

as exhibit a simpler structure than others, have probably diverged least from the primitive stock. We cannot too strongly insist upon the general recognition of the fact (self-evident though it be) that, in the present state of our knowledge, and in the almost total absence of palæontological evidence, our sketches of insect phylogeny, however useful and suggestive, cannot but be, to a large extent, purely tentative.

Some recent authors have regarded the *Crambida* as a totally distinct family from the *Pyralida*. Sir George Hampson recombines them, and divides the *Pyralida* into the following twelve sub-families: *Galleriina*, *Crambina*, *Schænobiina*, *Anerastiina*, *Phycitina*, *Epipaschiina*, *Chrysaugina*, *Endotrichina*, *Pyralina*, *Hydrocampina*, *Scopariina*, and *Pyraustina*.

Die Minerale des Harzes: eine auf fremden und eigenen Beobachtungen beruhende Zusammenstellung der von unserem heimischen Gebirge bekannt gewordenen Minerale und Gesteinsarten. Von Dr. Otto Luedecke. Pp. 643. Mit einem Atlas von 27 Tafeln und 1 Karte. (Berlin: Gebrüder Borntraeger, 1896.)

THIS elaborate Treatise on the Minerals of the Harz will be very useful, as a work of reference, to those who are in charge of mineral collections, and to all who are specially interested in those species with which the treatise deals. In it the author has placed on record the results of the observations made by him in the course of the last eighteen years, during which period he has examined the private and public collections of the region, and has visited the Harz localities both to satisfy himself on the spot as regards the existence of the minerals at the places mentioned, and to obtain information as to the modes of occurrence; these visits were facilitated by the nearness of the district to Halle, of which University Dr. Lüdecke is a distinguished professor. Further, the author has incorporated the results of the study of Harz minerals by other mineralogists. In the case of the more important species, such as Galena and Copper-pyrites, a brief sketch is given of the geological features of the districts in which the minerals occur. The treatise is accompanied by an atlas of twenty-seven plates (chiefly crystal figures and stereographic projections) and a very clear map of the region, photographically reduced from the one prepared by Borchers in 1865. Prof. Lüdecke has done a considerable service to Mineralogy by the publication of the results of so thorough an examination of this important mineral region.

The Wonderful Universe. By Agnes Giberne. Pp. 128. (London: Society for Promoting Christian Knowledge, 1897.)

To the class of readers which finds pleasure in being oppressed and bewildered with information as to the "wondrous far distances," and especially to the members of it possessing a sentimental bias, Miss Giberne's book will successfully appeal. Among the titles of the eleven chapters are "The Silver Moon," "Fair Venus," "Red Mars," "Twin Giants," and "Stars of Light." What Miss Giberne has to say on these and other subjects comprised in her book can usually be depended upon; and, as might be inferred from the quoted titles, she aims at making her descriptions attractive. In the latter attempt, however, she is not altogether successful. A sprinkling of poetical extracts, a few lapses into the religious aspects of astronomy, some lugubrious humour, and a number of statements as to how long it would take to go to the moon and other places in an express train, make up much of Miss Giberne's latest volume. Still, the fact that the information can be trusted, and that it is very simple, is a recommendation.

There are no illustrations, not even in the chapter on

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"How to Learn the Heavens," and there is no index. A book on astronomy published with such omissions hardly possesses the qualifications for success.

The Story of Forest and Stream. By James Rodway, F.L.S. Pp. vi + 202. (London: George Newnes Limited, 1897.)

IN this little book Mr. Rodway sketches, in his best style, the life of trees in wood and forest, and indicates the lessons that it teaches. He points out the benefits derived by man and other animals from forests and streams, imparting the information in pleasing language, and presenting nature in many instructive aspects. The twenty-seven illustrations are the best that have yet appeared in any of the volumes in the Library of Useful Stories, to which series the present book belongs.

Mr. Rodway naturally devotes the largest share of attention to the forests of South America, for he is most familiar with the conditions which obtain in them. On this account, however, the plant-life described is somewhat limited, though here and there comparisons are made between the floras of the old and new worlds. A more appropriate title for the book would have been "The Story of Tropical Forest and Stream."

Quelques observations sur les Muscles Peauciers du Crane et de la Face dans les Races Humaines. By Théophile Chudzinski. Pp. 90. (Paris: Masson, 1896.)

THIS work gives an account of the arrangement of the superficial muscles of the head and neck in the different races of men. The muscles are described, and a series of measurements given for each in the different races. The general conclusion is what one would expect; namely, that these muscles of the superficial fascia are most marked in the black races, least so in the white, while in the yellow races they are intermediate in their development. The facial muscles of the negro are found to closely resemble those of the gorilla in their great development. M. Chudzinski draws attention to the diagrammatic manner in which the muscles of expression are usually figured, and notes particularly certain very superficial layers which it is customary to remove in defining the edges of the muscles. The twenty-five figures, which are given at the end of the text, illustrate the comparative development of the muscles as seen in dissections of the heads of different races.

LETTERS TO THE EDITOR.

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The Meaning of the Symbols in Applied Algebra.

IF I had made a slip of the pen of the kind suspected by Mr. Cumming (p. 198), it would have been a serious error, because it constituted the essence of what I was writing about. I was sure that a number of teachers did not believe it, and I am obliged to Mr. Cumming for giving me another opportunity of emphasising what I believe to be a vital matter. He says "the multiplication of one length by another length [or, more generally, of one concrete quantity by another] is abhorrent to the mind of" certain mathematicians. Quite true, I know it. The idea was abhorrent to the mind of the late Mr. Todhunter, and I think that Prof. Greenhill has expressed himself in the same sense. But what then? That is exactly why the idea requires driving home; and until it is driven home there will be no real clearness or simplicity in dealing either with physical quantities themselves or with their numerical specification in terms of given "units."