of Plymouth," is valuable and readable, containing the results of careful observation. "A Catalogue of the Geometrina of Plymouth and its Vicinity," by Mr. G. C. Bignell, will interest entomologists. "Our Obligation to Greek Thought," by Prof. Chapman, is a thoughtful paper, and there are several other excellent papers of historical and antiquarian interest.

Volcanologische Studien. Von Dr. Eduard Reyer. (Wien: 1878.)

WE have already had occasion to direct attention to the valuable contributions to the theory of volcanoes which have recently been published by Dr. Reyer, of Vienna. The memoir before us fully maintains the reputation of its author as an able investigator and original thinker. In it he discusses the nature of the materials which remain in the throat and deeper portions of a volcanic vent, after the eruptive action has ceased, and the features presented by those volcanic cones which are formed not by violent explosive action but by the quiet outwelling of liquid lava. Dr. Reyer's remarks on both these questions will be found to be eminently valuable and suggestive. J. W. J.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

Is the Sun One-sided?

WHEN Broun and Hornstein detected the existence of a terrestrial magnetic inequality, of which the period is nearly that of the sun's rotation, it was natural to regard this inequality as a direct result of the rotation of our luminary. Nevertheless, there are grave reasons against this hypothesis. In the first place, it is extremely difficult to imagine the sun to be one-sided in its magnetic influence. From what we know of our luminary, it must in a great measure be composed of gaseous matter, of which the outer layers are in violent motion, so that we can hardly imagine one meridian to be permanently different from another.

Another objection is derived from the fact that the period of this peculiar magnetic inequality (of whose existence there can be no doubt) is very nearly that of the sun's rotation in space, and decidedly less than that of its synodic rotation. Now, if we can imagine the sun to affect the earth in this peculiar manner, we should be inclined to suppose that the period of such influence would be that of its synodic rotation, that is to say, of its rotation with regard to the earth.

But if this inequality be not due to the sun's rotation, how (it may be asked) is it possible to account for it?

In the first place there is accumulating evidence of the existence of an intra-mercurial planet with a time of revolution, not differing greatly from that of the sun's rotation. Again, there can be little doubt that we have various magnetic inequalities, of which the periods are the same as those of the most prominent planetary configurations. May not, therefore, this magnetic inequality be connected with the intra-mercurial planet of the existence of which we are becoming sure, and is it not possible that a discussion of magnetic changes may aid us in settling this very interesting and important question?

St. Andrews, August 26

BALFOUR STEWART

Von Cotta's "Geologie der Gegenwart"

YOUR journal contains, in the number for August 8, a short notice of my newly-published "Geologie der Gegenwart," with a signal misrepresentation of the coloured frontispiece, beginning with the lines, "We can scarcely regard," to the end of the paragraph.

The illustration in question really is a representation of the fact that igneous rocks—both volcanic and plutonic—being originally products of the central parts of earth, form different

species, according to their being rich in silica (acidic rocks) or poor in silica (basic rocks), and according to their consolidation at a considerable depth as *plutonic*, or nearer the surface as *volcanic* rocks. Becoming solid at a great depth, the *acidic* fluids have formed granites or porphyrites; nearer the surface, trachytes or trachytic lavas. The *basic* fluids, on the other hand, became syenites or greenstones at a great depth, and basalts or basaltic lavas nearer the surface.

All these various rocks by no means belong to particular geological periods, but at all times have either overflowed or penetrated other formations, and been accompanied by tuff formations.

The misapprehension contained in your notice is doubly painful to me, because I think I have been the first German geologist who decidedly adopted Lyell's view with regard to the utter independence of the nature of rocks from their geologic age: witness the first edition of my "Geologie der Gegenwart," published in 1866.

BERNHARD V. COTTA

Freiberg

On the Wax of Pœcilopectera

A SPECIES of Pœcilopectera was this year rather common in the neighbourhood of this city, covering thickly the branches of *Cassia obtusifolia*, L., and more sparingly of *Cassia spectabilis*, D.C. I have not the means of identifying the species; I inclose, therefore, the wings of a specimen, so that some entomologist may give you the right name.¹ The females of Pœcilopectera, as indeed of many other Fulgoroidea, are known to have the property of secreting a wax-like substance from between their abdominal rings, and especially from peculiar appendages of the last ring. This substance is, in the present species, of a beautiful white colour, glossy like silk, and formed of exceedingly thin threads, 1-500 to 1-700 of a millimetre thick, and generally less than a centimetre long. When taken off the living insect, the latter will be found to produce new threads in somewhat less than twenty-four hours. The threads are pure wax, lighter than water, insoluble in cold alcohol and ether, but dissolving a little in hot alcohol, and very easily in hot benzol. The fusing-point I found by repeated experiments to be a little higher than that of boiling water, though I could not determine it exactly, owing to the small quantity of wax I had collected (from 150 insects I obtained but six centigrammes of wax). In a heated silver spoon, or on platin-foil, the wax melted very easily, leaving no residue whatever. The molten wax was at first of a light yellow colour, which disappeared again after its getting cold.

The late Mr. D. Hanbury, in a paper on the insect-white-wax of China ("Science Papers," 62), quotes the statement of Capt. Hutton as to the properties of the wax of *Flata limbata*, an insect closely related to the Pœcilopectera. It is said to "dissolve readily in water, while the attempt to melt it on the fire without water or oil proved altogether abortive, the wax merely burning and consuming away till it became converted into a hard and baked substance." This is certainly very singular, and it appears to me highly questionable whether Capt. Hutton's so-called wax was any wax at all.

I have not been able to find out what can be the benefit the insects derive from these copious secretions; but as they occur only in the females, there will probably be some connection with the egg-laying or hatching process. I observed no males, and could discover no eggs even in places where the females were thickly crowded on the branches. I should add that the insect is generally rather uncommon in our local fauna.

Caracas, July 15

A. ERNST

Spontaneous Combustion of Wasps' Nests

SOME time ago the house of General P. M. Arismendi (now Consul of Venezuela, in Port-of-Spain, Trinidad) in this city, had a rather narrow escape from being set on fire by the spontaneous combustion of a large wasps' nest (a species of *Polistes*) in a closet under a roof. The day was exceedingly hot; but this circumstance, I think, has a very slight connection (if any at all) with the outbreak of smoke from the nest. Roofs in this country are constructed of tiles supported by a thick layer of compact earth, which rests on the usual lath-work of dry canes (the stems of *Cynerium saccharoides*, or arborescent grass), both being substances that conduct heat very badly.

¹ An entomological correspondent informs us that the wing is that of *Pœcilopectera phalaenoides*, Linn., and agrees with Stoll's figure of the insect from Surinam.—ED.