

## THE OSTEOLOGY AND AFFINITIES OF *ANOMOIODON LILIENSTERNI*, A PROCOLOPHONID REPTILE FROM THE LOWER TRIASSIC BUNDSANDSTEIN OF GERMANY

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The procolophonid reptile *Anomoiodon liliensterni* was found in the Triassic Bundsandstein of Thuringia, Germany, from the lower layers of the *Chirotherium* sandstone horizon in the summer of 1937 by a local bricklayer (Huene, 1939). *Anomoiodon* is represented by a specimen that consists of two closely associated skeletons that are preserved as natural molds in a block of medium-grained sandstone (Fig. 1A). These skeletons were described in 1939 from plaster casts, which revealed little detail (Huene 1939) and subsequently the original specimen was misplaced. This was unfortunate because interest in *Anomoiodon* has been renewed after suggestions that it might be the senior synonym of *Kapes* (Spencer and Storrs, 2002). The latter genus is known from several specimens from the Triassic of both Russia and the United Kingdom, where it has been used as an informal stratigraphic index taxon (Spencer and Benton, 2000; Spencer and Storrs, 2002). Fortunately, the natural molds of the *Anomoiodon* skeletons recently resurfaced in the Museum für Naturkunde, Berlin, and high-fidelity silicone rubber casts of the specimen were produced (Fig. 1B). These reveal the anatomy of *Anomoiodon* in considerably more detail than was available in 1939, allowing a comprehensive comparison with *Kapes* and the inclusion of *Anomoiodon* into a phylogenetic analysis of Procolophonoidea. A formal diagnosis for *Anomoiodon liliensterni* is also provided for the first time.

**Institutional Abbreviations**—BP, Bernard Price Institute for Paleontological Research, University of the Witwaterstrand, Jo-

hannesburg; MB.R, Museum für Naturkunde, Berlin; PIN, Paleontological Institute, Russian Academy of Sciences, Moscow; SAM, Iziko; South African Museum, Cape Town.

### SYSTEMATIC PALEONTOLOGY

PROCOLOPHONOIDEA Romer, 1956

PROCOLOPHONIDAE Cope, 1889

*ANOMOIODON LILIENSTERNI* von Huene, 1939

**Hypodigm**—MB.R.3539B, holotype, a partial skull and postcrania of a small individual, around 150mm long, preserved as a natural mold in three separate parts; MB.R.3539A, paratype, a partial skeleton, preserved as a natural mold on the same block as the holotype.

**Type Locality and Horizon**—Lowest layer of the *Chirotherium* Sandstone (Middle Bundsandstein) of Reurieth, near Hildburghausen, uppermost Lower Triassic (Olenekian) (Lucas, 2007).

**Diagnosis**—*Anomoiodon* is distinguished by its dentary dentition: the teeth are successively taller and larger posteriorly until the fifth tooth, which is almost double the height of the fourth tooth, whereas the sixth tooth is slightly shorter but the broadest mesodistally.

### DESCRIPTION

**Cranium**—Many of the details of the posterior region, lateral side, and palate are not preserved either on the holotype (MB.R. 3539B) or the paratype (MB.R.3539A) but the general shape of the skull, along with several sutures of the skull roof, can be seen in the dorsal view of both specimens (Fig. 2A). The skull, which lacks the quadratojugal horns associated with many procolophonids, measures about 35 mm in length in both specimens and is 30 mm broad at its widest point in the holotype. It is fairly triangular in dorsal view, and lacks sculpturing.

A partial premaxilla is preserved on the left side of MB.R.3539A (Fig. 2A). The premaxillae form a narrow inter-narial bar between the external nares, which in MB.R.3539A are fairly small and round.

The maxillae are poorly preserved in both specimens but on the right side of MB.R. 3539A the right maxilla can be seen comprising most of the lateral surface of the fairly deep snout (Fig. 3B). Remains of three maxillary teeth are also preserved, illustrating the trend of posteriorly increasing height and size of marginal dentition in *Anomoiodon* (Fig. 3B). Only on the last tooth, possibly the third or fourth on the maxillae (based on the position of the dentary teeth), can the crown be observed. In lateral view, it is pinched-in, making the tooth appear triangular

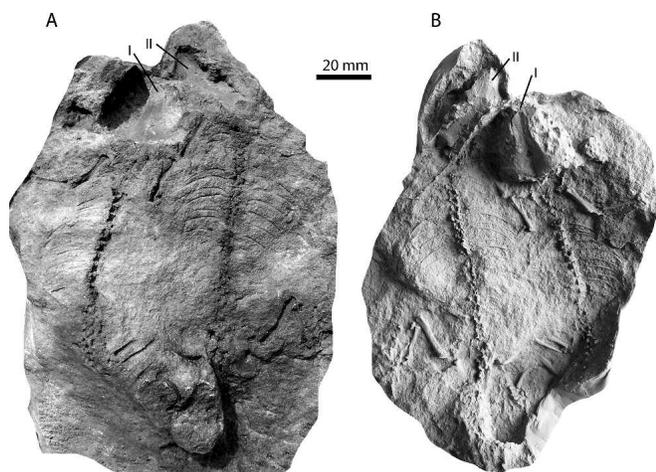


FIGURE 1. Holotype (MB.R.3539B; I) and paratype (MB.R.3539A; II) of *Anomoiodon liliensterni*. A, natural mold in sandstone, dorsal part, and B, silicone cast of the same mold.