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## **Hattie Meyers Junkin Papers - Periodical articles**

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The Blériot, piloted by Rabatel was fitted with a Blackburne motor. On July 27 the ace stated in very thick weather. The Blériot returned to the Buc airdrome twice, having been unable to get through the fog. On the third attempt it reached the Neuilly-le-Barrois, but there trouble with the gasoline system forced it down and repairs were not made soon enough to enable the pilot to reach the first control within the time limit set. Thus the Blériot was eliminated from the race.

The Carmier was forced down by the fog at Etampes, and the Farman landed at the same point due to a leak in the oil connection. Both planes however pushed on the same day to the Clermont-Ferrand, the first official stop. The next leg of the flight was over mountains and Carmier, after climbing some 1,700 ft. found that he could not get through the fog so he returned to the airdrome and in landing broke a wheel. Makeshift repairs were made to the plane and it was able to take off again the next day. However, a break in the oil connection caused a forced landing and the repaired wheel collapsed wrecking the plane so badly that it could not continue.

Drouhin on the Farman was therefore left alone to cover the rest of the course. This took him down to the south of France and back to Paris by way of Brittany. He finally reached Paris on Aug. 10, giving an elapsed time of fifteen days and a flying time of 20 hr. 40 min. The survival of the Farman and its final victory was not a piece of luck but thoroughly deserved by both pilot and machine. Drouhin recently broke the world's endurance record on a 600 hp. Farman Goliath, flying under the most adverse conditions. The weather almost throughout the Tour de France was bad and Drouhin flew though fog that turned back the other competitors. At times the visibility was so low that he preferred to fly under telegraph wires rather than lose sight of the ground. The organization of the Farman factory was behind the flier and when he was forced down through a break in his oil connections he received repair material and helpers from a plane which was flown from the Farman factory with the necessary parts. The plane itself is a tied type, being similar to the machine which won the "Petit Parisien" prize last year. The Farman "Mosquito" is a large area monoplane with a tripod cabane forward of the pilot which not only helps brace the wings but protects him in case of the machine nosing over.

The French aeronautical press in commenting on the race says that the disappointing results were in part due to the bad weather which prevailed before and during the contest, but also points out that the manufacturers did not have the operating experience to have their planes ready on time. Some claim that the regulations were too severe and too strictly enforced, but the consensus of opinion seems to be that fundamentally the regulations were sound and that next year the contestants will profit by this year's experience.

#### The Use of Wind in Flying

The great seven hour flight Lieutenant Thoret made in Biskra last November left no doubt in the minds of the world that wind power could be utilized as an auxiliary in ordinary flying. It will be remembered that Thoret using a DH10 with 120 LeRhône motor started out to find a soaring terrain where a meet might be held for motorless machines. As he flew over the cliffs he received a terrific boost that sent him up 50 ft. trying again he throttled down his motor and glided into the rising current, crabbing into the wind so as to remain close to the edge of the cliff. It was then that he found he could cut his motor completely and maintain his altitude.

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wind is not of the question. The only other wind force about which we have any definite information is that due to the Bernoulli effect of hot air rising above heated bodies. The rate of rise of this air is at most three feet a second under the most favorable conditions. Over cross country stretches it seldom reaches 1.5 ft. per second. Even this would be considerable but if it were constant. Rising currents are, however, always accompanied by descending currents and must slide with a large cross country experience would dare that they could push out beforehand the wing tips. Except where there is a definite mountain ridge for deflecting the wind on a very long run of heated air it is extremely doubtful if the wind often makes headwinds for general cross country flying.

It is almost to be expected the reverses of these conditions and also for the purpose of determining a location for soaring which near Chicago some flights were recently made in a DH10 with the same theoretical to 3000 ft. One of these flights are significant. The tests were made by E. H. Allen under the auspices and from the field of the Aero Club of Illinois.

1. On July 12, on the Fox River has a high ridge near the river where rising winds are held. Throwing to the minimum point at which a machine would maintain its altitude 1 ft. over the ridge at 500 ft. elevation. The wind was at right angles to the hill and a 10 m.p.h. velocity. The hill is 120 ft. high. This was repeated at 100 ft., 200 ft., 300 ft., etc. No other whatever was lost until in a hot attempt the machine obtained the hilltop by 20 ft. At this altitude a DH10 was not used which greatly damaged the conditions, but gave no means to altitude. It is believed that the rising current is so narrow that the whole machine was not within it at the same time.

2. The other flight was that over the sand dunes at the southern end of Lake Michigan. A test was made as before to determine the minimum power for horizontal flight. At this point, 1 ft. over the shore of the lake was nearly as possible in the region where the gulls soar over the dunes. There was no effect whatever at altitude under 200 ft., but more under this height it was possible to handle down 50 ft. more and still maintain altitude. Over the machine 1 turned and climbed slowly but was unable to detect the slightest rising effect. In this way with the engine at 3000 rpm. I flew from Gary to Marquette City and back, a distance of 40 mi. Incidentally, the gasoline consumption was very low for a DH10.

The searching out of rising currents is certainly useful for determining possible limits for carrying on soaring flights. It may also be that much will be learned in regard to soaring greater economy of motor operation.

#### Reversion to Pioneer Types

Editor, Aviation—

A survey of contemporary American light plane development, especially among the amateur builders, brings to light a surprising amount of reversion to machine strongly reminiscent of pioneer types. The extremely broad monoplane, uncovered hulls and power plant installation all remind me very strongly of such early developments as the Sinton, the "Gleaner" and the somewhat later Herring, and besides, a possibility in light plane development which is worth consideration.

The position confronting the light plane builder is very similar to that which our pioneer aviators attacked. There is the same necessity for the adaptation of inefficiently made power plants, and the achievement of actually light weight supporting structure. Some of the failures at the English Lysons meeting show the impossibility of achieving to date the airplane superior to light plane development, and this combination of conditions indicates the necessity of a different light plane type.

I am therefore advancing the idea that modern constructional methods, combined with some of the elements of our standing pioneer types may point the way toward a light plane type.

HOMER WARD

merely intended to indicate that when flying in the same direction as the wind, work is obtained in helping reach the destination it is hardly justifiable to say that the force of the wind is used for flight. If M. Barbot contends that he utilized rising currents in assisting his engine to maintain altitude we must look further into the situation. As there were no extended cliffs or ridges along the line of flight dynamic soaring in upward deflected

wind is out of the question. The only other wind force about which we have any definite information is that due to the thermodynamic of hot air rising above heated fields. The rate of rise of this air is at most three feet a second under the most favorable conditions. Over cross country stretches it seldom reaches 1.5 ft. per second. Even this would save considerable fuel if it were constant. Rising currents are, however, always accompanied by descending currents and most pilots with a large cross country experience would deny that they could pick out beforehand the rising spots. Except where there is a definite mountain range for deflecting the wind or a very large area of heated air it is extremely doubtful if the wind offers much assistance for general cross country flying.

In an attempt to test the correctness of these conclusions and also for the purpose of determining a location for soaring trials near Chicago some flights were recently made in a JN4D with the motor throttled to 1050 r.p.m. Two of these flights are significant. The tests were made by E. D. Allen under the auspices and from the field of the Aero Club of Illinois.

1. Cary, Ill., on the Fox River has a high ridge near the river where skiing meets are held. Throttling to the minimum point at which a machine would maintain its altitude I flew over the ridge at 500 ft. elevation. The wind was at right angles to the hill and a 15 mi./hr. velocity. the hill is 150 ft. high. This was repeated at 400 ft., 300 ft., 200 ft. etc. No effect whatever was felt until in a last attempt the machine skimmed the hilltop by 20 ft. At this altitude a distinct bump was received which greatly disturbed the equilibrium but gave no increase in altitude. It is believed that the rising current is so narrow that the whole machine was not within it at the same time.

2. The other flight was that over the same dunes at the southern end of Lake Michigan. A test was made as before to determine the minimum power for horizontal flight. At this r.p.m. I flew down the shore of the Lake as nearly as possible in the region where the gulls soar over the dunes. There was no effect whatever at altitudes under 200 ft. but once under this height it was possible to throttle down 50 r.p.m. more and still maintain altitude. Over the wash-outs I turned and circled slowly but was unable to detect the slightly rising effect. In this way with the engine at 1050 r.p.m. I flew from Gary to Michigan City and back, a distance of 40 mi. Incidentally, the gasoline consumption was very low for a JN4D. This searching out of rising currents is certainly useful for determining possible terrain for carrying on soaring flights. It may also be that much will be learned in regard to securing greater economy of motor operation.

Reversion to Pioneer types

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A survey of contemporary American light plane development, especially among the amateur builders, brings to light a surprising element of reversion to machines strongly reminiscent of pioneer types. The externally braced monoplane, uncovered fuselages and power plant installations all remind one very strongly of such early developments as the Santos Dumont "Demoiselle" and the somewhat later Moranes, and

betoken a possibility in light plane development which is worth consideration.

The problem confronting the light plane builder is very similar to that which our pioneer aviators attacked. There is the same necessity for the adaptation of indifferently suited power plants, and the achievement of unusually light weight supporting structure. Some of the failures at the English Lympe meeting show the impossibility of adhering to Full size airplane practice in light plane development, and this combination of conditions indicates the necessity of a distinct light plane type.

I am thereof advancing the idea that modern constructional methods, combined with some of the elements of outstanding pioneer types may point the way toward a light plane type.

ROSWELL WARD

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