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EDITORIAL COMMENT.

The Progress of Aviation.

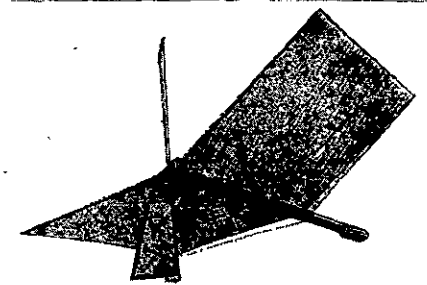
THE successful flight of the French aviator—the word is, we observe, now in established use—of which news has reached the Dominion during the past month, has drawn attention to the progress made of late in the development of the aeroplane, of the "heavier-than-air" type. Of that progress it is noteworthy that the performances of M. Farman stand at the head. This aviator, before winning the Deutsch-Archdeacon prize of £2000, made three different attempts without success. Roughly speaking, the conditions are that the aeroplanes must fly 500 metres and back. To do this the aeronaut must fly, as one authority puts it, "across the starting line, which is determined by two poles placed 50 metres apart, and then make the turn about another post situated at 500 metres, upon a line running from the middle point of the starting line and at right angles to it. After making this turn the aeronaut must come back and cross the starting line while in full flight." This is evidently the course over which M. Farman flew his 1100 yards "through goal posts" as the cables had it. The goal posts mentioned in the message are the two at the ends of the starting line, and the two 500 metres' lengths make 3280.8 feet, or 1.093 (nearly 1100) yards of the English measure. On the first trial, early in November, M. Farman flew the first 500 metres and made the turn around the turning-post and got back over the starting line, but failed to win because he touched ground several times while making the turn. On the 18th of the month he reached the turning-post, but was unable to round the same. On the 23rd this aviator had an interesting experience in other ways, but was

prevented by a storm from competing for the prize. His experience was this: After leaving the shed he was obliged to fly across a field to reach the starting-point. Starting with the wind he crossed the field, described a semi-circle, and landed against the wind, having covered 900 metres (slightly over 1000 yards). This was decidedly a good performance—it was flight. So was the next step made in the competition. During the preparations for the flight the wind suddenly increased and blew as hard as 12 to 18 miles an hour. M. Farman started his machine and rose in the air at a high rate of speed. The wind, however, continuing to increase, threatened to carry him off the course indefinitely into space. He therefore decided to wait for better times. These evidently came on the day on which he won the prize, as chronicled by the cables in terms published in our column devoted to the Mastery of the Air. It is clear, therefore, that M. Farman has flown under the required conditions, namely, over a course of 500 metres and back to start, going between fixed goal posts at one end and round a mark post at the other, situated exactly half-way across the course, without touching the ground anywhere from start (flying) to finish, also flying. This is controlled flight. That is a great fact.

As to the conditions, though nothing appears regarding them in the cabled accounts of the flight for the prize, there is little doubt, judging by the descriptions of the previous trials to which reference has been made above, that the weather was calm. The second great fact about the aeroplane, therefore, is that it has not mastered the art of coping with the powers of the air, even to the same extent as the dirigible; for the dirigibles all have proved themselves equal to a wind of 30 miles to 35, whereas the aeroplane which has won the big Parisian prize was once defeated by a wind of a little more than 18 miles an hour. There is hope, however, in the statement of an eye-witness, an expert according to the limited lights that aviation has so far provided for the experts to be fashioned by, which is as follows: "The fact that he was able to manoeuvre the aeroplane and keep it on a fairly level keel, under such adverse conditions, is another evidence of the inherent stability of this type of machine." Now, of course, the main question at the present stage of the aeroplane development is of stability rather than pace or power. It follows, therefore, that the winning of the prize is a great advance on the road which everyday's experience seems to declare to be the right one. Fifty years ago the Duke of Argyll argued that without weight greater than air, like the weight of the birds who fly in the air to great distances and keep the air under all possible conditions, flight of the controlled order would always be

impossible. The experience of M. Farman reminds us of the dictum of the distinguished authority by supporting his conclusion. Stability gained, the stability after which so many have striven in vain during later years, power to cope with the conditions of the air, various and terrible as they are, will follow as day follows night.

This stability, is it attainable in perfection? The question may be asked hopefully in view of certain details of other experiments than those of M. Farman above referred to. We have, as explained elsewhere, to-day a record of the failure of Santos Dumont's latest aeroplane. But recent advices received show that though the failure of this aeronaut with his new machine was complete in the matter of the big prize, he achieved some good results at the preliminary trials, varying direction and dip at will for fairly long distances under conditions of good stability. He has a motor of 20 horse-power, his machine is known as a "monoplane," its sustaining surface is of 107 square feet, and it has no more than $2\frac{1}{2}$ lbs. per square foot to carry. This monoplane is after the style of Hargreaves' aeroplane, patented in Sydney,



"HARGREAVES" AEROPLANE (1890) SYDNEY, N.S.W.

N.S.W., in 1890, the illustration of which we published in these pages last March, and now reproduce. Add a big two-bladed screw, horizontal and vertical rudders stem and stern, a motor at the head, and three wheels tricycle fashion underneath, with a saddle for the aeronaut, and you have a good idea of the new Dumont machine which has some points in its favour. Lastly we have to consider a suggestion made by a noted aeronaut in the leading aeronautical publication, *La Conquete de l'air*, for the application to aviation of the gyroscope. The suggestion is supported by the plea that the thing which has secured the stability of two kinds of oscillating vehicles ought to secure the same advantage for the aeroplane which suffers from lack of stability in an especial degree. On the whole, then, it appears that the aviators have achieved actual flight, and are preparing to improve their position.