Frye's Complete, p. 9, 1895; Potter's Advanced, p. 12, 1891; Monteith's New Physical, p. 78, and Tarr's Physical, p. 316, 1896. In the last case it has ceased being a picture and has become wholly a diagram. But Prof. Tarr could tell a better fact and save two square inches of space by drawing a proper 'diagram.'

But the school texts have no monopoly on this comical berg. In the 'Story of Our Planet,' by T. G. Bonney, 1893, there are three of them, not so unstable as the others, but still ready to 'flop.' And in 'Man and the Glacial Period,' by G. Frederick Wright, p. 18, 1892, and by the same author, the more pretentious work, 'The Ice Age in North America,' 1889, p. 107, this physical impossibility is held in high esteem. In the latter work the author is not content to leave it in the text, but it glares at you in gilt from the back of the book, every time you pass it in its place on the shelf.

It is truly a relief after looking through this list to pick up A. Geikie's Text-book of Geology, and J. Geikie's 'Great Ice Age,' and find real rational icebergs.

J. Paul Goode.

## SCIENTIFIC LITERATURE.

*The Royal Natural History: Mammals.* By Richard Lydekker. London and New York, Frederick Warne & Co. New York. 1893–95.

The mammal part of Lydekker's Royal Natural History is now completed, and most of the bird parts are out also.

The attempt of the author and publisher to produce a popular 'Natural History,' entertaining to the general reader and at the same time scientifically accurate, has met with more than the usual measure of success. The work is handsomely gotten up and profusely illustrated.

It was hoped that some of the errors and omissions of the original edition would be corrected in the American reprint, but no changes whatever have been made. In fact, there is in reality only one edition for both issues are printed from the same type and on the same paper. The only difference is in the outside covers, which in the American issue bear later dates. This should be borne in mind in quoting the work, as it is important to give the correct date. The last part came out in England before the middle of last year (1895).

The mammal part covers about 1,500 pages, royal octavo size, and, in spite of numerous inaccuracies, affords the naturalist, student and sportsman the best and most reliable general account yet published of the highest class of the animal kingdom. Since the English edition was reviewed at some length in this journal (Science, April 5, 1895, pp. 387–389, and July 5, 1895, pp. 18–21) it is unnecessary to say anything further about the American issue. If the publishers would get out an American supplement, bringing the matter down to date from the American standpoint, the work would long remain a standard of reference on the Mammalia.

C. H. M.

### THE PALPI OF BUTTERFLIES.

*Ueber die Palpen der Rhopaloceren. Ein Beitrag zur Erkenntnis des verwandtschaftlichen Beziehungen unter der Tagfaltern.* Von Enzio Reuter. Acta Soc. Scient. Fennicæ. T. xxii. No. 1. Helsingfors, 1896, 4°.

In this work, one of the most important recent contributions to our knowledge of the structure and classification of butterflies, the author expands fully the discovery announced by him a few years ago of an area of peculiar character on the inner side of the basal joint of the palpi of these insects, varying greatly in extent and nature in different groups and affording, as he believes, perhaps too confidently, an important test of relationship. That he has not reached his conclusions on any cursory study or meagre material will be evident from this volume of nearly six hundred pages, its accompanying plates, and the statement that he has examined 3,557 palpi of 670 species belonging to 302 genera, appertaining to all the principal groups except the Hesperidæ, which he neglects.

The structure and clothing of the palpi are given in detail for each genus, with a specification of the species examined and the number of individuals of each. The characteristics of the scaleless region called the *basalfleck* are a rippled, pitted surface, covered with conical dermal appendages, and the variations in their extent and character are brought out by this study, which

occupies the first part of the work, entitled *Untersuchungen*. The second and larger part, termed *Schlussfolgerungen*, is devoted to an application of this study to the classification of butterflies, group by group in great detail, in which is included a consideration of other parts of the structure and notably of the neuration of the wings in the perfect insect, but very little of the early stages, even where, as not infrequently, these would have given support to the special position maintained.

Reuter separates the Hesperidæ as a distinct suborder from the other butterflies, which last he divides into six gentes, in ascending order as follows: Papiliones (with the families Papilionidæ and Pieridídæ), Lycaenæ (with the families Lycaenidæ and Erycinidæ), Libytheæ, Danaidæ, Satyri and Nymphales (each with a single family). His subfamilies are eighteen in number, his next subdivision called stirpes scarcely more numerous, while the tribes number sixty. A genealogical tree, far more detailed than any yet attempted, explains pictorially his views of the phylogeny of the group, that is, the precise origin and partings of each of these gentes, families, subfamilies, stirpes, tribes, and even in a few cases groups of genera. The union of the Grypocera (Hesperidæ) and Rhopalocera is not shown, but the six gentes are all made to diverge simultaneously from the rhopaloceran trunk. It is a scholarly investigation and we commend it heartily to all naturalists.

*A Dictionary of the Names of Minerals including their History and Etymology.* By ALBERT HUNTINGTON CHESTER, E. M., Ph. D., Sc. D. New York, John Wiley & Sons.

It is significant of an implanted tendency towards system, or else it is the evidence of an essentially vital relation to external nature, that men crave names for objects. The child ministering to its first curiosities, as it meets new things asks for a name, and afterwards for an explanation of the creature or machine or specimen which it sees. The amateur collector feels a new sense of possession when he labels his miscellaneous cabinet of rocks and minerals and shells, and the delight with which he welcomes an addition to his stock of treasures takes on a keener sense when he can give a name to the late arrivals. A name circumscribes and delineates an object, and makes it more self-existent, as it were, feeding in us the premonition of a further inquiry as to its exact nature. To apply a speculation developed in Prof. Lloyd Morgan's 'Comparative Psychology,' names render objects 'focal' in consciousness, rather than 'marginal' and bring the roving eye of observation intently upon their outlines and characteristics.

The history of the nomenclature of science is full of entertainment and instruction; it is its structural history, the story of its growth, for it reflects in every stage of its development, the changing and widening knowledge, which, like an increasing stream, spreads with curving accessions over broader and broader tracts, and leaves, in names, the beach lines of its various extensions and deflections.

Names in mineralogy might be collectively grouped into four periods, that of the ancients from Theophrastus to Pliny, that of mediæval charlatanism and the alchemists, from Marbodeus to Albertus Magnus and Robert Boyle, the formative period from Steno to Werner, Haüy, Brewster, Romé de Lisle, etc., until 1820 or 1840, and the modern period. To trace the analogues, replacements, dislocations and corrections of names over this long stretch of years, intermitttently marked by activity in separate centers or individuals, until we reach the zonal glow of enthusiasm in mineralogy as a science, with the erection of a rational chemical philosophy, would form a treatise of great value. Prof. Chester possessed of great erudition in the archæology of mineral terminology, and ardent in his devotion to a science in which he has won distinction, might be fitly selected for such an exhaustive research. The present work over his name might be regarded as a preliminary contribution to such a study. This work encloses between its covers four thousand six hundred and twenty-seven names, arranged in alphabetical order, with usually a brief paragraph of explanation assigned to each, except where a name is a misprint, variant or synonym.

Prof. Chester has accomplished in the preparation of this dictionary a very useful work, and has undertaken a great amount of discrim-

inating toil. That 'dead work' which Prof. Leslie so vigorously declared was one of the most essential tasks of the laborers in Science's behalf is here prominently shown. Names which are erroneous in spelling or obsolete, or synonomous, or applied doubtfully, or misapplied, are here recorded, and the student, the lay-reader, the collector, and man of science, can at once determine the status and significance of mineralogical names as currently used. Prof. Chester, in his preface, says: "In this work the endeavor is made to give complete information, as outlined above, concerning all the names that have ever been introduced into the nomenclature of mineralogy. Nearly all published works on this subject have been searched to prepare a complete list of such names, and all available sources of information have been consulted. Many facts have been received in private communications from correspondents at home and abroad, a list of whose names is appended. But a number of blanks still remain, after years of research, and the author greatly desires information on any of the points lacking."

The author gives some general and particular notes on names, as to the attempt of Moh and Dana to introduce binomial methods, and reveals the great difficulty, in some instances, in determining the real origin of a designation. He illustrates this in the case of the well-known mineral *Datolite*. It appeared very early under the spelling *datholite*, which was a corruption of the original name *datolith* of Esmark, from δᾶτέομαι, to divide, in reference to its granular structure, and λιθος, a stone. Werner inserted the h, and this led to its erroneous interpretation as coming from δαθος or turbid, which was succeeded by the criticism that there was no such Greek word, and its origin is from δα-θολλος, meaning very turbid, because it is never found in transparent crystals. The correct derivation was detected by Prof. Dana in 1868. Many other instances give a forcible impression of the care and learning required for a correct diagnosis of the elements of a mineralogical name.

The work is compendious and very useful, but it seems regrettable that Prof. Chester had not written a more extended treatise, by way of introduction, reviewing the stages of change which have finally given us the present series of names. The expressed regret that all mineral names should end in *ite* does not seem warranted. Haüy's names, in so many instances, pleasingly vary, to the ear, this monotonous termination, that we wish there were more judicious exceptions to its almost universal predominance. No mineralogist should be without this dictionary, and to a large public, outside of this specific designation, it will be valuable as a guide to the derivation, proper orthography and meaning of mineralogical names. Its typography seems faultless.

L. P. Gratacap.

*Laboratory Experiments in General Chemistry.* By Charles R. Sanger. St. Louis, 1896. Published by the Author. Pp. 59.

*Experiments in General Chemistry and Notes on Qualitative Analysis.* By Charles R. Sanger. St. Louis, 1896. Published by the Author. Pp. 49.

The first of these pamphlets contains directions for 108 laboratory experiments upon the preparation and properties of the elements and compounds. They have been arranged for the use of students who are taking a course of lectures upon descriptive chemistry. The experiments are all well known ones, and the order of management is the one already adopted in laboratory manuals.

The second pamphlet contains directions for 39 of the experiments given in the first pamphlet, and in addition has 28 pages devoted to a description of the methods used in making qualitative analysis of unknown substances. This course has been arranged for medical students. Neither of these laboratory guides differ in any essential feature from the well known laboratory manuals on elementary chemistry and qualitative analysis. E. H. K.

## *SCIENTIFIC JOURNALS.*

### JOURNAL OF GEOLOGY, MAY–JUNE, 1896.

*Classification of the Marine Trias:* By James Perrin Smith. As might be expected the names given to the Triassic beds of the Germanic basin, which was shut off from the open sea, have proved to be of little use as applied to