

ICHTHYOSAURS FROM THE LOWER LIAS (LOWER JURASSIC) OF BANWELL, SOMERSET



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Two Lower Jurassic ichthyosaurs, lost in a 1940s air raid, are identified from archival records and surviving 19th century plaster casts distributed by their owner, the Bristol Institution for the Advancement of Science, Literature and the Arts. One was the type specimen of *Ichthyosaurus latimanus* Owen, 1840. The other, initially labelled *Ichthyosaurus intermedius* Conybeare, 1822, was the first ichthyosaur in which remains of the soft tissue of the tail fin were identified, confirming Richard Owen's earlier prediction. Unfortunately Owen's published account conflated the two specimens, apparently by the erroneous transposition of a passage of text. Owen possibly regarded the second specimen as the type of *I. intermedius*. In 1889 Richard Lydekker referred it to *Ichthyosaurus conybearei* Lydekker, 1888. For unknown reasons, he caused further confusion by suppressing the fact that both ichthyosaur specimens came from Banwell. Banwell is shown to have been a minor but significant source of Lower Lias fossil vertebrates, and also the type locality of the fish *Tetragonolepis monilifer* Agassiz, 1837, apparently from quarries in the lowermost Jurassic beds at Knightcott. The Bristol Institution assisted Edward Wilson (1808–1888) to obtain at least some of the West Country marine reptiles which his brother Dr Thomas Bellerby Wilson (1807–1865) donated to the Academy of Natural Sciences of Philadelphia, U.S.A. The Institution made casts of those specimens, and provided casts of its own ichthyosaurs, probably through the energy of its curator Samuel Stutchbury (1798–1859) in particular. The scientific, historical and cultural values of such casts are discussed.

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INTRODUCTION

From the 1820s onwards, the Bristol Institution for the Advancement of Science, Literature and the Arts, and its successor the Bristol City Museum, amassed an important collection of West Country Mesozoic fossil vertebrates, which was largely destroyed during an air raid in 1940 (Wallis, 1977 Ms.; Taylor and Torrens, 1987; Taylor, 1994; Benton, 2012). The major plesiosaur specimens had fortunately been photographed (Swinton, 1948), but not the ichthyosaurs, which had, unfortunately, seldom been illustrated in publications. Plaster casts of those reptiles are potentially an important record, if surviving examples can be located. In this paper we identify surviving plaster casts of two lost Bristol ichthyosaurs, and attempt a conclusive resolution of the persistent confusion in the literature over their anatomy, taxonomy and provenance. We show that Banwell, almost completely neglected in the literature, was a minor but significant Lower Lias vertebrate locality. We also show that certain ichthyosaurs were cast in Bristol before they were exported to the Academy of Natural Sciences in Philadelphia, U.S.A. Finally, we consider the significance of those casts, and similar casts more generally. This emends and extends previously published information (Torrens and Taylor, 1990; Spamer and Daeschler, 1995; Spamer *et al.*, 1995; Massare and Lomax, 2016).

Methodology and Repositories

A recurring problem in research of this kind is the common failure of early nineteenth-century museums to allocate unique numbers to specimens, making it hard to identify the specimens unambiguously in contemporary documentation. Such numbers were often allocated retrospectively, decades later, as with the two Bristol ichthyosaurs. It is fairly certain which formal Bristol City Museum and Art Gallery numbers were applied to which ichthyosaurs, but this cannot now be independently confirmed. We simply term the main subjects of this paper Ichthyosaurs A and B, to avoid risk of circular argument.

During the 19th century, the county of Somerset, also called Somersetshire, covered a greater area than the modern Somerset unitary authority. It included Banwell and Bleadon, now in North Somerset unitary authority, and Saltford, now in Bath & North East Somerset unitary authority.

Owen (1840a) used Imperial units of length. A foot is equal to twelve inches; an inch is about 2.54 cm. For smaller measurements, Owen used the 'line'. Depending on the user, this un-standardised unit could be 1/10, 1/12, 1/24, or 1/40 inch, or 1 mm. The numerous fractional measurements in Owen (1840a) reach but do not exceed 10 lines, so he must have used the botanists' line of 1/12 inch.

Repository abbreviations: ACNMW, Amgueddfa Cymru – National Museum Wales, Cathays Park, Cardiff CF10 3NP; ANSP,