1758a, 59 (*musculus*); *Myrmecophaga* Linn., 1758a, 35 (*tridactyla*); *Nasua* Storr, 1780, 35 (*nasua*); *Ovibos* Blainv., 1816, 76 (*moschatus*); *Phyllostomus* Lac., 1799, 16 (*hastatus*); *Procyon* Storr, 1780, 35 (*lotor*); *Putorius* Cuv., 1817, 147 (*putorius*); *Rangifer* H. Smith, 1827, 304 (*tarandus*); *Rhinolophus* Lac., 1799, 15 (*ferrum-equinum*); *Rupicapra* Blainv., 1816, 75 (*rupicapra*); *Sciurus* Linn., 1758a, 63 (*vulgaris*); *Sorex* Linn., 1758a 53 (*araneus*); *Vespertilio* Linn., 1758a 31 (*murinus*).

Amphibia: *Cryptobranchus* Leuck., 1821, 259 (*gigantea* = *alleganiensis* = *alleghaniensis*); *Desmognathus* Baird, 1849, 282 (*fuscus*); *Siren* Linn., 1766, addenda (*lacertina*).

Reptilia: *Alligator* Cuv., 1807, 25 (*mississipiensis*); *Calamaria* Boie, 1827, 236 (*calamaria*); *Chelydra* Schweigg., 1812, 292 (*serpentina*); *Crotalus* Linn., 1758a, 214 (*horridus*); *Dermochelys* Blainv., 1816, 119 (*coriacea*); *Eremias* Wieg., 1834, 9 (*velox*); *Lacerta* Linn., 1758a, 200 (*agilis*); *Mabuya* Fitz., 1826, 23 (*sloanii*); *Phrynosoma* Wieg., 1828, 367 (*orbiculare*).

Pisces: *Blennius* Linn., 1758a, 256 (*ocellaris*); *Echeneis* Linn., 1758a, 260 (*naucrates*); *Esox* Linn., 1758a, 313 (*lucius*); *Ophidion* Linn., 1758a, 259 (*barbatum*).

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SCIENTIFIC BOOKS

The Devonian Crinoids of New York. By WINIFRED GOLDRING. Published by the New York State Museum, 1924, John M. Clarke, Director. Memoir 16. One volume, 4to, 483 pp. text, 60 plates, 63 text-figures; with explanation of plates and index, total 670 pp.

THE appearance of this superb volume, long expected and long delayed, marks an epoch in American paleontology. It is based primarily upon collections made more than half a century ago under the direction of Professor James Hall by Charles Abiathar White, then a young and impecunious doctor of medicine residing in Burlington, Iowa, who in later years became state geologist of Iowa, and afterwards United States paleontologist. While conducting the first geological survey of Iowa, 1855–1858, on which White was an assistant, Hall noted his great enthusiasm and capacity for field explorations, and when that survey was concluded, took him to New York for the special purpose of collecting the Devonian fossils of that state.

The immediate result was the discovery of a colony of crinoids in the Hamilton shale of western New York near a village now called Vincent, which proved to be, as Dr. Clarke in his historical preface says, "the most extraordinary assemblage of these ancient stone lilies which the rocks of New York, or of the Devonian system, have ever afforded." A distinct crinoidal horizon was located in the Finger Lakes region, in which Dr. White continued his collection during the season of 1860 with phenomenal success, his acquisitions embracing a great number of specimens in exquisite preservation, many of which were new to science.

But little was done in the way of publication of the results of these investigations during the years which followed; but in the meantime many notable additions were made to the Devonian crinoid material from the faunas of the Portage and Chemung groups, chiefly by Dr. Clarke and under his direction. As the result of these various activities, extending over a period of upwards of fifty years, there was accumulated in the State Museum of New York at Albany an unparalleled collection of Devonian crinoids, of such magnitude and variety that nothing short of a special monograph, entirely devoted to the subject, would be adequate for its proper treatment.

The preparation of such a treatise involved a great expenditure of time and labor, for the study of the material and composition of the text, as well as for the execution of the necessary drawings. A large amount of such preparatory work was done by Dr. Clarke with a view to publication, but the pressure of official duties impeded the progress of the work to such an extent that he was at last obliged to look for assistance. To that end an arrangement was made with Dr. Edwin Kirk, then recently graduated from Columbia University, to spend a portion of his time in the study of the problems involved. His subsequent association with the United States Geological Survey, however, was followed by such increasing demands upon his time that the New York work was again subjected to protracted delays.

Finally the revision and completion of the entire theme was committed by Dr. Clarke to his associate, Winifred Goldring, who after several years of devoted study brought the work to a conclusion ready for publication. Here again another long period of delay ensued before the printing of the volume could be accomplished, so that while Dr. Clarke's historical preface to the completed work is dated in 1919, it was not until 1924 that the actual publication and distribution could be secured. Some compensation for the vexatious procrastination, however, may be found in the quality of the printing, which has been done in a manner unsurpassed by any scientific publication produced in this country. In point of typography, paper and general execution of the work, there is nothing finer in American paleontology, and the authorities

of the state of New York are entitled to the utmost credit for having provided the means for publication of a fine contribution to science in so admirable a manner.

As explained in the director's preface:

> The present book is Winifred Goldring's work. She has revised and rewritten all previous manuscripts; has compiled and checked up outstanding references; has corrected the old drawings and supervised the making of many others; has had the advantage of certain new materials which others who have touched the work did not have; and her work has been done not only conscientiously and with assiduity, but with reasonable completeness, and with credit to the paleontology of New York.

To this estimate of the value of the author's work, as evidenced by this great monograph, the present writer is glad to add his own testimonial, after a careful perusal of the volume. The many perplexing problems which arose have been handled with a maturity of judgment and depth of research that would do credit to an author of longer experience, and while producing a work that will be an honor to the state, Miss Goldring has erected an enduring monument to her own industry and zeal in the field of pure science.

The technical portion of the monograph is preceded by a popular account of the crinoids as a class, their structure, ontogeny and mode of occurrence, with special reference to those of New York, which should be most useful for the students of paleontology in the schools and institutions of the state. There are also convenient references to the literature pertinent to the subject, together with lists of the genera and species occurring in the Devonian formations, and of the localities in which they are found. The species listed, described and figured number 157, belonging to 60 genera. Of these 18 genera and 57 species are new to science, and therefore are now described and illustrated for the first time. The fine illustrations which adorn the 60 quarto plates are from the skilful brush of Mr. George Barkentin, of the State Museum staff, whose work is well known from previous publications. The figures on the plates are most usefully supplemented by the numerous text-figures interspersed throughout the descriptive matter, prepared by the author, especially the generic diagrams, which aid materially in the understanding of the new forms.

Space does not admit of extended discussion of details, in which many interesting points are brought out bearing upon structure and classification, such, for example, as the presence upon the arms of some crinoids of two or more pinnules to a single brachial, which is observed in three genera in addition to three previously known. The arrangement of the matter in the book, together with the tables and lists replete with serviceable information, and the full general index, furnish the means of convenient reference to any desired fact, which will be most welcome to paleontologists and students who have occasion to consult the work, as well as to geologists engaged in the intensive study of the stratigraphy of New York.

FRANK SPRINGER
SMITHSONIAN INSTITUTION

The Ants of Timothy Thümmel. By ARPAD FERENCZY. Jonathan Cape, Ltd., London, 1924. Price 7/6 net.

To the biologist in search of literary recreation the perusal of Professor Ferenczy's Gulliverean tale is recommended. His fantasy possesses the unusual distinction of being based on fact, to prove which an extensive bibliography, compiled with the assistance of our distinguished myrmecologist, Mr. Horace Donisthorpe, and Miss L. E. Cheesman, is appended. The story is based on the discovery of Dr. Timothy Thümmel that certain curious yellow spots on dry laurel leaves from a huge ant's nest in Central Africa represented a myrmecine attempt to bequeath to posterity the history of their race. Dr. Thümmel's "discovery" brought to its originator the inevitable result of all such discoveries: he was confined in a lunatic asylum, where he died by his own hand in 1916. And so it has been left to Professor Ferenczy to administer his literary estate—the deciphered Elm-Ant-Foot-Hieroglyphics or the Aruwimi Ant Chronicles, a brilliant travesty of human life and shortcomings. The laurel leaves were collected by Professor Ixli of Elm in the late nineties and were obtained by Thümmel through the professor's grandson. The series was unfortunately not quite complete as some of the leaves had been used by the ladies of the Elm household to add a taste to their master's favorite dish of lentil porridge!

The book opens with an account of the ant-creation. As in the Biblical story, the ant Adam and Eve (known as Mye-Mye and Nye-Nye, respectively) were created in her own image by a legendary Giant-Ant, who granted to her first subjects, among other things, the right to enter her kingdom after death, to live in her glorious presence a life of Olympic happiness "from everlasting to everlasting." Many millions of ant-generations later this tradition of the myrmecine origin was rejected as mere superstition, as the fable of our own first parents has now been assigned to the limbo of cherished beliefs. According to Mye-Mye, the road to everlasting happiness after death lay in ceaseless labor, but eons later, in the reign of the then king Tye-Kye of the Tye nation, a revolution, headed by his indolent but clever subject Kye-Kye, broke out against the ancient teaching. Kye-Kye claimed that the omnipotent Giant-Ant, whose name he said was Pye-Vye-Nye, had revealed to him that all ants must henceforth cease work and adore her