

Flight, October 23rd, 1909.

Flight

First Aero Weekly in the World.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

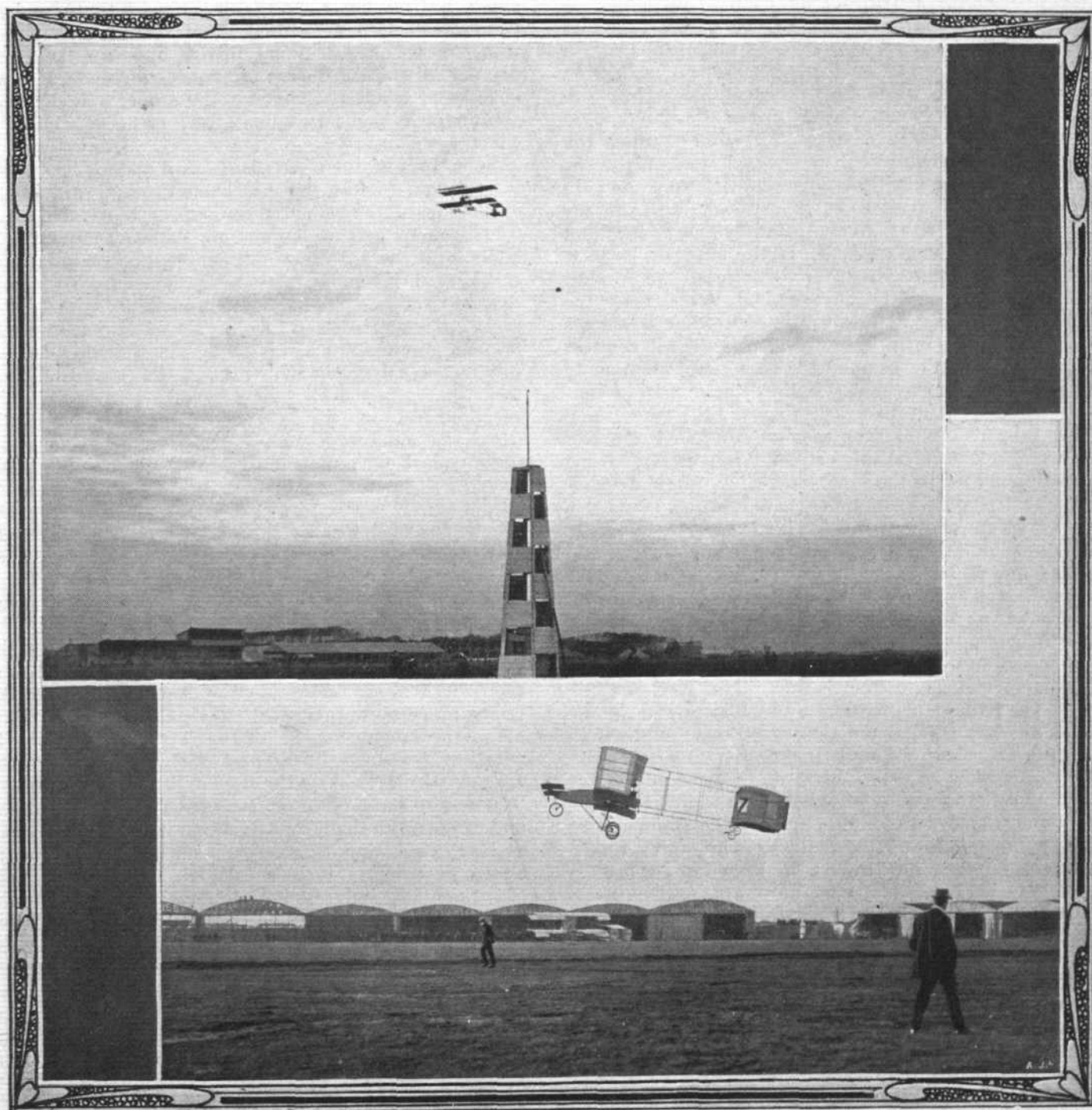
OFFICIAL ORGAN OF THE AERO CLUB OF THE UNITED KINGDOM.

No. 43. Vol. I.]

OCTOBER 23RD, 1909.

[Registered at the G.P.O.
as a Newspaper.]

[Weekly, Price 1d.
Post Free, 1½d.]



From the day of the 14

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FLIGHT IN ENGLAND.—M. Paulhan (top photo) on his Farman biplane, flying high past the grand stands at Blackpool on the opening day; and, below, M. Rougier is seen on his Voisin machine, passing the aviators' sheds at Blackpool during the long-distance competition.

SAVE US FROM OUR "FRIENDS."

IF there is one thing above another from which the movement is suffering at the present time, and is likely to suffer for some little time to come unless something is done to check it, it is from the overdone anxiety of some of its so-called friends to prove their *bona fides*. It is not so long ago, of course, since well-directed initiative was the one thing that was needed in order to promote a reasonable degree of progress in this country. But since that time there has been no lack of waking up on the part of all existing institutions connected with the science and practice of flight, and now, as we have already suggested, the swing of the pendulum is being accompanied by greatly overdone activities that cannot altogether be justified. The truth of the matter, perhaps, is that those who had the real foresight to prepare the way in advance and to organise accordingly, felt no inclination to lose their heads when their prognostications began to be justified by fulfilment, whereas, on the other hand, those energetic folk who were taken by surprise when the Wrights and when Farman proved that flight by aeroplane was a practical achievement, were apt, in their exaggerated enthusiasm, to overlook the existence of their more sober-minded and already prepared compatriots. Such, at least, is the only explanation that readily suggests itself, or is at least the kindest explanation that can be advanced, to account for the unfortunate precipitateness with which some advocates of the flying movement have with apparently wilful intent sown discord in the camp at the very time when unity of action is most essential. If they were not so serious, owing to the extent to which they mystify the general public, the doings of such men as Mr. Windham, and the arrangements feverishly carried through before being properly digested by the Aeroplane Club, would be little more than ludicrous to those in a position to take a bird's-eye view of the true situation.

With a total disregard of ultimate consequences, and with a happy-go-lucky determination to ignore the existence of *cons* as well as of *pros*, it is only too easy for anyone with sufficient spare time and with sufficient self-assurance to make a glorious splash in the world which means very little indeed in the long run, but which has the immediate appearance of being extremely fine. That kind of game may be carried on with the very best intentions in the world, and yet may all the time be a thorn in the flesh to those for whom the work is ostentatiously being performed. Sooner or later, therefore, the time must come when those who realise the hollowness of the whole proceeding must take a firm, unmistakable stand against it, even though, during the first stages of doing so, an erroneous impression of the real motives may get bruited abroad.

Last week we referred to the unfortunate uses to which the clashing between Blackpool and Doncaster had been put by those who would, if they could, upset the authority of the Aero Club of the United Kingdom, and we thereby made it clear that whatever might be the immediate effect produced by the Club's decision, that parent body had no choice but to adopt a course which would temporarily be very unpopular with those who only heard the laments of the aggrieved.

This week we are calling general attention to an instance in which the aeronautic industry needs to be saved from its would-be *friends* by the strenuous and united action of its representative institutions, even though the task may

be inherently somewhat distasteful. We refer in particular to the action that has been taken by the Aeroplane Club to call a conference at the Mansion House on Thursday of next week, and to the bombastic manner in which it has thereby once more endeavoured to arrogate to itself the right to pose as a leading national institution. We do not for a moment wish to dispute the desirability that there may be for a conference of those who are interested in the question of aviation, nor that the particular subject for which the meeting has been called needs thrashing out in a thorough manner. The points are, that it is quite unnecessary that the Mansion House should be used for a meeting of this character, that it is not for the Aeroplane Club to call such a meeting at all without consultation with the accepted national bodies, and that the entire manner in which this fresh bid for fleeting *kudos* is being engineered is utterly foreign to the proper and dignified spirit which ought to actuate any great institution of encouragement.

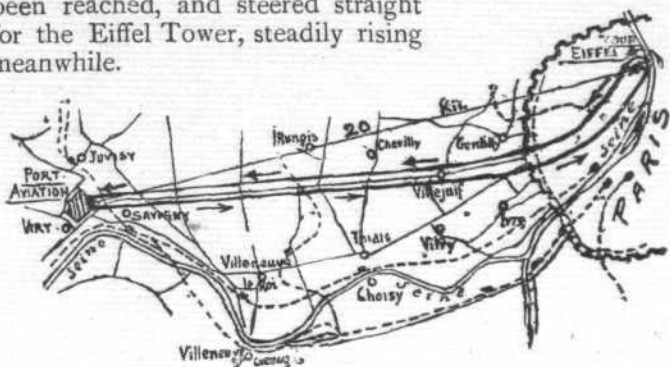
Some idea of the utterly haphazard methods by which it is sought to foist the Aeroplane Club forward in the estimation of the public, regardless of the fact that its true character and aspirations are known to those who really form the kernel of the aeronautic community in the United Kingdom, may be gathered from the fact that up to at least Wednesday last invitations were being issued which announced that Sir David Salomons would preside, whereas we know for a fact that on Monday morning a letter must have reached the Aeroplane Club from that gentleman refusing to take any part in the meeting, and requesting that his name should be withdrawn in connection with it. It is unfortunately, too, quite typical of Aeroplane Club methods, that Sir David Salomons' consent should have originally been obtained to act as Chairman, by virtue of his ignorance that the meeting was being called otherwise than by arrangement with the Aero Club of the United Kingdom. We need not say more in this connection than that immediately Sir David discovered his mistake he wrote withdrawing his name, as we have already stated.

Under these circumstances, it is surely time that the Aeronautic Society and the Aerial League should rank themselves solidly alongside the Aero Club and take strong measures to prevent the flight industry from being made the laughing-stock of the world because a self-constituted society like the Aeroplane Club has the effrontery to arrange for the use of the Mansion House, to pose as a responsible representative of the movement, and to obtain the name of a well-known man as Chairman under the very unsatisfactory circumstances referred to above.

Incidentally only is it interesting to observe the profuse manner in which the invitation cards are being issued broadcast to Dick, Tom, and Harry "and lady" for this precious meeting on Thursday next, together with stamped postcards which have also to be paid for by someone, though it is difficult to say quite out of whose pocket the money is ultimately to come. This Aeroplane Club farce has, we contend, now gone quite far enough, and we look to the three established British parent bodies to see that this expensive and undignified fooling is brought to an end. It may be contended that the "Club" already has a large membership, but if that is actually so, it is but a further proof that the aeronautic industry needs to be "saved from its friends (?)."

FLYING ROUND THE EIFFEL TOWER.

JUST a glimpse of future possibilities of flight was accorded to Parisians on Monday, when Count Lambert demonstrated his complete confidence in his Wright flyer by leaving the Juvisy aerodrome and flying over Paris, and round, or rather circling above, the Eiffel Tower. He left the Juvisy aerodrome at 4.37, after rising by circling round till a height of well over 150 metres had been reached, and steered straight for the Eiffel Tower, steadily rising meanwhile.



Diagrammatic plan of Count Lambert's flight.

This reached, he turned round at an estimated height of about 100 metres above the Tower, which itself is 300 metres high. Only two persons, it appears, were aware of Count Lambert's intentions. No small wonder, therefore, was evinced when the Count was seen by the Juvisy crowd to dart away beyond the outskirts of the aerodrome and disappear towards Paris. Interested watchers not unnaturally supposed that he was simply indulging in a little cross-country flight of a couple of kiloms. to give a bit of sensation to the day's programme. But as time passed and there were no signs of his return, interest turned to anxiety for his safety. Nothing

short of alarm soon arose, until at length, about half past five, he was once more discerned. A huge cheer went up, speedily followed by the calmest and most collected descent by the Count within 5 metres of his shed. His time for the round trip of about 30 miles was 59 mins. 39 secs., and needless to say, on his return he was accorded a tremendous reception, in which Orville Wright, who happened to be present, joined. At a meeting held immediately afterwards it was decided to award a gold medal to Count Lambert, and M. Deutsch de la Meurthe announced that he would give 50,000 frs. to the Society d'Encouragement d'Aviation as an acknowledgment of what they had done at Juvisy.



Count Lambert.



Count Lambert's historical flight las. Monday evening from Juvisy, round the top of the Eiffel Tower, and back.

THE ANTOINETTE MONOPLANE.

WHILE it doubtless required Mr. Latham's splendid failures in his attempted cross-Channel flights to bring the Antoinette monoplane into that extreme prominence which it undoubtedly occupies in the public eye to-day, the work of its designer, M. Levavasseur, has ever been deserving of recognition during the long while that he has been working on the problems of flight. If fortune has denied him the greater honours, he has not been discouraged thereby from putting his best into the development of his machine, which stands out to-day not only as one of the most interesting, but also as one of the most carefully-built flyers in the market.

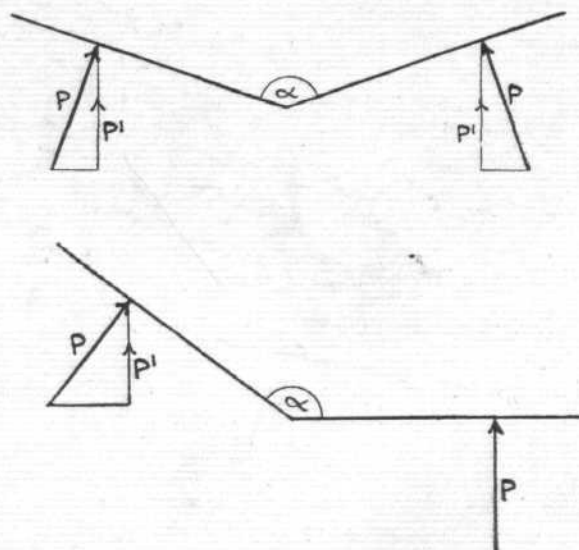
Of the various reasons which led M. Levavasseur to adopt the monoplane system of construction, its simplicity of form, and lower resistance to flight, have been leading factors, although the designer frankly admits that increased difficulties of construction scarcely allow the matter of its simplicity to go farther than the appearance. Certainly, however, the Antoinette firm have ably taken advantage of their opportunity in this latter direction, for its clean, neat "cut" is, perhaps, the most marked of the external characteristics of this machine.

In summarising the leading features of the design of the Antoinette monoplane, it is essential to mention two details relating to the main wings. One is their great thickness, the other is their upward slope, which embodies in the machine the principle of the dihedral angle.

The Dihedral Angle of the Wings.

This principle has for its object the provision of a certain amount of automatic lateral stability by means of the restoring couple brought into play by the difference in the upward components of the air pressure under the wings when the flyer is canted from its normal position of equilibrium. A glance at the accompanying diagram will make this clear. Applying the principle that the pressure on an inclined plane is perpendicular to the surface, it follows that, when in equilibrium, each wing of a dihedral pair is subjected to a normal pressure, P , of which there is an upward component, P' , acting as direct lift. The pressures, P , remain unchanged so long as the speed of the wings through the air is constant, but the values of P' obviously depend on the angle which each wing makes to the horizontal; for P' is a vertical component, being that supporting force which overcomes gravity.

If, for instance, the flyer is canted over into the exaggerated position shown in the second diagram, where one wing is horizontal, then that particular wing would be in a position to have the full value of the pressure, P , exerted as lift, whereas the vertical component resulting from the same value of P on the other wing is considerably diminished below what it was with the machine in equilibrium. It will be noticed that the difference in

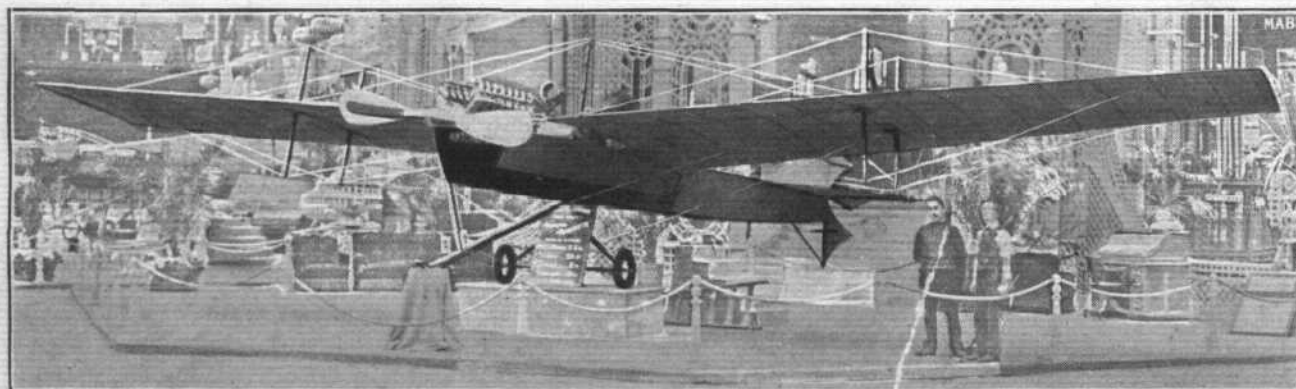


these pressures is always such as to result in a couple tending to right the machine, and it is this fact that makes the dihedral angle such an important principle.

Long as it has been known, the dihedral angle has, however, been little used in practice on full-sized machines for the reason that many designers see in the arrangement a source of danger far more serious than any advantage likely to accrue from the otherwise favourable points of the system. It is argued that the most likely cause of canting is a side gust of wind which, persisting after the cant has been started, will find an increasing area of action on the uplifted wing and so tend to capsize the flyer before restoring force has time to assert itself.

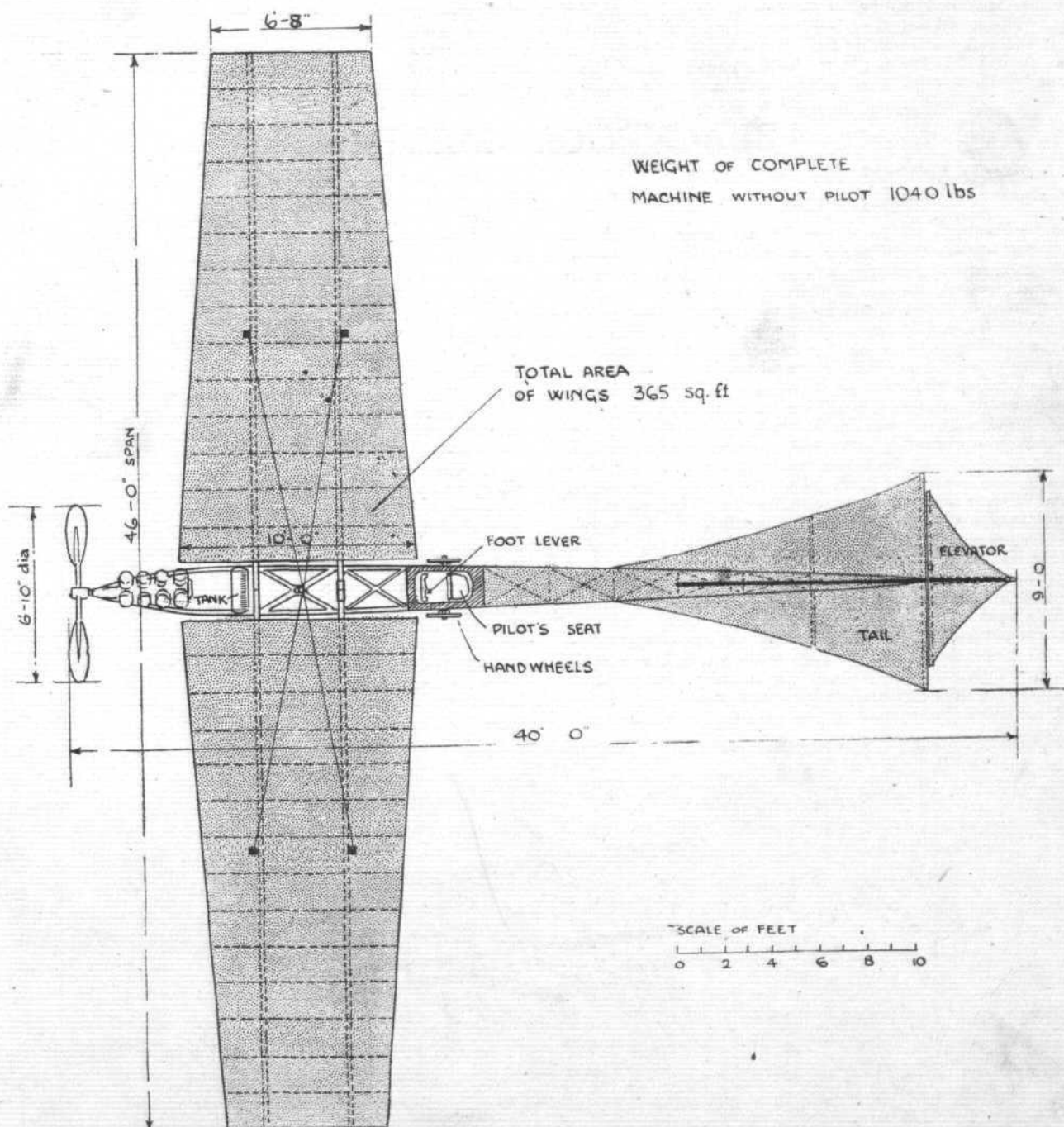
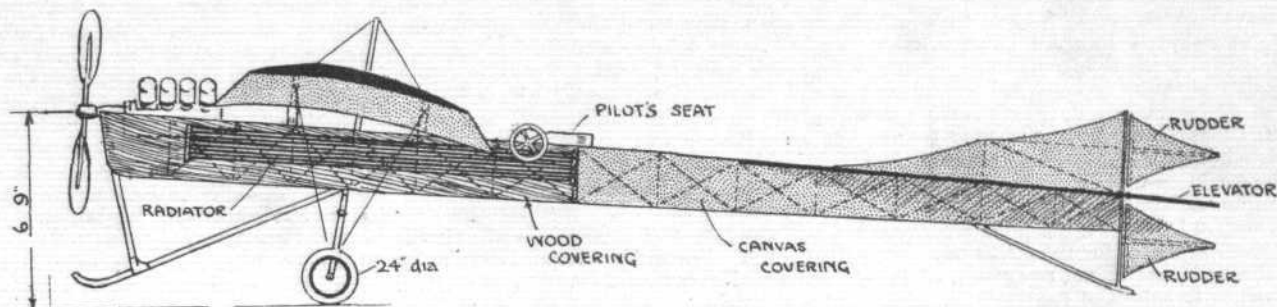
Wilbur Wright in his early gliding experiments tried and abandoned the scheme, and, in fact, it is now nowhere quite so much in evidence as on the Antoinette flyer; hence the reason for drawing early attention to the peculiarity.

(To be concluded.)



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THE ANTOINETTE FLYER.—View of the latest Antoinette monoplane at the Paris Salon. The above view illustrates very clearly the trussing of the spars in the wings.



The Antoinette Monoplane.

THE FLIGHT MEETINGS IN BRITAIN.

At last we have had the real thing, the whole thing, and nothing but the thing. Armies of carpenters building huge sheds, suitable grand stands, some of them of the most highly-decorative sort, and setting up of booths on the most extensive scale, the rolling of rain-soaked grounds, the exploitation of French and German in all manner of posters in token of the visits of foreigners, the presence of interpreters to make known the needs of the brilliant French flying men who have come to our shores to demonstrate to our public and the vast gatherings of people, second only in point of numbers to the crowds at Rheims and Juvisy, but on all occasions to the full as intelligently and enthusiastically interested. It were a nice point to determine whether Blackpool or Doncaster is the more favourable course. The first-named is relatively more exposed, being near the sea, and the second apparently more favoured by being sheltered and inland without being in a hollow. Nevertheless, in practice such a man as Cody, for example, announced that he could not do himself justice in circling round the course as mapped out by the wooden towers, but must have a run on to the town moor beyond the racecourse proper, whereas at Blackpool nobody found anything to complain about in the matter of the ground, the course being to all intents and purposes triangular, leaving the machines well in view of the spectators all the time, and measuring approximately two and a half miles to the lap. Delagrangé, who has improved immensely in the handling of the Bleriot monoplane since the Rheims meeting, and reliable little Roger Sommer each performed well at Doncaster, but there is no question but that the real spectacle worth viewing was that at Blackpool, where one saw high flying proper, and that is the thing that takes the public fancy. When the aviators began to learn the course they flew comparatively low on their initial rounds, and as not 1 per cent. of the onlookers had ever seen dynamic flight in their lives, they were amazed and well content. But the moment Rougier and Paulhan came along and began flying at their characteristic relatively high altitudes that public was spoilt, for it failed thereafter to appreciate the niceties of Farman's low aerial touring. As for Latham, when he came along, here, as in France and Germany, he captivated the public right away. Yet it is amazing how quickly familiarity with flight is apt to breed something very like contempt. The crowd waited patiently for a couple of hours on the opening morning at Blackpool for a flight, knowing that what was in store for it was well worth waiting for. Yet when Rougier went on his nine-lap course, one heard men remarking that he would go on flying all night. As one onlooker put it, "The first circuit you see done is a marvel beyond the power of words to describe," yet it is so natural and seemingly effortless that after seeing a man do three rounds you say: "Come away, and let's have a drink."

BLACKPOOL MEETING.

DIARY OF THE WEEK.

Monday, 18th.

BLACKPOOL—Mecca of the Lancaster holiday-maker—waked this morning to a great day, doubtless the most remarkable it has known. To be associated with pioneering a new sport is a feather in the cap of any town, but when the game is flight the honours are removed from the ordinary by a degree which can be measured only in the future, when the full significance of this new movement, which has so taken the world by storm, is capable of being a little understood.

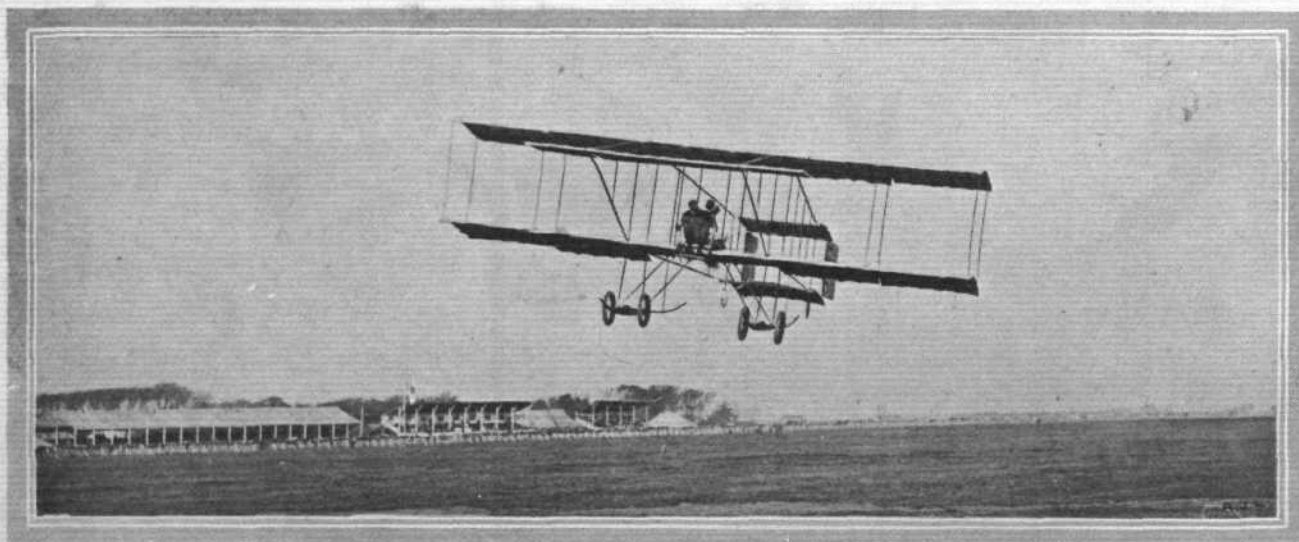
To say merely that the day has been a success is to overlook the importance of such good fortune in respect to its influence on the future. Thousands of people, hesitating on a decision to "come and see for themselves," will be influenced favourably by the accounts of to-days proceedings, and will make that journey which is to bring them in personal touch with something they have hitherto only known at second-hand. There is nothing equal to its educational value to ocular demonstration, and so as the result of a happy combination of circumstances attending this, the first day's meeting, very many people indeed will be led to feel a real interest in the future of aviation when under less favourable auspices they might still remain among the millions to whom its reported progress is about as inanimate as they find so many another item of their retailed daily news.

That is one, and possibly the most important, aspect of a good opening day. In the present embryonic stage of the art, and more particularly in the still less developed state of the industry, the value of directly interesting the greatest possible number of people is in-

calculable. At present the utilitarian side of flight—setting aside its possible military purposes—is not quite apparent to the million. Its limitations as a sport are for the moment all those which a fertile mind, already happy in other pursuits, cares to take the trouble to adduce and to attribute to a machine weighing half a ton, and spreading forty feet. Yet notwithstanding all this, what sportsman, or sportswoman for that matter, of the vast crowd of spectators, but was "crazy" to go up in one of those same devices from the moment they had seen, and for the first time realised, the "conquest of the air," as demonstrated by the splendid performances of Farman, Paulhan, or Rougier.

The impression which the sight of a flyer *en plein vol* makes on the receptive mind is indescribable; the desire to be up and forging thus grandly through space just enters into the soul, and therewith an adherent has been won to the cause. There is an exhilaration about the start, a fascination about the caressing separation of wheels and soil, as the machine almost imperceptibly takes wing, a grandeur about its stately progress through the open air which is well-nigh irresistible. Well may the public cheer as the flyer sails majestically aloft, for it is a great sight, and one moreover which is still impressive, even when it is no longer novel.

And visitors to the Blackpool meeting to-day had a splendid opportunity for appreciating these phases of flight. After a period of rain the day dawned fair, later developing into conditions which were as near ideal as it is reasonable to expect in an English climate. During the forenoon two black cones swinging from a boom proclaimed by signal that the wind was blowing from 5 to 10 m.p.h. It was quite a perceptible breeze, stronger probably than many of



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FLIGHT MEETING AT BLACKPOOL.—Mr. Henry Farman, who made the first flight at the Blackpool Meeting, rounding the west pylone during the long-distance event. In the background are the grand stands, &c.

the pilots cared for, but Henry Farman came out soon after midday, and in a minute was speeding away into the distance. He rose after a short run, and keeping low was soon lost to sight behind the pavilion of the Golf Club—a building occupying the centre of the aerodrome, and proving somewhat of an obstruction to the view.

It was A. V. Roe, a British competitor with a home-made machine, who had the honour of making the first attempt to fly, although without result. His small triplane, which he, together with a few other enterprising young enthusiasts, have built by their own labours, was ready at an early hour, but he and his associates were busily at work upon another model not yet completed. Seizing the opportunity pointed out to them by well-wishing compatriots, however, they temporarily transferred their attentions to the machine in waiting, and having spent some fruitless moments trying to persuade the motor to start with its wiring reversed, were eventually able to secure a few minutes lead on the pilot, who immediately afterwards became the hero of the hour.

Roe's effort to achieve flight with a small twin-cyl. J.A.P. engine—in which endeavour, it must be remembered, he has in a measure actually been successful in the past—resulted in no more than a wheel to ground canter as far as the Golf Club, whence he returned to work upon his new machine. With this, in view of its large motor, he hopes for greater things, and assuming that the new 4-cyl. air-cooled J.A.P. comes up to his expectations, he should have a chance to realise this, for his efforts hitherto have obviously been frustrated by inadequate engine-power.

Farman's first flight, a mere preliminary trial run, terminated about half way round the course, but after a brief delay, and a very successful restart, the circuit was completed, to the great delight, naturally, of the thousands of onlookers, who had been very patiently contemplating the greensward since 10 a.m. or earlier. Paulhan, using the same machine, which is his own property—Farman's flyer is lost somewhere along the French railway—made an uninterrupted lap, and on its completion both pilots departed for lunch.

At no affair of this sort is the satisfying of the inner man an expeditious procedure, and it was well after 3 o'clock before Farman was again in the air. This flight was made in competition for the *Daily Sketch* speed prize of £400, in which the award is to go to the fastest time over three consecutive laps. The regulations do not limit an attempt to the first three laps; Farman made seven right off, and his speeds for each are given below. The wind at this time was under 5 m.p.h.

Rougier, on his Voisin biplane, rose while Farman was in the air and ascended to a far greater altitude—Farman's flight being on the whole very low-pitched. Rougier's attempt was for the Blackpool Grand Prize of £2,000 for long distance, and he accomplished nine laps. Paulhan followed Farman, always on the same flyer, and contested Rougier's performance with a flight which terminated, however, after seven laps. Like Rougier, he also was incidentally putting up times for the *Daily Sketch* Prize.

Leblanc "crossed the line" on his Bleriot monoplane during the afternoon—a daily proceeding which is expected of all competitors—and the day closed with a short but interesting passenger flight by Farman and Paulhan, with the former in command. There was not much flying in point of numbers, but the quality of that which took place made up for absentees. It was not to be expected that all those who have turned up would be ready, it was more than fortunate that those in time should be of the best.

Speeds, &c., made on Monday, October 18th.

1 lap = 1'986 miles.

"Daily Sketch" Prize, £400. Speed, 3 laps.

FARMAN.	
Lap 1 ...	36'15 m.p.h.
" 2 ...	36'30 "
" 3 ...	36'56 "
" 4 ...	36'30 "
" 5 ...	36'00 "
" 6 ...	35'86 "
" 7 ...	37'28 "

Blackpool Grand Prize, £2,000.

Distance.

ROUGIER.		PAULHAN.	
Lap 1 ...	32'68 m.p.h.	33'26 m.p.h.	
" 2 ...	32'92 "	33'79 "	
" 3 ...	31'41 "	31'39 "	
" 4 ...	30'87 "	31'36 "	
" 5 ...	31'86 "	31'78 "	
" 6 ...	31'03 "	31'06 "	
" 7 ...	29'79 "	33'07 "	
" 8 ...	30'14 "		
" 9 ...	29'72 "		

Summary.

Total distance, 13 m.	17 m. 1,544 yds.	13 m. 1,592 yds.
1,592 yds.	34 m. 27½ s.	25 m. 53½ s.
Total time, 22 m. 57½ s.	32'33 m.p.h.	32'81 m.p.h.
Best speed 3 laps,		
36'38 m.p.h.		

Slowest lap—Rougier: time, 4 m. 0½ s.; speed, 29'72 m.p.h.

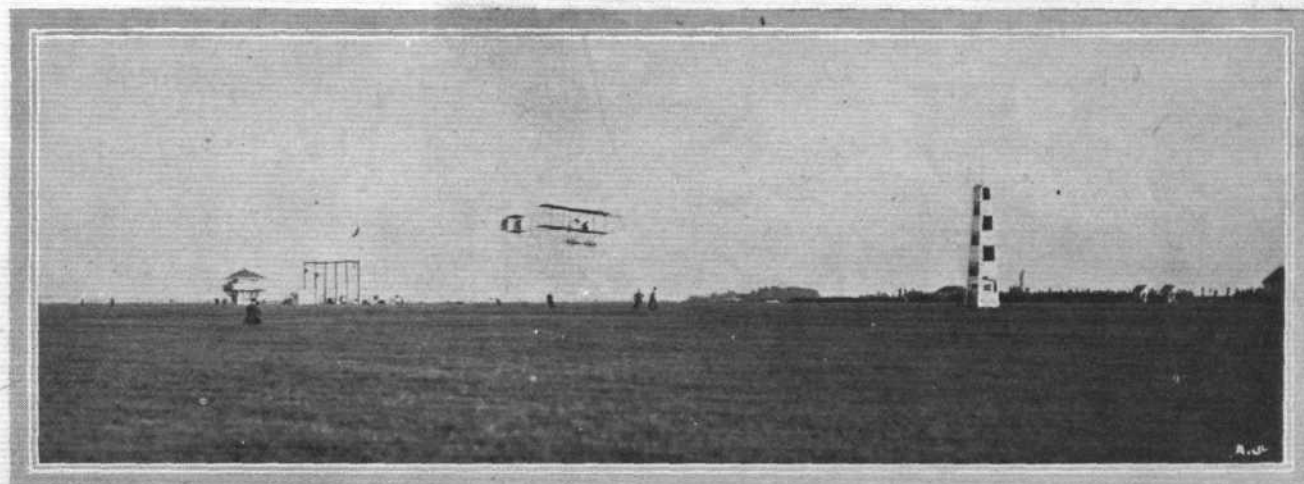
Tuesday, 19th.

A breeze, signalled at 10-15 miles per hour, spiced with a keen autumn chilliness, is not, at the present stage of the art, conducive to flying, even by the experts, and Blackpool has some of the world's leading exponents in the art taking part in its meeting.

Latham, who turned up last night from France, averred it was not too much, but he was by no means eager to make an early attempt. He thought he would take a look at the course, *en automobile*, first—a wise precaution, which gave him a preliminary acquaintance with a certain bad patch which he afterwards renewed under less favourable circumstances.

Farman and Paulhan were frankly at work fitting more capacious fuel tanks, and therefore by no means likely to fly ere the afternoon. Rougier's flyer was apparently in readiness, but no one made any attempt to bring it out of its shed. Some newcomers, whose machines had turned up overnight, were working on them behind drawn curtains, it being a feature of the very excellent sheds that have been erected that they are closed by curtains instead of doors.

On the whole conditions were not auspicious, but later the wind dropped a point, or rather a signal, and Latham's beautifully-built Antoinette monoplane was led out on to the course. Some delay ensued, but in due time it faced the starting-line, and at a quarter past twelve the first flight of the day commenced. The starting run was fairly long and fast before the wheels left the ground, and even when aloft the nature of the machine's progress was not such as to suggest perfect happiness. Keeping low, Latham rounded the first mark tower with a wide sweep, and so passed over that particularly uneven piece of ground which he had noticed during his tour of the course. Here he touched soil, and a few yards further came to grief through the skid under the bows of his machine catching in the turf. This accident for the moment looked serious, for the tail tipped up high in the air, so that it seemed as if the pilot must certainly be pitched out. Happily, Latham retained his



BLACKPOOL FLIGHT MEETING.—View of the aerodrome, showing Henry Farman in full flight on his first round. In the distance is seen the Judges' box and the signalling apparatus. On the right is one of the pylones marking the corners of the course.

"Flight" Copyright Photo.

seat, and the damage sustained was limited to the machine, the skid being ripped off and one of the wheels crumpled out of shape. It is a coincidence that a discussion was going on in Latham's shed during the morning as to the possible danger of this skid, for it is rather short and projects forwards in a manner which suggests trouble; no one supposed, naturally, that the point at issue was to have a practical demonstration so soon. It would be interesting to know how far the arrangement of ski, used on the Farman flyer, would have been equal to the emergency of a descent on this difficult spot.

Roe brought his small triplane out about lunch time, and succeeded in making a short jump; afterwards there was an interval until nearly three o'clock, when Rougier put in an appearance, but failed to make an ascent. Paulhan, however, brought out his Farman, and nothing daunted by the rising wind, now once more signalled at 10-15 m.p.h., was soon aloft.

Then followed a performance which repayed all waiting. Calmly, but with infinite skill, Paulhan piloted his machine through the gusty air. It pitched and it swayed but he kept on, and not until he had completed seven laps did he descend. It was quite the most daring flight which has yet been attempted, either here or abroad, and the other competitors were among the loudest in their praises of his remarkable mastery of the air.

Fernandez brought his small biplane out during Paulhan's flight, but did not rise.

Times.

"Daily Sketch" Prize, £400.

Speed, 3 laps.

PAULHAN.	Lap 3 ... 29'11 m.p.h.	Lap 6 ... 29'5 m.p.h.
Lap 1 ... 30'3 m.p.h.	" 4 ... 29'52 "	" 7 ... 28'9 "
" 2 ... 29'8 "	" 5 ... 29'5 "	

Wednesday, 20th.

Heavy rain throughout the night converted the enclosures in front of the competitors' sheds into miniature lakes, but a few quickly-dug trenches, assisted by a sandy sub-soil, quickly disposed of the bulk of the water. Fernandez brought his machine out into the open about 10 o'clock and proceeded to diligently polish the tie-wires with emery paper; whether he considered it more interesting than trying to fly he refused to say, but there is no doubt about the spectators' opinion.

At noon he was still in the same place, but at a quarter past the hour he suddenly dashed out into the open and made off over the

ground. This seemed to be a signal for other appearances in the field. Singer brought out his Voisin and proceeded to the starting line, while Parkinson's Bleriot monoplane made signs of moving.

At this time the wind was signalled under 5 miles per hour, in fact, all the morning the conditions had been far superior to expectations, and why no one took the opportunity to make an earlier start it is difficult to say. No wonder the public in the grand stands grows less daily.

Parkinson's monoplane at one end of the ground, and Singer's biplane at the other, made simultaneous attempts to fly in opposite directions; the biplane got bunkered in a hole, and the monoplane took a little trot in the direction of its shed. Re-starting, Singer made a further run, but was unable to keep the huge box-kite tail from tipping right up in the air and driving his elevator-outtrigger on to the ground. This happened repeatedly in spite of a fully-tilted elevator, and having been once more caught in a hole, he retired from action. Parkinson's machine was also put back in its shed after another little run. The trouble with Singer's machine was obviously a too great angle of incidence on the decks of the tail, and work was immediately put in progress to rectify this matter.

Then came Henry Farman's great flight. No delay ensued before he makes a start, and lifting after a short run continued the flight at a low altitude. Lap after lap followed with uninterrupted precision, what time the spectators found themselves on the horns of a dilemma formed by the desire to have lunch and the disinclination to miss what was going on. After a quarter of an hour, Paulhan, having taken up his stand by a mark tower, proceeded to spread out a handkerchief as a signal to the pilot of the time elapsed. Fifteen minutes later two handkerchiefs were thus displayed, then three, and on the hour, four. It is a simple code, but likely to become confusing when the handkerchiefs get numerous. Farman signified he was getting hungry—the same might have been said of others.

Each round was as like the other as it could be, the Gnome engine running like the proverbial clockwork, while giving out a distinctly unpleasant odour. This is caused by the use of Huile de Ricin, which is being used as a lubricant.

Fournier appeared with his "Imperial Crown" (Voisin) at a quarter past two, and ten minutes later Rougier's machine was taken out. Farman descended, after completing twenty-four laps, complaining of cramp, and almost instantly Rougier ascended on the other side of the course. After completing three laps at slow speed but fairly high altitude, he, too, descended, and Paulhan having taken Farman's place as pilot, flew off round the track, but only to make one lap. A spare balancing flap was then fitted in place of



DONCASTER AVIATION MEETING.—General view of the aeroplane sheds, with a Voisin machine and three Bleriot monoplanes in readiness for flying.

one which became damaged and another start was made. By this time the wind had risen to a degree which made even the intrepid Paulhan see discretion as the better part of valour, and after doing half a lap he descended.

In the hour between 2.45 and 3.45 the wind, as recorded by a pressure-tube, changed from 10 m.p.h. to 26 m.p.h. maximum, the gustiness making the pen of the instrument fluctuate erratically through a range of about 5 m.p.h.

The red flag, signifying flying in progress, continued at the mast-head, but it was generally supposed that proceedings were over for the day. Thousands of visitors left the course, when Latham suddenly decided to make an attempt in spite of the wind. His machine had been repaired with a new skid, new wheel, and new propeller, and was apparently in good running order. He succeeded in flying over the line, but descended without attempting the first turning.

Roe also made an attempt at the last moment, but without effect. Fernandez, who made a relatively early start at noon, had failed to return from his journey up to closing time.

No day could have been less auspicious than this was in the morning, yet in the end it provided a thoroughly interesting set of flights, including the setting up of some worthy British records by Farman.

Times and Speeds.

Competitors entered for all events eligible for competition this day, the times made during the flight standing good for each.

FARMAN.

Lap.	m.p.h.	m.	s.	Lap.	m.p.h.	m.	s.	Lap.	m.p.h.	m.	s.
1	31'55	3	46 $\frac{1}{2}$	9	30'98	3	50 $\frac{1}{2}$	17	30'74	3	52 $\frac{1}{2}$
2	30'84	3	51 $\frac{1}{2}$	10	30'30	3	56	18	31'39	3	47 $\frac{1}{2}$
3	30'79	3	52 $\frac{1}{2}$	11	30'53	3	54 $\frac{1}{2}$	19	30'84	3	51 $\frac{1}{2}$
4	30'66	3	53 $\frac{1}{2}$	12	30'61	3	53 $\frac{1}{2}$	20	31'33	3	48 $\frac{1}{2}$
5	30'77	3	52 $\frac{1}{2}$	13	30'95	3	51	21	31'11	3	49 $\frac{1}{2}$
6	30'89	3	51 $\frac{1}{2}$	14	31'69	3	45 $\frac{1}{2}$	22	30'71	3	52 $\frac{1}{2}$
7	30'48	3	54 $\frac{1}{2}$	15	31'72	3	45 $\frac{1}{2}$	23	31'64	3	46
8	30'79	3	52 $\frac{1}{2}$	16	30'77	3	52 $\frac{1}{2}$				

Total distance, 47 m. 1,184 yds.

Total time, 1 h. 32 m. 16 $\frac{1}{2}$ s.

Slowest lap, 30'3 m.p.h.

Fastest lap, 31'72 m.p.h.

Distance in 1 hour = 30 miles

1,577 yards.

ROUGIER.

Lap 1	...	Speed, 28'1 m.p.h.	...	Time, 4 m. 14 $\frac{3}{4}$ s.
" 2	...	" 27'25 "	...	" 4 m. 22 $\frac{3}{4}$ s.
" 3	...	" 28'79 "	...	" 4 m. 8 $\frac{3}{4}$ s.

Total distance, 5 m. 1,688 yds.

Total time, 12 m. 45 $\frac{1}{2}$ s.

Slowest lap, 27'25 m.p.h.

Fastest lap, 28'79 m.p.h.

DONCASTER MEETING.

The Opening Day.

FRIDAY of last week, which had been announced as the opening day of the Doncaster meeting, provided little excitement, for although several machines had arrived no attempt was made to fly. All that was done in the way of a public performance was the running of the Cody machine along the ground and posing of the others before the

Thursday, 21st.

With a wind registering 30 miles an hour, prospects of early flight this morning were of the remotest. Local prophets forecasted the possibility of relative calm after two o'clock in the afternoon, more especially if rain intervened. Obviously the only thing to do was to sit down and wait patiently. Most of the spectators thought it time to go home, but those who elected to stay were entertained by free admission to the field in the vicinity of the sheds, so that they could at least get a glimpse of the machines they had come forth to see. In the face of the black flag and half a gale it was, perhaps, foolish of them to have been so speculative as to pay for admission. The public are hardly yet educated to flight meetings, naturally, and the Committee were well advised to extend some special privileges to those who had supported the meeting, in spite of the bad flying prospects, especially in view of the fact that so few of the aviators had managed to fly up to date.

It was at least interesting for the public to have the chance of seeing the machines on exhibition. Some of the competitors ran their engines in honour of the occasion, and Latham made a dynamometer test of his propeller by hitching on a rope to his machine and anchoring it to a post of his shed. This enabled the pull or tractive effort to be measured direct by means of a spring-balance inserted in the rope. Only one test was made, and the reading on the balance was 120 kilogs., or 265 lbs. Assuming that the engine developed 50-h.p., this would be equivalent to 5'3 lbs. pull per h.p.

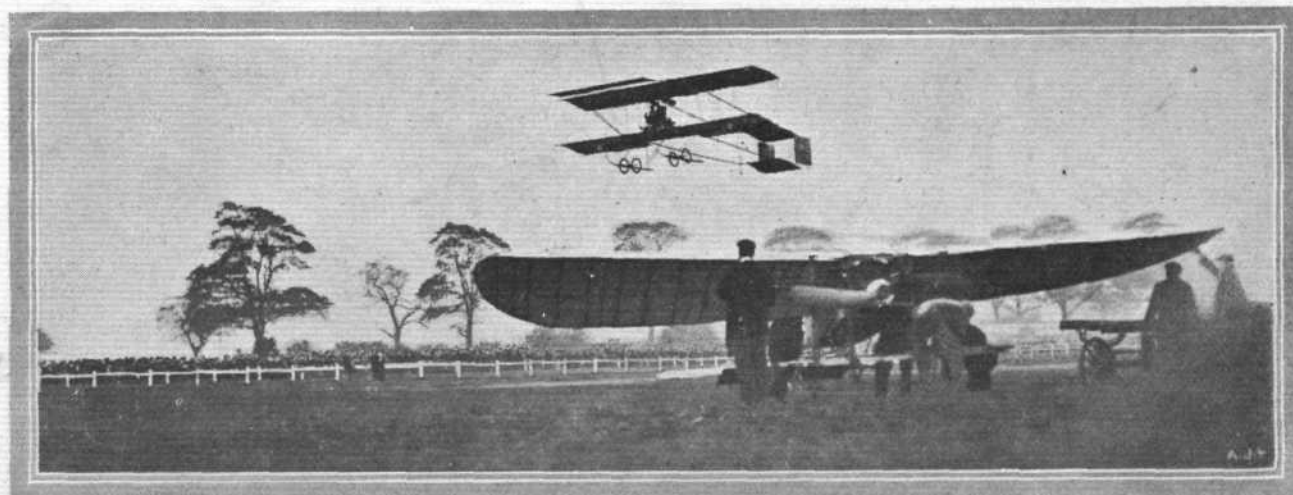
Two o'clock came and passed without rain, beyond just a spot or two, but the wind, so far from abating, persisted with increased vigour, some of the gusts forcing the gauge momentarily up to nearly fifty miles an hour. A patient public continued to parade the field in a forlorn hope of the calm which came not.

The Last Days.

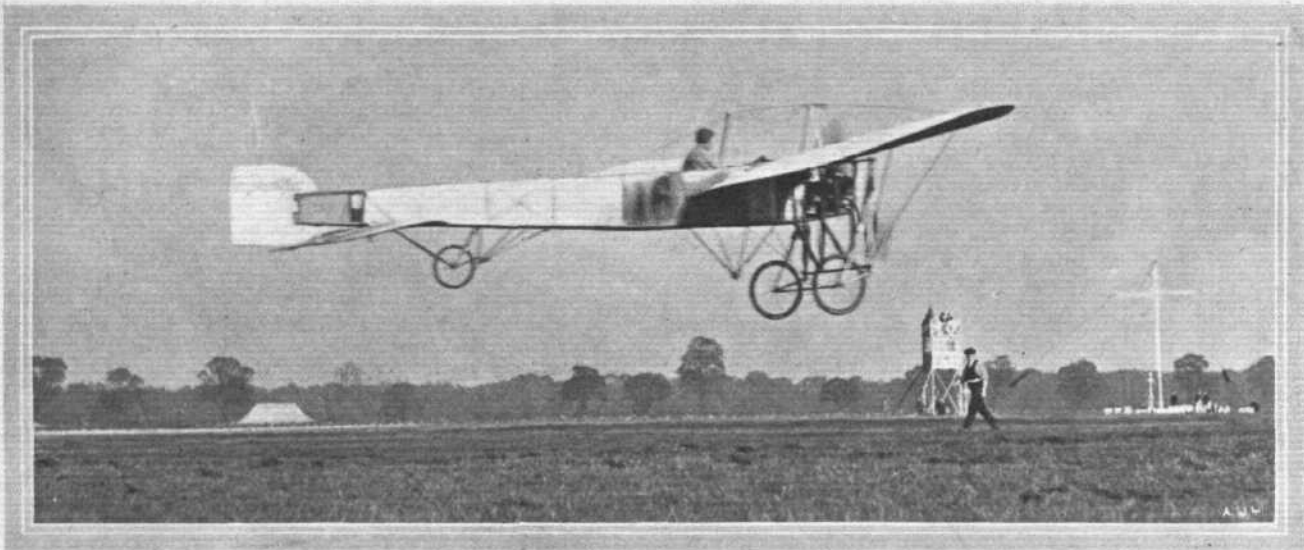
Friday's programme included the contests for the passenger carrying prize, the "Ashley" prize for British aviators, and the all-British prize, while the competitions for the *Daily Sketch* prize for speed and the *Manchester Guardian* Cup for the slowest circuit were continued, and on Saturday the proceedings were to be the same, except that the altitude prize took the place of the speed competition. In the "Ashley" competition the prizes were to be awarded to the British aviators, flying any machines, who accomplished the greatest distances, while for the all-British prize the machine had to be all-British, and the winner would be the one traversing the longest distance (not less than 100 yards) without touching the ground.

Measurement of the Course.

As the result of advices from Paris, the measurement of the course was changed from the centre line to the inner line, so that the lap distance is now 3,496 yards. This change reduced the speeds initially given out, and also the distances for the flights on Monday, but all the figures given in our table are in accordance with the corrected measurements.



DONCASTER FLYING WEEK.—An incident. M. Roger Sommer, on his Farman biplane, flying over M. Molon's machine, which had been smashed, during the competition for the Bradford Cup.



DONCASTER FLYING WEEK.—M. Delagrangé flies on his Bleriot machine to the spot where Mr. S. F. Cody came to grief in the sand-pit, to give "first-aid" to the plucky aviator.

midway of its length. This little incident naturally provoked a good deal of chaff, but it can hardly be said to have been in the interests of flight in Great Britain that such a performance should take place in public.

Saturday, 16th.

Mr. Cody opened the proceedings on the second day, but he was unfortunate. After flying down the course, he was returning along the ground when the front wheel sank in a hole which had been filled in with soft sand—described by Cody as a veritable "death-trap"—and the sudden stop caused the machine to tip over on to its elevating gear. With good luck, Mr. Cody was thrown clear of his machine, and so he sustained nothing worse than the re-opening of the old wound on his forehead, the result of his sudden descent on Laffan's Plain a week or so ago. This incident seemed to affect the other aviators, for none attempted to fly until three o'clock in the afternoon, when Delagrangé set the ball rolling again. Thereafter until dusk there was always someone in the air. Delagrangé made four attempts, the longest being for five laps, the 5 miles 750 yards being traversed in 10 mins. 48½ secs., which won for him the Doncaster Town Cup and £60. Sommer, on his Farman biplane, made the longest flight of 9 miles 1,350 yards in 21 mins. 45 secs., and he also made four other flights of various

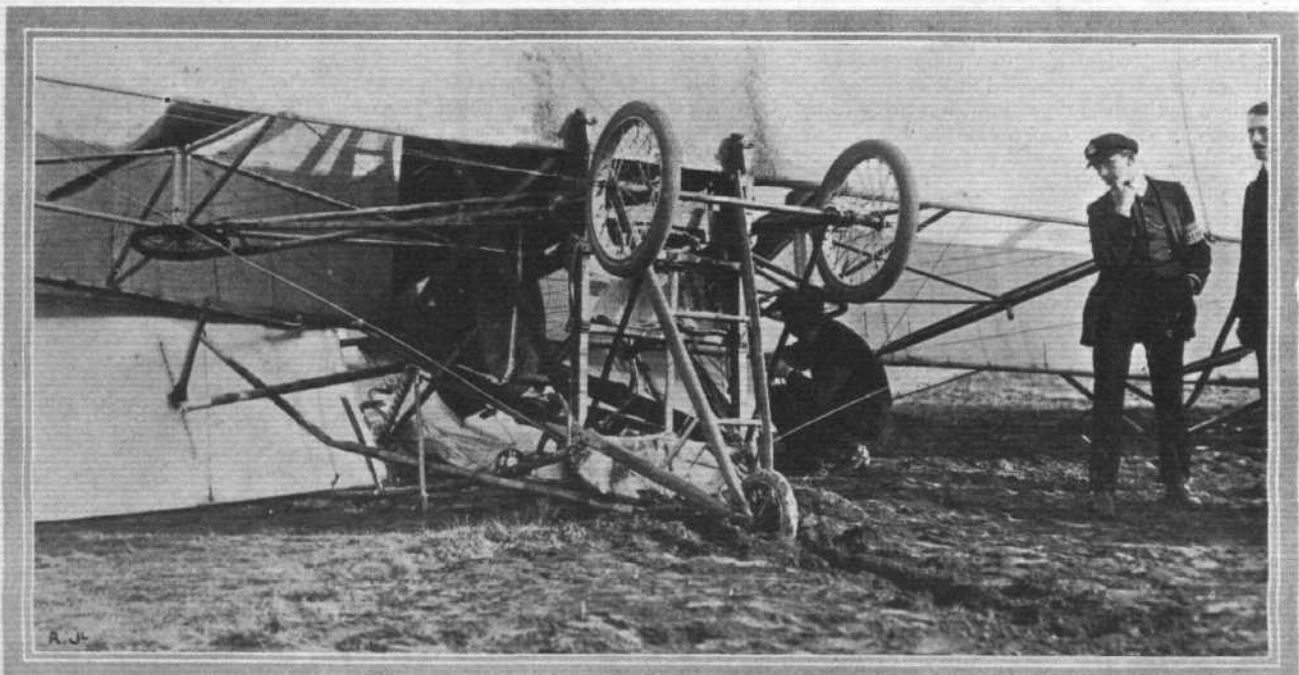
lengths, including one circuit of the course during which he carried Lieut.-Col. the Hon. Maurice Gifford as a passenger. He, however, was slower than Delagrangé, and took the second prize of £32. The other flyers who took the air for short periods, and who all used Bleriot monoplanes, were Molon, Le Blon, and Prevot, who made three, two, and one rounds of the course respectively.

Summary.

SOMMER.			DELAGRANGE.			LE BLON.		
Distance.	Time.		Distance.	Time.		Distance.	Time.	
m. yds.	m.	s.	m. yds.	m.	s.	m. yds.	m.	s.
2 430 ...	7	5	5 1,275 ...	11	25½	2 1,140 ...	5	14½
4 600 ...	9	39	2 340 ...	4	15½			
9 1,350 ...	21	45	1 150 ...	2	10½	MOLON.		
1 100 ...	2	29	3 450 ...	7	45	2 40 ...	4	10
1 0 ...	2	18				3 50 ...	6	9

Monday, 18th.

As a result of the good flying on Saturday afternoon, a large attendance was attracted to the racecourse on Monday afternoon, when Le Blon secured the honours of the day by his flight of 22 miles 295 yards in 50 mins. 4½ secs. It was a fine performance from the public point of view, and which reminded one in a way of



The soft sand-pit "death-trap" at Doncaster Aviation Meeting where Mr. S. F. Cody came to grief when alighting. Note how the front wheel has ploughed into the sand, causing the main part of the flyer to turn over, fortunately without serious mishap to Mr. Cody.

the spectacular doings of Le Blon as a driver of racing cars. He flew at various heights, ranging from a few feet off the ground to an altitude of about 200 feet. Sommer was the only other aviator to make a lengthy flight, and he completed 14 miles 1,275 yards in 25 mins. 30 $\frac{1}{2}$ secs. Sommer also made three other essays, ranging from a little over 4 miles to 8 $\frac{1}{2}$ miles. Delagrangé made several trials, but could only keep going for 1 mile 860 yards in 2 mins. 8 $\frac{1}{2}$ secs. Molon provided a little excitement by charging into one of the mark-posts, while Mr. Windham again amused the crowd by coming out on his repaired monoplane, only to have it fall asunder again from contact with a stationary motor car. It therefore had again to retire into its shed for its second overhauling.

SOMMER.			DELAGRANGÉ.			LE BLON.		
m.	yds.	s.	m.	yds.	s.	m.	yds.	s.
5	1,408	10 16	1	860	2 8 $\frac{1}{2}$	22	295	30 4 $\frac{1}{2}$
4	401	7 16 $\frac{1}{2}$						
8	3	13 12						
14	1,275	25 30 $\frac{1}{2}$						

Tuesday, 19th.

Treacherous winds on Tuesday made flying very hazardous, and so there were no very long flights made although the day was set apart for the competition for the Leeds Cup, in which the winner was to be the one who covered the greatest distance in three-quarters of an hour. Le Blon was the first away, but in his first attempt did not complete one round. Starting afresh, he kept going for 20 mins. 37 secs., and after the third round he was flying in company with Sommer on his biplane for five laps, when Sommer came down because the wind was affecting his eyes. Delagrangé and Cody both made attempts, but nothing very noteworthy was accomplished, the latter going round the course twice, although he was not always clear of the ground. Soon after five, Sommer went up again and flew for nearly six miles, during the first round flying high over the grand stand.

LE BLON.			SOMMER.		
14 m.	1,395 yds.	20m. 37s.	7 m.	780 yds.	11m. 22s.
			5 m.	1,495 yds.	9m. 49s.

Wednesday, 20th.

In contradistinction to the doings at Blackpool, the strong wind at Doncaster rendered the flying very disappointing. Cody was the only man to leave the ground before noon, and he just made a couple of short flights up and down the course in front of the stands. In the afternoon Sommer thrice tried to get going, but could only complete one lap. Le Blon, as well as Delagrangé, with his new Gnome-engined Bleriot, met with no better success, and the best performance of the day was made by Sommer when it was almost dark, and the wind had almost died away. He then flew for 5 miles 1,495 yds. in 9 mins. 45 $\frac{1}{2}$ secs. He had made a tentative promise to take up General Baden-Powell, but deemed it prudent to persuade the gallant "Chief Scout" to wait until the weather conditions were more certain. During the day Captain Lovelace tried the Bleriot monoplane purchased by Mr. Ballin Hinde, but he did not succeed in inducing it to leave the ground.

FINANCING THE DONCASTER MEETING.

A SIDELIGHT was thrown upon the way in which the Doncaster meeting was engineered, by an action heard in the Chancery Court on Friday before Mr. Justice Swinfen Eady, as the result of which an interim receiver was appointed to take charge of the takings during the week. Mr. Frank Russell, K.C., and Mr. Robertson appeared for the plaintiffs—Charles Holland Hastings, Frank Harris, Hugo Martens, and Louis Hamon; while for the defendants—William Caspar, Byron, Aubrey de Vere Beauclerk, and Frantz Reichel—Mr. Gordon Fellowes appeared for the first-named and Mr. Coldridge for Byron and Beauclerk.

Mr. Russell said they had not been able to serve one of the defendants. The object of the motion was to obtain a receiver of the takings at the Doncaster Aviation Meeting, which commenced that day, upon the footing that a partnership in respect thereof subsisted between the plaintiffs and three of the defendants.

Mr. Fellowes asked that the motion might stand over, as there was a distinct conflict of evidence and he had only had short notice.

His Lordship: What about the receipts in the meantime?—The partnership was absolutely denied. Caspar put in an affidavit before he left London for the meeting, in which he said that he was the servant of those who were running the meeting.

His Lordship: Who are they?—According to his affidavit a syndicate of gentlemen different from the plaintiffs.

His Lordship: Does he mention their names?—No; he says he met them at the aviation meeting at Spa.

His Lordship: It is no good saying that he represents a syndicate.

Mr. Russell: Our ground of complaint is that this gentleman, Mr. Caspar, having got into touch, by means of his co-partners, with the money they provided, has now sought to throw them over, and to get for himself and other friends the benefits of the meeting which he obtained through our help as our partner. Counsel further stated that the defendant Reichel was the sporting editor of the *Paris Figaro*, and according to the evidence was a person of great influence in aviation circles.

His Lordship: That in itself is not sufficient.

Mr. Russell: I was going to add that it was through him that Mr. Caspar secured these contracts with the aviators who are going to perform at Doncaster. He claims to have some percentage of the takings. We deny that he was a partner, though we say he may be entitled to something in the way of expenses.

In reply to his Lordship, Mr. Russell said that the meeting was being held on the Town Moor at Doncaster, which was open to the public; but stands had been erected, to which admission charges would be made.

His Lordship: With whom does the agreement stand?—That is what we do not know, because Mr. Caspar has gone behind our backs and made an arrangement. The Town Council are the authorities there, and our surmise is that the Town Council will take the receipts and, after deducting from them the amount of expenses they have incurred, will hand over the balance to Reichel or Caspar.

cf A206



FLYERS, "WOULD-BE" FLYERS, AND OTHERS AT DONCASTER.—From left to right—Standing: M. Frantz Reichel (Sports Editor of the *Paris "Figaro"*), M. Roger Sommer, Capt. Lovelace, Mr. S. F. Cody, M. Le Blon, Count Van der Burch, M. Delagrangé, ———, and M. Molon. Seated: M. Saunier, Mr. Windham, M. Schreck, and M. Prevot.

His Lordship: There is no gate in the sense that there is no payment for admission to the Town Moor; it lies open to the public.—Yes; but there are great rows of stands, and large takings from these. I should be quite content if a receiver of the takings were appointed over Friday, reserving the rights of the Town Council, and allowing them to deduct any proper sum from the takings which they are entitled to deduct by way of expenses.

His Lordship: Do you know whose servants have control of the stands?—I cannot say, but in the affidavit of Mr. Caspar, and in the public Press, he is described as the director of the meeting.

His Lordship: I do not know that he is responsible for what appears in the public Press.

Mr. Fellowes handed up an affidavit by Mr. Caspar which his Lordship perused, observing that it was the affidavit of "William Caspar, of the Piccadilly Hotel, sports manager."

His Lordship: What money had the plaintiffs?

Mr. Russell: They each put on £5 to make up £25.

His Lordship: Is that all they found?—They found more than that. Mr. Hastings found £40 to enable Mr. Caspar to go to Rheims.

Mr. Fellowes: Quite a personal loan.

Mr. Russell: A personal loan in connection with this aviation meeting. Counsel also stated that a capital of £5,000 had been arranged, and could have been obtained from the Town Council of Doncaster if it had not been for a dispute that arose between

the parties. If it had not been for those gentlemen repudiating the partnership the whole thing would have gone through. Then Mr. Caspar went to somebody else, got the money, and shut the plaintiffs out. In an affidavit Mr. Hastings said that he met the plaintiff Martens, who told him that he was introduced to Caspar, who explained that it would be necessary to go to Rheims and see the aviators who were performing there. Caspar further told him that the scheme could not be carried through without money, and that if Martens found £50 towards the preliminary expenses he would give him a half share of the profits of the association he was going to form. Mr. Martens advanced him £35, and also, at the request of Mr. Caspar, paid his bills at the Waldorf Hotel, as he said he had no money and could not get his things away, and he wanted to start for Rheims.

After further argument by the defending counsel, his Lordship observed that he did not mean to make any order against the Doncaster Town Council, but must make some order or Mr. Caspar might receive the money and hand it over to somebody else. The better plan will be to make an interim order for a week, and the form of the order would be: "To appoint an interim receiver for a week of any moneys payable by the Doncaster Town Council to the defendants or any of them, or to the Association of French Sportsmen (referred to in the affidavit of Mr. Caspar), or otherwise payable in respect of the aviation meeting."

His Lordship added that either party might always move to have the order discharged.

PROGRESS OF FLIGHT ABOUT THE COUNTRY.

(NOTE.—Addresses, temporary or permanent, follow in each case the names of the clubs, where communications of our readers can be addressed direct to the Secretary.)

Bristol Aero Club (STAR LIFE BUILDINGS, BRISTOL).

A SATISFACTORY response was made to the proposal to form an aero club for Bristol, and an enthusiastic meeting was held at the Grand Hotel, Bristol, on the 19th inst. Mr. E. S. Bostock Smith presided, and as the outcome of a full discussion it was decided to form a club under the title of the Bristol and West of England Aero Club. Among the other matters resolved upon was the formation of a small sub-committee to make arrangements for the calling of a general meeting, and the carrying out of other details inseparable from the formation of such a club. Mr. A. Alan Jenkins, Star Life Buildings, was unanimously elected Secretary *pro tem.*, and he will be pleased to hear from any aviators in the vicinity who may wish to join the Club, and to give all information relative to it.

Lancashire Aero Club (CLUB HOUSE, BLACKPOOL).

THE inaugural dinner of the Lancashire Aero Club was held on Wednesday, and so great was the demand for tickets that the Club house proved to be too small, the function therefore taking place at the Hotel Metropole. Lord Lonsdale presided, and the guests included, of course, the leading aviators taking part in the competitions, among them being Mr. Latham, Mr. H. Farman, M. Fournier, M. and Mme. Paulhan, and M. Rougier, while among the distinguished visitors were the Grand Duke Michael and Countess Torby, the Mayor of Blackpool, and several members of the Corporation, Mr. Roger W. Wallace, K.C., Mr. and Mrs. Huntley Walker, Sir Hiram Maxim, and Mr. Ferranti.

Lord Lonsdale extended a welcome to the foreign aviators, and invited them to visit Lowther Castle, to-morrow, Sunday, and arrangements have been made for them to be driven down by motor car.

Northumberland Aero Club (4, ROSEBERY CRES., JESMOND).

THIS Club was formally inaugurated at a meeting at Newcastle on the 14th inst., when Mr. Herewood Brackenbury, of Elswick, presided over a large attendance. The Hon. Charles Parsons was elected President, and Viscount Ridley, Sir Riley Lord, the Lord Mayor of Newcastle (Alderman J. J. Forster), Mr. Gerald Stoney, Professor Stroud, Mr. Rowland Hodge, Mr. A. H. Higgenbottom, and Mr. Brackenbury were elected Vice-Presidents.

The question of holding a flight meeting in the neighbourhood of Newcastle is to be investigated.

Portsmouth Aero Club (ADMIRAL'S HEAD, PORTSMOUTH).

AT a meeting held last week it was decided to form this club, with headquarters as above, and Mr. Patrick Alexander promised to give a series of lectures. At the inaugural meeting Mr. Alexander, after referring to the offer of the War Office to allow the use of 12 acres of ground near Fort Monckton for experimental work, gave some interesting demonstrations with models. After some discussion Mr. Alexander was elected chairman, while Messrs. F. H. Day, J. C. Cooper, G. Powell, Parker, Pinkon, and G. W. Elliott were elected to the committee, and Messrs. Roles and Garnett were appointed hon. secretary and hon. treasurer respectively.

S.W. England Aeronautical Soc. (51, ST. LEONARD'S RD., E. SHEEN)

IT has been decided to hold the model demonstration to-morrow (Sunday) on Barnes Common, instead of, as arranged last week, at Bishop's Park. Members will meet at Barnes Railway Station at 3 p.m. sharp. At 5 p.m. members and friends interested will proceed to the Aero Works, Down Place, King Street, Hammersmith, when tea will be taken, followed by the general meeting at 6.30 p.m. All interested should write to the Secretary.

A SOUTH COAST AERODROME.

AN important scheme for the formation of an aero club and permanent aviation ground at Shoreham was explained to the Mayors of Hove, Brighton and Worthing at the Hove Town Hall last week. By the local representative of Aviators' Finance, Ltd.—Mr. W. Pattett, their architect, Mr. R. J. Lovell, and their solicitor, Mr. G. A. Wingfield—it was pointed out that New Salts Farm at Shoreham had been purchased with the idea of establishing a permanent club and practice ground there for flying men, and as soon as the ground has been prepared, it is proposed to open it with an International flying meeting. A circuit of over four miles will be

arranged, and it is stated that a circuit of nearly ten miles could be covered over the surrounding flat country. On its south side the ground is bounded by the main railway line from London to Worthing, and the Railway Company are intending to build a station for their motor trains at this spot. On the east side the boundary is the railway from London to Brighton *via* Horsham, while on the north the old Shoreham Road is a natural line of demarcation, and it is probable that the Railway Company will shortly build a station close by. The matter is to be further considered by the Town Councils of Hove, Brighton and Worthing.

JUVISY FLIGHT MEETING.

THE outstanding event of the concluding days of last week was the visit of the President of the Republic, while if the meeting is remembered by posterity it will be because it provided the starting place for the magnificent historical flight by Count Lambert over a part of Paris. This is referred to on page 661, so that it is unnecessary to further deal with it here. We therefore take up the story of the flying from the conclusion of Wednesday's flights, where we broke off last week. On Thursday flying was not possible till 4 o'clock, when Latham, who had by then repaired his monoplane, made an attempt to fly, but he could get no farther than the lower end of the course, where a violent gust of wind caught the flyer and brought it to earth, twisting the frame and rendering further flight impossible that day. A few minutes later Paulhan rose and saved the situation, creating a little thrill by passing beyond the boundary of the aerodrome after completing three circuits. He flew away over the outskirts until he was almost out of sight, then, turning, was quickly back in the aerodrome, receiving quite an ovation when immediately afterwards he was being presented to M. Fallières. Count Lambert made an attempt to start, but fouled one of his runners in some way. Gobron, on his Voisin, was more fortunate, flying six rounds in 11 mins. 42½ secs.; while in a second trip for the Totalisation Prize Paulhan completed 11 circuits in 26 mins. Friday was marked by the first serious accident at the meeting, and, by a curious coincidence, the victim was the late Capt. Ferber's assistant, Richer. Although not officially taking part in the competitions, he was practising on the Voisin machine belonging to the Ligue Nationale, with which he has obtained a certain amount of success. He had made two good practice flights early in the morning, and then made some alteration with the object of trying a long essay. He got away in good style, but when attempting to turn lost control of the machine, which crashed down on one wing, and became a shapeless mass of fabric and wires. The aviator was picked up unconscious, and was at once taken to the ambulance station, where it was found that although no bones had been broken his injuries were rather serious. He is, however, progressing favourably. The only flight was by Paulhan, and the way in which he managed his machine was loudly applauded. During the five circuits of the course he covered, his machine was sometimes tilted at alarming angles by the gusty strong wind, but he never failed to bring her round. Saturday last was more or less a blank day, as the strong winds precluded flying, and

the only flyer daring enough to brave the tempest was Latham, who went round the course twice. Similar weather was experienced on Sunday, set apart for the official visit of the Aero Club of France, and it was not till late in the afternoon that Lambert gave a fillip to the proceedings by flying nine laps. Latham and Gobron started soon afterwards, the former continuing for two laps and the latter for four.

Monday saw Bregi, the new Voisin pilot, making his *début* at Juvisy, and he performed very creditably by completing ten circuits in 25 minutes. His mount was the Voisin machine which Paulhan has been using recently. Gobron was the other flyer to actually get into the air and keep going, he covering six laps in a little faster time than Bregi. Of course, the flights of this day were quite overshadowed by Count Lambert's flight round the Eiffel Tower, reported in full elsewhere, but an exciting incident occurred towards the end of the day. M. Blank, who had been practising at Issy with a Bleriot, took it to Port Aviation. He started on a flight, and rose to a height of about 50 ft., when he seemed to lose control, for he dashed into one of the stands with the propeller still revolving. One lady was rather badly cut, and several had narrow escapes, while, of course, the machine was considerably damaged. Tuesday was largely a repetition of Monday, Bregi flying round the course eight times, Lambert five times, and Gobron six times, while the last two had a close duel for the Paul Crétenir prize, which was won by only one-fifth of a second by Gobron. The distance was two kiloms., and Gobron took 2 mins. 2½ secs., while Lambert could not get nearer than 2 mins. 3 secs.

Wednesday, the fourteenth day of the meeting, was the last on which attempts could be made for the Falco prize for the longest flight, and for the total distance prize, but the wind was against the aviators. It was too strong for any but the most daring to attempt to launch themselves into space until about half-past four in the afternoon, when Busson, on the W.L.D., tried to fly, but was not very successful. Then Bregi brought out Paulhan's old Voisin, but he only completed one turn. Then Count Lambert came out, and made a passenger flight, carrying with him Count Malynski, who has purchased one of the Wright machines. Two turns of the course were made, the first in 2 mins. 24 secs., while the total time for the two laps was 4 mins. 40 secs. The only other flight was by Bregi, who also carried a passenger—Mlle. Jeanne Laloë—round the course once.



Poster for the Flight Meeting at Port Aviation.

HOW TO GLIDE.

By WILBUR WRIGHT.

(Continued from page 648.)

Lilienthal's Tangential.

LILIENTHAL was the first to discover this exceedingly important fact, which is fully set forth in his book, "Bird Flight the Basis of the Flying Art," but owing to some errors in the methods he used in making measurements, question was raised by other investigators not only as to the accuracy of his figures, but even as to the existence of any tangential force at all. Our experiments confirm the existence of this force, though our measurements differ considerably from those of Lilienthal. While at Kitty Hawk we spent much time in measuring the horizontal pressure on our unloaded machine at various angles of incidence. We found that at 13° the horizontal pressure was about 23 lbs. This included not only the drift proper, or horizontal component of the pressure on the side of the surface, but also the head resistance of the framing as well. The weight of the machine at the time of this test was about 108 lbs. Now, if the pressure had been normal to the chord of the surface, the drift proper would have been to the lift (108 lbs.) as the sine of 13° is to the cosine of 13° , or $\frac{.22 \times 108}{.97} = 24 + \text{lbs.}$; but this slightly exceeds the total pull of 23 lbs. on our scales. Therefore, it is evident that the average pressure on the surface, instead of being normal to the chord, was so far inclined towards the front that all the head resistance of framing and wires used in the construction was more than overcome.

In a wind of 14 m.p.h., resistance is by no means a negligible factor, so that tangential is evidently a force of considerable value. In a higher wind which sustained the machine at an angle of 10° , the pull on the scales was 18 lbs. With the pressure normal to the chord, the drift proper would have been $\frac{.17 \times 98^*}{.98} = 17 \text{ lbs.}$, so that although the higher wind velocity must have caused an increase in the head resistance, the tangential force still came within 1 lb. of overcoming it. After our return from Kitty Hawk we began a series of experiments to accurately determine the amount and direction of the pressure produced on curved surfaces when acted upon by winds at the various angles from zero to 90° . These experiments are not yet concluded, but in general they support Lilienthal in the claim that the curves give pressures more favourable in amount and direction than planes; but we find marked differences in the exact values, especially at angles below 10° . We were unable to obtain direct measurements of the horizontal pressures of the machine with the operator on board, but by comparing the distance travelled in gliding with the vertical fall, it was easily calculated that at a speed of 24 miles per hour the total horizontal resistances of our machine, when bearing the operator, amounted to 40 lbs., which is equivalent to about $2\frac{1}{2}$ -h.p.

Power needed for Flight.

It must not be supposed, however, that a motor developing this power would be sufficient to drive a man-

bearing machine. The extra weight of the motor would require either a larger machine, higher speed, or a greater angle of incidence, in order to support it, and therefore more power. It is probable, however, that an engine of 6 h.p., weighing 100 lbs., would answer the purpose. Such an engine is entirely practicable. Indeed, working motors of one-half this weight per horse power (9 lbs. per horse power) have been constructed by several different builders. Increasing the speed of our machine from 24 to 33 miles per hour reduced the total horizontal pressure from 40 to about 35 lbs. This was quite an advantage in gliding as it made it possible to sail about 15 per cent. further with a given drop. However, it would be of little or no advantage in reducing the size of the motor in a power-driven machine, because the lessened thrust would be counterbalanced by the increased speed per minute.

The problem of increasing the speed will be much simpler in some respects than that of increasing the speed of a steamboat; for, whereas in the latter case the size of the engine must increase as the cube of the speed, in the flying machine, until extremely high speeds are reached, the capacity of the motor increases in less than simple ratio; and there is even a decrease in the fuel consumption per mile of travel. In other words, to double the speed of a steamship (and the same is true of the balloon type of airship) eight times the engine and boiler capacity would be required, and four times the fuel consumption per mile of travel; while a flying machine would require engines of less than double the size, and there would be an actual decrease in the fuel consumption per mile of travel. But looking at the matter conversely, the great disadvantage of the flying machine is apparent, for in the latter no flight at all is possible unless the proportion of horse-power to flying capacity is very high; but, on the other hand, a steamship is a mechanical success if its ratio of horse-power to tonnage is insignificant. A flying machine that would fly at a speed of 50 miles an hour with engines of 1,000-h.p., would not be upheld by its wings at all at a speed of less than 25 miles an hour, and nothing less than 500-h.p. could drive it at this speed. But a boat which could make 40 miles per hour with engines of 1,000-h.p. would still move 4 miles an hour even if the engines were reduced to 1-h.p.

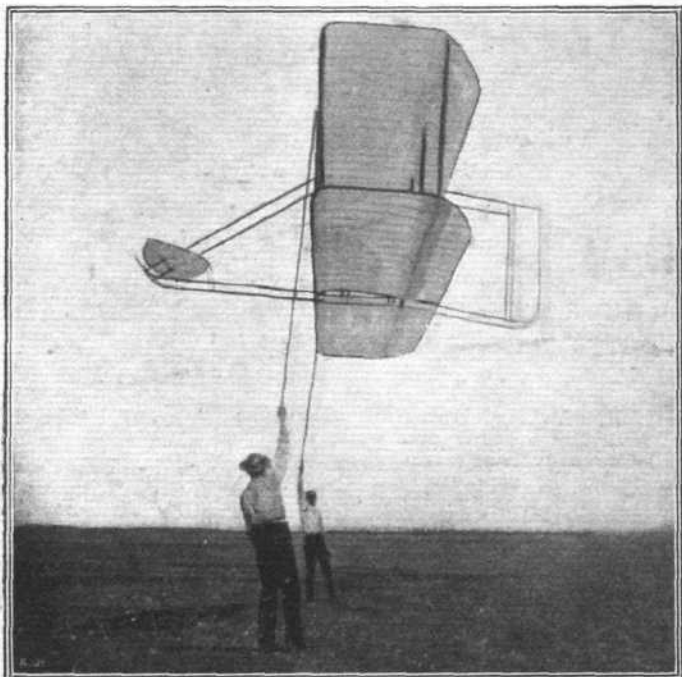
The problems of land and water travel were solved in the 19th century because it was possible to begin with small achievements and gradually work up to our present success. The flying problem was left over to the 20th century, because in this case the art must be highly developed before any flight of any considerable duration at all can be obtained.

Soaring Flight.

However, there is another way of flying which requires no artificial motor, and many workers believe that success will first come by this road. I refer to the soaring flight, by which the machine is permanently sustained in the air by the same means that are employed by soaring birds. They spread their wings to the wind, and sail by the hour, with no perceptible exertion beyond that required to balance and steer themselves. What sustains them is not definitely known, though it is almost certain that it is a rising current of air. But whether it be a rising current or something else, it is as well able to support a flying

* The travel of the centre of pressure made it necessary to put sand on the front rudder to bring the centres of gravity and pressure into coincidence, consequently the weight of the machine varies from 98 lbs. to 108 lbs. in the different tests.

machine as a bird, if man once learns the art of utilising it. In gliding experiments it has long been known that the rate of vertical descent is very much retarded and the duration of the flight greatly prolonged, if a strong wind blows *up* the face of the hill parallel to its surface. Our machine, when gliding in still air, has a rate of vertical descent of nearly 6 feet per second, while in a wind blowing 26 miles per hour up a steep hill, we made glides in which the rate of descent was less than 2 feet per second. And during the larger part of this time, while the machine remained exactly in the rising current, *there was no descent at all, but even a slight rise*. If the operator had had sufficient skill to keep himself from passing beyond the rising current, he would have been sustained indefinitely at a higher point than that from which he started.



Testing a Glider by Soaring.—The above view shows the glider soaring stationary in the wind. The machine shown is the early 1902 model, with the fixed double tail before it was converted into a rudder.

These slow glides in rising currents probably hold out greater hope of extensive practice than any other method within man's reach, but they have the disadvantage of requiring rather strong winds and very large supporting surfaces. However, when gliding operators have attained greater skill, they can, with comparative safety, maintain themselves in the air for hours at a time in this way, and thus by constant practice so increase their knowledge and skill that they can rise into the higher air and search out the currents which enable the soaring birds to transport themselves to any desired point by first rising in a circle, and then sailing off at a descending angle.

The Forward Component.

In one trial with the machine flying alone as a kite in a wind of 35 m.p.h. on the face of a steep hill 100 ft. high, there was not only a lift but a pull forward in the direction from which the wind blows, thus overcoming both gravity and the speed of the wind. We tried the same experiment with a man on it, but found danger that the forward pull would become so strong that the men holding the ropes would be dragged from their insecure foothold on the slope of the hill. So this form of experimenting was discontinued after four or five minutes' trial.

Final Conclusions.

In looking over our experiments of the past two years, with models and full-size machines, the following points stand out with clearness:—

1. That the lifting power of a large machine, held stationary in a wind at a small distance from the earth, is much less than the Lilienthal table and our own experiments would lead us to expect. When the machine is moved through the air, as in gliding, the discrepancy seems much less marked.
2. That the ratio of drift to lift in well shaped surfaces is less at angles of incidence of 5° to 12° than at an angle of 3° .
3. That in arched surfaces the centre of pressure at 90° is near the centre of the surface, but moves slowly forward as the angle becomes less, till a critical angle, varying with the shape and depth of the curve, is reached, after which it moves rapidly toward the rear till the angle of no lift is found.
4. That with similar conditions, large surfaces may be controlled with not much greater difficulty than small ones, if the control is effected by manipulation of the surfaces themselves, rather than by a movement of the body of the operator.
5. That the head resistances of the framing can be brought to a point much below that usually estimated as necessary.
6. That tails, both vertical and horizontal, may with safety be eliminated in gliding and other flying experiments.
7. That a horizontal position of the operator's body may be assumed without excessive danger, and thus the head resistance reduced to about one-fifth that of the upright position.
8. That a pair of superposed, or tandem surfaces, has less lift in proportion to drift than either surface separately, even after making allowance for weight and head resistance of the connections.

What Followed.

Afterward laboratory experiments were undertaken for the purpose of determining for ourselves the amount and direction of the pressures produced by the wind upon plane and arched surfaces exposed at various angles of incidence.

The results having indicated the possibility of a gliding machine capable of much better performance than any previously built by us, we set about designing a new one for the 1902 season, and in August repaired to our old camp at the Kill Devil hills. We found that in our absence the wind had blown the sand from under the ends of our building and let them down fully 2 ft., so that after a rain the floor was covered with water to a depth of about 20 ins. We, therefore, proceeded to raise the building to its former level, and built a small addition to make it large enough to house the new machine.

(To be continued.)



New Fuel for Flyers.

ESPECIALLY suited for aeronautical motors, the Anglo-American Oil Company, Limited, are now introducing a spirit, to be known as "aeronaph," of which the range of boiling points has been determined with special reference to the requirements of the engines of aeroplanes and dirigible balloons.

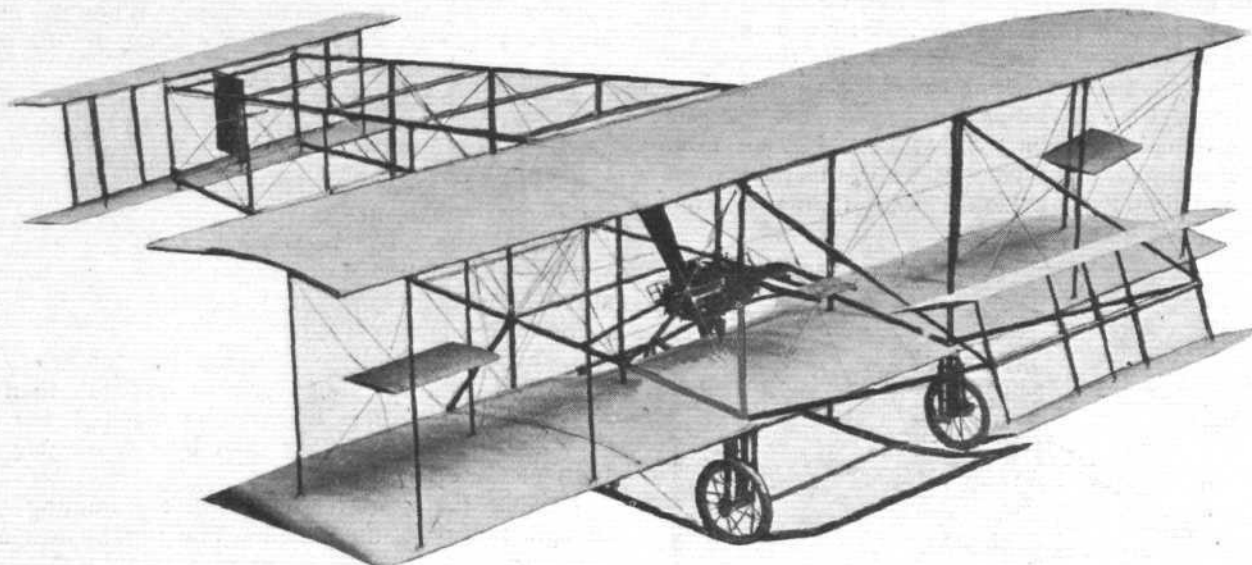
FLYER SILHOUETTES FROM THE PARIS SALON.

(Continued from page 652.)

Dutheil-Chalmers.

Biplane designed somewhat on Voisin lines, but remarkable for the prevalence of wire-suspended members. The pilot's seat is

A feature in the design which is uncommon is that the outrigger for the tail springs from the front struts of the main planes instead of from the rear spars. This increases the length of an already long member, and thus adds to the difficulties of transportation when

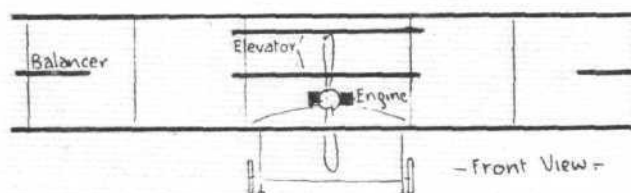
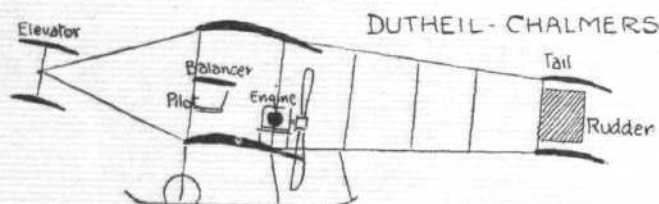


Dutheil-Chalmers Biplane at Paris Flight Show.

hung on wires, as also is the steering-wheel, and the same system has been adopted for supporting the short spindles on which the balancing-planes between the main decks are mounted. This latter

dismantled, but at the same time it affords a convenient support for the engine, and otherwise makes for straightforward construction.

The chassis combines runners and wheels, the latter being spring



detail is well illustrated in the accompanying photograph; the arrangement of wires there shown applies in the main to the other members which are less clearly visible.

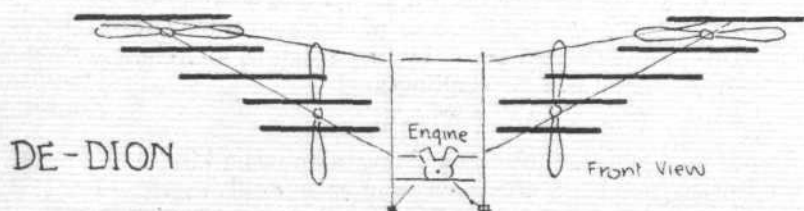
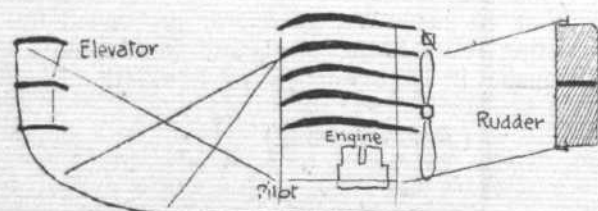
suspended. This portion of the machine reflects the source of the design, which we are informed originates from the makers of the Avia monoplane.

De Dion.

Multiple-decked flyer defined by the makers as a "dix plan." In reality it properly belongs to the category of "five-deckers," since on either side of the centre body there are but five tiers of supporting surfaces. Each half deck, that is to say, each surface element on either side of the machine, is independently mounted on a longitudinal hinge, so that it can tilt out of the horizontal. All

edges are horizontal, but this condition is disturbed in the event of loss of equilibrium, and the object of the De Dion system is to provide a means of maintaining the balance by the application of this principle, which is analogous to that of the dihedral angle in the Antoinette monoplane and to the description of which we would refer our readers for further reference to the subject.

Four chain-driven propellers are fitted. In front of the machine is a biplane elevator, while behind is a biplane rudder intersected by



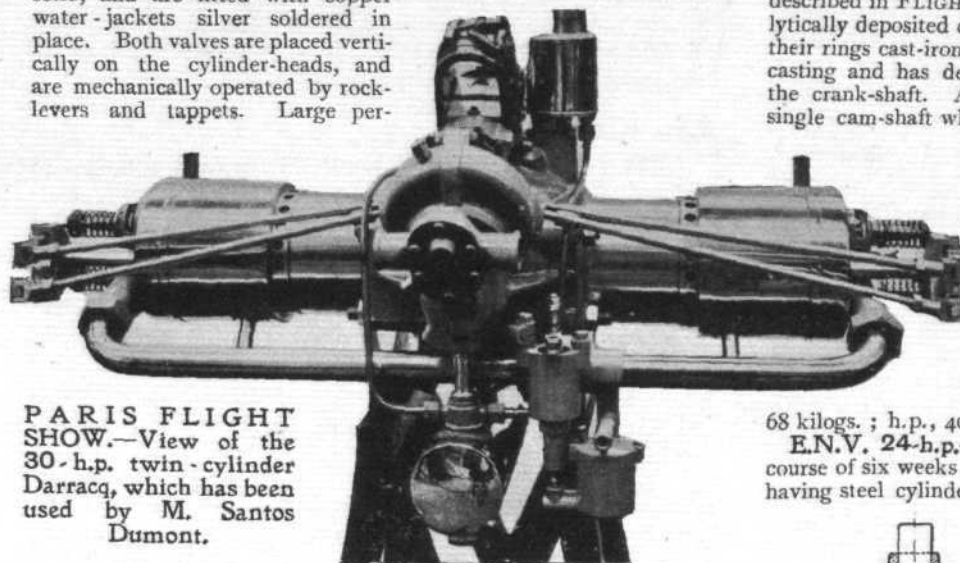
the decks are connected together, so that this tilting is reproduced simultaneously throughout, but in its present state the machine is unfinished in respect to the controlling mechanism. The object of thus pivoting the decks is to provide a means of balancing the machine by altering the "projected area" of the surfaces on either side. The air pressure on a plane is normal to its leading edge, and if the leading edge is not horizontal the vertical component of the pressure is reduced below the maximum. Normally, all the leading

a horizontal fixed tail. The construction of the elevator outrigger resembles the Wright design.

Dimensions.—Span, 12 metres; supporting surface, 54.2 sq. metres; area of supplementary surfaces, 8 sq. metres; elevator span, 3 metres; chord, 0.7 metre; tail span, 2.6 metres; chord, 0.7 metre. Engine, 100-h.p. 8-cyl. De Dion. Propellers, four, two-bladed, wood, chain-driven at 450 r.p.m.
(To be continued.)

FLIGHT ENGINES AT PARIS SHOW—(continued from page 626).

Darracq 30-h.p.—Twin-cylinder, horizontal opposed type, water-cooled engine. The cylinders are made of steel, cut from the solid, and are fitted with copper water-jackets silver soldered in place. Both valves are placed vertically on the cylinder-heads, and are mechanically operated by rock-levers and tappets. Large per-



PARIS FLIGHT SHOW.—View of the 30-h.p. twin-cylinder Darracq, which has been used by M. Santos Dumont.

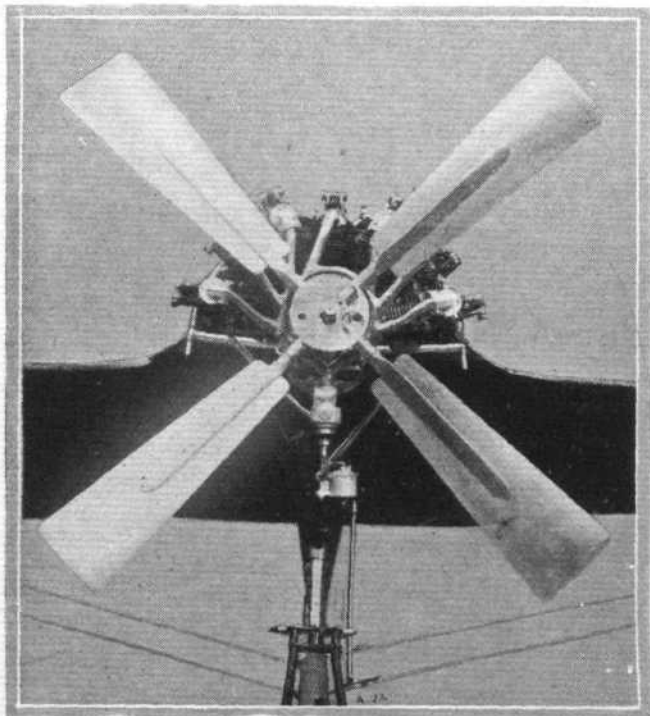
orations (about $\frac{1}{2}$ in. in diameter) relieve the exhaust at the end of the stroke. An inclined shaft, bevel driven from the crank-shaft, drives the magneto and the water-pump in a very neat manner, and lends considerably to the compactness of the design.

Oil is sprayed into the crank-chamber by a pump, and any lubricant which tends to come out into the atmosphere through the relief-valve is trapped and drained back into the sump.

Dimensions.—130 mm. by 120 mm.; weight, 52 kilogs.; h.p., 30 at 1,500 r.p.m.; price, 6,000 francs.

R.E.P. 35-h.p.—Seven-cylinder semi-radial air-cooled engine, the design of which has already been described in FLIGHT. The latest model, however, now has separate inlet and exhaust-valves placed diagonally in the cylinder-heads instead of the combined valves used formerly. Both valves are controlled by the same rock-lever, which is operated by a double-acting tappet-rod. The tappet-rod motion is communicated by a cam-ring having a grooved path. The new model is about 20 kilogs. heavier than its prototype owing to this change in design, but the combined valves were not found altogether satisfactory, and were abandoned.

Dimensions.—85 mm. by 95 mm.; weight, 90 kilogs.; h.p., 35 at 1,400 r.p.m.; price, 11,000 francs.



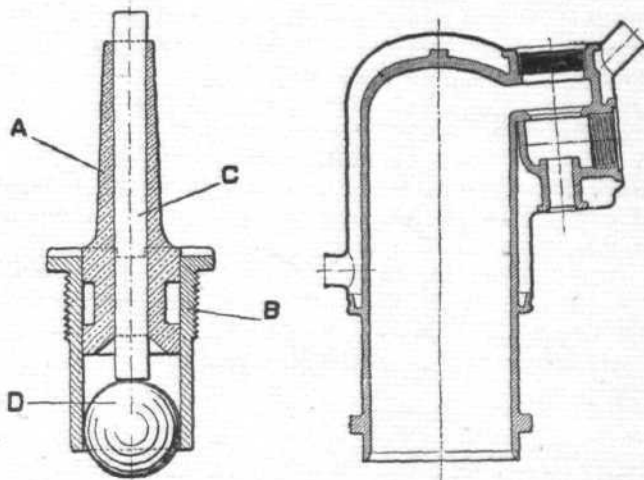
PARIS FLIGHT SHOW.—In the new R.E.P. engine, here shown in place on a monoplane, there are two separate valves in place of the combined valve which formerly controlled both inlet and exhaust.

E.N.V. 40-h.p.—Eight-cylinder V-type water-cooled engine, built on the same lines exactly as the 60-h.p. model already described in FLIGHT. The cylinders are cast-iron, but have electrolytically deposited copper water-jackets. The pistons are steel and their rings cast-iron. The crank-chamber is a one-piece aluminium casting and has detachable end-plates. Five ball-bearings support the crank-shaft. All the valves are mechanically operated from the single cam-shaft which lies above the crank-shaft. Lubrication is provided by a pump which forces oil through the crank-shaft, up the connecting-rods and into the gudgeon-pins. The oil-hole in the gudgeon-pins is set so that it only coincides with the feed-pipe on the down stroke of the piston in order not to admit oil to the cylinder walls too near the combustion-chamber.

A minor detail in construction which is new on this model is the introduction of a steel ball as an intermediate member between the cams and the valve tappet-rods.

Dimensions.—85 mm. by 90 mm.; weight, 68 kilogs.; h.p., 40 at 1,500 r.p.m.; price, 7,500 francs.

E.N.V. 24-h.p.—This model may be expected in London in the course of six weeks or so. It will differ from the standard design in having steel cylinders cut from the solid and a combined inlet and



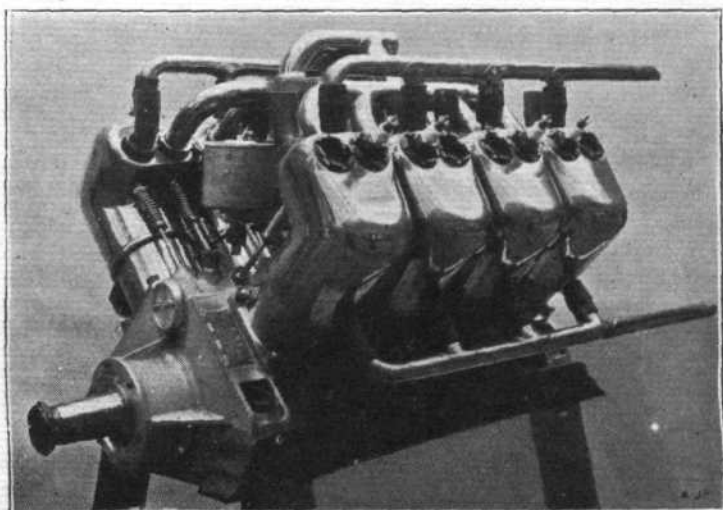
Paris Flight Show.—Sectional sketch, showing the valve-tappet guide on the E.N.V. engine. A = guide, B = hard steel bush, C = push-rod, D = hard steel ball.

Paris Flight Show.—Sectional sketch, showing the electrolytically deposited copper water-jacket on the E.N.V. engine; also the inclined valves.

exhaust-valve in each cylinder-head. There will only be four cylinders.

Dimensions.—109 mm. by 110 mm.; weight, approx. 30 kilogs.; h.p., 24 at 1,200 r.p.m.; price, 4,000 francs.

(To be continued.)



PARIS FLIGHT SHOW.—The new 40-h.p. E.N.V. engine, showing the position of the carburettor.

AVIATION AND AIRSHIP NEWS.

Maurice Farman Flies Across Country for 55 mins.

AFTER a week's rest, Maurice Farman again improved his own record on Wednesday last by a splendid cross-country flight, during which he four times traversed his usual 12 mile circuit over the country round Buc, which involves passing over undulating country intersected by rivers, &c. He remained aloft for 55 mins., and maintained a fairly even altitude between 100 and 150 ft.

"Aerial Automobilmism."

SUCH was the subject chosen by Dr. H. S. Hele-Shaw for his Presidential Address to the Institution of Automobile Engineers, on Wednesday of last week. In the course of his address, Dr. Hele-Shaw drew attention to the very great differences in dimensions of wing area, &c., of the various flying machines with which almost exactly similar results had been obtained. The pressure on our space this week renders it necessary to hold over our report of the meeting, but we hope to give it in full shortly.

Models for Manchester.

MR. J. EDMOND LEIGH, a member of the committee of the Manchester Aero Club, has been appointed to arrange the Model Aeroplane Show which the Club propose holding in Manchester in a short time.

Should any of the readers of FLIGHT be interested in this show, they should at once communicate with Mr. Leigh, at 94, Market Street, Manchester, who will supply full particulars of the arrangements.

N.E.C. Flight Engines.

SOME extremely satisfactory results have been obtained by the New Engine Company from some recent bench-tests carried out by them at their Acton Hill works, where their novel form of two-stroke motor for flyers has proved itself to exceed all expectations as regards its output of power at high speeds. The 4-cyl. model, which is nominally of 25-30-h.p., and has a bore of 3 in. by a stroke of $4\frac{1}{4}$ in., has been found to give no less than 40 b.h.p. at 2,000 revs. per min., and to show an almost absolutely equal torque between that speed and 1,000 revs. per min. This engine weighs 140 lbs., and it is hoped that a couple of them may take part in this week's programme at Blackpool.

Bleriot XI at its Last Home.

WITH a deal of elaborate ceremony, the historic Bleriot monoplane on which M. Bleriot succeeded in crossing the Channel was taken from its bed of roses at the Salon and placed in the Conservatoire Nationale des Arts et Metiers, to which it has been presented by the proprietors of *Le Matin*. The flyer, which had its wings folded up, was taken through the streets in a procession, to which the scarlet robes of the Mayor of Dover, accompanied by the Recorder and Town Clerk with regalia, gave quite a touch of colour. A stop was made at the offices of *Le Matin*, where Mr. Emden was presented with an enamel reproduction of the gold medal given to Bleriot. The ceremony of handing the flyer over to the museum authorities was performed in the quadrangle, and speeches were given by M. Madéline, of *Le Matin*, Mr. Emden (Mayor of Dover), M. Bleriot, and M. Bouquet, the director of the museum, who thanked the donors for their gift. In the evening the Paris

Municipal Council gave a reception at the Town Hall in honour of the occasion, and on the following day M. Millerand, Minister of Public Works, was the host at a banquet in honour of the British visitors.

Bleriot at Buda-Pesth.

DESPITE a fairly high wind which blew across the Rakosfelde at Buda-Pesth on Sunday last, Bleriot succeeded in making three flights on his monoplane, thereby delighting the huge crowd which had assembled to watch him. The second attempt was the longest, when M. Bleriot was able to keep aloft for 26 mins. 38 secs., while in the other two he came down before ten minutes had expired. At the conclusion of the long flight the cross-Channel hero was warmly praised by the Archduke Joseph, who led him to the Royal box and presented him to the Archduchess.

Orville Wright Leaves Germany.

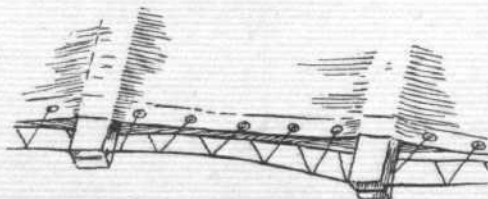
ON Saturday last Orville Wright and his sister left Berlin for Paris, where a week was to be spent before coming back to England. The day before he left Germany, Orville Wright had the honour of making what might be called a spectacular flight before the Kaiser, who was accompanied by the Kaiserin and Princess Victoria Louise. The flight lasted about 20 mins., and during that time the Kaiser saw the flyer carry out a number of operations. First it soared at a height of 300 ft., then it swooped down and skimmed so close to the heads of the Royal party that the Kaiserin instinctively pulled the Kaiser away. The turning movements especially interested the Kaiser, and when Orville Wright came down he spent nearly an hour in explaining the working of the machine to his Imperial visitor. Before leaving the ground the Kaiser handed to Miss Katherine Wright a large autographed photograph of himself as a souvenir. The Wrights expect to arrive in London on Monday, and it is probable that Orville will go down to Shellbeach, and test some of the Wright machines which have been built there by Messrs. Short Brothers.

Wright Flyer Accident at Berlin.

ON Monday an accident occurred to the Wright biplane which Orville Wright had been using. It was being used for practice by Capt. Engelhardt's assistant, Keidel, and by some means it suddenly tumbled to earth from a height of about 35 ft. Fortunately, the aviator escaped without serious hurt, but the machine was badly damaged.

New Ae.C.F. Pilots.

AT the last meeting of the Committee of the Aero Club de France, it was decided to grant certificates as pilot-aviators to Count de Lambert, M. Jean Gobron, and Mr. Glenn H. Curtiss.



"Flight" Copyright.

PARIS FLIGHT SHOW.—Sketch illustrating the use of wire for the trailing edge, and showing how the surface fabric can be stretched over the wing frame by lacing. ■

Paris and Frankfort Exhibitions Closed.

LAST Sunday was the closing day both of the Exhibition at Frankfort, which has been remarkable for its show of dirigibles, and of the first purely Aviation Salon in Paris, where the number of aeroplanes on view have attracted a tremendous amount of attention.

Renner Dirigible.

SATURDAY last saw the first ascent of a dirigible balloon at Vienna, where, in the Prater, the Emperor saw the dirigible "Estarc," constructed by the Renner Brothers, carry out some manoeuvres. The owners are quite young, but they demonstrated that they could make their craft answer very readily to its helm. During a 15-minute run it developed a speed of about fifteen miles an hour. On a second attempt being made in the afternoon a slight accident occurred, which might have had serious consequences. While rising, the hull of the craft struck a shed, and the younger brother was thrown out. This, of course, disturbed the balance of the machine, which drifted away, but was safely brought to earth at Deutsch Wagram.

It is interesting to note that the gas-vessel of this dirigible was constructed of material made by the Austro-American Indiarubber Manufacturing Co., who have for some time made a speciality of fabrics for dirigible and aeroplane work.

CORRESPONDENCE.

* * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

HELICOPTERES.

To the Editor of FLIGHT.

SIR,—I have for several months past been working on what I thought quite an original idea, but to my intense astonishment, on looking at the photograph of the Paris Flight Show on page 609, I saw almost the same thing, viz., the "Vuitton Helicoptère." I should be extremely obliged if you can tell me why this machine is not more popular, and where I could get any particulars and drawings of it, as I don't want to waste my time trying to produce a thing which is already on the market.

Thanking you in anticipation, believe me,

Yours sincerely,

New Cross.

EDW. J. HERBERT.

[Reference was made to the self-lifting problem on page 649, and it will be further dealt with in FLIGHT. The Vuitton-Huber helicopter is dealt with in the Paris Show report.—ED.]

STARTING MODEL FLYERS.

To the Editor of FLIGHT.

SIR,—In your columns I have seen many descriptions of successful model flyers, but they all appear to require to be launched by hand. Can you tell me if any have yet been made which will rise from the ground without external assistance.

Glasgow.

Yours faithfully,

C. E.

[Models have been made which are fitted with wheels for running along the ground, but in general the energy in an elastic motor is not sufficient for the requirements of starting as well as flight.—ED.]

TERMS IN FLIGHT.

To the Editor of FLIGHT.

SIR,—If your correspondent, Mr. E. V. Hammond, or any other interested reader, would consult any glossary of nautical terms, he will find the words I have recommended used for similar parts in the sailing machine as I would use for the flying machine. I have not coined a single word, but simply employ such as are common and well understood by a large section of the community—with one exception, however. The word "countervail" I first met with on the Thames thirty years ago. It was the name given to a small

Progress at Handley Page Works.

OUT of eight flyers who are making attempts to win the *Daily Mail* £1,000 prize for a circular mile flight by a British aviator, we understand that five of them are using "H.P." materials, and three are relying upon "H.P." propellers, which have proved so successful on Mr. Jack Humphrey's machine, enabling him to rise from the ground in thirty yards. In addition to making these propellers, Messrs. Handley Page are making complete flying machines, and any motor manufacturer may have a flyer designed to suit his engine. Among orders recently received is one from Major Baden Powell for an aeroplane which embodies the result of his experiences with the machine he has been testing for some time on the Aeronautical Society's ground at Dagenham. Quite recently the firm have sold four of their monoplanes, all of which are guaranteed to make satisfactory flights.

A New British Flight Engine.

ADVANCE particulars have been issued relative to a new design of engine specially intended for flight work, and known as the "R.H." It is of the 4-cyl. type, having cylinders of a bore and stroke of 5 ins., and therefore of 40-h.p. by R.A.C. rating, but it is said to be capable of running up to 70-h.p. It will be especially light, and among the characteristic features will be a fly-wheel with wire spokes on the Rudge-Whitworth system, and a duplicate ignition system firing simultaneously.

metal fin attached to a racing boat to prevent the tendency of the stern to swing or "slew" round against the helm in a strong side wind. I employ the word in a similar way, and prefer it to "stabilisator."

Seeing we have already in use so many nautical terms—pilot, deck, rudder, spar, keel, slew, stream line, &c.—I but commend a further selection and their employment as elsewhere used, where they are neither "grotesque" nor even likely to be "relegated to oblivion."

Those who are familiar with the rigging and handling of our "white-wings" will regret with me the coining of clumsy words and the misuse of terms common in a kindred sport and industry.

Faithfully yours,

T. OSBORN SMITH.

AEROPLANE ENGINES.

To the Editor of FLIGHT.

SIR,—I have noted the correspondence in your journal on the above subject. Surely there are engineering firms or capitalists in England with enough enterprise to undertake the construction of one or two possible propositions.

If I produce complete working drawings of an engine in which are embodied the following features, has anyone the pluck to build a sample one?—

1. 30 per cent. to 50 per cent. lighter (h.p. for h.p.) than the ordinary engine.
2. Motion-shaft has eight thrust points in each revolution, ensuring an equal stress throughout the entire rotation.
3. Is two-cycle with all the advantages of the best four-cycle petrol engine on the market.
4. Perfect water-jacket, or may be air-cooled.
5. Simple in design and cheap to construct.
6. No pinions or other gears; no weak parts.
7. Cannot back-fire; perfect synchronism.
8. Only one valve, mechanically operated, and no springs.
9. Ball-bearings on motion-shaft.
10. The motion-shaft can be either vertical or horizontal.

Yours truly,

NIL DESPERANDUM.

METAL VERSUS WOODEN PROPELLERS.

To the Editor of FLIGHT.

SIR,—It would be interesting to readers of FLIGHT to know the name of the metal propeller mentioned in last week's FLIGHT by Mr. Rogers, and when and where it proved itself to give a much

greater thrust than any other propeller on the market. I think it is very heavy, and does not compare favourably with a wooden propeller. I supplied a 6-ft. wood and metal propeller to the Empress Motor Co., Manchester, this week; it only weighed 6½ lbs., and it will stand a greater breaking strain, and give a greater thrust, than any other wooden or metal propeller on the market. I have also supplied Patrick V. Alexander, Esq., with three propellers, one of which he has tested on his spinning table; and he tells me the travelling thrust is far in excess of the static thrust. I am not in a position to give the exact figures yet, but when the tests are completed I hope to publish them, with Mr. Alexander's permission.

Yours faithfully,
WILLIAM COCHRANE.

In regard to Mr. Rogers' letter of last week, we received the following correction, too late for inclusion:—

"Referring to our letter of October 8th, 'It appears the objection to metal propellers is in consequence of the possibility of hidden flaws appearing in the metal, but there are quite as many flaws in wood as in metal, and there have been several failures in wooden aeroplane propellers. Also the boss of a wooden propeller where the greatest strain occurs must, of necessity, be of metal.' The above paragraph should come in our letter after the words 'and are for those reasons most unreliable.'"

"Please omit the words 'The propeller used in "La Republique" was of this type.'"

MODELS AT BLERIOT BANQUET.

To the Editor of FLIGHT.

SIR,—Referring to the banquet to M. Bleriot at the Hotel Cecil recently, we notice you state that all the models, including a very fine one of the Bleriot monoplane, were lent for the occasion by a single firm. In justice to ourselves we would inform you that the only Bleriot model lent was an exact replica (to one-sixth scale) of M. Bleriot's famous "No. XI." This was one of a number of scale models made by us, and was given the place of honour directly in front of the chairman. We had another monoplane scale model there which we had recently exhibited at Olympia; and we were also pleased to notice two fine models, which, we believe, were by Mr. G. P. B. Smith, who did so well at Wembley Park on September 11th.

Yours faithfully,
Kingston-on-Thames. T. W. K. CLARKE AND CO.

STARTING A FLYER.

To the Editor of FLIGHT.

SIR,—When starting a flying machine from the ground are the propellers enough to get up the needed speed, or are the wheels connected with the engine? As others who have not seen a full-sized machine may be also interested in the question, perhaps you would reply through your valuable paper.

I am, yours truly,
Dublin. A. COLE.

[The thrust of the propellers is alone employed for starting, the wheels being totally unconnected with the engine.—ED.]

TRIPLANE GLIDERS.

To the Editor of FLIGHT.

SIR,—The kindness of your letter is my excuse for troubling you further.

My calculations for a glider (biplane) indicate a machine larger than I can conveniently handle.

I would like to know if there is any practical objection to a triplane, to reduce the width of the machine.

Faithfully yours,
West Wycombe. CHAS. E. DAWSON.

[While there is not, so far as we can say, any objection to a triplane, from a constructional point of view a very short span glider might prove more difficult to control in respect to lateral stability; the experiment would be interesting and instructive.—ED.]

LIGHT MOTORS AND WING MOTION.

To the Editor of FLIGHT.

SIR,—Could you tell me how light it is possible to construct a motor of ½-h.p.; also how much h.p. does a pigeon develop in full flight, and how often does it flap its wings per minute?

Yours truly,
Holborn. NOVICE.

PUBLICATIONS RECEIVED.

Aerial Navigation of To-Day. By Charles C. Turner. London: Seeley and Co., Ltd. Price 5s. net.
The Conquest of the Air. By Alphonse Berget. London: William Heinemann. Price 12s. 6d. net.
Actions and Reactions. By Rudyard Kipling. London: Macmillan and Co., Ltd. Price 6s.

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NEW COMPANIES REGISTERED.

Brighton International Aviation Club and Grounds, Ltd.—Capital £300, in £1 shares. Manufacturers of and dealers in aeroplanes, flying machines and balloons, club proprietors, &c.
Nicholson Aeroplane Syndicate, Ltd.—Capital £1,500, in £1 shares (300 founders). Formed to acquire from A. H. Nicholson the benefit of a certain invention for improvements in flying machines, &c. First directors, A. E. M. Haes and N. E. Holden.

✱ ✱ ✱ ✱

Aeronautical Patents Published.

Applied for in 1908.

Published October 14th, 1909.

19,677. A. J. FREDRIKSON. Flying machines or airships.
21,618. J. DONOVAN. Mode of and apparatus for flying.

Applied for in 1909.

Published October 7th, 1909.

3,202. J. MEANS. Controlling apparatus for flying machines.
13,670. K. L. W. GEEST. Airships or flying machines.

Published October 14th, 1909.

19,822. SOC. ANON. "ASTRA." Feeding ballonets on airships.

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