

### Anomalous Reading of Hygrometer.

MR. RICHARDSON'S explanation in *NATURE* of April 28 of the anomalous readings referred to does not seem very satisfactory, because, owing to the presence of dust in the atmosphere, the air is never supersaturated; indeed, it is seldom even saturated, owing to the presence of some particles having an affinity for water vapour. But even supposing there had been supersaturated air at the time, then the "dry bulb" would also form a condensing surface and would have been heated as well as the wet bulb. Fortunately, the observer of the anomalous reading noted that the temperature was rapidly falling at the time, and the bad conducting covering of muslin would quite account for the wet bulb falling slower, and so reading higher than the dry.

J. A.

### THE LONDON TO MANCHESTER FLIGHT.

THE success of M. Paulhan in reaching Manchester from London by *aéroplane*, and thus gaining the *Daily Mail* prize of 10,000*l.*, for which Mr. Grahame-White had made such a valiant struggle, is the second case in which an English aviator has been within measurable reach of a success which has actually been achieved by a Frenchman. Last summer it was Latham who attempted and failed to cross the Channel, and Blériot who carried off the palm.

The success of the present effort affords a striking measure of the rapid progress that has been made within the last three years in extending the performances of *aéroplanes*. When first the offer of the prize for the Manchester flight was announced it certainly looked as if a more useful purpose would be served by offering a prize to anyone who could fly at all. It is hardly likely that if the only inducements offered to aviators had been prizes for such long distance flights as the present one, the same amount of attention would have been devoted to short flights; but numerous private individuals, notably in France, filled up the gap by offering a large number of smaller prizes for more modest achievements, and, as soon as a flight of a hundred yards had been performed, the main difficulty of performing a flight of a hundred miles was overcome. All that remained necessary was experience, and such increase in the carrying capacity of *aéroplanes* as was necessary to provide an adequate supply of energy for the journey.

Owing to the fact that both aviators used Farman biplanes, the results do not teach us anything regarding the relative merits of different types of machine; and it would be premature to draw any inferences regarding the relative merits of "monoplanes" and "biplanes," in view of Blériot's monoplane success last summer. The Farman biplane, like most other *aéroplanes*, is probably longitudinally stable and laterally unstable, and in a short trial which Mr. Grahame-White made early in the afternoon before starting, the machine is described as swaying from side to side dangerously. In this respect, both competitors had the same difficulties to contend against, and in view of the fact that Mr. Grahame-White is a proficient flyer both on the Farman biplane and on the Blériot monoplane, and that he made a good sixty-five-minutes flight on the Farman machine, it is probable that under reasonable weather conditions the contest would have resulted in a tie. Mr. Grahame-White's failure was certainly attributable to the bad weather. He only started from London at 6.29 p.m. on learning that Paulhan had started an hour before, and thus he was only able to get that night to Roade, about the time when M. Paulhan descended at Lichfield, fifty-seven miles in front.

On the following morning chances were again against the English competitor, for, after struggling

against the wind, he was "twisted from side to side and progress seemed impossible, so he decided reluctantly to come down"; four minutes after Paulhan had again started and only ten miles behind him. If the result proves anything, it is that the French aviator was either more skilled in checking the lateral oscillations of his machine in a high wind, or that his greater experience of meteorological conditions enabled him to seize opportunities which Mr. Grahame-White missed. Possibly, too, the difference of altitude may have affected the conditions, for, according to all chronicles, M. Paulhan seems to have flown higher than Mr. Grahame-White. At any rate, Mr. Grahame-White was at a disadvantage, for he started off without waiting for a meal on the first day, after hearing of M. Paulhan's start, and was probably less fit for his task the next morning. Whatever the explanation, however, it is abundantly shown that the time has not yet come when *aéroplanes* can be generally used for touring or for regular purposes of transport, but that much practical experience and fair weather are still required before a successful flight can be relied on. It is, indeed, a matter of congratulation that the landings were all effected in safety, and that neither Mr. Grahame-White nor M. Paulhan had any misfortunes of a serious character. At the same time, M. Paulhan is reported to have stated that he would not repeat the experience for double the prize, adding:—

"People fancy that because I did the flight well within the time it was all plain sailing. I can assure them that from the time I left Crewe the strain and anxiety with my machine was a tremendous burden, and when I put on speed and came within sight of Manchester I felt a perfect rag, wondering all the time if I could ever reach my goal. I don't believe, now that it is all over, that I could have kept it up a quarter of a mile further."

M. Paulhan has well earned his prize; but it is sincerely to be hoped that those who have money to give away in the future, and wish to promote the development of aviation, will devote it to competitions which are less strenuous tests of physical endurance, and more rigorous tests of the development of real advances in the construction of *aéroplanes*. The Aerial League's appeals in this direction have not met with too generous a response from the British public.

The use of the Gnome motor in these flights clearly demonstrates that the rotating-cylinder type of engine has a future before it. It obviates the vibrations necessarily associated with reciprocating engines, and affords a simple means of cooling the cylinders. The principle is old enough, and mathematicians have long puzzled over how to apply it, but the practical difficulties appear not to have been overcome until quite recently.

The flight has not been without its lessons regarding the means of finding one's way in the air. In this case the London and North-Western line was followed, the course being indicated by whitening the sleepers in places, and the possible halting places also being clearly marked.

If one success has thus been scored in April, the *Deutsche Zeitschrift für Luftschiffahrt*, on the other hand, describes April as the black month for aerial navigation, and April 3 as the *Dies irae*. In the issue for April 20 are portraits of Prof. Abegg, Dr. Delbruck, and Herr Benduhn, victims of the accidents to the balloons *Schlesien* and *Pommern*, both of which sailed on that day; next we have Dr. Alberti's accident with a Blériot machine in Munich, Le Blon's death at St. Sebastian, Molon's misfortune at Cannes, Grade's accident at Leipzig—all chronicled or figured in this single number of the journal. In view of this series of misfortunes, we again express the hope