THE MOSSBERG TIRE-BELL.

The tire-bell has now been used for no inconsiderable time, and seems to have met with the approval of most wheelmen. Like most bicycle appliances, the tire-bell has been so improved since its introduction, that it bids fair to supplant the handle-bar bell. Among the improved forms should be mentioned a bell made by the Frank Mossberg Company, of Attleboro, Mass., which embodies in its construction certain principles not uninteresting from the mechanic's standpoint. The striking mechanism of the Mossberg bell consists of two steel rods or hammers sliding freely in guides. By a revolving cam-shaft these hammers are caused to move alternately upward and strike the gong. Gravity and rebound bring these hammers back to their original position ready to be again impelled upward by the rotation of the cam-shaft. The power required in ringing the bell overcomes only the weight of the hammers and the rotative friction of the cam-shaft. The cam-shaft with its friction wheel is mounted radially to the axis of the bell. The bells are mounted on a stud and, together with the cam-shaft, are swung in the main bracket by pulling on a cord, to bring the friction-wheel in contact with the tire.

THE MOSASAURS.

BY L. P. GRATACAP.

The American Museum of Natural History has acquired through its Curator of Vertebrate Palæontology, Prof. Henry F. Osborn, a remarkable example of an ancient marine lizard—if this term has a proper significance in connection with these fossils—which was procured from its owner, Mr. Bourne, of Scott City, Kansas.

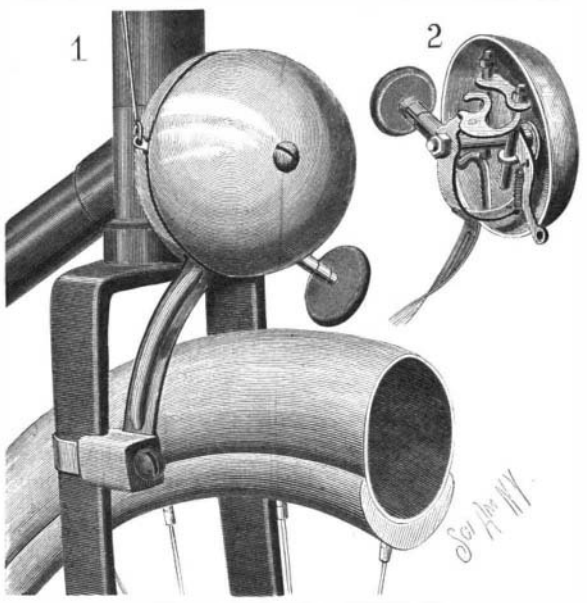
This unique object is now exhibited, properly framed and protected, on the walls of the hallway in the fourth story of the museum, and certainly produces a distinctly impressive realization of vanished faunal conditions on our earth. In a long sigmoidal curve, with its fore and hinder appendicular skeleton fully revealed, its long skull in complete preservation, with a row of sanguinary teeth, and its tail almost fully shown, this saurian displays its proportions, the relations of its parts, and even meets, half-way, the pleased imagination of the spectator, by a simulated expression of ferocity and predaceous pursuit.

The Mosasaurs, to which this fossil belongs, are not novelties in the world of science, nor are their remains unusual. Hundreds of skeletons have been deposited in Yale College by Prof. Marsh, though more or less fragmentary. Prof. Cope possessed them in his cabinet, the University of Kansas owns a long series of their skeletons, and they have been exhumed from the Cretaceous beds of North and South America, New Zealand and Europe. As long ago as 1780 the famous individual from the Maestricht beds in Holland was procured by Dr. Hoffmann, a surgeon, whose claims to its possession were disputed by a Canon of the Church. Finally, confiscated by this theologian, it became the interesting cause of a general order by the commander of the French troops in 1795. Learning, upon his siege of this city, that a certain house contained the precious remains, orders were given to avoid its demolition. Upon the entrance of the troops, however, the skull was not found. It had been removed. A promise of 600 bottles of wine for its recovery very quickly revealed its retreat, "for the next day a dozen grenadiers brought the specimen in triumph to the house of the representative, and it was subsequently conveyed to the museum in Paris." Besides their numerous representations in museums, Marsh, Cope, Goldfuss, Dallo, Boulenger, Owen, Baur, Williston, Hector, have studied and discussed their nature from the evidence of many other specimens. The distinction of this example, here shown, is its remarkable completeness, for with the exception of a few digital bones and some two feet of its caudal vertebræ it is almost entire.

These large swimming reptiles lived during the deposition of the Upper Cretaceous, and seem, throughout their world-wide distribution, to have ranged within identical geological limits. In this country they occur in the Cretaceous, in New Jersey, Wyoming Kansas, Alabama, Dakota. Their occurrence was a little earlier in America than in Europe, and in New Zealand than in America, leading to the possible deduction that a center of radiation may have been localized in the latter area.

The species here figured and exhibited at the museum is Tylosaurus prariger Cope, and belongs to one of the three great divisions into which the Mosasaurs, by Williston, have been conveniently grouped, viz., the Tylosaurinæ, the Platecarpinæ and the Mosasaurinæ, a division recognized under a different terminology by other investigators.

In Clidastes, as an example of the Mosasaurinæ, a slender and shorter body, powerful tail, numerous teeth, medium sized paddles, few phalanges, are distinguishing features. In Tylosaurus, greater length, small paddles, numerous digits, slender head, separate it superficially from its congeners. Platecarpus is believed by Williston to have been the monarch among these marine monsters. combining flexibility and strength, with large paddles, broad skull, few and powerful teeth. The Tylosaurus probably furnished the largest individuals, though, in contrast to the sensational claims of some writers for a length of one hundred feet, their maximum size did not exceed forty-five. These marine lizards were covered by a scaly skin, and a portion of this integument with its carbonized scales is on view in the museum of the Kansas University. Williston conjectures that these creatures did not inhabit deep waters as the Plesiosaurs, but flourished in bays and estuaries, enjoying a rather narrow range of locomotion and feeding for the most part on fishes.

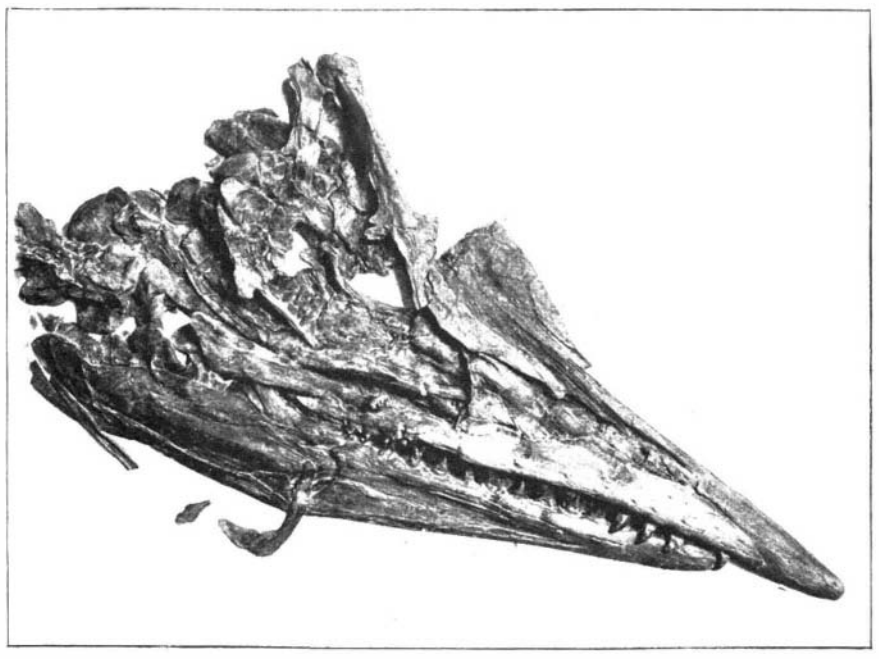


THE MOSSBERG TIRE-BELL

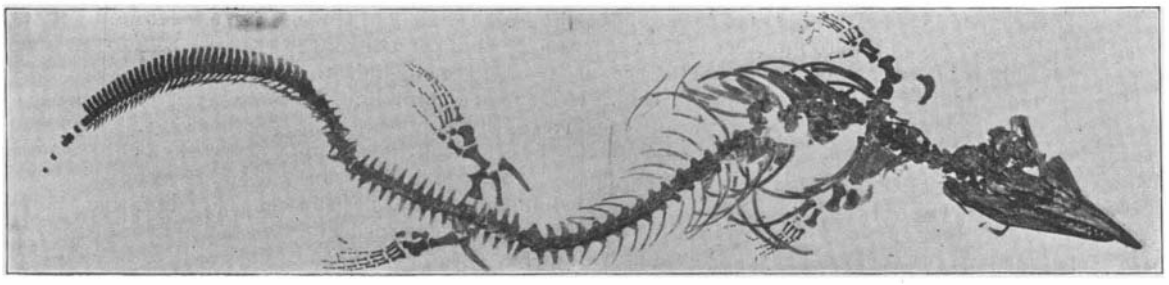
Two extracts respectively from Williston and Cope may suggestively close this brief description. "While the flexibility and loose union of the jaws doubtless permitted animals of considerable size to be swallowed, the structure of the pectoral girdle would never have permitted any such feats of deglutition of which the python and boa are capable. . . . It has been supposed that the prey, after seizure, was pulled down the throat by the alternate protrusion and fixing of the separated jaws. This, however, could not have been true. The mandibles in front, while not rigidly connected, yet show ligamentous union, and the quadrates were largely fixed posteriorly. . . . Possibly a saurian of the largest size might have swallowed entire an animal as large as a two-year-old calf, but I doubt the possibility." The following more speculative statement is from Cope: "The habit of swallowing large bodies between the branches of the under jaw necessitates the prolongation forward of the mouth of the gullet; hence the throat of the Mosasaurs must have been loose and almost as baggy as a pelican's. Next the same habit must have compelled the forward position of the glottis or opening of the windpipe, which is always in front of the gullet. Hence these creatures must have uttered no other sound than a hiss, as do animals of the present day which have a similar structure, as, for instance, snakes. Thirdly, the tongue must have been long and forked, and for this reason: Its position was still anterior to the glottis, so that there was no space for it, except it were inclosed in a sheath beneath the windpipe, when at rest, or thrown out beyond the jaws, when in motion."

The city and the public of New York are to be congratulated that so superb a specimen of these extinct water pythons can be seen in their Museum of Natural History. It is naturally and truly an object of intense interest.

The specimen itself came to the museum in a few large masses of chalk, from which it has been slowly developed by skilled workmen, revealing from day to day new indications of its perfection. It is stated by Prof. Osborn that cartilaginous supports of the trachea and some of the anterior ribs are retained in this skeleton, and that these vestiges will afford new or decisive evidence as to the zoological position of the Mosasaurs.



HEAD OF TYLOSAURUS.



FOSSIL SEA LIZARD.

Portable Museum for Scholars.

The Brooklyn Museum of Arts and Sciences has just purchased the first "musée scolaire" ever brought to this country. It consists of a system of charts devised by a French publisher of educational material. A small percentage of common school pupils ever visit the great natural history museums, or if they do, they are overwhelmed by the enormous bulk of the collections. Only prosperous private schools can afford a museum collection, and with a few trifling exceptions, the least said about them the better. The portable scholars' museums are intended to give students just exactly what they crave to know, and no pupil, however adverse to study and dry-as-dust subjects, would ever find a natural history lesson dull if it was illustrated by these charts. A whole set of charts can be purchased for less than $100, and they will give the student a considerable grasp upon the subject, although, of course, the charts are necessarily elementary.

The charts or object cards, as they might be called, have actual samples of raw materials fastened to them, and other specimens, showing the various stages of manufacture, and finally the finished product. The various articles are wired to the charts and explanatory legends in French give the necessary description. Some of the charts are obtainable in English, and if there is a considerable demand for them, probably they will all be published, with translations of the text. In the manufacture of linen, for example, specimens of flax are secured to the top, and the series is continued until finally the bleached or finished linen is represented by a small square of cloth. The charts are so portable that it would seem possible for the whole museum to be transported from school to school in country places, somewhat after the fashion of the traveling libraries, as there is almost no danger of breakage. In many out-of-the-way places where a knowledge of natural history and the arts is very limited, these systematic charts would be the entering wedge for much popular advancement of knowledge.

Bottle Closure for Sterilized Liquids.

For this purpose J. Every recommends a simple good cork stopper, which has been pierced by means of a redhot iron wire, almost from the middle of the side diagonally to the middle of the under side of the cork. During the sterilization, place the cork on the bottle in such a manner that the lateral opening is just above the neck of the bottle, thus allowing the air to escape. When the sterilization is finished, press the cork deeper into the neck of the bottle, producing in this manner an airtight closure.—Pharmaceutical Zeitung.