Riv. Mus. civ. Sc. Nat. "E. Caffi" BERGAMO, 20 (1999), pp. 131-132 ISSN 0393-8700

Víctor-Hugo REYNOSO

A NEW LIZARD FROM THE EARLY CRETACEOUS *LAGERSTATTEN* OF TEPEXI DE RODRÍGUEZ, PUEBLA

Introduction

The lizards form the Tlayúa quarry in Tepexi de Rodríguez, Central México, are among the best preserved Mesozoic lizards. Five specimens have been collected form the Early Cretaceous *lagerstatten* deposits of Tepexi de Rodríguez, Puebla. Three (one recently collected) belong to the basal squamate *Huehuecuetzpalli mixtecus* (Reynoso, 1998). The fourth lizard belongs to a new taxon with scincoid affinities and its description is about to be published (Reynoso, in press). Here is introduced a fifth specimen recently collected by Ranulfo Aranguthy. Although the new specimen resembles the Tepexi pre-scincoid, it presents several features that suggests to be a new species. The new lizard is complete, fully articulated, and preserved in dorsal aspect with exquisite detail. At this moment only the snout and the left part of the skull has been prepared remaining several important features obscure.

THE SKULL

The skull is similar in overall shape to that of the Tithonian lizard *Eichstaettisaurus* from the Solnhoffen limestones (Hoffstetter, 1964): the postorbital bones are complete, the upper temporal bar is dorsally oriented and open, and the parietal table is expanded laterally displacing the adductor musculature ventrally. Differently to *Ardeosaurus, Bavarisaurus* and other early Cretaceous lizards (Mateer, 1982; Evans, 1994, Evans and Barbadillo, 1997), the snout is notably rounded. The skull table has no ornamentation, the semicircular canals are prominent, and the frontoparietal suture is smooth. The presence of fully fused premaxillae, nasals, frontals, and parietals, parietal foramen on the frontoparietal suture, postorbital and postfrontal forming a single element, upper temporal fenestra almost closed, restricted mainly by the postorbital, and deep supratemporals, indicates that the new lizard is relatively derived.

COMPARISON TO THE TEPEXI PRE-SCINCOID LIZARD

The Tepexi pre-scincoid lizard was described by a single specimen which skull was overturned and preserved in ventral aspect. It is considerably larger than the new lizard and show exquisite detail in the structure of the palate region, barely known in most late Jurassic and Early Cretaceous lizards. The presence of a small medial flange on the retroarticular process, unique to cordylids and skinks, and weak zygosphene and zygantrum articulations suggest scincoid affinities, but the lack of body osteoderms places it in a basal position.

The preservation of the new specimen in dorsal view makes comparisons with the Tepexi pre-scincoid difficult. By comparing skull features visible in both lizards it is possible that the new specimen belongs to the same genus. However, some important differences

Departamento de Zoología, Instituto de Biología, Universidad Nacional Autónoma de México. A.P. 70-153, Coyoacán, México D.F. C.P. 04510.
E-mail: vreynoso@mail.ibiologia.unam.mx

suggests its nature as a new species. Among these differences are the presence of a relatively narrower lower jaw, and the fusion of the postorbital with the postfrontal. Since both lizards differ in size, morphological differences could be ontogenetically related. However, although the new lizard is considerably smaller, the completely fused nasals, frontals, and parietals suggest that it had reached an adult age. In most lizards with fused postfrontal and postorbital in adult stage, the bones remain separated in early development.

PHYLOGENETIC POSITION OF THE TEPEXI PRE-SCINCOID: NEW EVIDENCE

Assuming that the new lizard is indeed the same genus as the Tepexi pre-scincoid, it was possible to perform a cladistic analysis to precise its phylogenetic position with an almost complete data matrix, considering both dorsal and ventral skull characters. The availability of complete data matrices is very rare in the systematics of fossil lizard and it has lead to several incongruent results. The strict consensus of five equally parsimonious trees obtained by one hundred replicates of heuristic search processing the data matrix published by Estes et al. (1988) as modified by Reynoso (1998) and including new informative characters presented by Evans and Chure (1998), confirms the basal scincoid position of the lizard. Further preparation of the new specimen is needed before a conclusive result.

Aknowledgements

I thank Ranulfo Aranguthy and the Aranguthy family for collecting and pointing to me the "big eyed lizard". Dr. Shelton Applegate and Dra. María del Carmen Perrillat made the specimen available. This work was supported by grants No. I267370-N from CONACYT and IN210398 from PAPIIT, UNAM.

REFERENCES

ESTES R., DE-QUEIROZ K. & GAUTHIER J.A., 1988 - Phylogenetic relationships within Squamata. In ESTES R. & PREGILL G., Phylogenetic Relationships of the Lizard Families: 119-281, Stanford (Stanford University Press).

EVANS S. E., 1994 - The Solnhofen (Jurassic: Tithonian) lizard genus *Bavarisaurus*: New skull material and reinterpretation. Neues Jahrbuch für Geologie und Paläontologie, Abhandlungen 192: 37-52.

EVANS S. E. & BARBADILLO J., 1997 - Early Cretaceous lizards from Las Hoyas, Spain. Zoological Journal of the Linnean Society 119: 23-49.

EVANS S. E. & CHURE D. C., 1998 - Paramacellodid lizard skulls from the Jurassic Morrison Formation at Dinosaur National Monument, Utah. Journal of Vertebrate Paleontology 18: 99-114.

HOFFSTETTER R., 1964 - Les sauria de Jurassique supérieur et spécialement les Gekkota de Baviere et de Manchourie. Senckenberg biologie 45: 281-324.

MATEER N. J., 1982 - Osteology of the Jurassic lizard *Ardeosaurus brevipes* (Meyer). Palaeontology 25: 461-469.

REYNOSO V. H., 1998 - *Huehuecuetzpalli mixtecus*, gen. et sp. nov. a basal squamate (Reptilia) from the Early Cretaceous of Tepexi de Rodríguez, Central México. Philosphical Transactions of the Royal Society of London. Series B 353: 477-500.

REYNOSO, V. H. & CALLISON G., (in press) A new scincomorph from the Early Cretaceous of Puebla, México. Zoological Journal of the Linnean Society.