Bull. Natn. Sci. Mus., Ser. A (Zool.), 6 (2), June 22, 1980

Two New Crabs Associated with Precious Coral from the Central Pacific

By

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Several years ago a collection of crabs and hermit crabs from the deep-sea off Midway Island in the Central Pacific were presented to the National Science Museum, Tokyo, by the Nippon Suisan Kaisha Co., Ltd. Of them three species of the Lithodidae have already been recorded by the present author in 1974, but the other specimens tentatively identified are not reported. This was due to that Dr. T. SAKAI, the president of the Carcinological Society of Japan, got the crab collection of the other source from the sea in question, the result of the identification of which was reported by him in 1978. In his valuable report were recorded eight species of crabs, viz., *Macroregonia macrochira* SAKAI, *Oregonia bifurca* RATHBUN and *Chionoecetes japonicus pacificus* SAKAI of the Majidae, *Ovalipes iridescens* (MIERS) of the Portunidae, *Neopilumnoplax major* SAKAI of the Goneplacidae, *Geryon affinis* A. MILNE EDWARDS et BOUVIER and *Progeryon guinotae* CROSSNIER of the Geryonidae, and *Planes cyaneus* DANA of the Grapsidae. In the crab collection at hand, unfortunately, the first two species of the Majidae are not comprised, but there are considerable numbers of the specimens referable to the other species and also some additional specimens referable to *Cyrtomaia horrida* RATHBUN of the Majidae, a new species of the Xanthidae and *Plagusia immaculata* (LAMARCK) of the Grapsidae.

The new species mentioned above was represented only by a sole specimen, but in the spring of 1976 Mr. Akio SOGABE, the manager of coral manufacturing shop "Aoyagi" in Kochi City, found a male specimen associated with the precious coral from off Midway Island. One of the photographs showing the natural habit is reproduced in this paper. In the autumn of 1977 several additional specimens were obtained by Mr. Yôji KURATA of the Ogasawara Fisheries Center from the precious coral collected at the sea off Midway Island. These specimens were at first referred to the genus *Sphenomerides* with question, but due to kind help of Dr. Hoon Soo KIM of Seoul National University they were decidedly identified as a new species of the genus *Calocarcinus* which has hitherto been monotypically represented by *C. africanus* CALMAN. According to GUINOT (1977), this genus belongs to the Trapeziidae which has hitherto been known as a subfamily of the Xanthidae.

In this paper, otherwise, a new spider crab of the genus *Sphenocarcinus* obtained by Mr. Y. KURATA from the precious coral is also described. It is typical in the genus for having the curious wart-like tubercles on the carapacial dorsal surface,

being readily distinguished from the other species due to the useful paper of GRIFFIN (1976). It was fortunate that by the courtesy of Dr. Raymond B. MANNING of the National Museum of Natural History, Smithsonian Institution, the present author could examine the type-specimens described by RATHBUN (1906, 1916) from Hawaii and the Philippines.

Genus *Sphenocarcinus* A. MILNE EDWARDS, 1875

Sphenocarcinus coralliophilus sp. nov.

(Figs. 1B, 2A, B)

Description of holotype. A typical *Sphenocarcinus* with several raised regions symmetrically disposed on dorsal surface of carapace.

Carapace pyriform, with long rostral horns, hepatic and branchial spines. Rostral horns about half as long as carapace, fairly depressed and widely divergent from bases, being sensitively curved upward near their tips. Hepatic and branchial spines directed laterally and weakly upward. Several raised, truncated regions symmetrically disposed; of median three regions the gastric longitudinally oblong, the cardiac truncated anteriorly, and the intestinal transversely elliptical; branchial anterior one elliptical, oblique and weakly constricted in its middle, and posterior one the smallest, rather triangular and provided with a tubercle on its upper surface which is directed outward and upward. Prominent curled hairs restricted to inner borders of rostral horns, and gastric and branchial regions; otherwise, rather sparse short setae on whole surface of carapace except for raised regions.

Both chelipeds missing. Ambulatory legs rather slender, cylindrical and entirely covered with short setae. Dactylus with a row of several minute conical teeth.

Material examined. Off Midway Island: 1 ♂, NSMT-Cr 6349 (holotype), associated with precious coral *Corallium* and collected by Y. KURATA. Length of carapace excluding and including rostral horns, 8.2 and 11.5 mm; breadth of carapace excluding and including branchial spines, 5.6 and 9.6 mm.

Remarks. In life the carapace, chelipeds and ambulatory legs were uniformly creamy white with some bloodred blotches symmetrically disposed on the carapacial dorsal surface.

As enumerated by TAKEDA & NAGAI (1979) in a short paper dealing with the second specimen of *Sphenocarcinus auritus* RATHBUN, the genus *Sphenocarcinus* is represented by the type-species *S. corrosus* A. MILNE EDWARDS, 1875 from the Atlantic coast of America, *S. agassizi* RATHBUN, 1893 from the Pacific coast of America, and *S. stimpsoni* (MIERS, 1886), *S. velutinus* (MIERS, 1886), *S. cuneus* (WOOD-MASON, 1891), *S. aurorae* ALCOCK, 1899, *S. carbunculus* RATHBUN, 1906, *S. luzonicus* RATHBUN, 1916, *S. auritus* RATHBUN, 1916, *S. nodosus* RATHBUN, 1916, *S. sphenocarcinoides* (RATHBUN, 1916) and *S. bidens* SAKAI, 1969 from the Indo-West Pacific.

The new species is readily distinguished from the known species enumerated above by having the strong hepatic and branchial spines, and by the different shape

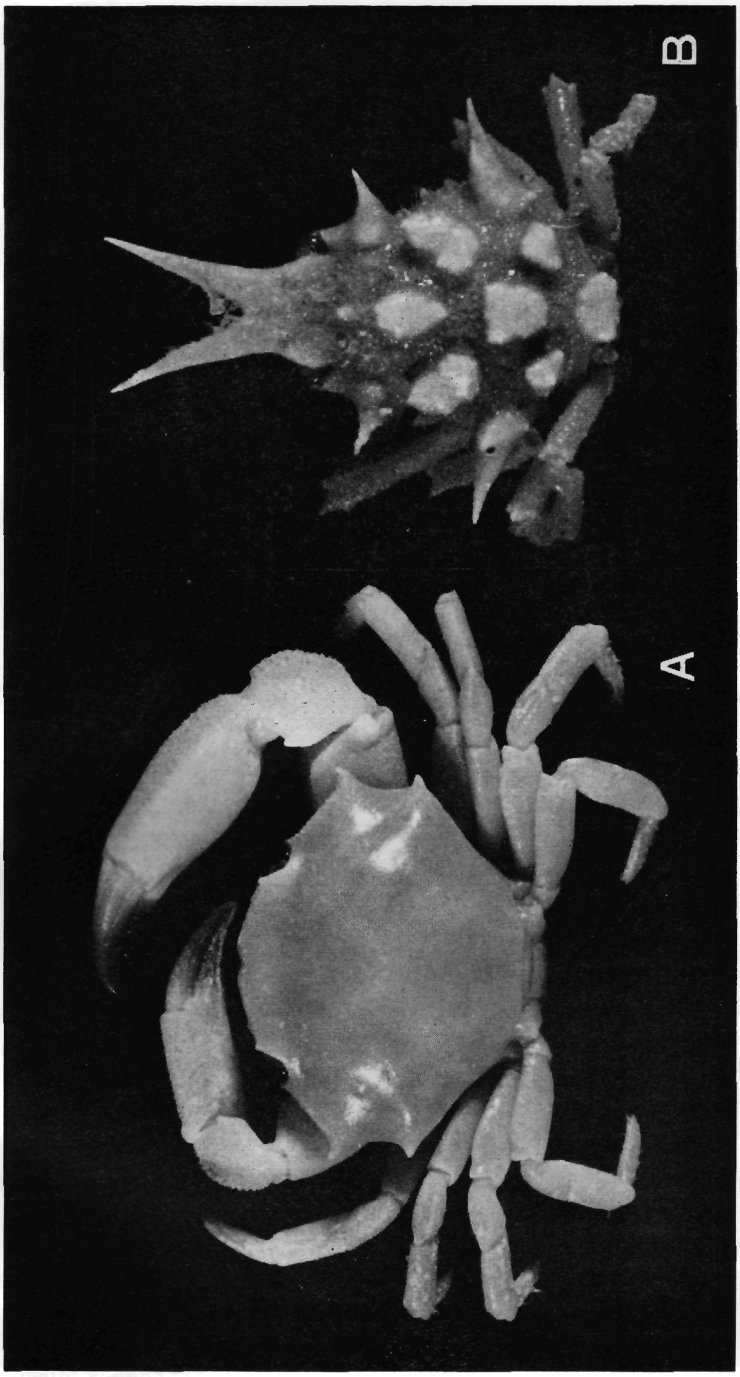

Fig. 1. *Calocarcinus habei* sp. nov., holotype ♂ (A), and *Sphenocarcinus coralliophilus* sp. nov., holotype ♂ (B).

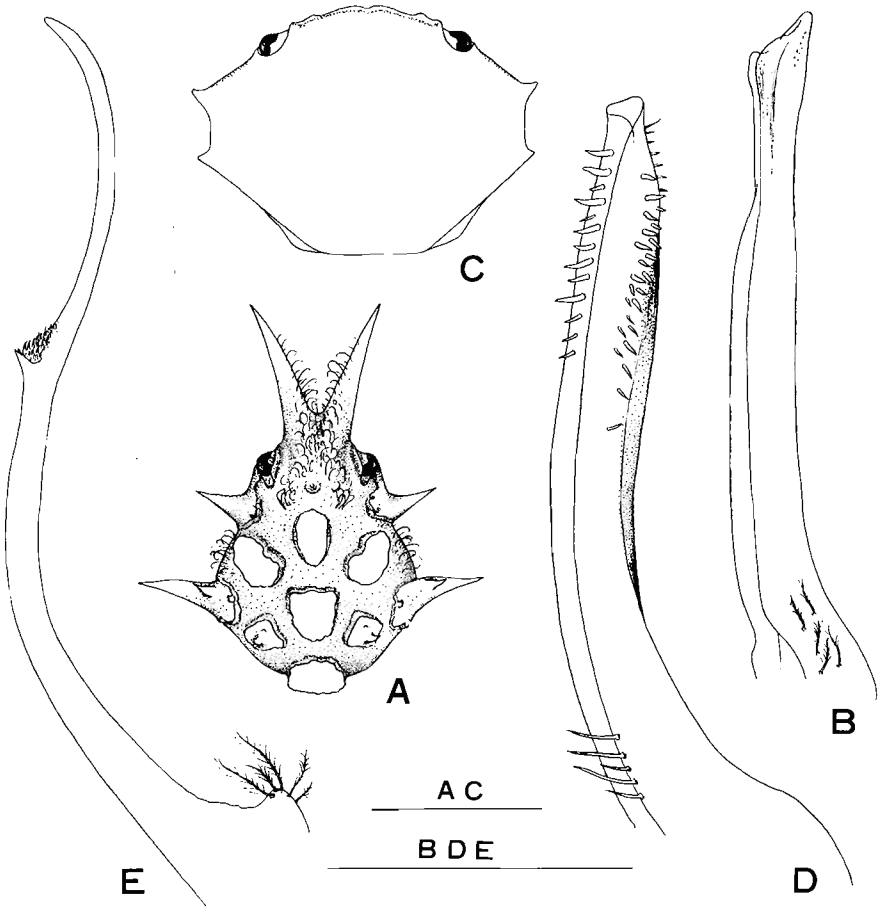

Fig. 2. *Sphenocarcinus coralliophilus* sp. nov., holotype ♂. A, Carapace; B, left pleopod in abdominal view.

Calocarcinus habei sp. nov., paratype ♀ (C) and holotype ♂ (D, E). C, Carapace; D and E, left first and second pleopods in abdominal view.

Scale for A, C=5 mm, for B, D, E=1 mm.

and arrangement of the raised regions on the dorsum.

Genus ***Calocarcinus*** CALMAN, 1909

Calocarcinus habei sp. nov.

(Figs. 1A, 2C–E, 3)

Description of holotype. Carapace transversely octagonal with two tuberculated teeth on each lateral border, being evenly, but rather strongly convex in both directions; dorsum smooth, polished and quite ill-defined. Front convex and well pro-

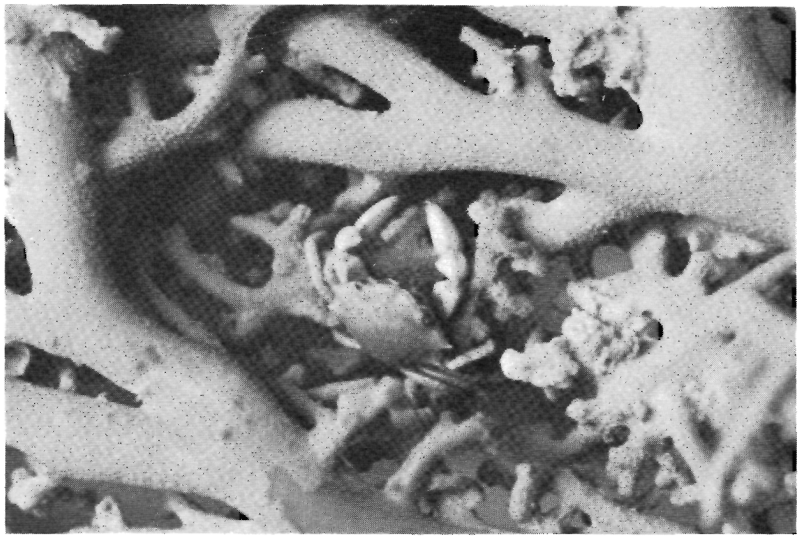

Fig. 3. *Calocarcinus habei* sp. nov., paratype ♂ associated with *Corallium*.

truded beyond level of orbit, bearing a median dorsal sinus; its lateral angle only weakly produced; a granulated ridge along frontal free margin between supraorbital angles of both sides. Orbit large and oblique. Eyestalk stout, and cornea large. Supraorbital region weakly raised, with its inner angle produced; external orbital angle weakly raised; infraorbital border entire and fringed with granules; its inner angle just touched with frontal ventral prolongation, and thus antenna excluded from orbit; antennal basal segment short and reached to half way of infraorbital angle, and its second segment just touched with conical prolongation of front.

Anterolateral border of carapace minutely granulated, oblique and straight from just behind external orbital angle to base of first tooth, being a little more than distance between first and second teeth which are tuberculated; first tooth curved obliquely forward and only slightly larger than the second which is directed laterally; border between both teeth nearly longitudinal with a more or less concave appearance. Posterolateral border straight and strongly convergent.

Chelipeds heavy, the right being larger. Merus small and only slightly larger than carpus, being unarmed except for microscopical granules; right carpus thickly covered with microscopical conical granules, and provided with a longitudinal smooth furrow on its upper sufrace, being armed with a tubercle at its inner angle; in left carpus an obtuse tubercle at its inner angle; outer upper surface of right palm covered with indistinct microscopical granules, and upper border more or less thickened; granules distinct in left slender palm; fingers of right chela distinctly, but irregularly toothed with two or three conical teeth, but in left chela cutting edges nearly entire and only microscopically roughened.

Ambulatory legs rather long and stout; upper borders not crested, but fringed with microscopical granules and short plumose hairs; inner border of each dactylus with short setae, and a terminal horny claw sharp and curved.

Notes on paratypes. Other than a pair of large specimens four males and two females are slightly less than 10 mm in carapace breadth and seem to be not fully developed. All the specimens are surprisingly constant in the shape and armature of the carapace and chelipeds. However, in some specimens the anterolateral teeth are obtuser, and in the right chela of the largest paratype the teeth are worn out and blunt. The juvenile with 5.0 mm in its carapace breadth is somewhat different in the proportion, but all the other features characteristic for the new species such as the shape of the frontal and anterolateral borders of the carapace and the formation of the chelipeds are well represented. The female abdomen is not so wide.

Material examined. Off Midway Island: 1 ♂, NSMT-Cr 6350 (holotype), presented by Nippon Suisan Kaisha Co., Ltd.; 1 ♂, NSMT-Cr 6351 (paratype), associated with *Corallium* and collected by A. SOGABE; 5 ♂♂, 3 ♀♀, 1 juv., NSMT-Cr 6352 (paratypes), associated with *Corallium* and collected by Y. KURATA. Breadth and length of carapace: 13.5 and 10.0 mm (holotype); 13.6 and 10.3 mm (largest ♂ of paratypes); 14.0 and 10.6 mm (largest ♀ of paratypes).

Remarks. In life the carapace, chelipeds and ambulatory legs were uniformly creamy white. Fingers were pale brown.

The new species is in reality close to the monotypical representative of the genus, *Calocarcinus africanus* CALMAN from the deep-sea off East Africa between Aden and Zanzibar, but readily distinguished from it by the different contour of the carapace with the advanced frontal border.

This species is dedicated to Dr. Tadashige HABE, the famous malacologist, who has retired from the National Science Museum, Tokyo, in this spring.

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