THE GLYPTODON

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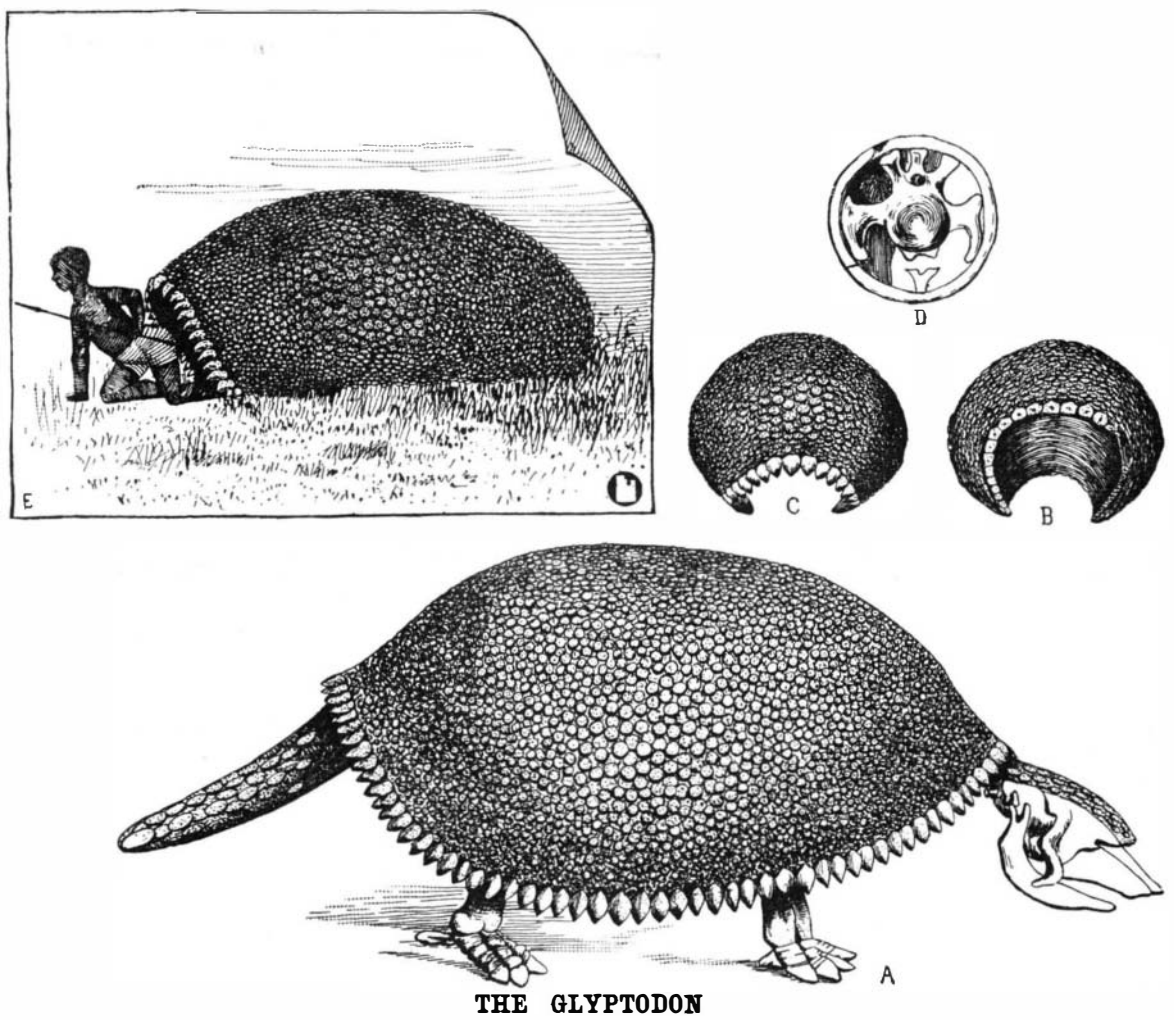
The glyptodon (*Glyptodon clavipes*) is the remote and gigantic ancestor of the common South American armadillo, and was, in its day, a relative of the still more gigantic *megatherium*, which, for its part, was the ancestor of the sloth of our time. In other words, the glyptodon belonged to the order Edentata, or toothless animals. It was not, however, strictly speaking, a toothless animal, as its name indicates, it being derived from *glyptos*, fluted, and *odons*, tooth.

In its important external characteristics it was more like the turtle of to-day than the armadillo, for whereas the latter is covered with jointed plates which enable it to roll itself up into a ball-like shape, the glyptodon was covered with one massive and stiff shield or carapace, very similar to that of the turtle. Like the turtle, too, it had the under plate or plastron, a piece of armor which is lacking in the armadillos. It was not, however, in any degree related to the turtle, only exhibiting in a remarkable way the similarity of results produced by similar causes, even when working on totally disconnected objects. In effect the struggle for existence in those distant, formative times produced the sluggish, vegetable-eating, armor-clad glyptodon, just as it did the monstrous land tortoises, fragments of which have been found in India and the islands of the Indian Ocean.

In the turtle and tortoise the carapace is, in fact, the backbone and ribs in itself, whereas in the glyptodon the skeleton is merely hidden under the coat of mail. The backbone of the glyptodon was stiff and immovable except at the neck, where it was jointed, to allow of freedom of action. In this respect it differed from its descendant the armadillo, which has the backbone jointed, in order that it may roll itself up. The glyptodon was too enormous to need to seek safety in such a way as that. It had merely to draw its feet under its shield and settle firmly to the earth. In this position it would have required not only strength beyond any living creature to overturn it, but would have defied any attack that could then have been made upon it.

When standing, it was as large as a rhinoceros and much more bulky. The carapace was seven feet in length, eleven and a half feet along the curve of the back the long way, and nine feet across, following the curve. The shell alone was about three and a half feet high, and to this must be added a foot and a half more for the height of the animal when standing on its feet.



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Different portions of the glyptodon and allied species have been found, but only one carapace is in existence, and that is at the Jardin des Plantes in Paris. This and the scattered bones were all found in deposits of the pleistocene age, in the fluviatile beds of the Argentine Republic and in the bone caves of Brazil. It is supposed that the glyptodon, together with others of the same order, such as the *megatherium*, the *mylodon*, and *megalonyx*, lived in the wooded uplands drained by the Parana and Uruguay Rivers. At that time the pampas of the La Plata were no more than the submerged deltas of these two rivers, and there were deposited the bones of the monsters drowned by the floods in the upper valleys. And there, too, was deposited the sediment brought down by the rivers, and, so, the pampas of to-day are the illustrated book in which the paleontologist can read the story of the remote past.

The cave was undoubtedly the first home of primitive man, but it has been suggested, with an air of probability, that the idea of the hut was derived from such a source as the discarded carapace of some dead glyptodon. There certainly is no discredit to the theory in the size of the carapace, for it was large enough for the primitive savage with his limited notions of comfort. It would have made, in fact, a sufficient shelter, and that was the most that the savage would have demanded at the first. It is not at all difficult to imagine the comfort with which the first man realized that he had found, ready to his hand, an air-tight, rainproof shelter. Such a use of the carapace would in a measure account for the few that have been found, for, exposed to the action of the elements, as would happen in such a case, the tough shield would eventually crumble into dust, whereas those which were buried in the deposit of the rivers would remain for ages as good as when the animal died, almost.

Natural History Notes.

Cultivation of Lichens.—A very interesting paper has been contributed to the *Transactions* of the Botanic Institute of the Royal Academy at Munster by Mr. Alfred Moeller, in which he demonstrates that, if the spermatia of lichens are placed in a suitable nourishing medium, they can be made to germinate, and that they are consequently spores, and do not correspond to male organs or antheridia. The spermatia of these plants must, therefore, hereafter be regarded rather as analogous to conidia, and as the asexual form of reproduction.

Carrying his researches still further, Mr. Moeller found that by continuing the cultivation, whether from spores or spermatia, a well developed thallus could be obtained in the nutritive medium, he having succeeded in obtaining such of nine species. In one species, *Calicium parietinum*, he obtained also asci and spermatia.

The Buffalo has now become so scarce that the death of one is recorded as a matter of news in the daily papers. A Laurel, Montana, correspondent of the *Forest and Stream* writes that, on July 30, a buffalo bull came within 200 yards of a round-up camp at Rock Creek, about thirty miles south of the Yellowstone. Two cowboys at once started in pursuit, armed with revolvers, and after a chase of ten miles brought it down. They brought in the head only. He was so old and thin that even the hide was not worth saving.

Selection of Food by Fungi.—Mr. A. Lister contributes an interesting article to the *Annals of Botany* on the plasmodia of two species of myxomycetes, *Badhamia utricularia* and *Brefeldia maxima*, which he kept under cultivation for twelve months. He finds that the first named fungus exercises a remarkable power of discriminating between different food materials. The fungi which it evidently prefers as food, since it is stimulated by them to greater activity of movement, are *Agaricus campestris*, *Boletus flavus*, and *Stereum hirsutum*, while *Hypholoma fasciculare* was either refused altogether, being left undissolved, or, as in one case, in which the digestion of it seemed to be attempted, the *Badhamia* almost died of indigestion. Starch also, if swollen by moderate heat, was absorbed, and by its stimulant action on the movement of the fungus evidently acted as nourishment. No light, however, was thrown by the experiments on the cause of the rhythmic movements of the plasmodium. The power which the fungus has of apparently communicating information as to the presence of food in contact with a distant part of its network, and of causing a concentration of the plasmodium around and on such food, is extremely remarkable. Light appears to have no influence on the movements of the plasmodium, but lack of moisture causes the plant to assume the condition of sclerotium.

Mineral Constituents of Trees.—An investigation has been undertaken by a German scientist, Mr. Weber, to determine the distribution of mineral constituents in trees. Transverse slices, taken at intervals of sixteen feet along the trunk of a beech tree, one hundred and fifty years old, were divided so that each portion corresponded to thirty annual ligneous rings, and these were analyzed. The yield of ash from zones of wood of the same age was found to increase regularly from the base of the trunk to the summit. Passing in from the circumference to the center of a section taken toward the base of the trunk, each successive portion yielded a larger quantity of ash until a certain limit was reached, after which the yield of ash progressively decreased; but the increase in the yield of ash from sections taken higher up the trunk was continuous from the periphery to the center. The composition of the ash also varied, the proportion of potash, which was 23 per cent in that yielded by the outermost portions of the wood, increasing to 43 per cent in the ash yielded by the central portions, while, on the contrary, magnesia fell in going from the circumference to the center from 29 to 11 per cent, phosphoric acid from 8 to 2 per cent, and sulphuric acid in the same direction. The bark was much richer in mineral constituents than the wood, lime being the predominant constituent and forming 82 per cent of the ash.

Preservation of Flowers.—Prof. Fithol describes the following method of preserving flowers: Inclose the flowers, with a little burnt lime, in a tube hermetically sealed. In a few days all the oxygen of the air will have disappeared, the lime will take up some of the moisture of the flowers and portions of the carbonic acid, so that the plant soon exists in pure nitrogen.

The Loco Weed.—No other plant in the flora of Texas has enjoyed a greater notoriety than the famous "loco" or "crazy weed." Popular superstition has accredited it with a most remarkable property, and that is the power of producing insanity in man and beast. Botanically, the plant is known as *Astragalus molissimus*. The extravagant stories that have been told about it recently led Mr. Jas. Kennedy to investigate its properties and determine what physiological phenomena result from its action.

As the result of his investigations, and his experiments upon animals feeding in pastures, Mr. Kennedy finds conclusively that the plant is non-toxic and innocuous, and possesses none of the properties long ascribed to it by popular superstition. He thinks that the immense destruction of stock with which it has been charged may have been caused by some poisonous plant heretofore unsuspected, or if the "loco" really has produced death, it has done so by reason of the tough, fibrous, and indigestible character of the plant acting as an irritant, and not as a poison.

Preparation of Fruit Sirups.

Everybody knows, says M. Manche, in the *Archives de Pharmacie*, that sirups prepared from the fresh fruit juices are far preferable to any others; but that these sirups in their fresh state contain a large amount of carbonic acid is usually forgotten. When the process usually in vogue is followed, and sugar is added to the juices in the cold, a liquid is obtained which soon becomes so dense that the acid finds it difficult to make its escape when heat is subsequently applied, and the consequence is foaming, and sometimes a partial caramelizing of the sugar, from the fact that the sirup makes a denser layer at the bottom while the lighter juice is forming on top. To avoid all this, M. Manche recommends that the juice be boiled before any sugar is added, replacing loss from evaporation by distilled water. The result is said to be better in every way.

Deafness Caused by the Electric Light.

A curious phenomenon was recently related by M. D'Arsonval before the French Academy of Medicine. After gazing for a few seconds on an arc light of intense brilliancy, he suddenly became deaf, and remained so for nearly an hour and a half. Surprised and somewhat alarmed in the first instance, but reassured by the disappearance of the symptoms, he repeated the experiment with the same result. When only one eye was exposed to the light, no very marked effect was produced.—*Medical Press and Circular.*