ACTA PALAEONTOLOGICA POLONICA

Arthropod trace fossils from Eocene cold climate continental strata of King George Island, West Antarctica

Alfred Uchman, Andrzej Gaździcki, and Błażej Błażejowski
Acta Palaeontologica Polonica 63 (2), 2018: 383-396 doi:https://doi.org/10.4202/app.00467.2018

Siltstone and sandstone beds of the Mount Wawel Formation (Eocene) contain trace fossils interpreted as insect resting traces and arthropod trackways, the latest determined as *Glaciichnium australis* isp. nov. and cf. *Pterichnus* isp. *Glaciichnium* is included in a new ichnofamily Protichnidae, which embraces invertebrate trackways composed of straight central trail(s) and lateral tracks. The same deposits contain fragments of plant stems in growth position, delicate fern-like plant twigs and leaves of *Nothofagus*. Their deposition took place in very shallow but flowing water, probably in a marginal part of a lake, perhaps in a delta. The presence of mudcracks proves incidental exposure of the sediment. The trace fossils were produced by arthropods, especially insects and/or isopods, between episodes of deposition and were influenced by the water flow and subtle changes in substrate consistency. This resulted in several morphological variants of the traces. *Glaciichnium australis* is similar to those produced by some caddisflies (Trichoptera) in shallow puddles in the Tatra Mountains of Poland. The arthropod-dominated trace fossil assemblage is similar to the *Glaciichnium ichnocoenosis*, which is known from some Pleistocene lacustrine varve sediments of Europe. This fits well with the beginning of climatic cooling in Antarctica during the late Eocene. This also shows the recurrence of some ichnological features on both ends of the globe in similar palaeoenvironmental conditions and supports basics of the ichnofacies concept.

Key words: Arthropoda, trace fossils, taphonomy, Antarctica, King George Island, Eocene.

Alfred Uchman [alfred.uchman@uj.edu.pl], Institute of Geological Sciences, Jagiellonian University, Gronostajowa 3a, 30-387 Kraków, Poland. Andrzej Gaździcki [gazdzick@twarda.pan.pl] and Błażej Błażejowski [bblazej@twarda.pan.pl], Institute of Paleobiology, Polish Academy of Sciences, Twarda 51/55, 00-818 Warszawa, Poland.


Full text (2,601.7 kB)