

**FIRST AUTOCHTHONOUS RECORDS OF *BALANUS*
PERFORATUS BRUGUIÈRE (CIRRIPEDIA BALANOMORPHA)
AND *CONCHODERMA AURITUM* (L.) (CIRRIPEDIA
LEPADOMORPHA) IN THE COASTAL WATERS
OF THE NETHERLANDS**

by

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With 2 text-figures, 1 table and 1 plate

On 4 September 1976 and on 15 December 1976 respectively, two buoys were washed ashore on the Frisian island of Terschelling, both near the village of Oosterend. They were found by mr. G. Doeksen, who collected some operculate barnacles and one stalked barnacle from these buoys. Part of the collected material he put at my disposal. Besides specimens of *Balanus balanoides* (Linnaeus, 1767), *Balanus improvisus* Darwin, 1854 and *Elminius modestus* Darwin, 1854 — all common in Dutch coastal waters — there

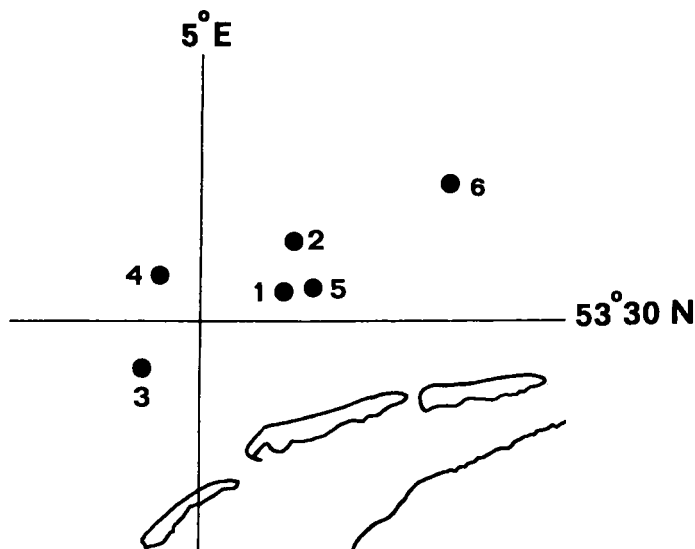


Fig. 1. The approximate location of the buoys. The island of Terschelling is in the middle.

appeared to be attached to the first buoy two specimens of the barnacle *Balanus perforatus* Bruguière, 1879 (pl. 1), and to the second buoy four specimens of the same barnacle.

Because the buoys were numbered, their exact location could be traced by consulting the Pilotage service of Terschelling. Fig. 1 shows the approximate location of the buoys. Table 1 shows their geographical location. Once attention was drawn to the occurrence of the barnacles, a member of the crew of the patrolvessel of the Pilotage service — mr. A. de Jong — collected another 11 specimens from buoys, which were all located near the buoys which had been washed ashore (see fig. 1 and table 1).

TABLE 1

Records of *Balanus perforatus* Bruguière

Code on map	name of buoy	geographical location		date	no. of specimens
		latitude N	longitude E		
5	TE 7	53° 31' 15"	05° 17' 36"	4.IX.1976	2
4	TE 4	53° 33' 50"	04° 52' 52"	14.XII.1976	2
1	wreck buoy Kuetahaya	53° 30' 48"	05° 12' 18"	15.XII.1976	4
2	wreck buoy D	53° 36' 00"	05° 13' 21"	8.I.1977	2
3	TE 1	53° 25' 09"	04° 50' 00"	mid I.1977	2
6	TE 14	53° 43' 06"	05° 40' 38"	mid I.1977	5

All the barnacles were collected alive; two of them were lost. On the buoy washed ashore on 4 September 1976 also a stalked barnacle was found. This specimen proved to be *Conchoderma auritum* (Linnaeus, 1767) (fig. 2).

The location of these buoys being not very far off the Dutch coast — about 15 km — these records are the first autochthonous records of *B. perforatus* and *C. auritum* from the coastal waters of the Netherlands.

Balanus perforatus has been recorded many times before from our coast, and specimens are preserved in the collections of the Rijksmuseum van Natuurlijke Historie, Leiden, and in the Zoölogisch Museum, Amsterdam. All these specimens were attached to floating and drifting substrates (such as pieces of wood, coal, cork, small buoys), that were washed ashore; even a record from a sea-mine is known. Therefore all these records concern allochthonous material transported from elsewhere. According to Southward & Crisp (1963) the natural range of distribution of this species reaches from S.W. England, along the Atlantic coast of S.W. Europe to the Mediterranean and further south. It is absent from the eastern English Channel, the North Sea and the Irish Sea. In the collections of the Zoölogisch Museum at Amsterdam there is one doubtful record (ZMA Cirr 100.111) of some specimens

collected from a caisson; however, this caisson was built in England, and transported thereafter to the Netherlands. So we cannot be certain whether these barnacles were autochthonous or allochthonous. However, the latter possibility seems the most probable to me.

The second species, *Conchoderma auritum*, has been recorded once before from the Netherlands. One specimen was fixed to the hull of a ship, probably in a dock, in the harbour of Delfzijl. Most probably this is also an allochthonous record. Darwin, in his splendid monograph of the sub-class Cirripedia, called this stalked barnacle mundane (cosmopolitan): "On ships'



Fig. 2. *Conchoderma auritum* (Linnaeus). About 1.5 \times natural size.

bottoms from all parts of the world. Arctic Sea, Greenland, Pacific Ocean . .”

Because all the buoys but one had been moored in the course of 1976, after having been cleaned of fouling and newly painted, the settlement and growth of all the organisms must have taken place during the period between mooring and the collecting dates. Maybe this settlement and development of these unusual barnacles was made possible by the high temperature of the sea's surface during the summer of 1976. We have to wait for new records to decide whether such occurrences are linked to the just mentioned temperatures or whether they constitute genuine extensions of the range of the species.

I am greatly indebted to Professor Dr. L. B. Holthuis (Leiden) for the conformation of the identity of the species, and for advice during the preparation of the manuscript. Mr. G. Doeksen (Terschelling), mr. A. de Jong and mr. J. A. van Wallenburg (Pilotage service of Terschelling) put data at my disposal. Mr. L. van der Laan produced the photographs, and mr. J. Zaagman the drawing of the stalked barnacle. Miss S. M. van der Baan kindly corrected the English text.

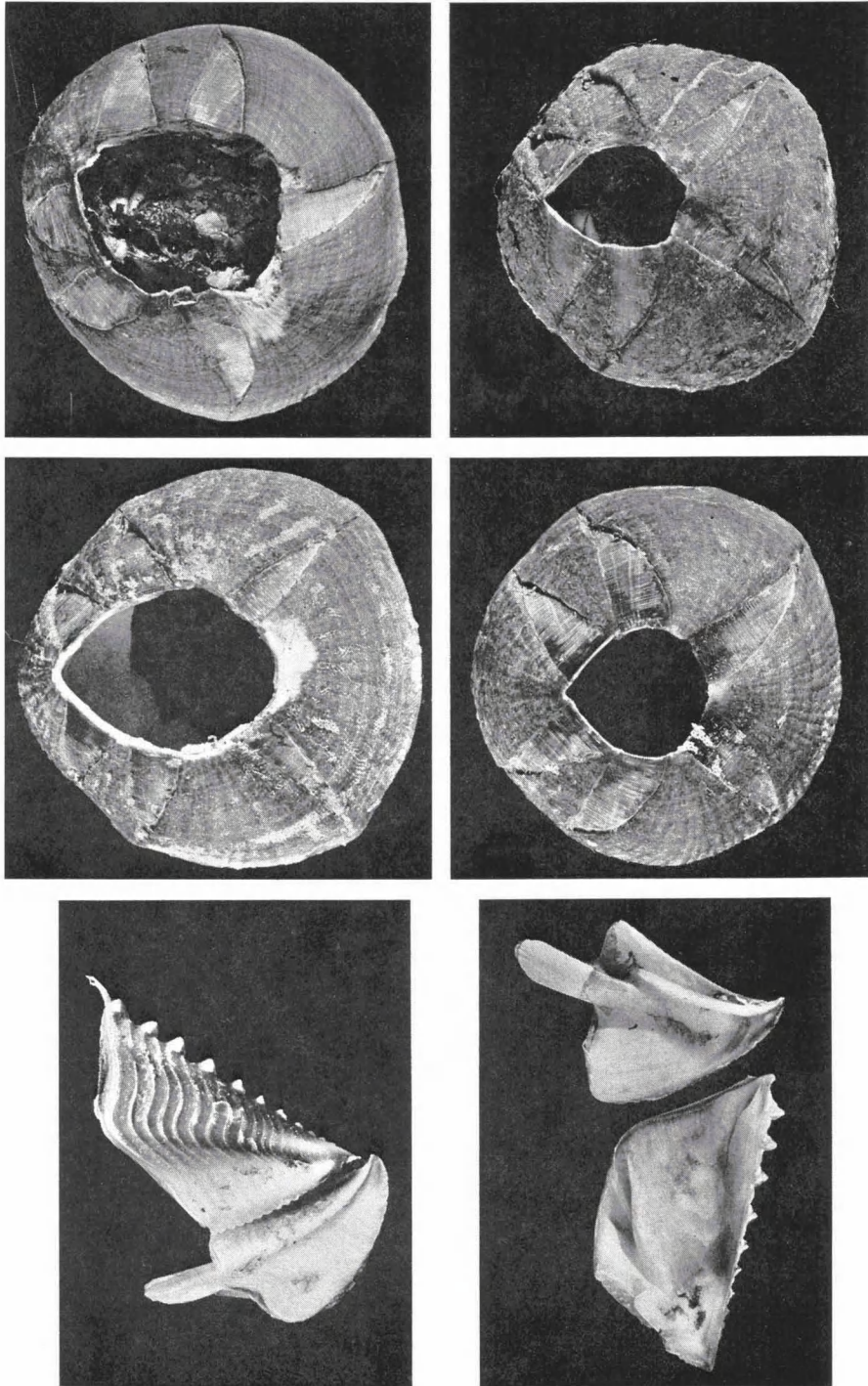
Part of the collected material is included in the collections of the Zoological Museum, Amsterdam, and in the Rijksmuseum van Natuurlijke Historie, Leiden.

SAMENVATTING

Van de zeepok *Balanus perforatus* Bruguière en van de eendenmossel *Conchoderma auritum* (Linnaeus) was tot dusver niet bekend, dat zij in de Nederlandse kustwateren voorkwamen. Met de vondst van deze organismen op boeien van de Betonningsdienst, gelegen ten noorden van Terschelling, is het autochthone voorkomen aangetoond. Mogelijk heeft de vestiging van deze zuidelijke soorten te maken gehad met de relatief hoge watertemperatuur gedurende het jaar 1976.

LITERATURE

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Balanus perforatus Bruguière, from buoys near Terschelling. Upper: top view of 4 specimens, \times ca. 1.7. Lower: external and internal view of tergum and scutum, \times ca. 3.6.