

REPORT
OF THE
GEOLOGICAL SURVEY OF OHIO.

VOLUME II.

GEOLOGY AND PALÆONTOLOGY.

PART II. PALÆONTOLOGY.

OFFICERS OF THE SURVEY:

J. S. NEWBERRY, CHIEF GEOLOGIST.
E. B. ANDREWS, ASSISTANT GEOLOGIST.
EDWARD ORTON, ASSISTANT GEOLOGIST.
T. G. WORMLEY, CHEMIST.
F. B. MEEK, PALÆONTOLOGIST.

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J. S. NEWBERRY, CHIEF GEOLOGIST.
E. B. ANDREWS, ASSISTANT GEOLOGIST.
EDWARD ORTON, ASSISTANT GEOLOGIST.
T. G. WORMLEY, CHEMIST.
F. B. MEEK, PALEONTOLOGIST.

LOCAL AND SPECIAL ASSISTANTS.

1872-1874.

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PREFACE.

At the time of the publication of the first volume of the Palæontology of Ohio it was supposed that all the new material collected by the Survey not there described would be included in the present volume, but in the interval so much has been discovered that claimed a place in our Report that it has been thought best to prepare a third volume on Palæontology, to accompany the third volume on Geology, already authorized. This will be offered as Part II. of Volume III. of our Report, and should its publication be ordered it will give a completeness and symmetry to the records of the Survey which they would lack without it.

With this proposed volume, the entire series of reports will consist four volumes, of two parts each, or practically of eight volumes, of nearly uniform size, viz., three on Geology, three on Palæontology, one on Economic Geology, and one on Zoology, Botany, and Agriculture.

The matter which will compose the third volume on Palæontology is, briefly, as follows:

1. A general review of the Fossil Plants found in Ohio, with descriptions of many new species.

A large number of fossil fruits, and a few fossil plants, were described and figured in our first volume, and a remarkably interesting though isolated group of Lower Carboniferous plants will be found described by Prof. Andrews in this volume, but no systematic review of our fossil flora has yet been given to the public, and the greater number, and the most interesting of the new species collected on the Survey, are as yet undescribed. These are mostly from the Carboniferous rocks, but they also include marine plants from the Lower and Upper Silurian, the Devonian and Waverly, and also our oldest land plants, the tree-ferns and Araucarian pines, which grew on the Cincinnati island when it was surrounded by the Devonian sea.

This review of the Fossil Plants has the general scope of that on Fossil Fishes given in Vol. I., and includes not only a catalogue of the old and descriptions of the new species, but a sketch of the progress of plant life, so far as it is known, from the most ancient to modern forms.

A place was assigned to this memoir in the present volume, but it could not have been added to the matter now published without making the volume too large for convenience or symmetry with its predecessor, and without carrying its cost considerably beyond the amount appropriated for its publication.

It could not have been preferred in a choice of material without excluding much that is of equal value, and that which had been prepared with the assurance that it should appear in this volume. It was unavoidable, therefore, that its publication should be deferred.

2. A memoir by Prof. O. C. Marsh, on the large Wild Hog, or Peccary (*Dicotyles compressus*), which once roamed through the forests of Ohio, but is now entirely extinct. As was mentioned in the preceding volume, a few disjointed fragments of the bony structure of this interesting animal were the only traces of its existence known before the discovery of twelve nearly complete skeletons in the banks of the Olentangy, at Columbus. It is highly desirable, therefore, that this ample material should be made the basis of a monograph, in which the oldest, largest, and least known species of this peculiarly American type of hogs should not only be rehabilitated, but should be brought into relations with its physical surroundings and the other animals of the fauna to which it belonged. No data have hitherto been known from which the natural history of this animal could be written, but with the special fitness of Prof. Marsh for the duty, and the abundant material that can be placed in his hands, he will prepare a memoir that will become a classic in comparative anatomy, and will add greatly to the interest of our reports.

3. Prof. Marsh has also consented to review all the relics that have been found of our ancient giant beaver (*Castoroides Ohioensis*), and prepare a more complete and accurate description of it than has yet been written. It will be remembered that the first traces of this creature were

found in the excavation of the Ohio Canal, at Nashport, and it was brought to the notice of the scientific world by the late Col. J. W. Foster, when connected with the first geological survey of the State. Perhaps no other of our extinct animals has excited a deeper interest than this one, and nothing that could be published in our palæontological reports would be read with greater avidity than any new information in regard to *Castoroides*.

4. Our reports would also be glaringly incomplete if they should fail to contain some notice of the elephant, the mastodon, the horse, the musk-ox, the reindeer, the bison, true oxen, and other large mammals, the remains of which have been found in our State. Some of these remains have never been seen by any comparative anatomist, and none of them have been carefully studied. Prof. Marsh has consented to examine this material—which, though scattered and rapidly disappearing, is still considerable in quantity—and we may confidently anticipate that in his hands it will form the basis of a very interesting chapter in our ancient history.

5. A considerable number of new species of invertebrate fossils still remain in our hands for description. These are chiefly Mollusks from the various formations of our geological scale. Many of them have been already studied, and it only remains to have descriptions and drawings of them made to bring the Palæontology of Ohio in all departments up to date. It is hoped that this material also will form part of Volume III.

Among the special reports which form the present volume, it will be seen there is one by Prof. H. A. Nicholson, now of the University of St. Andrews, Scotland, on our Silurian and Devonian Corals. It is only an act of justice to state that this report was written and the drawings which illustrate it were made by Prof. Nicholson himself on the eve of his departure for Europe, when his time was peculiarly precious to him, and that both report and drawings were furnished without compensation.

The plates, which form so important a part of this volume, were lithographed by Messrs. T. Sinclair & Son, of Philadelphia, and Strobridge & Co., of Cincinnati—the Mollusks, Crustaceans, and Salamanders by the

former, the Plants and Fishes by the latter. Both these firms deserve our sincere thanks, not only for the good quality of their work, but for the courtesy and patience with which they co-operated in all efforts to secure a creditable result.

The Amphibians offered peculiar difficulties to the lithographers. They were drawn on stone directly from the fossils, and as the color of these were jet black, like the matrix, and their forms were discernible only by a practiced eye, the fair degree of success attained in their delineation deserves special praise.

J. S. N.