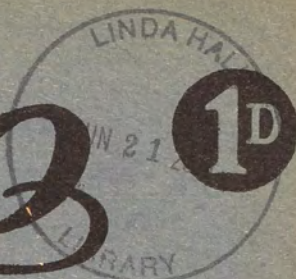


THE AERO, AUGUST 31ST, 1909.

The Reims Meeting.

# The AERO



No. 15. Vol. I.

[Registered for transmission as a Newspaper in the United Kingdom.]

Tuesday, August 31st, 1909.

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'THE AERO.' AUGUST 31ST. 1909.

# The AERO

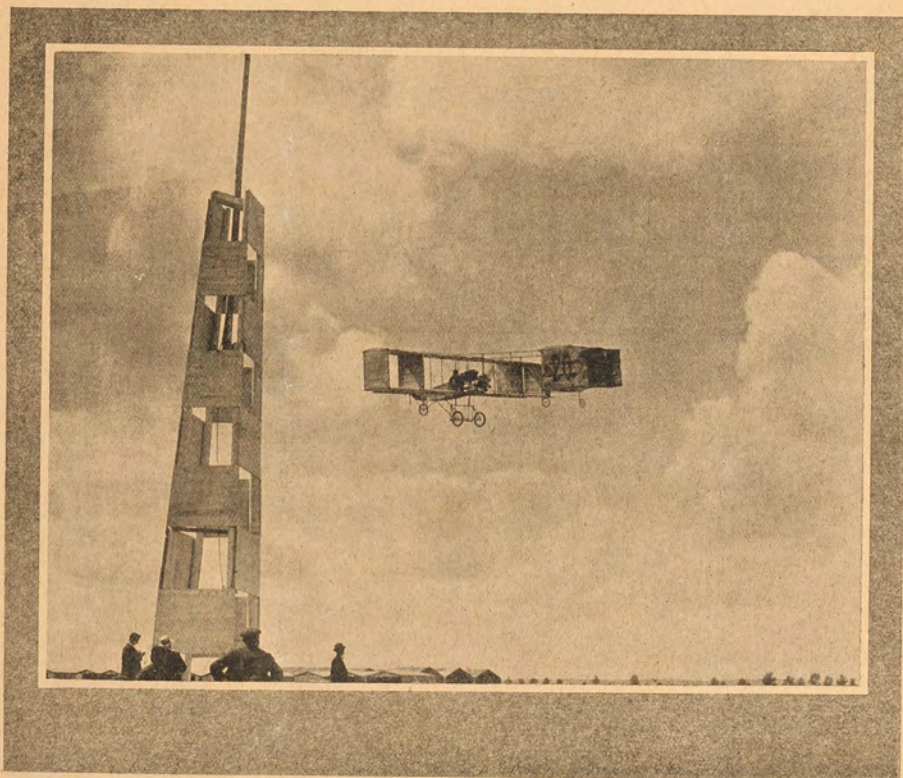
Incorporating "Flying" (Established 1902) and "The Airship."

NO. 15. VOL. I.]

TUESDAY, AUGUST 31ST, 1909.

[PRICE 10.]

## The Reims Meeting.



Paulhan on his Voisin biplane making a flight of eighty-two miles, which lasted 2h. 43m.

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## Editorial Notes.

In the daily papers of August 23rd appeared an announcement "To the Common Danger." Messrs. P. B. Burgoyne and Co. have offered a hundred guinea cup as a prize to the first aviator to cross London from north to south in a heavier than air machine, with the proviso that the machine and the aviator must be British, and that the Thames must be crossed between the Tower Bridge and Westminster. It is stated that this prize is "for the further encouragement of aviation." All who are seriously concerned with the encouragement of aviation will agree that in reality this "offer" is nothing more or less than an incitement to fly to the common danger. We have no knowledge of Messrs. Burgoyne and Co., so we do not know whether they have any real interest in aviation or whether they are simply wishful to procure a cheap advertisement; but the mere fact of their making such an offer at this stage in the development of flying shows conclusively their ignorance of the subject. Such a flight is infinitely more dangerous than the Cross-Channel Flight, for a failure means almost certain death to the flier, besides probable damage and possible death to other people as well.

## The Reason Why.

Roughly speaking, the distance to be flown would be between twenty and thirty miles. Out of that distance ten at least would be over closely packed streets, without even a remote chance of a landing place. If one could eliminate all chances of mishap except that of engine stoppage, which is present even with the best possible engines, the only safe height at which to fly would be about a mile, allowing the machine the excellent gliding angle of one in eight, so that if the engine stopped the machine could glide for eight miles and clear the houses either way, and that would only be safe on a calm day. As the official record for height is four hundred feet, and Latham is reported to have reached a thousand feet at the start of his first cross-Channel attempt, it will be seen how absurd it is at present to think of flying over five thousand feet up. In time to come—possibly in a comparatively short time—aeroplanes will fly over London all day and every day, but until their ability to do so is fully proved we hope that all fliers will refrain from flying over any towns at all, and we state most emphatically that it is the duty of all aero

associations to refuse point blank to have anything whatever to do with trials for this "cross-London" prize or with any other "cross-town" attempts. Such attempts are only made, as we said before, to the common danger, and are likely to bring the sport and science of flying into the worst disrepute, with the result that the clock of progress would be seriously set back.

**A Flying Race in London.** For some time we have known that a project was on foot to arrange a series of races between Messrs. Blériot and Latham, to take place at Wembley

Park, or, failing that, some other place near London, for a prize of £5,000. Truly the prize is tempting, and such races would be exceedingly interesting, but how are they to take place if the competition is not to be a *fiasco*? The daily papers now make the proposal public. We have some knowledge of the quarter whence the proposal emanates, and we can safely say that the praiseworthy eagerness of the promoters is only equalled by their ignorance of flying machines. Therefore, let us consider the possible localities, irrespective of persons. First there is Sheppey, excellent grounds, but rather inaccessible for a popular gathering. Then there is Dagenham. The Aeronautical Society's ground is impossible, unless it could be so arranged that the arable land at the back could be flown over; but Handley Page's ground suggests great possibilities, as the river banks would make good stands, and the worst of the existing dykes could be filled in without too much expense. Wembley Park is handy to get at, but the hill and valley formation of the ground would make serious flying out of the question. Flying over the hill would mean flying over houses, and flying in the valley means flying over an electric railway. Both would be promptly stopped. A very clever aviator might "evolute" there if some thousands of pounds were spent in clearing away valuable and beautiful trees, but even then there is no room whatever for fast flying, as the actual grounds of Wembley Park itself are quite small. Brooklands is a possibility, but here again there is a hill, though not so bad as at Wembley; also the two and a half miles circuit is rather small for fast work. Sandown Park is another possibility, and we hear that there is a proposal to hold a flying meeting there early next year, but here again there is the hillside and a circumscribed area to consider. Something might even be done with Kempton Park. Outside of these places we cannot recall any likely, or even possible, area near London. The choice, then, lying apparently amongst these places, it would appear that the only sensible move would be for the promoters of the competition to bring Messrs. Blériot and Latham over, and leave it to them to decide where they will fly. We believe that Mr. Latham is expected over here for the Aeroplane Club's dinner to Blériot on September 15th, and this would appear to be a good opportunity of solving the difficulty. In any case we warn the promoters of the races against the folly of deciding on the locality, and spending money on preparations, only to find that the aviators cannot fly there. There has been too much of this speculative "hippodroming" on the Continent already. Let us take a lesson therefrom and set to work more sensibly in England. No race at all would be better than a *fiasco*.

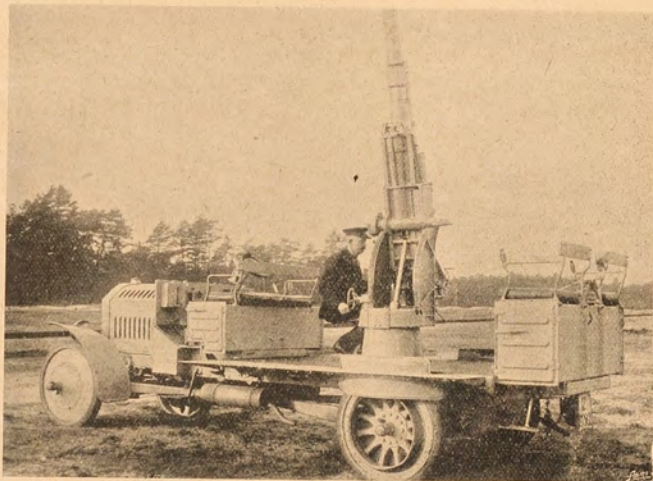
## Aerial Defence.

### Guns for Destroying Airships with "Tell-tale" Projectiles.

The appended photograph shows the latest model Krupp gun designed to destroy airships. This piece of ordnance has, it will be observed, an elevation of any degree of inclination between the horizontal and the vertical. The bore of the gun is 75 mm., and the barrel is of exceptional length in order to afford a very high speed to the projectile. The barrel is so mounted that it can be pushed outwards by compressed air; when it is fully extended the shot is automatically fired. A dashpot recoil brake is fitted. The vertical range of the weapon is some three miles, its horizontal carry being about half as far again. The motor chassis is of 50 h.p., and is capable of a speed of over thirty miles per hour, all four wheels being driven. Accommodation is provided for five men and eighty-two rounds of ammunition.

The projectiles, the action of which is shown in the second photograph, are fitted with a special fuse which ignites as the shell leaves the muzzle of the gun, and leaves behind it a trail of black smoke, thus permitting the gunner to see where his shots are going to. The shell itself ignites upon impact with an airship, which it is said to be capable of completely destroying by igniting the gas contained within the aerostat.

Although this gun would appear to have, on paper, a very great offensive power against a dirigible airship, we confess that we cannot feel over-sanguine of



The gun upon its chassis set at its maximum elevation.

its success, since we are convinced that a high-speed dirigible in any but the finest of weather would be well nigh impossible to hit with any form of projectile. However, the manufacture of these guns is undoubtedly a step in the right direction, and one which we should be glad to see our own War Office taking.



The effect of the "tell-tale" shell, for use with the Krupp Aerial Defence Gun, is indicated in the photograph, which shows the trail of smoke which the projectile leaves behind.

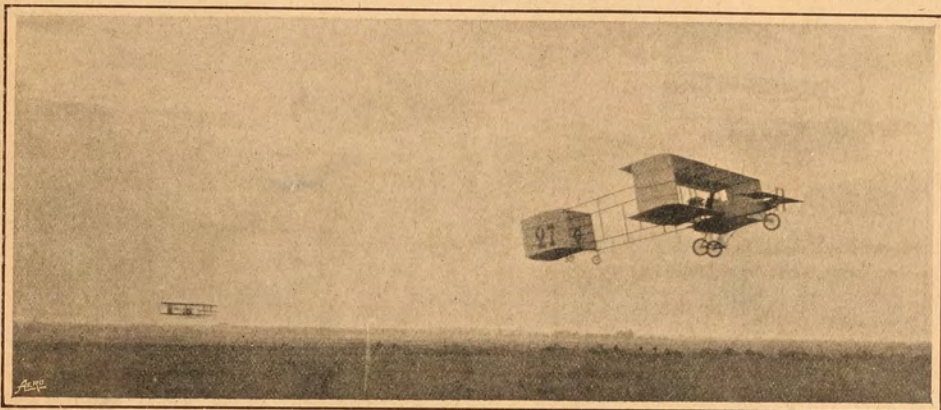
## Scenes at Reims.



1. The Bleriot team. 2. The R.E.P. being drawn back to its "hangar." 3. The damaged Bleriot being dragged out of a cornfield by firemen. 4. Lefebvre on his Wright machine just after leaving the starting rail. 5. Paulhan in flight on his Voisin. 6. Latham breaking record. 7. Lepobvre rounding the Judges' Stand. 8. President Fallieres inspecting the Curtiss machine. 9. General French, who was among the spectators.

## The Reims Aviation Week.

*The First Aeroplane Race Meeting. A Meeting that will Live in History.*



*A stern chase. Tissandier on a Wright machine overhauling Bunau-Varilla on a Voisin.*

### REIMS.

To say that this week marks an epoch in the history of the world is to state a platitude. Nevertheless, it is worth stating, and for us who are lucky enough to be at Reims during this week there is a solid satisfaction in the idea that we are present at the making of history. In perhaps only a few years to come the competitions of this week may look pathetically small and the distances and speeds may appear paltry. Nevertheless, they are the first of their kind, and that is sufficient. However, apart from that, some really fine performances are being done, performances which deserve on their merits to rank among the great achieve-

ments of the world, considering the present primitive state of aeronautic knowledge and the undeveloped design of existing flying machines.

### **The Flying Ground.**

So far as Reims itself is concerned, Baedeker can tell of its glories better than I. It is sufficient to say the history of Reims is the history of Europe from the day when the defeat of Attila's Huns on the Plain of Chalons saved the civilisation of Europe, on through the crowning of Chilperic by St. Remigius and the crowning of Charles by Jeanne d'Arc, to this latest triumph, the first organised Conquest of the Air by the pioneers of Aviation. Our particular interest



*The crowd.*

centres in the new wooden town which has sprung up on the Plain of Béthény to the north-east of Reims, beside the Reims-Rethel Road. Here, at present in a sea of mud—slushy, sticky, limestone mud—stand the huge grand stands, the hangars for the machines, the restaurants (such as they are), and the various offices of the Great Flying Week.

Along the main road from Reims the going is fair, and the road is lined with the shanties of sellers of all kinds of commodities and with the tents of campers who would not or could not pay the prices demanded for lodgings in the city. Also, the road is quite an exhibition of posters of all kinds, bearing largely the familiar names of the big tyre firms, only now, instead of advertising tyres, they advertise that So and so's machine or Such and such a dirigible is built of the fabric made by Such and such a firm. A sign of the times assuredly is this. Suddenly, on topping a little rise in the road, the whole Plain of Béthény is spread out before one, with the wooden town in the foreground, the huge stands rising in the middle like a cathedral. I cannot help thinking that the organising

**First Day, Sunday, August 22nd.  
Competitions for the Lap Prizes and the 30 Kilometre  
Speed Prize.**

In spite of weather conditions, which were very far from perfect, a large crowd which had gathered on Béthény Plain was treated to a wonderful exhibition of flying, as many as seven aeroplanes being in the air at one time. Rarely, if ever, has more enthusiasm been displayed than was manifested by the spectators, who were completely carried away by the thrilling scenes.

Saturday's downpour of rain had turned the flying ground into a morass, composed of a sticky white mud; hence the aeronauts were envied not only the sensation of flying, but also the advantages of being for a time at least clear of what passed at Reims as *terra firma*.

The first aviator to put in an appearance—that is to say, the first to take advantage of a lull in the wind—was M. Guffroy on a crimson R.E.P. monoplane. The wheels of his machine, however, obstinately stuck in the succulent mud, and it failed to rise dur-



Cockburn, the only English competitor at Reims, making a turn on his Farman biplane.

committee have made one or two mistakes. The course is really too large to begin with. By the time a machine has got beyond half the length of the straight it has become a mere dab in the sky, and one cannot see what is happening to it. If the lap of the course had been six kilometres instead of ten kilometres it would have been plenty, for there would still have been quite enough room to turn round comfortably. Another mistake is that the starts are made from the hangars, and the machines pass the stands in full flight, which is impressive at first, but not nearly so interesting as the actual starting off the ground, just as at a motor race the starting of the cars, the filling up of tanks, and the changing of tyres is more interesting than a seat by the roadside where the cars flash by at top speed. Yet another mistake was in fixing the flying hours between 10 a.m. and 7 p.m., as most of the best flying has been done after 7 p.m. when the wind has dropped. However, I am writing this early in the week, and things may be altered later on as experience teaches those who are responsible for the arrangements the necessity for alteration.

ing the allotted quarter of an hour, having to be eventually towed back to its shed. M. Blériot next essayed a flight, but came down before he had accomplished more than one side of the triangular course, his motor having stopped on account of the carburetter becoming choked with grit.

Mr. Hubert Latham, whose name would seem to be inevitably associated with bad luck—his machine was even numbered 13—next came out, only to follow the example of M. Blériot and come to earth after a short flight through engine trouble.

Capt. Ferber (otherwise known as De Rue) followed on his Voisin biplane, but did not take the air. The gallant captain's machine would appear to have a penchant for restaurants. Not long ago at Juvisy it broke into the refreshment buffet, whilst at Reims it made a bee line for the luncheon tables in the open air restaurant, just then in full swing.

M. Lefebvre, a self-taught pilot of a Wright biplane, carried off the honours in the morning. His first round of the six and a quarter mile course was made in nine minutes, after which the wind increased, and



combined with the bad working of his motor to bring him to earth again after the completion of two laps. At this time the speed of the wind was twenty miles an hour.

The eliminating trials for the French representatives in the international competitions had been fixed to close at three o'clock, when the committee met and chose MM. Blériot and Lefèbvre as the French competitors for the Gordon-Bennett Cup. Mr. Latham's flight, it was decided, had not been long enough to justify his selection. The famous Antoinette pilot was, of course, extremely disappointed, and lost no time in making an effort to retrieve his position. The wind and the rain had prevented any flights until a quarter to six, when, accompanied by a roar of cheering, Latham took the air and flew away down the track, only to be followed almost immediately by the Comte de Lambert. During the next hour the air was literally full of flying machines, for in quick succession M. Sommer, Mr. Cockburn, MM. Delagrè, Fournier, Lefèbvre, Blériot, Bunau-Varilla, Tissandier, Paulhan, and Ferber made flights. The excitement of the spectators was beyond all words, each aviator as he passed the stands being vociferously cheered.

The best times were made by the Wright machines, piloted by M. Tissandier, the Comte de Lambert, and M. Lefèbvre. The longest flight was made by the Comte de Lambert, who remained in the air for over forty minutes. M. Paulhan rose to a great altitude during his flight, but the most magnificent display of aviation was given by M. Lefèbvre, who showed his perfect control over the machine by (metaphorically) cutting figures in the air, finishing up by gracefully gliding down in front of the grand stand.

M. Blériot in one of his flights collided with a haystack and damaged his propeller.

MM. Tissandier and Bunau-Varilla put up a thrilling race, which was "won by a short elevator" by the former.

Amongst the spectators were Sir Henry Norman and

Mr. Lloyd George, who expressed a wish that a similar meeting could be held on Salisbury Plain in England.

The following were the results of Sunday's flying: Comte de Lambert (Wright biplane) flew thirty kilometres (18¾ miles) in 29m. 28.

M. Lefèbvre (Wright biplane) circled the ten kilometre (6¼ miles) track in 8m. 58½s.

M. Tissandier (Wright biplane) in 9m. 25½s.

Comte de Lambert in 9m. 33½s.

Mr. Latham (Antoinette monoplane) in 9m. 47s.

M. Sommer (Farman biplane) in 11m. 24s.

Mr. Cockburn (Farman biplane) in 11m. 44s.

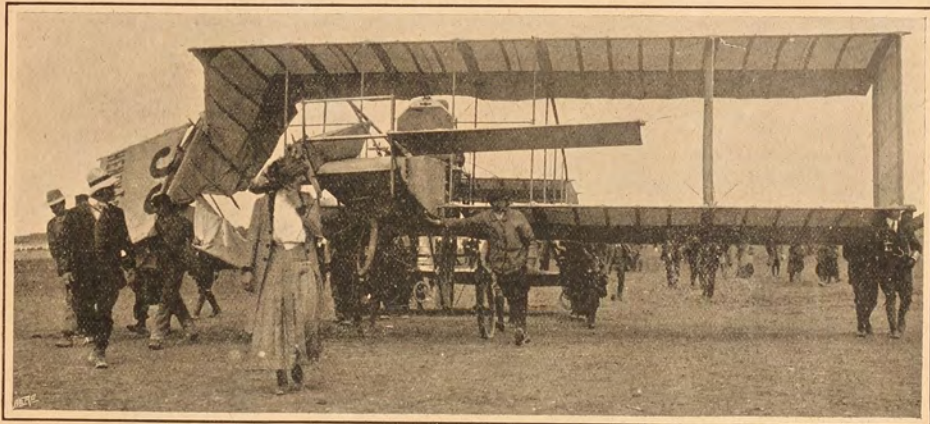
M. Sommer did the twenty kilometres (12½ miles) in the eliminating heats for the Gordon-Bennett Cup in 23m. 22¾s.

At 6.40 M. Paulhan (Voisin biplane) started, and immediately rose to a height of 250ft. Ten minutes later Mr. Latham followed, and the two aeroplanes passed twice round the course, Mr. Latham's machine being directly beneath that of M. Paulhan. It had not been previously known whether this was possible.

#### Second Day's Racing, Monday, August 23rd.

On account of the weather, no flights were made in the morning of the second day of the Reims meeting. The spectators were, however, treated to the fine sight of a dirigible sailing 200ft. overhead. This was the *Colonel Renard* airship, piloted by M. Kapferer, which had journeyed from Paris. After manoeuvring over the flying ground she sailed off to her hangar between Chalons and Reims, carrying three passengers in addition to the pilot.

The trials for the Grand Prix de Champagne (prizes £2,000, £1,000, and £400) began just after noon, when M. Delagrè was the first competitor on a Blériot monoplane. After one unsuccessful attempt to rise he succeeded in getting going, and flew for six minutes at a height of about 50ft. He was followed five minutes later by M. Bunau-Varilla on a Voisin biplane, who flew well at an altitude of 100ft. His flight, however, was rudely cut short by a squall of wind, which compelled him to descend rather hurriedly



Fournier's broken Voisin. The well-known driver of racing motor cars succeeded in pulling two aeroplanes hors de combat.

in a neighbouring field of oats, neither machine nor pilot, fortunately, being injured.

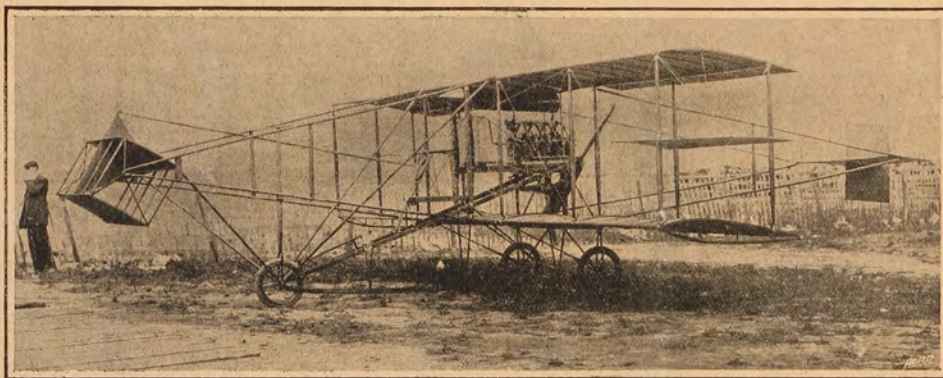
Twenty minutes later M. Paulhan on his Voisin biplane made a flight, during which he covered thirty miles in quite his best style.

Later on MM. Gobron, Latham, and Fournier all made unsuccessful attempts to fly. The first named was unable to make a start at all, but Mr. Latham and M. Fournier successfully got into the air, only to come down after short flights. The former in landing badly strained his propeller, whilst M. Fournier was caught in a gust of wind, and the aeroplane fell on its side, being very badly damaged.

M. Lefèvre made a successful flight, in which he beat Tissandier's previous best of 10m. 46s. for once round the course by a substantial margin, covering the distance in 8m. 58 $\frac{1}{2}$ s.

A fine piece of flying was given by MM. Paulhan and Lefèvre later on in the afternoon. The former first flew to a height of 30ft., when the latter followed him on his Wright machine, and passed over and around him with the greatest ease.

afternoon and evening. In spite of the rain and wind, which was blowing some fifteen or sixteen miles an hour, M. Guffroy took out his red R.E.P., but failed to make a flight, the wheels of the machine obstinately remaining in the mud, into which they despondently ploughed. Later on, the rain and the wind having got to a comparatively calm, Latham took out his Antoinette monoplane and attempted a flight, but without success, several other machines also failing to rise from the heavy ground. Twenty-five minutes later Paulhan, encouraged by the improved atmospheric conditions, took the air on his Voisin biplane, in order to compete for the Grand Prix de Champagne, for which he had already made the best flight, viz., one of fifty-six kilometres (34.7 miles) an hour, which he accomplished on Sunday. Scarcely had the biplane pilot risen in the air before Latham on his monoplane was outlined against the cloudy sky, and at once adopted the high flying tactics so characteristic of the Antoinette aviator. The two machines flew together, however, for only a short time, for at the second turn Latham disappeared from view. Paulhan, after being



The Curtiss biplane.

Lefèvre's record for the course was not destined to stand long, for shortly after six o'clock M. Blériot on a machine similar to that which he used in his cross-Channel flight flew through the ten kilometres of air in 8m. 42 $\frac{2}{3}$ s., thereby setting up a new world's record for speed with a figure of 42.87 miles an hour.

Twenty minutes later Mr. Curtiss on a Curtiss-Herring biplane beat Blériot's record in turn, making the course in 8m. 37 $\frac{3}{8}$ s.

One of the finest flights in the course of the afternoon was by M. Paulhan, during which he covered 34 $\frac{3}{4}$  miles, remaining in the air for 1h. 6m.

#### Third Day, Wednesday, August 25th.

The weather was again threatening and far from propitious to good flying, squalls of wind alternating with storms of rain, and giving good reason for the black flag, which indicates that no flying is likely to take place, to be hoisted on the signalling yard. Towards noon, however, the weather bettered a little, and it would seem as though the elements had decided that flying at Reims is only to be done in the late

alone for a few minutes, was then joined by Fournier, also on a Voisin machine. The once great racing motorist, however, failed even to complete a circuit, and the signals raised on the semaphore pointed to his having suffered some contremeps. Grave fears were entertained for the safety of this week-old aviator, but these were soon allayed by his arrival on horseback. One side of his machine was completely smashed up, but its driver was, fortunately, not seriously hurt, although somewhat cut by the guide wires and badly shaken. This offers no cause for surprise, since M. Fournier tips the beam at a good fifteen stone. He ascribed his accident to a small whirlwind which caught him and turned him over several times. Latham, unwilling to abandon the struggle, changed his machine, and, accompanied by loud applause, made another start—only just in time, as the regulations of the competition precluded a competitor starting after five o'clock, by which time Latham had been scarcely five minutes in the air. No greater contrast in aviation tactics could be imagined than that exhibited by

Paulhan, who was still cleaving the air, and Latham. The former kept quite close to the ground, whereas the latter soared literally into the empyrean. However, he soared only for two circuits. The two Voisins of Captain Ferber and Bunau-Varilla, also Lefebvre's Wright machine, made great efforts, but none of their pilots managed to complete a circuit, leaving the indefatigable Paulhan master of the air. Although with the decline of the day the wind had risen considerably and blew at times as fast as twenty miles an hour, the Voisin biplane did not appear to feel its effects, but continued ploughing its even way through the air. During Paulhan's tenth round a gust of wind drove the machine completely off its course, but the intrepid aviator, with masterly aplomb, recovered his position, and continued until twelve rounds had been ticked off, when the aeroplane apparently descended, only, however, to rise again with a fresh world's record of seventy-four miles to its name. Soon after the completion of thirteen circuits—that is to say, eighty-two miles—which had been covered in 163 minutes, Paulhan brought his machine to the ground, having been compelled to stop through lack of petrol.

By this time it was full twilight, but the conclusion of Paulhan's magnificent flight was the signal for a perfect flock of aeroplanes to leap into the air. Delagrance made a flight at a great altitude on his Blériot monoplane, whilst Sommer on a Farman, Rougier on a Voisin, and Le Blanc on a Blériot also made some good flights. Curtiss also made an attempt to beat Blériot's speed record, but, although he improved on his own previous figures, he was unable to regain supremacy.

#### *Fifth Day, Thursday, August 26th.*

Although the weather conditions were an improvement on those of Wednesday, the elements were none the less threatening. The trial flights began early in the morning. No flights, however, of any importance were made until nearly midday, when Latham and Delagrance put up quite an exciting little race, which was won by the former. Shortly afterwards Curtiss, Sommer, and Capt. Ferber took the air, but satisfied themselves with short flights; Lefebvre was also making trial trips on his Wright machine. Curtiss accomplished three rounds in 29m., whilst Latham, who had been flying magnificently, came down after completing seven circuits (forty-three miles) in just under 1h. 2m. During the luncheon interval heavy storm clouds made their appearance, whilst the wind rose to twenty-nine miles an hour. In spite of this, however, shortly after two o'clock Latham commenced a flight in his monoplane No. 29. He at once arose to a great height, and his regular wheeling and turning seemed entirely unaffected by the storm of rain which had centred over the flying ground. The tenth circuit was completed in 1h. 28m.—a considerable improvement on Paulhan's speed figures of the previous day. Shortly after this the wind dropped and the rain ceased, and Latham, continuing his steady flight, beat incidentally all the world's records for distance, only stopping after covering 96½ miles in 2h. 13m. on account of the lack of petrol. It was a magnificent performance, and compensates Mr. Latham for his previous bad luck. During the afternoon Rougier

ran his Voisin biplane into the crowd, but without serious consequences, whilst Legagneux on a similar machine nearly collided with the grand stand, but stopped just in time. At half past six M. Blériot finished a round of the course with a passenger on his large machine, but on alighting the steering gear failed, and the machine ran into the palings of the enclosure, demolishing 20ft. of them, but the pilot and his passenger were happily uninjured, although the machine was badly damaged.

Paulhan, Cockburn, Bunau-Varilla, and Capt. Ferber made some good flights, and to a less extent De Lambert, Lefebvre, Sommer, and Tissandier.

#### *Sixth Day, Friday, August 27th.*

Every day has brought its sensation, and Friday was no exception to the rule, as it provided two unique occurrences. During the course of the afternoon the *Colonel Renard* airship paid another visit to the flying ground, where it was joined by the Comte de la Vaulx Zodiac dirigible, a much smaller machine altogether.

By way of diversion the *Colonel Renard* issued a challenge to Mr. Latham in his Antoinette, but flying nearly as high as the airship, 300ft. up, Mr. Latham quickly overhauled it and left it surging behind him.

Mr. Paulhan had during the morning fixed on his Voisin machine a large petrol tank of 25 gallons capacity, and with this unusual weight he made two successful circuits by way of trial. Soon after he had started out to beat Mr. Latham's figures he saw M. Delagrance on his Blériot monoplane bearing down upon him, and having to drop in order to get out of Delagrance's way, he brought his machine to the ground, smashing the left wing and wrecking the forepart of his machine, thus robbing himself of any chance in the Grand Prix, but achieving the honour of averting the first aerial collision on record.

The positions for the Grand Prix in the morning were, first, Mr. Latham, 96½ miles in 2h. 13m. 9s., and second M. Paulhan with 83 miles in 2h. 43m. 24s. The latter having the record for time in the air and the former for distance.

In the early afternoon the wind was sharp and gusty, and no machines made flights until four o'clock, when, amongst others, Henry Farman's biplane rose into the air. Farman, however, attracted little attention, as he had hitherto done nothing great at Reims, and was not considered to be in the running.

Those facts, however, made no difference to the working of his machine, which continued regularly reeling off lap after lap until it had been in the air for two hours, when it was realised that Mr. Latham's record was threatened.

When he finished his fifteenth circuit, thus breaking all records for duration of flight, it was almost dark, and, although he could have come down any moment, he flew on round and round, flickering through the rays of a searchlight like a great grim moth, to the great delight of the English spectators.

When he came to the ground he had won the Grand Prix de Champagne (£2,000) by covering 112 miles in 3h. 4m. 56s. The second prize (£1,000) goes, therefore, to Latham and the third (£400) to Paulhan.

#### *Seventh Day, Saturday, August 28th.*

To-day was occupied with the contest for the Gordon-Bennett trophy, for the best speed over two-

circuits of the 6¼ miles course. Shortly after ten o'clock in the morning—the official beginning of the day—when the air was practically dead calm, Glenn Curtiss took his biplane out in the presence of a mere handful of spectators. They, however, were well rewarded for coming early, for Mr. Curtiss covered the first circuit in 7m. 55s., and completed the Gordon-Bennett course in 15m. 50s.

M. Lefèbvre was unable to get round the course on his Wright machine in less than 20m. 47s.

M. Blériot, on his Blériot 22, which had been repaired since its accident, put up a fine race for supremacy, but owing, perhaps, to the somewhat heavy repairs, or possibly to the slight wind which caught the machine badly on one straight of the course, he was unable to beat Curtiss's time, although he had got within a few seconds of it.

Whilst Blériot was making this effort, Latham also took the air, and at once, as is his wont, rose to a great height. He was, however, only able to do the course in 17m. 30s., and, amid cheers, the red flag on the judges' box gave way to the Stars and Stripes.

The Prix de Passagers was won by Farman, who with two passengers covered a circuit in 10m. 39s. De Lambert and Lefèbvre also carried a passenger apiece, the latter doing 11m. 20¼s., but the former failed to get round.

#### *Eighth Day, Sunday, August 29th.*

No more perfect day for the close of a great aviation meeting could have been desired than Sunday, the sun shining brightly and the wind completely holding aloof. One result of this was that there was a tremendous number of spectators, and the scene was one of great gaiety.

The lap prize for speed over three circuits brought Blériot out in his No. 22 in which he won the Prix de Tour de Piste (one circuit) in 7m. 47s. Soon after starting he disappeared from view below a hillock. A rush was made to the spot as soon as smoke was seen, and the machine was found to be in flames. The petrol tank had burst, and M. Blériot was burnt about the arms and face. M. Bréguet also had an accident, and M. Delagrangé narrowly escaped one. Whilst in

mid air his propeller burst into fragments, but the Blériot pilot glided safely to earth.

Curtiss beat all existing speed records by doing a circuit in 7m. 5s., nearly fifty-one miles per hour. In the Height Prize Farman and Paulhan did well, the former especially; but the contest was won by Latham, who rose to 500 feet.

#### **Results.**

##### **GRAND PRIX DE CHAMPAGNE.**

For the longest uninterrupted flight.

1. (£2,000) Farman (Farman biplane), 112 miles.
2. (£1,000) Latham (Antoinette monoplane), 96½ miles.
3. (£400) Paulhan (Voisin biplane), 83 miles.
4. (£200) De Lambert (Wright biplane), 72¼ miles.
5. (£200) Latham\* (Antoinette monoplane), 68 miles.
6. (£200) Tissandier (Wright biplane), 66 miles.

\*Mr. Latham used a different machine, which was entered by Capt. Bargeat, in winning the fifth prize.

##### **GORDON-BENNETT CUP.**

20-kilometre (12¼ miles) speed contest.

1. (£1,000 and £500 trophy) Curtiss (Curtiss biplane), 15m. 50½s.
2. Blériot (Blériot monoplane), 15m. 56¼s.
3. Latham. (Antoinette monoplane), 17m. 32s.
4. Lefèbvre (Wright biplane), 20m. 47¼s.

##### **PASSENGER PRIZE.**

£400 for the aviator carrying passengers at the greatest speed.

Farman, flight of 6 miles with two passengers in 10m. 39s.

##### **CIRCUIT PRIZE.**

£800, for swiftest flight over 30 kil. (18½ miles).

	M. S.		M. S.
1. Curtiss .....	26 40½	5. Latham .....	29 11½
2. Tissandier .....	28 59	6. Paulhan .....	32 49
3. Lefèbvre .....	29 0	7. Bunau-Varilla ...	40 6½
4. De Lambert .....	29 2		

##### **HEIGHT PRIZE**

of £400, for the aviator reaching the greatest altitude.

1. Latham; 2. Farman.

##### **PILOTS' PRIZE.**

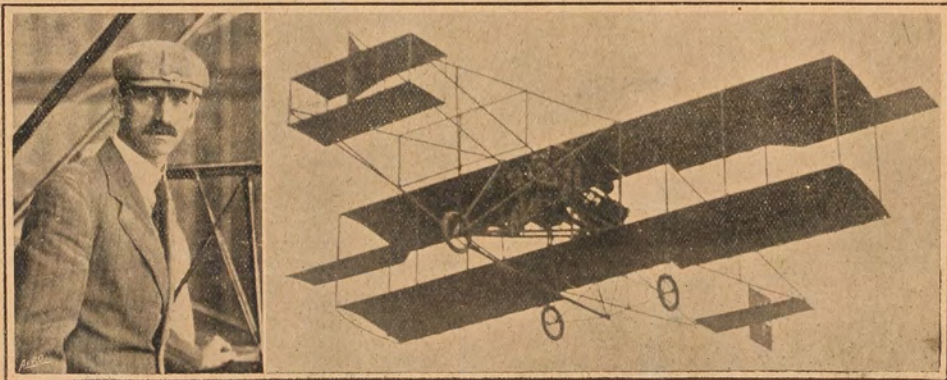
£200 for the longest flight by novices.

1. Bunau-Varilla (Voisin biplane). 50 miles in 2h. 10m. 13½.
2. Rougier (Voisin biplane). 31¼ miles in 1h. 22m. 16s.

##### **AIRSHIP PRIZE.**

£200 for the quickest voyage.

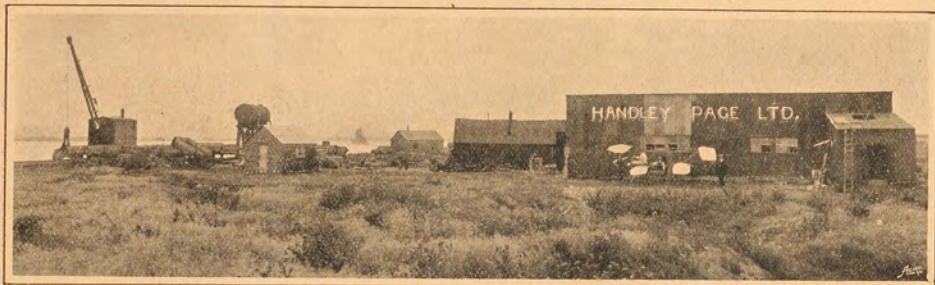
The Colonel Renard voyage of 50 kilometres (31¼ miles) in 1h. 19m. 49s.



Glenn Curtiss and his biplane on which he won the Gordon Bennett Trophy and the Prix de la Vitesse.

## A New Aero Factory and Flying Ground.

Messrs. Handley Page's place at Creekmouth, near Barking.



That there is a really acceptable flying ground within easy reach of London will be news to many, but such is the case, and to Mr. Handley Page belongs the credit of having discovered it. The ground itself is probably familiar to those of our readers who have travelled from Barking to Tilbury, for the land over which Mr. Page has flying rights runs from a point a few hundred yards beyond Barking Station nearly down to Dagenham Dock Station, and embraces the whole stretch between the railway and the river.

Close to the river bank Mr. Page has established his factory on the "made" ground which was built up there from the excavations of the tube railways. We spent the afternoon with Mr. Page recently exploring the new grounds, and must say we were most favourably impressed by their possibilities. At present the works are represented by a single workshop, shown in the photograph, but an erecting shop 100ft. by 50ft. will soon be put up, and other buildings will be added as may be required. The present shop when we were there was just being fitted with various new wood working machinery, and other machinery was being transferred from the firm's old works at Woolwich.

There are already four or five machines on order and approaching completion, among them being a biplane with a 50 h.p. Green engine and another with an N.E.C. engine, also a large double biplane and



A H.P. propeller.

direct lift machine are in process of construction.

Mr. G. P. Deverall-Saul has also got a machine in the making, a full size edition of the experimental machine which we described recently. Besides these Mr. Page is making a monoplane to his own design, so that the shops will have plenty to do as soon as they are in working order.

The actual flying grounds themselves measure two

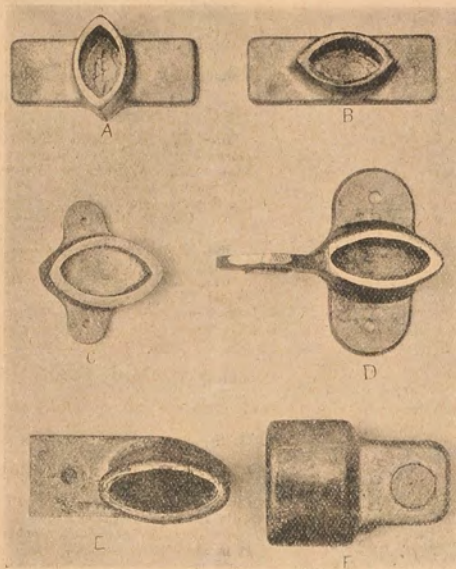


A hill on Messrs. Handley Page's flying ground which is suitable for gliding experiments.

and a quarter miles long by a mile wide, so that a five-mile circuit can be secured after allowing for all turns. The surface is somewhat cut up by ditches, but most of them are comparatively small, and would scarcely interfere with the landing of a machine shod with skids, each patch of land between ditches being from ten to twenty acres in extent.

For learners and for the tuning up of machines there is a clear stretch of land about threequarters of a mile long and several hundred yards wide, which is to be rolled perfectly flat and smooth. All the land in the area over which the firm has obtained flying

rights is under grass, and there is not a tree on it, the only possible obstruction being a line of telegraph wires, which, however, need not be crossed till a flyer is well able to reach a height which would allow him to clear them.



A range of aluminium strut sockets for aeroplane framework.

Another useful point about the place is that the "made" ground is thirty feet higher than the flying ground, and extends in an irregular shape from south-west to west, north, east, and south-east, so that glides can be practised in any direction of wind except due south. The sides of these hills are, roughly, at an angle of  $45^\circ$ , so that a sharp drop can be secured, thus avoiding a long run to get up speed.

The grounds can be reached from Barking Station in about half an hour's sharp walking, but on Sundays a motor bus runs to the end of a road, known as the Manor Way, which bisects the grounds, and from that point the works are only a quarter of an hour's walk, or even less. The railway from Barking to Tilbury crosses this road at the same place, and, if the grounds become popular, there should be little difficulty in arranging with the railway company to make the crossing a "flag station."

Mr. Page is quite prepared to arrange for the use of these grounds by any aviators who may wish to experiment with gliders or power-driven machines, and

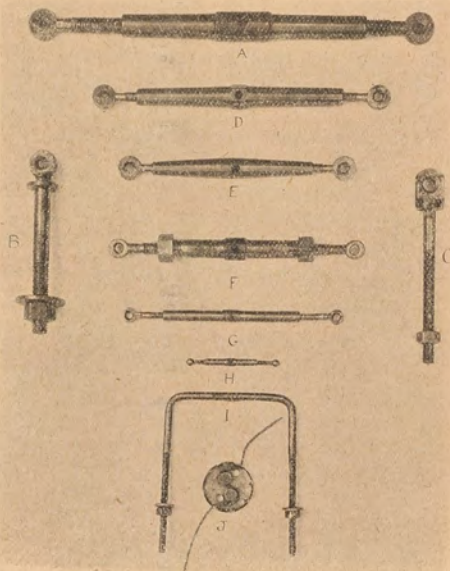
The *Helsingborg Post* states that the well-known Danish aviator, Dr. Folmer Hansen, has arrived in that town with an aeroplane constructed by himself, and is preparing for a flight across the Sound from Sweden to Denmark—the first, of course, yet attempted.

will be pleased to show enquirers the advantages of the place.

We are of the opinion that with the expenditure of a little money the grounds could be made into a really first class "aerodrome," and their proximity to London (it is a 6d. fare to Barking) suggests that it would be well worth while devoting a considerable amount of time, trouble, and money to this object, for there will certainly be a big future for a practicable flying ground within easy reach of town.

Whilst dealing with this flying ground it is appropriate to mention a few of the articles which Messrs. Handley Page manufacture. The H.P. propellers are scientifically designed instruments, and are supplied with a guarantee that the declared thrust will be obtained with a specified horse-power. The cross section of the propellers at all points is of streamline form, so that the minimum resistance is offered to the air. As regards their mechanical strength, a 4ft. propeller was supported at the blade tips on two blocks of wood and a man weighing thirteen stone stood on the boss; there was not the slightest deformation of the blades!

Messrs. Handley Page also make a complete range of wire strainers, eye bolts, and aluminium sockets for framework.



Wire strainers and other aeroplane fittings.

It is reported from the U.S.A. that legal action has commenced between the Wright Bros. and the Herring-Curtiss Co., presumably on the score of infringement of patents. A dispute is also reported between the Wright Bros.' French representatives and the Société Ariel.

## Club Notes.

**The Aeroplane Club. Open Model Flying Competition, Saturday, September 11th.**

The open model flying competition will be held at Wembley Park, N.W., on Saturday, September 11th. There will be two classes of competition—A, for models propelled by elastic, spring, or other form of static energy; B, for models propelled by heat, petrol, or steam engines, or other form of dynamic energy. Each class will be sub-divided into—(1) Machines with 1 sq. ft. of supporting surface or less; (2) machines with more than 1 sq. ft. but less than 5 sq. ft. of supporting surface; (3) machines with more than 5 sq. ft. but less than 12 sq. ft. of supporting surface; (4) unlimited area of supporting surface. Entry fees for Class 1, 2s. 6d.; Class 2, 5s.; Class 3, 10s.; Class 4, £1. Fifty per cent. of these fees will be returned for each model which actually starts. If less than three machines enter in one class that class will be declared void, and entry fees will be returned. The prizes will consist of the entry fees, and of various presented prizes, which will be duly announced in the programme. Second prizes will be given in any class where there are six entries, and third prizes where there are ten entries. If a class has twenty entries a fourth prize will be awarded, and the entry fee of the fifth will be returned.

The programme of events is as follows: (1) Longest total flight in a straight line with and against the wind; (2) fastest flight over a measured distance, to be decided on the day of the competition, also with and against the wind; (3) longitudinal stability prize (for the best landing after a flight); (4) longest glide when launched from a given height without power and with propellers attached; (5) steering competition (to fly between fixed points); (6) greatest height prize.

Representatives of the Aeronautical Society and the Aero Club will act with the committee of the Aeroplane Club as judges. Entry forms can be obtained upon application to the secretary, Aeroplane Offices, Savoy Hotel, London. A separate form is required for each model, each class, and each competition.

Mr. A. B. E. Cheeseman, the secretary of the Aeroplane Club, reports that seats for the Blériot dinner on September 15th are being booked up rapidly, so an early application will be necessary to secure places, as the accommodation is limited. Members of any recognised clubs will be supplied with tickets on request. Tickets cost 15s., not including wine.

**The Manchester Club.**

Mr. M. Stafford Threlfall, 5, Scovell Street, Higher Broughton, who is acting honorary secretary for the Manchester Aero Club, received nearly fifty applications for particulars as to the proposed club as early as August 20th. Mr. Stafford Threlfall writes: "The trouble is more than paid for when one's efforts are rewarded by so many prospective members coming forward, as has been the case with this society, and offering their help and support. We are starting off with a big rush, and I am confident that we shall do big things in the near future." A meeting was called at the Douglas Hotel, Corporation Street, Manchester, at 8 p.m., on August 25th. A large number of potential aviators attended.

**The South-western Aeronautical Society.**

A meeting of those interested in aviation in the South, South-west, and West of London, who had been put in touch with one another through *The Aero*, was held last week. Mr. A. J. Fransella, 51, St. Leonard's Road, East Sheen, S.W., was elected honorary secretary. The committee elected were Messrs. Bernard Fransella, J. L. Warsop, J. Furlley Smith, Yanto John, and F. M. Reilly. Mr. A. V. Roe, who has been making some short flights on Lea Marshes, has joined the society, so that it already has a flying member. We shall be glad if any of our readers in London S.E., S.W., or W. will communicate with Mr. Fransella and help to make the society a success. Aviators in Surrey, Hampshire, Sussex, Kent, and the Western and Southern Home Counties are also invited to assist.

**The Birmingham Club.**

Mr. F. A. Thompson, of Ladywood Road, Edgbaston, writes: "I am pleased to say that at last Birmingham is coming to the fore, and an aeronautic society is in formation. We have decided to hold our first meeting on Thursday,

August 26th, and hope to have a good muster." A report of this meeting will appear in our next issue.

**The Aero Societies of Great Britain and Ireland.**

All interested in flying are requested to communicate with one or other of the following societies as may be most convenient:

THE AERONAUTICAL SOCIETY.—Secretary, Col. J. D. Fullerton, 53, Victoria Street, S.W.

THE AERO CLUB.—Secretary, Harold Perrin, 166, Piccadilly, London, W.

THE AEROPLANE CLUB.—Secretary, A. B. E. Cheeseman, Savoy Hotel, W.

THE AERIAL LEAGUE.—Secretary, Stephen Marples, Staple Inn Buildings, Holborn.

MANCHESTER.—M. Stafford Threlfall, 5, Scovell Street, Higher Broughton (secretary, Manchester Aero Society).

LEICESTER.—Sydney W. Shaw, 126, Wellington Street (secretary, Leicester Aero Society). Meeting at Be'l Hotel, Humberstone Gate, 8 p.m., August 30th.

SHEFFIELD.—C. Wightman, 36, Colver Road (secretary, Sheffield Aero Society).

GLASGOW.—W. G. Duncan, 185, Hope Street (secretary, Scottish Aeronautical Society).

SUTTON, SURREY.—R. K. Dean, Heatherfield, Brighton Road (secretary, Heatherfield Club).

BLACKPOOL AND FYLDE.—Jack Kemp, 56, Cookson Street (secretary, Blackpool Aero Club).

LIVERPOOL.—J. R. Wright, 1, Exchange Street, West (to form a club).

BIRMINGHAM.—F. A. Thompson, 112, Ladywood Road, Edgbaston (to form a club).

MABLETHORPE, Lincs.—Geo. Sturgess, Aerial League (to form a local branch).

IPSWICH.—Chas. Warren, 29, St. John's Road (to form a club).

THE INSTITUTE OF FLIGHT.—Mr. P. L. Sénécal, 29, Stayton Street, Chelsea, S.W.

THE SOUTH-WESTERN AERONAUTICAL SOCIETY.—Mr. A. J. Fransella, 51, St. Leonard's Road, East Sheen, S.W.

We earnestly request all our readers to join one or other of these various societies. It is absolutely essential that all those interested in flying should join together for the good of the cause and impress on the people of this country the fact that flying is an accomplished fact, although England is so far behind in the sport and science at present.

The following are anxious to meet others in their districts who are interested in flying. Communications addressed care of *The Aero* will be forwarded:

Ashford, Kent.—A. Sidney.	Hastings.—H. Kelvey.
Barrow-in-Furness.—J. Pickering.	Halifax.—Sidney Smith.
Bishop's Stortford.—H. Featherby.	Ingatstone.—E. Petre.
Brighton.—C. L. Job.	Lincoln.—A. H. B. Sharpe.
Brighton.—C. K. Volk.	Mortehoe.—H. MacAndrew.
Bristol.—E. S. Sutton.	Maidenhead.—A. and R. Neve.
Burnley.—W. E. Cooke.	Newark.—F. Leofric Sealy.
Cardiff.—E. Windsoor.	Nottingham.—W. C. L. Richards.
Bowen, M.I.A.E.	Oldham.—J. A. Fleet.
Cardiff.—R. W. Rogers.	Reigate.—A. Dukinfield-Jones.
Chatham.—G. Cogger.	Swindon.—H. S. Harris.
Chelmsford.—D. H. Ross.	Shrewsbury.—A. S. Shakespeare.
Chilcompton, Somerset.—A. V. Walker.	Southampton.—G. M. T. Bird.
Chiswick, S.W.—C. P. Levermore.	St. Ives, Hunts.—K. S. Jevson.
Cloughton, Cheshire.—G. A. Menhoo.	Winchester.—A. Stanley Flight.
Crewe.—R. B. Boden.	Winchmore Hill, N.—B. Dewick.
Dublin.—D. O'C. Cussen.	Wolverhampton.—Captain J. H. Cooke.
Dartford.—W. A. H. Scott.	York.—R. B. Sharpe.
Edinburgh.—Robert Wright.	
Exeter.—Reed and Evans.	
Gateshead.—Albert P. Evans.	
Hull.—J. A. J. Hay.	

Small groups of aviators in the following districts would be glad to hear from others who will help in forming clubs: Bournemouth, Cardiff, Edinburgh, Guildford, Leeds, Newcastle-on-Tyne, and Wellington (Salop).

### The Institute of Flight.

The secretary writes: "Seeing the useful work your promising little paper, *The Aero*, is likely to accomplish in aiding a great and coming industry that will effect a revolution in the art of quick travel—and the correspondence in your open columns clearly shows how many hunger for knowledge and means of improvement by an opportunity of meeting other workers, working in the direction of making the vast air space above us the main road for quick and light traffic—with your permission we invite all those who wish to meet earnest workers monthly to discuss and deal with the subject in a social and instructive way to send their names, and if convenient their subscriptions 10s. 6d. (to help meet the cost of printing revised rules, circulars, etc.), and become members of the Institute of Flight (late Aeronautical Society and Club) to Mr. P. L. Sénécal, 29, Stayton Street, Chelsea, hon. sec., or to me (R. Shapland),

The Italian military dirigible, with seven people on board, fell into the lake near its hangar at Trevignano, but the nacelle kept afloat and the machine was towed back with little damage by a motor boat belonging to the engineers.

The best time to go to the Paris Show will be between October 10th and 17th, for that will be the second week of the Juvisy fortnight and the last week of the show. Visitors can spend the day at Juvisy and the evenings at the show. About 50,000 francs will be distributed in prizes, so some good flying may be depended upon.

The following paragraph from the *Halifax Guardian* seems to call for some explanation: "Our Brighouse correspondent writes: Credible witnesses in the Brighouse and Mirfield districts aver that at eight o'clock on Saturday night a large aeroplane was seen to pass up the Calder Valley. The aeroplane was going at a fair altitude, but opinions differ as to the speed, some stating that it was going at fully sixty miles an hour, whilst others limit the speed to forty miles an hour. The whirr of the motor was plainly heard by several witnesses at Brighouse. A few minutes

231, Lordship Lane, Dulwich, S.E. We hope to have a monster meeting in September, at which all interested will be invited by advertisement. It is generally admitted that the interest of such a promising industry is too important, nationally and otherwise, to be left entirely to the efforts of one or two societies, no matter how energetic their efforts. There is still room for other minds and other methods to do good work."

### The Heatherfield Club.

Mr. R. K. Dean, Heatherfield, Brighton Road, Sutton, Surrey, secretary of the above club, writes: "In reply to your invitation regarding co-operation, I, as president of a small club, which was formed on May 1st, should like to be introduced to fellow enthusiasts in this district, which is only seven miles from Croydon. All the members possess working models of their own construction, which have done some very good flights."

afterwards the airship from the Halifax Zoo passed over Rastrick, and at the same time a balloon containing two men passed over the Brighouse district." Can any of our Yorkshire readers put us on the track of the mystery?

The directors of the Edinburgh Marine Gardens, Ltd., are offering a prize of £500 to the first British aviator who succeeds in crossing the Firth of Forth in a British constructed aeroplane. The start must be made from the grounds of the Marine Gardens, Portobello, and the landing may take place anywhere on the Fife coast. The flight must take place between 10 a.m. and sunset, and notice of intention to start must be given before 12 o'clock midday of the previous day. The machine must be heavier than air, and the offer (for this year) closes on October 31st. Mr. William Holland, the general manager of the Marine Gardens, will be pleased to give any information, including further minor rules and regulations, to any intending competitors on application. This is a sensible proposal, and one which is likely to be of real advantage to British aviators as well as a good advertisement for the Edinburgh Marine Gardens. We fear, however, that the prize will not be won this year, so it is to be hoped that the directors will renew their offer next year when the gardens open again.



On Monday, August 23rd, the dirigible Clement-Bayard No. 1, which successfully underwent its final test for the Russian Government, namely, manœuvring for one hour at a height of 3,600 feet, was driven from its moorings by a heavy gust of wind, and after a short but exciting voyage fell in the Seine near Maisons-Lafitte, whence it has now been recovered.

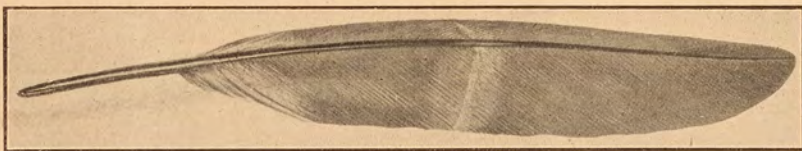


## Correspondence.

The Editor of "The Aero" is not responsible for the opinions expressed by his correspondents. All communications intended to come under this heading must be accompanied by the sender's name and address, not necessarily for publication.

## MACHINES AND BIRDS.

Sir,—I am wondering whether you got the illustration of M. Louis Blériot's flying machine right, as your frontispiece of July 20th does not seem to me to agree with the illustrations that I have seen, which were represented to be snapshots taken whilst the machine was flying. Whether these are "faked" pictures or not I cannot say, but it struck me that the shape of the wings represented the shape of two large, broad, well-made "flights" of a bird—not the wing, but actually the flights of a bird.



I wrote an article on the subject a few months ago relative to the wing and the movement, and am somewhat interested in the matter.

I am enclosing you a flight, and if you will compare the flight with the photographs that have been taken, as snapshots, and also compare the rounded shaped planes that appear in your illustration, you will see what I mean.

Of course, yours may be correct and the others wrong, but, as I am taking an interest in the subject, I shall look forward to seeing some more illustrations of the machine that has so successfully negotiated the Channel, and I think that separate illustrations of the different parts would be particularly interesting.

A. H. OSMAN,

Editor *The Racing Pigeon*.

[In the snap-shots referred to, the machine has generally been taken when close to the ground, so that the wings have been foreshortened. Thus when these photographs have been "faked" high up in the sky, as in the alleged picture of the machine landing at Dover, the wings have appeared narrower than they really are. Our frontispiece was frankly an impressionist sketch, and not a photograph, but it was remarkably accurate. Mr. Osman has kindly sent us a photograph of a "flight," and also a photograph of the whole wing, of a racing pigeon. It is interesting to notice how much the outline of the single feather (or "flight") really does resemble the shape of a well-made plane, though the whole wing departs from it very considerably.—Ed. *The Aero*.]

## METAL PROPELLERS.

Sir,—I think Mr. Edgar Wilson is rather hard on metal propellers, and, judging from his remarks, I conclude his experience with them has been gleaned from books. I attribute a great deal of the backwardness of this country in the science of aeronautics to the fact that experimenters have been influenced too much by what the different professors have had to say on the subject.

It may interest Mr. Edgar Wilson to know that all my metal propellers are flexible, but they have an advantage over wooden ones in that they do not flatten out at the tips when driven at high speed.

With regard to their excessive weight, my 5ft. 6in. propellers weigh 18 lbs. I do not think this excessive when you consider the amount of work they do. I shall be very pleased to run a propeller similar to the one illustrated in last week's *Aero* against Mr. Edgar Wilson's 8ft. 3in. one; and, further, I challenge any advocate of the wooden propeller to produce a 14½in. diameter one weighing 2½ ozs. with boss, which will give a thrust of 1 lb. 15 ozs. at any speed under 1,500 r.p.m. W. COCHRANE.

P.S.—From experiments which I have recently conducted with propellers, I agree with Sir Hiram Maxim that the static and travelling thrusts are practically the same—at least, I can vouch as far as flexible propellers are concerned.

## CONCERNING PROPELLERS.

Sir,—I have read with great interest and extreme satisfaction your "Co-operation" scheme; also the response from your readers. Now that flying machines have so far advanced that the curve of the main planes seems to be decided,

namely, the Lilienthal curve, the general design is a matter of individual and practical experience, and as there are several efficient motors on the market, it appears to me that it remains now to decide on the general lines of the propeller. I have had some fifteen years' experience in the design and construction of propellers, and shall be pleased to offer my experience for the benefit of any of your readers who are in a fix, if they will supply the figures of the power of their engine and speed (r.p.m.), also space available for the diameter.

Should any of your readers who are in the above position reside in the neighbourhood, I shall be pleased to make an appointment with them. At the present moment I am at work on a 5ft. propeller, of which I have great anticipations, and will supply you with the figures when I test it.

Chiswick.

CECIL P. LEVERMORE.

## MATERIAL ADVICE.

Sir,—If you are still requiring material for covering your aeroplane, we should be pleased to submit you samples of our specially prepared Aerocloth, used by all the great aviators. ETABLISSEMENTS HUTCHINSON.

Sir,—I notice in last week's edition of your valuable paper several materials which can be used for wings of model aeroplanes. Will some of your readers kindly inform me of what to make the framework of the planes? I have tried cane, also thin wire, but they appear to be too heavy.

Hoping I shall get the desired information, and wishing your paper every success. S. THOMAS.

Sir,—I notice Mr. Clark, in *The Aero* for August 3rd, enquires for a suitable material for covering model aeroplanes. In all my models I have used vegetable parchment tracing paper, which is very strong and light. It is obtainable at any artists' material dealer's; the thickest is best.

In one of my model monoplane I used for a motor the works of a cheap American clock, and by taking out all works except the first three wheels of train (including driving wheel) and cutting away all unnecessary brasswork of bearings I was able to get very good results, my model flying on one occasion nearly six hundred yards.

I am thinking of building a combination of pedal bicycle and monoplane fitted with a light engine of about 8 or 10 h.p. W. G. HOLDER.

Sir,—You have recently had several letters of enquiry for a suitable material for use with models, so I take this opportunity of enclosing a small sample of cloth which I think will meet the requirements of model makers. While being very thin and fine in texture, it is yet comparatively strong. It is both air and waterproof, impervious to all weather conditions, and can be joined and sealed with ordinary rubber solution with ease and security.

I notice in last week's *Aero* Mr. Knight suggests a thin

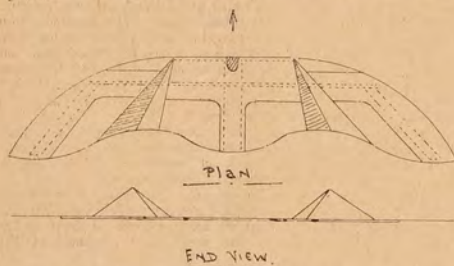
waterproof sheeting (presumably proofed on one side only), which, while certainly being admirable in other respects, has the disadvantage of being rather heavy for frail models, where lightness is the great consideration. If Mr. Knight will furnish me with his address I will gladly forward him sufficient of my cloth to cover a small model, to test its merits as against the sheeting.

With regard to joining the latter with solution, if the edges to be joined be cleaned with naphtha a quicker and firmer joint will be made.

I shall be pleased to send small sample of my cloth to any model-maker on request.  
R. H. KITCHEN.

#### GLIDERS' STABILITY.

Sir,—For the last six months I have experimented with small gliders up to 40in. span. A little time back I bought a Webb butterfly glider, and was surprised at the remarkable stability, both longitudinal and lateral, that was given to it by its folds or creases. You will observe that it possesses several, all of them originating from the same point.



I have modified Mr. Webb's idea, and find that equally good results are obtainable. Instead of introducing a number of creases, I only use two, which do not originate from the same point. They are likewise rigid, or, in other words, the angle of the fold is fixed. I have not found out the best position for the creases as yet.

I enclose a sketch to illustrate my idea. I should be greatly obliged if you, or any of the readers of your most interesting weekly, could explain the theory of the principle which gives such marvellous stability to a glider. Thanking you in anticipation,  
D. HAMILTON.

[Perhaps some of our readers may like to test gliders of their own make on these lines, and to advance theories thereon.  
—Ed. *The Aero*.]

#### AERO MOTORS.

Sir,—Referring to "Swan's" letter in your issue of August 3rd, we note with much interest his remarks. We consider that the majority of aeroplane engines are far too complicated in design, in addition to being much more powerful than is necessary for a well-designed machine.

We are confining our attention chiefly to the production of engines of from 15 to 20 h.p. with cylinders arranged on the V principle, and we find that in many cases we are able to quote more than fifty per cent. lower in price than in the case of the ordinary vertical type.

We are unaware what your correspondent considers "a reasonable price" for an engine, but we have no fear of being able to convince him, if he will communicate with us, that an engine can at present be obtained suitable to drive a man-carrying aeroplane, at a price within reach of the inventor of moderate means.

THE ADVANCE MOTOR MFG. CO., LTD.

Sir,—Being keenly interested in all branches of aeronautics, we have seen the letter of "A Reader of *The Aero*" in your last number, concerning motors for model aeroplane work. Our experience in this direction covers several years, and perhaps the conclusions arrived at may assist your correspondent. Our experiments commenced with clockwork

motors, but these were soon abandoned as hopeless. We afterwards tried a large number of prime movers with varying success, but discovered nothing so satisfactory as the high speed internal combustion type. These, however, when used for aeronautical purposes (particularly models), require to be specially designed for the work, and the ordinary motor cycle engine is not suitable, largely because of the difficulty experienced in suppressing the vibration set up when attached to a light wooden frame, but principally on account of the dead (and, I consider, unnecessary) weight carried in the flywheel, which in itself may easily total half the weight of the engine complete, and its presence would seriously handicap a model where unnecessary weight is the chief item to be eliminated.

As is well known, the smaller the engine the heavier it will be for the power developed, and we predict, the engine that will be used for flying machines generally in the future is the revolving cylinder type. Correctly designed and fitted with low-tension magneto ignition and mechanically-operated valves, it makes a very reliable and smooth running engine, there being little or no vibration set up, even with only two cylinders; also, placed in the right position, it acts as a most powerful gyroscope, and quite solves the lateral stability problem.

For the benefit of those readers to whom the principle is new, we may add that, briefly, the engine consists of a crank which is still, a circular crank case, and a number of cylinders placed equidistant round it. The cylinders and crank case revolve, forming a flywheel, and automatically secures air-cooling.

In the design we have adopted (and which we make in sizes of from 2 to 50 h.p.) there are many excellent features which space will not permit us to describe. If, however, "A Reader of *Aero*" will communicate with us, we are authorised by the designers to make him (or any other similarly placed reader) a unique offer that will enable him to carry out his practical experiments, which we trust will be crowned with success.  
THE GRANVILLE MOTOR CO.

130, Bristol Road, Gloucester. Pp. F. HARRIS.

[Mr. Harris has mentioned, in a covering letter, the terms he is prepared to offer to experimenters, and they are certainly most favourable, always presupposing that the engines, which we hope to describe shortly, give the power claimed for them.—Ed. *The Aero*.]

#### AEROPLANES AND SCREW-PROPELLERS.

Sir,—In a recent number of *The Aero* this sentence appears: "The screw propeller which is used either to push or to pull the modern aeroplane is no more or less than a modified aeroplane, and differs only in two points from the aeroplane, namely, its course is spiral, and its angle of incidence is made with the vertical plane and not with the horizontal."

That the pitch is, in practice, measured from the vertical plane is true, but it should not be so. In the case of the aeroplane the angle of incidence is measured from the horizontal, because in a horizontal position it would merely cut the air, if the surface were flat, and offer no surface to the wind it met.

In the case of a stationary propeller, flat blades put in a vertical plane would be in a neutral position, and the angle of incidence can be truly measured from that base; but as soon as the aeroplane is in motion, and the propeller is describing a spiral course, then the propeller blades in the vertical plane would no longer be neutral, and therefore cannot be taken as the base from which to measure the angle of incidence.

The true base to work from can be found by taking a series of points along the propeller, compounding their forward and circular velocities, and so finding the true direction they take.

Lines passing through these points in those directions will be lines on the neutral base, and will show, if enough points are taken, the exact shape of it. The propeller can then be made the shape of this base, and the best angle of incidence, found by experiment with a stationary propeller, can be given it.

The beauty of it is that in this way the most efficient pitch will always be the same, vary the base how it will. The best ratio between forward and circular velocity and between length and breadth of the blades must be found by experiment.  
K. S. JEWSON.

## BLUFF VERSUS EXPERIENCE.

Sir,—In reply to "Experimenter's" letter, it is comparatively easy to build flapping wings; the trouble arises when one tries to vibrate them under power. I have had four years' experience (practical) with vibrating propellers, both in water and air, and I regret to say my experience with them has been anything but satisfactory. It would be interesting to readers of *The Aero* to know if "Experimenter" has succeeded in lifting a machine off the ground with flapping wings. With reference to screw propellers, his fortune is made if he can show a thrust of 20 lbs. per h.p., and it is only his excessive modesty which is preventing him claiming his just reward. It would be interesting to know the diameter, pitch, etc., of this very remarkable propeller.

WILLIAM COCHRANE.

## MONOPLANE OR BIPLANE?

Sir,—At Olympia, early in the year, during the Aero Exhibition, a friend of mine asked my advice concerning the purchase of a flying machine. Owing a few hundred acres in the North, and being keen on flying, he was anxious to get a machine of sorts and make a start. Now at that time the Wright Bros. were in full swing, and my friend favoured the biplane type. After talking the matter over and going into details we came to the conclusion that he couldn't venture because—

1. He hadn't a long enough stretch of clear ground for starting or landing.
2. We foresaw difficulties in the getting of the machine to his place, the putting together when it was there, and probable breakages necessitating repairs by skilled workmen, etc.
3. A very large shed was necessary, built in a favourable position.
4. He couldn't see his way clear to employing a sufficient number of men to handle the machine as regards getting it in and out of the shed, wheeling it about, etc.
5. We foresaw breakages through inexperienced men handling it, especially if caught in any wind.

Altogether we came to the conclusion that the idea was impracticable owing to the size and unwieldiness of the machine. I have to-day received a letter from my friend in which he says "I have bought a Blériot." Now, sir, is not this an object lesson as showing in what direction those interested in the commercial side of aviation should devote their energies? Is there not already a demand for the compact, easily transported, easily dismounted, easily housed and handled machine?

A. W. GAMLEN.

## PENDULUM GYROSCOPES.

Sir,—In my copy of last week's issue of your valuable paper I observe, and greatly appreciate, the article entitled "Aeronautics and the Gyroscopes," by Rankin Kennedy.

As he points out, it should be apparent that to force an aeroplane horizontally through the air whilst a strong side gust of wind is acting at the end opposed to it, tending to speed the machine, it would require the gyroscope disc or flywheel to be of some considerable weight to enable the aeroplane to be forced resistlessly onward with its stability unaffected. Also it would, I consider, be superfluous and a great mistake to utilise the gyroscope in connection with aeroplanes in the way Mr. Kennedy protests against, seeing that there are other far more convenient, lighter, and effective methods of maintaining lateral stability automatically with the help of the gyroscope than the above-mentioned.

If you can find space in your paper to allow me a few lines to explain my views I shall esteem it a great favour, and trust the same will not be wasted.

I would suggest that the machine be balanced in one of the usual ways, for instance, by warping, the control of the warp being left to a pendulum balancing arrangement, which in its turn, to provide against emergencies, is subject to the control of the operator (i.e., the pilot).

Of course, to ensure accuracy in the degree of the warp with regard to the wind or speed of the machine, it would be necessary for the pendulum to maintain a correct vertical position. In consequence of the stiffness in the construction of the planes, and which stiffness is actively opposed to warping, this is impossible unless some apparatus is used, embodied in the pendulum, whereby the distracting influence

named is counteracted. Here, obviously, the gyroscope can be much more conveniently utilised.

Supposing the bob of the pendulum is represented by a gyroscope of such a power and weight as will enable it to effectually resist the said distracting influence, the pendulum will then maintain the necessary vertical position aforesaid, and on the face of it we have a solution of the difficulty.

I shall be glad if your readers will oblige with their remarks and criticisms, and point out any drawbacks they find in this method.

At the same time I propose a vote of thanks to the proprietors for producing such a much-needed and instructive journal as *The Aero*.

WALTER E. FOX.

[This idea is somewhat similar to that of the Marmonnier gyroscope control, as described in "Aero-Amateur's" book "Flying."—Ed. *The Aero*.]

## MANY THINGS.

Sir,—I am a reader of most things aerial, and in the columns of your issue of the 10th inst. there are two matters which more than ordinarily interest me. For instance, you appear to have a convert at Croydon (about seven miles from my present home at Ewell) named Warsop, whose ideas on this matter of flight seem akin to my own. In the same issue also you have a correspondent, "A Country Engineer," who appears to have been inspired whilst viewing Blériot's machine when on show at Selfridge's.

Speaking of myself, I have never been anything unless original and inventive, but, unfortunately, my great drawback has always been lack of necessary funds, which obviously is the trouble with all British inventors, more particularly in this problem of the air. Accepting the fact by report that it has cost Blériot £20,000 and Zeppelin £100,000, it confirms my assertion that we are powerless to keep up the British prestige as being the mechanical geniuses of the world.

I am so much a Britisher myself that I maintain, if we are to fly, we ought to do so with our own appliances, and not feast so much upon those of the foreigner. It is to my way of thinking a lamentable thing for us at this stage to have to admit that there is not one amongst us in a position to take up the offer of Baron de Forest to fly the Channel for a £4,000 prize, or that of the *Daily Mail* for £1,000 for a mile circular flight. Is it that we are short of the initiative, or am I right that it is only a question of funds? I prefer, however, to think that the whole fault lies at the door of the capitalist, who is apathetic in this matter of British prestige. He should take a leaf from the book of the foreigner, and do his duty by speculating justifiably, by developing the resources which we undoubtedly still retain in this tight little island of ours. Then, and not until then, shall we be able to be in it with these pushing gentlemen across the water, and, what is to me more important, keeping our prestige in such affairs more to the front.

I have long foreseen that the mechanical appliance would revert to the wing principle, although there has been a great opposition to it, and I will go further and say that the wing will be ultimately a movable or flapping one. Even Latham found it necessary in his second attempt of the Channel to warp his wings. Dr. Barton and Mr. Spencer also convinced me of the rigid method, but I do not attach a great amount of importance to the airship, although it may answer some purposes. I am a believer in the development of the mechanical article, which I venture to think will outpace the airship eventually.

Your correspondent, "A Country Engineer" (although not one myself), imagines the possibility of a contrivance propelled by pedals assisted by a single-cylinder motor. He is trespassing upon the ideas of others, and I would ask why a motor at all? Is it not within the realms of feasibility that we could have a flying cycle? I am arguine it will come eventually. If it does—well, I shall claim prior rights of thought, and if I could get aside the problem of funds it would be about within twelve months, and at very little cost in the bargain.

Can you explain, Mr. Editor, why it is that the theoretical students of the air propound theories which have no bearing upon the practicability of flying as demonstrated by those who have flown? What did the Wrights, Blériot, Farman, etc., know about these matters previous to their flights?

R. BATESON.

## RE PROPELLERS.

Sir,—Noting the proposed competitions in your journal *re* the above, I beg to point out that as I am building a light aeroplane for testing the propellers that I intend to use on the aeroplane for my attempt to gain the £10,000 *Daily Mail* prize, I shall be pleased to test any propellers for your readers whereof the claims are distinct, provided they are full size.

EUGENE V. GRATZ.

## THE METRIC SYSTEM.

Sir,—*Re* metric measures, as these are the only measures likely to be used in your paper, I would suggest that you print a 250 mm. rule on one edge of the cover permanently.

CHAS. H. WEBBER.

[We propose to use both styles of measurement side by side till such time as the metric system becomes the standard.—Ed. *The Aero*.]

## METAL DIRIGIBLES.

Sir,—In the issue of *The Aero* dated August 17th, on page 204, paragraph 5, column 1, is an article on the gyroscope in connection with dirigible balloons, wherein it is stated that plates of rolled aluminium are made 1-100in. in thickness. Could you forward to me the address of the firms where such could be purchased, and oblige,

JOSEPH REED.

[The article in question being a report of a paper read before a society some time ago, we have not the information by us. Perhaps some of our engineering readers will be so good as to supply the information.—Ed. *The Aero*.]

## A QUESTION OF NATIONALITY.

Sir,—I beg to refer to a paragraph in your "Editorial Notes" in the last issue of *The Aero*, page 196, which would lead readers to conclude that Dr. Folmer Hansen is a Swede, whereas, as a fellow countryman of his, at present resident in this country, I have pleasure in pointing out that he is a Dane and making his flights on a purchased Farman biplane. Hoping you will find space to include this information in your interesting journal.

C. O. CHRISTENSEN.

## POWER FOR MODELS.

Sir,—Being a very interested reader of your excellent paper, I shall be much obliged if any of your readers could help me in this case. I am building an aeroplane model (Wright pattern) with plane surface equal to about 8 sq. feet. I wanted to use clockwork to drive propellers, but am unable to get anything suitable. Could any reader suggest something that would be better?

B. DEWICK.

## LIGHT ENGINES.

Sir,—I have been experimenting with a machine, and have not been able to obtain a suitable engine light enough for my machine, and I welcome Mr. J. L. Warsaw's communique. I should be very glad of his assistance in making me a suitable engine.

Wishing *The Aero* a larger circulation and ultimate success in bringing together all those interested in the art of flight.

E. S. SUTTON.

## PRIME MOVER AND GYROSCOPE.

Sir,—In reference to the correspondence *re* gyroscopic control, perhaps it will be of interest to offer a suggestion concerning prime movers in conjunction with gyroscopes.

With reference to Mr. Rankin Kennedy's article in last week's issue, his treatment of the forces when applied to controlling mechanism in fluids does not forcibly strike one as being conducive to controlling for aerial purposes; although he does not condemn the use of gyroscopes, his statements seem to make their place on a present-day flyer untenable. Fluids and atmospheres are entirely different, and what may be all right for one is useless for the other, so that we must work to suit conditions. There is no more aeronautical practice in attempting to drive several heavy flywheels at speeds up to 9,000 revolutions per minute on an aeroplane than there is in fitting steamships with balancing planes, owing to the different densities, which only allow flyers about 800 times less sustentation than vehicles or vessels on water.

Now, while weight is essential to gyroscopic force, it is to

a certain extent detrimental to flying. Therefore it follows that weight turned into useful energy is what is required, and working on these lines years ago brought me to considering a revolving engine to fill this all-important question of automatic stability. Since then others have worked on the revolving type of engine, and also developed it, which is sufficient to prove its practicability. All the same, the one I originally considered is now finished, and made throughout in Lancashire, and when further developed is intended to be marketed in three sizes at an approximate weight of 2 lbs. per h.p.

There still remains a certain amount of testing and modifying to cut down weight to the minimum without impairing reliability, but this type of engine for aerial work presents fewer disadvantages than any I have yet had to do with.

Now what I desire to suggest in mentioning the matter is a method of cutting out unnecessary weight and complications by arranging a drive from this very simple engine on twin propellers, so as not to get any uneven torque by propeller resistance, yet at the same time generate gyroscopic force for controlling balancing planes.

RICHARD NUTTALL.

## LIGHT RADIATORS FOR AEROPLANES.

Sir,—With reference to Mr. V. H. Donnithorne's letter, I should like to mention the fact that we have been engaged making Venetian radiators since 1901, when we took out a patent, No. 18953, for that particular type, since when we have supplied a very large number for aerial work. The weight of a 25 h.p. works out at about 12 lbs., and a 50 h.p. at 20 lbs., and from our experience we are certainly of an opinion that a radiator weighing 15 lbs. would not have sufficient cooling area for a 50 h.p. engine.

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## CONCERNING INVENTORS.

Sir,—On reading the excellent Editorial Notes contained in the last issue of your paper (August 24th), we notice two statements which might give inventors a wrong impression. In the first case, a reputable patent agent would hardly take out a provisional patent, including the Government stamp of £1, for so low a fee as a couple of guineas. The average inclusive fee is nearer four guineas, but depends in some degree upon the complexity of the invention. While on this point might we warn your readers against employing so-called patent experts (as distinguished from patent agents), who are often unqualified men, and generally foreigners. This class of man might charge a low fee at the beginning, but we think the ultimate result would be disastrous to the invention.

Referring to your other statement towards the end of the last paragraph of your notes, we may explain that, where a capitalist, or other person, appropriates an invention and patents the same in his own name, the original inventor can have the patent upset, or possibly transferred to himself, his ground of action not lying in "prior user," but in the fact that the patentee was not the true and first inventor. Nevertheless, such an action is an extremely onerous one, as the offence is not easy to prove in law, the patentee, for instance, defending himself against the allegations by saying that he thought of the invention himself, or that he had evolved a manner of manufacture from the so-called inventor's idea, which was quite impracticable in itself, and so forth. Again, the submitting of an invention to a capitalist constitutes "publication" of the same, unless he has agreed to secrecy. There are many other difficulties besetting the way of an inventor who does not protect or patent his invention, and he is never safe, even when he keeps it quite secret, as there is always a risk of some independent inventor patenting the idea first and thus obtaining priority of date.

The only safe course is to apply for provisional protection as soon as the invention is worked out—even mentally—into some kind of form, however rough. If fully developed, a patent might be applied for straight away.

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## SUMMARY OF CORRESPONDENCE.

"H. B. W. E." writes that he will deal further with the question of gyroscopes and "Aero-Amateur" at an early date.

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## News from Frankfurt.

### The Parseval and Clouth under Observation.

While preparations are being made for *Zeppelin III*, to undertake a long distance flight from the Lake of Constance to Berlin, the *Parseval* and the *Clouth* have been making short journeys from the exhibition grounds. Some fortnight ago the *Parseval* came to grief, owing, it was stated, to a downward wind which drove her against the roofs of some houses, and brought her into a most precarious position, the passengers escaping a serious accident only by sheer luck. She has since been plying again, and has been showing off very well indeed. The *Clouth*, represented in the accompanying photograph, also made a very good beginning early last week, but after an hour's exercise got into a plight. In consequence of a displacement of the flexible air pipe leading from the fan to the ballonette or pocket provided inside the balloon, the supply of air became insufficient for the envelope to maintain its internal support. The balloon being of the non-rigid type, a bend was produced in the envelope through this inadequate supply of air, and the bamboo rods extending along the sides and from which the car is suspended gave way. However, the



precipitate landing occasioned little damage, which will be repaired in a day or two. It is thought that the planes arranged in front for the vertical steering are too small for the size of the balloon, which should

moreover be equipped with two air pockets in lieu of one to avoid a repetition of the mishap.

Accidents of this kind, in the case of a balloon sent straight from the factory without any trial, should not cause much surprise. During the short practice the little craft had she behaved very well.

### Are Light Engines Necessary?

When inventors first began to design aeroplanes it was accepted as a matter of course that the engines propelling them should be made as light as possible. In order to reduce the weight per horse-power to the lowest limit, makers built engines with eight, twelve, and even sixteen cylinders. The main object of this was to suppress the flywheel, or, what comes to the same thing, to put the weight in extra cylinders, and thus obtain additional power. Experience has shown that makers are tempted to carry this practice to an excess. By adding to the number of cylinders the power is not proportionately increased, owing partly to the friction of the larger number of parts, and when the cylinders are augmented from eight to twelve or sixteen, for example, there is such a cutting down of weight that the margin for safe working is very small, and in some cases disappears. There are certain eight-cylinder engines which are quite satisfactory, but in one particular engine we have seen subjected to a bench test the rated 50 h.p. fell in a very few minutes to 35 h.p., owing to the thin cylinders expanding with the heat, and consequently losing compression. It is certain that the striving after lightness has in some cases been carried to a dangerous extent, and builders of aeroplanes who are buying engines would be wise to insist on their being put to lengthy time tests. Many aeroplane makers have had

so much trouble with certain types of specially light engines that they are taking to the four-cylinder motor, whereby they are following the example of the brothers Wright, who have never been partisans to any excessive cutting down of weight in the propelling machinery. Still, if two engines of different weights are equally good, a preference will naturally be given to the lighter one, and so much attention is being paid just now to the designing of aeroplane engines that buyers will soon have a much more ample choice of light and really reliable motors. One aeroplane engine has recently given strikingly satisfactory results with aluminium pistons which ran under observation on a bench test without the slightest sign of wear, even the scratches made purposely with emery paper being visible when taken down for inspection.

Mr. C. L. Job, of Brighton, writes that in his experience a suitable material for covering model aeroplanes is strong tissue paper varnished on both sides.

Will Mr. T. H. Haines, of Frederick Road, Aston, and Mr. H. P. Hollands, of Hugh Road, Small Heath, please let us have their correct addresses? We have letters at this office waiting to be forwarded to them.

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All advertisements should be accompanied by remittance, and addressed to the offices of "The Aero," Coventry. For insertion in the next issue, letters must be posted to reach this address on the Wednesday previous to the date of publication.

**BOX NUMBERS.**

If desired, replies may be received at the offices of "The Aero." Advertisers wishing to take advantage of this convenience must endorse ads. for registration, and these stamped and addressed envelopes for forwarding replies.

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