One of the first bombs fell on the roof of the Church of the Scalzi (barefooted friars), famous for its MSS. and paintings by Tiepolo. The roof was partly demolished, and one of Tiepolo's frescoes was destroyed. Several bombs were evidently aimed at the Piazza San Marco and the church, but failed to hit anything. One bomb only exploded on the Piazza, without doing any damage. Five bombs were aimed at other parts of the town, but fell mostly into the water, causing little or no damage."

"About an hour after these two attacks a third attack was made by another aeroplane, which dropped three bombs, two of which produced no effect at all, whilst the third set fire to a heap of wood in the courtyard of the Riconverto (Poor Asylum) without injuring any of its inmates. In fact none of the bombs caused any personal injuries. This attack shows that the precautions to protect the leading monuments and art treasures at Venice were wisely taken."

R.A.F. Race Meeting at Brooklands.

As many of the staff of the Royal Aircraft Factory as could be spared foregathered at Brooklands on Saturday afternoon, and enjoyed some sporting motor cycle races. There were over 80 entrants in the various events, several of which had to be run off in heats with the result that the gymkhana events which had been included in the programme had to be abandoned. During the afternoon Lieut. Goodden flew over from Farnborough and made several circuits of the track.

Most of the events were half-mile sprint handicaps, in which the winners were:—Light-weight (not exceeding 300 c.c.): A. Newton (2½ h.p. Lewis), 120 yards start. Heavy-weight: P. Davey (8 h.p. Matchless), scratch. Medium-weight (not exceeding 550 c.c.): S. O. Turner (2½ h.p. Douglas), 120 yards start. Side-cars or cycle-cars: F. G. Kennard (5 h.p. Matchless), 40 yards start. Cars: A. J. H. Elverston (8 h.p. Compton).

The other events were a quick-change plug race, which was won by E. G. Perrot (2½ h.p. Douglas), and the Serpentine race was won by M. E. Holroyd (3½ h.p. Rudge-Multi).

There was also a hill-climb, in which the fastest time was made by P. A. Davey (8 h.p. Matchless), but no result on formula was announced.

Hints for Beginners.

So great was the demand for the instructive little booklet entitled "Hints on Aviation for Beginners" written by Mr. O. W. Thomas to which reference was made in "Eddies" a week or so ago, that it had to be reprinted. That explains the delay which some of the later applicants have experienced. Copies of the new and revised edition can now be obtained by sending 6d. plus 1d. for postage, to Mr. O. W. Thomas, The Croft, Denbridge Road, Bickley, Kent.

Death of Professor V. B. Lewes.

It is with great regret that we have to record the sudden death of Professor Vivian B. Lewes, the well-known authority on gaseous and other fuels, which occurred on October 23rd at Mold, Flintshire. He had contributed many valuable papers on these subjects to the Royal Society of Arts, the Royal Society, and other learned societies.

A Mauser Pistol for a Service Aviator.

A MEMBER of the Royal Aero Club has a new Mauser pistol which he wishes to sell cheaply to a Service aviator. Particulars can be had from the Assistant Secretary, Royal Aero Club, 166, Piccadilly, W.



"Life is a mirror—smile at it and it will smile back; frown at it and it will frown again."

"How long did it take you to learn to run an aeroplane?"

"Three or four."

"Three weeks?"

"No, aeroplanes."—*Aerial Age*.

ANOTHER morning paper asserts in its biggest type that "London's Aerial Defence Is One Man's Job." And what is one against so many?—*The Star*.

AVIATOR: "Do you know, you are so clever and charming and brilliant that I really feel embarrassed in your presence."

AVIATRICE: "But you musn't; really, you musn't."

AVIATOR (reassuringly): "Oh, I dare say I'll get over it when I know you better."—*Aerial Age*.

Where Zeppelins Help the Farmers.

THE holes made by bombs dropped on to London by German airships are being used by the farmers in a very practical manner. These farmers come in from suburban towns and hang around the city, and whenever a bomb falls and digs its way into the earth they immediately shovel out the newly-made hole, put it into a waiting truck, and cart it up to the farm. The holes are used by the farmers for wells, and this saves considerable time digging, as the holes are merely shoved into the ground. Some of the holes are from eight to ten feet long. Sometimes bricks are built around them and they are used for chimneys. Other times they are cut up into small pieces and used for bung-holes.—*New York World*.

AFTER the success of a Maubeuge factory chimney in killing a Zeppelin crew, it is reported that Sir Percy Scott is about to build a ring of similar structures all round London.—*Punch*.

Hooking it.

AN old lady was once visiting a hangar and was having all the good points explained to her of the aeroplane, when she asked the mechanic:

"When the aviator gets tired while he is up in the sky, what does he do?"

"Why, mum, he hangs the blooming thing up to a SKY HOOK."

Aerodrome Proverbs.

THERE'S many a slip 'twixt the straight and the *brevet*.

Fly over others as you would have them fly over you.

A rolling 'bus gathers much moss.

A Gnome by any other name would smell as—Gnome.



A.A.C. Sentry: "Halt! Who goes there?"
Voice from darkness: "Two moonlight workers, 'goin' 'ome, and don't yer blinking well wish you was?"

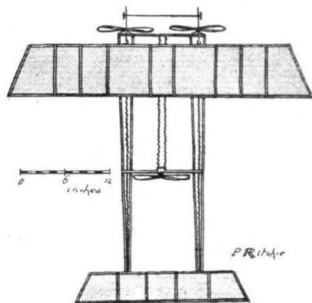
Models

ALL communications in connection with this section should be addressed to the Model Editor, "FLIGHT," 44, St. Martin's Lane, London, W.C. Correspondents are requested to write on one side of the paper only.

A Triple-Screw Monoplane.

IN connection with Mr. Johnson's recent article on multiple-screw models we have received the following sketch from a Scottish reader, Mr. P. Ritchie, of a triple-screw model which he has recently built. Owing to being very busy, he has not yet had a favourable opportunity to test it in full flight, but we hope when he is able to do so he will let us know the result.

"One point of interest about the model," he writes, "is that each of the tractors works on a single skein of elastic, while the



Mr. P. Ritchie's triple-screw model.

pusher is fitted to a duplex gear. The chief dimensions are: Span, 42 ins.; chord, 7 ins.; fuselage, 36 ins. The wings are made of strip birch covered with proofed silk, and the fuselage is made of section silver spruce."

Some S.W. Aero Club Models.

From Mr. J. W. Reid, the Hon. Sec. of the South-Western Aero Club, we have received the following:—

"I have noticed that photographs of models in flight are very few and far between, so I am sending some, taken by myself, of two models of this club—Mr. Howse's (H3) and mine (R4). A 3-plate camera was used. The group shows Mr. P. W. Peel (our late Secretary, and now in the R.F.C.) and Mr. R. T. Howse winding up his own model.

"As regards the models themselves, they are very much alike, although mine has a flexible rear edge to the main plane. They are both the same length, but Mr. Howse's has a 47-in. span, while mine measures 44 ins. Mr. Howse's has a 12-in. propeller, driven by two skeins of elastic of six strands each; mine, a 12-in. propeller, driven by two skeins of five strands each, the duration in each case being about 38-40 secs. Both models r.o.g.

"Note the movement of the right wing in the view of my model. There was no movement visible to the naked eye while the model was flying."

Paper Models.

V.R.B. sends the following notes on this subject:—

"Seeing the notes in 'FLIGHT' of October 8th and 15th, re paper models, I thought I would give a brief description of a model I have recently constructed.

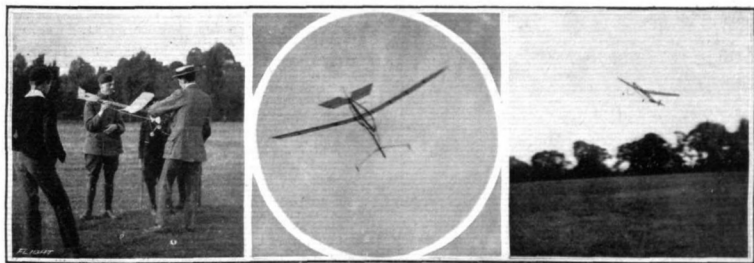
"Having obtained good flights from hand-launched models with the main plane or planes in front, I decided to make one fitted with a chassis and wheels and landing apparatus. I have managed to make one which without any assistance will rise from the ground under its own power and fly with fairly good stability.

"The machine is a tractor biplane.

"The main planes consist of very thin framework of wood and note-paper, covered with tissue paper. They are single surfaced, and have a span of 9 ins. and 8½ ins. respectively and a gap of 1½ ins. and a chord of 1½ ins. The tail plane is in the shape of a semi-circle with a diameter of 3½ ins., and is also covered with tissue paper. The motor consists of a thin paper tube with the elastic inside. The propeller is 3 in. diameter, and is driven by 10 strands of 1½-in. square elastic, obtained from an elastic stocking. Hat elastic can also be used, but it is not so good.

"The wheels are made of small discs of stiff note-paper ½-in. diameter, with a small bead through the centre, which is stuck in place by recotone. This kind of wheel is very satisfactory in every way. The wheels are fixed on by means of small pins with the ends cut off, while a light wire frame forms the chassis.

"Model aeroplanes made in this way have a very good appearance, besides being able to fly for short distances, and can be made to resemble their large prototype quite closely. I have now turned my attention more or less to paper model water-planes, which I hope before long will be able to rise from the water in a bath."



Three snapshots secured by Mr. J. W. Reid, the Hon. Sec. of the South-Western Aero Club. On the left, Mr. R. T. Howse is seen winding up his model, assisted by Mr. P. W. Peel, late Hon. Sec. and now in the R.F.C. On the right the model is seen in flight. In the centre is Mr. Reid's r.o.g. model well up.

A NOVEL G.A.C. WRIST WATCH.

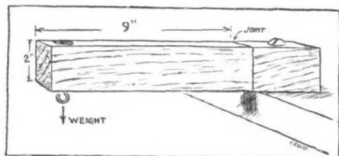
YET another useful novelty has been added to the already large assortment produced by the General Aeronautical Co., Ltd., of 35, Regent Street, London, S.W. This latest one takes the form of a combination compass and wrist-watch, the compass being incorporated with the front cover protecting the face of the watch. Normally, this compass lid is held closed by a spring-hinge, and when raised exposes to view the dial of the watch. The little accessory is eminently suited for night work, as the



cardinal points of the compass, and the figures on the watch dial are very legibly inscribed with luminous paint, while the pointer and the hour and minute hands are similarly treated. Despite the fact that it combines two instruments, the complete article is not in any way bulky, the total thickness being about half-an-inch, while the diameter is that of an ordinary wrist-watch, a little less than 1½ ins. The works are of the usual G.A.C. high standard, and are enclosed in a strong nickel case, with a best quality leather strap and buckle. The price is £3 3s.

"CROID" GLUE.

We have received a sample of a glue that is being manufactured specially for use in connection with aircraft by The Improved Liquid Glues Co., Ltd., of Great Hermitage Street, London, E. Our own experiments with this glue have proved that it certainly possesses remarkable properties, being exceedingly strong and making very sound



joints. The following tests which we understand have been made by Government contractors will give an idea as to its tenacity. Two lengths of teak 2 ins. square were glued end to end, and when set, one length was held fast on to a bench so that the other length projected unsupported as shown in the accompanying sketch. Various weights were hung on the free end until breakage

at the joint occurred, with the following results: With Scotch cake glue the breaking weight was 30 lbs., with ordinary liquid glue, 64 and 84 lbs., and with "Croid," extra strength, 282 lbs. "Croid" is a liquid cold glue, ready for use with the addition of a small quantity of cold water. It does not stain, or chill in cold weather, and will keep in good condition for a long time. A special quality "Croid" is also supplied for use with propellers. This can be used neat, and it is claimed it will resist the greatest strain to which a propeller may be subjected. The transverse breaking strains of this glue are 3½ cwt. per sq. in. (standard) and 5½ cwt. per sq. in. (extra strength).



Aero Engine Spares, Fittings, &c.

It is times like the present, when practically all engineering shops are working at full capacity in turning out munitions or Government work of one sort or another, it is not always easy to get certain spare parts or fittings in connection with aircraft or aero engines. Manufacturers, however, should note that special facilities in this direction are possessed by Omnium Central, the general engineering agents, of 175, Shaftesbury Avenue, London, W., and they have met with extraordinary success in obtaining replacements, especially for French aero engines, when all other means have failed.

Normale Propellers and a Tachometer.

In addition to their general agency business, Messrs. Omnium Central are securing the concessions for several well-known French aircraft accessories. They have just taken up the agency for the Normale propellers, and have issued a list giving details of the 69 standard aeroplane propellers made. Messrs. Omnium Central are also selling a beautifully made tachometer for rotary engines, which, we understand, has been adopted by the French Government for use on all military aeroplanes.

Changes in Messrs. J. S. White and Co., Ltd.

It is announced that Mr. George Smith has been appointed managing director, and Commander A. J. Carni, R.N., chairman, and Mr. James Hunt (the secretary) a director of Messrs. John Samuel White and Co. (Ltd.), the well-known shipbuilders of Cowes, while Mr. J. Lee White and Mr. George Falsell have joined the board as directors.



CORRESPONDENCE.

A Challenge.

[1909] I wish, on behalf of Mann and Grimmer, to issue a challenge through the medium of the technical Press. I maintain that the "Mann" biplane is the fastest two-seater pusher in the world, and I am willing to back my opinion to the extent of £10 against any two seater pushers in this or any other country. The trial to take place with a passenger over any course exceeding thirty miles, round pylons alone excepted. I shall be glad if you will give publicity to this challenge. I am willing to leave the arranging of this affair to any independent committee, and immediately the challenge is taken up I will deposit the sum of £10, subject to the other party doing the same. I am willing to abide entirely by the decision of the committee, and I trust that a sporting event may be arranged for next Saturday or Sunday.

ROBERT P. GRIMMER.

[We fancy that any contest of the above character would come within the province of the Royal Aero Club's jurisdiction, and we suggest our correspondent putting himself in communication with the Secretary.—En]

FLIGHT.

44, ST. MARTIN'S LANE, LONDON, W.C.
Telegraphic address: Truditor, London. Telephone: 1828 Gerrard

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