

A case of homonymy in fossil verrucid barnacles: *Verruca withersi* (Crustacea, Thoracica)

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For fossil verrucid barnacles, the name *Verruca withersi* appears to have been used twice; Schram & Newman described material from the Albian-Cenomanian (Cretaceous) of Colombia, while Kruizinga had previously recorded a new species from the Pleistocene(?) or perhaps younger strata of Sumba (Indonesia). We do not consider *V. withersi* Schram & Newman to be a cirripede, therefore no replacement name is needed for this junior synonym. *Verruca withersi* Kruizinga is a valid species related to the extant *V. cookei*.

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Introduction

Schram & Newman (1980) described mid-Cretaceous cirripede remains from South America as the earliest known verrucomorph barnacle, *Verruca withersi*, but failed to note that the trivial name *withersi* had been used previously for a single specimen from Pleistocene (or younger) deposits on Sumba (Indonesia). Normally, in such cases of homonymy a replacement name is needed for the junior synonym, but in this particular instance, where it is shown that *V. withersi* Schram & Newman is not a cirripede, no action is needed. *Verruca withersi* Kruizinga, 1939 is accepted as a valid species, related to the extant *V. cookei*.

Description and discussion

Material described by Schram & Newman (1980) was obtained from the Simiti Formation (Albian-Cenomanian), penetrated in the Cimitarra Well No. 2, northwest of Barrancabermeja (Departamento Antioquía, Colombia). The type specimen, in the collections of the US National Museum (USNM 264162), was interpreted as an epibiont on the eighth thoracic tergite of the stomatopod *Paleosquilla brevicoxa* Schram, 1968 (USNM 160174). Schram & Newman (1980) noted that this was an unusual association,

in view of the fact that stomatopods engage in constant grooming to keep their cuticle and sensory surfaces clean, and generally inhabit burrows and crevices in wait of passing prey. Given these facts, surface fouling on a live individual would be highly surprising, although observations on extant stomatopods suggest that moulting is a slow process, and that there could be ample time for a fouling organism to attach and grow. Nonetheless, records of fouling organisms on stomatopods are few and far between, and infestation by barnacles seems to be particularly rare.

Schram & Newman (1980) listed, as typical features of their *V. withersi*, a markedly depressed body, flat and unornamented plate surfaces, with generally straight margins, and an absence of sutural ribs or teeth. Unfortunately, anything that could be ascribed as either a movable scutum or tergum was missing in USNM 264162. The authors also observed (*ibid.*, p. 231) that, 'Puncturing pieces of paper produced artifacts almost identical to the fossil barnacle', although they did state that the use of 'scissors, forceps tips, or pencil points' in puncture experiments on both thin and thick cuticle of extant stomatopods produced only 'pseudo-barnacles' of 'plates' with separated and jagged margins, and that 'plates' themselves were shattered into smaller units.

The origin of Schram and Newman's enigmatic structure remains elusive. If it is a puncture mark, it is unusual in that if it occurred whilst the stomatopod was alive, it must have come from the inside. If it is immediately post-moult (considered the more likely option if it is a puncture), it could have been made by the chela of another scavenging crustacean.

We are of the opinion that this is either a preservational artifact or a post-moult puncture and that *Verruca withersi* Schram & Newman, 1980, has no formal status as a verrucomorph (see also Buckeridge, 1996, p. 262, 1997). The facts that the plates are unornamented, lack any form of interlocking between them, and that the orifice is significantly smaller than in any known verrucid and lacks articulating grooves along the plates' upper margins, all preclude assignment to verrucids. Both extinct (Late Cretaceous and Cenozoic) and extant verrucids show all of these features (see, for example, Withers, 1935; Buckeridge, 1983, 1997; Buckeridge & Finger, 2001; Young, 2002a, b). Also significant in this respect is that Schram & Newman (1980, p. 231, fig. 1A, B) noted that their 'barnacle' was a right-handed individual (in their preferred interpretation of plate structure), but that its orientation revealed that the extended cirral net would have been facing posteriorly, not anteriorly. This would have been an obvious disadvantage for the barnacle in the acquisition of food particles.

Some forty years earlier, Kruizinga (1939) described the new species *Verruca withersi* from the Pleistocene(?) (or younger) of Maukavu Hill, southeast of Waingapu, Sumba (Indonesia). The type specimen is RGM K.A. 2872, now in the collections of the Nationaal Natuurhistorisch Museum (Leiden). It is attached to a fragmentary valve of a spondylid bivalve, contained in the so-called 'Delft Collection', and collected by Dr R.D.M. Verbeek during an expedition (1899) to the Moluccan archipelago. For some reason, Kruizinga's paper appears to have been overlooked by most subsequent workers, although the journal in which it was published was distributed widely. The late Paulo S. Young (pers. comm., December 2003) noted that *V. withersi* of Kruizinga is a valid species related to the extant *V. cookei*, which is known from shallow waters off Oahu in the Hawaiian Islands (Pilsbry, 1927).

For reasons outlined above, a replacement name for *Verruca withersi* Schram &

Newman (*non* Kruizinga), to correct the homonymy, is not needed in this case; the name is best considered a *nomen dubium*. *Verruca withersi* Kruizinga, 1939, on the other hand, is a valid species.

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