

Dinosaur footprints from the Upper Jurassic of Błaziny, Poland

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New dinosaur tracks are reported from the Late Jurassic platform carbonates of Poland. Footprints discovered in a new tracksite of Błaziny resemble large theropod ichnite of *Megalosauripus sensu* Lockley *et al.*, 1998 and sauropod tracks of *Brontopodus* Farlow *et al.*, 1989.

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INTRODUCTION

In February 2002, a new Late Jurassic tracksite was discovered on the northeastern flank of the Holy Cross Mountains. This is the third locality in this region where dinosaur footprints have been discovered in Late Jurassic platform carbonates, following the sites of O arów and Bałtów (Gadzicka *et al.*, 2001; Gierli ski *et al.*, 2001; Gierli ski and Sabath, 2002). The new dinosaur footprints were found by the authors and by Konrad Kowalski in the quarry at Błaziny near the town of H a.

The tracks are preserved as natural casts on isolated blocks of fine-grained oolitic limestone. The track-bearing lithostratigraphic unit was described by Gutowski (1998) as the Błaziny Oolite Limestones of late Oxfordian age.

The theropod footprint and the sauropod trackway (Figs. 1 and 3) are protected and catalogued by the Museum of History of Material Culture in Starachowice (MHKM). The third specimen, a small sauropod ichnite (Fig. 2), was slightly damaged during the excavation in the quarry. A plaster cast made before its unfortunate excavation, is housed in the MHKM, while the original specimen is owned by the senior author.

DESCRIPTION AND DISCUSSION

The large theropod footprint from Błaziny, MHKM GG/3 (Fig. 1), is 43 cm long and 30 cm wide. The angle between digits

II and III equals 29°, while the angle between digits II and IV is 44°. The ratio of footprint length to length of digit III equals 1.81. Among similar large and strictly tridactylous theropod Late Jurassic ichnotaxa, this ratio fits that of *Megalosauripus sensu* Lockley *et al.* (1998). Recently, however, Thulborn (2001) has demonstrated that the name *Megalosauripus* was incorrectly applied to those tracks by Lockley *et al.* (1998). Thus we use this name with quotation marks until a new name is established to label the material described by Lockley *et al.* (1998).

The lack of such “*Megalosauripus*” diagnostic features as discrete digital pads in our specimen might have been caused by the preservational conditions. As noted by Lockley (1998), some “*Megalosauripus*” tracks preserved in platform carbonates lack distinctly imprinted digital pads.

The other Błaziny finds are sauropod tracks of a juvenile and an adult or subadult. The pedal ichnite of the juvenile trackmaker, MHKM GG/4 (Fig. 2), is 19 cm long and 13 cm wide, while the manus is 8 cm long and 12 cm wide. The track of a larger sauropod forms a three-step trackway, MHKM GG/5 (Fig. 3). The pes is 48 cm long and 31 cm wide. The manus is 22 cm long and 32 cm wide. The trackway seems to be of a medium-gauge type. The pes pace angulation equals 92°. The ratio of pace length to pes length is 1.97. Unlike the narrow-gauge trackways of *Parabrontopodus* Lockley *et al.* (1994), the Błaziny specimens show the manual prints located anteromedially to the pes and close to the trackway’s midline, in a fashion similar to that of the wide-gauge trackways of *Brontopodus* Farlow *et al.* (1989).

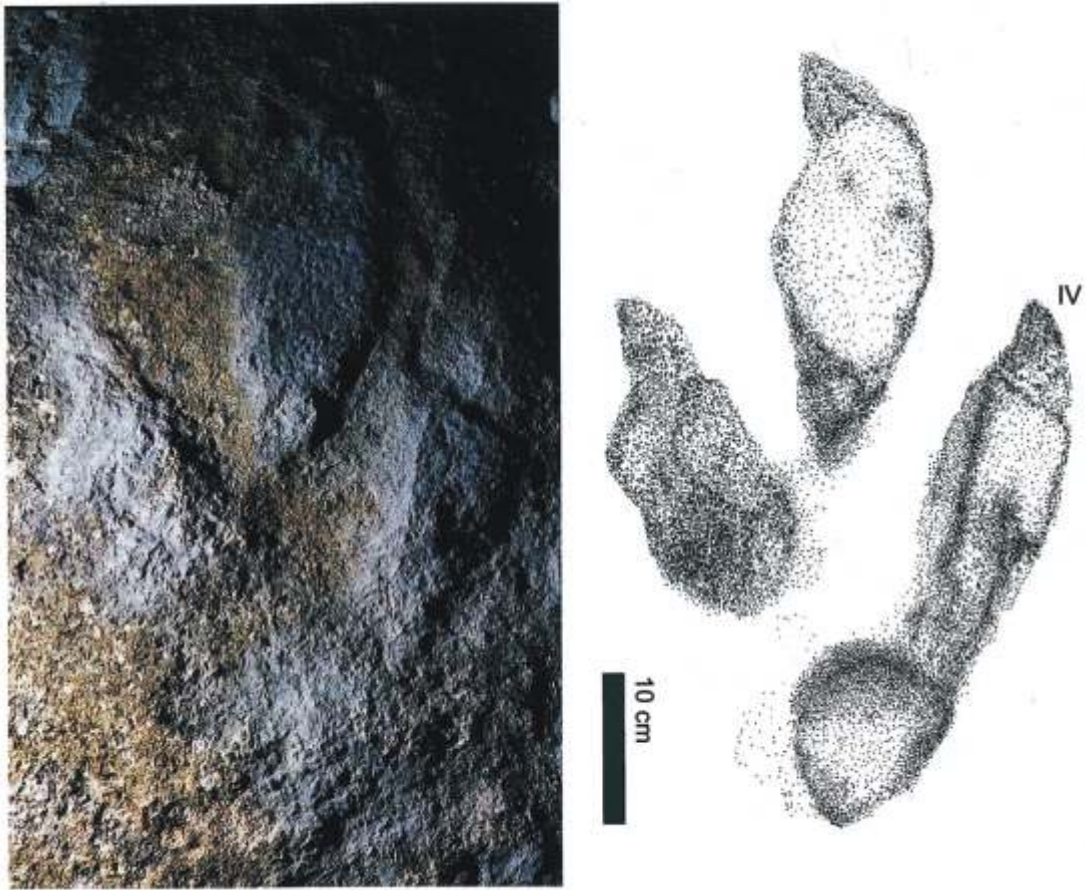


Fig. 1. Large theropod footprint, MHKM GG/3, "*Megalosauripus*" sp. from the Upper Jurassic of Błaziny, Poland

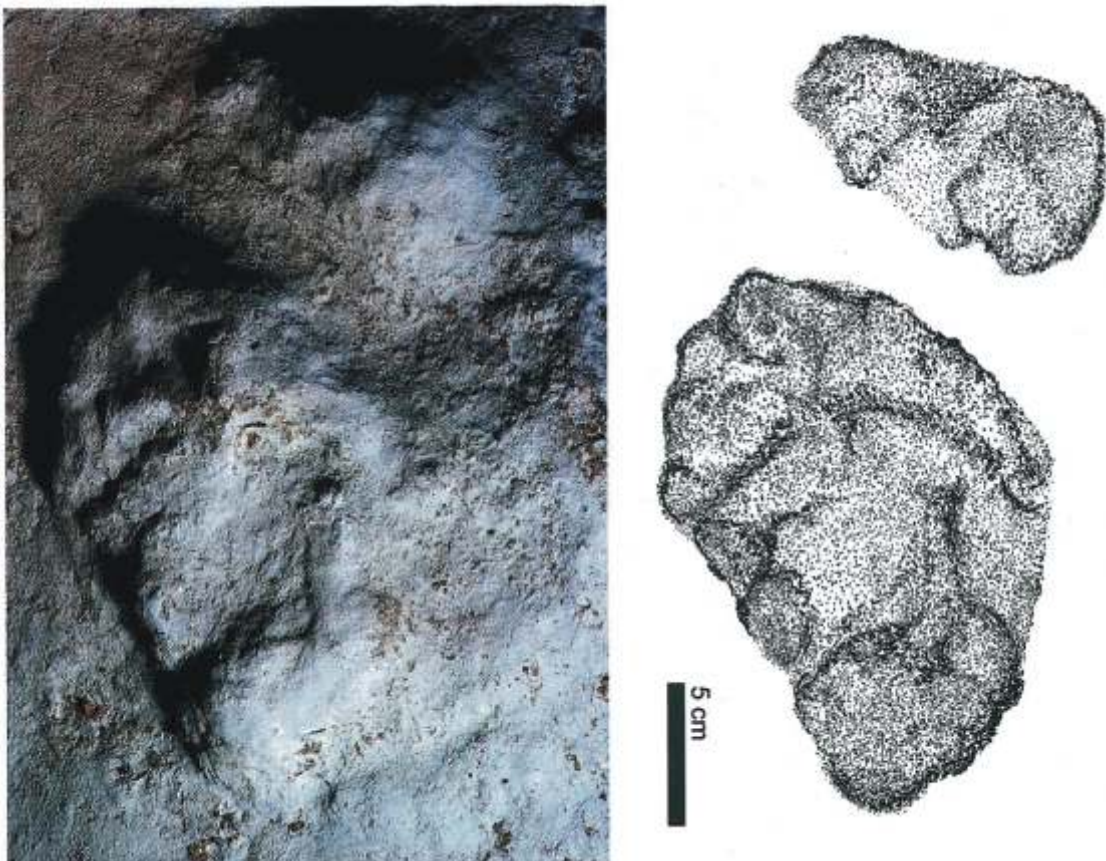


Fig. 2. Small sauropod pes-manus set, MHKM GG/4, *Brontopodus* sp. from the Upper Jurassic of Błaziny, Poland

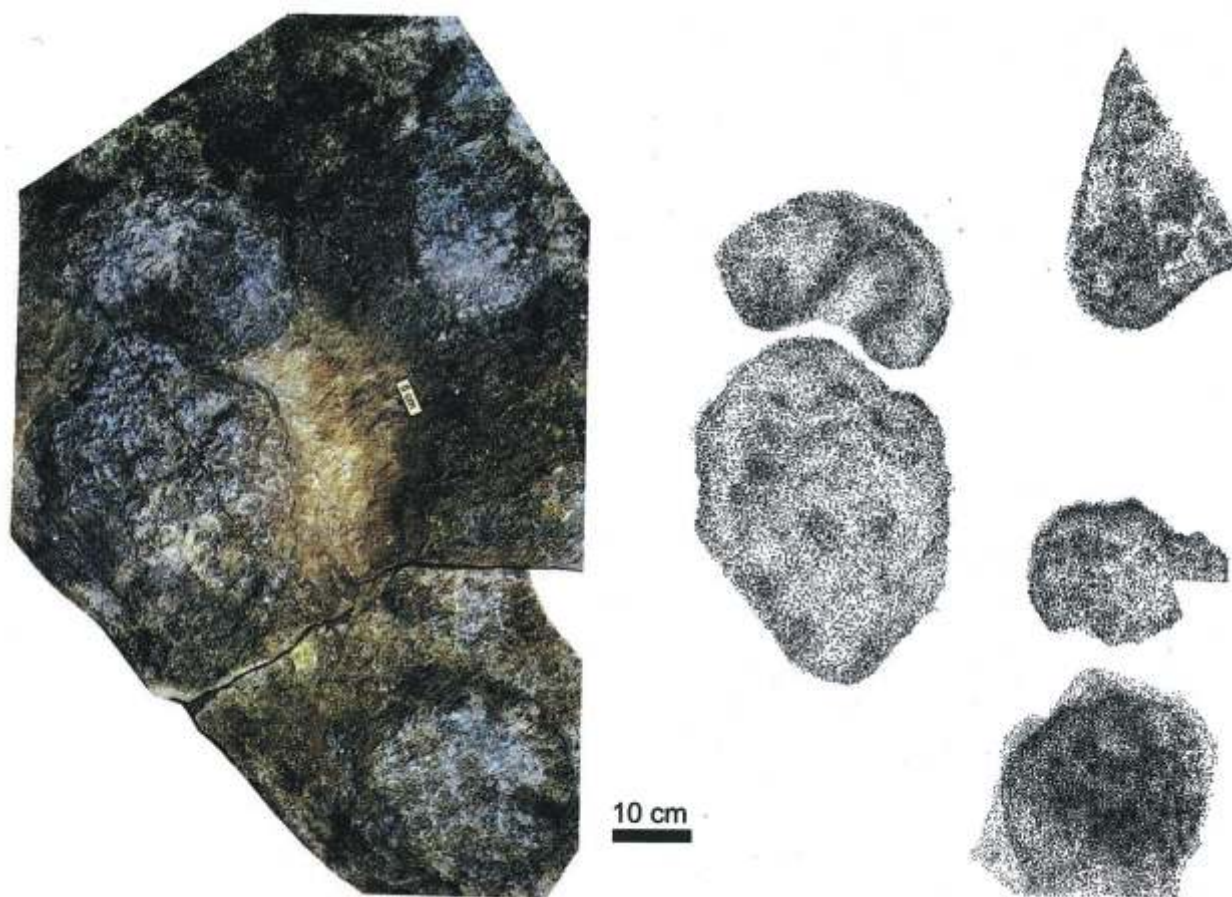


Fig. 3. Sauropod trackway, MHKM GG/5, *Brontopodus* sp. from the Upper Jurassic of Błaziny, Poland

In both specimens from Błaziny (MHKM GG/4 and MHKM GG/5), the manus imprints are relatively large in comparison to the pes. The manus-pes area ratio is 1:2.6 and 1:2.1 respectively, which is also closer to the *Brontopodus* proportions (1:3) than to that of *Parabrontopodus* (1:4 and 1:5), according to the data given by Lockley and Rice (1990) and

Lockley *et al.* (1994). Thus, these features correspond to those of the ichnogenus *Brontopodus*, which is attributed to brachiosaurids (Farlow, 1992) or titanosaurs (Wilson and Carrano, 1999).

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