

nine families of Bombyces, ending with the *Psychidae*, is written in the same careful and painstaking manner as its predecessor. The first volume has been well received abroad, but the foreign critics regret the absence of references, a deficiency more felt by them than by British lepidopterists. The foreign critics speak of the plates as a veritable storehouse of remarkable varieties; but we must again comment very severely on the action of the publishers in issuing two editions of the work, one with, and the other without illustrations, without any reference to the illustrated edition in the letterpress of the other, so far as we have noticed; and in the case of the second volume, without even as much as an advertisement to call attention to its existence.

There are several points of general scientific interest suggested by an examination of Mr. Barrett's book. A great number of species recorded as British by the older entomologists, but rejected by Doubleday and Stainton, have latterly been rediscovered and reinstated. This has happened so often, that it seems likely that when we eliminate accidentally introduced species (chiefly North American), and European species wrongly determined, it will be found that the information given by the older writers was far more accurate than the writers of the middle of the century were at all disposed to admit. Nor did the latter allow for the difficulty of communication with the continent at the beginning of the century, which added much to the improbability of specimens asserted to have been taken in England, having been simply brought over from the continent.

In estimating the probability of a reputed species being truly British, the chief factor to be taken into account is its continental range. It is evident that the British fauna is slowly changing, some specimens becoming rarer or even disappearing, and others becoming commoner, or establishing themselves in England for the first time. There is also some tendency in Mediterranean species to extend their range further north in Western Europe. As the late Mr. Stainton once remarked, the comparison of our present lists with those of the future, will be likely to yield highly unexpected and interesting results.

W. F. K.

Quellenkunde. Lehre von der Bildung und vom Vorkommen der Quellen und des Grundwassers. Von Hyppolyt J. Haas. 8vo. pp. 220. Illustrations in the text. (Leipzig: J. J. Weber, 1895.)

PROF. HAAS, of Kiel, when asked to edit and bring up to date the "Quellenkunde" of Abbé Paramelle, came to the conclusion that in order to state the present position of the science of springs and underground water in a satisfactory form, an entirely new work was necessary. Hence the book under notice. In such small compass, nothing approaching a complete treatise could possibly be attempted. The chief features of springs, their classification and relation to geological conditions, are discussed according to a clearly arranged plan under five principal heads. First comes a discussion of springs in general, including an historical introduction, in illustration of which several of Athanasius Kircher's quaint pictures are reproduced. The following sections deal with thermal and mineral springs, underground water, and the art of finding springs. In the last division we find some remarks on the divining-rod. The book should prove useful to students of physical geography and to those concerned with the practical utilisation of a water-supply derived from wells.

A number of diagrams are reproduced from the works of Daubrée and other authorities. Although several English authors are cited, we fear that Prof. Haas has not made himself familiar at first hand with the literature of the subject in English, which is by no means meagre in records of original observations on the movements of underground water, and deserves more recognition than it receives.

NO. 1332, VOL. 52]

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 intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

Uniformitarianism in Geology.

DR. ALFRED WALLACE, in his letter to NATURE of May 2, calls attention to the significant fact that catastrophes caused by volcanoes "may be of greater magnitude now than in geologic times," owing to the crust of the earth being thicker now than it was then. He, however, is mistaken in supposing that this consideration has been overlooked by geologists. If he will kindly refer to "Geology," vol. i. p. 449, he will find it there stated, speaking of the older fissure and explosive eruptions, that "there is nothing to show that this [the explosive] action was on the same scale of magnitude and permanence as those of late Tertiary and recent date. With the greater thickness of the earth's crust and the greater resistance presented by its rigidity, volcanic eruptions must with time, as suggested long ago by Elie de Beaumont, have altered with the alterations of those conditions, and may now be exhibited under a phase very different from those of the earlier periods."

Or again, he will find in "The Position of Geology" ("Collected Papers," p. i.) it stated that, though one form of volcanic action (the fissure) was more active in the past than at present, that "explosive eruptions are more violent now than in former times." And again, at p. 145 of the same work, I remark that "while with the thinner crust of former times, there would be a more frequent extrusion of the molten rock, there are probably with the thicker crust now formed and consequently its greater resistance, greater forces stored in the explosive eruptions of the present day."

The instance relied upon by Dr. Wallace is, however, another striking example, if others were needed—though in this case it is on the inverse side as against meteorological agencies—of the non-uniformity in degree between the action of the forces of past and present times. The increased thickness of the crust is not, however, the sole cause of the violence of recent eruptions, nor are they, I imagine, due to the presence of occluded water in the volcanic foci. The terrific eruptions of Krakatō and other volcanoes are, I conceive, due simply to the access of vast volumes of surface waters and their sudden flashing into steam.

Volcanic action, therefore, does not seem to me to be in any way in contradiction to the conception of uniformity of kind or law, and to non-uniformity on the question of degree.

Sevenoaks, May 4.

JOSEPH PRESTWICH.

Green Oysters.

I HAVE just received a "Note," extracted from the *Monitore Zoologico Italiano*, of Florence, by Dr. Carazzi, in which a number of unsupported statements are made as to "phagocytosis in Mollusca."

Amongst other statements, I find "Non solo sono osservazioni erronee quelle del Lankester, malamente ripetute dello Chatin, ma lo sono egualmente quelle del Pelseneer e del Bruyne." I am surprised that my zoological friends in Florence should publish a bare statement of this nature without a shred of evidence to support it. I desire to draw attention to the simple assertion made by Dr. Carazzi, and to let those who are responsible know that I and others expect him to show in detail what is the error in the observations published by me on the green oysters of Marennes.

It is certainly not a usual thing for a Society to allow an author to print vague accusations of inaccuracy in reference to other writers, without the smallest attempt to justify such accusations.

Dr. Carazzi's assertion is all the more remarkable, since it appears that he has not examined the true *huitres de Marennes* at all, and is singularly ill-informed as to the histology and physiology of Mollusca.

I shall be very much surprised if Dr. Carazzi can show that the observations published by me on green oysters in 1886 (*Quart. Journ. Micr. Sci.* vol. xxvi.) are erroneous, and shall at once re-examine the matter if he succeeds in throwing doubt on the facts as stated by me.

Inferences from observed facts stand in a different position from the observations themselves.

I was the first to describe the cells laden with green granules