

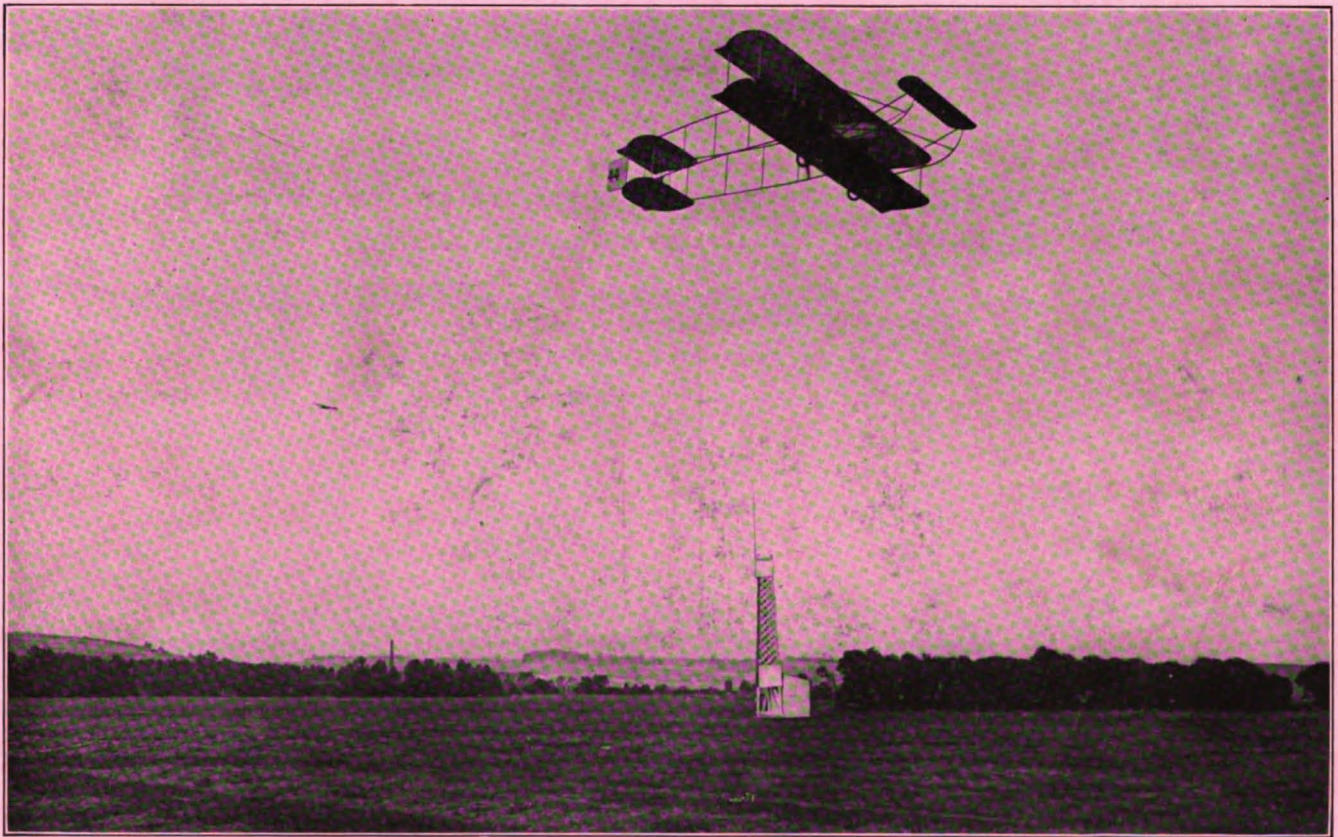
INDEXED.

AIRCRAFT

Vol. 2

APRIL, 1911

No. 2



THE MAURICE FARMAN BIPLANE WITH WHICH WERE WON THE TWO BIG MICHELIN PRIZES RECENTLY

15 CENTS
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EDITED BY
ALFRED W. LAWSON

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Vol. 2. No. 2

NEW YORK, APRIL, 1911

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AIR-COURAGE vs. HEIGHT FEAR

By Henry A. Wise Wood

ONE of the strange, and hardly-to-have-been-looked-for developments in the sport of flying is the fearlessness with which the average individual seats himself for the first time in an airplane and unconcernedly sails away. This is noticeably true of women, who will rush in alarm from the minor perils of life to cast themselves at the skids of the first airman they meet, and beg to be taken aloft. Fearful of a mouse, they attempt the moon, as it were, without hesitation. So universal, indeed, is the interest of women in flight that it may be said to represent an actively favorable and hopefully expectant attitude on the part of the whole sex—which is a decidedly helpful influence of great value. Against this generalization, however, there stands the testimony of a body of solid and respectable citizens—men who, averring that they have been compelled by their wives to promise to forego the pleasures of flying, stay safely aground. Still, the testimony of these wife-anchored, but otherwise possible enthusiasts, does not seem to bear upon the point at issue, because it fails to prove that their wives are, themselves, afraid to fly. Besides, we suspect that this "The woman, she held me" attitude will quickly yield as the sport advances; and the veriest earth-clinger be released from the clod-in obedience to the law that reluctance varies inversely as the square of the safety with which a temptation may be embraced.

But, to return seriously to the subject in hand, it may broadly be said, the writer believes, that we unexpectedly find ourselves not afraid to fly. This seems a surprising discovery, for we none of us, save only the few who by nature or training possess the knack, can comfortably stand on the edge of a cliff, or contentedly peer down from the cornice of a modern sky-scraper. Of all who admiringly watch him from the street, who would change places with the swaying steeplejack aloft in his bos'on chair! Still, hardly one of the very same throng would refuse the hurried "Jump aboard!" of a Wilbur Wright, to view the very same steeplejack from on high. Drexel, for instance, who fetched 9,897 feet at Philadelphia, and has flown after the height record as often, perhaps, as any other man now flying, told the writer that inside the railed balcony of the Singer building, but five hundred feet up—where he had gone to watch the Belmont flyers round the Statue of Liberty—he grew so timid that he had to take hold of the ballustrade to feel himself safe. He said, on the other hand, that from his first moment in an airplane he had never experienced fear, and than but one of the many passengers he had carried seemed at all afraid, and that this one, after three-quarters of an hour in the air, grew so comfortable he declined to come down. Ely, it is said, after his flight to the "Pennsylvania," in San Francisco Bay, refused to go to the dome of a tall building to see the course he had flown, saying that never had he been able to look from the top of a three-story

building without "going wobbly kneed," and having to hold on. When told the height was only 225 feet, and that he had often flown from ten to twenty times as high, he replied:

"But you are confusing biplanes and domes. The kind of support you have while up in the air has a great deal—I mean has everything to do with your sensations while up. In an aeroplane in the air you are in a boat afloat in its natural element. There is no fixity, and that explains why I grow dizzy looking out of a second-story window and feel no ill physical effect, unless a trifling consciousness of breathing, when thousands of feet above the ground."

The foregoing indicates that with flying a new branch has sprouted from the tree of the science of psychology, and is awaiting investigation. Paradoxical as it may seem, the same individual may be possessed of height-fear and what may be called air-courage; and the latter, a new and unsuspected quality of mind, seems to be so widespread as to warrant the assumption that it is a universally prevalent racial characteristic. While it is, perhaps, too early to attempt more than a superficial analysis of air-courage—and this article is written not for that purpose, but merely to suggest its existence, and to point out the tremendous driving power which such a force must contribute to the movement—an examination of the subject may be of interest, nevertheless. Concerning the cause of height-fear Professor Woodworth, of Columbia University, says:

"There is, of course, an absence of the usual visible objects which serve to steady one; and there may easily occur an obsession with the thought of the novel and dangerous position. The absence of steadying influences and the presence of disturbing thoughts of course tend to make motor-control uncertain."

This seems to be an entirely reasonable explanation of the panic which seizes most of us when we look down from a great height—but why is the detached man in the air not subject to the same obsession? He, also, is without the assistance of the usual visible objects, and no less should he be conscious of the novelty and danger of his position. Still, why is he, who is afraid to climb, not afraid to fly? It would almost seem that the airplane has arisen to confute the Darwinian theory of racial descent, and that man is in reality a defeathered bird—and not an untailed simian! But to return: Is there not the germ of a possible explanation in the fact that the boy who will shin up a tall tree without hesitation, often falls to praying when he looks down from its top? Might not this phenomenon be expressed thus: That which seems from the ground to be but a little way aloft will appear, when reached, to be many times its previous apparent height further away. This, together with the fact that the sensation of height, with its attendant state of panic, cannot be realized when upon the ground, leads the boy fearlessly to start climbing. Being busy with his exertions, his face turned

upwardly, he reaches the top without nervousness; when, turning, he sees the ground far beneath him, realizes that his safety depends upon his ability to hold on, suddenly suspects that he may not be able to do so, becomes panic-stricken, and hugs his tree for dear life. His fright would seem to be due to a, perhaps unconscious, fear that his muscles will fail him; that they cannot be relied upon to get him down again. On the ground he has grown to rely on them through habit, and in the knowledge that a tumble there is of little consequence; but at the unaccustomed height it occurs to him that their failure will result disastrously. Then their function ceases to be instinctive and involuntary, and the boy becomes muscle-conscious and distrustful of his power to control and support himself. This, in turn, suggests the possibility of his letting go, a panic follows—and the boy has become the victim of height-fear. The case of an adult on a roof's edge would seem to be analogous, except that there often is present the belief that one has the wish to throw one's self off. Here the possibility of an accidental fall through loss of motor-control, undoubtedly suggests a deliberate performance of the act. In both instances it would appear that a suspicion of the possible failure of the muscles of support is the basis of height-fear; and is also the cause that impels us to lie flat, if we can. Mountaineers, sailors, house-smiths and steeple-workers have rid themselves of height-fear merely by accustoming themselves to rely on their motor-control under hazardous conditions, until it becomes wholly an involuntary, and therefore a trustworthy, function.

Now, the situation of a person in an airplane seems to be distinctly different. During the first flight he is a passenger. Seated comfortably in a structure which directly supports his trunk, his limbs are relieved of the responsibility of having to get him either up or down. Not requiring them for his safety, he need not fear their failure—so there is absent the suggestion, which seems to be the root-idea of height-fear, that the loss of

his muscle-control will cause disaster. Two other factors assist the novice: Like the climbing boy he starts from the ground, and his attention is directed upwardly till, the airplane being in motion and its machinery in action, his thoughts are drawn away from himself and become objectively engaged. In this detachment of mind evidently lies the remedy for height-fear. From this state the novice passes into one of exhilaration and enjoyment, wherein, having grown used to his surroundings, he develops a fully-fledged case of air-courage—and becomes an enthusiast.

The foregoing, which the writer cheerfully admits is a tedious exposition, would seem to offer a valid explanation of the freedom from fright, and the pleasure, enjoyed by those who fly even for the first time. That we have an innate confidence in the security of flight can no longer be gainsaid; but for the stimulation of those who still doubt that we take to air, like the proverbial fish to water, a perusal of the following news items—prophetic of what is to come—is recommended:

"On Saturday last at Bétheny, Marcel Hanriot, sixteen years of age, took up a photographer on his machine, who secured pictures of Rheims and Vitry. Afterwards his father was flying and took as passengers his two little daughters, Germaine and Lili, and subsequently Madame Hanriot went for a trip of 25 kilometres with Louis Lenfant, the chief instructor at the Hanriot School."—*London Flight*.

"Charles F. Walsh, a Los Angeles aviator, to-day took his wife and two children, Kenneth and Juanita, for an afternoon outing in his California-built biplane. Two canvas seats had been placed, one on each side of the driver, and into these climbed Mrs. Walsh and little Kenneth, aged six. Mrs. Walsh carried her four-year-old daughter, Juanita, in her lap. None of the party seemed to be the least bit nervous."—*New York Herald*.

RECORDS AND STATISTICS

By G. F. Campbell Wood

The appended tables of officially recognized World's Records were published at the end of February by the Fédération Aéronautique Internationale. They do not include any performance subsequent to December 31st, 1910.

I have made no changes in these tables except in three instances where obvious mistakes were made in compiling it: the 100 kilometre record which was in error credited to Leblanc instead of to Grahame-White, the Greatest Speed record which probably through some slight mistake in figuring, was given as 109 kil. 756 per hour instead of 109.356, and the "Distance in a given time" records for $\frac{1}{4}$, $\frac{1}{2}$ and 1 hour, which were quoted as 20, 40 and 90 kilometres respectively, the first two being credited to Leblanc last July and the hour record to Morane in September, but all three being below Leblanc's figures at Belmont Park: the balance of the list is just as received from the Federation.

I have been asked to comment on these tables and to bring out the points about them which may be of interest to the statistician and to the close follower of the sport of flying: these are certainly not lacking.

Take the first table, that of "Time over a Given distance—Aviator alone": it will be noticed that the times taken at Belmont Park which were given out with the fraction of seconds expressed in hundredths (having been taken with the Warner timing-machine) are here given with the fractions expressed in fifths.

In automobile races where the wheels of the cars passing over the line act on the timing-machine, the quotation of a time in hundredths of seconds is absolutely justified as the human error or personal equation does not enter into the matter, but where the timing depends entirely on the movements of a man's fingers, a time expressed in hundredths of a second gives, (in my mind), a fallacious idea of the approximation and accuracy with which the time is recorded; the timing of athletic events has shown that the best times in the world are apt to vary a tenth of a second, and very often more, in their results, so that with a machine giving the hundredths of seconds, the error may be ten or fifteen units instead of one unit as it would be if expressed in tenths of seconds,—which, taken in all, is the logical approximation to consider in hand-timed events.

It is with this idea in mind and also that of using a uniform standard for all records, that the Federation reduced the times to the larger fractions.

In the December, 1910, number of this magazine, a list of Leblanc's times expressed to the nearest tenth of a second was published however, which is considerably more accurate than that now declared official by the Federation, not so much because it was expressed in tenths instead of fifths of seconds but because in transferring the hundredths of seconds into fifths the curious mistake was made in Paris of giving in every case (except the 40 kilometre record) a time faster by one-fifth than it should be: for instance $2' 44''$.78 was expressed as $2' 44''$.3/5; whereas of course $2' 44''$.4/5 is its obvious equivalent, and so on down the line.

As regards the 100 kilometre record given as 1 hr. $00' 47''$.3/5 for 1 hr. $00' 47''$.73 a further point comes up in that it was by mistake that, last November, the record was reported to the Federation as being 1 hr. $00' 47''$.73; Grahame-White actually covered 100 kilometres in 1 hr. $00' 41''$.69 (as shown in the tables published on page 359 of Vol. I): this time he made between the end of the second lap and the end of the twenty-second lap of his great Gordon-Bennett flight; the time quoted as his best, (but actually six seconds slower) was made between the end of the first lap and the end of the twenty-first.

This brings one naturally to consider another point of interest: Leblanc's and Grahame-White's records made during the Gordon-Bennett Cup race do not coincide with the "times" of that race, as successively recorded lap by lap: they are the fastest times made over the specific distance mentioned at any time during the race. For instance, Leblanc's time for his first 20 kilometres was $11' 05''$ but his record for the distance is $11' 04''$.4/5, for he covered the 11th, 12th, 13th and 14 laps (the lap being 5 kilometres) in this time.

In the same way, Grahame-White won the Cup in 1 hr. $01' 04''$.74, but he flew two extra laps which were timed officially and as these were 23 seconds faster than his first two he flew his last hundred kilometres (from the end of the second lap to the end of the twenty-second) in 1 hr. $00' 41''$.69.

It seems only logical to credit records in this manner, but it is interesting to note that in no

case has this been followed out in records made abroad: Bournique's 250 kilometre record is given as 3 hrs. $04' 28''$.1/5, whereas it is perfectly obvious that he has covered the distance in 3 hrs. $02' 39''$.3/5, seeing that 6 hrs. $07' 07''$.4/5 was the time he made for double the distance (500 kilometres) during this same flight, (as shown on the record list).

Why the starting point of a record should coincide with the start of a flight it is hard to see; in other sports, such as running, swimming, walking, cycling, rowing and motoring, the start is usually a "standing" one and the starting point of the record must, because of this, coincide with the start of the race or trial, but there has never been any question of timing flying records from a standing start; the very expression "flying start" was in fact coined many years before flying was ever dreamt of as feasible, to denote the crossing of a starting line at full speed.

To make the point clearer, suppose a man has arranged to attempt a record at a given hour and for some reason the official time-keeper does not show up until several hours later; the aviator having got tired of waiting has started off anyway with one of his friends holding a watch on him: the official gets his timepiece going just before the flyer completes, let us suppose, 250 kilometres; the unofficial timer announces 3 hrs. $06'$, Bournique's record being missed by a minute and a half; from this moment on the flight is being officially controlled; when it has extended over 500 kilometres, the flyer's friend finds he has taken 6 hrs. $08'$ or just one minute more than the record and laments his hard luck; but the official turns to him and announces a world's record for 250 kilometres: the 250 kilometres he has timed (from 250 to 500 kil.) and a very simple subtraction confirms the fact to the unofficial timer that they have been covered in 3 hrs. $02'$ —which beats Bournique's record by over two minutes.

In other words, (according to the way records are being at present passed on abroad) the aviator owes his possession of a world's record to the fact that he did not wait, to get started, for his official timekeeper to turn up!

Of course the fact that a man goes faster as he nears the end of a flight than at its start is no coincidence, for his consumption of fuel is steadily lightening his load, furthermore he may be

handling the turns better as he gets accustomed to the course.

Judging from the interest shown in the past in the statistical and record tables published here, letters will no doubt be received by AIRCRAFT from observant students of these figures, enquiring how Aubrun is credited with a three hour record of 252.5 kilometres, when the record for 250 kilometres, is 3 hrs. 04' 28" 1/5 (Bournique). It can only be said that no explanation has been received from abroad on the matter; it would certainly seem that even if there was some hitch in timing Aubrun when he passed the 250 kilometre mark, the fact of his having an official record of 252.5 kil. for 3 hours should enable him to claim the 250 kil. record with the figures "3 hrs.", until some one had covered the distance in less than this time.

For the two hour record, Aubrun's distance of Sept. 16th, 167.5 kil., is the one officially recognized; it is, however, perfectly certain from his times for 150 kil. and 200 kil. on September 14th, that his two-hour distance on this day was considerably greater; in fact it was at least sixty-nine laps (172.5 kil.). It is also certain that in his flight of September 16th, Aubrun covered 300 kil. in much faster time than 3 hrs. 40' 55" 2/5, the record recognized, for he was officially credited with more than 315 kil. in 3 hrs. 45' 30" (the actual figures being about 317 kil.) temporarily taking precedence in the Michelin Cup competition with this distance.

Legagneux's times and distances at Pau on December 21st, do not figure on these lists because they were not timed officially: they were approximately as follows:

300 kil. 3 hrs. 28'	3 hrs. 258.5 kils.
400 kil. 4 hrs. 38'	4 hrs. 345.5 kils.
500 kils. 5 hrs. 48'	5 hrs. 432.2 kils.
	5 hrs. 59' 515.9 kils.

Just why Tabuteau's time for 550 kil. on December 30th (7 hrs. 19' 41" 1/5) does not figure is not apparent as at the October Conference of the Federation, it was decided to recognize records over given distances, every fifty kilometres after the first fifty.

Perhaps the feature of the lists which will puzzle people most, however, is the fact of an 8 hour record being recognized when the distance covered is far inferior to that of the 7 and even 6 hour records.

In no other sport does this occur and were flying records gauged in just the same way as automobile and cycling records the 7 hour record would be credited to Bournique, who covered 530 kil. in his great six and a half hour flight, instead of to Tabuteau who flew 522 kil. 935 in seven hours, and the eight hour record would in turn belong to Tabuteau, who covered 584 kil. 745, in 7 hrs. 48' 31" 3/5, instead of to Farman who flew 451 kil. in eight hours.

It is certain that the regulation of records in flying is far more complicated than in other sports: in this case the Federation appears to have taken the stand that a seven or an eight hour record does not imply the greatest distance covered within these periods, but only the greatest distance covered in flights extending over these full periods, the element of "duration" being considered and no flight in which a landing is made prior to the end of an hour-period, being eligible for a record of this period.

The rules are still somewhat vague on these points and should be finally settled at the next Federation Conference at Rome.

According to the ruling made above, the one hour record is the property of Grahame-White, and not of Leblanc, (the reason both names are given in the tables, is because this is how they figure on the list of American records, sent to the Federation by the Aero Club of America).

It will be remembered that in the Gordon-Bennett Cup race, Leblanc ran out of gasoline just after passing the 95 kil. mark (in 52' 49" 7/10), and that Grahame-White won the race in 1 hr. 01' 04" 7/10 and made a record of 1 hr. 00' 41" 6/10 for 100 kilometres. The times were only taken at the end of each lap, or every 5 kilometres, thus the greatest distance officially creditable to both men under the hour was the same: 95 kil. (for in records for "distance in a given time" the greatest distance officially timed as being covered in less than the "given time" is alone considered).

This is why, in the absence of specific rules on the question, both men were credited with the record. For Leblanc it might be said that he was "the first to cover 95 kilometres in an hour" and also that he covered these 95 kilometres at a much greater speed than Grahame-White, while for the Gordon-Bennett winner it might be argued that although he can only get credit for 95 kilometres in the hour, he very obviously covered a much greater distance before the sixty minutes were up than Leblanc did, (as the latter came down at 95 kil., 800), and that Leblanc did not fly for a full hour—which is the point which brought up the question here.

As mentioned at the beginning of this article, the original tables of the Federation have 109 kil. 756 per hour as the Greatest Speed record instead of 109 kil. 356; to be strictly accurate 109 kil. 237 was the speed recorded at Belmont Park (5 kil. in 02' 44" 7/8) but as this 5 kil. record is now recognized as 02' 44" 3/5 it is only consistent to quote 109 kil. 356 which is the speed this time represents.

Continued on Page 47

Aviation World's Records

IN CLOSED CIRCUIT, WITHOUT STOPS

Checked to December 31st, 1910, as recognized by the "Fédération Aéronautique Internationale."

A. SPEED.

1. Time over a given distance.

(a) AVIATOR ALONE.

DISTANCE (Kilom.)	HOLDER	PLACE	DATE 1910	MACHINE	TIME
5	A. Leblanc	Belmont Park,	Oct. 29	Blériot	2' 44" 3/5
10	"	"	"	"	5' 30" 1/5
20	"	"	"	"	11' 04" 3/5
30	"	"	"	"	16' 38" 1/5
40	"	"	"	"	22' 12" 3/5
50	"	"	"	"	27' 48" 3/5
100	C. Grahame-White	"	"	"	1 hr. 00' 47" 3/5
150	E. Aubrun	Bordeaux	Sept. 14	"	1 hr. 43' 19" 3/5
200	"	"	"	"	2 hrs. 18' 30" 3/5
250	P. M. Bournique	Buc	Dec. 31	R. E. P.	3 hrs. 04' 28" 1/5
300	"	"	"	"	3 hrs. 40' 55" 2/5
350	"	"	"	"	4 hrs. 17' 26" 1/5
400	"	"	"	"	4 hrs. 54' 06" 3/5
450	"	"	"	"	5 hrs. 30' 35" 3/5
500	"	"	"	"	6 hrs. 07' 07" 3/5

(b) AVIATOR AND ONE PASSENGER.

DISTANCE (Kilom.)	HOLDER	PLACE	DATE 1910	MACHINE	TIME
10	E. Laurens	Buc	Dec. 21	R. E. P.	7' 31" 1/5
20	"	"	"	"	15' 14" 3/5
30	"	"	"	"	22' 56" 3/5
40	R. Vidart	Mourmelon	" 31	Déperdussin	29' 40" 1/5
50	E. Laurens	Buc	" 21	R. E. P.	38' 19" 3/5
100	"	"	"	"	1 hr. 16' 51" 3/5

(c) AVIATOR AND TWO PASSENGERS.

DISTANCE (Kilom.)	HOLDER	PLACE	DATE 1910	MACHINE	TIME
10	J. Mamet	Rheims	July 9	Blériot	10' 18" 4/5
20	"	"	"	"	21' 14" 1/5
30	"	"	"	"	31' 53" 1/5
40	"	"	"	"	42' 32" 3/5
50	"	"	"	"	52' 56" 3/5

2. Distance in a given time.

(a) AVIATOR ALONE.

DISTANCE (Kilom.)	HOLDER	PLACE	DATE 1910	MACHINE	TIME
25	A. Leblanc	Belmont Park,	Oct. 29	Blériot	1/4 hour
50	"	"	"	"	1/2 "
95	"	"	"	"	1 "
167.5	C. Grahame-White	"	"	"	"
252.5	E. Aubrun	Bordeaux	Sept. 16	"	2 hours
325,905	P. M. Bournique	Buc	Dec. 31	R. E. P	3 "
407,675	"	"	"	"	4 "
490	"	"	"	"	5 "
522,936	M. Tabuteau	"	" 30	M. Farman	6 "
451	H. Farman	Etampes	" 18	H. Farman	7 "

3. Greatest speed obtained, whatever the length of the flight.

(a) AVIATOR ALONE.

HOLDER	PLACE	DATE	MACHINE	SPEED PER HOUR—KIL.
A. Leblanc	Belmont Park	Oct. 29, 1910	Blériot	109,346 on a flight of 5 kil.

(b) AVIATOR AND ONE PASSENGER.

R. Vidart	Mourmelon	Dec. 31, 1910	Déperdussin	80,898 on a flight of 10 kil.
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(c) AVIATOR AND TWO PASSENGERS.

J. Mamet	Rheims	July 9, 1910	Blériot	58,177 on a flight of 10 kil.
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B. DISTANCE.

(a) AVIATOR ALONE.	DISTANCE
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M. Tabuteau Buc	Dec. 30, 1910	M. Farman	584,745
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(b) AVIATOR AND ONE PASSENGER.

E. Aubrun Rheims	July 9, 1910	Blériot	137,125
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(c) AVIATOR AND TWO PASSENGERS.

J. Mamet Rheims	July 9, 1910	Blériot	92,75
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(e) AVIATOR AND FOUR PASSENGERS.

S. Brunnhuber Johannisthal	Dec. 7, 1910	Albatross	5,
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C. DURATION.

(a) AVIATOR ALONE.

HOLDER	PLACE	DATE	MACHINE	DURATION OF FLIGHT
H. Farman	Etampes	Dec. 18, 1910	H. Farman	8 hrs. 12' 47" 3/5

(b) AVIATOR AND ONE PASSENGER.

Amerigo Mülhausen	Dec. 11, 1910	Aviatik	3 hrs. 19' 39" 3/5
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(c) AVIATOR AND TWO PASSENGERS.

J. Mamet Rheims	July 9, 1910	Blériot	1 hr. 38' 40"
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D. ALTITUDE.

(a) AVIATOR ALONE.

HOLDER	PLACE	DATE	MACHINE	ALTITUDE REACHED
G. Legagneux Pau	Dec. 9, 1910	Blériot	3,100 metres	

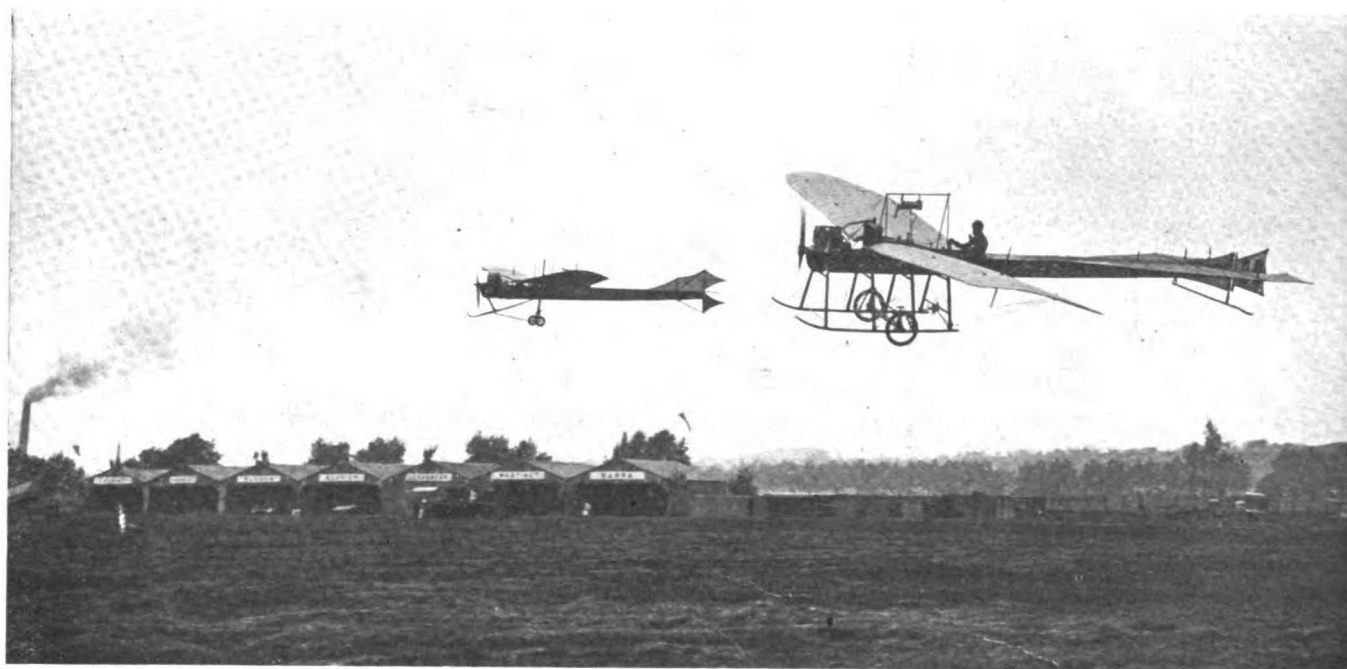
(b) AVIATOR AND ONE PASSENGER.

I. Anser	Brussels	July 31, 1910	H. Farman	355 metres
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SUCCESSFUL FLYERS DESCRIBED

THE HANRIOT MONOPLANE

By W. H. Phipps



A RACE BETWEEN THE HANRIOT AND ANTOINETTE MONOPLANES. THE MACHINE ON THE RIGHT IS THE HANRIOT. NOTE THE BOAT-SHAPED HULL, FLAT TAIL, A TYPE CHASSIS AND COMBINATION WHEELS AND SKID LANDING GEAR.

Those of our readers who have followed the progress of aviation with more than casual interest are well aware of the splendid record of the Hanriot monoplane; it is therefore not necessary to give a detailed account of it; suffice it to say that the Hanriot monoplane, at its debut at the Budapest Meet, carried off all the important events.

There are many original points embodied in the construction of this machine, the most important of which is the wooden boat-shaped hull that naturally adds to its beauty as well as to its strength. Another distinctive feature is the A type frame that supports the body on the wheel and skid chassis. The chief advantage of the boat-shaped body lies in the fact that it dispenses with the use of innumerable wires.

The body of the Hanriot monoplane is constructed on the lines of a racing skiff and is in most cases made of wood, but when desired it can be built of wood and canvas as shown in the accompanying drawings. The top of the body is entirely covered, except for a little cockpit containing the pilot's seat. Just behind the seat the deck is strengthened, permitting the pilot to stand thereon when mounting or dismounting. Steel strips form a sort of cradle for the support of the body on the A type chassis. Steel strips are also used for lashing the main spars of the wings to body mounting. The spars are not horizontal, but are set at an angle to one another, the "dihedral" being 7 ins., that is to say, the extremities of the wings rise 7 ins. above the shoulders. The spars are 3 ins. deep and 1½ in. wide, and they are constructed in the form of a tube as illustrated in an

accompanying drawing, instead of being cut from one piece of wood. This is a departure from common practice.

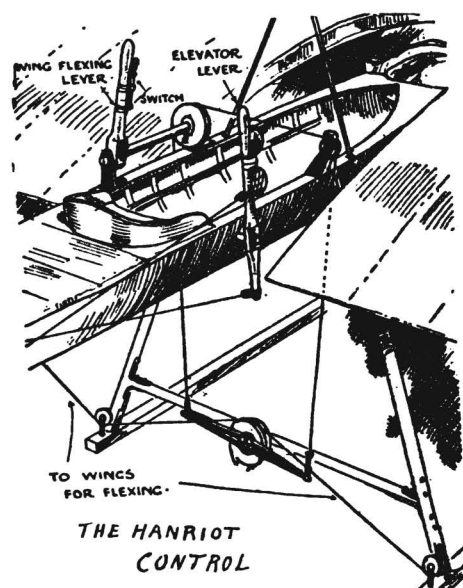
In the Hanriot monoplane it is worthy of note that the rear spars of the main wings are individually trussed by a diamond bracing, each spar being fitted with a vertical cross strut in the centre and the four extremities being braced by diagonal wires. The rear spars are hinged to the frame so that they can rock for wing warping, and the hinge pins are fastened together by a steel tube so as to relieve the body of undue strain.

The control of the Hanriot monoplane is mainly interesting on account of the use of two levers, one under the control of the pilot's left hand and the other under the control of his right hand. That on the left moves sideways and operates the wing warping, that on the right moves to and fro and controls the elevator that forms a hinged extension of the tail plane. In front of the pilot's seat is a pivoted cross-bar that controls the rear rudder.

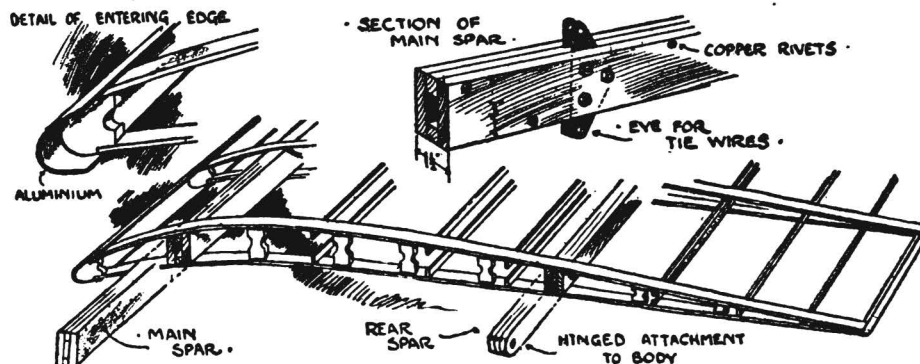
The fixed tail-plane on the Hanriot monoplane is quite flat, and consists of a sheet of fabric tightly stretched by the aid of a couple of transverse spars. The rear portion of the tail-plane is deflected a little below the line of the leading portion, to which it has a relative, although small, angle of incidence.

Well forward of the main planes is the engine, which is a 4-cyl. Clerget 30-40 H.P. This is mounted in the bows of the boat body, and is also partly supported by the struts of the "A" frame, a pair of which are situated immediately beneath the motor. The tractor-screw, which is driven by the engine, is 2.1 metres in diameter,

and 1.2 metres in pitch. When at rest on the ground, the machine is carried by a pair of pneumatic tired wheels in front and by a light trailing-skid behind. The wheels are mounted on a steel axle that is reinforced by a wood spar and mounted in vertical guides, so that it has a considerable upward travel. Suspension is effected by elastic springs anchored to the main skids and attached to the upper end of a column that rests upon the axle itself.

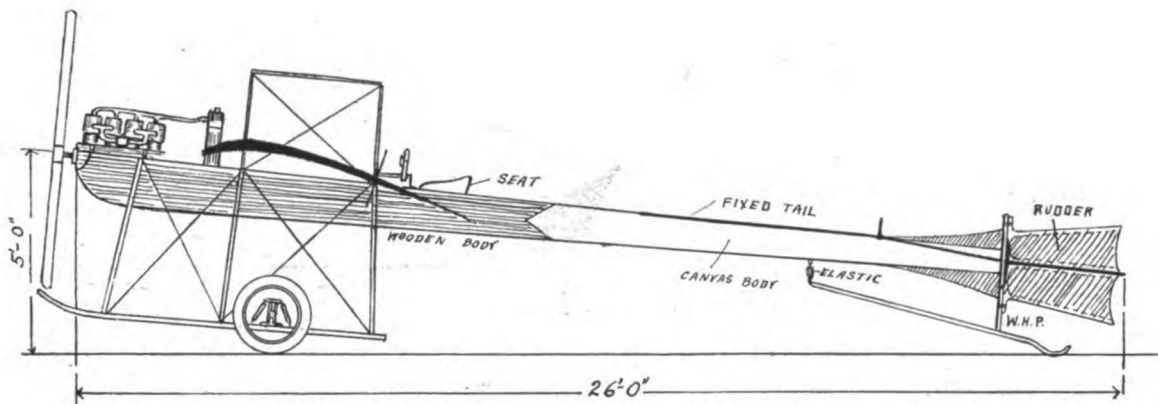


The construction of the axle is shown very clearly in one of the photographs, in which it will be observed that the system represents a very strong but rather rigid form of construction; rigid, that is to say, so far as lateral stiffness is concerned, for the vertical play permitted by the guides is considerably in excess of that usually obtained with the ordinary rubber attachment of the axle to the skids. The clearance is enough, in fact, to enable the wheels to rise up so high as to enable the weight to be taken directly on the skids in the event of a very severe bump. We are indebted to "Flight" of London for the originals of the two drawings shown above.

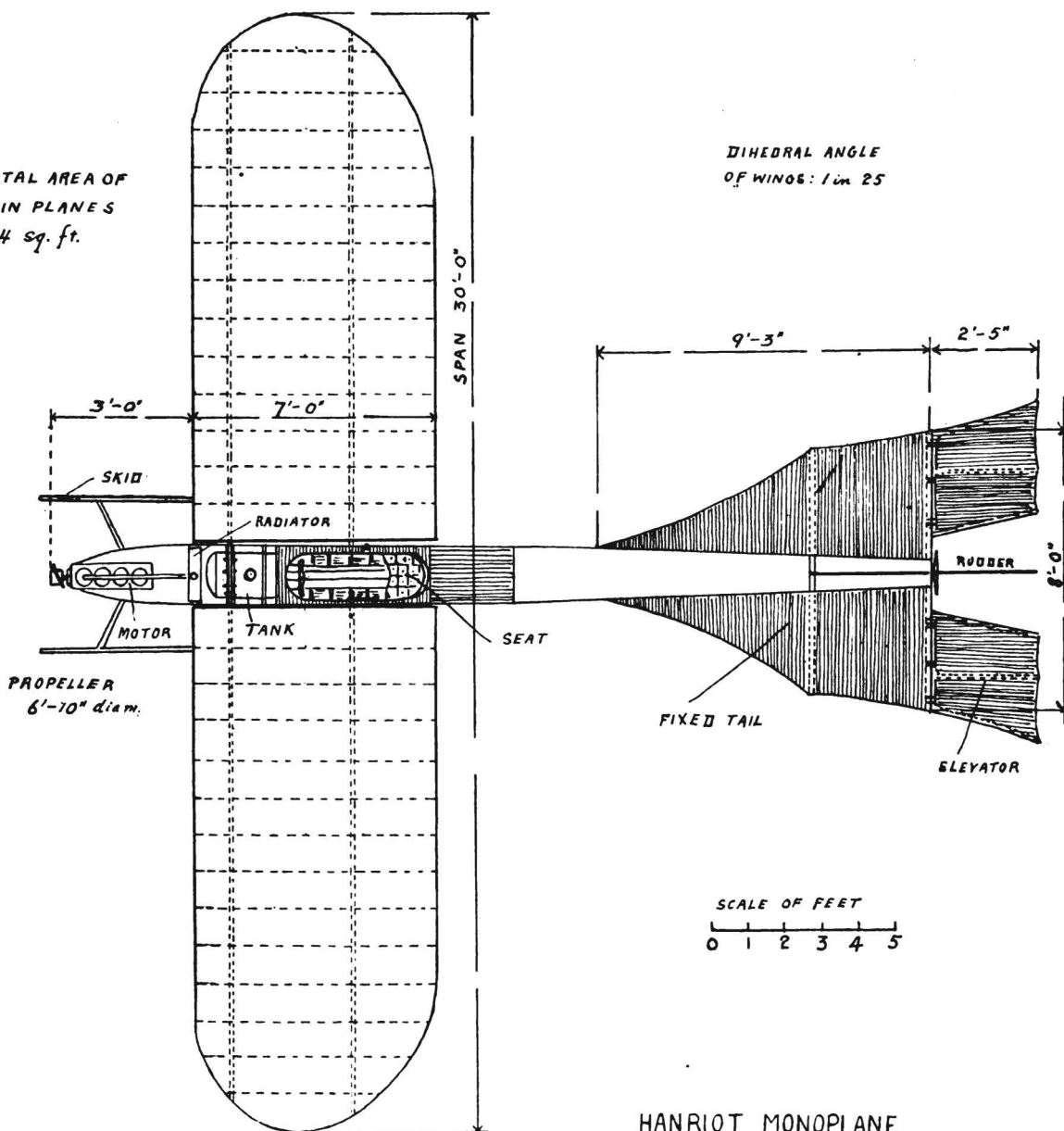


CONSTRUCTION DETAILS OF THE HANRIOT WING. THE MAIN SPARS ARE BUILT UP IN THE FORM OF A BOX GIRDER.

SCALE DRAWINGS OF THE HANRIOT MONOPLANE



TOTAL AREA OF
MAIN PLANES
184 sq. ft.

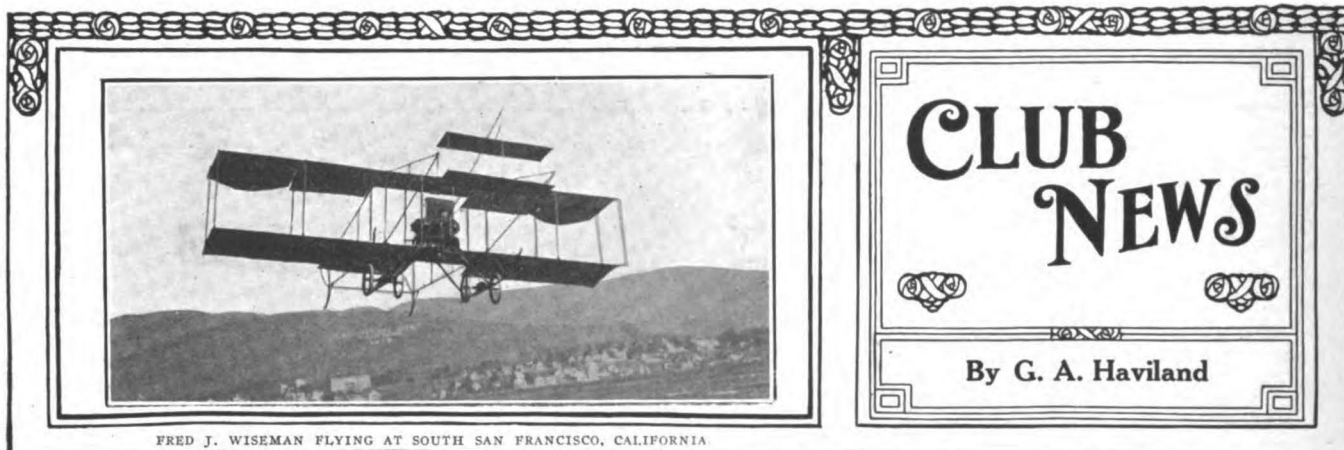


SCALE OF FEET
0 1 2 3 4 5

HANRIOT MONOPLANE

AIRCRAFT

W.H.P. 1911.



FRED J. WISEMAN FLYING AT SOUTH SAN FRANCISCO, CALIFORNIA

CLUB NEWS

By G. A. Haviland

Aero Club of America

At the meeting of the Board of Governors of March 7th, fifteen resident and eight non-resident applicants were elected to membership.

Mr. Alan R. Hawley, who last year won the Gordon Bennett Balloon Cup for the Club, was unanimously offered a position on this year's defending team.

The rules applying to all Aviation Contests and records established under the control of the Club were changed as follows:

All contests for prizes and trials for records which are under the control of the Aero Club of America, shall be held under the supervision of its Contest Committee, or a properly appointed representative. All such tests and trials which take place over an aerodrome, shall be held during the period, between one-half hour before sunrise, and one-half hour after sunset, of the day of trial.

The acceptance of entries for any contest or trial for record is discretionary with the Board of Governors of the Club, and is based on the condition, that the applicant, his representative or agent, is bound to accept without appeal, any decision of the Board of Governors on any matter arising from his entry, and the applicant pledges himself, his representative or agent, not to carry any matter arising out of his entry into the courts for review or adjustment.

The Aero Club of America is not responsible for any accident of any nature, whatsoever, to persons or property, that may occur during any event, or trial for record under its control, sanction, or supervision.

The filing of any entry is ipso facto an acceptance by the entrant of the above conditions.

Persons desiring to enter for contests or establish records at times other than at regularly organized licensed meets, shall make application in writing to the Secretary of the Aero Club of America, for a representative or representatives, to supervise the events or trials and, in making the application, shall allow ample time for the journey of the representative or representatives to the place designated for the trial.

If the trials are to be made within twenty-five miles of New York City Hall, the club will furnish a representative free of charge. If the distance is greater than twenty-five miles from the New York City Hall, the representative of the Club shall be entitled to his fare for the round trip and his expenses at the rate of five dollars per day for the time that he is necessarily absent from his place of residence. When it is considered necessary to send more than one representative, the expenses of but one representative shall be paid by the applicant.

The following rules governing the issue of aeronautical and aviation pilots licenses were accepted:

The Aero Club of America may grant aeronautical and aviation pilots licenses to persons who are over eighteen years of age, citizens of the United States, or citizens of a country represented in the F. A. I., or citizens of a country represented in the F. A. I., with the permission of the representative organization of the applicant's nationality.

All applications for pilots licenses must be made in writing to the Secretary of the Aero Club of America.

Each application must set forth the applicant's full name, date and place of birth, and if the applicant is a naturalized citizen of the United States, proof of naturalization.

Applicants must furnish, on request, such further evidence or proof of facts as may be deemed necessary to establish their qualifications.

Each application must be accompanied by two photographs of the applicant and the sum of five dollars.

Applicants for each class of license must pass to the satisfaction of the properly designated representatives of the Aero Club, the tests prescribed by the F. A. I. These were published on page 432, Vol. I, AIRCRAFT.

The National Council

At the last annual conference of the International Aeronautic Federation it was decided not to adopt an International Aviation Calendar for the year 1911, but to allow the clubs of each country in the Federation to arrange an Aviation Calendar, irrespective of what the other countries proposed to do.

With the approach of the out of door season, it is necessary for the Aero Clubs throughout the United States to immediately arrange a series of aviation meets. The experience of the Aero Clubs of Europe has shown that there is no more effective way of popularizing the art of aviation and stirring up public interest than by holding a series of well arranged and closely contested competitions at different points. In this country, where the interest in aviation is far less than it is on the other side of the Atlantic, it is the more necessary that an extended series of aviation meets should be held. Every Aero Club in the National Council should hold at least one meet during this season, and no time should be lost in making the necessary arrangements. Suitable grounds should be secured and an organization of the business men of the locality should be formed in order to secure the offer of prizes and the details of the financial side of the undertaking. The National Council will endeavor to arrange dates to suit the convenience of all, and special attention will be given to the geographical location of the various clubs. In order to increase interest it would be well, if possible, to arrange for the participants in these meetings to fly from one city to another in the interval between successive aviation meets. Prizes can be offered for cross country races of this character.

The acting chairman has already received requests from many of the prominent aviators in Europe for information concerning the organization of aviation meets in the United States, and there is no doubt that some of the foreign air men will visit this country if a series of aviation meets can be arranged. The Aero Club of France has already granted 400 licenses to aviators. In other European countries there has been a proportionate increase in the number of airmen, and it is, therefore, certain that the foreign aviators will require much less in the way of money guarantees than was the case in 1910.

Secretaries kindly communicate with me immediately and state what dates you would prefer to have reserved for your club, and the amount of prizes offered and any other inducements for holding a successful meet. This information would assist in communicating with the foreign aviators and in making the preliminary arrangements for a successful aviation season in the United States. The two or three meets that were held in 1910 furnish evidence that there is sufficient public interest in the subject to bring about a financial success of contests organized on a larger scale this year.

Under the existing arrangements with the Aero Club of America, all records made at meets held by the affiliated clubs and sanctioned by the National Council will be received by the International Aeronautic Federation and classified as world's records. Very truly yours,

CORTLANDT F. BISHOP,
Acting Chairman.

Aero Club of St. Louis

Editor AIRCRAFT:

I take this opportunity of calling your attention to the condition of the balloon situation in this country. Up to date, February 21, no announcement has been made regarding condition and location of the International Balloon Race, and I believe this has something to do with the lack of entries from Europe.

We of the West deplore this condition; naturally, we are interested in the sport of balloons, and we will hardly let this sport die a natural death; however, unless the National Council or the Aero Club of America do not act quick and arrange a program for 1911, they will eliminate one branch of aeronautics, and decrease the interest of the pilots of this country.

The Aero Club of St. Louis is now investigating the subject of hydrogen gas, with an idea of installing a plant on our aviation field. We can make the gas at a cost of not more than 45 cents per thousand feet, and the pleasures of ballooning will be doubled—on account of the small balloons.

At present an 80,000 ft. balloon is hard to handle, especially after landing and hauling to the station, etc.

This letter is not for publication, but you can use its contents if you see fit. Yours truly,

A. B. LAMBERT,
President.

Harvard Aeronautical Society

Boston is to have a second aeroplane meeting under the auspices of the Harvard Aeronautical Society, which gained much valuable experience last year.

The meeting will be opened Aug. 24 and run through Sept. 4, and these dates will be submitted to the national council of aero clubs for that organization's approval. The meeting will be held at Atlantic, as last year's meet was.

These dates have been selected in the hope of having the meet favored with more sunshine than the first one.

Already considerable correspondence has been carried on with noted flyers in America, England and France. Claude Grahame-White, the English flyer, who proved a favorite here and at Belmont Park, N. Y., last fall, has definitely agreed to take part. Negotiations are in progress with the Wrights for several of their machines and flyers to come to the meet. Glenn H. Curtiss, Charles F. Willard and several others of this country's flyers who are making names for themselves will be requested to come.

It is definitely asserted that besides Grahame-White other Englishmen and two or three Frenchmen are almost sure to attend. In other words, it will be a meet of international significance.

Events will be definitely scheduled to take place at certain times, and it is the belief of Adams D. Claffin, business manager, that a definite schedule will be possible this time.

Another change will be in line with having real contests rather than exhibition feats, although the latter probably will have great prominence.

To accommodate the people better, the committee now is considering the building of a temporary bridge across the Neponset River. The pontoon type is under consideration, and it is believed that it might be so constructed as to take care of both New York, New Haven & Hartford trains and trolley cars.

Extensive changes in the automobile accommodations are contemplated.

The roadway leading from the entrance to the field will be resurfaced and the field and course put in better shape during the summer. In place of the main grand stand of last year, which with the stand near the river was torn down last fall, there will be built a large permanent stand of wood. This new structure probably will be of about the same seating capacity as that of the one which it will replace, 10,000.

Aero Club of New England

At the College Night Dinner of the Aero Club of New England, held at the Boston City Club, Boston, Mass., February 25th, six new cups for ballooning records in New England for 1911 were offered.

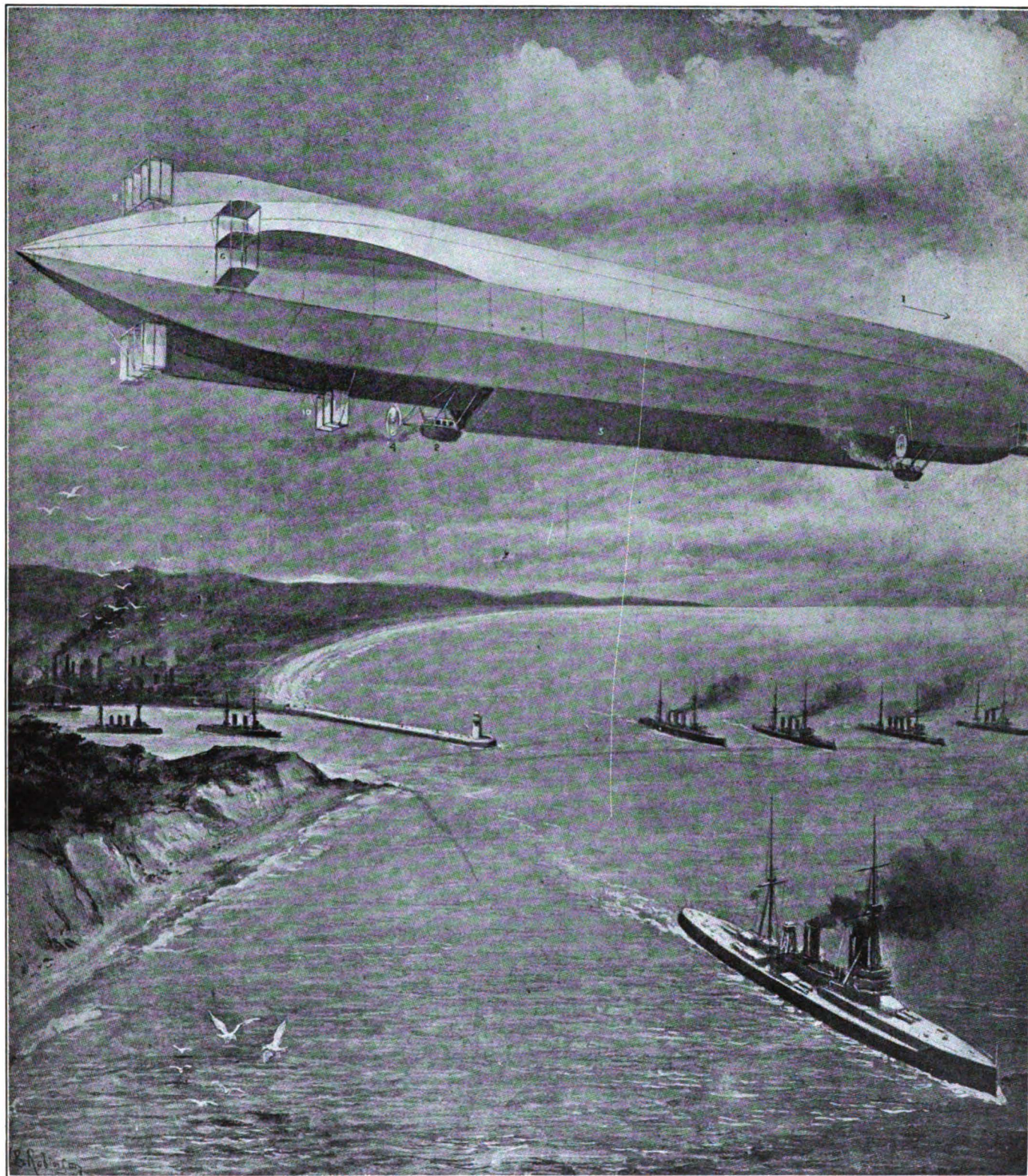
Mr. Danduran, as vice-president of the Automobile Club of Canada, offered a cup to the balloon pilot landing nearest Montreal this year, while Mr. Tarte offered a similar cup on behalf of his paper.

The other cups were offered by the Boston Herald, A. Leo Stevens, Chas. J. Glidden and Colonel Everett C. Benton, of Boston.

Two cups were presented as having been won during 1910. A. Leo Stevens received the Cortland F. Bishop Cup for the longest flight from New England, 265 miles to Montreal, and Chas. J. Glidden received the Boston Herald Cup for landing nearest Boston Common.

THE FIRST DIRIGIBLE BUILT FOR THE BRITISH NAVY

FROM A SKETCH BY CHARLES E. ELDRID, R. N. IN THE LONDON ILLUSTRATED NEWS.



The first airship built for the British Navy underwent certain trials recently in the presence of the Government's Advisory Committee on Aeronautics. It was then understood that trial flights would be made so soon as the weather was comparatively calm, it not being desired to take unnecessary risks. The craft is rigid, of large capacity and great radius of action. The first idea was to make the framework of aluminum, but, instead, duralimin, one of the magnesium alloys of aluminum, which is stronger and lighter than aluminum, was preferred. The structure in which the balloons are contained has a length of 512 feet and a diameter of 48 feet, and the top long and narrow. The balloons referred to, which, of course, give the lifting power, number from eighteen to twenty. The covering of the structure is of a fire-resisting silk, specially coated with a proofing; the upper half of it is coated with aluminum dust to reflect the sun's rays; the lower half keeps the yellow shade of the silk. Similar material encloses the gangway, in which twenty hammocks can be slung. The cars are of wood, and will float on the water. The engine in the forward car drives two wooden two-bladed propellers. The engine in the aft car drives one two-bladed propeller. To raise and lower the ship there are three parallel horizontal planes on both port and starboard sides forward and aft. Lateral movement is attained by three groups of vertical aeroplanes or rudders. The figures on the drawing refer to the following: 1. Arrow showing direction of flight; 2. Car and engine; 3. The gangway; 4. Single propeller, aft; 5. Forward propeller, one of two worked by engine in forward car; 6. Horizontal planes, aft; 7. Horizontal planes, forward; 8, 9, and 10. Vertical planes. This airship was built for offensive purposes and will be able to cruise for days over water. On a peace footing, it will carry 40 passengers. According to T. R. MacMeichen, and Carl Dienstbach, the American apostles of dirigibles, the above drawing is accurate, except that it does not show the officers' ward and mess room which is situated at the centre of the long gangway, and is somewhat similar to the cabin of the German air-cruiser, "Deutschland."

RECENT PATENTED INVENTIONS

By Gustave R. Thompson

976,582—Monoplane having a double concave supporting plane in transverse section, vertically controlled by sliding of seat.

977,517—Helicopter having adjustable blades. Helicopter acts as parachute upon descent.

976,876—Multiplane aeroplane.

976,873—Helicopter. Direction controlled by shifting weight of car with relation to helicopter.

976,161—Combined Helicopter and Aeroplane. Blades of propeller adjustable to vary lifting effect.

976,765—Aeroplane having front and rear supporting planes and a single device for determining altitude and horizontal stability.

976,806—Airship amusement apparatus and plan of a spiral railway.

977,528—An Aeroplane having a control assimilated to that of a bicycle.

978,375—Helicopter having adjustable aeroplane surfaces.

977,555—An Airship adapted for journeys over seas, capable of traveling in the water and sustained by gasfields, lifting propellers and aeroplanes.

978,732—Aeroplane having its greatest dimensions in length for purpose of importing greater stability. Altitude determined by varying angle of supporting surface at right angles to line of flight.

978,263—Aeroplane for amusement or instruction purposes on an aerial cable.

976,709—An Aeroplane having a front vertical curtain for determining the action of the air on the aeroplane surface.

981,367—Air craft comprising a frame, carrying supporting surfaces, made up of a plurality of hollow cones.

980,480—Flying machine of Ornithopter type; valvular arrangements on wings to permit passage of air on up-stroke.

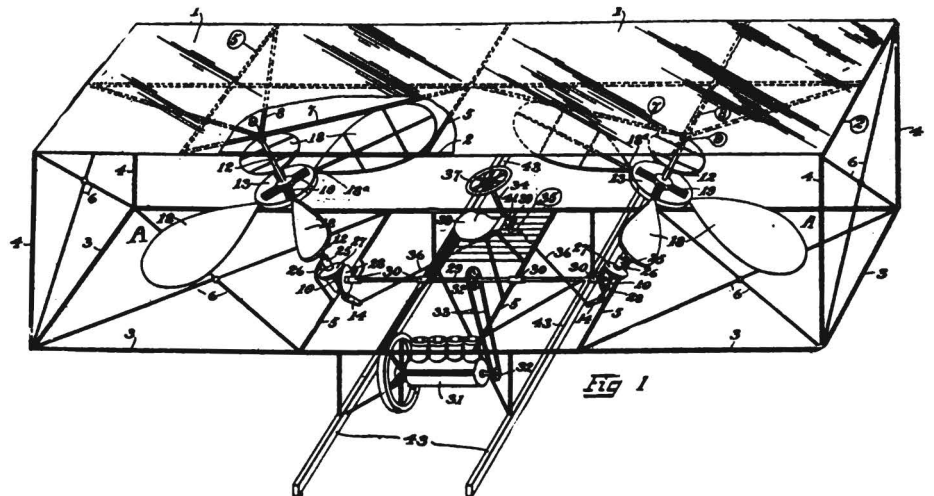
980,753—Airship of dirigible type.

980,840—Airship of ornithopter type, gas-bag attachment.

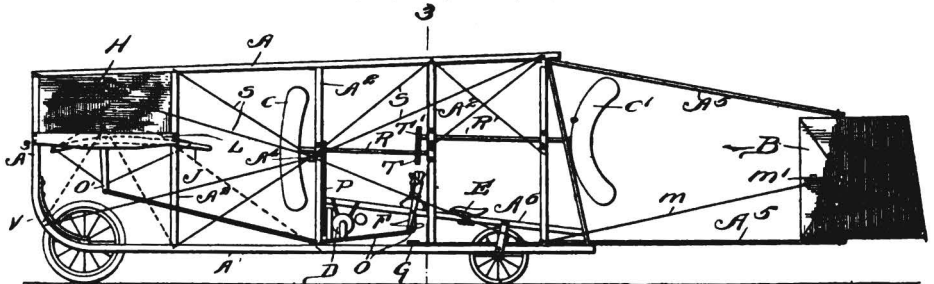
980,935—Propeller for air craft.

981,068—Dirigible aerial torpedo.

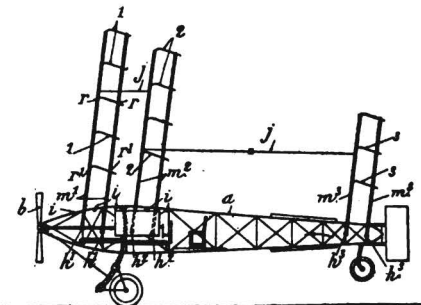
981,185—Aeroplane having enclosed torpedo-shaped car, automatic stability apparatus and a parachute attachment.



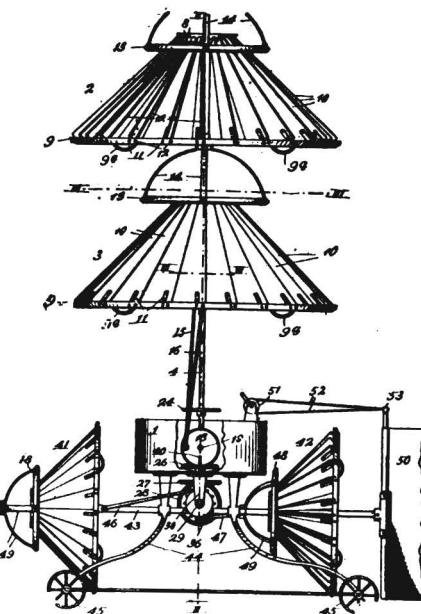
U. S. PATENT 976,161.



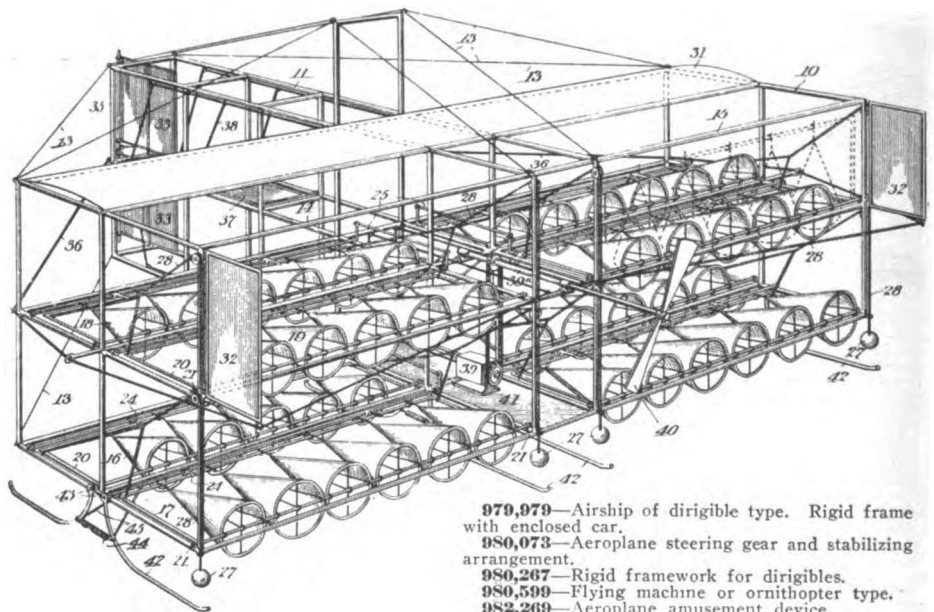
U. S. PATENT 976,765.



U. S. PATENT 976,876.



U. S. PATENT 977,517.



U. S. PATENT 981,367.

981,367—Aeroplane having conical cells in combination therewith acting as aeroplanes, parachutes and stabilizers.

981,655—Dirigible having a convertible aeroplane and parachute attachment.

981,714—Collapsible or knock-down aeroplane. Bat-wing planes.

981,778—Helicopter with parachute attachment.

981,410—An aeroplane arranged for automatic stability. Also improvements in details of the controls.

981,462—Amusement device. Coaster type car in shape of airship.

979,286—Flying machine of ornithopter type.

979,341—Aeroplane with induced current from upper to lower sides of planes.

979,472—Flying machine sustained by feathering paddle-wheels.

979,979—Airship of dirigible type. Rigid frame with enclosed car.

980,073—Aeroplane steering gear and stabilizing arrangement.

980,267—Rigid framework for dirigibles.

980,599—Flying machine or ornithopter type.

982,269—Aeroplane amusement device.

982,200—A "knockdown" Aeroplane.

982,356—Dirigible.

982,561—Dirigible of rigid type.

982,647—Propelling mechanism for Airships.

982,653—Toy flying machine, (Helicopter).

982,700—Helicopter.

982,907—Parachute. Worn by aviator when folded as a cap and adapted to open at proper time.

983,049—Balloon amusement device.

983,147—Toy, (Helicopter).

983,192—Combined Aeroplane and Helicopter.

983,233—Ornithopter flying machine.

982,243—Biplane.

982,244—Biplane.

983,459—Dirigible with Aeroplane attachment.

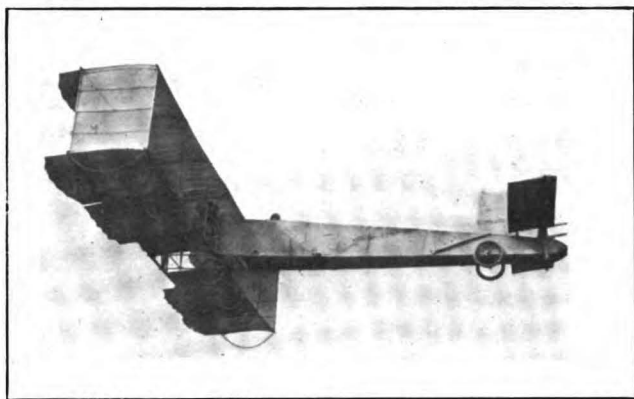
983,697—Aeroplane of bird-like contour.

983,707—Aeroplane with lifting propeller attachment for quick rising.

983,750—Monoplane.

983,826—Aeroplane.

983,808—Monoplane with triangular plane.



THE NEW FRONT RUDDER VOISIN BIPLANE IN FLIGHT.

FOREIGN NEWS

Belgium

On February 10th Lanser on his Henry Farman biplane made a flight across Brussels to visit King Albert. Taking with him as passenger M. Vlemingsky, President of the Belgian Aviation Chambre Syndicate, he left Etterbeck at 3:30, and after flying over the capital landed, circled the palace at Laeken three times and landed on the lawn of the Royal Park, where he was greeted by the Royal family.

China

The first flights to take place in Shanghai occurred on February 21st; they were made by M. Valon on a Sommer biplane.

The *China Mail* of Hongkong, under date of February 2nd, contains the information that Captain Thomas Baldwin, J. C. Mars and Tod Shriver had arrived safely in that port and after giving flying exhibitions at Taipo on February 10-11-12, would proceed to the Philippine Islands. It also contained the following information:

"One interesting feature of the recent flying week at Saigon with Van den Born as chief figure, was the amount of subscriptions which enabled the demonstrations to be held, the total exceeding \$7,200. The Governor General gave \$2,000, and the Governor of Cochinchina \$1,000. The city of Saigon contributed a like amount. The Colonial Council gave \$500, and the Chamber of Commerce \$200. The hotel keepers raised \$370, and the Tramway Company and Messageries Maritimes gave \$100 each."

Cuba

An international aviation tournament is to be held in Havana, Cuba, from March 18 to March 27, both dates inclusive. This is the first competitive meet to be held in any country in the western hemisphere outside of the United States. Among those airmen already entered are Roland G. Garros, René Simon, and René Barrier, all of France; Edmond Audemars of Switzerland; St. Croix Johnstone and M. J. Seymour of the United States, and John J. Frisbie of Ireland.

The prize list as put up by the newly formed Aero Club of Cuba already aggregates \$30,000 in cash and a number of valuable cups and trophies. Among the most important prizes is the \$3,000 in gold offered by the Havana City Council for the fastest flight made from Camp Columbia to and around El Morro and return before March 31. McCurdy competed for this prize when he was in Cuba in February, as it was then thought that competition for the prize would close on March 1. But the City Council of Havana determined, in view of the forthcoming open tournament, to extend the time in which the prize might be tried for to March 31. Garros, Simon, Barrier and Johnstone have already entered the El Morro competition.

Another valuable prize in the Havana meet is for the \$3,000 in cash offered by Alfred J. Moisant while he was in Havana after the death of his brother John on December 31 last. This second \$3,000 prize is for the fastest flight from the Limones aviation field, where the Havana tournament will be staged, to and around Cabañas fortress and return. Mr. Moisant is an honorary member of the Aero Club of Cuba and one of its founders.

The Aero Club of America is sending two representatives to Havana in order that due cognizance may be taken of the new speed and altitude records that it is hoped will be established during the meet there. Three officially calibrated barographs will be taken. The Aero Club of Cuba, under whose auspices the Havana meet is held, was formally organized on Jan. 20 last, but it already has 150 active members and is growing rapidly. Its honorary president is President Gomez of Cuba. Speaker Ferrara of the House of Representatives is the actual head of the club.

England

A special army order was issued Feb. 28 creating an aerial battalion.

The eligibles must be under thirty years of age, possess aviation pilots' licenses, be good sailors, with an aptitude for mechanics, a knowledge of foreign languages and not weigh more than one hundred and sixty pounds.

Mr. O. C. Morison flew on February 9th from Brooklands to Brighton. Starting about 4 P. M. on his Gnome-Blériot, he made one circuit of the aerodrome, and rising to a height of 3,000 feet, steered direct for Brighton, where he landed on the beach a little before five o'clock.

Mr. Claude Grahame-White has been testing his new "Baby" Farman, built by the Burgess Company and Curtis, at his school at Hendon; he has on several occasions made extended flights in it.

The Grahame-White school at Hendon is not the only successful one in operation; the Valkyrie and Blériot schools, also located at Hendon, the Bristol school at Salisbury Plain, the Drexel school and various private schools located at Brooklands are flourishing.



THE LATEST SINGLE-SEATER BLÉRIOT. NOTE THE TAPERING FRAME, FLAT TAIL AND TRIANGLE-SHAPED RUDDERS.

France

One of the most noteworthy feats so far accomplished in aviation, and one which stirred all France, was the wonderful flight of Capt. Belenger of the French Army, on his Blériot, from Paris to Pau; he made the distance of 680 kilometers with only three stops.

Leaving the military aviation grounds at Vincennes-Maison-Blanche on February 1st at 8.35 a.m., he landed at the Croix d'Hins aerodrome, just southwest of Bordeaux, at 4.45 p.m., after making only two stops, the first at the Pontlevoy aerodrome (Loir-et-Cher) and the second at Poitiers.

Continuing the next day, he left Croix d'Hins at 2.52 in the afternoon and flew straight to Pau, which he reached at 4.45, escorted by several avi-

ators from the Blériot school who had come out to meet him.

The much coveted Michelin Prize of \$20,000 for a flight with a passenger from Paris to the Summit of the Puy-de-Dôme, a distance of 217 miles, was won on March 7th by Eugène Renaux.

The aviator and his passenger, M. Senouque, left St. Cloud on their Maurice Farman biplane, twelve minutes after nine in the morning and landed on the summit of the Puy-de-Dôme five hours and eight minutes later. A stop of seventeen minutes was made at Nevers.

Fulfilling the conditions of the prize, Renaux first passed over the Aero Club of France grounds near Paris and then steered for Clermont-Ferrand, where, in accordance with the rules he circled the cathedral before alighting on the nearby summit. It was in an attempt for this prize that the brothers Morane met with a serious accident in October. In the month preceding Henry Weymann made an attempt which promised success until he was compelled to stop by a fog when only a few miles from his goal. (For the origin of this prize see Mr. Campbell Wood's article "The Michelin Cup," *AIRCRAFT*, Vol. I, No. 12.)

The Aero Club of France has now definitely decided to organize two big flying contests this year. One of these is to be the cross-country flight from Paris to Bordeaux and return. It is proposed that the competitors start from Paris at 2 minute intervals, the only compulsory landing to be at Bordeaux. The event will probably be held in May.

The second big event will take the form of a distance competition over a closed circuit, under similar rules to those which have hitherto governed the yearly Michelin Prize; that is to say, the prize will be awarded to the aviator who, at the close of the year, has covered the greatest distance in a closed circuit without touching the ground, the minimum distance to be completed is 600 kilometres and the prize, \$2,000.

Leaving the Blériot School at Pau, the aviator, Bague, on Feb. 7th, accomplished a flight of 150 kiloms., flying across country to Mont de Marsan and back in 1 hr. 40 mins., a height of 600 metres.

The constant work in progress at Pau, especially at the Blériot School, where alone there are over fifty machines in almost continuous use, renders flying in every direction of the surrounding country quite a matter of course with the inhabitants. First one and then another aviator takes the air, and in all directions they are seen flitting about first on one type of machine and then on another. On Feb. 7th inst., Wyss, on his Gnome-Blériot, was carrying out some flights over Pau at about 1,000 metres up, planing down in fine style to *terra firma*. Wyss in the meantime was executing an altitude flight, rising to 1,800 metres followed by a fine landing.

Bague on Feb. 9th indulged in a trip across country for about 100 kiloms. Starting from the aerodrome, he alighted at Sanguis, between Mauléon and Tardets. Bague, having remained at Sanguis for the night, flew back to Pau the next day. It appears that on his way out, having no compass to guide him, he took a southerly direction by error and thereby lost himself, passing during this period over the balloon "Limousin." When alighting to ascertain his whereabouts at Sanguis, on the highway, he broke a wheel, which prevented him restarting from the roadway until repairs were effected. Altogether his outing totalled to a distance of about 250 kiloms. During the afternoon Morin and Bague both attained a height of about 1,200 metres and Lieut. de Rose carried some military passengers for cross-country flights.

Sunday, Feb. 11th, being somewhat of a holiday for M. Blériot, he thought he would visit his family, who are at Bagnères-de-Bigorre, and without fuss, but simply selecting the air as the most convenient and quickest method of travel, and in spite

of a steady rain which had started to come down, he started off on his two-seated tandem machine, although unaccompanied by a passenger. Having spent a few hours with his children, he returned to his mount in the field in which it had been resting and was soon away on his journey back to Pau. This gives a practical illustration of one of the advantages of the aeroplane. By rail at least three hours would be occupied in travelling to Bagnères, and by motor car it would take not less than 1½ hours.

On March 5th, Lieut. Bague accomplished a sensational flight over the Mediterranean. He left Antibes, near Nice on his Blériot, with the daring idea of reaching Corsica (with a view to ultimately reaching Africa, via Sardinia). The clouds about the Corsican peaks deceived him, however, and he found himself lost at sea, out of sight of all land. For several hours he searched the horizon for land and at last perceived a rock or islet pointing above it. He steered for it and notwithstanding the precipitous and rocky shore contrived to make a landing, smashing the monoplane, however. He found he was on Gorgona, an Italian islet beyond Corsica and to the northeast of the island—birthplace of Napoleon. Elba, where Napoleon was in exile can be seen on clear days from Gorgona while another and similar islet nearby is Monte-Cristo, immortalized by Dumas. Gorgona is only visited by fishing smacks but it happens to have a telegraph station, so Bague was able, after ascertaining what spot of dry land he had dropped on, to acquaint the outside world with his whereabouts and his safety. The feeling of the few fisher folk and goatsheds who inhabit the rock can better be imagined than described, at seeing the great bird literally fall out of the sky on their lonely little island.

Bague must have flown 150 miles over the sea. Capt. Lévêque recently visited Douai for the purpose of witnessing the tests made with three two-seated Bréguet military aeroplanes before they were handed over to the French Army. He was taken for a trial trip in each one by M. Bréguet and afterwards rose to a height of 400 metres in 4½ mins., then making a cross-country trip from La Brayelle to Quiery, Lens and Douai. Capt. Lévêque was also taken for short trips by two of the military pupils at the Bréguet School.

On February 9th, Vadrines, a new Goupy pilot, having missed his train, determined to fly to Issy, on the outskirts of Paris, to make his entry at the Aero Club of France for the Prix des Amendes. Rising from Juvisy, he flew to Issy in 12 minutes, made his entry at the Aero Club in Paris, and then flew back to Juvisy.

It is reported that both Henry Farman and Roger Sommer have built racing biplanes of about the same dimensions as the "Baby" Wrights and have succeeded in making some very fast flights with them.

On February 10th, Kimmerling, starting on his Gnome-engined Sommer biplane left the Brou aerodrome at 9.35 a.m. and flew to Monceau in 47 minutes, a distance of 28 miles. Later in the day he returned to his starting point by air.

On the same day Gaubert started for Tours on a 28 horsepower Astra-Wright biplane. Getting off at 7.40, he reached Châteaudun 50 minutes later; there he was confused by the railway fork and followed the Brest line until he found himself over Nogent; here he made a half turn and continued to Droue where he was greeted by Mr. Max Richard, who had followed him by road in his car.

It is with regret that one more fatal accident resulting in two deaths has to be recorded, and it is all the more regrettable as the deaths of Noël and La Torre, like many others, is the result of reckless flying. Noël accompanied by his companion La Torre had made a splendid flight of one hour on his Sommer biplane, when he decided to plane down. Owing to the tremendous speed of his descent he evidently miscalculated his height from the ground and crashed head on, before having a chance to recover.

On February 15th, Vidart, accompanied by Busson, made a trip on the Deperdussin monoplane from the school grounds at Betheny near Rheims, to Mourmelon in 14 minutes. After resting there about an hour, Vidart flew back to Rheims alone.

Very complete arrangements are being made by the Association Générale Aéronautique in connection with the trip which Pierre Marie Bournique proposes to make on his R. E. P. monoplane from Paris to London without a stop. He will leave Buc and, passing over Beauvais and Amiens, make his way to Boulogne, where he will leave the French coast, and, escorted by torpedo boats, proceed across the Channel to the English shore and so on to London.

Further trials are being made with the interesting front propeller Caudron biplane; on February 15th, with Cei aboard, it made a flight of one hour, four minutes.

In connection with the suit brought by the French owners of the Wright Brothers' aeroplane patents against Farman, Blériot and others in the civil court on January 26 last, the court on Feb. 22 at Paris, went to the Arts and Crafts Museum and inspected the Ader machine Avion, constructed in 1897, which, the defence asserts, embodies the features which the Wrights claim as theirs alone. The aged inventor personally explained the apparatus to the judges.

During the last few weeks great activity has been noted at the Hanriot and Deperdussin schools at Rheims. On February 8th Chassagne with Captain Morel as a passenger was testing one of the big Hanriot monoplanes and was flying for two hours 5 mins.



CAPTAIN BELLANGER OF THE FRENCH ARMY AVIATION CORPS WHO RECENTLY FLEW FROM PARIS TO PAU.

Vidart was also out trying a Gnome-engined Deperdussin; he executed several fine cross-country flights over the surrounding district and on one occasion circled the Rheims Cathedral.

Some splendid records were put up at the Deperdussin Aerodrome, Rheims, on February 11th, by M. Busson, who, on a Gnome-engined Deperdussin military type monoplane—carrying a passenger, covered 48 kiloms. in 30 mins. 36 secs., and on February 13th, 100 kiloms. in 1 hr. 1 min. 32 secs., the distance for the hour being 97.508 kiloms. During his flight of February 11th, Busson put up new records for intermediate distance times as follows: 10 kiloms. in 6 mins. 50 secs.

(old record, Laurens, 15 mins. 14 secs.); 30 kiloms. in 19 mins. 15 secs. (old record, Laurens, 22 mins. 56 secs.), and 40 kiloms. in 25 mins. 30 4/5 secs. (old record, Vidart, 29 mins. 40 secs.). After covering 50 kiloms. he was compelled to shut down owing to a thickening fog, which rendered it unsafe to continue.

Busson, thus foiled in his intention of flying for the hour record, made a second attempt on February 13th, and was splendidly successful, beating his own records of February 11th with considerable ease. As already mentioned above, he covered 100 kiloms. in 1 hr. 1 min. 32 secs., and in the hour his distance was 97.508 kiloms. The quickest 10 kiloms. circuit was 6 min. 4 3/5 secs., a speed of 98.739 kiloms. per hour. After completing the 100 kiloms. he descended and, taking up three passengers, including Lieut. Mailfert, made a further circuit of the aerodrome. The following are the intermediate times for the new records:

BUSSON.		OLD RECORDS.	
kils.		Busson..	6' 50"
10	6' 5"	"	12' 51"
20	12' 13" 3/5	"	19' 15"
30	18' 20"	"	25' 30" 4/5
40	24' 24" 3/5	Laurens.	38' 19" 2/5
50	30' 33" 2/5	"	45' 51" 4/5
60	36' 39" 1/5	"	53' 29" 2/5
70	42' 52" 4/5	"	1h. 1' 8" 4/5
80	49' 7" 4/5	"	1h. 8' 51" 4/5
90	55' 18"	"	1h. 16' 51"
100	1h. 1' 32"		

Germany

Emperor William personally invited Joseph Brucker to talk over his proposed voyage across the Atlantic in the dirigible balloon Suchard, which Princess Henry christened at Kiel recently. The Emperor also looked over the plans on which the Suchard is built and the meteorological charts showing the movements of the trade winds on which Brucker depends partly to carry him westward from the Canary Islands, his starting place. The Emperor has honored Brucker further by bidding him attend the court ball Feb. 28. These honors are the result of Prince Henry's report to his brother that the preparations for the Suchard's voyage are being made with scientific care and thoroughness, and that the prospect for Brucker's success is excellent.

Joseph Brucker, amateur aeronaut, has studied meteorology for many years. He was formerly editor of the Illinois Staats-Zeitung of Chicago and Commissioner to Germany for the St. Louis World's Fair. He is known in New York. He named his dirigible Suchard in honor of Herr Russ, head of a Swiss chocolate firm of that name, who is backing his undertaking and who has aided many scientific enterprises.

Not less than eleven German universities and technical schools will institute lectures on aeronautics during the summer half year. Special attention will be given to technical problems connected with the flying machine, its structural principles and practical management.

Lectures will be given at Berlin, Breslau, Gies-sen, Goettingen and Strassburg universities and at the technical institutes in Charlottenburg, Aachen, Brunswick, Danzig, Stuttgart and Munich. The professors will deliver such courses of lectures at Charlottenburg and Dantzig and three at Munich.

Lieutenant Stein must be added to the list of dead aviators. The young officer whilst experimenting at Doberitz, was endeavoring to accomplish a vol plané but his machine driving too fast, he fell heavily to the ground and died before he could be pulled out from under the machine.

Metz is now the home of the Gross army dirigible M III, which took up its quarters there on February 7, after having travelled from Berlin to Gotha and then on from Gotha to Metz. It took the big ship a little over twelve hours to accomplish the latter half of the journey,—380 kilometres.

A Zeppelin has been ordered by the German War Office, the arrangements having been perfected early in February. As far as can be learned it will be of the new shortened type, about 100 metres, as compared to the "Deutschland's" 148 metres, and will have sharply pointed ends.

The airship mentioned before this in our columns as being in course of preparation for a trans-Atlantic journey has now been completed at Kiel, where H. R. H. Princess Henry of Prussia performed the baptismal ceremony on February 15, giving the new dirigible the name of "Suchard." The whole venture is due to the enterprise of Dr. Gans-Fabrice, whose remarkable mushroom airship was a feature of the Frankfurt Aero-nautical Exposition in 1909.

India

H. M. Jullerot on February 16th made a cross-country flight of 15 miles at a height of 1,200 feet over the jungle country on his Bristol biplane.

Many letters in the Indian mail lately bear the postmark:—"aerial post, Allahabad, 1911."

Special mail was carried by aeroplane from the United Provinces Exhibition, on the outskirts of Allahabad, to the general post office in that city and then forwarded in the usual way.

Japan

J. C. Mars and Captain T. S. Baldwin, the American aviators, made three successful flights at Osaki on March 12. The spectators were estimated at 400,000.

Prince Kuniyoshi Kuni, grandson of the Emperor, was present and complimented the airmen on the success of their feats.

The *Asahi*, a newspaper, offered the aviators a purse of \$5,000 for a series of flights covering three days, after which Messrs. Mars and Baldwin went to Tokio.

During the latter part of February Messrs. J. C. Mars, T. S. Baldwin and Tod Shriver have been giving exhibition flights here and also instructing the officers in the handling of their Farman machines which were recently purchased in France.

Mexico

The Moisant international aviators met with considerable success in their various trips throughout Mexico during the past month. A letter on page 48 from Mr. A. S. Levino gives details of their altitude flights.

Philippine Islands

The first aviation flight in the Philippines was made in Manila Feb. 21, in connection with the opening of the annual carnival. J. C. (Bud) Mars, the American aeronaut, made a circling flight over the city, thrilling thousands of spectators and throwing many natives into a panic of fear at the strange sight. "Captain" Baldwin in his biplane, also made a flight.

Spain

Hélène Dutrieu paid a visit to Barcelona in February; on the 16th she made a flight with two passengers over the neighboring country—the first flight, we believe, in which an aeroplane with a woman at the helm has carried up three people.

Victoria

On February 20th, Joseph Hammond made the longest flight as yet achieved above Australian soil, when he succeeded in flying from Melbourne to Geelong—40 miles across country; he stopped over night at Geelong and returned to Melbourne on the next day in the same way he came: *par la voie de l'air*.

RECORDS AND STATISTICS

(Continued from Page 39)

Another interesting interpretation by the Federation is the distinction apparently made by it between a flight made in *closed circuit* without stops and an *out-and-home* cross-country flight without stops.

On December 21st last, Lieutenant Cammerman flew with a passenger from Bouy to Montigny-sur-Aube and return without stopping: his distance and duration (232 kil. and 4 hrs. 3' 3") were officially recorded and he was declared the winner of the Coupe Lazare Weiller, yet the "Aviator and one passenger" recognized distance and duration records "in closed circuit with no stops" are 137 kil. 125 and 3 hrs. 19' 39" 4/5.

There is no rule as to how large the circuit is to be or whether it is to be an aerodrome, but the distinction may well be made that in a closed circuit, the line is crossed in the same direction at the start and at the finish, while in an out-and-home flight it is not. This is another point which should be definitely cleared up.

When Amerigo made his passenger-flight of 3 hrs. 19' 39" 4/5, he was credited with a distance of 228.3 kil. but, whereas, the duration record was accepted, the distance one was not, no doubt because not officially checked by scorers and pylon-observers. This distance record as it stands is certainly the least difficult of all the records on the list to break.

Another performance which failed to obtain a place in the official lists is Henry Farman's flight of August 1st, with three passengers besides himself: the flight was unofficially timed as 1 hr. 4'.

No records for "Climbing Speed" have been allowed as yet, although the Federation is prepared to recognize any bearing sufficient guarantees.

Any barograph shows the speed of ascent, but faster clock motion will be necessary to be able to gauge it in seconds.

The altitude record of Legagneux', it is noted, after being quoted as 3,200 and 3,180 metres receives official recognition as 3,100 metres (10,170 feet).

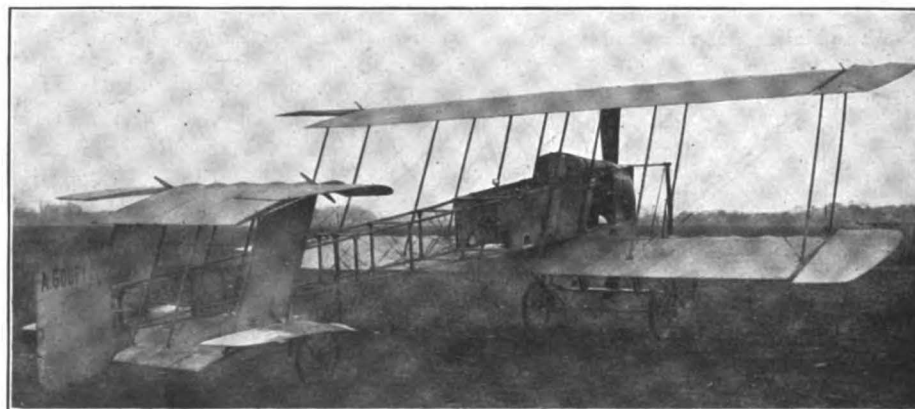
None of all these records have been broken since December 31st, except the passenger-carrying ones.

Bréguet, Busson and Nieuport have in turn shattered these until the one hour records for a "two-man" flight and—according to the latest cables—a "three-man" flight, are actually better than that for an aviator alone!

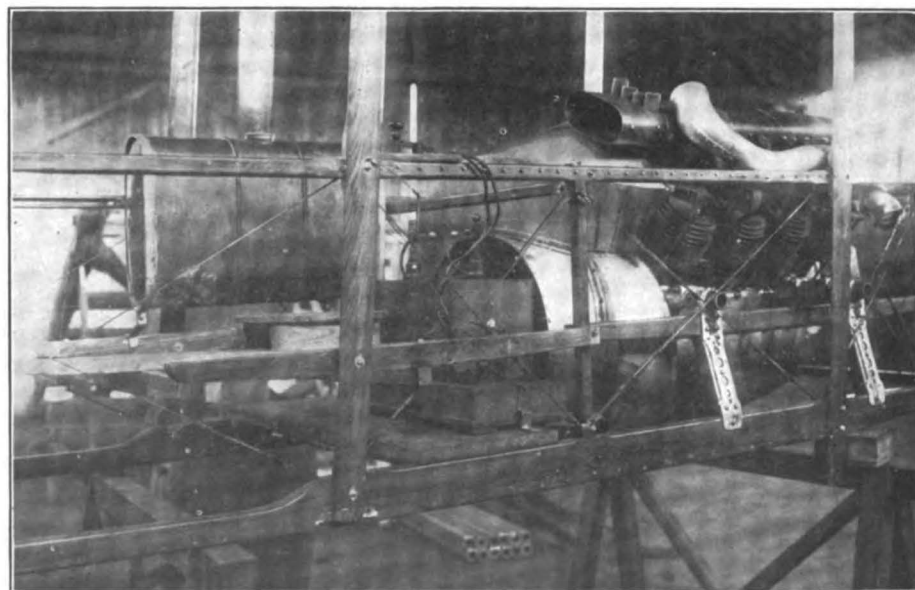
This remarkable result has been brought about by the military demand for speedy passenger-carriers; when it comes to turning out single-seaters for the Gordon-Bennett, a speed of ninety miles an hour can be reasonably expected.



THE VINET MONOPLANE IN FLIGHT. THIS MACHINE IS OF AN IMPROVED DEMOISELLE TYPE AND HAS BEEN QUITE SUCCESSFUL IN RECENT TRIALS. IT SHOULD BE A VERY EASY MACHINE TO CONSTRUCT.

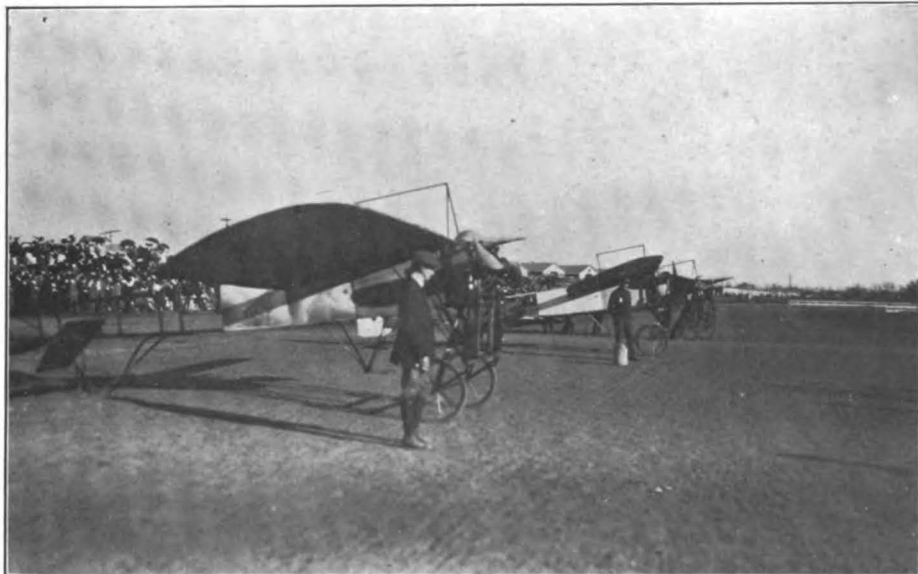


THE SUCCESSFUL GOUPY BIPLANE. NOTE THE BLERIOT FRAME WITH SHORT SKIDS IN FRONT, THE STAGGERED BIPLANE WINGS, THE REAR TAIL AND NOVEL ALERONS.



A WIRELESS INSTRUMENT INSTALLED ON A MAURICE FARMAN BIPLANE. IN TRIALS AT THE BUC AERODROME MESSAGES WERE SENT FROM THE BIPLANE WHILE IN FLIGHT AND WERE SUCCESSFULLY CAUGHT BY THE RECEIVING APPARATUS LOCATED IN THE SCHOOL WORKSHOP. THE PHOTOGRAPH ALSO SHOWS THE INSTALLATION OF THE RENAULT MOTOR.

GENERAL NEWS



THREE MOISANT BLERIOT MONOPLANES LINED UP IN MILITARY ORDER AT SAN ANTONIO, TEXAS, READY FOR SCOUTING MANOEUVERS.

The Moisant International Aviators

BY A. S. LE VINO.

Editor AIRCRAFT.

We should like to call to your attention as a matter of some passing interest the remarkable flying of Roland G. Garros, René Simon, and René Barrier in Mexico City, during the seven days beginning February 24th last. Despite an altitude of 7,861 feet above sea level, all of our men were able to make flights at this high altitude, with the three individuals mentioned deserving special comment.

On February 24th, the opening day of the Mexico City Meet, René Simon, using a 50 H. P. monoplane, flew for 29 minutes 41 seconds, during which time he reached an altitude of 3,600 feet above the Aviation Field.

Garros the same afternoon flew four times around Chapultapec Castle, remaining in the air 48 minutes 10 seconds, during which time he reached an altitude of 4,250 feet above Mexico City. Barrier, while Garros was in the air, flew 25 miles across country around a stake, which had been placed 12½ miles from the starting line of the aviation course, in 26 minutes 18 seconds. If the thin air adds to the flyer's speed, it must be remembered that the motor-power is much reduced through the scarcity of oxygen.

Maintaining this high standard every day during the tournament, but gradually increasing the remarkability and praiseworthiness of the flights, Garros on March 2nd managed to get 4,550 feet

above the field in a flight of 46 minutes. At that altitude his carburetor froze and he was forced to glide down.

These facts are brought to your attention in order that they may be of some aid in working out the problem of flying high. As will be noted, our men have had no trouble in reaching tremendous altitudes. Garros, Simon and Barrier have all of them been above the 12,000 feet mark, and they have proved the contention long made by Mr. Alfred Moisant, and demonstrated very completely by John Moisant, that altitude work was simply a question of a motor. Quite the opposite of believing that more rather than less wing surface is necessary for flying in high altitudes, it has been demonstrated that small wing surface and high engine power are the things most to be desired. It would seem, therefore, that the biplane is not as well adapted as the monoplane for flying at high altitudes, because of its greater wing surface and weight, and therefore the greater strain imposed upon the motor.

John Moisant found that after reaching an altitude of 6,000 feet with a 50 H. P. Gnome motor (the temperature on the ground at the time being 24 degrees above zero Fahr.), he lost about 30% of his power; climbing steadily then to an altitude of over 9,000 feet, he found that at 9,000 feet elevation his 50 H. P. motor was delivering only about 25 H. P., and that the temperature had very seriously affected the working qualities of his engine. It was computed by the official in charge of the United States Weather Bureau at Memphis that at the time the temperature was 24

degrees on the ground, it was 15 degrees below zero 9,000 feet in the air, and this cold was rendered more intense by the movement of the machine.

We have not yet received from Garros, Simon and Barrier the data of their high altitude flights in Mexico City. As soon as they are received they will be turned over to you for such comment as you care to make for the purpose of helping along investigation in these channels. As all three of these men have now been from 1,000 to 1,500 feet higher than the world's altitude record made by Legagneux, and as they are the first men ever to have been 12,000 feet above sea level in an aeroplane, their reports as to wind and mechanical conditions at that altitude, and the effects of the rarified air on their motors, will be very interesting.

We have a large amount of data of this sort, which will undoubtedly prove of great value to scientific investigators of aviation and to those who are earnestly desirous of making scientific experiments with the flying machine. If we can be of any aid to you in working out such problems as may occur to you, please let us know and we shall be very glad, indeed, to request our aviators to try to solve some of the problems which you desire worked out.

Notes

Earle Remington, who bought the Blériot monoplane which James K. R. the English aviator, had at Belmont Park, has made several successful flights in the machine at the Dominguez field, where the recent aviation meet was held. He has established a camp at the field for himself and his mechanics, and has two aeroplanes under construction.

Thomas Benoist, who has an aviation school at St. Louis, received a letter the other day from K. Shoji, of Nagasaki, Japan, a young naval officer, inquiring amount of the tuition fee in the aviation course.

Lincoln Beachey made two flights after darkness had fallen at Tampa, Fla., March 1st. With acetylene searchlights attached to his machine he made the first flight of twelve minutes, circling the Tampa Bay Hotel. The second flight was made without lights, and he drove into a post when alighting.

In an attempt to capture the Lahm trophy, which was won last year by Alan K. Hawley, in the America II., when he covered a distance of 1,173 miles, Wm. F. Assman, pilot, and J. H. O'Reilly, aid, in the balloon "Sofia," left San Antonio, Texas, at 6:47 P. M. Feb. 25th, and landed at 5:15 P. M. Feb. 26th, having covered a distance of about 800 miles.

The cup thus remains accredited to Mr. Hawley.

California News

BY ERNEST OHRT.

Fred. J. Wiseman made a successful sixteen mile flight on February 18th from Petaluma to Santa Rosa. The flight was made in a machine of his own design.

M. Tong Guey, a young Chinese, whose recent work as an aviator has startled Fruitvale and East Oakland, sailed for China on February 24th, accompanied by three mechanics and two biplanes of the Curtiss type.

Mr. Chas. F. Walsh, of Los Angeles, made history on February 19th by taking his wife and two children aloft in his Californian built biplane, which is fitted with a 50 horse power McComber rotary engine, it being perhaps the first time any aviator had with him as passengers all the members of his own family. Their aerial trip lasted half an hour.

It is Mr. Walsh's intention to establish regular aeroplane service in that section, charging each passenger a nominal fee.

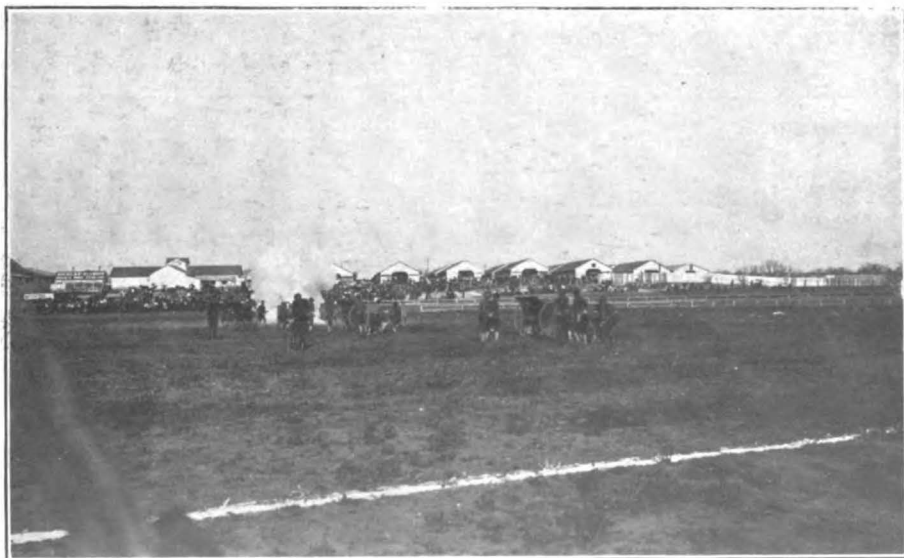
From water to land and from land to water in the course of a flight of five miles, was the successful experiment accomplished by Glenn H. Curtiss on his latest hydro-aeroplane, at San Diego, on February 27th, when he flew from North Island to the Hotel Del Coronado, landing upon the beach immediately fronting it.

Indiana News

BY M. FER DON.

The latest debutant in the aeronautical world is Earl Slaick, of Indianapolis, Indiana. Mr. Slaick has had nine years' previous experience with gas engines, and is a master mechanic and auto driver, formerly employed by the National Motor Car Co. as final inspector of engines.

The other member of the team is B. R. Shaw, Jr., and though younger in age, he is more experienced in the art of aerial navigation. Shaw has been making many successful short flights in and around the Speedway here, but has never attempted any duration or altitude flights on the account of motor troubles. Shaw is known as the youngest successful aviator making flights.



ARMY PRACTICE IN TEXAS. ARTILLERY FIRING AT AN AEROPLANE 4,000 FEET AWAY.

Messrs. Shaw and Slaick have just finished two new Curtiss machines with all the latest improvements. The planes are covered with No. 2 Naiad cloth and laced to the spars through eyelets in the cloth. The uprights, ribs and spars are all polished with a mahogany finish, making the machines pleasing to the eye as well as flyers. The ailerons are controlled by the fork, the same as in the original Curtiss. The chassis is somewhat different, and is constructed so as to enable one to make an easier landing. The wheels are so mounted on springs as to absorb the usual landing shocks and allowing the central skid to take the rest.

Shaw has installed a Boulevard 35 in his new machine, while Slaick has made a choice of a Fox 24-36. Slaick announces that although the Fox engine is unknown, it is a wonderful engine, and he expects to do some remarkable work with it.

Messrs. Shaw and Slaick start the middle of April on a tour of exhibitions covering the Central States and working westward, with California for their goal. B. L. Shaw, Sr., is acting as manager for the youthful aviators, and is booking them and making contracts.

Mineola

During the past month activity has continued at the Mineola aviation grounds, in spite of the severe weather. Frank Paine, in his Curtiss-type biplane, made several successful trial flights with his machine preparatory to his departure for Bridgeport, Conn., where he was subsequently injured. Another machine which has been out on every favorable occasion is the Ragot monoplane a tail-first type similar in design to the Valkyrie I. monoplane described and illustrated in the last number of *AIRCRAFT*, page 8.

We append below a list of the machines now at Mineola:

AERONAUTICAL SOCIETY SHEDS.

Talmage, Curtiss type, (Boulevard).
Talmage, small Curtiss type.
Ragot monoplane (Detroit 2-cyl. Aero).
Rosenbaum monoplane (Rosenbaum).
Dr. Walden, monoplane (Anzoni).

AERO CLUB.

Dr. Greene, Curtiss type, (Rosenberger).
Fairchild monoplane, (Emerson).

Aero Club of Connecticut

BY S. H. PATTERSON.

Frank Paine, of Bridgeport, is now in the hospital recovering from an accident with which he met while flying his biplane at Seaside Park on March 3rd in a practice flight preparatory to an exhibition flight he expected to make over the harbor on the following day. On account of the many trees in the park it is a poor place from which to make a start, but Paine succeeded in making a good get-away and got about 50 feet in the air when his running gear struck the tree tops, throwing his flyer around and down to the ground, where it was badly wrecked, and he severely shaken up and cut over the eye, but was not seriously injured.

Paine had expected to give his exhibition on Washington's Birthday for a purse, which had been made up by business men in Bridgeport, but was prevented from doing so on account of the enormous crowd which gathered to witness the flight. It is estimated that 60,000 people were at the Park, and as no preparation for controlling such a large crowd had been made, the small police force present were unable to clear a space in which he could make a get-away. The ground and weather conditions were not favorable, but Paine was ready and willing to make the attempt if a space could have been cleared.

The 40 foot boulevard was finally cleared for about 50 feet, with crowds of people packed in on all four sides, but both Mr. Paine and his advisor, Leo Stevens, knew an attempt would have been murderous, and the flight was postponed until March 4th, at which time arrangements would have been made to handle the crowd.

Mr. Buckingham, Mayor of Bridgeport, was one of the members on the committee in charge of this flight, and publicly criticised Paine for not making the attempt, which would indicate that legislation to govern the selection of a committee to act at aviation meets or exhibition flights is as necessary as for legislation to control aviators.

Paine's biplane is of the Curtiss type, the parts were made by Witteman and assembled by himself. It is equipped with a 40 H. P. Elbridge engine, with 7 foot propeller.

A. Holland Forbes, of the Aero Club of Connecticut, has presented a bill to the State Legislature at Hartford, to become active January 1, 1912, at which time he believes legislation to control aviation in this State will be necessary. Mr. Forbes' bill is as follows:

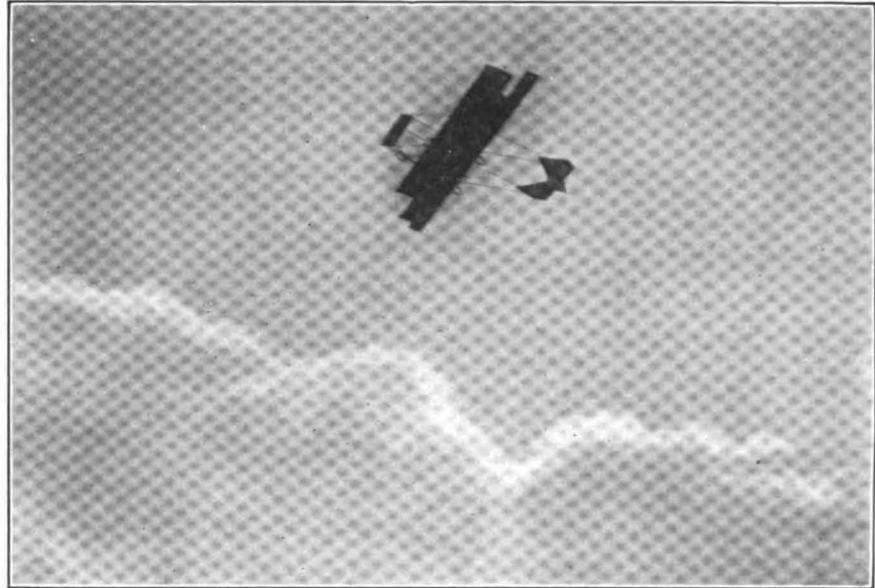
The Forbes Bill

An act concerning the registration, numbering and use of airships and the licensing of operators of such airships.

Section 1. The term "airship" in this act includes every kind of vehicle or structure intended for use as a means of transporting passengers or goods or both in the air. The term "aeronaut" in this Act includes everyone who, being in or upon such vehicle or structure or anything at-

tached thereto, undertakes to direct its ascent or course or descent in the air, or the ascent or course or descent in the air of anything attached to such vehicle or structure. The verb "fly" and the word "voyage," as used in this Act, include every kind of locomotion by an airship.

such airship is registered shall return forthwith the certificate of registration to the secretary, with a written notice containing the date of such transfer or ownership and the name, place of residence and post office address of the new owner. The registration of every airship shall expire at



THE NEW FAN-TAILED SINGLE-ELEVATOR CURTISS FLYING IN CALIFORNIA.

Section 2. Every owner of one or more airships kept in this State, shall file annually in the office of the Secretary of State a blank furnished by the secretary; a statement of his name, residence, post office address, and a description of each airship owned or controlled by him, and shall give such other information required by the secretary, and said secretary shall register such airship, assigning to it a distinguishing number, and shall thereupon issue to such owner a certificate of registration, which shall contain the name, place of residence and post office address of such owner and the number or mark assigned to such airship and shall in form contain such further information as said secretary may determine. Such certificate shall at all times be carried upon such airship and shall be subject to examination, upon demand, by any proper officer. An application for the registration of an airship by an owner who does not file his application until after the first day in June in any year, shall be entitled to a pro rata reduction in fee for such registration, calculated to the first day of the month in which said application is made. Upon the transfer of ownership of any airship, its registration shall expire and the person in whose name

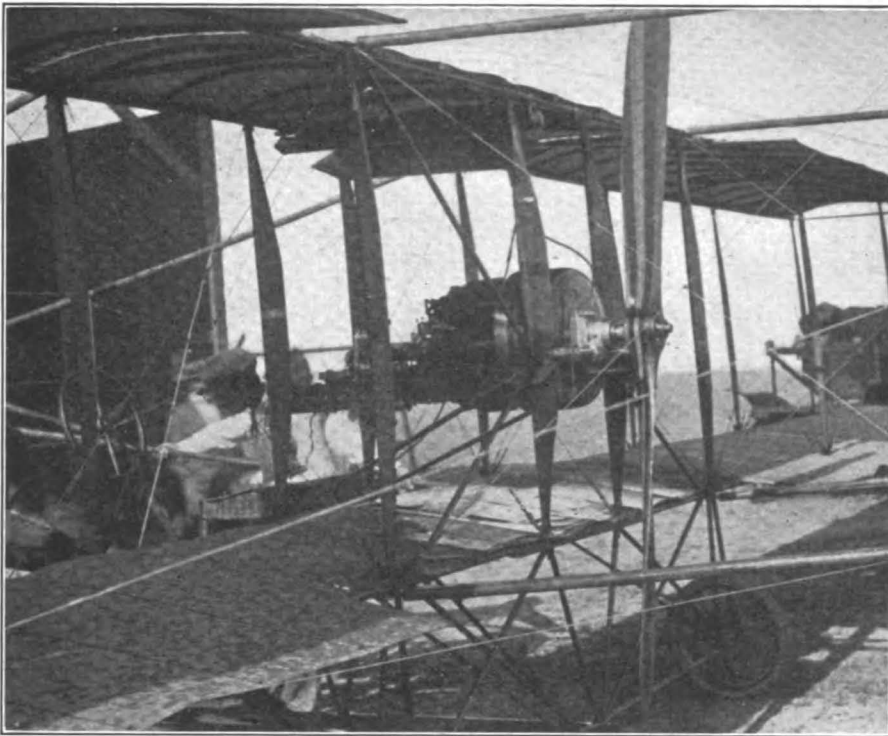
midnight on the thirty-first day of December in each year.

Section 3. Every airship, while in use or operation, shall display, in a conspicuous place, as designated by the secretary, duplicate numbers in characters not less than three feet in height, so as to be visible to those who may be beneath it; said numbers to be displayed in such manner as the secretary may direct.

Section 4. A person may fly over land or water owned or leased by him, or over land or water, the owner of which has given written permission to him to so fly, but no other person shall direct or operate an airship, or act as aeronaut of any airship, until he shall have obtained from the secretary a license for that purpose, and such license shall be issued until the said secretary has examined said applicant or caused him to be examined by one or more competent persons in such manner as said secretary may deem advisable and said secretary is satisfied that the applicant is a proper person to receive it. Nothing herein contained shall prevent the operating of an airship by an unlicensed person over the age of twenty-one years or more, other than a person whose application has been refused, or where a license has been sus-



THE AVIATOR OF THE FUTURE. A NEPHEW OF INVENTOR A. O. PAULSON HOLDING AN EXPERIMENTAL MODEL WHICH HAS MADE SEVERAL SUCCESSFUL FLIGHTS



THE MACOMBER ROTARY ENGINE INSTALLED IN C. F. WALSH'S BIPLANE.

pendent or revoked, if accompanied by a licensed aeronaut, which said licensed aeronaut shall be personally liable for any violation of the provisions of this act. Licenses for directing or operating an airship shall be issued by said secretary, but no license shall be issued to any person under the age of twenty-one years. Licenses shall be divided into three separate and distinct classes; license to operate spherical balloons; license to operate dirigible balloons; license to operate aeroplanes or heavier than air machines. Applications for licenses shall be made upon blank furnished by said secretary and such application blanks shall be in such form and contain such provisions, not inconsistent with this act, as said secretary may determine. A number shall be assigned to each license and a proper record of all applications for licenses and licenses issued shall be kept by said secretary at his office and shall be open to public inspection. Each license shall state the name, place of residence and postoffice address of the licensee and the number assigned to him and such provisions not inconsistent with this act as such secretary may determine. Such licenses shall expire at midnight on the last day of February in each year. Such a license shall, at all times, be carried by the licensee when he is directing or operating an airship in this state and shall be subject to examination, upon demand, by any proper officer.

Section 5. The secretary shall collect fees as follows: For the registration of every airship five dollars; for examination and tests of applicant for license to direct and operate airships, as provided in this act, such sum as he may demand, in any instance not exceeding twenty-five dollars; for license to operate and direct airships two dollars; for every additional copy of certificate of registration or license, fifty cents.

Section 6. The secretary may suspend or revoke any certificate of registration or any license issued to any person under the provisions of this act, after due hearing, for any cause he may deem sufficient and may suspend the license of the operator.

Section 7. No airship shall be flown from any point in this state or to any point in this state, except the same is registered as set forth in Section 2 of this act and except said airship is under control and direction of one licensed to direct and operate as set forth in Section 4 of this act.

Section 8. The airship must carry throughout any trip a copy of the certificate of registry and of the certificate of competency of the aeronaut.

Section 9. Any non-resident of this state who has complied with the laws of the state within which he resides, relative to airships and the direction and operation thereof, may fly said airship in this state not exceeding ten days in any one year, without complying with the provisions of this act relative to the registration of the airships and the licensing of directors and operators, subject, however, that the said non-resident must have been of a state requiring the registration of airships and licenses to direct and operate the same and must have been so licensed to operate and said airship must have been so registered in that state.

Section 10. The secretary of state may issue, without examination, a license to any aeronaut holding a license from any association of individuals or societies, formed for the purpose of promoting the science of aeronautics or aviation, the standing and character of which is such that the secretary is satisfied the said license has been issued on due examination and deliberation.

Section 11. Any person flying an airship in this state who fails to comply with any of the foregoing provisions of this act, shall be fined not more than one hundred dollars or imprisoned not more than six months, or both.

Section 12. Every aeronaut shall be responsible for all damages suffered in this state by any person or persons from injuries caused by any voyage in an airship directed by such aeronaut; and if he be the agent or employee of another, in making such voyage, his principal or employer shall be likewise responsible for the same.

Section 13. This act shall take effect on January 1, 1912.

The Macomber Rotary Aeroplane Engine

A new type of gasoline engine is being built by the Macomber Rotary Engine Company of Los Angeles, California, for aeroplane use. This motor is radically different from all others in theory, design and operation, there being no crank shaft, and yet having a similar cylinder and piston construction to the ordinary vertical engine, but a mechanically variable piston stroke.

The attached photograph shows the Model "A" 50-hp horse-power motor. It has seven cylinders, placed around and parallel to a central straight shaft. The standard valve in the head, four cycle action is used, all valves being operated from one four-point cam placed on the central shaft and running in the same direction. In operation the entire motor revolves with the exception of a small case at either end. From these cases the supports are run, the one at the head also forming the holder for the magneto and carburetor.

Inside of the large case at the propeller end is placed a "stroke-plate," which is attached to the shaft in such a manner that while it must rotate in the direction of the engine it is perfectly free to be tipped to any desired angle. To this is attached the connecting rods, and by tipping the stroke-plate at various angles the traveling distance of the piston can be varied. This allows the use of a very high compression for operating, which can be reduced to any desired point for cranking purposes. Several different forms of levers are supplied to operate the change of stroke, any of which can be operated both when the engine is at rest or running.

The motor is air-cooled, does all its own oiling by centrifugal force and runs on light wood supports one inch wide by three inches deep. All bearings are large diameter Hess-Bright and New Departure ball bearings, with the exception of the connecting rods, which have full ball and socket bearings.

The greatest diameter is nineteen inches and the length twenty-eight inches. The weight complete is two hundred and thirty pounds.

A magneto is operated by the cam gears directly connected, the current taken by six inches of wire to a stationary electrode on the top of the front bearing case. Spark plugs in the cylinder heads pass within a sixteenth inch of this electrode, to which the spark jumps.

Any standard carburetor can be used. The range of speed is from 150 to 1,500 revolutions per minute, although the average operating speed is about one thousand revolutions, at which it develops a full fifty horse power.

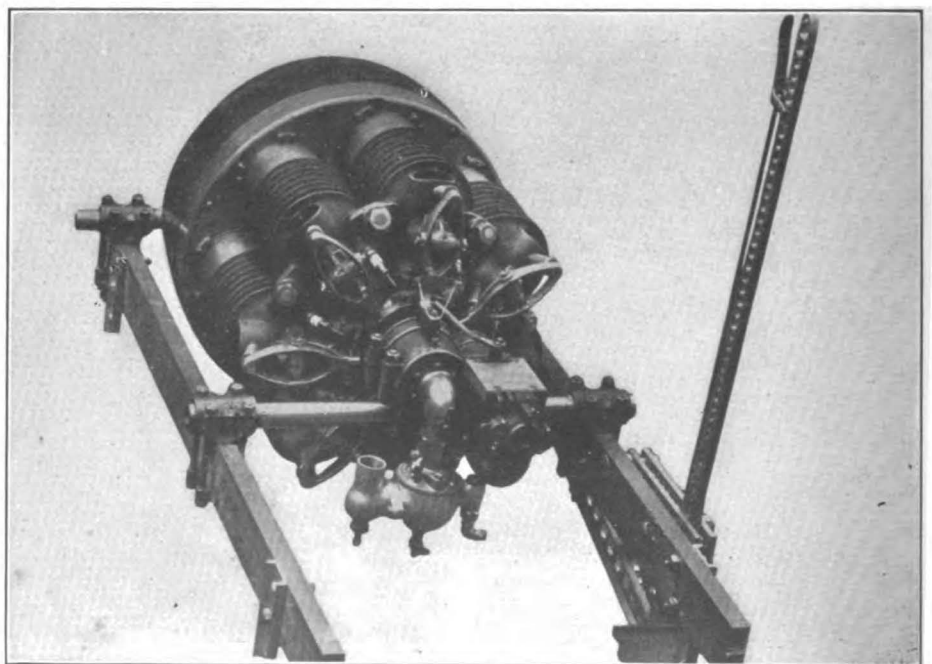
The Boston Aero Show

BY W. H. PHIPPS.

The Second National Exhibition of Aerial Craft of Boston was held in Mechanics Hall, from February 20th to 25th; it was by far the most pretentious one so far held in this country.

Twenty full sized machines were shown; twenty-four American and one foreign, while the extensive exhibit of motors, supplies and accessories attracted their share of attention, as did also the display of gliders and models in the basement.

Briefly described, the chief exhibits were as follows:



A DETAILED VIEW OF THE MACOMBER ENGINE SHOWING THE METHOD OF INSTALLATION.

THE BURGESS COMPANY AND CURTIS.

The largest and most impressive exhibit of machines was that of the Burgess Company and Curtis, of Marblehead, Mass., who showed no less than five complete fliers.

The Grahame-White biplane, Model E, is a small modified copy of the Henry Farman machine with the following Burgess improvements: Detachable wing extensions to the upper surface for use when carrying passengers; Burgess gate control and Greely Curtis deflectors, (which were described in *AIRCRAFT*, Vol. 1, page 436).

The workmanship on this machine called forth the admiration of all who saw it. A new feature noticed was the unique positions of the gasoline tanks. Two are placed on the lower surface, one each side of the pilot's seat, while two more are situated on the lower side of the top surface. A seat for the passenger is provided behind the pilot and in front of the engine.

The main dimensions of this machine are:

Length, 31 feet, 8 inches; width, with surface extensions, 36 feet, 10 inches; without extensions, 27 feet; height, 7 feet, 10 inches. Stabilizers: Ailerons combined with Greely Curtis deflectors. Burgess gate control operating both front and rear elevators. Motor: seven-cylinder, 50-horsepower Gnome.

In addition to the Grahame-White biplane, the Burgess Company exhibited two model B machines, a model D, a model C, and a genuine imported Blériot, fitted with a two-cylinder 30-horsepower Clement-Bayard motor.

Both the models D and C were described in *AIRCRAFT*, Vol. 1, page 436.

THE WRIGHT COMPANY.

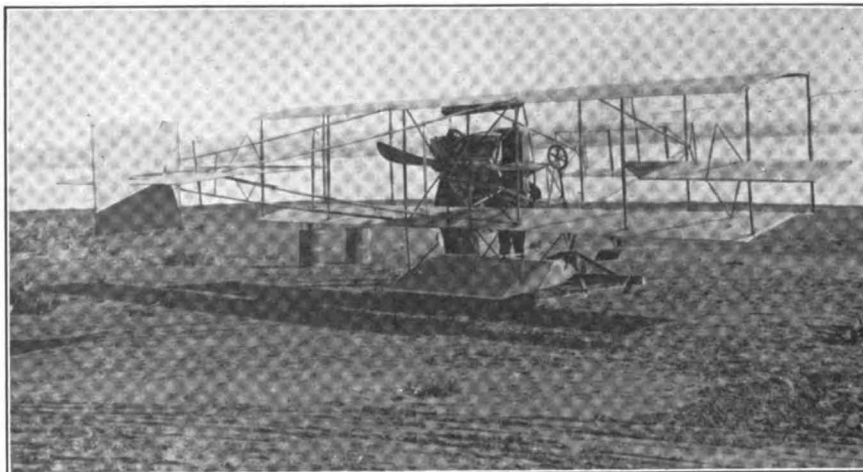
The Wrights showed a model B passenger-carrying machine. The machine is little altered from that used by Hoxsey at Belmont Park, but there are several important detail alterations. The two front skids have been shortened, and their points turned up at a sharp angle. The particular machine shown is an example of "show finish." All the steel parts are plated and the woodwork carefully varnished—a departure from the regular Wright practise—aluminum paint having previously been used on all their machines.

The machine has both a foot and hand magneto control, the magneto affording an exceedingly wide range of control. The control levers and their mountings have been materially strengthened by the use of special steel and aluminum fittings, which are necessary, owing to the complicated operation of the combination wing-warping and rear rudder control lever. The entire machine is governed by two levers, the first of which, when moved forward or backward, warps the wings and at the same time turns the rear vertical rudder with the idea of permitting the operator to maintain his balance without changing his course. The vertical rudder can also be operated independently by simply twisting the pivoted end of the lever with a wrist motion. The second lever works the rear horizontal rudder, up or down.

THE PIGEON MONOPLANE.

A new and unique machine which attracted considerable attention was the Pigeon monoplane, constructed by the Boston Aero Company, and fitted with the new six-cylinder Goblin rotary motor.

Lateral stability in this machine is obtained by rocking the wings, which are pivoted in the manner of Curtiss ailerons. Hollow spars are used throughout its construction, and the joints are made with brazed fittings.



THE CURTISS HYDRO-AEROPLANE FITTED WITH PONTOONS AND HYDROPLANES TO ASSIST IN RISING FROM THE WATER.

As a type it somewhat resembles the Blériot XII., with the important difference that a flat pigeon tail is fitted to it instead of the two curved tails on the old Blériot XII.

THE MINEOLA SPECIALTY COMPANY.

This firm exhibited a double surfaced Curtiss-type biplane constructed entirely of standard fittings, which the Mineola Specialty Company carry in stock.

THE LONGFELLOW MONOPLANE.

The Longfellow monoplane, with its blue covering and novel 30 horse power two-cylinder rotary motor, arrested the attention of many. The machine somewhat resembles the new pigeon-tail Blériot, with the exception of the wings, which are fitted with flexible rear extensions, as on the Grade and Etrich machines.

SAUNDERS AND BUTLER.

Messrs. Saunders and Butler exhibited a Blériot copy fitted with a Sommer landing chassis. The machine was of excellent construction and great care had been paid to details. The wire used for bracing the wings was of unusual thickness and fastened by special steel clamps.

THE HUBBARD MONOPLANE.

Mr. Gardiner C. Hubbard, of Boston, exhibited a large and substantially built monoplane of original design. The machine has a long square body with Farman type landing chassis and an Antoinette-type tail. The main wings are attached rigidly to the frame, and lateral stability is obtained by the use of ailerons, which are operated by a Blériot-type control. The machine exhibited at the Show was fitted with a four-cylinder 40-60 horse power Elbridge engine.

THE ROE TRIPLANE.

The Harvard Aeronautical Society exhibited the triplane used by Mr. A. V. Roe at the Boston meet. The machine has a triangular frame with a Green 30-40 horse power engine placed in front of the three leading main planes, while the pilot's seat is behind them, as in the Antoinette. A tri-

plane tail is used for steering up or down, while a large rudder at the extreme rear steers the machine to the right or left. A Farman-type chassis is employed, as is also a Farman control. A picture of this machine in flight occurs on page 252 of Vol. 1, *AIRCRAFT*.

THE METZ COMPANY.

The Metz Company, of Waltham, Mass., exhibited a new biplane of the Curtiss-Farman type fitted with a 35 horse power motor. The control consisted of a Curtiss type wheel and pillar mounted on a universal joint in such a manner that pushing the pillar back and forth worked the front elevator whilst moving it from side to side worked the ailerons. Turning the wheel to the right of left operated the rear vertical rudder.

Besides the above machines, there was an unusually fine exhibit of motors, supplies and accessories. Particularly noticeable among the accessory exhibitors was the large display of the New York Aeronautical Supply Company, which included everything from a turn-buckle to a full sized machine. This excellent exhibit comprised a large number of special fittings, sockets, Farman, Curtiss and Demoiselle landing chassis and a four-cylinder "Aeromotor" engine built by the Detroit Aeronautic Construction Company.

Another well patronized booth was that of the American Aeroplane Supply House. Here was exhibited a large Blériot wing showing its internal construction, together with a full line of castings, parts and blue prints for constructing a Blériot machine.

Below is appended a list of the exhibitors.

ACCESSORY EXHIBITS.

Goodyear Tires.
New York Aeronautical Supply Company.
The Palmer Aeroplane Tires.
The Mea Magneto.
The Harriman Aeromobile Company.
Messrs. E. J. Willis.
The Metz Company.
Aero Club of New England.
The Post and Lester Company.
The Hendee Manufacturing Company.
Pan-o-Lite Oils.
The Elbridge Engine Company.
The International Airship Company.
The Aeronautical Society.
The Coward Auto Supply Company.
Boston Globe Models.
The Kinney Manufacturing Company.
The Scientific Aeroplane Company.
The Church Aeroplane Company.
De Forest-Symonds Model Aeroplane Co.
Helicopter Model exhibited by Al. De Dryver and Edward Huber.
Richard W. Sears (Photos).
Houtz and Henderson (Models).
A. J. Seaman (Post Card Gliders).
E. L. Lennon (Auto and Aero Supplies).
Marquis (Aerial Compass).
American Aeroplane Supply House.
Royal Aerial Manufacturing Company.
John M. Pierce (Models).
Cole and Company (Photos).
Harvard Aeronautical Society.
The White Aeroplane Company (Models).

GLIDERS.

1 Burgess Glider.
1 Tufts College Glider.
1 Pollinger Glider.
1 Sinnott and Winn Glider.
1 Harvard Aeronautical Society Glider.

Bleyer's Letter

My Dear Mr. LAWSON:—
My interest in aerial navigation prompts me to write you on the subject of "Dare-Devilism vs. Aeronautics."

From my limited knowledge of this new sport, I am forced to the conviction that many of the unfortunate fatalities among the heroes of aerial navigation are due, to a great extent, to carelessness of the aviator, and not so much on account of



EDMUND AUDEMARS AND ROLAND GARROS THE ONLY TWO MEN WHO HAVE SUCCESSFULLY FLOWN "DEMOISELLE" MONOPLANES IN THIS COUNTRY. THEY ARE NOW WITH THE MOISANT INTERNATIONAL AVIATORS.

courage as lack of appreciating the danger in handling an aeroplane. On leaving the earth the aviator's mind should not for an instant be "off his job." He may be sailing along smoothly, feeling quite confident that all is well, and then his curiosity prompts him to look under or around, or to inspect his barograph, bending over too far, forgetting all else when something suddenly happens and frequently before he regains his equilibrium, it is all over.

A man with a clear mind and the necessary courage, who will be prudent enough to keep his eyes and ears open, and his mind constantly directed upon every detail of his aeroplane, ready upon the instant to combat unfavorable conditions, will remain in the business longer than he who feels over-confident and becomes the least bit careless. You, aviator, should bear in mind that you are responsible for 90% of the risk. You are learning something every trip that you make into the air, and you will find that the straight business flight will prove the most satisfactory in the end, and the fellow that takes his life into his hands by performing all sorts of fancy stunts will suffer in the end. These things can be dispensed with until you are more familiar with the game.

You men who have become great aviators and have so thoroughly aroused the interest of all the world and who have won the hearts of all who see you circling in the air, while many of them applaud the various risky aerial performances, none of them wish to witness the crash that occasionally follows. I am quite sure that aerial navigation has come to stay, but great sacrifice of life is unnecessary, and it might be a good plan for the Aero Clubs of the various cities to issue certain rules and regulations, prohibiting the indulging of performances that unnecessarily risk the lives of aviators and thereby creating public sentiment against the air craft.

At the present time, when a well-known aviator meets with serious accident, the cry is immediately raised, "This is horrible, and should be prohibited by law." Time alone will bring confidence as to the ultimate outcome of this means of transportation, but recklessness will do more harm and do more to seriously handicap the popularity of this great sport than anything else. As a source of amusement the aeroplane will necessarily be a rich man's pleasure for many years to come. It will be some time before the cost of aeroplanes can be reduced low enough to be within reach of the average person. Yours truly,

CHARLES E. BLEYER.

Chicago, Feb. 23.

Insurance for Aviators

By GORDON CASE.

That there is some danger connected with the sport of aviation is not to be denied, that those who engage in it are now becoming very numerous is also a truism. A report to the effect that the Transylvania Casualty Company of Louisville, Kentucky, was to insure aviators against accidents caused that company to be deluged with inquiries as to rates and particulars. This shows that there is indeed a demand for such insurance. But let not the man who carries life or accident insurance despair for if his life insurance policy be unrestricted as to travel, residence, or occupation he is insured no matter what he does. And in the case of accident insurance the court of last resort of Colorado recently held in the case of a man who was killed in making a balloon ascension that as his regular occupation was the one mentioned in the policy and he only occasionally engaged in ballooning that his widow's claim for indemnity against the insurance company should be liquidated in full.

Of course professional aviators will find extreme difficulty in getting accident insurance but there should be no difficulty experienced on this score by the great majority who will in the future engage in aerial navigation as a sport. The main thing is to get as liberal as possible a policy.

Up to now no American company has under-

taken aviation risks but in view of what appears to be an increasing demand of some magnitude and of the fact that an adequate experience is fast developing upon which rates may be safely based, such insurance is sure to be available ere long.

The Glasgow Insurance Corporation of Glasgow, Scotland, is already issuing a policy at a premium of £6.61 per quarter which pays £125 in the event of death by aerial accident, £150 for loss of both hands or both feet or the sight of both eyes, £100 for the loss of one hand or one foot or the sight of one eye. The indemnities for non-fatal injuries apply both to aerial and other accidents and the company is also prepared to furnish special rates on aviators and their machines while engaged in races and competitions.

This is a real step in the right direction and represents a tendency on the part of reputable companies to offer insurance on a sound scientific basis as opposed to the various Lloyds which have heretofore accepted such risks rather in the nature of bets than otherwise.

The rates as given are high, \$122.00 per year for a \$625 death benefit, \$750 for loss of both hands, feet or the entire sight of both eyes or \$500 for the loss of one hand, foot, or sight of one eye but this may be regarded as purely tentative and subject to appreciable reduction as the business grows and competition becomes general. Also a factor which neither insurers nor insured can ignore is that either as a sport or profession aviation is rapidly passing from its experimental



B. R. SHAW, JR. AT THE WHEEL OF HIS CURTISS TYPE BIPLANE WHICH IS DRIVEN BY A 30 H. P. MOTOR.

stage and that the risk of serious accidents is constantly diminishing.

For the devotee of aviation as a sport then, insurance is now a fact and for the professional aviator it is a reality of the very near future and probably will be procurable in reliable companies at fair rates.

Glenn H. Curtiss, the first winner of the international aviation speed trophy, at Rheims in 1909, has announced that he will go to England to contest for the cup again this year in the international aviation meet. A special speed biplane is being built by him for the purpose.

The Grahame-White biplane, which was exhibited at the recent Boston Show by the Burgess Company and Curtis, has since been fitted with a canvas covered wooden framework to protect the aviator from the wind. It is an entirely novel shape, and is intended for exhibition at the Olympic Show, London, the latter part of March.

The Burgess Company and Curtis are enrolling a large number of pupils for instruction in their aviation school, which is to be opened shortly.

BUSINESS DIRECTORY

AEROPLANES

Burgess Co. and Curtis
MARBLEHEAD - - - - MASS.

BALLOONS

Aeronaut Leo Stevens
Box 181
MADISON SQUARE, NEW YORK

FABRICS

Goodyear Tire & Rubber Co.
92d Street
AKRON - - - - OHIO

KITES

Samuel T. Perkins
Man-Carrying by Kites
110 TREMONT ST., BOSTON, MASS.

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It measures 3' 6" across planes, easily put together, every part numbered, illustrated drawings accompany each order.

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Antoinette Monoplane

This monoplane flies about 100 ft. on its own power and is 25 ins. long and has a 22-in. spread, and is constructed on the same principle as a full sized machine with an aluminum propeller and rubber-strand motor. No putting together; all ready to fly.

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FOR SALE—First-class biplane glider, 152 sq. ft. surface. First \$40.00 takes it. A. Werner, 819 21st Ave., Seattle, Wash.

FOR SALE—30-horsepower aero motor, 4-cylinder water cooled, Schebler carburetor, Bosch magneto. Weight 130 lbs., including propeller, 1,500 revolutions per minute. Nickel finish, good as new. Has raised 750 lb. biplane over 100 times. Paul H. Cartter, Cottonwood Falls, Kans.

FOR SALE—50 H. P. Harriman motor complete, Sheblar carburetor \$100. High tension magneto, everything new, has been run only once. This motor is being sold by the Harriman people for \$1,675; my price \$900 cash. Address "Harriman," care AIRCRAFT.

FOR SALE—Three 78,000 cubic ft. racing balloons. One 40,000 equipped for captive if desired. Four Dirigibles, one Biplane, one Monoplane and manufacturer Balloons, Airships and Aeroplanes. G. L. Bumbaugh, Indianapolis, Ind.

A BEAUTIFUL four-colored postcard of the late John B. Moisant flying at New Orleans, December 27, 1910. 2 for 5c; 25c per doz. Geo. Wallace, 103 Royal St., New Orleans, La.

FOR SALE—Blériot monoplane, 24 horse power Anzani motor, imported from Blériot factory this year. Will be sold big sacrifice by Aviation Company, closing up its business. Box 727 % Aircraft.

MODEL PROPELLERS: Single piece, hickory, 5c. per inch—laminated, 8c. Special attention to twin propellers of opposite pitch. Extra quality. Send money order. R. G. Robinson, Model Supplies, 25 Carl St., San Francisco, Cal.

IF you are interested in Aeroplanes call and see us; we make everything for the Model builder. Prices right. Goff Aeroplane Co., Suite 414-225 Dearborn St., Chicago, Ill.

PROPELLERS, Laminated Ash \$6.50 a foot. Any size, any pitch. Guarantee exact workmanship. Early delivery.

Rudolph Kubelka, 4 Ocean Parkway, Brooklyn, N. Y.

CO-OPERATION WANTED

I AM BUILDING a monoplane of a very simple and cheap construction. Operator will ride inside; great enterprise; will be a great attraction for the Government. Machine now partly finished. Would like to communicate with party or firm of money to finance the building of same. Address: C. B., % AIRCRAFT.

THIS is to certify that I have invented and constructed a small working model of the double power system for aeroplanes (which can be used also in automobiles and motor boats).

My invention comprises two separate motors and propellers which are entirely independent from one another.

The propelling thrust is always in one central locality when working one or both propellers. It does not require any more space to install than a single 8-cylinder motor of the present type.

No transmission chains or belts are used. Wish to take partnership with party of good honest means to patent and construct same. Address Box 733.

DESIRE communication with one or more men, to incorporate with and take financial interest, aeronautic enterprise. About to build three story factory. All metal machine and line of supplies well covered by five patents. Box 731, care AIRCRAFT.

WELL known aviator seeks association with capital, fine machine. Will patent several aeronautical appliances, machine, propeller, etc. Give half interest in patents and business. Box 732, care AIRCRAFT.

CAPITAL wanted for the construction of a special type of tri-plane to try for the Hearst Prize; will divide if successful. Address J. Broderick, 59 Ridgewood Ave., Newark, N. J.

LEARN at home, in a few evenings, how to construct, operate and repair Flying Machines, Commercial Trucks, Automobiles, Motorcycles, Motor Boats, Gasoline Engines, Electric Motors. Big demand, with good pay for competent men. Thousands of positions open. Let us help you in place and pay. A postal card will do. Address Extension Department, The Charles C. Thompson Co., 549 Wabash Ave., Chicago.

MISCELLANEOUS

INSTRUCTION in practical flying desired by man, age 30. Want proposition from reliable party or aeroplane company. Address C. D., 1993 Pacific St., Brooklyn, N. Y.

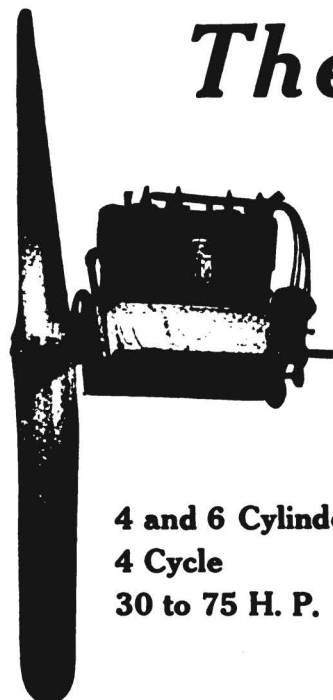
BROKEN CYLINDERS AND CRANK CASES expertly repaired by autogenous welding. Highest references as to skill and responsibility. Waterbury Welding Works, Waterbury, Conn.

WANTED—35 to 50 H.P. aeroplane motor, used, light weight and good condition. State particulars. R. Carlson, Hobart, Ind.

FAME WITH RICHES, HIGH SALARY. WANTED—Six aviators, one road business manager, to train for early spring tour of world, OPERATE TAVAC AERO CAR, THE AMERICAN VACU AERO CAR COMPANY MAKERS; only capable men with \$3,000.00, knowledge of engines and aeronautics considered. J. Fillmore Cox, Mechanical and Aeronautical Engineer, Manager, Bayonne, N. J.

MECHANIC, a young man at present employed by a well-known aeroplane company, would like to receive offers from private parties needing the services of an able man with a thorough knowledge of aeroplane and engine construction and operation. M. B., care AIRCRAFT.

DUMMY AEROPLANE with Motor and Propeller installed to rent per hour. Accomodation to build Aeroplanes; Large Sheds to Assemble Machines. Second-Hand Motors and Propellers. Rudolph Kubelka, 4 Ocean Parkway, Brooklyn, N. Y.



The AEROMOTOR

The most compact aero engine built—Special construction throughout—One piece aluminum crank case—Cylinders cast en bloc integral with intake manifold—Extra large valves—Hollow bored crank shaft cut out of solid bar—Extra large BALL BEARINGS—Dual lubrication system—Rotary oil and water pumps—Auxiliary exhaust—No vibration—Perfectly balanced—Mea (easy start) magneto—Schebler carburetor—Detroit radiator—Differential pitch propeller—1000 to 1500 r. p. m.—300 to 500 lb. thrust.

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4 and 6 Cylinders
4 Cycle
30 to 75 H. P.

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MOTORS FOR CASH**

Slightly used aero motors wanted and for sale. What is your lowest price? What is your best bid? Used motors taken in part payment for new motors.

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Astor Theatre Bldg., NEW YORK, N. Y.

"TO ORDER"

Complete set Standard 32' x 5' Curtiss-Willard Biplane, Ribs, Uprights and Main Beams. Only \$75. Small Curtiss 29' x 4 1/2' complete set of Ribs, Uprights and Main Beams, only \$50.00, delivery in one week from date of order. Finished machines that fly, Curtiss \$500; Curtiss-Willard Type, \$600; Bleriot \$700, flight guaranteed. All complete ready for motor.

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Stratford, Conn.

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For Dirigibles and Aeroplanes

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COMPLETE \$350. READY TO RUN
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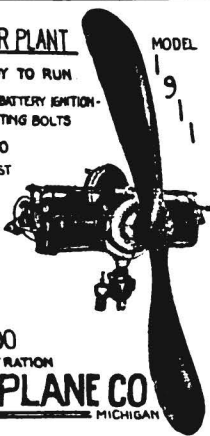
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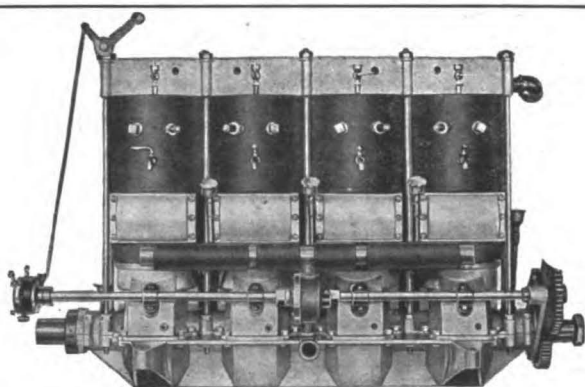
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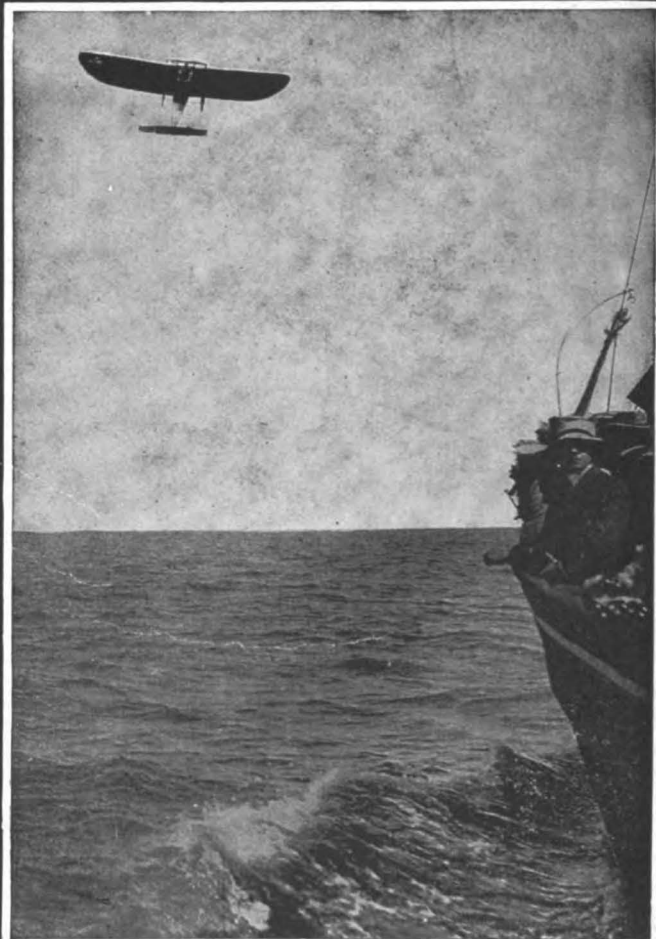
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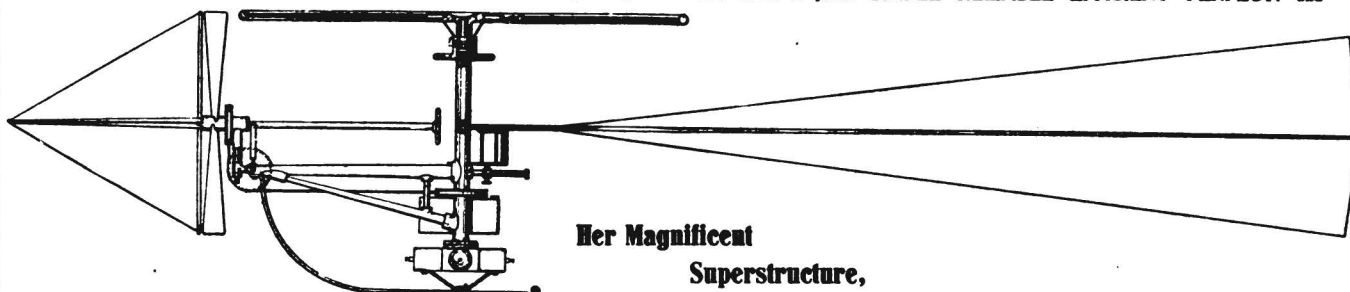
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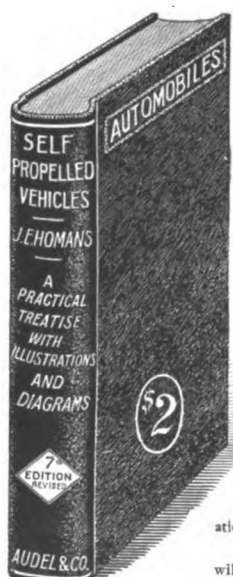
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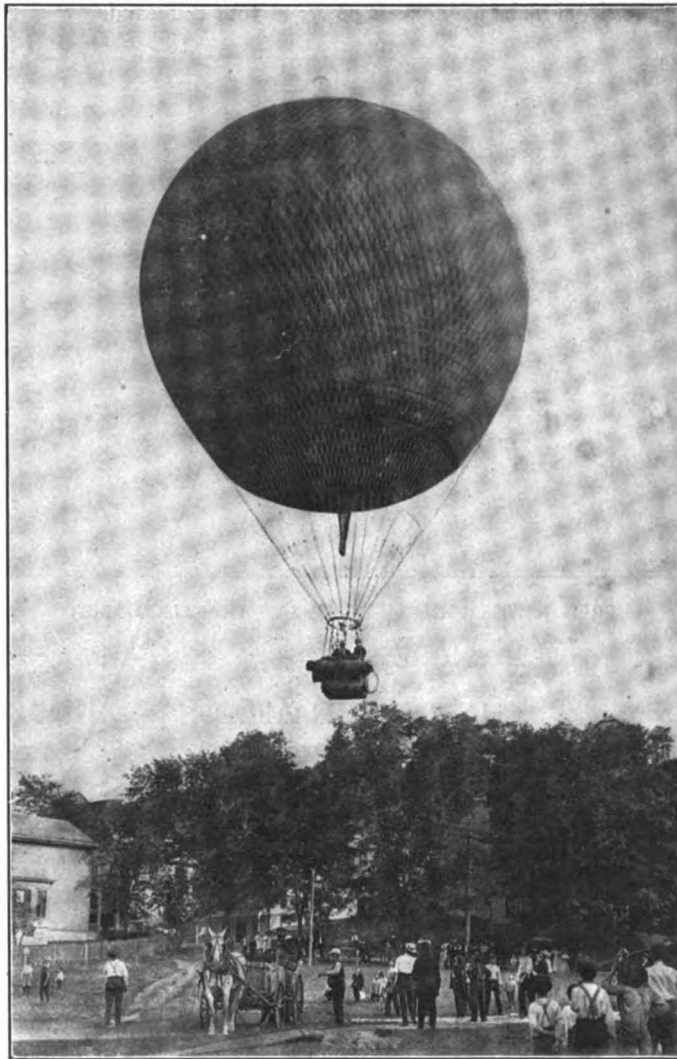
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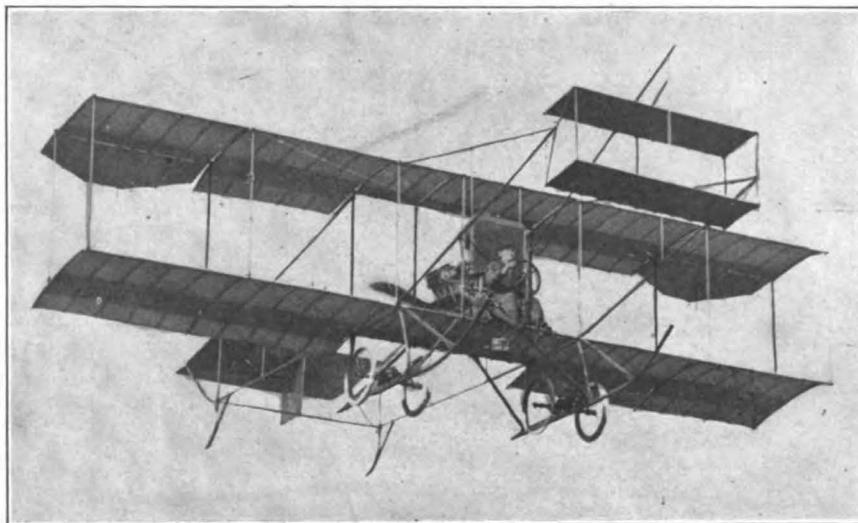
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NOVICE WINGS WAY AT MILE A MINUTE

Wiseman Flies From Petaluma
to Santa Rosa in About
16 Minutes

[Special Dispatch to The Call]

SANTA ROSA, Feb. 18.—Fred J. Wiseman, who was the only amateur to make a successful flight at the San Francisco aviation meet, flew from Petaluma to Santa Rosa today. He flew about 16 miles in almost the same number of minutes.

The flight included the delivery of a newspaper, which he threw off at farm houses. He also carried orders from Petaluma firms to Santa Rosa business houses and letters from Postmaster Olmstead of Petaluma to Postmaster Tripp of Santa Rosa.

This morning at 8 o'clock Wiseman took his seat and was, off like a bird. The engine ran like clockwork and the machine sailed swiftly and smoothly. With a long wide sweep eastward toward the foothills, where he would be protected from a rising north wind, Wiseman set his course, and then, making a letter S, followed the line of hills several miles northward over Penngrove and Cotati and again northward to the southern edge of town and landed in a field.



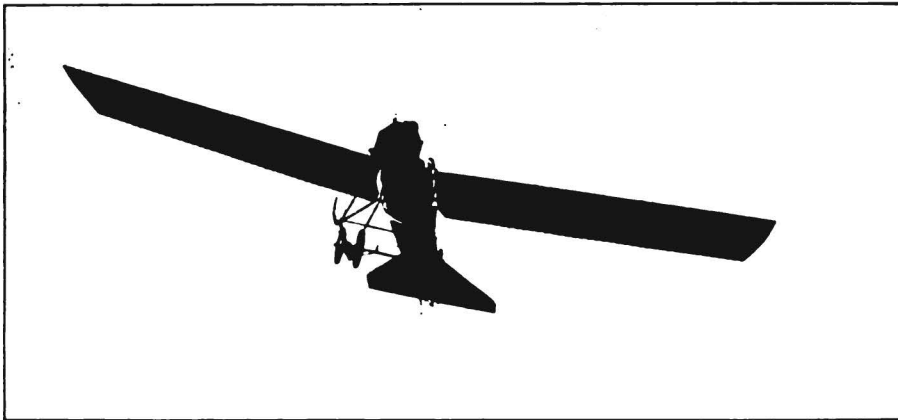
He: Come, dearest this is our chance. In an aeroplane we can't be overtaken

She: Remember father's records

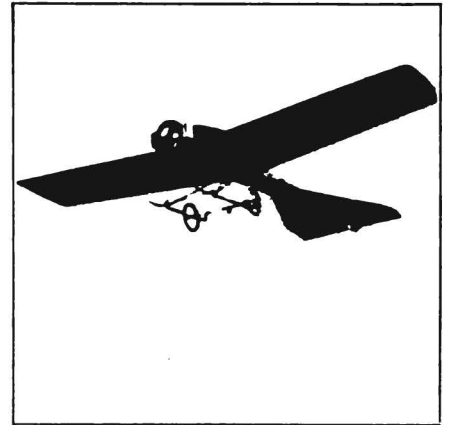
He: (proudly) But my aeroplane is a Nieuport equipped with an Anzani motor

She: 'Is that so'. Then you are right as I know this machine equipped with the Anzani motor holds the World Record for speed with passenger. I have always trusted you, I have confidence in your machine. I am ready.

31 MILES IN 31 MINUTES WITH FOUR MEN UP



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H. P. motor - \$6,600

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inches.
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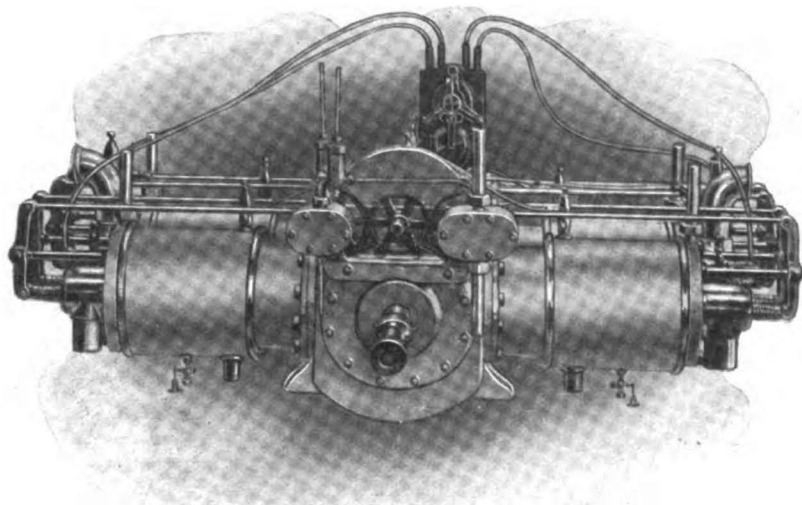
Type E
2 seats; Gnôme 70 H. P.
motor, fuselage: 27 inches
wide - - - \$9,300
Gnôme 100 H. P. motor,
fuselage: 27 inches wide,
\$11,400

Type F
2 or 3 seats; 70 H. P. Gnôme
motor, wide fuselage: 36
inches - - - \$9,900
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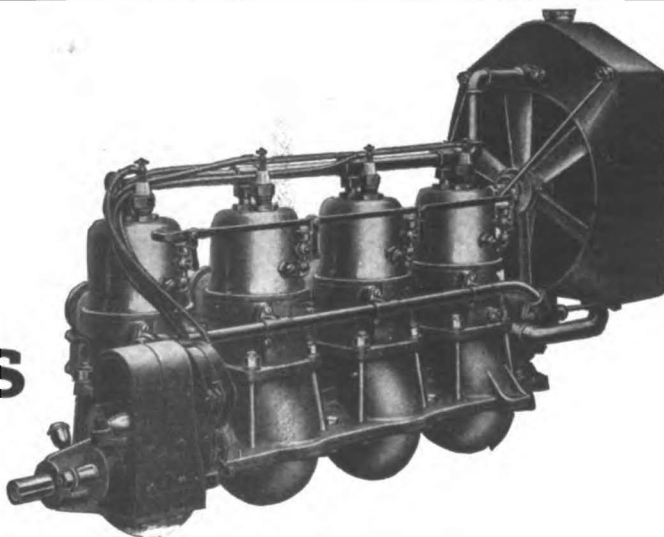
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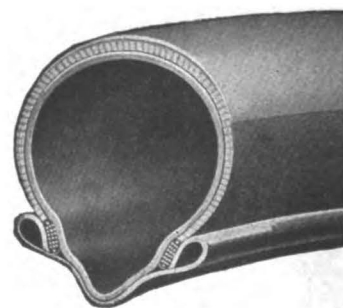


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