

AN UNUSUAL ADDITION TO THE MURICIDAE (MOLLUSCA:GASTROPODA)  
OF THE ESMERALDAS BEDS, NORTHWESTERN ECUADOR

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A visit to the British Museum (Natural History) by William and Lois Pitt, of Sacramento, California, for the purpose of examining the material in their collections from the Tertiary beds of coastal Ecuador, disclosed a most unusual addition to the muricid fauna of the Esmeraldas Beds, near Quebrada Camarones (locality TU 1397), which is on the northwestern coast about 10 km east of the mouth of the Rio Esmeraldas. Having just published a study of the muricid fauna of this area (Vokes, 1988), wherein I noted that three of the 21 species of Muricidae occurring in these beds have a closer affinity to species living in northern California or Japan than to anything in the waters of tropical America, it is especially gratifying to recognize this new species as another relative of the Japanese fauna.

But this new species is not just another muricid to add to the fauna, it is the third representative, and the first outside of Japan, of a most unusual genus that lives parasitically upon pectens, as has been well documented by Matsukuma (1977). The Japanese species, *Genkaimurex varicosus* (Kuroda, 1953), although originally described as *Coralliophila*, a genus characterized by having no radula, has a typical rachiglossate radula that it utilizes to bore neat round holes in the shell of the pecten through which it sucks enough of the clam's juices to nourish the gastropod but not to damage the host. Thus, it is a true case of parasitism.

Recent examples of *Genkaimurex varicosus* live in depths of 45 m (the type) to 94 m (Matsukuma, 1977, p. 82). The second species of *Genkaimurex*, *G. fimbriatulus* (A. Adams) was described from 88-100 m (48-55 fms, *fide* Adams, 1863, p. 375) and the specimen figured here is from 108 m, so that 100 m seems to be the approximate depth that this group inhabits. This fits well with the the environment of deposition for the mollusks at Quebrada Camarones, which is relatively shallow-water material that has been carried down into depths of as much as 1000 m. In my previous discussion I noted that the slide at TU 1397 began in depths on the order of 75

m, then was washed out into the deeper water (Vokes, 1988, p. 8).

As was also discussed in the previous paper, the beds at Quebrada Camarones have been referred to the Onzole Formation by workers in the area but the nature of these highly fossiliferous beds, which have been deposited into the deep-water clays of the true Onzole Formation, are so lithologically distinctive that I prefer to retain the informal usage of "Esmeraldas Beds" for the fossil-rich layers found in the upper portions of the Onzole Formation, which have been dated as Early Pliocene (N 18-19) by Haman and Kohl (1986, p. 181).

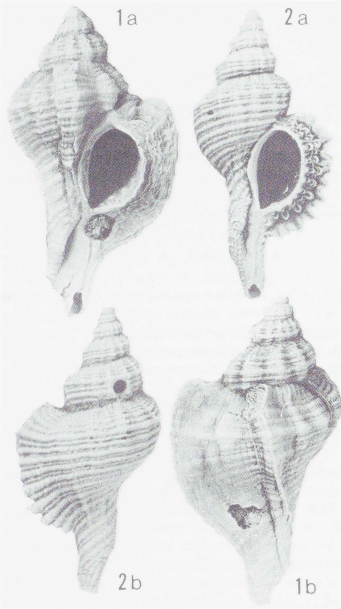
Family MURICIDAE Rafinesque, 1815  
Subfamily THAIDINAE Jousseaume, 1888  
Genus GENKAIMUREX Kuroda, 1953

*Genkaimurex* KURODA, 1953, Venus, Japanese Jour. Malac., v. 17, no. 3, p. 120.

Type species: *Coralliophila (Genkaimurex) varicosus* Kuroda, by original designation.

GENKAIMUREX AMERICANUS Vokes, n. sp.  
Text-figure 1

*Description:* High-spired shell with early whorls damaged and plugged by animal. On earliest whorl (of the five preserved) spiral ornamentation of three cords, all of the same strength. Weaker cords intercalated on later whorls, so the penultimate has five stronger cords alternating with weaker ones; the cord at the periphery somewhat stronger than the two pairs on either side. Sub-sutural ramp almost smooth. On body whorl spiral ornamentation weakening but still of alternating stronger and weaker cords, approximately 12 of each. On first post-nuclear whorl preserved axial ornamentation of 12 faint ridges, becoming increasingly stronger with each whorl. On body whorl four varices developed, only that at the aperture more than just a slightly enlarged axial ridge. Between each pair of varices two indistinct intervarical nodes. Aperture rounded, inner lip smooth, narrow, appressed the entire length; outer lip slightly crenulated, with four small denticles on anterior portion of inner side. Terminal varix formed by multiple layers of shelly material on the adapertural face, crenulated in accord with the outer spiral cords. Siphonal canal long, straight, sealed over by shelly plates extending from either side and meeting along the mid-line.



Text-figure 1. *Genkaimurex americanus*, n. sp.; BMNH GG 21981 (holotype); height 26.2 mm, diameter 14.7 mm; locality CRB 284 (X 2). Text-figure 2. *Genkaimurex fimbriatulus* (Adams); USNM 205480; height 16.5 mm, diameter 8.5 mm; locality Korea Straits, Japan, 108 m (X 2).

*Holotype*: British Museum (Natural History) Palaeontology Dept. No. GG 21981; height 26.3 mm, diameter 14.7 mm.

*Type locality*: Esmeraldas Beds, Onzole Formation, CRB locality 284, on coast of northwestern Ecuador; Lat. 0°50'N, Long. 79°34'W. Collected by C. R. Bristow and J. W. Whittaker, November, 1974.

*Occurrence*: Esmeraldas Beds, Onzole Formation, Ecuador.

*Discussion*: This new species is more closely related to the second Japanese species of *Genkaimurex*, *G. fimbriatulus* (Adams) than it is to the type of the genus. The type, *G. varicosus* has a low-spired

shell with a deeply channeled suture, giving the whorls a very inflated appearance. D'Attilio (1978, p. 37) placed the two Japanese species in synonymy but noted that the illustration given by Matsukuma (1977, text-fig. 2B) for the protoconch of *G. varicosus* was different from that given by him (D'Attilio, 1978, text-fig. 3) for *G. fimbriatulus*. This is correct. *G. varicosus* has a protoconch of one and one-half smooth whorls, as shown by Matsukuma, and *G. varicosus* has a strongly keeled protoconch, as shown by D'Attilio. It is obvious that the two are different species.

Although most similar to *G. fimbriatulus*, the new species is easily distinguished from the Japanese form by the development of four varices on the body whorl. So far as is known, specimens of *G. fimbriatulus* do not ever develop any varices except the terminal one. However, *G. varicosus* does develop these extra varices in fully adult specimens, and the Ecuadorian species is somewhat intermediate in shape between the high-spined *G. fimbriatulus* and the low-spined *G. varicosus*. Neither of the Japanese species have the denticles on the inner side of the outer lip that are seen in *G. americanus*.

I would like to thank the Department of Palaeontology, British Museum (Natural History) for the loan of the type specimen.

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