one track horizon is known which has produced tracks of large ornithopod, theropod and ankylosaur dinosaurs and the swimming track of a large turtle. The quarry yielded also well preserved vertebrate body fossils, including the holotypes of the crocodilian *Pholidosaurus schaumburgensis* von Meyer and the small ornithischian dinosaur *Stenopelix valdensis* von Meyer.

The gypsum cast (preserving the hypichnial relief of a right manus) is the only part of the specimen which is preserved and there is no account on it aside the note on its back side.

The hypichnial relief consists of the cast of three digits splayed in an angle of c. 150° between digits I and III. The interdigital angle between digit II and III is c. 90° Digits I and II are subequal in length (6.5 and 6.2 cm resp.) while digit III is longer (8.0 cm). The latter is more slender (max width 3.5 cm) compared to the other digits (digit I: 4.0 cm, digit II: 4.4 cm). Digits II and III are slightly more coalescent at their base than digits II and I. The shape of digit I and II reflects the presence of a single, "fleshy" phalangeal pad, while such a structure is not so distinct in digit III. Though the tips of all digits are pointed, no distinct claw-marks can be recognized.

The specimen is very similar to a manus impression on the ichnoholotype of *Purbeckopus pentadactylus* Delair from the Intermarine Bed, Stair Hole Member, Durlston Formation, Purbeck Group of Dorset, S-England. The similarities include the nearly identical size, diagnostic short and stubby digits (contrary to *Pteraichnus* Stokes, 1957) and the inconspicuous claw-marks. We therefore refer to it tentatively (due to the unknown pes morphology) as *Purbeckopus* cf. *pentadactylus*. The stratigraphic level of the English ichnoholotype (and all referred material) is only marginally older than that of GZG.IF.00102 (corresponding to German Wealden 2 instead of German Wealden 3).

In contrast to the English *Purbeckopus* material, the digits were impressed rather deeply into the sediment surface (up to 3.9 cm instead of c. 0.5 cm). This confirms that the stubby shape esp. of the digits I and II truly reflects the morphology of the trackmaker.

Purbeckopus has been widely recognized as a pterosaur track and the wingspan of the trackmaker has been reconstructed to c. 6 m. The shortness of the digits and claws are unusual for a typical pterosaur and might be related to an adaption of the manus to a shallow-water "quadrupedal wading" and foraging behaviour instead of a grasping/climbing function. Currently GZG.IF.00102 is the only record for the presence of a pterosaur in the Bückeberg Formation and is only the second from the German Berriasian aside the much smaller *Ctenochasma roemeri* von Meyer from the Serpulit Member (Münder Formation, lowermost Berriasian).

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The hypodigm of the theropod ichnotaxon *„Bueckeburgichnus" maximus* Kuhn, 1958 and its type status

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The amateur palaeontologist Max Ballerstedt recovered a number of unusual hypichnial casts from the Bückeberg Formation (late Berriasian) near Bückeburg, Lower Saxony (Ballerstedt, 1905). The large footprints of a biped dinosaur exhibit claw-marks and the impression of an opposed hallux. The trackmaker was later correctly identified as a large theropod (?*Megalosaurus* in Abel, 1935).

Over the last century, various ichnotaxonomic concepts have been woven around Ballerstedt's material which was dispersed and considered lost by many authors. Original material was not used in studies done between 1905 and 2000. Two ichnogenera, *Megalosauripus* Lessertisseur, 1955 and *Bueckeburgichnus* Kuhn, 1958, were erected for it, though both were based upon a schematic outline sketch made by Ballerstedt and first published by Abel (1935). Subsequently, the validity of both ichnogenera was questioned independently and contradictorily (Lockley, 2000 contra Thulborn, 2001). None of these opposite views have yet found equivocal acceptance, and a solution to these problems will have far reaching consequences for theropod ichnotaxonomy.

Recently, we were able to retrieve some specimens of *„Bueckeburgichnus" maximus*, belonging to the original material collected by Ballerstedt around 1900–1905. The material, as known at present, comprises at least 9–10 hypichnia and 1 epichnium. Based upon this hypodigm and a careful reconsideration of the ichnotaxonomical history of *„Bueckeburgichnus"*, we draw the following conclusions:

As explicitly stated by Ballerstedt (1905), all footprints in his figs.1-7 were left by the same species, they therefore represent implicitly ichnosyntypes,

Ballerstedt collected an unknown but considerable number of ichnotopotypoids, which he did not figure,

Neither Abel (1935), Lessertisseur (1955), nor Kuhn (1958) referred their figure explicitly to a specimen from Ballerstedt's type series (though it was most probably an idealised depiction of Ballerstedt's specimen in his fig.4); therefore, an ichnoholotype was never formally designated.

The status of the specimen identified by LOCKLEY (2000) as the ichnoholotype of *Bueckeburgichnus* is unclear, as it is no ichnosyntype and there is no published evidence that it is even an ichnotopotypoid,
Among the remaining material, one ichnosyntype (BALLERSTEDT, 1905:fig. 7) is currently relocated (on exhibit at the Gymnasium Adolfinum Bückeburg), and all others are considered ichnotopotypoids.
The correct identification of the type status of the preserved material provides crucial information for the proper reassessment of "*Bueckeburgichnus*" in the future.

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The "Hasenstein": a Givetian reef complex (Kollerkogel Formation, Graz Palaeozoic)

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The Graz Palaeozoic (GP) extends over about 1250 km² and is isolated from other low metamorphic (from anchizonal to greenschist facies) Palaeozoic occurrences in the Alpine region.
The internal arrangement of the GP shows a subdivision into a basal, an intermediate and an upper nappe group based on lithological similarities, the tectonic position as well as the metamorphic superimposition of successions. This Mid-Cretaceous thrust complex is sealed by Late Cretaceous "Gosau" sediments.
The Upper Nappe System ("Rannach-Nappe"; upper Silurian to Upper Carboniferous) of the GP is characterised by upper Silurian volcanites and marly limestones, Lower to Middle Devonian volcaniclastic rocks, Lower to Middle Devonian siliciclastics and fossil-rich carbonates of near-shore environment followed by the pelagic sequences of late Givetian to Bashkirian age with shallow marine sediments at the top.
In some aspects the Rannach Nappe must be considered to be 'exotic' in its development when compared with other coeval alpine regions. Continuous sedimentation through the Tournaisian to Bashkirian time interval, as well as the lack of Variscan tectonic activities and the missing Permo-Mesozoic cover complicate the integration of the Rannach Facies with other Paleozoic remnants of the Eastern Alps. More likely similarities with the Hungarian Szendrö and Uppony Mountains and the Dinaridic Jadar Block Paleozoic are transparent.
During the Devonian the depositional environment within the Rannach Nappe of the GP changed from a peritidal setting (Pragian to Emsian) with predominant monotonous light grey late diagenetic dolostones, volcaniclastics and pure quartz sandstones, to subtidal (Eifelian) fossiliferous dark marly bioclastic limestones with coral-stromatoporoid-carpets). This phase is terminated by a repetition of tidal flat deposits obviously caused by an eustatic sea level fall. During the Givetian renewed transgression resulted in sequences with sharp (bio)facial contrasts between patch-reefs and monotonous mudstones (Kollerkogel Fm.). During the uppermost Givetian to lower Frasnian the sedimentation of shallow platform carbonates was replaced by micritic cephalopod limestones.
The mentioned Givetian transgression is obviously indicated by litho-facial changes from rauhwacke (cellular dolomite) to micritic limestones. Due to the lack of age-diagnostic fossils – the coral fauna points only to a Givetian age, and rare conodont findings refer only to *varcus* zone but do not permit further age restriction.
Especially the "Hasenstein" section at a steep slope of the Rannach Hill some 20 km north of Graz exhibits spatiotemporal ecological successions with certain community replacements. The latter comprise a basally developed 'reef pioneer settlement' dominated by densely packed stachyodes and auloporids in a black bituminous limestone matrix (*Stachyodes-Aulopora*-community). This well-bedded sequence passes into dark-grey fossil-rich limestones built up by thickets of small branching stromatoporoids (*Amphipora-Stachyodes*-community). This succession is followed by grey bioclastic limestones (*Thamnopora-Amphipora-Actinostroma*-community). A thin horizon (approximately 30–50 cm) with small colonies of the phaceloid rugosan *Thamnophyllum* and subordinate solitary *Mesophyllum* (*Thamnophyllum-Mesophyllum*-community) terminates the 'pioneer sequence', which is overlain by approx. 35 m thick, white and slightly dolomitized massive limestones. The latter contain accumulations of various reef-building organisms (stromatoporoids, rugose and tabulate corals).

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