

after much delay, in 1876, in connection with the Report of an Expedition from Santa Fé to the Junction of the Grand and Green rivers. The volume contains, besides a general report of the Geology of the regions visited, descriptions by F. B. Meek of his Cretaceous fossils, and by himself of the other fossils, including Carboniferous Brachiopods and fishes, Triassic plants from Abiquiu, New Mexico, and Sonora, Mexico, the figures of the plants occupying five of the eight plates.

During the Civil War, Dr. Newberry was a member of the Sanitary Commission for the five years following September, 1861, and had chief charge of the work of the Commission in the valley of the Mississippi.

In 1866 Dr. Newberry received the appointment of Professor of Geology at the Columbia College School of Mines. In 1869 he was made State Geologist of Ohio; and the volumes published on Geology and Paleontology contain much on the stratigraphy of the various parts of the State, by him, but more on the wonderful collections of Fossil Devonian and Carboniferous fishes which the rocks afforded him and on the numerous fossil plants.

In 1888 Dr. Newberry published, in connection with the United States Geological Survey, a quarto volume of 95 pages and 26 plates on the Fossil Fishes and Fossil Plants of the Triassic rocks of New Jersey and the Connecticut Valley; and in 1889, a similar volume of 228 pages and 53 plates on the Paleozoic Fishes of North America. A Report of like completeness on the Amboy Clays (Cretaceous) of New Jersey was nearly ready for publication two years since, when a stroke of paralysis put an end to his long and most fruitful scientific labors. Besides his larger reports above-mentioned, he published many shorter papers connected with all departments of geology.

Dr. Newberry was one of the corporate members of the U. S. National Academy of Sciences. He received from the Geological Society of London the Murchison medal in 1888. From 1867 until recently he was President of the New York Academy of Sciences. He was a man of great excellence of character. While deeply devoted to Science and an earnest worker, he was yet willing to give up several years to the superintendence of Soldiers' hospitals at the time of his country's need.

Dr. Newberry leaves a widow and six children. One of his five sons is a professor in Cornell University.

SIR RICHARD OWEN, the eminent zoologist and comparative anatomist, died in London on December 18th. He was born in 1804 and hence his active life almost spanned the century now closing; more than fifty years have passed since he was made Professor of Anatomy and Physiology at the College of Surgeons. His many contributions to science brought him distinguished honors from the highest sources and are too well known by all interested to need to be rehearsed here.

APPENDIX.

ART. VIII.—*A New Cretaceous Bird allied to Hesperornis*; by O. C. MARSH.

THE genus *Hesperornis* and its near allies have hitherto been found only in a definite horizon, the Pteranodon beds, in the Cretaceous of Kansas, and all now known have been described and figured by the writer.* Recent researches in the Cretaceous of Montana have brought to light another form distinct from *Hesperornis*, and of smaller size, but evidently belonging to the same general group of gigantic swimming birds. A single specimen only has been found, associated with marine fossils of Fox Hills types, and certainly from a much higher horizon than that in which *Hesperornis* occurs.

The specimen secured is represented one-half natural size in the figures below, and is a most characteristic part of the skeleton. It is the lower half of the right tibia of a fully adult bird. It shows that the tibia as a whole was very long and slender, with the shaft hollow throughout. In its general features, the specimen resembles most nearly the corresponding part in *Hesperornis*. The general proportions of the two are similar. The cavity in the shaft of each is equally extensive, and is bounded by smooth, well-defined walls. The ridge for the fibula is equally developed, indicating that this bone was proportionately of the same length in both, and probably of the same form.

* *Odontornithes*, 4to, Washington, 1880.

The differences between the present fossil and the corresponding part in *Hesperomis* are, however, strongly marked. In the latter, the distal end of the tibia is curved inward, and the smaller inner condyle is especially prominent below. In the present specimen, the outer condyle is the lower, and the inner one is nearly on a line with the inner margin of the shaft, as shown in figures 1 and 3, below. These characters are of generic importance, and hence the present specimen may be regarded as distinct from *Hesperomis*. The new genus it represents may be called *Goniornis*, and the species may be known as *Goniornis alius*.

FIGURE 1.—Portion of right tibia of *Goniornis alius*, Marsh; front view.
 FIGURE 1a.—Section of same; showing cavity.
 FIGURE 2.—The same "bone; seen from the right.
 FIGURE 3.—The same bone; back view.
 FIGURE 3a.—The same; seen from below.

All the figures are one-half natural size.

The present type specimen indicates a bird about two-thirds the size of *Hesperomis regalis*, Marsh, or about four feet in length, from the point of the bill to the end of the toes. It was recently found by Mr. J. B. Hatcher, near the mouth of the Judith River, in Montana.

Hew Haven, Conn., Doc. 12th, 1892.

ART. IX.—*The Skull and Brain of Glaosaurus;* by
 O. C. MARSH. (With Plates IV and Y.)

IN previous numbers of this Journal, the writer has described and figured various remains of Cretaceous Dinosaurs belonging to the genus *Glaosaurus*, and a restoration of one very perfect specimen was given in the number for October last.* Another specimen apparently of the same species has the skull in remarkable preservation, thus affording an opportunity to make out all its principal characters. This skull is well represented in the accompanying plates, and the description is given below. The brain in this genus had many points of interest, and a cast of the brain-cavity is also described briefly and figured in the present communication.

The SMIL

The skull of *Glaosaurus* is long and narrow, with the facial portion especially produced. The anterior part is only moderately expanded transversely. Seen from the side (Plate IV, figure 1), the skull shows a blunt, rugose muzzle, formed above by the premaxillary and below by the prementary, both probably covered in life with a thick, corneous integument.

Behind the upper part of this muzzle is an enormous lateral cavity, which includes the narial orifice, but was evidently occupied in life mainly by a nasal gland, somewhat like that in the existing Monitor, and also seen in some Birds. This cavity is bounded externally by the nasal bone and the premaxillary. The median septum between the two narial orifices was only in part ossified, the large oval opening now present in the skull probably having been closed in life by cartilage.

The orbit is very large, and subtriangular in outline. It is formed above by the prefrontal, frontal, and postfrontal, and below mainly by the jugal. There are no supra-orbital bones. A distinct lachrymal forms a portion of the anterior border. The infra-temporal fossa is large, and is bounded above by the postfrontal and squamosal, and below by the jugal. The quadrate forms a small portion of the posterior border.

Seen from in front (Plate IV, figure 2), the skull of *Glaosaurus* is subovate in outline, with the narrow portion above. The premaxillaries and the prementary bone forming the rugose muzzle are especially massive and prominent, and the powerful lower jaws seem out of proportion to the more delicate bones of the cranium.

*This Journal, vol. xxxix, p. 423, May, 1890; vol. xlili, p. 453, May, 1892; vol. xliv, p. 171, August, 1892, and p. 344, October, 1892.