

LETTERS TO THE EDITOR.

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The Weather of 1911.

WITH reference to Sir Edward Fry's letter in NATURE of November 16, the following figures may be of interest.

We have some eighteen records of the temperature up to a height of 15 kilometres or more over the British Isles during the period of the hot weather, distributed over seven days. Excluding the records for Scotland in September, where the weather was not hot, the following departures from the mean are found:—

At 2.5 kilometres a temperature of +5.5° C.			
5.0	"	"	+2.5°
7.5	"	"	normal
10.0	"	"	normal
12.5	"	"	-7.0°
15.0	"	"	-5.0°

These figures show that the heat was confined to the lower strata. With anticyclonic weather, such as prevailed during the summer, it is usual to find a negative departure from the mean temperature above 12 km.; but the greatest departure from the mean is generally found at about 7.5 km., where, as a rule, we get +5° C. The +5° C. at 2.5 and the normal value at 7.5 are very unusual, but they are shown more or less in every record.

I agree with Dr. Shaw in thinking that the surface conditions are imposed upon us by the conditions that prevail above. From the total and partial correlation coefficients that I have obtained it seems to me that the pressure in the layers of air just under the isothermal, which may be taken as the pressure at 9 km., is the dominant factor in the distribution of pressure and temperature in the whole region of the atmosphere that has been explored, with the exception of the temperature near the ground, which in temperate latitudes is certainly more dependent upon the direction of the wind than upon anything else.

I do not altogether agree with Dr. Shaw in thinking that the changes of temperature at 9 km. are in any way due to changes in the direction of the wind at that height. It seems to me more likely that they are produced by rising or falling air, and that the vertical motion, and therefore the temperature, is the direct result of the variations of pressure.

Unfortunately, it is only on rare occasions that we can ascertain the rate and direction of the wind at great heights; but there is sufficient information to show us whether the temperature at any given height up to 15 or 20 km. is dependent upon the direction and rate of drift of the atmosphere as a whole, for the direction and distance of the falling place of the balloon supply the requisite information about the general drift on any particular occasion.

I hope shortly to tabulate the results of some 200 ascents, and ascertain what the connection, if any, may be.

Pyrton Hill, December 2.

W. H. DINES.

The Interaction between Passing Ships.

THE statement made in NATURE of November 30, in the article on "The Interaction between Passing Ships," to the effect that no experiments have been made to test this interference in shallow water except those recently carried out at Teddington, needs some little qualification. A somewhat extensive set of experiments to test this, among other points, was carried out some two months ago at University College, Dundee. Screw-propelled models of various sizes, at distances apart up to 200 yards, were used in these experiments, the depth of water varying from 1.6 times the draught of the vessels to 12 times the draught. The results were of such apparent interest that

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they were communicated to the Admiralty, who arranged for the Teddington tests, of a more restricted nature, to be carried out on larger accurate scale models of the *Hawke* and *Olympic*. The results of the Dundee experiments have been for some weeks in the hands of one of the scientific societies, and it is hoped that they may soon be made public.

A. H. GIBSON.

Engineering Department, University College,
Dundee, December 2.

December Meteor-showers.

THE following meteor-showers become due during the period December 8-31:—

Epoch December 7, 17h. (G.M.T.), second order of magnitude. Principal maximum, December 8, 8h. 15m.; secondary maximum, December 8, 3h. 40m.

Epoch December 7, 22h. 30m., approximately sixth order of magnitude. Principal maximum, December 8, 1h. 30m.; secondary maximum, December 9, 1h. 40m.

Epoch December 13, 17h. 30m., approximately sixth order of magnitude. Principal maximum, December 12, 1h.; secondary maxima, December 11, 15h. 30m., and December 13, 11h.

Epoch December 13, 13h. 30m., thirteenth order of magnitude. Principal maximum, December 14, 22h. 5m.; secondary maxima, December 13, 21h. 5m., and December 16, 17h. 30m.

Epoch December 18, 2h. 30m., thirty-fifth order of magnitude. Principal maximum, December 18, 19h. 50m.; secondary maximum, December 19, 7h. 40m.

Epoch December 19, 10h., approximately fifteenth order of magnitude. Principal maximum, December 19, 13h. 50m.; secondary maximum, December 19, 17h. 15m.

Epoch December 22, 1h., fourth order of magnitude. Principal maximum, December 23, 0h. 40m.; secondary maximum, December 22, 21h. 30m.

Epoch December 23, 2h. 30m., ninth order of magnitude. Principal maximum, December 24, 6h. 30m.; secondary maximum, December 24, 18h. 15m.

Epoch December 25, 15h. 30m., approximately twentieth order of magnitude. Principal maximum, December 27, 13h. 50m.; secondary maximum, December 26, 15h.

Epoch December 30, 0h. 30m., approximately eighteenth order of magnitude. Principal maximum, December 31, 15h.; secondary maxima, December 31, 11h. 30m. and 16h. 15m.

There are reasons for believing that the total mass of a meteoric maximum may be considerably greater than is generally supposed. Such a mass of matter, in being brought to rest, must give rise to currents in the upper strata of the atmosphere, these currents very probably constituting what may be known as atmospheric depressions, inasmuch as a column of air if thus set in motion will weigh less than when undisturbed.

In December meteor-showers are more evenly distributed over the month than was the case in November; still, there are periods of special meteoric activity. The first of these, in intensity as well as in time, occurs on December 8; the second period, as regards intensity, is spread over the days December 22-24; while the third period, which is comparatively weak, falls between December 16 and 21. Shooting stars may be numerous on the night of December 31.

JOHN R. HENRY.

Dublin, December 4.

The Inheritance of Mental Characters.

To Dr. Archdall Reid it is an "astounding thing" that I should imagine that Prof. Pearson could possibly agree with the interpretation I ventured to put upon his statement which Dr. Reid condemns as "void of all content" and "quite nonsensical." Dr. Reid evidently feels that my quotation from his attack upon Prof. Pearson was not quite fair, in that I omitted part of the context which he regards as essential. I apologise for an entirely unintentional and unforeseen cause of offence. As he has himself rectified this omission, I may, I presume, take it that all is *en evidence*