

attributes of man ; not because personality, wisdom, love (the symbols we employ), can truly describe or define that which passes man's comprehension, but because being man we can no other. Man alone in the organic world is capable of ideals, and for generations the name of God has stood for man's central ideal of power and perfection. And it seems to us that the sum and substance of positive criticism as applied to man's conceptions of that which admittedly lies beyond the reach of positive science comes to this: "You must frankly acknowledge and confess that such conceptions are symbolic and ideal." But if symbolic and ideal we must expect the symbolism to be variable in different ages, among different peoples, and even in different individuals. Hence (apart from revelation) the only indefensible attitude is that of inelastic dogmatism, positive or negative.

In conclusion, we may say that the "Riddles of the Sphinx" are in this work treated with considerable, though frequently misguided, power. The conception of evolution as a tendency towards an ideal of perfect individuals in a perfect society is good, and is in parts well worked out. That many will be found to acquiesce in the author's solutions of the old problems of life we think exceedingly doubtful. Nor do we think that the solutions will prove of lasting value. It is futile to attempt to preserve the new wine of positive science in the old bottles of prescientific metaphysics. The new wine must be preserved in new bottles. In other words, a new metaphysics must be and is being elaborated, in special relation to the newer aspects of scientific thought.

C. L. L. M.

#### ANALYTICAL METHODS OF AGRICULTURAL CHEMISTS.

*Proceedings of the Association of Official Agricultural Chemists, 1890.* (Washington : United States Department of Agriculture.)

THIS is a Report of the Seventh Annual Convention of the Association, under the Presidentship of Mr. M. A. Scovell, and with Mr. H. W. Wiley as Secretary. The objects of the Association are to secure uniformity and accuracy of methods, results, and modes of statements of analyses of manures, soils, cattle foods, dairy products, and other materials connected with agricultural industry; and to afford opportunity for the discussion of matters of interest to agricultural chemists. In the words of a past President, it aims at laying "a foundation so solid, that every Court in this land must respect its conclusions, and every analytical chemist, whether he lives in this country or elsewhere, must be forced either to practice or admit the advantages and correctness of our system of analyses." A study of the programme and of the proceedings shows that the objects have been most carefully and conscientiously kept in view, and that all the working members have been most thoroughly imbued with the spirit of the Association.

The reports submitted for the consideration of the meetings, all drawn up by experts, and incorporating the work of many members, were as follows: on the determination of nitrogen; on analysis of dairy products; on analysis of potash; on analysis of cattle foods; on analysis of

sugar; on analysis of phosphoric acid; on analysis of fermented liquors; and a report of a Committee on foods and feeding-stuffs.

As an example: for the report on the determination of nitrogen in manures, three samples, containing nitrogen in different states of combination, were prepared, and sent to the members for analysis by various official methods. Twenty-two reported the results obtained by Kjeldahl's method on one sample, the same number the results of Kjeldahl's method modified for nitrates on two samples, and a less number gave results by the Ruffle method, the soda-lime method, and Dumas's method on one or more of the samples. The whole of the results are collated, with the remarks of the analysts thereon, so that data are obtained for testing the accuracy of the methods under various conditions, and eliminating personal factors. Various suggestions for the improvement or simplification of the processes are made and discussed, and some of them recommended for systematic trial during next year. Similar good work is done for the other Committees.

The remarks of the Committee on ways and means for securing more thorough chemical study of foods and feeding-stuffs, are particularly worthy of attention, pointing out, as they do, the deficiencies in present methods of analysis, and the absolute necessity of more exact methods and more accurate study of the proximate principles contained in foods, and of their physiological value. As a contribution towards this knowledge, Mr. W. E. Stone sends a paper on the occurrences and estimation of the pentaglucofoses in feeding-stuffs, in which he shows that bodies yielding furfurol, and therefore presumably pentaglucofoses, are present in grass, straw, linseed meal, and a great many other feeding-stuffs. Among the points which are noticed, and which should be known to all analysts, is the fact that cotton-seed meal, often used in mixed manures in the Southern States, is completely soluble in nitric acid with a little hydrochloric acid, but that the solution does not yield all its phosphoric acid to ammonium molybdate.

Should such a Bill as that introduced by Mr. Channing, for the better prevention of the adulteration of manures and feeding-stuffs in this country, ever become law—and the Government has promised to take up the matter—the formation of such an Association of Official Agricultural and Analytical Chemists in this country would be almost a necessity, and it seems that the Institute of Chemistry is the proper body to arrange the organization of such an Association.

#### GEOLOGICAL RAMBLES ROUND ABOUT LONDON.

*Hand-book of the London Geological Field Class.* By Prof. H. G. Seeley, F.R.S. (London: G. Philip and Son, 1891.)

THIS little book is a record of excursions similar in some respects to those collected in the volume of Geological Excursions which was noticed in these columns on June 18 (p. 149). But there are points of difference. This hand-book deals with a more limited area, being practically restricted to the south-east of England; it has a purpose more definitely educational. The latter may

be described in a few sentences extracted from the preface:—

"This Society exists to teach the elements of Physical Geography and Geology direct from Nature without preliminary study from books. . . . The field work has been led up to by short courses of winter lectures given in London, designed to connect together the observations to be made in the succeeding summer, and to connect the geology of the district to be examined with that of other areas."

The excursions are described in the notes written by students in the field; the lectures are reported (from shorthand notes) by Mr. White, one of the class. As regards the former, Prof. Seeley states that "students have been free to report what they saw and what they heard, and they have severally written in their own ways both as to length and language used." The lectures also "were not constructed with a view to being reported, nor were the reports written out with a view to being printed." Prof. Seeley has, however, "read the proof to remove serious inaccuracies." The lectures need no apology, for they are excellent examples of that clear and suggestive method of teaching of which Prof. Seeley is a master. The reports of the excursions also acquire a certain freshness as recording the impressions of novices, and may on that account be even more helpful to beginners than if they had been written by more experienced observers. One or two inaccuracies, however, appear to have escaped the Professor's watchful eye. Is not the statement on p. 18, relating to the presence of *Paludina* and *Unio* in such Wealden Limestones as the Petworth Marble, a little misleading? for it implies that the latter genus is common in these deposits, which, we believe, is not the case. A sentence on p. 29 suggests that "enormous pressure" is requisite to convert a sandstone into a quartzite. Very probably this would be the result, but there are not a few quartzites which show no signs of having been specially subjected to pressure. Also, it is hardly correct to call Lydian stone an altered sandstone. Again, more than once it is intimated that gneiss and crystalline schists occur in Belgium. This, if the terms be used in their ordinary sense, is incorrect; and even the porphyroids and amphibolites, and the abnormal rocks of the Bastogne district, the vague descriptions of which may have given rise to this misconception, are of extremely limited extent. But these are very trifling blemishes, which can be readily removed in a second edition. The book will be of great use to all students, living in or about London, in helping them to use their eyes; and most of all because, to quote Prof. Seeley's words, "It here and there touches upon problems which are not usually presented to beginners." But, as he rightly urges, these problems—namely, the application of stratigraphy to the elucidation of the physical geology of past epochs—"should never be absent from the mind of anyone who considers geological facts in the field."

T. G. B.

#### OUR BOOK SHELF.

*Katalog der Bibliothek der Deutschen Seewarte zu Hamburg.* (Hamburg, 1890.)

VARIOUS notices have from time to time appeared in NATURE relating to the German Naval Observatory at

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Hamburg, describing the building, its equipment of instruments, and the important work which is carried on there chiefly in the interests of the German Imperial and mercantile navies.

As this institution is possessed of a library containing some 10,660 works, it has for some time past been a matter of urgent necessity that an accurate and well-considered form of Catalogue should be printed and published. The required book was completed last year, and is now available.

This Catalogue shows that the library contains a large proportion of works either directly of a naval character, or bearing upon naval matters, whilst several other branches of science are fairly represented.

As might be expected, meteorology holds the first place of importance, and amongst the 2769 works on this subject are a large proportion of Dove's writings. Indeed, it seems worthy of note that Dove's library, which occupied him many years in collecting, may now be found at the German Naval Observatory. Turning to the division of the Catalogue on physics, 1617 works will be found; on magnetism and electricity, 974; whilst other subjects, such as navigation, hydrography, and construction of ships are well cared for.

Although the books and papers mentioned in this Catalogue are generally printed in the language adopted by their authors, a translation into German of several works of interest is also placed side by side with the original.

In conclusion it may be remarked that although there is nothing specially new in the arrangement of this book, it is well worthy of the time and energy which have evidently been spent in bringing the work to its present state.

*Scientific Results of the Second Yarkand Mission; based upon the Collections and Notes of the late Ferdinand Stoliczka, Ph.D.—Coleoptera.* By H. W. Bates, F.R.S., J. B. Baly, D. Sharp, F.R.S., O. Janson, and F. Bates. Pp. 1-79 and 2 Plates. (Calcutta: Published by order of the Government of India, 1890.)

THIS, the twelfth part issued, all but one of which deal with zoology, contains an enumeration of 207 species of Coleoptera. These species belong to the following families:—Cicindelidae (4), Carabidae (60), Longicornia (5), Phytophaga (25), Haliplidae (1), Dytiscidae (8), Gyrinidae (1), Hydrophilidae (3), Staphylinidae (9), Scarabæidae (38), Cetoniidae (3), and Heteromera (50). Diagnoses or descriptions of all the new genera and species were published more than ten years ago, and the only additional information contained in this part is a list of species, in addition to, in some cases, fuller descriptions of the novelties. In the portions contributed by Mr. H. W. Bates and Dr. Baly, both of whom, however, give some particulars regarding geographical distribution, the references to the published diagnoses are given; but in Dr. Sharp's and Mr. F. Bates's contributions, many of the genera and species are mentioned as new, though diagnoses of the whole of them were published in 1878 or 1879—the former in the *Journal of the Asiatic Society of Bengal*, xlvii. Part 2 (1878), the latter in *Cistula Entomologica*, ii, (February 1879). The two plates include 44 figures—Carabidae (17), Longicornia (5), and Heteromera (22). On the cover, and also on p. 37, the name "Hydrophilidae" is misprinted "Hydroptilidae." The Hydroptilidae do not belong to the order Coleoptera at all, but to the Neuroptera! It is to be regretted that a delay, the cause of which is not explained, of more than ten years, has occurred in the publication of the "Part" dealing with the Coleoptera, as works of this kind upon the beetle fauna of little-known districts are always of the highest value, more particularly in the matter of geographical distribution. No systematic work upon the Coleopterous fauna of India has