THE DINOCERAS, AN EXTINCT MAMMAL.

In 1870, while Prof. O. C. Marsh was making some explorations in central Wyoming, he discovered the remains of a huge animal whose form was entirely unknown to him, and which he at once recognized as an extinct form, and which he named the dinoceras. His explorations in this region, at this time and subsequently, were extensive, and remains of different parts of this type were found from time to time, and the Peabody Museum at Yale College, over which Prof. Marsh presides, now contains specimens or portions of specimens of over 200 individuals, showing how common and abundant a type this must have been during a certain period of the earth's development.

These specimens were found in a basin north of the Uinta Mountains of Wyoming, and east and west of the Green River, within a hundred miles of its banks on either side. During the tertiary period this basin was an inland sea, and was formed into such by the elevation of the Rockies on the east and the Wasatch Mountains on the west, which cut off its connection with the open sea, and turned it gradually into a fresh water lake.

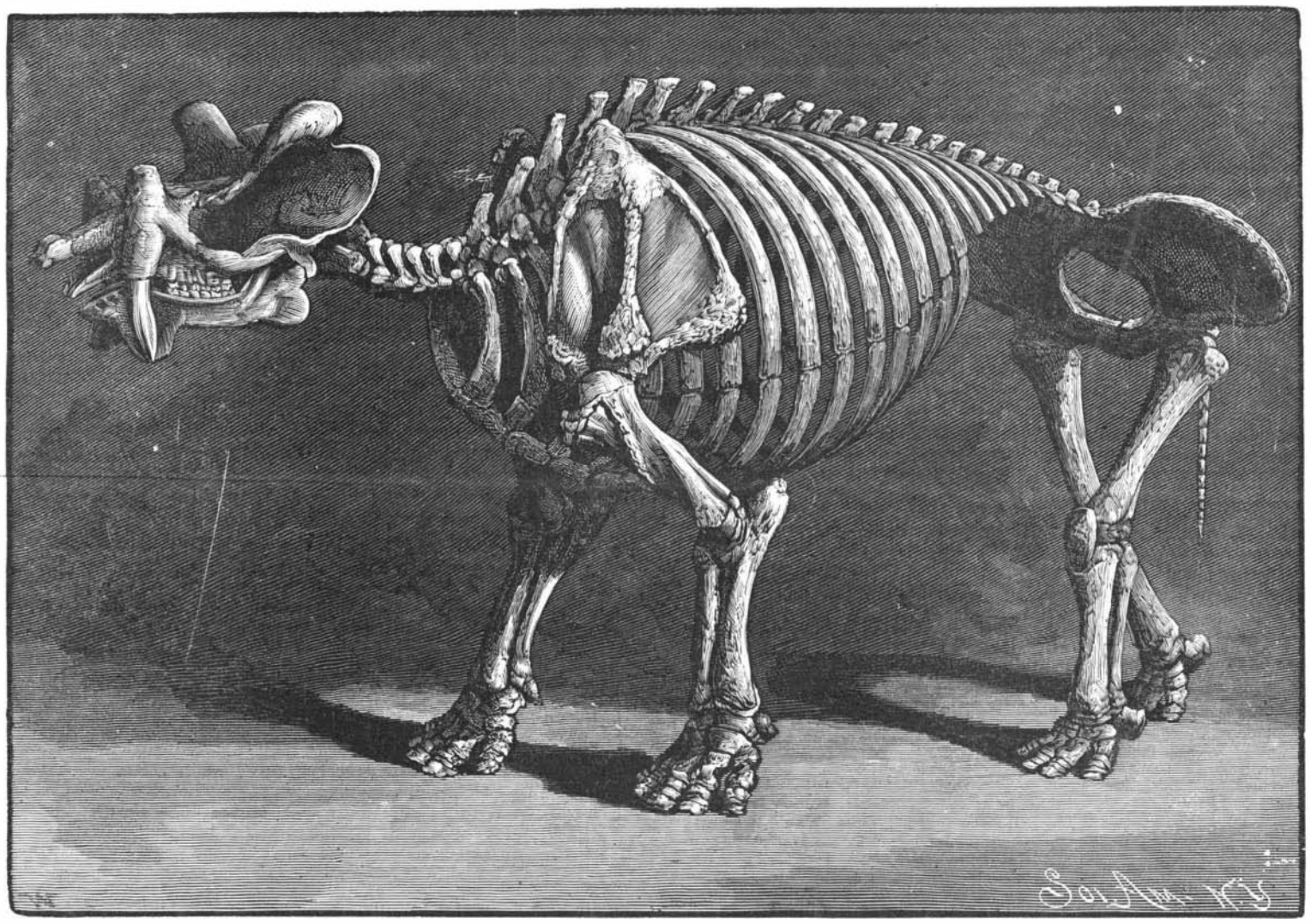
The surrounding lands were covered with a luxuriant tropical vegetation, and as this whole region was gradually raised from the sea level to a height of 7,000 or 8,000 ft., these basins were filled by sediment and wash from the surrounding mountains, and deposits were formed which reached during the Eocene period between one and two miles in vertical thickness. A complete record was thus kept in these gradual deposits of the history of animal life during this period of early tertiary, and the tracing and reading of this history is facilitated by the subsequent washing away and denudation of some portions of this territory, and by the vast process of erosion that has taken place.

In this Eocene lake region were found types innumerable; among others, the ancestral forms of the horse, the tapir, lemurs, crocodiles, tortoises, lizards, fishes, and serpents. Many specimens of forms hitherto unknown were discovered, and most prominent among these are the dinocerata, which have been separated into three groups, the dinoceras, the tinoceras, and the uintatherium.

The skill and perseverance which were displayed in making the collection of fossils which have been so instrumental in the classification of these curious forms is manifested by the difficulties that were overcome in securing a complete specimen of the skull of the dinoceras mirabile, which has been taken as a type. The skull was found embedded in a soft matrix, which permitted the brain cavity to be readily worked out. It was, however, located on the edge of a steep precipice, and it was discovered, as the work of exhumation progressed, that several important parts of the skull were missing, and it was necessary to institute a systematic search, which finally resulted in the unearthing of the missing parts in a deep ravine many feet below, where they had been washed down and covered up. A considerable portion of the skeleton was discovered near the place where the skull was found, and the engraving represents the specimen as it now appears, the missing parts in certain portions being made up from other individuals. The skull is very perfect, and the skeleton, as a whole, affords an excellent opportunity of study, and an excellent estimate may be formed of the probable appearance of the animal when it was a living inhabitant of the marshy shores of this vast inland sea. The dinoceras appears to have possessed traits in common with the elephant and rhinoceros.

In his walk he must have resembled closely the former, while in some other particulars there is a likeness to the hippopotamus, the neck being longer than that of the elephant (thereby enabling the head to reach the ground); and the horizontal nasal opening and the overhanging nasal bones and well developed turbinal bones render the presence of a proboscis extremely improbable, and, in fact, such a feature would have had no function, and could not well have existed. The brain was small, and the massive bones would indicate a sluggish, dull, slow-moving animal, little adapted to withstand the climatic changes, and unable to adapt itself to the altered environment at the close of the Eocene. They therefore probably became gradually extinct about that period, and no forms have been discovered which would lead one to presume that they had survived a much later age.

The exact nature of the horns is still a matter of conjecture, but Prof. Marsh assigns as possible a form of horn similar to those of the American antelope; or still more probable is, perhaps, the explanation that the horns were covered with a thick, callous skin, and certain injuries found on the horn core of some specimens would indicate that blows had been inflicted through the outer covering on the core during conflict with other animals. Judging from the inside of the foot, this must have been covered with a thick pad, like the elephant. The size of the tinoceras, which is the largest type of the dinocerata, was about twelve feet in length; the height to top of the back was about six and one half feet, and the width across the back about five feet. Judging from existing animals, the weight must have been about 6,000 lb. The dinoceras mirabile was somewhat smaller. The numerous remains found in these deposits would indicate that these strange, uncouth monsters must have been very abundant during the period of the middle Eocene, and the plentiful distribution and the position of these remains lead one to believe that they lived probably in herds on the shores of the tropical lakes, feeding upon the luxurious vegetation that abounded in these localities. For the data from which the above information has been drawn, we are principally indebted to Prof. Marsh's monograph entitled "An Extinct Order of Gigantic Mammals," published by the U. S. Geological Survey.



THE DINOCERAS—A GIGANTIC EXTINCT ANIMAL FOUND IN WYOMING.

New Bridge across the Mississippi at St. Paul, Minn.

The specifications are out for the new bridge, and proposals were opened in June. In accordance with American practice, the design of the bridge is left to the contractor; the design being in conformity with the general plans furnished as to length of span, location of bents, clear headway, grade elevations of masonry, etc., and to the specifications in regard to construction, materials, and unit strains. The structure will be a deck bridge throughout, and will be 41 feet 6 inches wide between railings, having 24 feet roadway and two 8 feet sidewalks. Its total length will be 2,770 feet, with the following spans: Four 40 feet tower spans, three 50 feet tower spans, and two 60 feet spans, all riveted plate girders; nine 80 feet and five 90 feet spans, riveted lattice girders; one 170 feet and four 250 feet spans, pin connected trusses. There will be two trusses 22 feet apart, c. to c., and the single intersection type is preferred. The trusses and girders will be carried on iron trestle bents, each composed of two columns, and the bents united in pairs to form towers at certain designated points. No compression member is to have a length exceeding forty-five times its least width; in beams and girders the compression flange is to be of the same gross section as the tension flange. No continuous girders admitted. Rolled beams for roadway stringers to have a depth not less than one-fifteenth of span, and riveted plate girders not less than one-twelfth of span. The heads of eye bars to be so proportioned that the bar will break in the body rather than in the head or neck; no welds allowed in the body of eye bars, lateral sway rods, or counters, except for loop-eyed bars. Hole one-fiftieth larger than pin.

Two Large Fast Steamships.

Messrs. J. & G. Thomson, of Clydebank, have orders for two steamships of the largest and most powerful type now employed in ocean navigation, to be built for the Inman and International Steamship Company for its mail and passenger service between Liverpool and New York. In point of size alone these two vessels are noteworthy, being about 8,500 tons gross measurement each; but in respect of other features, such as proportions, speed, means of propulsion, and structural character, they will form most noteworthy departures in the development of modern steamships. Their outstanding characteristics will be propulsion by two screws actuated by two separate and self-contained sets of engines and boilers of the most modern type, as regards high pressure and increased expansion of steam, and minute subdivision of the hull by longitudinal and transverse water-tight bulkheads, rendering the ship unsinkable through collision with another vessel, and almost absolutely unsinkable from any cause whatever. It is expected that these vessels will attain a speed of 19 knots per hour on trial.