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REDISCOVERY OF THREE SPECIES OF
BRACHYURA IN MALAYSIA

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The present paper records the rediscovery of three species of Brachyura: *Tylodiplax tetralyphorus* DE MAN 1895, *Macrophthalmus malaccensis* TWEEDIE 1937, *Dotilopsis profuga* (NOBILI 1903). The first species is endemic of West Malaysia and the third one endemic of East Malaysia. A fourth rare species *Dotilopsis brevitarsis* (DE MAN 1888) is also recorded.

The work was conducted in the National Museum of Singapore where the materials are deposited. We thank its Acting Director, Mr. Eric Alfred for his kind assistance.

Tylodiplax DE MAN 1895

DE MAN, 1895, p. 598.—ALCOCK, 1900, p. 375—TESCH, 1918, p. 69.—BARNARD, 1950, p. 107.—GUINOT et CROSNIER, 1963, p. 606 and 610.

DE MAN (1895) established *Tylodiplax* for *tetralyphorus* from Penang, which is the Type species of the genus and has since never been recorded or re-examined. GUINOT and CROSNIER (1963) reviewed the position of the three species included into *Tylodiplax* after DE MAN, namely: *indicus* ALCOCK 1900, *blephariskios* BARNARD 1950 and *derijardi* GUINOT and CROSNIER 1963; no specimen of *tetralyphorus* was available to them for examination. Our observations on the Type species lead to the conclusion that the other three species do not belong to *Tylodiplax*.

The authors classify *Tylodiplax* into the Macrophthalminae. The genus belongs to the Camptandriidae STIMPSON 1858, a taxon well established by the conspicuous shape of its male pleopods. The senior author in a paper under printing is re-establishing as sub-family of the Ocypodidae the Camptandriinae which includes: *Camptandrium*, *Cleistostoma*, *Paracleistostoma* and *Leipocten*.

Tylodiplax tetralyphorus DE MAN 1895

(Figs. 1 to 5. Pl. I top left)

Tylodipax tetralyphorus, DE MAN, 1895, p. 599, pl. 14, fig. 15 a-c.—TESCH, 1918, p. 69 (no specimen).

Material.—NMS. 1969.11.24.21-29, a series of nine specimens; the largest male 6.2 mm × 6.6 mm; loc. Pulau Tengah, Selangor, West Malaysia; Coll. Sase Kumar, 18/7/1969. Other materials—a series of male and female. Loc. Penang which is the type locality. Coll. Dr. J. A. Bullock, 1967; Symbiot of a polychaete (Terebellidae). Measurements of the largest male are:

Extraorbital breadth	6.5 mm
Breadth between antero-lateral angle	9.0 mm
Largest breadth of posterior border	7.0 mm
Median length	6.8 mm

Observations.—The species is characterised by on the carapace of the male 2 pairs of strong tubercles on the other species of the genus. The tubercles of the anterior pair are on each side at the posterolateral angle of the gastric region, those of the posterior pair are less salient and situated at the postero-lateral angle of the carapace. Only the posterior pair is faintly visible on the females.

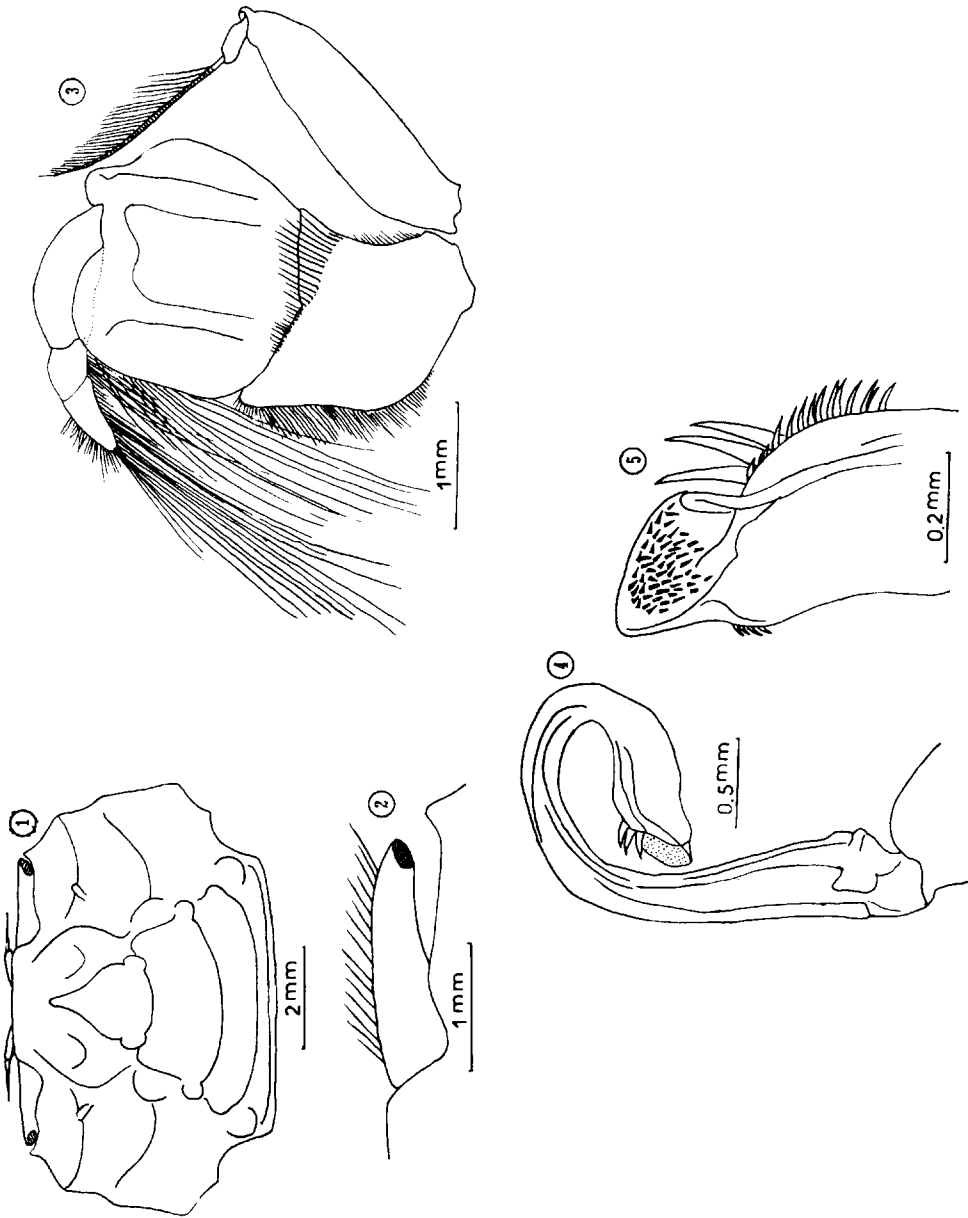
The outline of the carapace (Fig. 1) its relief and the presence on the males of two pairs of tubercles strongly differ from other species of the genus. The deep longitudinal grooves (Fig. 3) on the third maxilliped does not exist in the other species. The male pleopod (Figs. 4 and 5) at least by its apex strongly differ from that of *blephariskios* as illustrated by BARNARD (1965, fig. 7f.) and of *derijardi* as illustrated by GUINOT and CROSNIER (1963, fig. 9) and of *indicus* as illustrated by STEPHENSEN (1945, fig. 58a). Those observations lead to the conclusion that the species included into *Tylodiplax* are not congeneric with *tetrallyphorus*.

The junior author, who collected *tetrallyphorus* at Pulau Tengah was unable to confirm the association of the species with a polychaete as mentioned by Dr. Bullock on his collecting label of the Penang specimens. However, he recorded a dense population of the species (approximately 1,000 per square meter) in a limited area on firm mud. The species occur at about mean sea level on the pioneer mangrove zone at Pulau Tengah and along stream banks in the mangrove forests at Port Swettenham, Selangor. The present record in Selangor corresponds to a southern expansion of the geographical distribution of the species, which is still endemic of Malaysia.

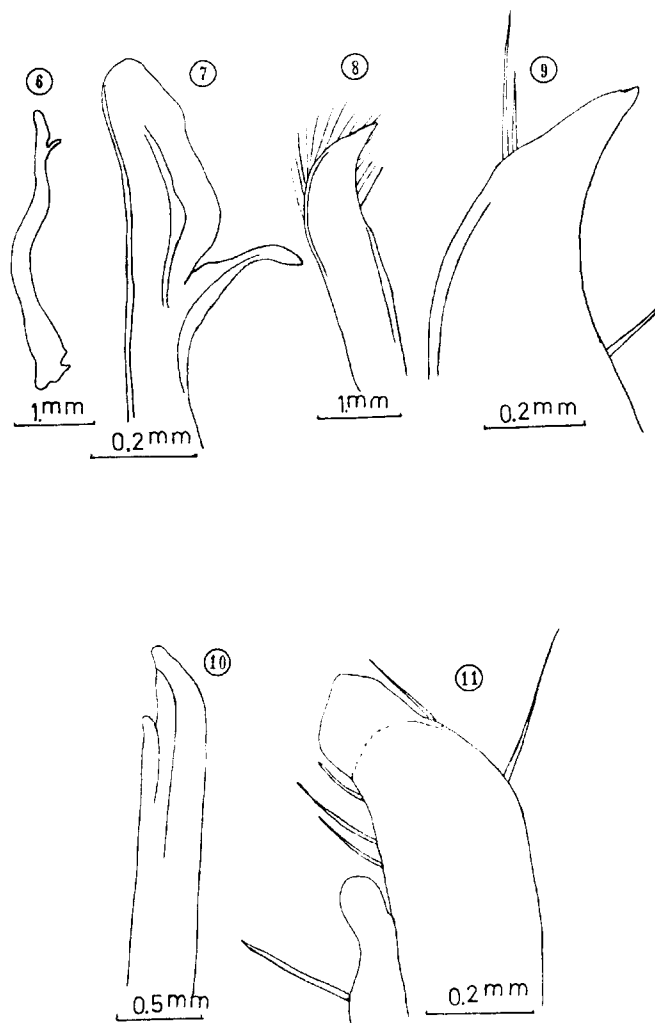
Dotilopsis KEMP 1919

KEMP, 1919, p. 334.

KEMP (1919) established the genus for two species of *Dotilla* namely *brevitarsis* DE MAN 1818 and *profuga* (NOBILI 1903). The former, apart from the original specimen was also recorded by KEMP (1919) and TWEEDIE (1937) and again collected by us. The re-discovery of the latter permits its illustration, as well as to precise the separation of the two species.



Figs. 1-5. *Tylodiplax tetralyphorus*, male of 6.5 mm \times 6.8 mm: 1, dorsal view of carapace; 2, eye-stalk; 3, third maxilliped; 4 and 5, pleopod 1 of male of 5.5 mm \times 6.0 mm.



FIGS. 6-11. *Dotillopsis brevitarsis*, male of 11.3 mm \times 9.0 mm: 6 and 7, pleopod 1. *Dotillopsis profuga*, male of 15.3 mm \times 12.6 mm: 8 and 9, pleopod 1. *Macrophthalmus malaccensis*, male of 22 mm \times 10 mm: 10 and 11, pleopod 1.

***Dotilopsis brevitaris* (DE MAN 1818)**

(Figs. 6 and 7. Pl. II top and bottom left)

Dotilla brevitaris, DE MAN, 1818, p. 130, pl. 10, fig. 1-3.—ALCOCK, 1900, p. 367.

Dotilopsis brevitaris, KEMP, 1919, p. 335, pl. 13, fig. 1.—TWEEDIE, 1937, p. 147.

Material.—NMS. 1970.1.20.17, male of 11.3 mm × 9.0 mm, Loc. Muar, west coast of west Malaysia, Coll. 1938, Det. Tweedie.

Observations.—DE MAN (1818) described *brevitaris* for 4 specimens from Mergui Achipelago. The Holotype, a male is probably in the British Museum and three other syntypes are in the Indian Museum, Calcutta.

KEMP (1919) records specimens from the Ganges Delta and TWEEDIE (1937) from Port Swettenham and Muar on the west coast of West Malaysia. The present specimens are mainly recorded in order to serve as comparative material with *profuga*. The junior author in an ecological survey conducted in the mangrove forests at Port Swettenham collected the species at low tide levels on the soft muds of the Klang River estuary. The senior author identified specimens of *brevitaris* collected at Phuket (Thailand) by Mr. Lundoer of the Phuket Marine Biological Centre. The geographical distribution of the species extend from the west coast of Malaysia to the Ganges Delta.

***Dotilopsis profuga* (NOBILI 1903)**

(Figs. 8 and 9. Pl. II top and bottom right)

Dotilla profuga, NOBILI, 1903 p. 22.

Dotilopsis profuga, KEMP, 1919, p. 336 (no specimen).

Material.—NMS. 1965.7.15.185-191, the largest male of 15.3 mm × 12.6 mm, Loc. Kuching, Sarawak. Coll. J. Crane. 8/1955. Tweedie det. The specimens maintained in the National Museum of Singapore have never been recorded in literature. They generally agree with the description of NOBILI (1903) who collected the specimens at the upper Sadong River, Borneo. Holotype, a male of 11 mm × 10 mm is deposited in the Torino Museum and 3 syntypes, 2 males and a female are deposited in the Sarawak Museum.

Observations.—NOBILI (1903) separated the species from *brevitaris* by the following characters: 1) the less granular carapace with the dorsal medial groove limited to the anterior part. — 2) the indistinct sculpture of the lateral borders of the carapace. — 3) the absence of a hairy longitudinal crest on the inner and outer surfaces of the palm of the cheliped and the more hairy ambulatory legs.

Our illustrations demonstrate the discrepancies of the carapace and chelipeds in the two species. KEMP (1919) without examining any specimens, in his key defined *profuga* "without longitudinal carinae on the palm of the cheliped". In fact the two species have a carina on the lower part of the outer surfaces of the palm continuing onto the fixed finger. The carina on *brevitarsis* continues all along towards the proximal part of the palm while on *profuga* it does not extend beyond the middle of the palm. On the anterior border of meri of pereopods 3 and 4 the spinules are comparatively stronger on our specimens of *profuga* than on those of *brevitarsis*, but this character is perhaps related to the larger size of the specimens. The ventral parts of the ambulatory legs are slightly more densely tomentose in *profuga* than in the other species. The male pleopods are different in the two species (Fig. 9). The distal parts of the pleopods in *brevitarsis* are bare while on *profuga* they are ornamented with long setae, a few of which are only indicated on figure 9. This species is endemic of Sarawak.

Macrophthalmus (Macrophthalmus) sulcatus malaccensis

TWEEDIE 1937

Macrophthalmus malaccensis, TWEEDIE, 1937, p. 167, fig. 9a-b. — CROSNIER, 1965, p. 129 (no specimen).

Macrophthalmus (Macrophthalmus) malaccensis, BARNES, 1967, p. 203 (no specimen).

Macrophthalmus carinimanus, LANCHESTER, 1900, p. 258. — not *carinimanus* H. MILNE EDWARDS, 1837 (= *brevis*).

Macrophthalmus dilatatus sulcatus, BARNES, 1970, p. 216. (pars), fig. 4a, b.

Macrophthalmus sandakani, RATHBUN, 1914, p. 82.

Nec *Macrophthalmus sandakani*, RATHBUN, 1924, p. 12, pl. 1, fig. 7? = *M. crassipes* (fode BARNES, 1967).

Type locality: Morib, Selangor, Malaysia.

Type specimen: British Museum.

Material.—NMS. 1965.7.20.49, male of 9 mm × 21 mm and 2 female of the same size. Syntypes of TWEEDIE. The following new material constitutes a rediscovery. NMS. 1970.1.19.1, male of 9 mm × 19 mm from Morib, Coll. Sase Kumar 10/10/1969. NMS. 1970.1.23.25, a series of 3 males, the largest of 10 mm × 22 mm, Loc: Ang Hui, Thailand, Coll. N. A. Meinkoth, 5/10/1957. Two other syntypes a male (9.5 mm × 21.4 mm) and a female from Morib are in the British Museum (1937: 11.5.167–168) and have been examined by BARNES (1970).

Remarks on the situation of *malaccensis*.—BARNES (1970) makes *sulcatus* a subspecies of *dilatatus* and establishes *sandakani* and *malaccensis* as synonym of that subspecies; *dilatatus* being from Japan and North China, *malaccensis* from the Malayan Peninsula and *sulcatus* from Indian Ocean, BARNES (1970) states that: “the series of species” *dilatatus-malaccensis-sulcatus*” show indications of a continuous change in a number of independent characters from the North East to the South and West. Even the division into a northern and a southern subspecies may, therefore, be drawing a non-existing distinction, but “*sulcatus*” and “*malaccensis*” at our present stage of knowledge appear to be more closely allied to each other than “*malaccensis*” is to “*dilatatus*”.

BARNES (1970) suggests that examination of more material from South China Sea would demonstrate as far as *sulcatus* is different from *dilatatus* and from the Gulf of Bengal as far as *Malaccensis* differs from *sulcatus*.

On the illustrations of KEMP (1919, pl. 14, fig. 3-5) the external orbital angle is very short with its tip bent backward and in fig. 5 crossing the border of the first antero-lateral tooth. Such a condition clearly differs from that illustrated by TWEEDIE (1937, fig. 9a) for *malaccensis* and BARNES (1970, fig. 4a) for *sulcatus*. The drawings of BARNES are probably those of the syntypes of *malaccensis*. No information exists on the shape of the external orbital angle on the type specimen. At least provisionally we prefer to maintain *sulcatus* at the specific level and make *malaccensis* a subspecies of *sulcatus*.

BARNES (1970) indicates that the close species *grandidieri* is the correspondent of *sulcatus* on the African coast of the Indian Ocean and make *hilgendorfi* a synonym of *grandidieri*. Similarly, he makes *travancorensis* a synonyme of *brevis*. In all those cases BARNES gives only the value of an intraspecific variation to the differently shaped external orbital angle. By provisionally using such a character to define subspecies we aim to call attention on the need of more observations related to those variations.

Observations.—The male from Morib has a low long but clear proximal teeth on the cutting edge of the dactylus. TWEEDIE mentions “a very obscure truncate tooth near the base” and his figure is insufficiently clear. The tooth is obscure on the specimens from Thailand. The pleopod as habitual in *Macrophthalmus* is distally covered by dense setae. On figure 11 the setae are removed, but some are maintained to indicate their size. The most significant character of the pleopod is the preapical lobe (Fig. 10). The specimens from Thailand extend the geographical distribution of the species to the mouth of the Menam River. The species occur in puddles of water about low tide levels on the sandy/muddy beach at Morib, Selangor,

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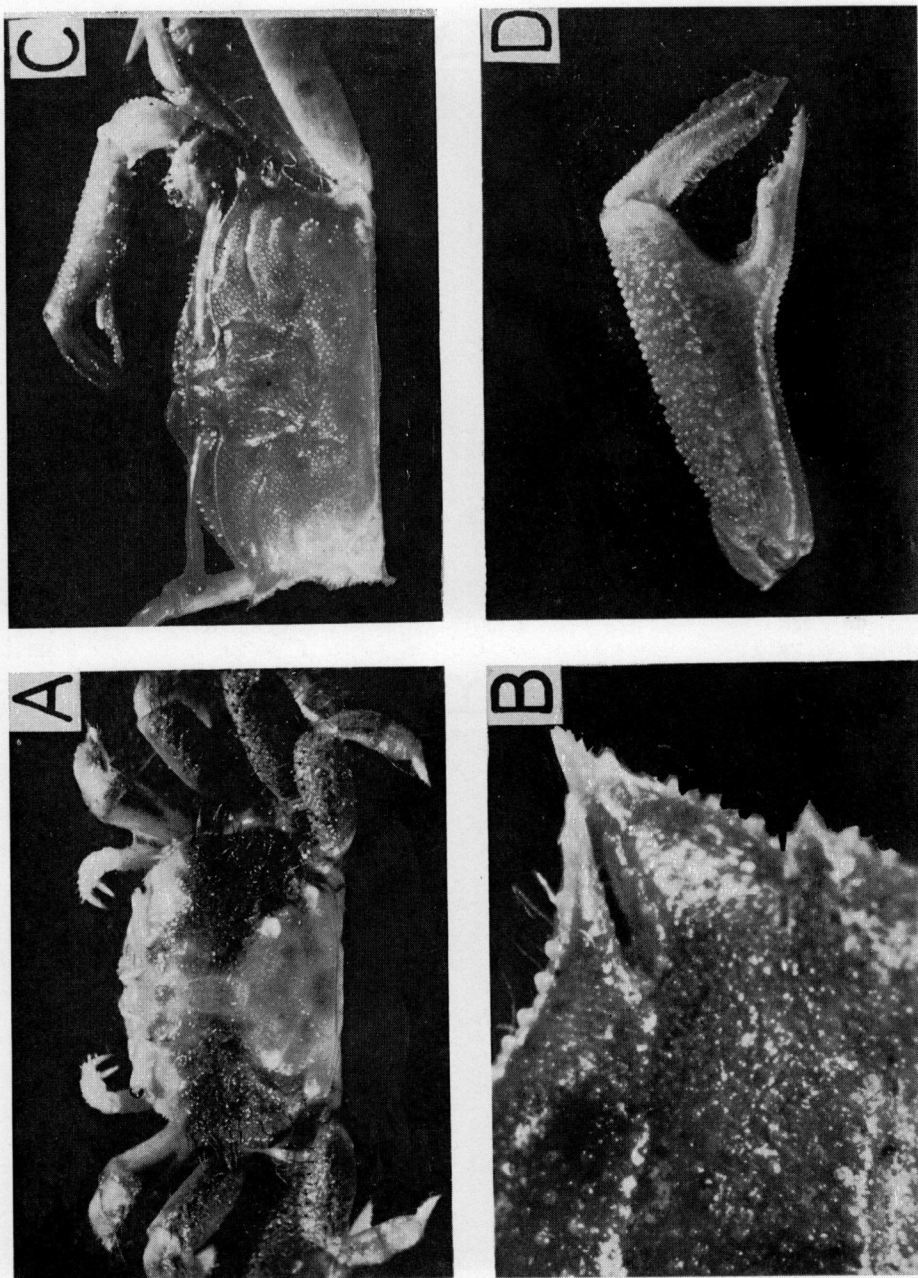


PLATE IX. A, *Tylodioplax tetralyphorus*, male of 6.2 mm \times 6.5 mm: dorsal view of animal.—B, *Macrophectatus malaccensis*, male of 22.0 mm \times 10 mm: antero-lateral part of carapace.—C, id., male of 22.0 mm \times 10 mm: dorsal view of animal.—D, id., cheliped.

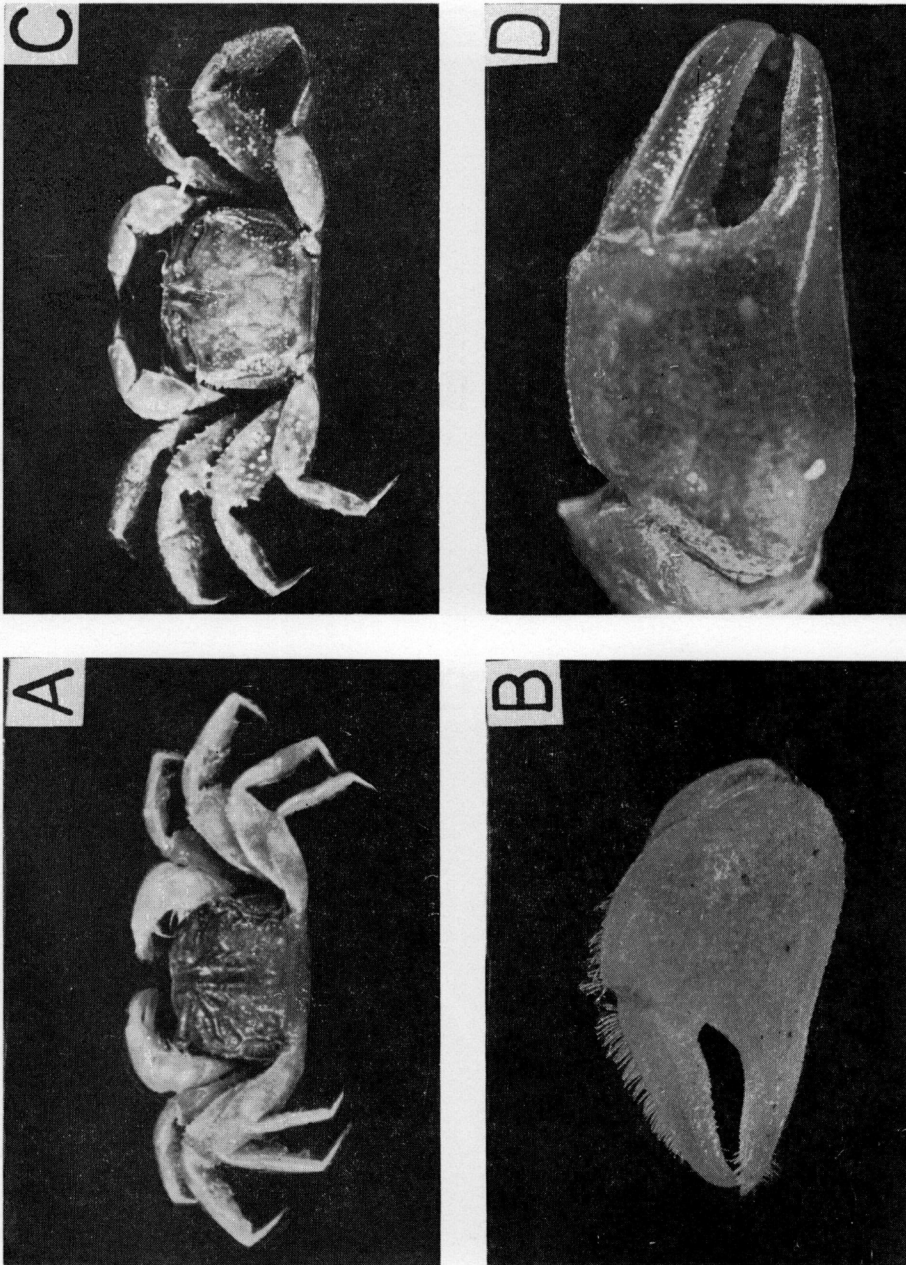


PLATE X. A. *Dotilopsis brevitarsis*, male of 11.3 mm \times 9.0 mm, dorsal view.—B, id., cheliped.—
C. *Dotilopsis profuga*, male of 15.3 mm \times 12.6 mm, dorsal view.—D, id., cheliped