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Tomographic reconstruction of the exceptionally preserved trigonotarbid arachnid *Eophrynus prestvicii*

Jason A. Dunlop and Russell J. Garwood
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An exceptionally preserved specimen of the extinct trigonotarbid arachnid *Eophrynus prestvicii* (Arachnida: Trigonotarbida) from the Late Carboniferous (Duckmantian) British Middle Coal Measures of the UK is redescribed with the help of X-ray micro-tomography (XMT). Previous work is summarised and the correct spelling of the species name confirmed. Reconstruction of the void left by the original specimen within a siderite (ironstone) nodule reveals its three-dimensional structure as well as novel details which are difficult to resolve using traditional methods of study. The pedipalps and legs can now be reconstructed almost in their entirety and we can confirm that the chelicerae hung beneath the prosoma with a backwards-directed fang. Opisthosomal segmentation is clarified: a narrow tergite 1 is followed by eight further tergites (2–9), clearly demarked by their ornamentation. In general, a much more accurate picture of the spines and tuberculation ornamenting the dorsal surface of the body was resolved. Ventrally the opisthosoma bears socalled ventral sacs and terminates in a two-segmented pygidium. Based on the XMT model, a new reconstruction of *E. prestvicii* is presented. Although phylogenetically unrelated, the sometimes similar-looking, spiny and tuberculate lanitorid harvestmen (Opiliones: Lanitores) offer a possible ecological model for these highly ornamented trigonotarbids.

Key words: Arachnida, Trigonotarbida, Eophrynidae, XMT, systematics, harvestmen, Carboniferous, British Middle Coal Measures, United Kingdom.

Jason A. Dunlop [jason.dunlop@mfn-berlin.de], Museum für Naturkunde, Leibniz Institute for Research on Evolution and Biodiversity at the Humboldt University Berlin, D-10115 Berlin, Germany; Russell J. Garwood [russell.garwood@manchester.ac.uk], Manchester X-ray Imaging Facility, School of Materials, The University of Manchester, Oxford Rd., Manchester, M13 9PL, UK and The Manchester X-ray Imaging Facility, Research Complex at Harwell, Rutherford Appleton Laboratory, Oxon, OX11 0FA.

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