

PREVIOUSLY UNREPORTED SPINY LIMID BIVALVES FROM THE BLUE LIAS FORMATION (EARLY JURASSIC: HETTANGIAN) OF LYME REGIS, DORSET, UK

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Andrew, C., Howe, P. and Paul, C.R.C. 2015. Previously unreported spiny limid bivalves from the Blue Lias Formation (Lower Jurassic: Hettangian) of Lyme Regis, Dorset, UK. *Geoscience in South-West England*, **13**, 410-418.

We report the first records of the epifaunal, limid bivalves, *Ctenostreon philocles* (d'Orbigny), *C?* sp. and *Antiquilima* sp. nov. from the Blue Lias Formation at Lyme Regis, Dorset. All three occur as well-preserved, complete shells or individual valves and one or more are reported from at least four horizons in the Hettangian. *Ctenostreon philocles* has previously been recorded from an even lower horizon in the Blue Lias Formation at Sedbury Cliffs on the Bristol Channel. *Antiquilima* sp. nov. may previously have been confused with *A. succincta* (Schlotheim). Specimens of *C?* sp. and *Antiquilima* sp. nov. were first collected in the mid-late 19th Century, but not previously reported in the scientific literature. All three species were byssally-attached, epifaunal recliners and occur at restricted horizons together with a diverse benthonic fauna.

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Keywords: palaeoecology, Pterioida, Limidae, *Ctenostreon*, *Antiquilima*, Devon.

INTRODUCTION

The Blue Lias Formation on the south coast of England crops out east and west of Lyme Regis and must be one of the most intensely collected stratigraphic units in all of British geology. It has been famous for its fossils since the time of Mary Anning (1799-1847) and is currently exploited by amateur and professional collectors as well as academic palaeontologists. Records of fossils from the Blue Lias Formation in the scientific literature go back at least to de la Beche (1822, p. 46) who listed four species of bivalves and commented that *Gryphaea incurva* was not common at Lyme Regis. Later, de la Beche expanded his description of the geology and fossils around Lyme Regis and listed about a dozen species of bivalves (1826, p. 28). Wright (1860) gave a general account of the Lower Lias of southern England, in which he briefly mentioned the occurrence of four species of sea urchins in the Lower Lias at Pinhay Bay, to the west of Lyme Regis (1860, p. 397). Wright also listed fossils from the "Ammonites planorbis beds" (1860, pp. 397-398), including five species of bivalves, but he did not specify exact localities for these fossils. Later, in the same publication (1860, pp. 401-403) Wright listed the occurrences of common fossils bed by bed and gave a summary table of the species found in his "Ammonites Bucklandi or Lima beds", which included eleven species of bivalves. Between them these lists cover the entire Blue Lias Formation as exposed on the Devon-Dorset border. Woodward (1893, pp. 60-62) recorded the names local quarry men gave to individual beds in the Blue Lias around Lyme Regis, as well as the fossils they contained. The list was repeated in Woodward and Ussher (1906, pp. 35-37). Both papers record only the most common fossils, or those, usually ammonites, that are most useful in correlation. Lang (1914, pp. 310-311) recorded the fossils in the upper part of the Blue Lias Formation as exposed in Church Bay, east of Lyme Regis, again mainly listing the most common species and including records from the Survey Memoir (Woodward and Ussher, 1906). Later, Lang (1924) refined the

bed terminology and added bed numbers for the individual beds of the entire Blue Lias Formation. His bed numbering system is still in use today. Lang also recorded bed-by-bed occurrences of the fossils he found personally in this survey. Hallam (1960, table 4, pp. 28-29) recorded a more extensive list of fossils, zone by zone through the Blue Lias Formation, including 31 species of bivalves. Most recently, Hodges (2000) has started a monograph of Liassic bivalves, though he has not yet covered the limids. Finally, Lord and Davis (2010) have described and illustrated the fossils of the Lower Lias of the Dorset Coast. In that work, Palmer (2010, p. 125) updated Lang's taxonomy and illustrated several species from the Hettangian part of the Blue Lias Formation. None of these published papers listed the names of, or described or illustrated the bivalves that form the subject of this paper.

Although not as popular with collectors as ammonites and vertebrates, the bivalves of the Blue Lias Formation around Lyme Regis have been well documented in the palaeontological literature. Thus, it was surprising to discover several large, well-preserved specimens of bivalves that have apparently not been recorded previously from the Blue Lias of Devon and Dorset. The spiny limid bivalve genus *Ctenostreon* was initially discovered by us in May 2006 during a bed-by-bed examination of the Blue Lias Formation in Pinhay Bay, west of Lyme Regis, (Figure 1) originally aimed at recording the precise horizons in which ammonites were preserved (see Paul *et al.*, 2008). The original search discovered similar spiny limid bivalves in at least four different beds within the Hettangian part of the Blue Lias Formation (Figure 2). The significance of these bivalves was not appreciated at that time nor was it thought that more than one species might be involved, so the only evidence of their occurrence consists of two photographs of the first specimen encountered and notebook records. Subsequently, additional specimens have been found loose at Seven Rock Point (Figure 1).