

Jurassic onychites (arm hooks) from squid-like cephalopods from the Wessex Basin, southern England

Malcolm Hart (1), Zoe Hughes (2), Kevin Page (1), Gregory Price (1), and Christopher Smart (1)

(1) Plymouth University, School of Geography, Earth & Environmental Sciences, Plymouth PL4 8AA, United Kingdom (mhart@plymouth.ac.uk), (2) Department of Earth Sciences, The Natural History Museum, Cromwell Road, London SW7 5DB, United Kingdom

Modern coleoid (squid-like) cephalopods have arms that carry arrays of both suckers and hardened, organic hooks. Fossil arm hooks have been known since the description of Sternberg in 1823, although he identified them as algal remains. During the twentieth century there have been a number of descriptions of hooks (Kulicki & Szaniawski, 1972; Clarke & Engeser, 1988). Kulicki & Szaniawski (1972) gave these 'morphotypes' names using a binomial classification though, with many lacking defined (and figured) holotypes and, in some cases, only one recorded specimen, some of their designations should be regarded as invalid. Some of their morphotypes have, however, been reported widely, from DSDP sites on the Falkland Plateau as well as New Zealand, Germany, Svalbard, Poland and the United Kingdom.

Exceptional soft-bodied preservation of species such as *Belemnotheutis antiquus* (Pearce, 1847) from the Callovian–Oxfordian of Wiltshire (UK) and *Clarkeiteuthis montefiore* (Buckman, 1880) from the Sinemurian of Dorset (UK) has allowed the identification of the host animal of some morphotypes, though the majority remain un-attributable. In the Christian Malford lagerstätte (Upper Callovian) of Wiltshire large numbers of hooks (including forms described as *Acanthuncus*, *Arites*, *Deinuncus*, *Falcuncus*, *Longuncus* and *Paraglycerites*) are found associated with an abundance of statoliths (cephalopod 'ear bones') and macrofossil evidence of both belemnites and teuthids, some of which includes exceptional soft-bodied preservation (Wilby et al., 2004; Hart et al., 2016). Many of the hook types cannot, at present be assigned to known taxa of coleoid.

In *Belemnotheutis antiquus* there appears to be one form of simple, slightly curved hook and their shape appears to remain constant throughout the Callovian–Kimmeridgian interval. In the Lias Group, hooks of *Clarkeiteuthis* are very different, with inflated, often bi-lobate bases and each arm often characterised by the presence of different shapes of hook that are often arranged in pairs. Using the abundance of material available to us from the Wessex Basin, we are attempting to identify the host animals wherever this is possible. If this can be established then it may be possible, using micropalaeontological samples, to determine the stratigraphical and palaeoecological ranges of some of the host macro-fossils, many of which are otherwise rarely preserved outside known lagerstätte. A recently described specimen (Bristol Museum and Art Gallery, BRMSG Ce12385) of only the hooks associated with 4 arms can, therefore, be attributed to the *Clarkeiteuthis* lineage. Coming from the Lower Pliensbachian of the Dorset Coast this occurrence falls in the stratigraphical 'gap' between the known taxa of the Sinemurian (*Clarkeiteuthis montefiore*) and the Toarcian (*Clarkeiteuthis conocauda*). This specimen does, however, show paired hooks of different types, similar to another specimen in Manchester University Museum: this is not seen in *C. conocauda* and places the specimen in *C. montefiore* or a yet undescribed species of *Clarkeiteuthis*.

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