

Overview of the Permian and Triassic tetrapod trackway localities in Saxony-Anhalt, Germany

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Abstract:

Permian tetrapod track localities in Saxony-Anhalt have been listed by VOIGT (2012) in his review on tetrapod ichnology of the German Rotliegend deposits: In addition to ichnotaxonomically problematic occurrences in the Ilfeld Basin (southern Harz Mountains) and Saale Basin, Early Permian anamniote and reptilian tracks, including the ichnotaxa *Batrachichnus*, *Ichniotherium* and *Dromopus*, have been described from the Flechtingen and Föhrberg Formations of the Flechtingen-Rosslau Block. Tetrapod footprints from different localities in Saxony-Anhalt include various types of swim traces and trackways referred to the ichnogenera *Amphisauropus* and *Dromopus* from the late Middle Permian (Hornburg Formation, Hornburg Saddle) and *Erpetopus* from the Late Permian (Eisleben Formation, Sangerhausen Trough) of the Saale Basin.

Here we discuss recent finds from two localities, which will also be visited during the ICCI 2019 field trip: (1) a relatively well-preserved trackway of *Amphisauropus* from the Konberg Quarry (Hornburg Formation) that differs morphologically markedly from the Thuringian Forest specimens of *Amphisauropus*, (2) a recently discovered rich ichnofauna from the late Middle to early Late Permian deposits of the Mammendorf Quarry (Elbe Subgroup, Flechtingen-Rosslau Block, Southern Permian Basin) that includes, among others, the ichnogenus *Erpetopus* and therapsid tracks. The most abundant type of vertebrate traces from Mammendorf are up to 28-cm-wide oval-shaped to elongate paired scratches and hole-like perforations indicative for a shallow burrowing behavior.

Triassic tetrapod footprints are known from Early and Middle Triassic strata: A few older finds of isolated chirotheriid imprints have been documented from continental Middle Buntsandstein deposits of the Subhercynian Basin (central Saxony-Anhalt), outcropping in the Merkel and Baalberge quarries in the vicinity of Bernburg. DIEDRICH & TROSTHEIDE (2007) described six new trackway localities in the Subhercynian Basin and eight occurrences in the Querfurt and Freyburg troughs (southern Saxony Anhalt). These finds come from marginal marine deposits of the Upper Buntsandstein (Röt) and Lower to Middle Muschelkalk. In this depositional environment, unlike the abundant ichnotaxa *Procolophonichnium* and *Rhynchosauroides*, chirotheres usually constitute only a minor ichnofaunal element. The Solvay Quarry in Bernburg (Saale) has yielded the richest yet described ichnofauna within marlstones of the Middle Muschelkalk. It includes trackways of *Rhynchosauroides tirolicus*, *Procolophonichnium haarmuehlensis*, *Isochirotherium herculis* and *Chirotherium barthii* in addition to limulid tracks and other invertebrate traces typical for tidal flat deposits (see also DIEDRICH 2011 and ICCI 2019 field guide).

Keywords: Mammendorf Quarry, Konberg Quarry, Solvay Quarry, Hornburg Formation, Muschelkalk

References

VOIGT, S. (2012): Tetrapodenfährten im Rotliegend. – In: Deutsche Stratigraphische Kommission (Hrsg.; Koordination und Redaktion: H. Lützner & G. Kowalczyk für die Subkommission Perm-Trias): Stratigraphie von Deutschland X. Rotliegend. Teil I: Innervariscische Becken. – Schriftenreihe der Deutschen Gesellschaft für Geowissenschaften, Heft 61: 161-175; Hannover.

DIEDRICH, C. and TROSTHEIDE, F. (2007): Auf den Spuren der terrestrischen Muschelkalksaurier und aquatischen Sauropterygier vom obersten Röt bis zum Mittleren Muschelkalk (Unter-/Mitteltrias) von Sachsen-Anhalt. Abhandlungen und Berichte für Naturkunde, Magdeburg, Band 30: 5-56.

DIEDRICH, C. (2011): Die Saurierspuren im basalen Mittleren Muschelkalk (Anis, Mittel-Trias) von Bernburg (Sachsen-Anhalt). Archäologie in Sachsen-Anhalt, Sonderband 15, Landesamt für Archäologie und Denkmalpflege/Landesmuseum für Vorgeschichte, Halle, 64 pp.