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Three eighteenth century works on the marine wood-borer *Teredo*

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ABSTRACT

Attention is drawn to three ancient publications in which data on the anatomy and biology of the marine wood-borer, *Teredo navalis* Linnaeus, 1758, were published.

The ships and dykes of Holland have suffered greatly at intervals from the attacks of the molluscan wood-borer, *Teredo*. One of the worst disasters occurred in the period 1730—1732, when several investigations of it were undertaken. In the Cole Library, University of Reading, are three of the chief publications, by Pierre Massuet (1698—1776), Jean Rousset (1686—1762) and Godofredus Sellius (died 1767), all dated 1733.

Massuet was a practical man, concerned about the cost to the nation of replacing the dykes, a philosopher, but no naturalist. 'Ce vilain Insecte' had reduced the dykes to a 'pitable state'. The Inspectors estimated that to renew 500 yards of dyke would cost 306.540 florins, and in each region the debt would run into millions. Massuet copied his text from Vallisneri (1715) and Deslandes (1724). He knew that frost and fresh water are fatal to the pest, but his philosophical speculations on sexuality and development are valueless. His plate shows men inspecting the dykes, and in the foreground are an enlarged specimen of *Teredo*, and the worm (probably *Nephtys*) which is said to prey upon it.

Rousset's little book contains much original information; he examined more than a thousand specimens, dissected some, and kept others alive in an aquarium. He was also somewhat of a humourist, as quotations will show. He copied Vallisneri's figures, and noted that the 'fins' (pallets) of the Dutch worms differed from those of the Italian ones, but did not realise that two species were involved. (*T. navalis* in Holland, *T. norvegica* in Italy). Between

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the fins 'are two little Tails, one of which is streight and open; the other is somewhat bent at the Extremity. He flips them out at the little opening where he enter'd the Wood... he dabbles his Tail in Water'. Rousset saw 'on the side of a Frigate in the Harbour of Medenblick, the little Tails of two Worms out at Two Openings which were close to one another: and the Tails closed and folded with one another... their extreme Parts were cover'd with a reddish Sort of Froth or Foam... This looks to me like the Act of Copulation'. Vallisneri thought that some worms lived freely in the water, and that they alone could produce fertile eggs, which they attached to the wood. The offspring of these, by entering the wood, gave up their natural right of copulation. 'This' says Rousset, 'is like a Man's breaking his Neck to rid himself of all Trouble'.

Rousset described how the helmet (shell) 'works for the Boreing of the Wood... and the Dust or Powder of the Wood is the Food of the Worms'.

The learned treatise by Godfrey Sellius reveals an exhaustive knowledge of classical authors, an appreciation of the books by Massuet and Rousset, and a critical understanding of the zoological position of *Teredo*. Sellius was a lawyer and a Fellow of the Royal Society of London, to whom he says he sent a copy of his manuscript. He dissected *Teredo*, gave good figures of its anatomy and of the three kinds occurring in Europe. He acquired an affection for it, and calls it 'our *Teredo*' and 'the Hero of our Tract'. He wrongly thought that it bores by suction, and does not digest the wood it swallows. It is not surprising that he failed to understand its reproduction; he described the brood chamber in the ctenidium of *T. norvegica* as the ovary. He saw and figured young stages, before the elongation of the mantle, but incorrectly described them as the stage that attacks the wood. His most important achievement was his recognition of the zoological position of *Teredo*, as a bivalve mollusc, allied to *Pholas*.

Modern work has shown that the young *Teredo* produces male sexual cells, then sex reversal follows, and it remains female for the remainder of its life of from 12 to 18 months. Quatrefages (1849) and Hatschek (1880) described the veliger larva of *T. navalis*. Sigerfoos (1908) studied the later stage of the American species, a typical equivalved bivalve, with plough-shaped foot and short siphons, then a single byssus thread for attachment to a suitable wood surface. After boring by means of the ventral edges of the valves, it metamorphoses into the worm-like creature with astonishing rapidity, feeding on small algae, diatoms and wood particles.

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