

OLD SHELL COLLECTION CASTS NEW LIGHT ON AN ALIEN SPECIES. THE DARK FALSE MUSSEL (*MYTILOPSIS LEUCOPHAEATA*) MAY HAVE BEEN IN BRITAIN AS EARLY AS 1800!

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Abstract Specimens of *Mytilopsis leucophaeata*, the Dark False Mussel, have been found in a shell collection dating from the early 19th century. The four shells are attributed to William Lyons (1766–1849) with the locality ‘Tenby’ (Pembrokeshire, South Wales). Evidence from the Lyons collection in the Tenby Museum suggests that the majority was acquired around 1800–1830, which indicates that Lyons had shells before Conrad described the species in 1831 and some 150 years before it was first recorded in the British Isles. This paper reaffirms the relevance of early museum collections to contemporary environmental agendas.

Key words Alien species, Invasion history, nineteenth century.

INTRODUCTION

The alien Dark False Mussel, *Mytilopsis leucophaeata* (Conrad, 1831) was first recorded from European waters as *Mytilus cochleatus* Kickx in Nyst, 1835 from the River Schelde, near Antwerp. Since then it has spread across Europe to Netherlands, Germany, France, Spain, Ukraine and Finland (Verween *et al.*, 2010; Kennedy, 2011). It was first recorded in Britain from Cardiff, South Wales in 1996 (Oliver *et al.*, 1996) and subsequently from Kent (Bamber & Taylor, 2002) and Lincolnshire (Gammell, 2007) and from Port Talbot Dock, South Wales in 2012 (pers. obs. unpublished).

In 2012 while reviewing the shell collections of the Doncaster Museum and Art Gallery in England I found a box of four shells labeled “*Dreissena* Lyons Tenby”. These were not *Dreissena* but *Mytilopsis leucophaeata*. Tenby is a small town on the south coast of Pembrokeshire, Wales and Lyons was a local collector who lived from 1766–1849. This finding suggests that *M. leucophaeata* may have been in the British Isles at least 150 years before it was first reported by Oliver *et al.* (1998). This paper explores the attribution of these shells and their possible origins.

THE DONCASTER SHELLS

There are four complete shells all of a similar size, approximately 12mm in length (Fig. 1). One is disarticulated, and of the other three, one

retains its byssus. The periostracum is retained and relatively unworn on all specimens, this and the byssus, suggesting that all were live collected. Although the label identifies these shells as *Dreissena* the presence of a small umbonal tooth (Fig. 1 arrowed), the elongate rather than arcuate form and the weak external banding are all indicative of *Mytilopsis*. Both *D. polymorpha* and *D. rostriformis bugensis* lack the internal tooth, the latter only recently recorded from Britain (Environment Agency, 2014). The morphology of the Tenby shells matches that of other *M. leucophaeata* found in South Wales (Killeen, Aldridge & Oliver, 2004) although the periostracum is a little less developed a feature in common with the shells from Lincolnshire (Gammell, 2007).

The label (Fig. 1) identifies the shells to the genus *Dreissena* with the locality Tenby and the collector Lyons. The label is in the handwriting of William Bean of Scarborough, Yorkshire, England, a prolific collector who lived from 1787 to 1866 (McMillan & Greenwood, 1972).

PROVENANCE

The label associated with the specimens gives three pieces of data, an identification, a collector and a locality.

The label

The label is in the handwriting of William Bean (1787–1866) of Scarborough a contemporary of



Figure 1 *Mytilopsis leucophaeata* from the Doncaster Museum, label of William Bean.

William Lyons (1766–1849) of Tenby. There is no doubt that these collectors knew and corresponded with each other as there are a number of lots of shells in the Lyons collection in Tenby that came from Bean and carry his distinctive label style (Kennard, 1944). It is likely that Lyons sent the shells to Bean for identification but Bean could not have labelled them until after 1835 when the genus *Dreissena* was erected by van Beneden (1835). It is interesting that Bean only identified the shells as *Dreissena* and did not apply any species name to them. He was perhaps unaware of *Mytilus leucophaeata* and *M. cochleata* and the genus *Mytilopsis* was not created until 1857.

The collector

William Lyons was a well known collector, active around the turn of the 18th century and into the early 19th century. Kennard (1944) notes that Montagu knew of the collection in 1803 suggesting that the collection was already formed by then and it was described as ‘extensive’ by Jeffreys in 1830. Lyons gives his name to the genus *Lyonsia* Turton, 1822 and to *Calliostoma zizyphinus* var *lyonsii* Leach, 1852. The Lyons collection was presented to the Tenby Museum by one of his daughters in 1878. A complete examination of the entire collection (July, 2014) showed it to be an extensive collection of British shells. Lyons had connections with sugar plantations in Antigua but there are no exotic shells from the West Indies or indeed any other overseas location which so often are part of 19th century collections. Other notable correspondents identified from the labels in the collection include the Rev. Joseph Goodall (who gave his name to the genus *Goodallia*) and General GR Bingham (who gave his name to the bivalve *Sphenia binghami*).

His correspondents and eponyms suggest he was held in regard by his peers and that in this he was a reliable collector. So as far as the label suggests there is little reason to doubt that Lyons collected the shells at least in the vicinity of Tenby and during his life time.

However, no *Mytilopsis* specimens were found in the Lyons collection in Tenby but there are relatively few freshwater or estuarine specimens present, the collection being primarily marine in origin, a feature also noted by Kennard (1944).

Turning to William Bean, his credentials as a collector are rather different as he was known to be rather careless with his collection (McMillan & Greenwood, 1972). There is no evidence that the labelling is incorrect but as with so much of the Bean collection the labels are in his style and rarely in that of the original collector. Nor does he attribute these shells to a Scarborough location, something he seems to have done elsewhere in order to enhance his own local list (Oliver, 2012; Adrian Norris pers comm.). Regardless of any attribution to Lyons the presence in Bean’s collection of *Mytilopsis* does indicate that he had this species in his collection before 1866, the year of his death.

The locality

Tenby is now a small seaside resort on the coast of south Pembrokeshire and when seen today

appears not to be a likely port for an invasive brackish water bivalve. This belies the importance that Tenby was as a port trading with Europe and to some extent Africa and the Americas. It was also a shipbuilding and repair port, its demise coming with the advent of the railways in the early 19th century and the development of larger ports at Milford Haven and Pembroke Dock. Milford is of interest as it attracted Nantucket whaling ships in the early decades of the 19th century and these could have acted as a vehicle for fouling organisms directly from America although there was much more trade with European ports. The current populations in Cardiff and Port Talbot are both in former major coal and steel exporting ports and Tenby was a major port for exporting coal from the Pembrokeshire coal-field. Verween (2010) postulates that transport as a fouling organism was the most likely mechanism for invasion so it would not be unreasonable that ships being cleaned or repaired at Tenby could be the source of these shells.

CONCLUSION

These shells point to the presence of *Mytilopsis* in Britain before 1866 (date of death of William Bean) and if they were part of the Lyons collection than at least before his death in 1849. Indications from the Lyons collection suggest that the greatest period of active collecting was between 1790 and 1830 so it is quite likely that Lyons had found these shells before the species was described in 1831 by Conrad. Such a date is in keeping with the first European records by Nyst in 1835.

This discovery indicates that *M. leucophaeata* has had a capacity to colonise British brackish water environments for perhaps some 150 years and certainly equivalent to the first reported occurrence in mainland Europe (1835). Despite the close proximity of the European populations *Mytilopsis* has never become an invasive species in Britain in the manner of *D. polymorpha*. Numbers in Roath Basin, Cardiff remain low in stark contrast to the invasion of *D. polymorpha* in the adjacent Cardiff Bay (Alix, 2010). In the British Isles *Mytilopsis* should perhaps be regarded as alien rather than invasive.

Although of direct relevance to the invasion profile of a species this paper also emphasizes the relevance of historic shell collections to current

environmental agendas at local to international levels. The data in these collections are in many instances being lost. I hope this paper reminds museums of the important role that collections have in informing us of the past and that they have direct relevance to critical agendas such as the increasing occurrence of alien and invasive species.

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