inextricably entangled in the medley of new systems made by Continental workers, all of which systems differ the one from the other as "chalk from cheese." It is a mere whim to imagine that chapters on "The Anatomy of a Snail" and "The Anatomy of a Fresh-water Mussel" should have been excluded since the basis of systematic zoology is anatomy. And it is a mere whim to cavil at the inclusion of the vars. *minor*, *maxima*, and "*albida*," (*exalbida*, if you please, Mr. Reviewer, for so was it named by Menke), and the monstrosity *sinistrorsum* of *Helix aspersa*, since Dr. Gwyn Jeffreys and Moquin-Tandon have named varieties and used variety-names, and since Prof. E. von Martens, than whom no better conchologist, expressly mentions that "it is certainly desirable that every local form, well-marked zoologically or geographically, should have a distinct name." And may I turn a reviewer on my own book, and ask myself how it is that I did not, as your reviewer desires, give the localities for every species, and make the book costly, and, by so doing, take it away from the reach of the poorer classes? Why also did I not give the definite localities for the new local species, when I considered rightly that some of them may turn up in other, and, perhaps, far distant spots to those now known? In conclusion, I would point out to your reviewer—for I must not occupy your valuable space to any greater extent—that as there is a virtue in the every-day affairs of this our mundane life which, to quote Seneca, is "the only immortal thing that belongs to mortality," so, as certainly, is there a virtue in right reviewing which is quite as exacting and quite as important to always bear in one's remembrance.

J. W. WILLIAMS.

51 Park Village East, N.W.

IN reviewing Dr. Williams's little book, I wished not merely to point out the author's mistakes, but to guard young conchologists, to whom the book is addressed, from placing too great reliance on the statements it contains.

I felt also convinced that the author was not practically conversant with his subject; indeed, that his knowledge was purely derivative, and this the foregoing letter fully confirms.

I will not occupy space with a detailed criticism on the author's method of compilation, but will simply refer to a single instance, quoted to show his want of care in referring to the original sources of information, so useful in such a task. The method of numeration of the tooth-formula, referred to by me as incorrect at p. 7 of the "Hand-book," is now justified by the author, who quotes Woodward as his authority; but upon referring to my brother's "Manual" I find that my statement was fully justified by the fact that the quotation is *not correct*, it having been taken by Dr. Williams from Prof. Jeffrey Bell's "Comparative Anatomy," where my brother's name is given as the authority for the instances quoted, and not for the whole paragraph to which it is appended, and which does not appear in his book. To the second part of Dr. Williams's *whimsical* letter I feel sure it is needless to reply.

HENRY WOODWARD.

129 Beaufort Street, S.W., May 28.

Freaks of Nature.

I INCLOSE a letter from my grandson Charles, a boy, son of St. Vincent Erskine, the explorer, with whose travels you are probably acquainted.

This singular instance of a change in the habits of birds, consequent on the advance of civilization, is extremely important and interesting, as it evinces almost reasoning powers and adaptation of habits to circumstances. As you are aware, some birds in South Africa build their nests on the pendant boughs of willow-trees as a defence against snakes and iguanas.

These willows, like other trees in Natal, are rapidly becoming scarcer, as they are cut down, whilst the boys who take the nests increase. This is, no doubt, the cause of the birds changing their nests to the telegraph-wires, where they are also safer from their natural enemies.

It would be interesting to know whether similar instances occur elsewhere.

D. ERSKINE.

47 Gratton Road, Kensington, May 25.

P.S.—It is remarkable also that the hole is at the side instead of the bottom, showing that the bird was aware that the situation was snake-proof. Darwin would have been glad of this proof of evolution.

WHILE watching the landscape of Natal between Ladysmith and Pietermaritzburg from a Natal Government Railway carriage, I saw some nests of the "golden weaver" bird. There were four of them hanging in a row, close together. They were the round kind, without the long arm. On one of the nests sat a cock weaver bird, but I saw no hens.

The nests seemed to be one or two years old, except one, which was greener than the others, and most certainly one of this season's. The chief peculiarity seemed to lie in the fact that the birds had woven grass round the wire for some six or eight inches, and two or three inches in circumference, before beginning to make the nest, and that the bird had to deal with a horizontal wire instead of a vertical stick or a branch. The bird always twists the grass round the branch (if he builds on a vertical twig) for some way up among the leaves and stalks, leaving the long ends free, thus forming his foundation. Weavers prefer to build on trees where the long slender twigs droop towards the ground, and so afford a nice vertical slender support. They are especially fond of the weeping-willow, whose slender switches generally branch off into two small shoots at the end: between these the bird loves to build his nest. Besides, the willow has lots of leaves very near together, and so holds the straws very well. On the wire he had no such support, but had to trust to his own ingenuity to overcome the novel situation, which task he seems to have accomplished very well.

The entrance to these nests was not at the bottom, as usual, but by a hole in the side, and all the nests did not look the same way.

I suppose there was only one nest a season or two ago, with a single pair of birds; soon we shall have a long string, or rather wire, of these ingeniously built homes with their happy quarrelsome occupants, making enough noise to stop all the messages ever sent that way. They will hear all the "Government" secrets: then we will be able to say truly, "A little bird told me."

C. H. ERSKINE.

WHIRLWINDS, WATERSPOUTS, STORMS, AND ROTATING SPHERES.¹

IT is often necessary, in many branches of science, to halt in our steady progress along the beaten roads of induction, and say, "*Fiat experimentum*." We may not always be able by this means to reproduce exactly all the physical conditions of the phenomenon, we are investigating, or to evolve a test crucial enough to enable us to decide between rival hypotheses. Nevertheless, the power we thus gain, especially in the case of an atmospheric phenomenon, of seeing the entire system of action in a *coup d'œil*, of gauging its relative proportions, and of examining its dependence and effects on its *entourage*, can hardly be over-rated.

Such would appear to have been M. Weyher's object in the delicate and ingenious experiments which he has so skilfully elaborated and described in the pamphlet of 91 pages before us.

The physical theory of atmospheric eddies, including the rotating flat disk or cyclone, and the rotating column which manifests itself as a tornado, waterspout, or dust-whirl, according to variations in its intensity and surrounding circumstances, has lately been developed to an extent not generally known, principally by Ferrel, Sprung, Oberbeck, and Marchi. It is therefore decidedly satisfactory to those who believe in the progress of meteorology by rational theory and deduction, to find that the motions exhibited in M. Weyher's experiments, in which the conditions in Nature are very fairly imitated, agree in every point with those which have been deduced from their physical theory.

Theory, for example, shows that a tornado is due primarily to an unstable condition of saturated air, accompanied by a gyrating motion (which may initially be very small, and which is practically always present to

¹ "Sur les Tourbillons, Trombes, Tempêtes, et Sphères Tournantes: Étude et Expériences." Par C. L. Weyher. (Paris, 1887.)