

## NEW FOSSIL REPTILE AND AMPHIBIAN EXHIBITS

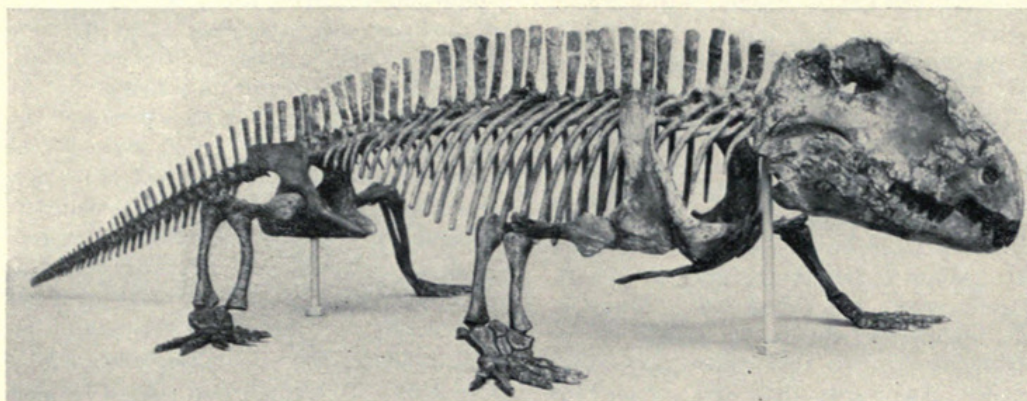
By RAINER ZANGERL  
CURATOR OF FOSSIL REPTILES

The Division of Vertebrate Paleontology has completed the first three exhibits in a program of remounting the superb skeletons of early reptiles and amphibians received from the University of Chicago as a gift. These exhibits may now be seen in Ernest R. Graham Hall (Hall 38).

The amphibian and early reptile exhibits were designed to answer a number of questions pertinent to the current views about the origin of these animals, as well as to

dwellers much as the early reptiles were.

It can be stated, as has been done in these exhibits, that the amphibians pioneered and the reptiles completed the conquest of the land. The most important step in this process was probably the evolution of a "land egg," an egg that is so constructed that it will not dry out readily, even though its shell must be porous, and will provide the developing embryo with enough food substances to complete its early stages of organ formation and growth inside the protected enclosure of the egg shell.



### NEW ADDITION TO FOSSIL REPTILE EXHIBITS

Skeleton of *Bradysaurus baini*, a sizable pareiasaur reptile from the Karroo of South Africa. The specimen is displayed in Ernest R. Graham Hall (Paleontology—Hall 38).

show them as free-mounted skeletons. There is little doubt in the minds of most paleontologists that the amphibians evolved from fishes, and among the latter from a group known as lobe-fin fishes, or crossopterygians.

We do not yet know a specific animal that is clearly intermediate in its bodily structure between the fishes and the amphibians. We are thus left to wonder how, for instance, the paired fins of the ancestral fish became walking limbs in the amphibian. The process must have involved not merely the appendages but also a large portion of the body. The fins of a fish suspended in water are not used, ordinarily, to support the weight of the body. They are attached to small girdle bones and muscle groups at the lower sides of the fish. The limbs of an animal walking on land, however, must support the entire weight of the animal. Thus the major difference does not lie in the actual shapes of the fins and the limbs but in their connections with the principal supporting structures of the body as a whole.

### WIDE VARIATIONS

In speaking of early amphibians we are inclined to think of them only as a group of animals that arose from the fishes and in turn led to the origin of the reptiles. We should not forget, however, that the amphibians underwent adaptive radiation on their own. Many of them became specialized swimming predators, bottom-dwelling scavengers, mud-burrowers, and some were land-

All this, however, is not enough. The early development of the embryo itself had to be modified in accordance with the changed circumstances of development. The embryo had to be enclosed in a separate fluid-filled container, and a sack to receive the waste products had to be provided. Numerous embryonic blood vessels cover the latter and the food-containing yolk sac, and serve to carry oxygen to and carbon dioxide away from the embryo. Needless to say, the conquest of the land by the reptiles involved far more changes than one would be led to believe by comparing the rather similar construction of the skeletons of early amphibians and reptiles.

### MANY RETURN TO WATER

Having once conquered the land, a great many reptiles returned to the water. Some of them became swamp dwellers, others went to sea. Among the latter are the well-known ichthyosaurs (fish-lizards) whose external appearance is that of a fast-swimming shark, the plesiosaurs whose body has been described as resembling a snake pulled through a turtle, and many other kinds that lived entirely in an aquatic environment.

The third exhibit houses the unbelievably bulky skeleton of the pareiasaur, *Bradysaurus*, a native of South Africa. The bones of this barrel-bellied vegetarian are so large with respect to the over-all size of the skeleton that few students can agree as to the probable posture the animal assumed

when alive. It is reasonably safe to say, however, that *Bradysaurus* was a sluggish animal and spent most of its days in shallow lakes and swamps. There, the unquestionably great weight of its body would have been largely supported by the water.

## MARIANA 'GHOST HOMES'—

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with distinguished skeletal friends from many other parts of the world.

### THE HOUSE OF TAGA

The second *latte* site at Tinian—the House of Taga—is truly impressive, despite the fact that all the stone pillars except one have collapsed. Originally, there were twelve massive stone pillars, each surmounted by a capstone, the pillar and capstone rising to a height of 16 to 17 feet. Each pillar and capstone together weighed approximately 15 tons. The quarry from which these stones came is located about a mile south of the site. Although it is probable that the pillars at the House of Taga were erected through the use of an earth ramp, how they were transported from the quarry by a people who—so far as we can tell—had no knowledge of the wheel remains a mystery, if one does not accept the ancient Chamorro legend that for a being with the great strength of the giant Taga, the construction of such a house was no great feat.

The House of Taga represents a final flowering of the prehistoric Chamorro pre-occupation with bigger and better house columns. At the House of Taga, the expedition sunk a series of test trenches into the subsoil, not so much to find artifacts contemporary with the Taga *latte* as to find out what lay beneath them. At the Blue Site the soil was so shallow that a previous occupation was precluded. The House of Taga, however, was literally built on sand—an old dune at least 20 feet in depth. In the test trenches, pottery was found underlying the Taga *latte* to a depth of some six feet, indicating that the site had been occupied by a people earlier than the builders of Taga's House.

### LATTE CULTURE AND ANTECEDENTS

The many *latte* sites of the Marianas are sufficiently alike and the material recovered from them sufficiently similar so that we can allocate them all to a *latte* culture. This culture reached its climax with the House of Taga. In addition to *latte*-building, the culture is characterized by a distinctive set of pottery types, by a mixed fishing-agriculture economy, and by a characteristic set of shell, bone, and stone tools. From documentary and archaeological sources we know that the *latte* culture endured until the Spanish conquest of the Marianas in the 16th and 17th centuries, but how far back





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