

Two Interesting Crabs from Hawaii¹

MASATSUNE TAKEDA²

ABSTRACT: Crabs of the family Dynomenidae from precious coral beds off Oahu, Hawaiian Islands, are described as *Dynomene devaneyi* sp. nov. The species is characterized by the velvetlike tomentum without long hairs, some transverse grooves on the dorsum and obtuse anterolateral teeth of the carapace, and the stout and nongranulated ambulatory legs. Another species from the same habitat is *Cancer (Platepistoma) macrophthalmus* (Rathbun, 1906) of the Cancridae. The recently erected subgenus *Glebocarcinus* is reduced to a synonym of *Platepistoma*, which hitherto has been known as a genus distinct from *Cancer*.

BY THE COURTESY of Dr. Dennis M. Devaney of the Bernice P. Bishop Museum, Honolulu, I had an opportunity to examine several specimens of crabs collected from coral beds off Oahu, Hawaiian Islands, at a depth of about 200 fm. They were tentatively identified by Miss Janet Haig of the Allan Hancock Foundation, University of Southern California, as *Dynomene* and by Dr. Devaney as a cancroid crab, and a close examination revealed that these preliminary identifications were correct. This Hawaiian species of the family Dynomenidae is readily distinguishable from the known species of *Dynomene* and is designated as *Dynomene devaneyi*. Another species that is referred in this work to *Cancer* of the family Cancridae was of great significance in the consideration of the systematic status of *Platepistoma* based on a young form from Hawaii.

The specimens dealt with here have been deposited in the Bernice P. Bishop Museum, Honolulu, except for one of the paratypes of the new species, which is deposited in the National Science Museum, Tokyo.

FAMILY DYNOMENIDAE

Genus *Dynomene* Desmarest, 1825

Dynomene devaneyi sp. nov.

Figures 1-3

Material Examined

Southeastern Oahu, off Makapuu Point, Kaiwi Channel, 200 fm, collected by the submersible *Star II* from precious coral (*Corallium*) beds. One male (holotype, Figure 2), one female (allotype, Figure 3A), BPBM 1974.04 (lot no. 3); breadth of carapace 21.3 and 15.7 mm, and length of carapace in median line 20.2 and 15.4 mm, respectively. One male (paratype), left cheliped and first two ambulatory legs missing, BPBM 1974.04 (lot no. 4), NSMT Cr. 5075; breadth 21.0 mm, length 20.0 mm. One male (paratype, Figure 3B), BPBM 1975.77 (lot no. 2); abdomen somewhat damaged, and merus of left reduced leg broken; breadth 22.7 mm, length 21.6 mm.

Description

Entire surfaces of carapace, chelipeds, and ambulatory legs thickly covered with velvetlike tomentum except for distal parts of fingers; sparse longish silky hairs restricted near terminal claws of ambulatory legs; otherwise tomentum quite short and close-set. Carapace nearly as wide as long but seemingly rather quadrate longitudinally. Dorsum flattish and only slightly declivous anteriorly and anterolaterally, being marked with some prominent grooves and depressions as shown in photographs; these grooves and depressions give dorsum a wrinkled appearance. Front nearly triangular and medially interrupted by a shallow dorsal groove. Orbit deep with dorsal inclination; infraorbital region more or less knobbed, being separated from first antero-

¹ Manuscript received 12 February 1976.

² National Science Museum, Department of Zoology, Shinjuku, Tokyo 160, Japan.

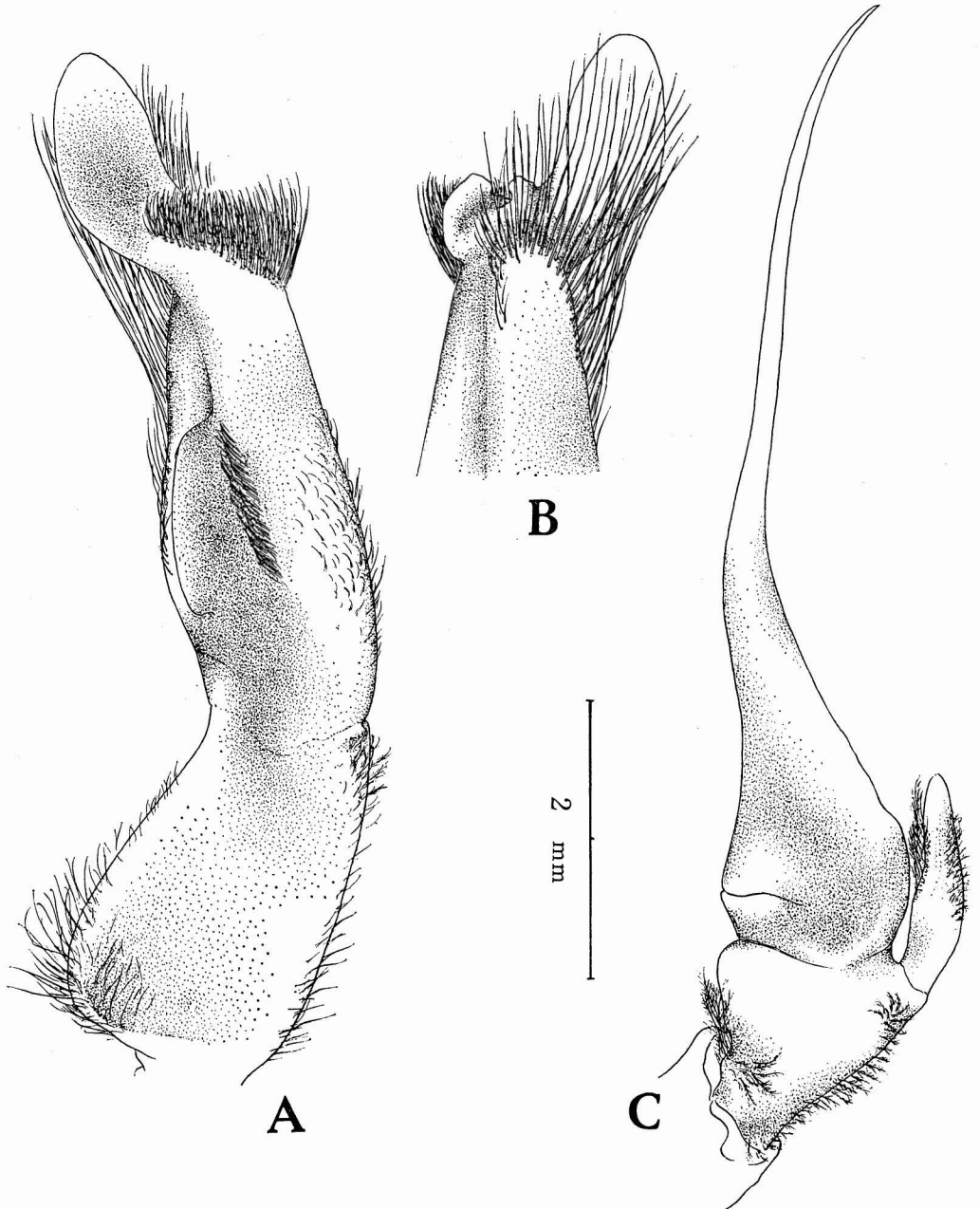


FIGURE 1. *Dynomene devaneyi* sp. nov., holotype. *A*, left first pleopod in sternal view; *B*, left first pleopod in abdominal view; *C*, left second pleopod in abdominal view.

lateral lobe and pterygostomial region by a shallow groove.

Lateral border of carapace only weakly arched and separated into three parts by two distinct interruptions, from which transverse

grooves running inward; first lobe curved toward infraorbital region, and second nearly longitudinal and as long as first; last part inclined, and posterior two-thirds weakly concave dorsally for reception of reduced last leg.

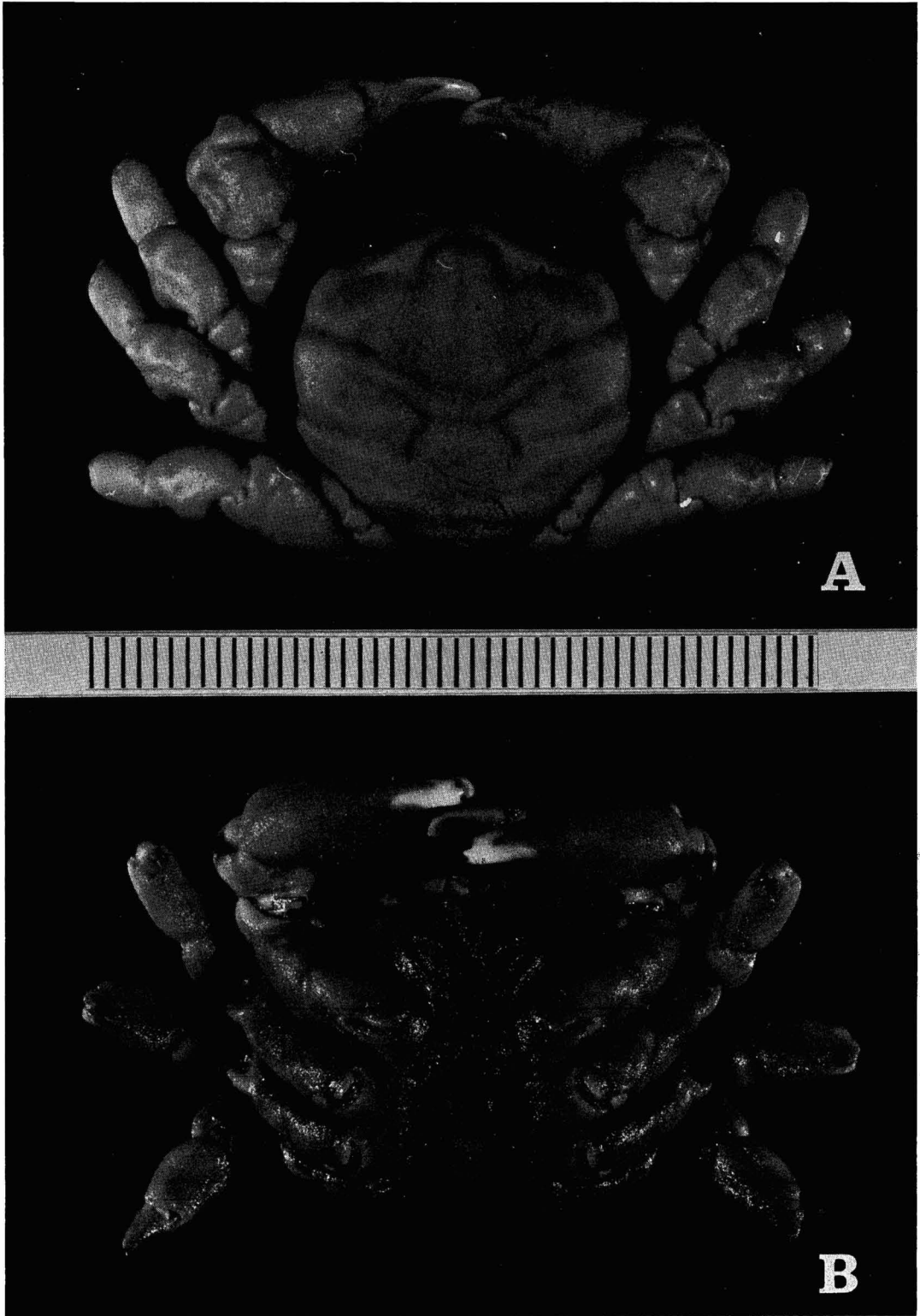


FIGURE 2. *Dynomene devaneyi* sp. nov., holotype.



FIGURE 3. *Dynomene devaneyi* sp. nov. A, allotype; B, paratype.

Chelipeds massive and equal in size and shape; in smaller specimens upper border of merus more or less roughened by a series of microscopical granules; outer surface of carpus divided into three parts by a subdistal transverse and a longitudinal groove; surface of inner part rather uneven; palm bulged strongly in large specimens and weakly in smaller ones, with longish tomentum on inner surface; two or three granules traceable on its upper border near articulation with carpus. Fingers nearly meet along their whole length; only in largest specimen is a narrow gape formed at their bases.

Ambulatory legs markedly stout; all three pairs nearly equal in shape, length, and thickness; upper borders of meri, carpi, and propodi fringed with microscopical granules; surface of merus with a subterminal transverse furrow, and carpus with longitudinal furrow not reaching its distal border. In natural position reduced last leg not reached by subterminal furrow of merus of last ambulatory leg; dactylus microscopic with a minute claw, being entirely disguised by a longish tomentum. Male abdomen widening distally, while female abdomen with nearly parallel lateral borders; terminal segment large and slightly exceeding two times as long as penultimate segment. Male first pleopod bearing a spatulate distal outgrowth and second pleopod with a probable vestige of exopod.

Remarks

The allotype and paratypes agree closely with the holotype, and the differences are found only in the comparative development of the palm.

So far as I know, the following species and subspecies enumerated in chronological order have been described to date. However, the validity and synonymy of some species must be confirmed by further studies on the additional material, since most of the *Dynomene* species are rather poorly known, in spite of their long history. Only *Dynomene ursula* is known from the East Pacific—from the west coast of Mexico to the Galápagos Islands; the others are the inhabitants of Indo-West-Pacific waters (Table 1).

The new species described in this paper is

TABLE 1

DESCRIBED SPECIES AND SUBSPECIES OF *Dynomene*

<i>D. hispida</i> Desmarest, 1825
<i>D. latreillii</i> Eydoux & Souleyet, 1842 (= <i>D. hispida</i> , fide A. Milne Edwards, 1879)
<i>D. ursula</i> Stimpson, 1860
<i>D. depressa</i> (Brocchi, 1875) (as <i>Platydomia</i> , ? = <i>D. hispida</i> , fide Takeda, 1973)
<i>D. praedator</i> A. Milne Edwards, 1879
<i>D. pugnatrix</i> de Man, 1889
<i>D. pilumnoides</i> Alcock, 1899
<i>D. spinosa</i> Rathbun, 1911
<i>D. pugnatrix brevimana</i> Rathbun, 1911
<i>D. actaeiformis</i> (Stebbing, 1921) (as <i>Maxillothrix</i> , = <i>D. hispida</i> or <i>pilumnoides</i> , fide Barnard, 1950)
<i>D. tanensis</i> Yokoya, 1933

close to *D. tanensis* from southern Japan, which is known only by the poor figure and short description. This Japanese species is without doubt closely related to *D. praedator*, which is widely distributed in the Indo-West-Pacific waters from the Ryukyu Islands through the Micronesian and Polynesian islands to South Africa. Though the type specimen of *D. tanensis* is not available, I believe that its carapace may be narrower, the regions of the dorsum marked by some transverse grooves, and the ambulatory legs not granulated. Due to these features, the new species is also distinguished from *D. praedator*, but the carapace is more narrow, the lateral border of the carapace is not at all dentate, and the ambulatory legs are much stouter.

The new species is named after Dr. Dennis M. Devaney, to whom my cordial thanks must be tendered.

FAMILY CANCRIDAE

Genus *Cancer* Linnaeus, 1758

Subgenus *Platepistoma* Rathbun, 1906,
stat. nov.

Cancer (Platepistoma) macrophthalmus
(Rathbun, 1906), comb. nov.

Figure 4B

Platepistoma macrophthalmum Rathbun, 1906,
p. 876, fig. 33; north coast of Maui, Hawaiian
Islands, 238–253 fm.

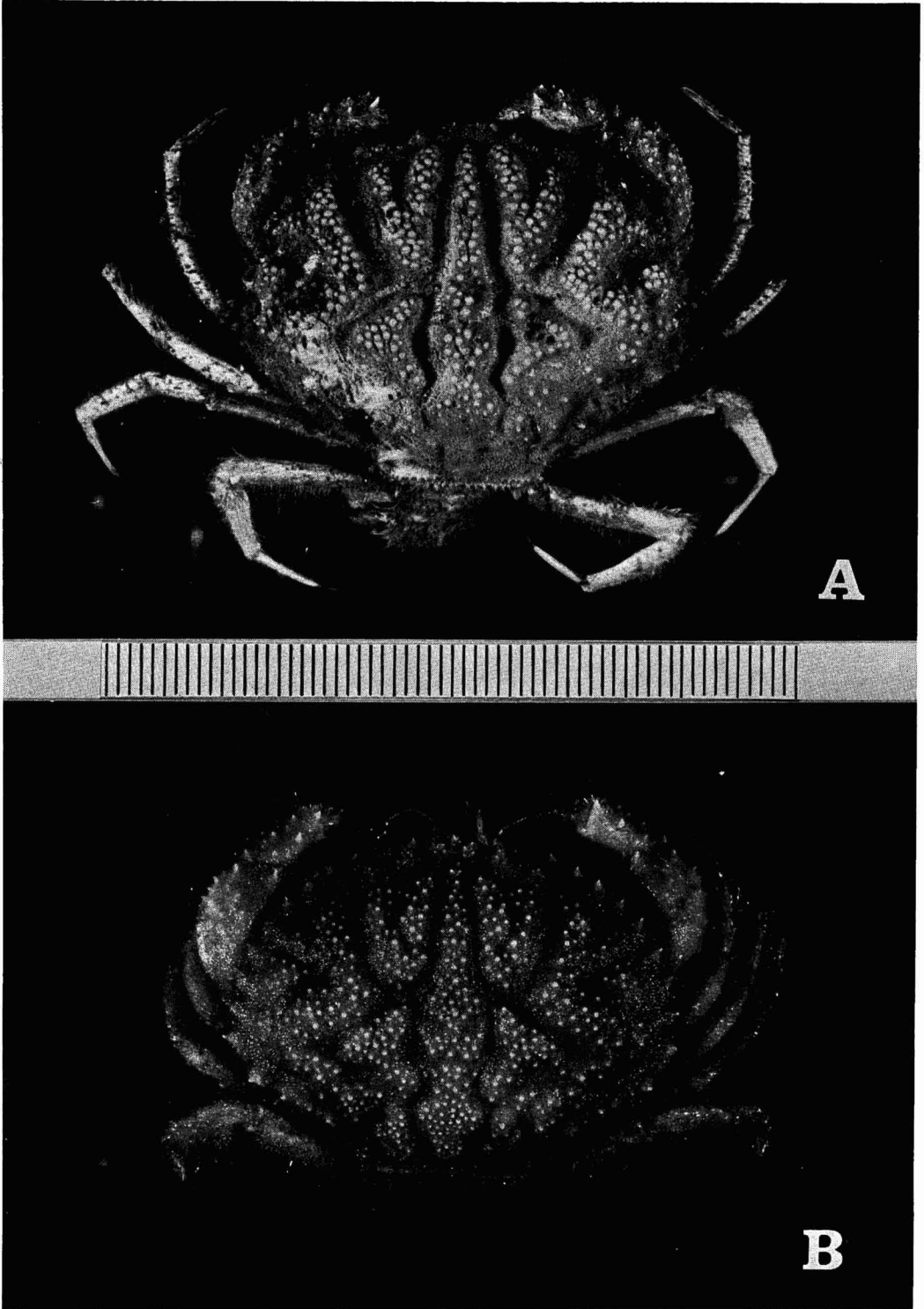


FIGURE 4. *A*, *Cancer (Platepistoma) sakaii* Takeda & Miyake; *B*, *Cancer (P.) macrophthalmus* (Rathbun).

Material Examined

Southeastern Oahu, off Makapuu Point, Kaiwi Channel, 200 fm, collected by the submersible *Star II* from precious coral (*Corallium*) beds. One female, damaged, BPBM 1974.04 (lot no. 1); breadth with lateral teeth 24.7 mm. One ovigerous female, with several barnacles on carapace, BPBM 1974.04 (lot no. 4); breadth 43.4 mm, length in median line 33.0 mm. One female (Figure 4B), without abdomen; breadth 39.6 mm, length 30.0 mm, and one female, without carapace, BPBM 1975.77 (lot no. 2).

Remarks

At first sight, these specimens seem to be very close to a Japanese species, originally described as *Platepistoma anaglyptum*, subsequently transferred to *Cancer* by Sakai (1965), and renamed by Takeda and Miyake (1972) as *Cancer sakaii*. The Japanese species is known from Sagami Bay and Tosa Bay from 85 to 120 m; in the National Science Museum, Tokyo, are one dry male presented by Dr. T. Sakai and one female from off the east coast of the Kii Peninsula collected by Dr. T. Habe. In reality, the contour of the carapace and the sculpture of the dorsum are very similar to one another, but the differences between the Japanese and Hawaiian species are as follows. In the Japanese species the areolae characteristic of both species are strongly convex and high with much larger granules and are separated from each other by the wide and deep grooves; in the Hawaiian species the areolae are rather low with small granules and are more or less obscure near the lateral borders of the carapace due to the dispersed granules. In lateral or frontal view, therefore, the carapace is markedly convex in the Japanese species but is even in the Hawaiian species. The ambulatory legs are much more slender in the Japanese species.

There is little doubt that the species from Hawaii may be referred to *Platepistoma macrophthalmum* Rathbun, which is based only on a young female taken from a considerable depth off the island of Maui, although there is a difference in the form of the dorsum and anterolateral borders of the carapace between the type and the new material. In the young female type, the areolae of the dorsum are rather indistinct, and the anterolateral border is cut into five large

spines that alternate with four small ones. Cancroid crabs, however, are generally variable with growth, as Rathbun showed in 1930 when she made the keys both to the adult and the young specimens of the American species.

The slender anterolateral spines with broad bases were considered to be one of the generic features in the establishment of *Platepistoma*, but, as briefly mentioned above, they may be characteristic of the young forms. The other features essential for the genus in question are concerned with the formation of the frontal region and buccal area. The front was originally described as being tridentate with the median tooth triangular and bent down to the interantennular septum. It is true that in the adult at hand the median tooth is somewhat ventrally situated, and the ventral surface of each lateral tooth is deeply excavated to form the antennular fossa. In *Cancer* the frontal teeth are usually confluent with each other from side to side and the antennular fossae are shallow, so that the interantennular septum is only poorly developed. As for the buccal area, the epistome is not overlapped by the third maxillipeds, the buccal cavern widens anteriorly, and the merus of the third maxilliped is produced to be more or less angulated at its anteroexternal angle. These features of the known species of *Cancer* are, however, so variable that their delimitation is really difficult. The ambulatory legs are spinulated along the anterior borders of the meri, carpi, and propodi, but also in some species of *Cancer* they are distinctly granulated, these features being also considered to be specific. In view of these features, both the Hawaiian and the Japanese species, though not typical, still do not exceed the generic limits of *Cancer*. Therefore, the genus *Platepistoma*, based on the Hawaiian young form, is reduced to a synonym of *Cancer* and is reduced to subgeneric rank.

Various features in question also resemble those of an American species, *Cancer oregonensis* (Dana), which is markedly variable in the ornamentation of the carapace. This East Pacific species is readily distinguished from, but without doubt similar to, the Central and West Pacific species dealt with here.

In his excellent monograph on the recent and fossil species of *Cancer*, Nations (1975) recognized four subgenera—*Cancer*, *Romaleon*, *Metacarcinus*, and *Glebocarcinus*, the last of which was

newly erected. Altogether 23 living species and all known extinct species are assigned to these four subgenera, primarily on characters of the carapace. While the systematic status of subgenera is probably considered valid, *Glebocarcinus* (with *C. oregonensis* as the type species) is without doubt identical to *Platepistoma*, which has been known previously as a genus distinct from *Cancer*. *Platepistoma* is now considered a subgenus of *Cancer*, replacing *Glebocarcinus* on the basis of priority. Of the species included by Nations (1975), *C. amphioetus* Rathbun, from the American and Japanese Pacific coasts, is so close to the extreme form of *C. oregonensis* that the correctness of its inclusion in the subgenus *Platepistoma* is without doubt, whereas the status of *C. tumifrons* Yokoya from Japan seems to be unsettled.

LITERATURE CITED

- BALSS, H. 1922. Diagnosen neuer japanischer Decapoden. Zool. Anz. 65: 1-6.
- NATIONS, J. D. 1975. The genus *Cancer* (Crustacea: Brachyura): systematics, biogeography and fossil record. Nat. Hist. Mus. Los Angeles Cty Sci. Bull. 23: 1-104.
- RATHBUN, M. J. 1906. The Brachyura and Macrura of the Hawaiian Islands. Bull. U.S. Fish Comm. 23: 827-930, pls. 1-24.
- . 1930. The cancroid crabs of America. Bull. U.S. Nat. Mus. 129. i-xvi+1-609, pls. 1-230.
- SAKAI, T. 1965. The crabs of Sagami Bay collected by His Majesty the Emperor of Japan. xvi+206+92+32 pp, 100 pls. Maruzen Co., Tokyo.
- TAKEDA, M., and S. MIYAKE. 1972. New crabs from the sea around the Tsushima Islands. Bull. Nat. Sci. Mus., Tokyo 15: 253-265.