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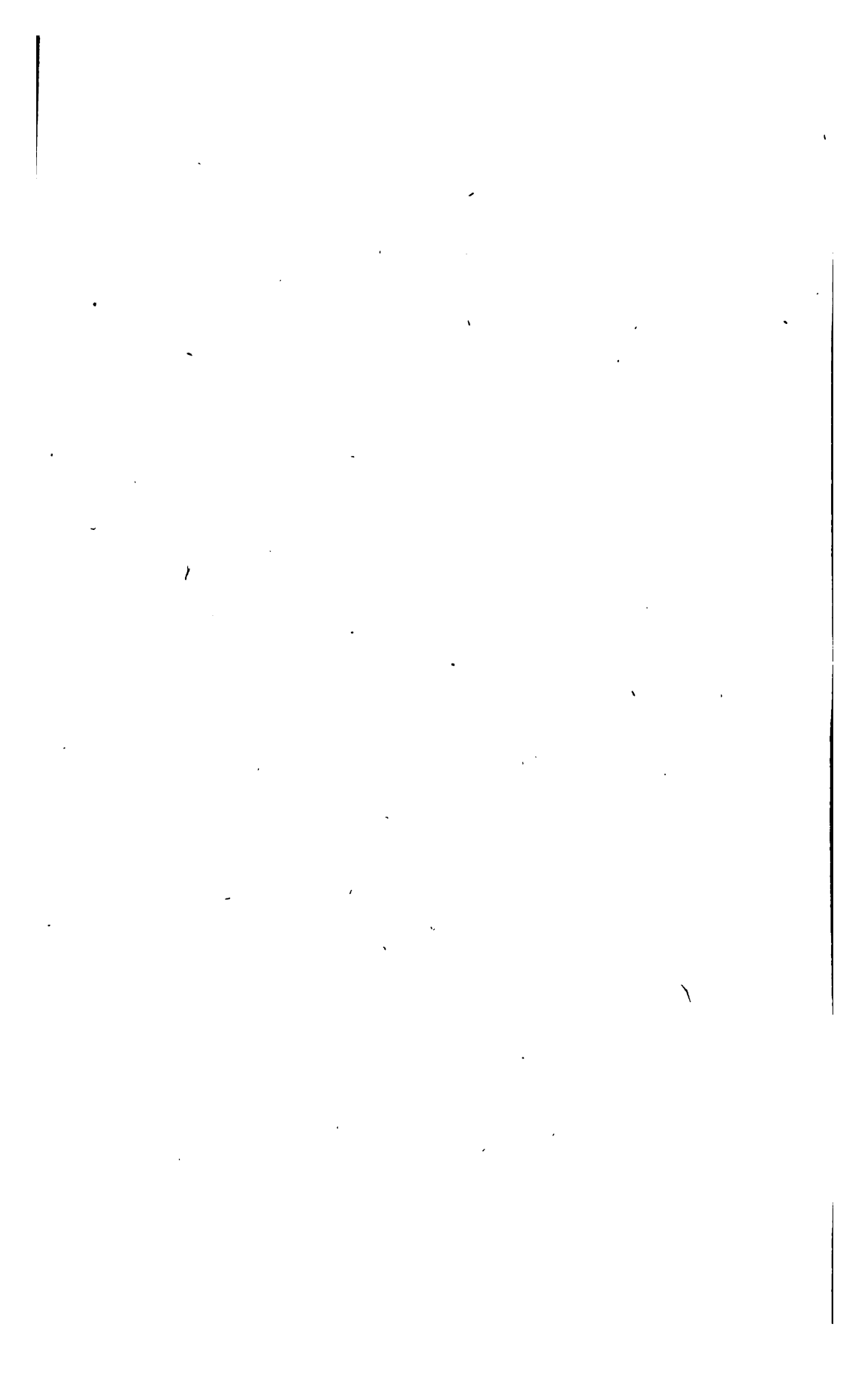
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COLLECTED PAPERS

of

Edward M. Cooper

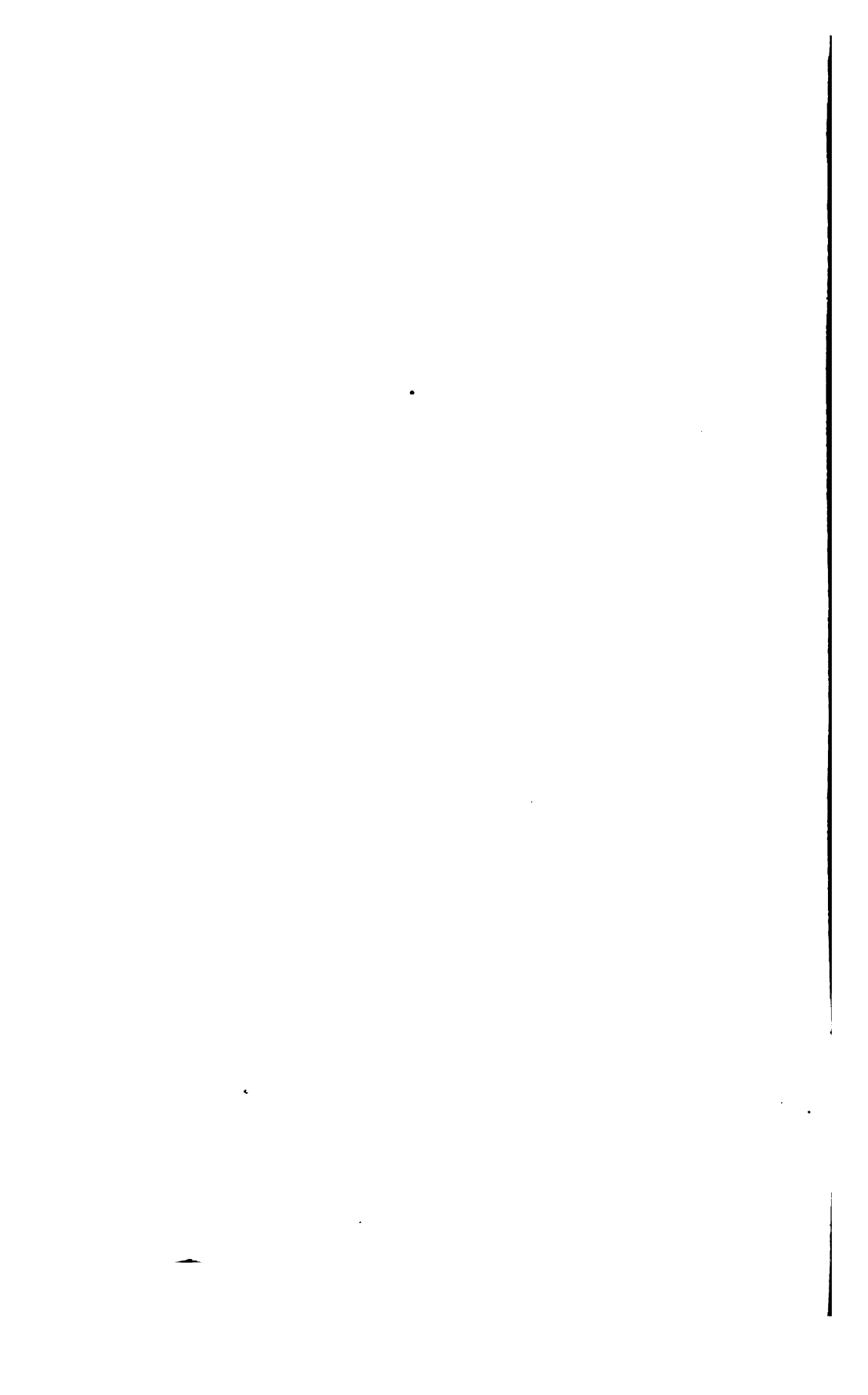
Volume I  
(1885)





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THE  
Matthew Leidy  
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OF THE  
CINCINNATI  
SOCIETY OF NATURAL HISTORY.

Edward M. COOPER

Some curious animals

*Publishing Committee.*

JAMES W. ABERT,  
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A. P. MORGAN,  
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JOSEPH F. JAMES.

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### Calendar for January to April, 1885:—

- Tuesday, January 6.—Business and Scientific Meeting.
- Tuesday, January 20.—Executive Board Meeting.
- Tuesday, February 3.—Scientific Meeting.
- Tuesday, February 17.—Executive Board Meeting.
- Tuesday, March 3.—Scientific Meeting.
- Tuesday, March 17.—Executive Board Meeting.
- Tuesday, April 7. Annual Meeting for Election of Officers.

The JOURNAL of the Cincinnati Society of Natural History is devoted to the proceedings of the Society. It contains such papers read before the Society as are deemed worthy of publication, and the general proceedings of the Society. It will be published quarterly, in April, July, October, and January. The subscription price is TWO DOLLARS per year, in advance. Single numbers Sixty Cents.

As some of the early numbers of the JOURNAL are nearly exhausted, the prices of these are as follows:—

Vol. I., 4 numbers.	\$4 00	Vol. II., 4 numbers,	\$4 00
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Vols. IV., V., VI., and VII., 4 numbers, each volume, \$2 00

The publishing Committee is not responsible for the opinions expressed by authors of papers.

Coper

Library

*The Deercreek Mound.*

203

The points to which your attention is mainly called in this skull, are: 1. The brachy-cephalic head. 2. The straight and long back of the head. 3. The prominent brow and large nose. 4. The deep lower jaw. 5. The marked facial angle. These are points quite nearly coinciding with the only Mound Builder skull figured in Vol. I., Smithsonian Contributions to Knowledge; also to the skull found in the Grave Creek Mound, and roughly figured by Schoolcraft in Vol. I., Proceed. Am. Ethnological Society, p. 412.

They are points of strong contrast, and great difference from the so-called Madisonville skulls, and suggest a possibility of thus proving a distinction of the Mound Builders into a race by themselves. The fact in itself calls for great care in preserving skulls, which are undoubtedly Mound Builders, by themselves, and carefully distinguishing them from skulls often found in mounds from burials by a later people. It also demands that greater care than that of mere relic plunder is called for in opening and preserving the remains of mounds. Squier and Davis assert that they only found one perfect skull. I feel pretty certain that they did not go as carefully to work to preserve them, or enough of them, for comparison, and the fact that they never reported any attempts at comparison of even different parts of the skull, corroborates my view.

There is nothing beyond the octagonal stone and the great labor of constructing the mound, that is seen in any of the artificial relics, which denotes a state of civilization or condition beyond some tribes of our historic North American Indians. We can conclude, I think, without reasonable doubt, from the age of the trees upon it, that the mound is at least three hundred and fifty years old, and, probably, much older. That would carry us back to the beginning of the sixteenth century, or further—a century before the settling of New York City. It tells us that there existed at the time of its erection an old forest growth, and that our present forest growth is either much older than it indicates in itself, in a direct line, or that it was a later forest growth than the one whose trees were buried to make the vault. An oak tree, one and three-quarters feet in diameter, indicates more than a century's growth. The sea-shell ornaments, from their position, indicates the vanity of the wearer and their probable rarity. They were, no doubt, considered valuable, just as we to-day value rare things with the same barbaric vanity—not because they possess intrinsic value, but because they are rare—and of them we make the same vain display. It is only one of the many relics of barbarism which have come down in our evolution from the barbaric to the civilized state.

(OVER)

*SOME CURIOUS ANIMALS.\**

BY EDWARD M. COOPER.

I have thought it might prove interesting to give a brief description of some of the curious animals that existed in past geological ages, but I must deny any claim to originality, and acknowledge that my descriptions are second hand, but derived from sources most authentic; and I assure you that the statements made are not copied from the posters of a traveling menagerie, though some of them may sound sufficiently exaggerated for even *those* reliable essays on natural history. That these wonderful beings have lived at some period of the earth's history, there is no room for doubt, as all the great museums of the world have been enriched with more or less of their remains—even our own Museum containing both casts and actual portions of some of them.

The first one to which I shall call your attention is known as the Megatherium—the word meaning great or huge wild beast—being the name given by Cuvier to a large extinct animal belonging to the Order Edentata. A nearly complete skeleton, found on the bank of the River Luxan, near Buenos Ayres, and sent, in 1789, to the Royal Museum at Madrid, long remained the principal, if not the only, source of information with regard to the species to which it belonged, and furnished the material for many descriptions, notably for that of Cuvier, who determined its affinities with the sloths. In 1832 an important collection of bones of the Megatherium were discovered near the Rio Salado, and were secured for the Museum of the College of Surgeons of England; and these, with another collection found at Luxan in 1837, and now in the British Museum, supplied the materials for the complete description of the skeleton published in 1861 by Prof. Owen, the British geologist. He conclusively proved that the Megatherium was a "ground sloth," and fed on the foliage of trees, uprooting them by its great strength, or pulling down the branches with its formidable forearms, resting on its hind legs and tail as on a tripod. Other skeletons have since been received by several of the continental museums—as Milan and Paris.

In size, the Megatherium exceeded any existing land animal, except the elephant, to which it was inferior only in consequence of the comparative shortness of its limbs, for in length and bulk of body it was its equal, if

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\* This paper, by Mr. Cooper, was read at the June meeting of the Society, and its publication has been deferred to the present time. It was illustrated by a number of magic-lantern views of the animals spoken of, prepared by Chas. M. Woodward.—  
Note by Editor.

not superior. The full length of a mounted skeleton from the fore part of its head to the end of the tail is eighteen feet, of which the tail occupies five feet. Taking all the various points of its structure together, they clearly indicate affinities both with the existing sloths and with the anteaters; the skull and teeth more resembling those of the former, and the vertebral column and limbs the latter. It is not difficult to infer the food and habits of this enormous creature. That it was a leaf-eater there can be little doubt; but the greater size and more complex structure of its teeth might have enabled it to crush the smaller branches, as well as the leaves and succulent shoots, which form the food of the existing sloth. It is, however, very improbable that it climbed into the branches of the trees, like its diminutive congeners, but it is far more likely that it obtained its subsistence by tearing them down with the great hook-like claws of its powerful prehensile forelimbs, being easily enabled to reach them by raising itself up on the massive tripod formed by the two hind feet, firmly fixed to the ground by the one huge falcate claw, and the stout, muscular tail. The whole conformation of the hinder part of the animal is strongly suggestive of such an action. There can also be but little doubt but that all its movements were as slow and deliberate as those of its modern representative.

Dana, in referring to the *Megatherium*, says: "It exceeded in size the largest rhinoceros. The length of one of the skeletons is eighteen feet. Its massy limbs were more like columns for support than like organs of motion; the femur was three times as thick as an elephant's; the clumsy tibia and fibula were soldered together; the huge tail was like another hind leg, making a tripod to support the heavy carcass when the animal raised and wielded its great arms, and the hands, terminating the arms, were about a yard long, and ended in huge claws."

The greater portion of the remains of the *Megatherium* as yet found are from the Post-tertiary geological formations of the Argentine Republic and Paraguay, or the lands forming the basin of the Rio de la Plata. Dr. Leidy has described, from similar formations in Georgia and South Carolina, bones of a closely allied species, but smaller.

The next animal is the *Mastodon*—the name meaning nipple-tooth—in reference to the conical projections on the molar teeth of some of the species, and given by Cuvier to a genus of extinct elephant-like animals. In size, general form, and principal osteological characters, the *Mastodon* resembled the elephant. It is by the teeth alone that the two groups are to be distinguished, and so numerous are the modifications of these organs in each, and so insensibly do they pass by a series of gradations into one

another, that the distinction between the two is an arbitrary and artificial one, though convenient and even necessary for descriptive purposes. As in other proboscideans, the teeth of the Mastodon consist only of incisors and molars. The incisors, or tusks, are never more than a single pair in each jaw. In the upper jaw they are always present, and of large size, but apparently never so much curved as in some species of elephants, and they often have longitudinal bands of enamel, more or less spirally disposed, upon their surface, which are not met with in elephants.

Lower incisors, never found in true elephants, are present throughout life in some species of Mastodon, which have the symphysis of the lower jaw greatly elongated to support them. In the common American species—*M. Ohioticus*, Blum.—there were two tusks in the lower jaw in the young of both sexes; these were soon shed in the female, but one of them was retained in the male. In other species no inferior tusks have been found; at all events, in adult life.

Mastodon remains were first discovered at Albany, N. Y., and described by Dr. Mather in the Philosophical Transactions for 1712. The first specimens seen in Europe were found thirty years after by Lonquell, on the edge of a marsh near the Ohio River, and hence the French called the unknown creature, "The animal of the Ohio." Bones have since been found as high as 70° north, but they mainly frequented a more temperate zone; and we have no evidence that any species was specially fitted like the Mammoth to brave the rigors of an Arctic winter. The remains occur chiefly in the United States, Europe, and India. They must have roamed in considerable numbers among the hills and valleys of the interior states of this country, for the teeth and portions of the bones of many individuals have been found. Several years ago some large skeletons of the Mastodon were dug up in a marsh near Newburgh, N. Y. The late Dr. J. C. Warren, of Boston, obtained one of them, which he set up in his private museum. It is eleven feet high, and seventeen feet long to the base of the tail. The length of the tusks is twelve feet, of which two and one-half feet are inserted in the socket. The estimated height of the animal when living was from twelve to thirteen feet, and the whole length, adding seven feet for the horizontal projection of the tusks, from twenty-four to twenty-five feet. Remains of the undigested food were found between his ribs, showing that he lived in part on spruce and fir trees. The range of the genus Mastodon in time was from the middle of the Miocene period to the end of the Pliocene in the Old World, when he became extinct; but in America several species, especially the best known, owing to the abundance of its remains, which has been variously called *M. Ohioticus*, *M. Ameri-*



*canus*, and *M. giganteus*, survived quite to a late Pleistocene period. Their remains are met with most abundantly over the northern half of the United States, though occurring also in the Carolinas, Mississippi, Arkansas and Texas. The best skeletons have been dug out of marshes, in which the animals had become mired. Three perfect skeletons have been obtained from the fresh water marshes of Orange Co., N. Y.; another from near Cohoes Falls on the Mohawk; another in Indiana; one from a morass in New Jersey, and another on the banks of the Missouri, while portions of its remains have been found in this and many other states.

The Glyptodon was the gigantic representative in the Pleistocene times of the armadillos of South America. It was furnished with a huge carapace, or coat of mail, formed of hexagonal plates, united by sutures, and constituting an impenetrable covering for the upper part of the body and the tail—the carapace differs from that of the modern armadillos in having no greaves or joints, for the purpose of contracting or rolling up its body. The head was defended by a tessellated bony casque. The tail possessed an independent dermal sheath, or cuirass, and must have been a very formidable weapon. The bones of the leg and foot were perfectly adapted to bear the steady pressure of this enormous weight. The teeth, numbering eight on each side of each jaw, are sculptured laterally by two wide and deep channels, which divide the grinding surface into three portions. The generic name was derived from the fluting of the molars. The remains of one of these animals measured from snout to the end of the tail following the curve of the back eleven feet; the tessellated trunk armor being six feet, eight inches in length, and nine feet across, and probably weighing more than a thousand pounds. The Glyptodon does not appear to have emigrated from the central regions of South America, but formed part of a local fauna of the highest interest, which is only faintly represented by the living armadillos.

The Pterodactyle is one of the most extraordinary of all the creatures yet discovered in the ruins of a primeval world. Collins, in 1784, was the first to investigate the character of this strange animal; he considered it a fish; Blumenbach decided it was a bird; Sommering, a mammal; Spix, that it was intermediate between monkeys and bats; Macleay, a link between mammals and birds, and Agassiz thinks it a strictly marine reptile. Cuvier in 1800 determined the place and name it now holds.

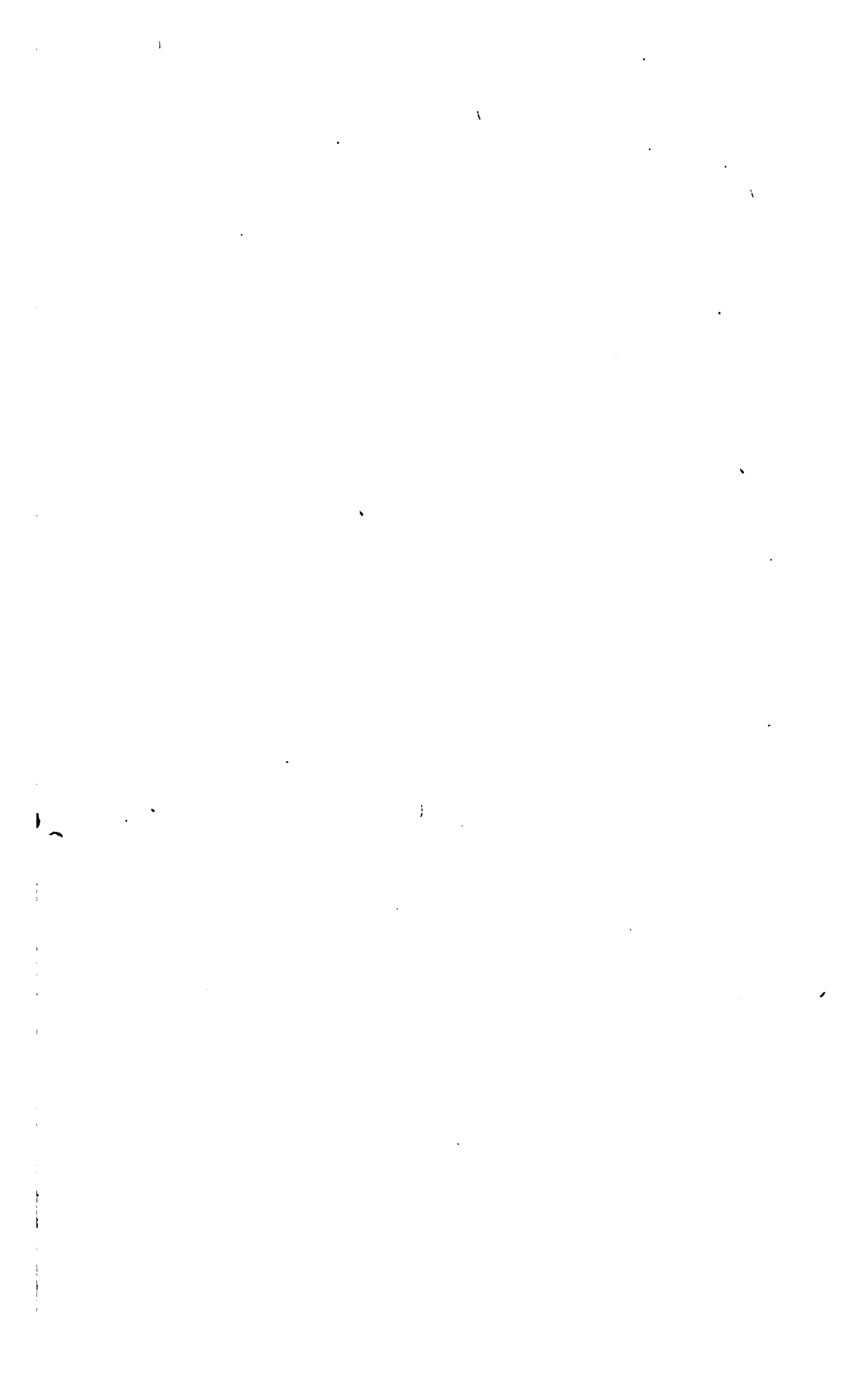
The *Pterodactylus crassirostris* is distinguished by a very large head, a comparatively short neck, a small trunk, bat-like wings and a tail. It has been estimated that some of these strange monsters, now happily extinct, had an expanse of wing surpassing that of the great albatross, but this

species did not measure over three feet from tip to tip of the wing. Marsh has, however, described one species from the upper Cretaceous of Kansas, which had a spread of wing of twenty-five feet, with jaws and teeth like those of a crocodile, a body like a mammal, and wings like those of a bat. It is difficult to imagine anything more hideous or grotesque than the Pterodactyle. By the excessive elongation of the little fingers of the forefeet, support was afforded to a membrane, which extended to the tail, and made a wing for flying—the remaining fingers being short and furnished with claws; the long slender jaws were set with a number of teeth in sockets; the bones were hollow and light as in birds. They had the habits of bats and wings of a similar character, and yet are properly classed with the reptiles.

The Dinotherium was a huge pachyderm, which, though its teeth were discovered more than a century ago, has not yet found a resting place in the classification of animals. Cuvier called it a gigantic tapir; DeBlainville and Pictet considered it an aquatic herbivore, resembling the Dugong; Kaup regards it as intermediate between the Tapir and Mastodon, and truly terrestrial; while Owen says it is a hoofed quadruped of probably aquatic habits. One of the singular features in connection with this animal is the enormous down-curving tusks, which were probably used in tearing up the roots of water plants needed for food—though Ansted thought they might also be used as anchors to attach the animal at night to the bank of the river or lake in which it dwelt.

The Plesiosauris was first discovered in 1823 by Coneybeare and DeLaBeche. Cuvier thought "its structure the most singular, and its characters the most anomalous that has been found amid the ruins of a former world." To the head of a lizard (wrote Buckland) it united the teeth of a crocodile; a neck of enormous length, (consisting of from twenty to forty vertebræ) resembling the body of a serpent; a trunk and tale having the proportions of an ordinary quadruped, and the paddles of a whale.

The Hesperornis was a water bird, with powerful swimming legs and feet, peculiarly adapted to rapid motion through the water. The length from bill to toe was about six feet. The wings were small and rudimentary, and could have been of no service for flight. Its teeth indicate carnivorous habits, and its food was probably fishes.





*Gaylord*

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