

POSTILLA

Published from 1950 to 2004, the short papers of the *Postilla* series reported on original research by the Yale Peabody Museum of Natural History's curators, staff, and research associates, and their colleagues, in the natural science disciplines represented by the collections of the Museum's curatorial divisions.

The *Postilla* series, which ceased publication with Number 232 (2004), was incorporated into the journal *Bulletin of the Peabody Museum of Natural History*, available from BioOne Complete at <https://bioone.org/>.

Yale Peabody Museum scholarly publications are archived through EliScholar, a digital platform for scholarly publishing provided by Yale University Library at <https://elischolar.library.yale.edu/>.



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.
<https://creativecommons.org/licenses/by-nc-sa/4.0/>

Yale PEABODY MUSEUM OF NATURAL HISTORY

P.O. Box 208118 | New Haven CT 06520-8118 USA | peabody.yale.edu

Postilla

YALE PEABODY MUSEUM
OF NATURAL HISTORY

Number 15

May 12, 1953

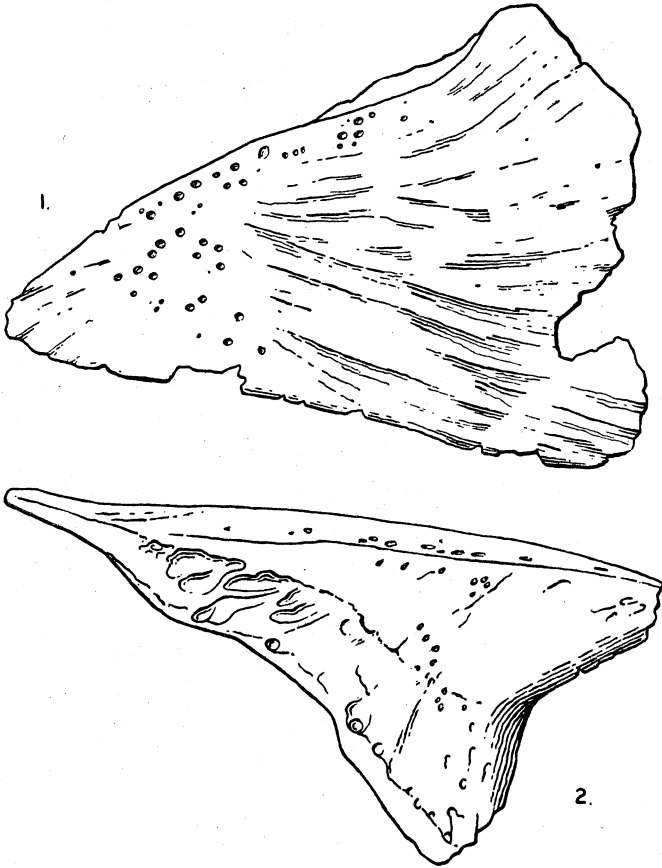
New Haven, Conn.

TYPOTHORAX SCUTES FROM GERMANY

JOSEPH T. GREGORY

Among a small lot of Triassic fossils from Württemberg presented to Professor O. C. Marsh by Dr. Eberhard Fraas is a lateral dorsal armor plate of a pseudosuchian, Yale Peabody Museum no. 3694, which bears a small pyramidal spine. Similar plates were figured by H. von Meyer (1861, p. 341-342, pl. 43, figs. 4-7) and attributed to "*Belodon*." These plates so closely resemble the corresponding portions of the armor of *Typtothorax meadei* Sawin from the Dockum formation of Texas that familial or even generic affinity is suspected. Inasmuch as no horned pseudosuchian has hitherto been recognized from Europe, they deserve particular notice.

Description: The spine was directed outward and backward, but rose little or not at all above the level of the reptile's back, which suggests a thoracic position. The dorsal surface of the plate is slightly convex, triangular in outline as preserved. The medial portion is broken off so that its full width and precise shape cannot be determined. Traces of the smooth, narrow, anterior border which was overlapped by the plate ahead of it are present; the remainder of the dorsal surface is covered by a weak sculpture of ridges and grooves radiating from a pitted area above the junction of the lateral and dorsal portions of the plate, which might be termed the base of the spine (fig. 1).



DESCRIPTION OF ILLUSTRATIONS

Left lateral thoracic dermal scute of pseudosuchian allied to *Typhothorax*, Y.P.M. no. 3694. From Keuper formation near Stuttgart, Württemberg, Germany. All figures X 1.

Figure 1. Dorsal surface

Figure 2. Anterolateral surface

The anterior and posterior edges of the spine are acutely angulate (fig. 3). An angular ridge also runs inward on the lower side of the spine for less than a centimeter from the apex and then disappears into the rounded surface which joins the anterior and posterior faces of the spine and merges with the lateral face of the plate.

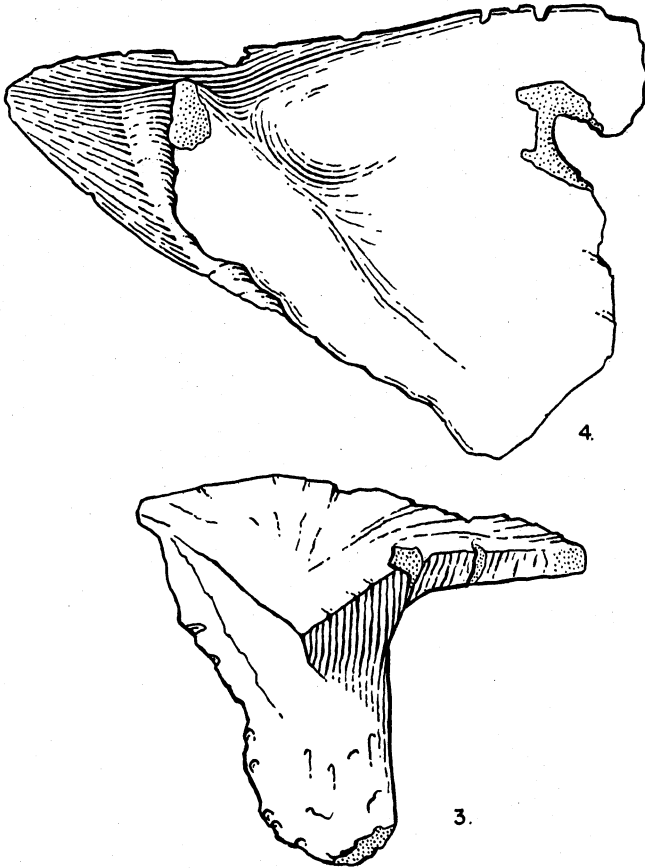


Figure 3. Posterolateral view

Figure 4. Internal surface

The lateral portion of the plate is very short antero-posteriorly but projects down conspicuously from the nearly flat dorsal portion, almost at right angles to the latter, below the base of the spine. Its medial surface (fig. 4) consists of an anterior inwardly directed narrow band which abruptly turns upward to merge with the posterior face of the spine. A shallow depression lies medial to the base of the spine at the posterior internal junction of the lateral and dorsal parts of the plate. The dorsal section is flat internally.

Along the anterior face of the bone (fig. 2) a slight ridge branches from the angle between anterior and dorsal surfaces and roughly divides the face into equal parts, a lower with radiate sculpture and an upper "spine" area with weaker ornament of pits. The posterior face of the spine has a weak concavity leading to the internal surface at the angle between lateral and dorsal sections of the plate.

Measurements:

Length, normal to posterior margin	60 mm.
Length, anterolateral corner to tip spine	82 mm.
Height, dorsal surface to tip lateral process . .	46 mm.

Comparisons: The plates from Germany appear to differ from those of *Typothorax meadei* Sawin in the somewhat shorter spine which does not curve backward so markedly at its tip as do those of the lateral dorsal plates of that species. Also it lacks any indication of the faint dorsal ridge from the tip of the spine, which occurs on the Texas specimen. It differs from the lateral plates of *Desmotosuchus* in its smaller size, the broader base to the spine which is indistinguishable from above from the whole dorsal surface of the plate, and in the fine radial sculpture rather than coarse irregular pitting on the dorsal surface. These features are essentially those which distinguish *Typothorax* from *Desmotosuchus*.

It would appear to differ from *Stegomus* as *Typothorax* does, in the much greater development of the laterodorsal spine and in the reduced size of the lateral portion of the plate. From *Stagonolepis* it apparently differs in the development of a strong spine and in the more acute angle between dorsal and lateral faces. This is somewhat uncertain, for although the limited assemblage of plates figured by Huxley did not include any like the lateral dorsals of *Typothorax*, it is not impossible that such existed. The mid-dorsal plates of the two genera are quite similar. *Typothorax* differs from *Stagonolepis* in its ventral armor, which consisted of separate small quadrangular plates (Sawin, 1947, p. 232) instead of the articulating scutes of the latter genus (Huxley, 1877, p. 10-11).

Dermal "skin plate" armor was first associated with phytosaurs by H. von Meyer in 1861. At that time he figured a large number of the trapezoidal, longitudinally ridged plates which have since come to be known as myristosuchid, and also a few elongate-rectangular plates bearing knob-like eminences and showing a coarser sculpture. On the same plate with these long plates (von Meyer, 1861, pl. 43) he illustrated a lateral dorsal plate extremely similar to the one described above. All of these specimens were referred to "*Belodon*" (ibid, p. 337-342), but it is clear that there was no association with the phytosaur skeletons; they merely were found in the Stubensandstein which also produced the phytosaurs. E. Fraas (1896, p. 16) definitely described the elongate median dorsal plates and attributed them to *Phytosaurus kapffi*. Von Huene (1911, p. 103) affirmed the association of this type of plate with *Phytosaurus kapffi*, and contrasted them with the myristosuchid plates.

In North America this quadrangular type of plate has been found principally associated with pseudosuchians; *Desmotosuchus* and *Typosuchus* have such plates as the median elements of their dorsal armor; they are found with a pseudosuchian type pelvis and vertebrae in University of Michigan Museum of Paleontology no. 13950, described as a "phytosaur" by Case (1932) at a time when that term was also applied to *Desmotosuchus*-like forms. Occasionally such plates have been found near phytosaur skulls (Camp, 1930, p. 89, and a plate, Y.P.M. no. 3695, found near a *Machaeroprotopus gregorii* skull at San Jon, New Mexico), but never demonstrably in association with them. Camp has expressed his skepticism over the association of this type of plate with *Phytosaurus kapffi*, and the presence of these unmistakably pseudosuchian lateral armor plates in the Württemberg Triassic strongly suggests that the specimens figured by von Meyer actually belonged to *Typosuchus* or a closely related genus which has otherwise escaped detection in the German deposits.

Without more material it is impossible to decide whether the plates from the German Keuper represent *Stagonolepis*, *Typosuchus*, or another as yet unknown genus of pseudosuch-

ian. Consequently to propose a name for this almost unknown form at this time would be most improper. However, the existence of such a creature seems well established; its presence serves to strengthen the faunal similarity between the late Triassic faunas of Europe and North America.

BIBLIOGRAPHY

- Camp, C. L., 1930. A study of the phytosaurs with descriptions of new material from Western North America. Univ. Calif. Mem., vol. 10, 174 p., figs. 1-49, pls. 1-6.
- Case, E. C., 1932. A perfectly preserved segment of the armor of a phytosaur with associated vertebrae. Univ. Michigan, Contrib. Mus. Paleontology, vol. 4, no. 2, p. 57-80, 6 figs., 8 pls.
- Fraas, E., 1896. Die Schwäbischen Trias-Saurier nach dem Material der Kgl. Naturalien-Sammlung in Stuttgart zusammengestellt. Festgabe des Königlichen Naturalien-Cabinets in Stuttgart zur 42. Versammlung der Deutschen geologischen Gesellschaft in Stuttgart, p. 1-18, pls. 1-6.
- Huene, F. von, 1911. Beiträge zur Kenntnis und Beurteilung der Parasuchier. Geologische und Palaeontologische Abhandlungen. n.f. Bd. 10, p. 67-121, pls. 12-19.
- Huxley, T. H., 1877. The crocodylian remains found in the Elgin sandstones, with remarks on the ichnites of Cummingstone. Memoirs of the Geological Survey of the United Kingdom, Mon. III, p. 4-58, (quarto), pls. 1-16.
- Meyer, H. von, 1861. Reptilien aus dem Stubensandstein des oberen Keupers. Palaeontographica, Bd. 7, (1859-1861), p. 253-346, pls. 28-47.
- Sawin, H. J., 1947. The pseudosuchian reptile *Typhothorax meadei*. Jour. Paleontology, vol. 21, p. 201-238, figs. 1-13, pl. 34.