zation to obtain subjects for their pupils; and consequently the neglect of the mollusca continues.

The work of Lang might have advantageously been supplemented by a chapter calling attention to the gaps in our knowledge and emphasizing the need of research and the rewards which will undoubtedly fall to the lot of him who decides to investigate patiently in a field where not one in a thousand species is anatomically known, and where a careful embryological study, as of the development of the gills in Pelecypods, will produce the most far-reaching results, if carried out with thoroughness.

When this student appears, he will find in the work of Lang a storehouse of facts and a record of hypotheses which cannot fail to be of the greatest service in his studies.

W. H. Dall.

Clays of New York, their Properties and Uses. By Heinrich Ries. Bulletin of the N. Y. State Museum, No. 35. Vol. 7. 1900. Pp. 450. Plates, 140.

Somewhat over ten years ago, the author of the work before us took up the study of the clays of the Hudson River region and the industries based upon them. The venture had all the charm of novelty, because up to that time it had not occurred to anyone to investigate these humble resources, which had apparently impressed all observers as possessing little of interest or of importance. And yet the investigation proved that the clays of the state were the raw material of the most important of all its mineral industries, and they had evidently been passed by, because of their ordinary and simple nature, because they did not appeal to the imagination. The experience is not unique, as will be seen from the following incident. While the writer was recently discussing the subject with a Russian friend, the latter remarked that he had discovered on the steppes, extensive deposits of china-clay, which, when worked up and sold, would bring $150.00 per ton. He had great difficulty in arousing interest, and yet had he found in any such quantity, gold ore worth $5.00 or $10.00 per ton the greatest excitement would have immediately broken out.

Ten years ago in America, scientific interest in clays was chiefly limited to those which supplied refractory materials. Our literature was small. The New Jersey Geological Survey prepared a valuable report in 1878, and in the later eighties the Geological Survey of Ohio published an important contribution, both reports being issued by States where the fire-brick industry was and is important, but except for these two contributions almost no attention had been elsewhere paid to clays by official scientific bodies. Conditions have greatly changed since then; the vitrified brick industry has sprung up; shales, once the most despised and neglected of rocks, are now utilized in enormous quantity; clays are purified and washed, and the ceramic arts have made great strides. It is but just to Dr. Ries to say that his writings have contributed in no small degree to the result and have brought within the reach of workers and readers alike, the possibilities of this invaluable raw material.

The present work is his most extensive contribution. To estimate it properly, it must be appreciated that it is intended as much for the practical workers as for the libraries and laboratories of institutions of learning. The balancing of theoretical investigations with descriptive matter has therefore been necessarily considered with care by the author, but it has been performed with discretion and in a way to attain the most useful result. The scientific reader, however, will be glad to know that all the author's results in the investigation of the physical properties of clays have not yet been published and that further contributions may be expected.

The work opens with the generalities of clays; their origin; mineralogy; properties; analysis; classification; geologic distribution in New York and in the United States.

The methods of digging clay and the geologic features of the deposits are then described, after which the brickmaking industry receives detailed description. This is followed by terra cotta, roofing tile, sewer pipe, hollow brick, etc.; floor tile, decorative tile, fire clays and pottery; each of which topics is treated at length. The properties and uses of shales are next taken up and with them feldspar is placed

as a sub-topic, somewhat illogically as it would seem.

Many minor uses of clays, as in cements, paints, paper-filling, road-materials, etc., are next reviewed, and then the various tests of different clay products are described as an aid to the practical worker. An extensive compilation of clay analyses, an excellent bibliography and a directory of clay workers in New York State conclude the bulletin.

The book is encyclopedic in treatment and will prove a valuable work of reference not only within but without the State.

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SCIENTIFIC JOURNALS AND ARTICLES.

THE first number has been issued of *Kirchhoff's Technische Blätter*, a weekly periodical not intended for popular reading, but having for its purpose the accurate rendition of scientific and technical matter. The idea of its editor and publisher is to supply these 'leaves' not only to individual subscribers but, and principally, to the subscribers to the newspapers, as supplements to regular issues. By this plan the newspaper is able to offer its readers popular but scientifically correct accounts of current progress and advances in technical departments, written by scientific men of recognized standing and often without appreciable additional expense. The list of already promised contributions includes articles by a large proportion of the leading scientific men of Germany and many in other countries. The first number contains, for example, articles on the Berlin-Cologne electric railway by Arthur Kirchhoff, on metallurgical work by Dr. Wedding, on his flying machine by Hofmann, on the steam-turbine by Professor Kubler, and a variety of other interesting matter, well condensed as also well selected. The enterprise is a novel one and deserves success. One would think that such a plan would prove practicable in the United States, more than in Europe; since many of our newspapers, notably the New York *Sun* and the *Times*, have long owed something of their reputation to their interest in, and accuracy of statememt regarding, scientific and technical matters. Like the new German periodical, they have secured their information from experts familiar with the subjects discussed and competent not only to present a clear and concise account of a scientific or technical advance, but also to advise regarding the importance of the matter and the advisability of giving it space. Fads and frauds and follies are thus avoided.

R. H. T.

The American Naturalist for May begins with an account of 'Two New Myrmecophilous Genera of Aberrant Phoridæ from Texas,' by Charles T. Bruce, these being wingless Diptera of a family before unknown in America. L. B. Walton discusses 'The Metathoracic Pterygoda of the Hexapoda and their Relation to the Wings,' concluding that the typical thoracic segment possesses the components of both pterygodum and wing, and Vernon L. Kellogg considers 'Phagocytosis in the Postembryonic Development of the Diptera.' H. S. Jennings has a paper 'On the Significance of the Spiral Swimming of Organisms,' considering that by means of this many creatures, even those not symmetrical, are enabled to pursue what in the main is a straight course. The 'Synopses of North American Invertebrates' contains the second part of the Hydromedusæ, by Chas. W. Hargitt. The 'Reviews of Recent Literature' are unusually numerous, occupying nearly 40 pages.

The Plant World for May contains the final part of 'Hints on Herborizing,' by A. H. Curtiss; 'The Asparagus Rust,' by Byron D. Halstead, and many briefer articles, notes on current literature and reviews. In the 'Families of Flowering Plants,' Charles L. Pollard treats a number of families of the Rosales.

The Journal of the Boston Society of Medical Sciences for April 23, contains 'A Contribution to the Normal Histology and Pathology of the Hemolymph Glands,' by A. S. Warthin; a second paper on 'The Relation between Physique and Mental Work,' by Henry G. Beyer, in which additional evidence is adduced to show that, as a rule, physical and mental ability go hand in hand, and an article on 'Typhoid