

# Crustacea Decapoda : Notes on trapeziid crabs from New Caledonia including descriptions of two new species

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## ABSTRACT

Four genera and seven species of trapeziid crabs are identified from recent collections taken in New Caledonia. Descriptions and illustrations are given for new species; *Calocarcinus crosnieri* and *Tetralia sanguineomaculata*. New

records are reported for *Calocarcinus africanus*, *Quadrella maculosa* and *Trapezia guttata*. *Trapezia cymodoce* and *T. septata*, identified by A. MILNE EDWARDS from New Caledonia under the wrong names, are commented upon.

## RÉSUMÉ

**Crustacea Decapoda : Note sur des crabes de la famille des Trapeziidae récoltés en Nouvelle-Calédonie. Description de deux espèces nouvelles.**

Sept espèces appartenant à quatre genres de la famille des Trapeziidae ont été identifiées dans des récoltes faites récemment en Nouvelle-Calédonie. Deux espèces nouvelles, *Calo-*

*carcinus crosnieri* et *Tetralia sanguineomaculata*, sont décrites et figurées. Trois espèces, *Calocarcinus africanus*, *Quadrella maculosa* et *Trapezia guttata* sont signalées dans cette région pour la première fois. Enfin il est traité de *Trapezia cymodoce* et *T. septata*, déjà mentionnées en Nouvelle-Calédonie par A. MILNE EDWARDS mais sous des noms erronés.

## INTRODUCTION

Dr A. CROSNIER provided the impetus for this work by sending us a large collection of trapeziid crabs he assembled with Dr B. RICHER DE FORGES from live corals during the 1984-1986 MUSORSTOM and CHALCAL expeditions to New Caledonia. Further material was made available by the ORSTOM centre at Nouméa from their faunal study of the New Caledonia lagoon.

The trapeziid crabs of New Caledonia were first described by A. MILNE EDWARDS (1873). Since then only members of the genus *Tetralia* have been reported from New Caledonia (SERÈNE, 1973b and TAKEDA & NUNOMURA, 1976).

MUSORSTOM material, having been collected from a wider variety of corals than those obtained by A. MILNE EDWARDS, includes two new species, *Calocarcinus crosnieri* and *Tetralia sanguineomaculata* and several new records; *Calocarcinus africanus* a rare deep-water trapeziid, *Quadrella maculosa* an octocorallian associate and *Trapezia guttata* associated with pocilloporid corals. The latter species, though seemingly ubiquitous throughout the Indo-Pacific, has not been mentioned from New Caledonia. The study

of this extensive collection raises doubts concerning the identifications of *Trapezia cymodoce* and *T. areolata inermis* by A. MILNE EDWARDS. Access to the material of A. MILNE EDWARDS, housed in the Muséum national d'Histoire naturelle, Paris, was graciously permitted to GALIL by Dr J. FOREST on her visit in 1980 and by Dr A. CROSNIER to CLARK in 1986. Much of the groundwork for the generic and specific assignments presented here was laid in earlier papers dealing with the taxonomy of the Trapeziidae (TAKEDA & GALIL, 1980; GALIL & LEWINSON, 1983, 1984, 1985a & b; GALIL 1986a & b).

The MUSORSTOM material is deposited in the Muséum national d'Histoire naturelle, Paris, (MNHN); British Museum (Natural History), (BMNH); and the Zoological Museum of Tel Aviv University, (TAU). Abbreviations used cw. = carapace width, cl. = carapace length and stn = station. Drawings were made with the aid of a camera lucida and an Olympus BH-2 microscope with Nomarski interference contrast was used for the high magnification figures of the first male pleopods.

## SYSTEMATIC ACCOUNT

*Calocarcinus africanus* Calman, 1909

Fig. 1 a-e

*Calocarcinus africanus* Calman, 1909a : 31. — DE MAN, 1928 : 23, figs 4, 4 a. — SERÈNE, 1968 : 89; 1984 : 291, figs 198, 200, pl. 42F.

MATERIAL EXAMINED. — **New Caledonia.** MUSORSTOM 4 : stn CP 180, 18°56.80' S, 163°17.70' E, 440 m, 18.09.1985 : 1 ♂, 1 ♀ (MNHN-B 18185). — Stn CP 236, 22°11.30' S, 167°15.00' E, 498-550 m, 2.10.1985 : 3 ♂ (MNHN-B 18183). — Stn CP 238, 23°13.00' S, 167°14.00' E, 500-510 m, 2.10.1985 : 1 ♀ (MNHN-B 18182).

CHALCAL 2 : stn CP 25, 23°38.6' S, 167°

43.12' E, 418 m, 30.10.1986 : 1 ♂ (MNHN-B 18934), 1 ♂ (MNHN-B 18938), 1 ♀ (MNHN-B 18936). — Stn CC 4, 23°38.38' S, 167°43.57' E, 424 m, 30.10.1986 : 1 ♀ (MNHN-B 18935). — Stn DW 77, 23°38.35' S, 167°42.68' E, 435 m, 30.10.1986 : 3 ♂, 5 ♀ (MNHN-B 18933).

**Iles Chesterfield.** MUSORSTOM 5 : stn DW 272, 24°40.91' S, 159°43.00' E, 500-540 m, 9.10.1986 : 1 ♂ (MNHN-B 18937).

**Between Aden and Zanzibar,** 1 098 m : 1 ♂, 2 ♀ syntypes (BMNH 1908.10.23.1-3).

**Indonesia.** C/S Recorder : 10°30' S, 126°35' E, South of Timor, Sahul Bank, 183 m : 4 ♀ (BMNH 1919.9.1.1-4).

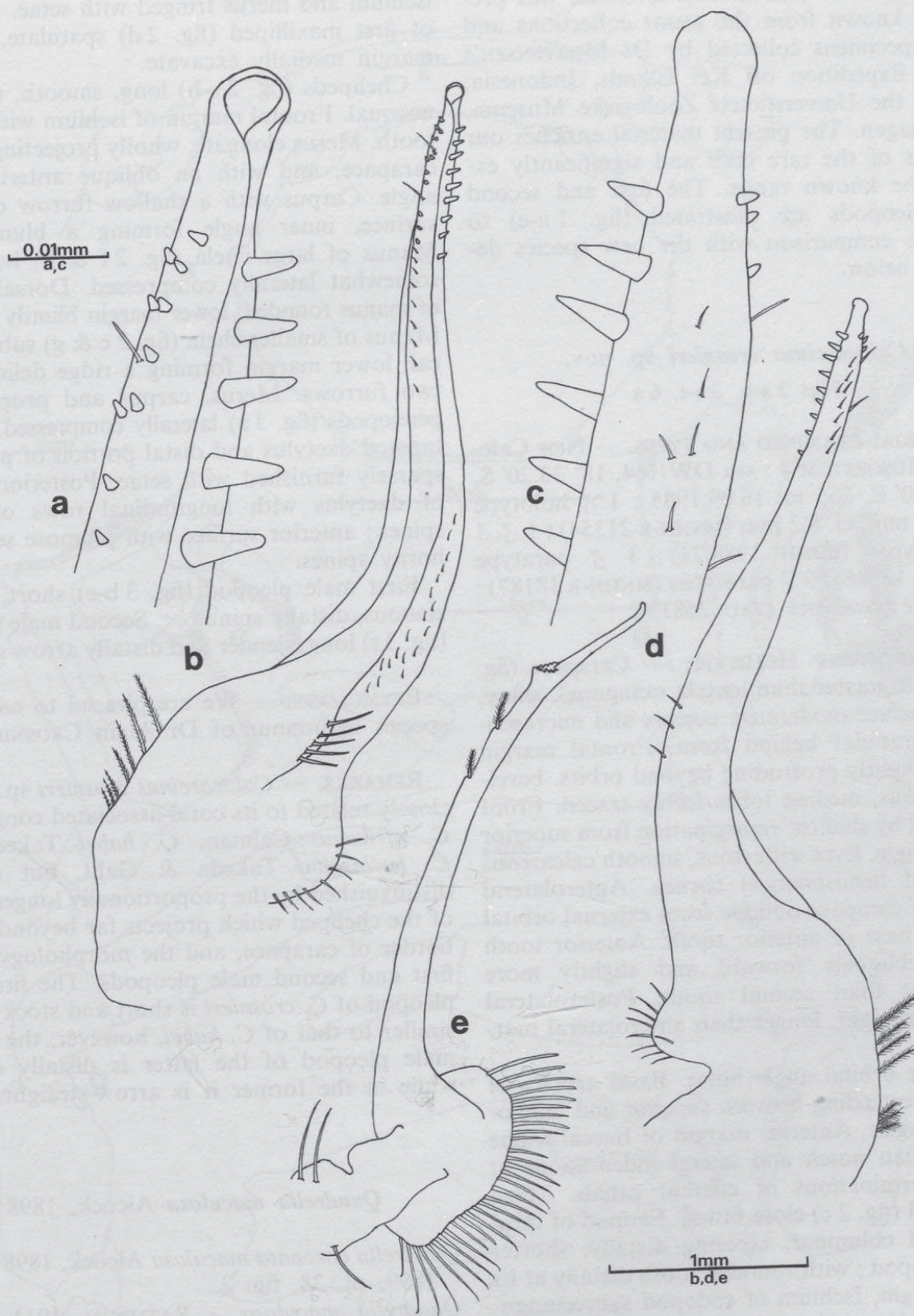


FIG. 1. — *Calocarcinus africanus* Calman, ♂ type, BMNH 1908.10.23.1-3; a-b. ventral aspect of first right pleopod; c-d. dorsal aspect of first right pleopod; e. lateral aspect of second left pleopod.

REMARKS. — *Calocarcinus africanus* was previously known from the BMNH collections and seven specimens collected by Dr MORTENSEN'S Pacific Expedition off Kei Islands, Indonesia, now in the Universitetets Zoologiske Museum, Copenhagen. The present material enriches our holdings of the rare crab and significantly extends the known range. The first and second male pleopods are illustrated (fig. 1 a-e) to facilitate comparison with the new species described below.

*Calocarcinus crosnieri* sp. nov.

Figs 2 a-h, 3 a-f, 6 a

MATERIAL EXAMINED AND TYPES. — **New Caledonia.** MUSORSTOM 4 : stn DW 164, 18° 33.20' S, 163°13.00' E, 255 m, 16.09.1985 : 1 ♂ holotype cw. 10.5 mm, cl. 8.2 mm (MNHN-B 21354) ; 1 ♂, 1 ♀ paratypes (BMNH 1988:23) ; 1 ♂ paratype (MNHN-B 18186) ; 3 ♀ paratypes (MNHN-B 18187) ; 1 ♂, 1 ♀ paratypes (TAU 26819).

DESCRIPTION OF HOLOTYPE. — Carapace (fig. 2 a) width greater than length, octagonal, shiny, dorsal surface moderately convex and microscopically granular behind front. Frontal margin (fig. 2 b) lightly protruding beyond orbits, beveled, sinuous, median lobes feebly traced. Front separated by shallow emargination from superior orbital angle. Eyes with stout, smooth calcareous stalk and hemispherical cornea. Anterolateral border of carapace oblique from external orbital angle to base of anterior tooth. Anterior tooth curved obliquely forward and slightly more prominent than second tooth. Posterolateral margins straight, longer than anterolateral margins.

Inferior orbital angle blunt. Basal articles of antennae extending between superior and inferior orbital angles. Anterior margin of buccal frame with median notch and lateral indentations at arched terminations of efferent canals. Third maxilliped (fig. 2 c) close fitting. Exopod of third maxilliped columnar, tapering distally, shorter than endopod ; with rounded tooth distally at its inner margin. Ischium of endopod subrectangular, lateral margins almost parallel. Shallow longitudinal sulcus near internal margin. Inner distal angle of merus excavate, outer distal angle produced and rounded. Internal margins of both

ischium and merus fringed with setae. Endopod of first maxilliped (fig. 2 d) spatulate, anterior margin medially excavate.

Chelipeds (fig. 2 e-h) long, smooth, markedly unequal. Frontal margin of ischium with conical tooth. Merus elongate, wholly projecting beyond carapace, and with an oblique anterior distal angle. Carpus with a shallow furrow on upper surface, inner angle forming a blunt tooth. Manus of large chela (fig. 2 f & h) bulky and somewhat laterally compressed. Dorsal margin of manus rounded, lower margin bluntly carinate. Manus of smaller chela (fig. 2 e & g) subcylindrical, lower margin forming a ridge delimited by two furrows. Merus, carpus and propodus of pereopods (fig. 3 a) laterally compressed. Curved tapered dactylus and distal portion of propodus sparsely furnished with setae. Posterior surface of dactylus with longitudinal rows of horny spines ; anterior surface with plumose setae and horny spines.

First male pleopod (fig. 3 b-e) short, stocky, sinuous, distally spinulose. Second male pleopod (fig. 3 f) long, slender and distally arrow straight.

ETYMOLOGY. — We are pleased to name this species in honour of Dr Alain CROSNIER.

REMARKS. — *Calocarcinus crosnieri* sp. nov. is closely related to its coral-associated congeners *C. africanus* Calman, *C. habeii* Takeda and *C. lewinsohni* Takeda & Galil, but can be distinguished by the proportionally longer merus of the cheliped which projects far beyond lateral border of carapace, and the morphology of the first and second male pleopods. The first male pleopod of *C. crosnieri* is short and stocky being similar to that of *C. habeii*, however, the second male pleopod of the latter is distally curved, while in the former it is arrow-straight.

*Quadrella maculosa* Alcock, 1898

*Quadrella coronata maculosa* Alcock, 1898 : 226 ; 1899, pl. 38, fig. 2.

*Quadrella maculosa*. - RATHBUN, 1911 : 235 (part). — GUINOT, 1967 : 285. — SERÈNE, 1968 : 89 ; 1973a : 204, figs 4 & 9, 20-22, pl. 3 ; 1975 : 513 ; 1984 : 288, fig. 194, pl. 41E. — GARTH 1971 : 188. — GALIL & TAKEDA, 1985 : 203. —

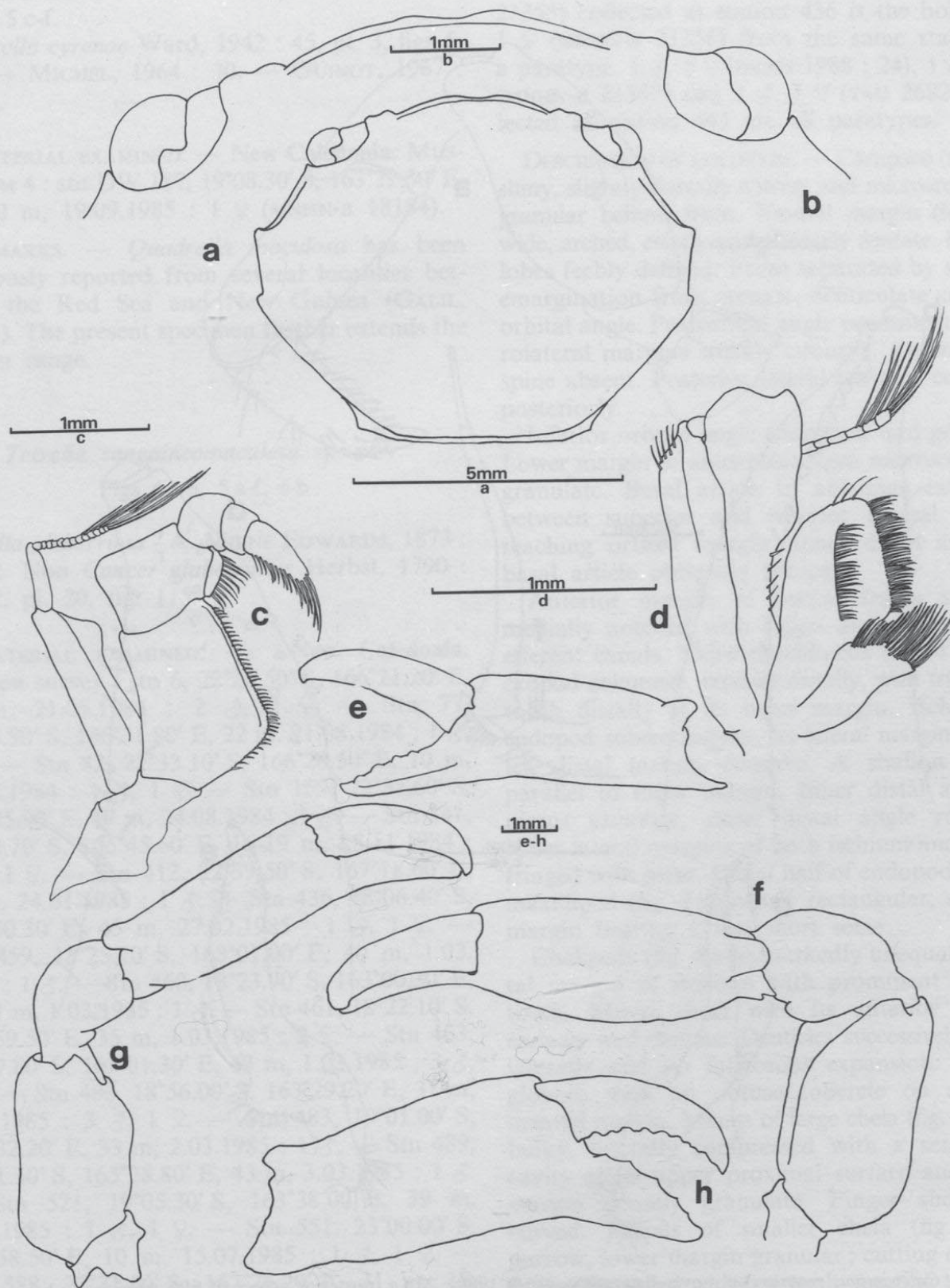


FIG. 2. — *Calocarcinus crosnieri* sp. nov., ♂ paratype, BMNH 1988 : 23 ; dorsal aspect of, a. carapace, b. frontal margin ; ventral aspect of, c. third maxilliped, d. first maxilliped ; e. anterior aspect of small cheliped ; dorsal aspect of, f. small cheliped, g. large cheliped ; h. anterior aspect of large cheliped.

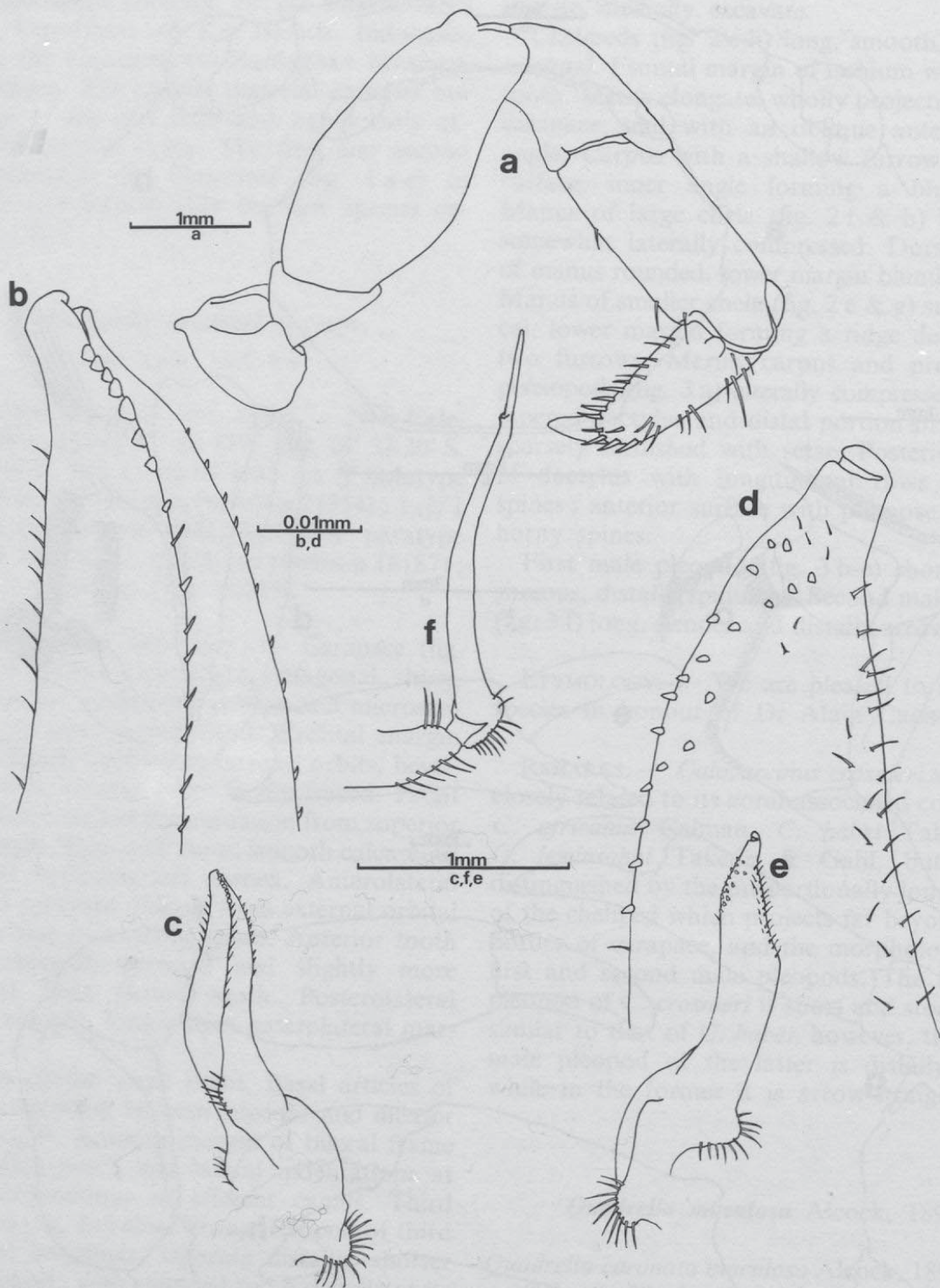


FIG. 3. — *Calocarcinus crosnieri* sp. nov., ♂ paratype, BMNH 1988 : 23 ; a. posterior aspect of fifth pereiopod ; b-c. ventral aspect of first left pleopod ; d-e. dorsal aspect of first left pleopod ; f. lateral aspect of second left pleopod.

SERÈNE *et al.*, 1974 : 24. — GALIL, 1986a : 285, fig. 5 c-f.

*Quadrella cyrenae* Ward, 1942 : 45, pl. 3, figs 5, 6. — MICHEL, 1964 : 30. — GUINOT, 1967 : 275.

MATERIAL EXAMINED. — **New Caledonia.** MUSORSTOM 4 : stn DW 187, 19°08.30' S, 163°29.30' E, 65-120 m, 19.09.1985 : 1 ♀ (MNHN-B 18184).

REMARKS. — *Quadrella maculosa* has been previously reported from several localities between the Red Sea and New Guinea (GALIL, 1986a). The present specimen further extends the known range.

*Tetralia sanguineomaculata* sp. nov.

Figs 4 a-h, 5 a-f, 6 b

*Tetralia glaberrima* - A. MILNE EDWARDS, 1873 : 262. *Non Cancer glaberrimus* Herbst, 1790 : 262, pl. 20, fig. 115.

MATERIAL EXAMINED. — **New Caledonia.** Lagoon survey : stn 6, 22°25.50' S, 166°21.20' E, 12 m, 21.05.1984 : 2 ♂, 2 ♀. — Stn 77, 22°25.90' S, 166°31.80' E, 22 m, 21.08.1984 : 1 ♂, 2 ♀. — Stn 82, 22°33.10' S, 166°28.50' E, 10 m, 28.08.1984 : 1 ♂, 1 ♀. — Stn 159, 22°37.60' S, 166°35.90' E, 17 m, 24.08.1984 : 1 ♂. — Stn 341, 22°48.70' S, 166°45.60' E, 16-19 m, 28.11.1984 : 1 ♂, 1 ♀. — Stn 412, 22°39.50' S, 167°18.60' E, 40 m, 24.01.1985 : 1 ♂. — Stn 436, 18°06.40' S, 162°50.30' E, 45 m, 27.02.1985 : 1 ♂, 1 ♀. — Stn 459, 18°25.70' S, 163°01.00' E, 40 m, 1.03.1985 : 1 ♂. — Stn 460, 18°23.90' S, 163°00.30' E, 37-41 m, 1.03.1985 : 1 ♂. — Stn 461, 18°22.10' S, 162°59.50' E, 35 m, 1.03.1985 : 2 ♀. — Stn 463, 18°19.80' S, 163°01.30' E, 43 m, 1.03.1985 : 3 ♂, 3 ♀. — Stn 480, 18°56.00' S, 163°29.20' E, 31 m, 2.03.1985 : 3 ♂, 1 ♀. — Stn 483, 19°01.00' S, 163°32.20' E, 33 m, 2.03.1985 : 1 ♂. — Stn 489, 18°51.30' S, 163°28.80' E, 43 m, 3.03.1985 : 1 ♂. — Stn 521, 19°05.30' S, 163°38.00' E, 39 m, 5.03.1985 : 1 ♂, 1 ♀. — Stn 551, 23°00.00' S, 166°58.50' E, 10 m, 15.07.1985 : 1 ♂, 1 ♀. — Stn 588, 22°31.60' S, 167°26.20' E, 31 m, 18.07.1985 : 1 ♂, 2 ♀.

**New Caledonia.** Material identified as *Tetralia glaberrima* by A. MILNE EDWARDS : 3 ♂, 3 ♀ (MNHN-B 2907).

TYPE MATERIAL. — 1 ♂ cw. 6.6 mm (MNHN-B 21355) collected at station 436 is the holotype. 1 ♀ (MNHN-B 21356) from the same station is a paratype. 1 ♂, 1 ♀ (BMNH 1988 : 24), 1 ♂, 1 ♀ (MNHN-B 21357) and 1 ♂, 1 ♀ (TAU 26820) collected at station 463 are all paratypes.

DESCRIPTION OF HOLOTYPE. — Carapace (fig. 4 a) shiny, slightly dorsally convex and microscopically granular behind front. Frontal margin (fig. 4 b) wide, arched, evenly and minutely dentate. Median lobes feebly defined. Front separated by shallow emargination from crenate, denticulate superior orbital angle. Postorbital angle prominent. Anterolateral margins weakly concave. Epibranchial spine absent. Posterior lateral margins converge posteriorly.

Inferior orbital angle triangular and granular. Lower margin of antennular fossa microscopically granulate. Basal article of antennae extending between superior and inferior orbital angles, reaching orbital margin. Inner distal angle of basal article obliquely truncate.

Anterior margin of buccal frame sinuous, medially notched with ridges at termination of efferent canals. Third maxillipeds (fig. 4 c) with exopod columnar, tapered distally, with triangular tooth distally at its inner margin. Ischium of endopod subrectangular, its lateral margins parallel, distal margin concave. A shallow sulcus parallel to inner margin. Inner distal angle of merus excavate, outer distal angle rounded. Inner lateral margins of both ischium and merus fringed with setae. Distal half of endopod of first maxilliped (fig. 4 d) nearly rectangular, anterior margin bearing a few short setae.

Chelipeds (fig. 4 e-h) markedly unequal. Frontal margin of ischium with prominent arcuate tooth. Merus short with its anterior margin carinate and dentate. Denticles successively larger laterally and no foliaceous expansion. Carpus globose with an obtuse tubercle on anterior internal margin. Manus of large chela (fig. 4 e & f) bulky, laterally compressed with a setae-filled cavity at its upper proximal surface and lower margin densely granulate. Finger short and curved. Manus of smaller chela (fig. 4 g-h) narrow, lower margin granular; cutting edges of fingers furnished with few teeth, meeting throughout. Merus of pereopods (fig. 5 a) laterally flattened, dorsal margins cristate. Posterior margin of fifth pereopod propodus fringed with long setae. Dactylus (fig. 5 b) short, with cornute tip.

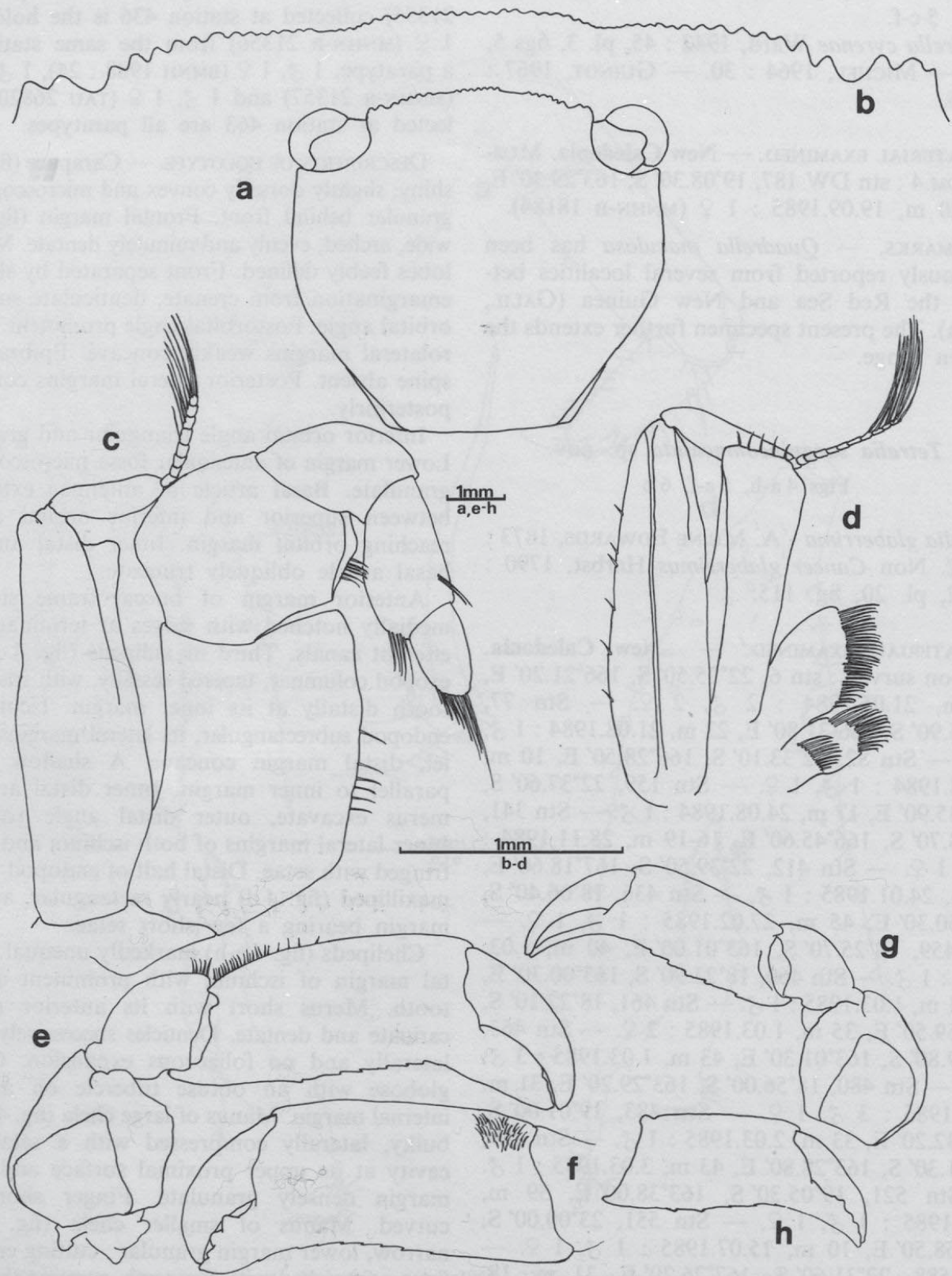


FIG. 4. — *Tetralia sanguineomaculata* sp. nov., ♂ paratype, BMNH 1988 : 24 ; dorsal aspect of, a. carapace, b. frontal margin ; ventral aspect of, c. third maxilliped, d. first maxilliped ; large cheliped, e. dorsal aspect, f. anterior aspect ; small cheliped, g. dorsal aspect ; h. anterior aspect.



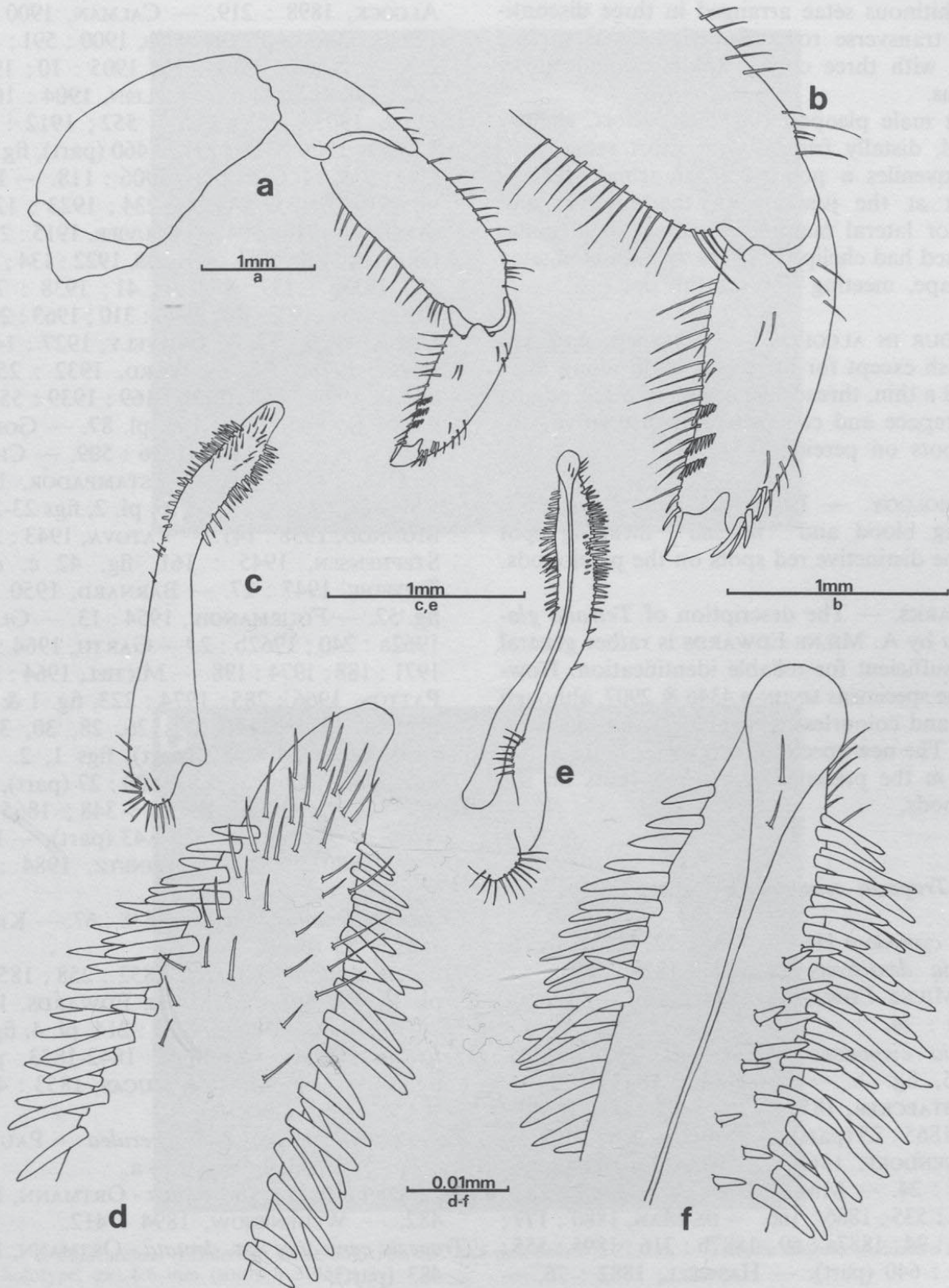


FIG. 5. — *Tetralia sanguineomaculata* sp. nov., ♂ paratype, BMNH 1988 : 24 ; posterior aspect of, a. fifth pereiopod, b. dactylus of fifth pereiopod ; c-d. dorsal aspect of first left pleopod ; e-f. ventral aspect of first left pleopod.

Posterior distal surface of dactylus furnished with chitinous setae arranged in three discontinuous transverse rows. Superior distal surface setose, with three curved spines behind tip of dactylus.

First male pleopod (fig. 5 c-f) short, slightly tapered, distally fringed with short setae.

In juveniles a pointed epibranchial spine is present at the junction of the anterior and posterior lateral margins. Further, some males examined had cheliped fingers with an elongated oval gape, meeting only at the tips.

COLOUR IN ALCOHOL. — Carapace and legs yellowish except for light grey band along margin and a thin, thread-like orange-red line edging the carapace and chelipeds and distinctive reddish spots on pereopods.

ETYMOLOGY. — From the latin, “*sanguis*” meaning blood and “*macula*” meaning spot after the distinctive red spots on the pereopods.

REMARKS. — The description of *Tetralia glaberrima* by A. MILNE EDWARDS is rather general and insufficient for reliable identification. However, the specimens MNHN-B 4346 & 2907, although brittle and colourless, resemble *T. sanguineomaculata*. The new species is similar to *T. fulva*, but differs in the presence of the red spots on the pereopods.

*Trapezia cymodoce* (Herbst, 1801)

*Cancer cymodoce* Herbst, 1801 : 22, pl. 51, fig. 5.

*Trapezia dentifrons* Latreille, 1828 : 695. —

H. MILNE EDWARDS, 1834 : 428. — LUCAS, 1840 : 74.

*Trapezia cymodoce* - AUDOUIN, 1826 : 285, pl. 5, fig. 2. — DE HAAN, 1833 : 22. —

GERSTAECKER, 1857 : 125. — HELLER, 1861a :

13 ; 1865 : 25 (part). — COULON, 1864 : 569. —

HILGENDORF, 1869 : 76 (part), pl. 2, fig. 4 ;

1879 : 24. — MIERS, 1878 : 409 ; 1880 : 238 ;

1884 : 535 ; 1886 : 166. — DE MAN, 1880 : 177 ;

1881 : 94 ; 1887a : 69 ; 1887b : 316 ; 1895 : 555 ;

1902 : 640 (part). — HASWELL, 1882 : 76. —

WALKER, 1887 : 110. — CANO, 1888 : 172. —

POCOCK, 1890 : 73. — THALLWITZ, 1892 : 53. —

HENDERSON, 1893 : 366. — ZEHNTNER, 1894 :

156. — DEL PRATO, 1896 : 183. — ORTMANN,

1897 : 203. — WHITELEGGE, 1897 : 137 (part). —

ALCOCK, 1898 : 219. — CALMAN, 1900 : 20 ;

1909b : 705. — BORRADAILE, 1900 : 591 ; 1902 :

265. — NOBILI, 1901 : 15 ; 1905 : 10 ; 1906a :

292 ; 1906b : 143. — DOFLEIN, 1904 : 104. —

LENZ, 1905 : 351 ; 1910 : 552 ; 1912 : 4. —

LAURIE, 1906 : 410 ; 1915 : 460 (part), fig. 2. —

GRANT & McCULLOCH, 1906 : 118. — RATH-

BUN, 1910 : 359 ; 1911 : 234 ; 1923 : 129. —

STEBBING, 1910 : 304. — BOUVIER, 1915 : 272. —

GRAVIER 1920 : 469. — BALSS, 1922 : 134 ; 1924 :

13 ; 1935a : 139 ; 1935b : 41 ; 1938 : 72. —

EDMONSON, 1923 : 20 ; 1946 : 310 ; 1963 : 297. —

URITA, 1926 : 17. — GRAVELY, 1927 : 144. —

PESTA, 1928 : 72. — WARD, 1932 : 254. —

SAKAI, 1934 : 311 ; 1936 : 169 ; 1939 : 551, fig.

63. — BOONE, 1954 : 168, pl. 87. — GORDON,

1934 : 59. — MIYAKE, 1936 : 509. — CHOPRA

& DAS, 1937 : 410. — ESTAMPADOR, 1937 :

530. — GURNEY, 1938 : 76, pl. 2, figs 23-28. —

MONNOD, 1938 : 141. — VATOVA, 1943 : 21. —

STEPHENSEN, 1945 : 161, fig. 42 c, d. —

TWEEDIE, 1947 : 27. — BARNARD, 1950 : 275,

fig. 52. — FOURMANOIR, 1954 : 13. — GUINOT,

1962a : 240 ; 1962b : 2. — GARTH, 1964 : 140 ;

1971 : 188 ; 1974 : 198. — MICHEL, 1964 : 30. —

PATTON, 1966 : 285 ; 1974 : 223, fig. 1 & 2. —

SERÈNE, 1971 : 146, figs 26, 28, 30, 32. —

ODINETZ, 1984 : 432 (part), figs 1, 2.

*Trapezia coerulea* Rüppell, 1830 : 27 (part), pl. 5,

fig. 7. — HELLER, 1861b : 348 ; 1865 : 25

(part). — KOSSMAN, 1877 : 43 (part). — RICH-

TERS, 1880 : 152. — ODINETZ, 1984 : 438,

figs 3 a, 4 a.

*Grapsillus dentatus* Macleay, 1838 : 67. — KRAUSS,

1843 : 35 (part).

*Trapezia dentata* — DANA, 1852 : 258 ; 1855 : 6,

pl. 15, fig. 6. — A. MILNE EDWARDS, 1873 :

261. — KLUNZINGER, 1913 : 214, pl. 4, fig. 10.

*Trapezia hirtipes* Jacquinet, 1842-1853, pl. 4,

fig. 14. — JACQUINOT & LUCAS, 1853 : 44. —

WARD, 1939 : 13.

*Trapezia ferruginea* var. *coerulea* - PAULSON,

1875 : 53, pl. 7, figs 4, 4 a.

*Trapezia cymodoce* var. *typica* - ORTMANN, 1893 :

482. — WEDENISSOW, 1894 : 412.

*Trapezia cymodoce* var. *dentata* - ORTMANN, 1893 :

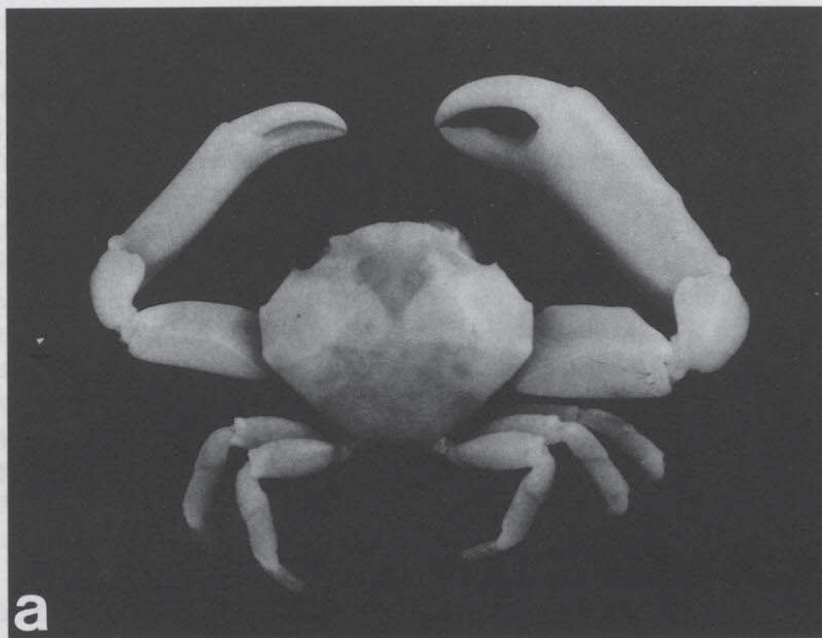
483 (part).

*Grapsillus cymodoce* - NOBILI, 1899 : 260. —

RATHBUN, 1906 : 865, pl. 11, fig. 6.

*Trapezia cymodoce dentata* - RATHBUN, 1907 : 58

(part).



a



b

FIG. 6. — a, *Calocarcinus crosnieri* sp. nov., holotype, cw. 10.5 mm (MNHN-B 21354). — *Tetralia sanguineomaculata* sp. nov., holotype, cw. 6.6 mm (MNHN-B 21355).

*Trapezia cymodoce ferruginea* - RATHBUN, 1907 : 58 (part).

non *Trapezia cymodoce* - GUÉRIN-MÉNEVILLE, 1831 : 11, pl. 1, fig. 4a-n. — RÜPPELL, 1830 : 27. — RANDALL, 1840 : 117. — DANA, 1852 : 257; 1855 : 6, pl. 15, fig. 5a-i. — HELLER, 1861b : 352. — SMITH, 1869 : 287. — A. MILNE EDWARDS, 1873 : 260; 1881 : 342. — LOCKINGTON, 1877 : 105. — CANO, 1889 : 211. — FAXON, 1895 : 22. — SENDLER, 1923 : 39; all = *Trapezia ferruginea* Latreille, 1825.

MATERIAL EXAMINED. — **New Caledonia.** Lagoon survey : 6-45 m, May 1984 - July 1985 : 93 ♂, 96 ♀ (MNHN).

**New Caledonia.** Material identified by A. MILNE EDWARDS as *Trapezia dentata* : 5 ♂, 2 ♀ (MNHN-B 2919); 3 ♂, 3 ♀ (MNHN-B 2990).

**Egypt, Gulf of Suez, Et Tur (Tor)** : January-July 1826, det. RÜPPELL (1830) as *Trapezia coerulea* : 11 ♂, 16 ♀ (SMF 4101).

REMARKS. — *Cancer cymodoce* was established by HERBST (1801 : 22), but his description was too superficial for taxonomic use and the accompanying illustration stylistic. This is, perhaps, the cause of the many subsequent misidentifications. In the years between the original description and the photograph published by RATHBUN (1906 : 865), defining the extant type of HERBST, numerous descriptions of *T. cymodoce* were added to the literature under different names. *Trapezia dentifrons* was depicted by LATREILLE (1828 : 695) as a variety of *T. cymodoce*, but our re-examination of the male type specimen showed this to belong to *T. cymodoce*. Henri MILNE EDWARDS (1834 : 428) and LUCAS (1840 : 74) erroneously followed LATREILLE. The material described by RÜPPELL from the Red Sea as *Trapezia coerulea* consists of 11 ♂ and 16 ♀ (SMF 4101), all have syntype status. This species was subsequently synonymised by DE MAN (1880 : 177) with *T. cymodoce*. GALIL (1988 : 161) borrowed the syntypes of RÜPPELL from the Senckenberg Museum and redetermined two of the specimens, 1 ♂, 1 ♀, as *T. ferruginea* (now SMF 11759), the remainder were confirmed as *T. cymodoce*. From this examination a male specimen of *T. cymodoce*, (cw. 15.8 mm, cl. 14.1 mm) was selected as a lectotype of *T. coerulea*, so as to make *T. coerulea* a junior synonym of *T. cymodoce*. The lectotype retained the original

registration number, SMF 4101 and a new registration number (SMF 177116) was issued to the rest of the 9 ♂ and 15 ♀ specimens. These specimens and those determined as *T. ferruginea* (SMF 11759) are consequently paralectotypes of *T. coerulea*. HELLER (1861b : 348 and 1865 : 25), KOSSMANN (1877 : 43), RICHTERS (1880 : 152) and ODINETZ (1984 : 438) compared their material with that of RÜPPELL and similarly identified *T. cymodoce* from the Red Sea as *T. coerulea*. PAULSON (1875) compounded the problem by labelling *T. cymodoce* from the Red Sea as *T. ferruginea* var. *coerulea*. A new species, *Grapsillus dentatus* was described by MACLEAY (1838 : 67) from South African material. Reviewing this collection, KRAUSS (1843 : 35) synonymised *T. ferruginea* (Latreille) and *T. cymodoce* sensu AUDOUIN (1826) under the name *G. dentatus* MacLeay. DANA (1852 : 258) did not accept the validity of *Grapsillus* and reassigned the species of MACLEAY to *Trapezia*. If the description and illustration (1885, pl. 15, fig. 6 a-d) by DANA of *T. dentata* are closely studied, it appears that this species is also identical to *T. cymodoce* (Herbst). Alphonse MILNE EDWARDS (1873 : 261), citing DANA and MACLEAY, records *T. dentata* from New Caledonia, but emphasises that his material is characterised by a pubescence on the external face of the cheliped. Apparently, A. MILNE EDWARDS presented two of these specimens to the Leiden Museum where they were examined by DE MAN (1880 : 177), who concluded that the *T. dentata* of A. MILNE EDWARDS was identical to *T. cymodoce* (Herbst). The present study confirms that the remaining New Caledonian material of A. MILNE EDWARDS held in the Paris Museum, is *T. cymodoce*. RATHBUN (1907 : 58) identified material from the South Pacific as *T. cymodoce dentata* (MacLeay). However, after checking with the specimens at the Museum of Comparative Zoology, Harvard, part of RATHBUN's material collected from Funafuti Reef on 24th December 1899, was redetermined as *T. cymodoce*. Although the type of *G. dentata* is no longer extant, GARTH (pers. comm.) has seen it and has confirmed that the material is referable to *T. cymodoce*. *Trapezia hirtipes*, from the Marquesas, was figured by JACQUINOT (1843-1853) and characterised by JACQUINOT & LUCAS (1853 : 44) as possessing a tomentum covering the surface of the chelae. The type material of *T. hirtipes* is still extant in the Paris Museum and

after examination, is here synonymised with *T. cymodoce*. ORTMANN (1893 : 481) divided *T. cymodoce* into three varieties because, in his opinion, all trapeziid species are of a uniform colour being differentiated only by unstable morphological characters. Of ORTMANN's material, only his specimens from Upolu, Samoa, were obtained for examination and although these were designated by him as *T. cymodoce* var. *dentata* Dana, they proved to be *T. cymodoce* (Herbst). *Trapezia cymodoce* (Herbst) and *T. ferruginea* (Latreille) have similar distributions, ranging from the Red Sea through to the Pacific Ocean, but only the latter species is found on the western coast of Central America. The poor original descriptions and overlapping ranges have contributed to the confusion between these two species. GUÉRIN-MÉNEVILLE (1831) illustrated what he considered *T. cymodoce* (pl. 1, fig. 4 a-n), however the shallow lobes of the frontal margin, the form of the carapace and the absence of a frontal spine at the angle of the cheliped carpus in his illustration are characters diagnostic of *T. ferruginea*. After 1830 a number of authors cited material of *T. ferruginea* under the incorrect name *T. cymodoce* Guérin-Méneville, viz. DANA (1852 : 257; 1855, pl. 15, fig. 5 a-i; Tahiti and Hawaii), HELLER (1861b : 352; 1865 : 25; Red Sea), SMITH (1869 : 287; west coast of tropical America), A. MILNE EDWARDS (1873 : 260; 1881 : 342; New Caledonia and Mexico respectively) and LOCKINGTON (1877 : 105; Panama). *Trapezia miniata* Jacquinet & Lucas, (1853 : 43) was synonymised by DANA (1852 : 258) and A. MILNE EDWARDS (1873 : 260; 1881 : 342), with *T. cymodoce*, and by ORTMANN (1893 : 483) with *T. cymodoce* var. *dentata*. In all probability *T. miniata* is a junior synonym of *T. ferruginea*. Only HILGENDORF (1869 : 76) and DE MAN (1880 : 177) correctly distinguished between *T. cymodoce* and *T. ferruginea*. Both list diagnostic characters that helped identify these two species, but the observations of these authors appear to have been overlooked. CANO (1888 : 172) identified specimens as *T. cymodoce*, he compared them with the account of that species by MIERS (1878 : 409), and recorded the characters that identified the material from Tahiti as the true *T. cymodoce*. In his 1889 paper, CANO remarked that specimens from Honolulu differed from the *T. cymodoce* of MIERS. It is probable that this material was *T. ferruginea* as to date there have been no

confirmed records of *T. cymodoce* from the Hawaiian Islands.

### *Trapezia guttata* Rüppell, 1830

- Trapezia guttata* Rüppell, 1830 : 27. — WHITE, 1847 : 23. — HELLER, 1861a : 14; 1861b : 351; 1865 : 25. — RICHTERS, 1880 : 52. — DE MAN, 1880 : 176; 1881 : 94; 1890 : 64; 1902 : 640, pl. 21, fig. 25. — POCOCK, 1890 : 73. — ORTMANN, 1893 : 484. — LENZ, 1905 : 351. — NOBILI, 1906a : 293. — MIYAKE, 1936 : 509. — GURNEY, 1938 : 74, pl. 2, figs 19-22. — FOREST & GUINOT, 1961 : 136, figs 138 a - b. — GUINOT, 1962a : 240. — MICHEL, 1964 : 30. — SERÈNE, 1968 : 88; 1971 : 147; 1984 : 271, fig. 178, pl. 38a. — KENSLEY, 1970 : 104. — GARTH, 1971 : 188. — SERÈNE et al., 1974 : 24; 1976 : 19. — SAKAI, 1976 : 508, fig. 270, pl. 183, fig. 3. — TAKEDA & NUNOMURA, 1976 : 77. — CHEN & LAN, 1978 : 280, fig. 11, pl. 2, fig. 8. — EDWARDS & EMBERTON, 1980 : 232. — ODI-NETZ, 1984 : 442.
- Trapezia ferruginea* - DANA, 1852 : 260 (part); 1855 : 6, pl. 16, fig. 1 b.
- Trapezia ferruginea* var. *guttata* - PAULSON, 1875 : 54. — ALCOCK, 1898 : 220. — BORRADAILE, 1900 : 590; 1902 : 265. — BALSS, 1922 : 134. — RAMADAN, 1936 : 35.
- Trapezia guttata* var. - MIERS, 1886 : 166, pl. 12, fig. 1.
- Trapezia ferruginea guttata* - ORTMANN, 1897 : 205. — DOFLEIN, 1904 : 104.
- Trapezia cymodoce ferruginea* - RATHBUN, 1907 : 58 (part); 1911 : 234 (part).
- Trapezia bidentata* - KLUNZINGER 1913 : 307 (part).
- Trapezia cymodoce guttata* - GORDON, 1934 : 59. — SAKAI, 1936 : 170; 1939 : 552.
- Trapezia davaoensis* Ward, 1941 : 14, fig. 27. — SERÈNE, 1971 : 146. — SERÈNE et al., 1976 : 19. — KROPP & BIRKELAND, 1981 : 629.
- Trapezia miersi* Ward, 1941 : 15.
- Trapezia ferruginea* forma *guttata* - PATTON, 1966 : 285; 1974 : 223.
- non *Trapezia guttata* - BARNARD, 1950 : 277 = *Trapezia tigrina* Eydoux & Souleyet, 1842.

MATERIAL EXAMINED. — New Caledonia. Lagoon survey : 2-50 m, May 1984 - July 1985 : 52 ♂, 70 ♀ (MNHN).

REMARKS. — *Trapezia guttata* was originally described by RÜPPELL from Red Sea material. Its morphological features and characteristic colour pattern make it easily identifiable; i.e. the cheliped merus is longer than broad, carapace is cream coloured with a dark band anteriorly, ambulatory merus with red spots and propodus and dactylus with red longitudinal lines. However, some authors considered it a subspecies, variety or form of *Trapezia ferruginea*, while others considered it a variety of *T. cymodoce* (see GALIL, 1988 : 166). MIERS (1886 : 166) misinterpreting the original description of RÜPPELL, regarded his material from Fiji as a variety, *T. guttata* var., because the dark spots on his specimen were restricted to the walking legs only and were not present on the chelipeds. Translating the original German description, RÜPPELL described *T. guttata* as possessing a yellowish-brown carapace and feet, the latter with many small, dark brown dots. Subsequently, WARD (1941 : 15) gave species status to *T. guttata* var. of MIERS and named it *T. miersi*. But our examination of MIERS' specimen has shown it to be the true *T. guttata* Rüppell. RATHBUN (1907 : 58) identified 1 ♂, 1 ♀, from Mohican reef, Rangiroa Id., Tuamotu Archipelago as *T. cymodoce ferruginea*, and she remarked that the variety had a dark band across the front, reticulated palms and spotted legs. RATHBUN concluded that this was the *guttata* form of ALCOCK. Another ♂ and ♀ dredged from Solomon Is., Chagos Archipelago, were identified by RATHBUN (1911 : 234) as varying towards *T. guttata* Rüppell. Further, KLUNZINGER (1913 : 308) described part of his *T. bidentata* (var. *guttata*) specimens as having "rotbraunen Punkten oder Flecken an den Schreitfüssen". The specimens of RATHBUN and KLUNZINGER are assigned to *guttata*. WARD (1941 : 14) established

a new species, *T. davaoensis* for his Philippine specimens and his paratypes are extant in the American Museum of Natural History. This species of WARD was examined by GALIL and is here referred to *T. guttata*. The description of material ascribed to *T. guttata* by BARNARD (1950 : 277) fits *T. tigrina* Eydoux & Souleyet, and should be assigned to this species.

Although *T. guttata* has a wide distribution, ranging from the the Red Sea to the Central Pacific, and is evidently quite common in New Caledonia, this is the first time this species has been recorded from these islands.

#### *Trapezia septata* Dana, 1852

*Trapezia septata* Dana, 1852 : 260.

*Trapezia areolata* var. *inermis* A. Milne Edwards, 1873 : 259, pl. 10, fig. 6.

*Trapezia septata* - GALIL & LEWINSOHN, 1985b : 288 (full synonymic list), figs 2, 5 & 6.

MATERIAL EXAMINED. — **New Caledonia.** Lagoon survey : stn 4, 22°22.50' S, 166°20.70' E, 9 m, 21.05.1984 : 1 ♂. — Stn 69, 22°22.80' S, 166°31.70' E, 13 m, 20.08.1984 : 1 ♀. — Stn 160, 22°36.20' S, 166°37.10' E, 10 m, 24.08.1984 : 1 ♂, 2 ♀. — Stn 412, 22°39.50' S, 167°18.60' E, 40 m, 24.01.1985 : 1 ♂. — Stn 480, 18°56.00' S, 163°29.20' E, 31 m, 21.03.1985 : 1 ♀ (all MNHN).

**New Caledonia.** Material identified by A. MILNE EDWARDS as *Trapezia areolata* var. *inermis*, 3 ♂, 4 ♀ (MNHN-B 2915); 1 ♂, 2 ♀ (MNHN-B 2914).

REMARKS. — From the material collected in New Caledonia, A. MILNE EDWARDS identified *Trapezia areolata* (MNHN-B 2914) and *T. areolata* var. *inermis* (MNHN-B 2915), both redetermined here as *T. septata* Dana.

#### ACKNOWLEDGEMENTS

The authors wish to thank Dr Michael TÜRKAY for curating the type series of RÜPPELL.

## REFERENCES

- ALCOCK, A., 1898. — Materials for a Carcinological Fauna of India. N° 3. The Brachyura Cyclometopa. Part I. The Family Xanthidae. *J. Asiat. Soc. Beng.*, **67** (2), N° 1 : 67-233.
- ALCOCK, A., 1899. — Crustacea. — Part VII, Under the direction of A. Alcock, M.B., C.M.Z.S., Superintendent of the Indian Museum, formerly Surgeon-Naturalist to the Indian Marine Survey. In : *Illustration of the Zoology of the Royal Indian Marine Survey Ship Investigator, under the Command of Commander T. H. Heming, R.N. Calcutta*, pls 36-45.
- AUDOUIN, V., 1826. — Explication sommaire des planches de Crustacés de l'Égypte et de la Syrie, publiées par Jules César Savigny, membre de l'Institut ; offrant un exposé des caractères naturels des genres, avec la distinction des espèces. In : J. C. Savigny, *Description de l'Égypte, ou recueil des observations et des recherches qui ont été faites en Égypte pendant l'expédition de l'armée Française [1798-1801]. Histoire naturelle*. Paris, **1** (4) : 77-98.
- BALSS, H., 1922. — Ostasiatische Decapoden. IV. Die Brachyrhynchen (Cancridae). *Arch. Naturgesch.*, **88A** (11) : 94-166, figs 1-2, pls 1-2.
- BALSS, H., 1924. — Decapoden des Roten Meeres. III. Die Parthenopiden, Cyclo — und Catometopen. In : Expedition S.M. Schiff *Pola* in das Rote Meer, nördliche und südliche Hälfte 1897/96-1897/98. Zoologische Ergebnisse. XXXIV. *Denkschr. Acad. Wiss. Wien*, **99** (6) : 1-18, fig. 1.
- BALSS, H., 1935a. — Brachyura of the Hamburg Museum Expedition to South-Western Australia, 1905. *J. R. Soc. W. Aust.*, **21** : 113-151, figs 1-5, pl. 13.
- BALSS, H., 1935b. — Die brachyuran Dekapoden der Reise Michaelsen-Hartmeyer nach Süwestaustralien 1905. Eine geographische übersicht nebst Beschreibung einiger neuer Formen. *Zool. Anz.*, **111** (1-2) : 35-42, figs 1-5.
- BALSS, H., 1938. — Die Dekapoden Brachyura von Dr. Sixten Bocks Pazifik-Expedition 1917-1918. *Göteborgs K. Vetensk. Vitter. Samh. Handl.*, (B), **5** : 1-85, figs 1-18, pls. 1-2.
- BARNARD, K. H., 1950. — Descriptive Catalogue of South African Decapod Crustacea (Crabs and Shrimps). *Ann. S. Afr. Mus.*, **38** : 1-837, figs 1-154.
- BOONE, L., 1934. — Crustacea : Stomatopoda and Brachyura. Scientific Results of the World Cruise of the Yacht *Alva* 1931, William K. Vanderbilt, Commanding. *Bull. Vanderbilt mar. Mus.*, **5** : 1-210, pls 1-109.
- BORRADAILE, L. A., 1900. — On some Crustaceans from the South Pacific. Part IV. The Crabs. *Proc. zool. Soc. Lond.*, **1900** : 568-596, pls 40-42.
- BORRADAILE, L. A., 1902. — Marine Crustaceans III. The Xanthidae and some other crabs. In : J. Stanley Gardiner, (Ed.) *The Fauna and Geography of the Maldivé and Laccadive Archipelagoes Being the Account of the Work carried on and of the Collections made by an Expedition during the years 1899-1900*. Cambridge University Press, **1** (3) : 237-271, figs 41-60.
- BOUVIER, E. L., 1915. — Décapodes marcheurs (Reptantia) et Stomatopodes, recueillis à l'île Maurice par M. Paul Carié. *Bull. scient. Fr. Belg.*, (7) **48** (3) : 178-318 [1-141], figs 1-42, pls 4-7.
- CALMAN, W. T., 1900. — On a Collection of Brachyura from Torres Straits. *Trans. Linn. Soc. Lond., Zool.*, (2) **8** (1) : 1-49, pls 1-3.
- CALMAN, W. T., 1909a. — On a new Crab taken from a deep-sea Telegraph-Cable in the Indian Ocean. *Ann. Mag. nat. Hist.*, (8) **3** (13) : 30-33, fig. 1.
- CALMAN, W. T., 1909b. — On Decapod Crustacea from Christmas Island, collected by Dr. C.W. Andrews, F.R.S., F.Z.S. *Proc. zool. Soc. Lond.*, **1909** : 703-713, pl. 72.
- CANO, G., 1888. — Crostacei raccolti dalla R. Corvetta *Caracciolo* nel viaggio intorno al globo durante gli anni 1881-82-83-84. *Boll. Soc. Nat. Napoli*, (1), **2** : 160-184, figs 1-3.
- CANO, G., 1889. — Viaggio della R. Corvetta *Vettor Pisani* attorno al globo. Crostacei Brachiuri ed Anomuri. *Boll. Soc. Nat. Napoli*, (1) **3** : 169-268, pl. 7.
- CHEN, H. L., & J. LAN, 1978. — Preliminary studies on the Xanthidae (Brachyura, Crustacea) of Xisha Islands, Guangdong Province, China. In : *Research reports on Investigation in Marine Biology in waters of Xisha and Zhongsha Islands, China. Academia Sinica. Nanhai Institute of Oceanography*. Beijing Science Press. : 261-286, figs 1-12, pls 1-8.
- CHOPRA, B. N. & K. N. DAS, 1937. — Further notes on Crustacea Decapoda in the Indian Museum. IX. On Three Collections of Crabs from Tavoy and Mergui Archipelago. *Rec. Indian Mus.*, **39** (4) : 377-434, figs 1-21, pls 6.
- COULON, L., 1864. — Crustacés de la mer Rouge. *Bull. Soc. Sci. nat. Neuchâtel*, **6** (3) : 569-570.
- DANA, J. D., 1852. — Crustacea, Part 1. In : *United States Exploring Expedition during the Years 1838, 1839, 1840, 1841, 1842, under the Command of Charles Wilkes, U.S.N.* Philadelphia, C. Sherman, **13**, viii + 685 p.
- DANA, J. D., 1855. — Crustacea. In : *United States Exploring Expedition during the Years 1838, 1839, 1840, 1841, 1842, under Command of Charles Wilkes, U.S.N.* Philadelphia, C. Sherman, **14** (Atlas) : 1-27, pls 1-96.
- DOFLEIN, F., 1904. — Brachyura. *Wiss. Ergebn. dt. Tiefsee-Exped. « Valdivia »*, **6**, xiv + 314 p., figs 1-68, atlas, pls 1-58.
- EDMONDSON, C. H., 1923. — Crustacea from Palmyra and Fanning Island. With Description of New Species of Crabs from Palmyra Island by Mary J. Rathbun. *Bull. Bernice P. Bishop Mus.*, (5) : 1-43, figs 1-3, pls 1-2.
- EDMONDSON, C. H., 1946. — Reef and Shore Fauna of Hawaii. *Spec. Publ. Bernice P. Bishop Mus.*, **22**, iii + 381 p., figs 1-223.
- EDMONDSON, C. H., 1963. — Xanthidae of Hawaii. *Occ. Pap. Bernice P. Bishop Mus.*, **22** (13) : 215-309, figs 1-34.
- EDWARDS, A., & H. EMBERTON, 1980. — Crustacea associated with the Scleractinian coral *Stylophora pistillata* (Esper.) in the Sudanese Red Sea. *J. exp. mar. Biol. Ecol.*, **42** (3) : 225-240, figs 1-5.

- ESTAMPADOR, E. P., 1937. — A Check List of Philippine Crustacean Decapods. *Philipp. J. Sci.*, **62** (4) : 465-559.
- FAXON, W., 1895. — XV. The Stalk-Eyed Crustacea. In : Reports on an Exploration off the West Coasts of Mexico, Central and South America, and off the Galapagos Islands, in charge of Alexander Agassiz, by the U.S. Fish Commission Steamer *Albatross*, during 1891, Lieut.-Commander Z. L. Tanner, U.S.N., Commanding. *Mem. Mus. comp. Zool. Harv.*, XVIII : 1-292, pls A-K & 1-57.
- FOREST, J., & D. GUINOT, 1961. — Crustacés Décapodes Brachyours de Tahiti et des Tuamotu. In : *Expédition française sur les récifs coralliens de la Nouvelle-Calédonie*. Volume préliminaire. Paris, Éditions de la Fondation Singer-Polignac, ix-xi + 195 p., figs 1-178, pls 1-18.
- FOURMANOIR, P., 1954. — Crabes de la côte ouest de Madagascar. *Naturaliste malgache*, **6** (1-2) : 1-16, figs 1-12.
- GALIL, B., 1986a. — *Quadrella* (Brachyura : Xanthoidea : Trapeziidae) — review and revision. *J. crust. Biol.*, **6** (2) : 275-293, figs 1-8.
- GALIL, B., 1986b. — *Tetraloides* — a new genus of coral-inhabiting crabs. *Crustaceana*, **50** (1) : 68-77, figs 1-3.
- GALIL, B., 1988. — Trapeziidae (Decapoda : Brachyura : Xanthoidea) of the Red Sea. *Israel J. Zool.*, **34** (314) : 159-182, figs 1-11.
- GALIL, B., & Ch. LEWINSOHN, 1983. — Researches on the Coast of Somalia. *Trapezia richtersi* n. sp., new trapezid crab (Decapoda Brachyura). *Monitore zool. ital.*, **18** (4) : 159-166, figs 1-4.
- GALIL, B., & Ch. LEWINSOHN, 1984. — On the taxonomic status of *Trapezia tigrina* Eydoux & Souleyet, 1842 (Decapoda, Brachyura). *Crustaceana*, **46** (2) : 166-175, fig. 1.
- GALIL, B., & Ch. LEWINSOHN, 1985a. — On the taxonomic status of *Trapezia rufopunctata* (Herbst) and *Trapezia flavopunctata* Eydoux & Souleyet (Decapoda, Brachyura). *Crustaceana*, **48** (2) : 209-217, figs 1-7.
- GALIL, B., & Ch. LEWINSOHN, 1985b. — On the taxonomic status of *Trapezia areolata* Dana and *Trapezia septata* Dana (Decapoda, Brachyura). *Crustaceana*, **48** (3) : 286-293, figs 1-4.
- GALIL, B., & M. TAKEDA, 1985. — Crabs of the Genus *Quadrella* (Crustacea, Decapoda, Trapeziidae) from Japanese Waters. *Bull. natn. Sci. Mus. Tokyo*, (A) **11** (4) : 197-207, figs 1-3.
- GARTH, J. S., 1964. — The Crustacea Decapoda (Brachyura and Anomura) of Eniwetok Atoll, Marshall Islands, with special reference to the obligate commensals of branching corals. *Micronesica*, **1** (1-2) : 137-144, fig. 1-2.
- GARTH, J. S., 1971. — Borradaile's Maldivian Collections revisited. *J. mar. biol. Ass. India*, 1969 (1971), **11** (1-2) : 182-190.
- GARTH, J. S., 1974. — Decapod crustaceans inhabiting reef-building corals of Ceylon and Maldive Islands. *J. mar. biol. Ass. India*, 1973 (1974), **15** (1) : 195-212.
- GERSTAECKER, A., 1857. — Carcinologische Beiträge. *Arch. Naturgesch.*, 1856 (1857), **22** (1) : 101-162, pls 4-6.
- GORDON, I., 1934. — Crustacea Brachyura. In : Résultats Scientifiques du Voyage aux Indes Orientales Néerlandaises de LL. AA. RR. le Prince et la Princesse Léopold de Belgique, **3** (15). *Mém. Mus. r. Hist. nat. Belg.*, hors sér., 78 p., figs 1-37.
- GRANT, F. E. & A. R. McCULLOUGH, 1906. — On a collection of Crustacea from the Port Curtis District, Queensland. *Proc. Linn. Soc. N.S.W.*, **31** (1) : 1-53, figs 1-3, pls 1-4.
- GRAVELY, F. H., 1927. — Orders Decapoda (except Paguridae) and Stomatopoda. In : The Littoral Fauna of Krusadai Island in the Gulf of Mannar with Appendices on the Vertebrates and Plants. *Bull. Madras Govt Mus.*, (New Ser.) **1** (1) : 135-155, figs 1-2, pls 19-26.
- GRAVIER, C., 1920. — Sur une collection de Crustacés recueillis à Madagascar, par M. le Lieutenant Decary. *Bull. Mus. natn. Hist. nat.*, Paris, **26** (5) : 376-383 ; *Ibid.*, (6) : 465-472, figs 1-7.
- GUÉRIN-MÉNEVILLE, F. E., 1831. — XII. Crustacés et Arachnides. In : L. I. Duperrey, Capitaine de Frégate, Chevalier de Saint-Louis et Membre de la Légion D'Honneur, Commandant de l'Expédition, *Voyage Autour du Monde, Exécuté par Ordre du Roi, sur la Corvette de Sa Majesté, La Coquille, pendant les années 1822, 1823, 1824 et 1825, sous le ministère et conformément aux instructions de S.E.M. Le Marquis de Clermont-Tonnerre, Ministre, de la Marine ; et publié sous les auspices de son Excellence Mgr le Cte de Chabrol, Ministre de la Marine et des Colonies*. Zoologie par R.P. Lesson. Paris, Bertrand, **II** (2), 1<sup>re</sup> div. : i-xii + 9-56 ; Atlas, Crustacés, pls 1-5.
- GUINOT, D., 1962a. — Sur une collection de Crustacés Décapodes brachyours des îles Maldives et de la Mer Rouge (Expédition *Xarifa* 1957-1958). *Kieler Meeresforsch.*, **18** (2) : 231-244, figs 1-17.
- GUINOT, D., 1962b. — Sur quelques Crustacés Décapodes Brachyours indo-pacifiques des collections du Musée de Munich. *Opusc. Zool. Münch.*, (60) : 1-14, figs 1-10.
- GUINOT D., 1967. — La faune carcinologique (Crustacea Brachyura) de l'Océan Indien occidental et de la Mer Rouge. Catalogue, remarques biogéographiques et bibliographiques. In : Réunion de Spécialistes C.S.A. sur les Crustacés, Zanzibar 1964. *Mém. I.F.A.N.*, 1966 (1967), (77) : 237-352, pls 1-26.
- GURNEY, R., 1938. — Notes on some Decapod Crustacea from the Red Sea, VI — VIII. *Proc. zool. Soc. Lond.*, (B) **108** (1) : 73-84, pls 1-6.
- HAAN, W. DE, 1833-1850. — Crustacea. In : P.-F. van Siebold, *Fauna Japonica, sive Descriptio animalium, quae in itinere per Japoniam, jussu et auspiciis superiorum, qui summum in India Batava imperium tenent, suscepto, annis 1823-1830 collegit, notis, observationibus et adumbrationibus illustravit*. Lugduni-Batavorum : i-xvii + i-xxxii + ix-xvi + 1-243, pls 1-55, A-J, L-Q, circ., pl. 2.
- HASWELL, W. A., 1882. — *Catalogue of the Australian stalk-and sessile-eyed Crustacea*. Sydney, The Australian Museum, iii-xxiv + 324 p., figs 1-8, pls 1-4.
- HELLER, C., 1861a. — Synopsis der im rothen Meeres vorkommenden Crustaceen. *Verh. zool.-bot. Ges. Wien*, **11** : 3-32.
- HELLER, C., 1861b. — Beiträge zur Crustaceen-Fauna des rothen Meeres. Erster Theil. *Sber. Akad. Wiss. Wien*, **43** (1) : 297-374, pls 1-4.



- HELLER, C., 1865. — Crustaceen. In : *Reise der oerterreichischen Fregatte Novarra um die Erdre, in den Jahren 1857, 1857, 1858, 1859 unter den Befehlen des Commodore B. von Wüllerstorff-Urbair*. Zool. Theil. Wien, 2, pt. 3 (1) : 1-280, pls 1-25.
- HENDERSON, J. R., 1893. — A contribution to Indian Carcinology. *Trans. Linn. Soc. Lond., Zool.*, (2) 5 : 325-458, pls 36-40.
- HERBST, J. F. W., 1790. — *Versuch einer Naturgeschichte der Krabben und Krebse. Nebst Einer Systematischen Beschreibung Ihrer Verschiedenen Arten*. Berlin und Stralsund, Gottlieb August Lange, 1 (8) : 239-274, pls 18-21.
- HERBST, J. F. W., 1801. — *Versuch einer Naturgeschichte der Krabben und Krebse &c.&c.* Berlin und Stralsund, Gottlieb August Lange, 3 (2) : 1-46, pls 51-54.
- HILGENDORF, F., 1869. — Crustaceen. In : C. von der Decken, *Reise in Ost-Afrika in den Jahren 1859-1865*. Heidelberg-Leipzig, 3 (1) : 67-116, 147, pls 1-6.
- HILGENDORF, F., 1879. — Die von Hrn. W. Peters in Mocambique gesammelten Crustaceen. *Mber. K. preuss. Akad. Wiss.*, 1878 (1879) : 782-851, pls 1-4.
- JACQUINOT, H., 1842-1853. — Crustacés. In : *Voyage au Pôle Sud et dans l'Océanie sur les Corvettes l'Astrolabe et La Zélée pendant les années 1837-1838-1839-1840 sous le commandement de M. Dumont-d'Urville, capitaine de vaisseau*. Paris, Gide et J. Baudry, Atlas, Zoology, pls 1-9.
- JACQUINOT, H. & P. H. LUCAS, 1853. — Crustacés. In : *Voyage au Pôle Sud et dans l'Océanie sur les Corvettes l'Astrolabe et la Zélée; exécuté par ordre du roi pendant les années 1837-1838-1839-1840, sous le commandement de M. Dumont-d'Urville., Capitaine de vaisseau; publié par ordre du gouvernement, sous la direction supérieure de M. Jacquinot, Capitaine de vaisseau, commandant de la Zélée*. Zoologie, par MM. Hombrou et Jacquinot. Paris, Gide et J. Baudry, 3, 107 p.
- KENSLEY, B., 1970. — A small collection of Decapod Crustacea from Moçambique. *Ann. S. Afr. Mus.*, 57 (5) : 103-122, figs 1-14.
- KLUNZINGER, C. B., 1913. — Die Rundkrabben (Cyclometopa) des Roten Meers. *Nova Acta Acad. Caesar. Leop. Carol.*, 99 (2) : 97-402 [1-306], figs 1-14, pls 5-11 [1-7].
- KOSSMANN, R., 1877. — III. Malacostraca, (I. Theil : Brachyura). In : R. Kossmann, *Zoologische Ergebnisse einer im Auftrage der Königlichen Academie der Wissenschaften zu Berlin ausgeführten Reise in die Küstengebiete des Rothen Meeres*. Leipzig, W. Engelmann : 1-66, pls 1-3.
- KRAUSS, F., 1843. — *Die Südafrikanischen Crustaceen. Eine Zusammenstellung aller bekannten Malacostraca, Bemerkungen über deren Lebensweise und geographische Verbreitung, nebst Beschreibung und Abbildung mehrerer neuen Arten*. Stuttgart, 68 p., pls 1-4.
- KROPP, R. K., & C. BIRKLAND, 1981. — Comparison of Crustacea associates on *Pocillopora verrucosa* from a High Island and an Atoll. In : *Proceedings of the fourth International Coral Reef Symposium*. Manila 1981, 2 : 627-632.
- LATREILLE, P. A., 1828. — *Encyclopédie Méthodique. Histoire Naturelle. Entomologie, ou Histoire Naturelle des Crustacés, des Arachnides et des Insectes*. Tome Dixième. Par MM. Latreille, Le Peletier de St-Fargeau, Serville et Guérin. (2) : 345-852.
- LAURIE, R. D., 1906. — Report on the Brachyura collected by Professor Herdman, at Ceylon, in 1902. In : W. A. Herdman, *Report to the Government of Ceylon on the Pearl Oyster Fisheries of the Gulf of Manaar*. Part V, Suppl. Rep. XL : 349-432, figs 1-12, pls 1-2.
- LAURIE, R. D., 1915. — XXI. On the Brachyura. In : Reports on the Marine Biology of the Sudanese Red Sea. *J. Linn. Soc., (Zool.)*, 31 : 407-475, figs 1-5, pls 42-45.
- LENZ, H., 1905. — Ostafrikanische Decapoden und Stomatopoden. Gesammelt von Herrn Prof. Dr. A. Voeltzkow. In : A. Voeltzkow, *Wissenschaftliche Ergebnisse der Reise in Madagaskar und Ostafrika in den Jahren 1889-1895*. Bd. III. *Abh. senckenb. naturforsch. Ges.*, 27 (4) : 341-392, pls 47-48.
- LENZ, H., 1910. — Crustaceen von Madagaskar, Ostafrika und Ceylon. In : Voeltzkow, *Reise in Ostafrika in den Jahren 1903-1905 mit Mitteln der Hermann und Elise geb. Heckmann Wentzel-Stiftung ausgeführt*. Wissenschaftliche Ergebnisse, (Systematische Arbeiten), Stuttgart, 2 : 539-576, figs 1-4.
- LENZ, H., 1912. — Afrikanische Crustaceen aus schwedischen Sammlungen. *Ark. Zool.*, 7 (29) : 1-10.
- LOCKINGTON, W. N., 1877. — Remarks on the Crustacea of the West Coast of North America, with a catalogue of the Species in the Museum of the California Academy of Sciences. *Proc. Calif. Acad. Sci.*, 1876 (1877), 7 : 94-108.
- LUCAS, P. H., 1846. — *Histoire Naturelle des Crustacés, des Arachnides et des Myriapodes*. Paris : 1-600, pls 1-46.
- MACLEAY, W. S., 1838. — On the Brachyurous Decapod Crustacea. Brought from the Cape by Dr. Smith. In : A. Smith, *Illustrations of the Zoology of South Africa; consisting chiefly of figures and descriptions of the objects of natural history collected during an expedition into the interior of South Africa, in the years 1834, 1835, and 1836; fitted out by "The Cape of Good Hope Association for Exploring Central Africa : " together with a summary of African Zoology, and an inquiry into the geographical ranges of species in that quarter of the globe*. London : 53-71, pls 2-3.
- MAN, J. G. DE, 1880. — On some Podophthalmous Crustacea presented to the Leyden Museum by Mr. J. A. Kruyt, collected in the Red Sea near the city of Djeddah. *Notes Leyden Mus.*, 2 : 171-185.
- MAN, J. G. DE, 1881. — On a new collection of Podophthalmous Crustacea, presented by Mr. J. A. Kruyt, collected in the Red Sea near the town of Djeddah. *Notes Leyden Mus.*, 3 : 93-107.
- MAN, J. G. DE, 1887a. — Report on the Podophthalmous Crustacea of the Mergui Archipelago, collected for the Trustees of the Indian Museum, Calcutta, by Dr. John Anderson, F.R.S., Superintendent of the Museum. Part II. *J. Linn. Soc., (Zool.)*, 22 (137) : 65-128, pls 4-8.
- MAN, J. G. DE, 1887b. — Bericht über die von Herrn Dr. J. Brock im indischen Archipel gesammelten Decapoden und Stomatopoden. *Arch. Naturgesch.*, 53 (I. Band. 2. Heft.) : 215-600, pls 7-22.
- MAN, J. G. DE, 1890. — Note XIII. Carcinological Studies in

- the Leyden Museum. N° 4. *Notes Leyden Mus.*, 12 : 49-126, pls 3-6.
- MAN, J. G. DE, 1895. — Bericht über die von Herrn Schiffscapitän Storm zu Atjeh, an den westlichen Küsten von Malakka, Borneo und Celebes sowie in der Java-See gesammelten Decapoden und Stomatopoden. *Zool. Jb.*, (Syst.), 8 (IV) : 485-609.
- MAN, J. G. DE, 1902. — Die von Herrn Professor Kükenthal, Ergebnisse einer Zoologischen Forschungsreise in den Molukken und Borneo. *Abh. Senkenb. naturforsch. Ges.*, 25 (III) : 467-929, pls 19-27.
- MAN, J. G. DE, 1928. — On four species of Crabs of the Families Inachidae and Xanthidae, two of which are new to Science. In : Papers from Dr. Th. Mortensen's Pacific Expedition 1914-16. XLII. *Vidensk. Medd. dansk naturh. Foren. Kbh.*, 85 : 7-25, figs 1-4.
- MICHEL, C., 1964. — Check list of the Crustacea Brachyura (Crabs) recorded from Mauritius. *Bull. Mauritius Inst.*, (4) 6 (1) : 1-48.
- MIERS, E. J., 1878. — On a small Collection of Crustacea made by Major Burton in the Gulf of Akaba. *Ann. Mag. nat. Hist.*, (5) 2 : 406-411.
- MIERS, E. J., 1880. — On a Collection of Crustacea from the Malaysian Region. Part I. Crustacea Oxyrhyncha and Cyclometopa, except Telphusidea. *Ann. Mag. nat. Hist.*, (5) 5 : 226-239, pl. 13.
- MIERS, E. J., 1884. — Crustacea. In : *Report on the zoological collections made in the Indo-Pacific Ocean during the voyage of H.M.S. Alert 1881-1882*. Part I. The collections from Melanesia. Part II. The collections from the Western Indian Ocean. London : 178-322, 513-575, pls 18-32, 46-51.
- MIERS, E. J. 1886. — Report on the Brachyura collected by H.M.S. *Challenger* during the Years 1873-76. In : *Report on the Scientific Results of the Voyage of H.M.S. Challenger during the Years 1873-1876*. Zoology. London, Edinburgh and Dublin, 17 : i-1 + 1-362, pls 1-29.
- MILNE EDWARDS, A., 1873. — Recherches sur la faune carcinologique de la Nouvelle-Calédonie. Deuxième Partie. *Nouv. Arch. Mus. Hist. nat. Paris*, 9 : 155-332, pls 4-18.
- MILNE EDWARDS, A., 1881. — Études sur les Xiphosures et les Crustacés Podophthalmes. In : A. Milne Edwards, *Recherches Zoologiques pour servir à l'Histoire de la Faune de l'Amérique Centrale et du Mexique*. Mission Scientifique au Mexique et dans l'Amérique Centrale, ouvrage publié par ordre du Ministre de l'Instruction Publique. Paris, Imprimerie Nationale, 5<sup>e</sup> partie, 8<sup>e</sup> Livraison : 313-368, pls LV-LXI.
- MILNE EDWARDS, H., 1834. — *Histoire naturelle des Crustacés, comprenant l'anatomie, la physiologie et la classification de ces animaux*. Paris, I, xxxv + 468 p.
- MIYAKE, S., 1936. — Reports on the Brachyura of Riukiu Islands collected by the Yaeyama Expeditions during the years 1932-1934. II. A list of the known species of the Brachyura from Ishigaki-shima. *Annotnes zool. jap.*, 15 (4) : 506-513.
- MONOD, Th., 1938. — VII. Decapoda Brachyura. In : Mission Robert Ph. Dollfus en Egypte. VIII. *Mém. Inst. Egypte*, 37 : 91-162, figs 1-29.
- NOBILI, G., 1899. — Contribuzioni alla conoscenza della Fauna carcinologica della Papuasias della Molluche e dell'Australia. *Annali Mus. civ. Stor. nat. Genova*, (2) 20 (40) : 230-282.
- NOBILI, G., 1901. — Decapodi e Stomatopodi Eritrei del Museo zoologica dell'Università di Napoli. *Annuaire Mus. zool. univ. Napoli*, (N. Ser.) 1 (3) : 1-20.
- NOBILI, G., 1905. — Crostacei di Zanzibar. *Boll. Musei Zool. Anat. comp. R. Univ. Torino*, 20 (506) : 1-12, fig. 1.
- NOBILI, G., 1906a. — Faune carcinologique de la Mer Rouge. Décapodes et Stomatopodes. *Annls Sci. nat.*, (Zool.), (9) 4 : 1-347, figs 1-12, pls 1-11.
- NOBILI, G., 1906b. — Crustacés Décapodes et Stomatopodes. In : Mission J. Bonnier et Ch. Pérez (Golf Persique 1901). *Bull. scient. Fr. Belg.*, 40 : 13-159, figs 1-3, pls 2-7.
- ODINETZ, O. M., 1984. — Révision des *Trapezia* du groupe *cymodoce-ferruginea* (Crustacea, Decapoda, Brachyura), avec des notes complémentaires concernant *T. serenei* Odinetz, 1983 et *T. punctimanus* Odinetz, 1983. *Bull. Mus. natn. Hist. nat., Paris*, (4) 6, sect. A, (2) : 431-452, figs 1-4.
- ORTMANN, A. E., 1893. — Die Decapoden-Krebse des Strassburger Museum. VII. Theil. Abteilung : Brachyura. (Brachyura genuina Boas) II. Unterabteilung : Cancroida, 2. Section : Cancrida, 1. Gruppe : Cyclometopa. *Zool. Jb.*, (Syst.), 7 : 411-495, pl. 17.
- ORTMANN, A. E. 1897. — Die geographische Verbreitung der Decapoden-Familie Trapeziidae. *Zool. Jb.*, (Syst.), 10 : 201-216.
- PATTON, W. K., 1966. — Decapod Crustacea commensal with Queensland branching corals. *Crustaceana*, 10 (3) : 271-295, figs 1-3.
- PATTON, W. K., 1974. — Community structure among the animals inhabiting the coral *Pocillopora damicornis* at Heron Island, Australia. In : W. B. Vernberg, Ed., *Symbiosis in the Sea*. Columbia, University of South Carolina Press : 219-243, figs 1-2.
- PAUL'SON, O., 1875. — *Izsledovaniya rakoobraznykh krasnago morya s zametkami otnositel'no rakoobraznykh drugikh morei*. i-xiv + 1-144 p., pls 1-21 (1961, English translation, Jerusalem, the Israel program for scientific translations : 1-164, pls 1-21).
- PESTA, O., 1928. — C. Dekapoden aus dem Hafen von Port Sudan. In : *Wissenschaftliche ergebnisse der mit unterstützung der Akademie der Wissenschaften in Wien aus der erbschaft treitl von F. Werner unternommenen zoologischen expedition nach dem Anglo-Ägyptischen Sudan (Kordofan) 1914*. XXIV. Miscellanea Sudanica. *Denkschr. Akad. Wiss. Wien*, 101 : 71-72.
- POCOCK, R. I., 1890. — X. — Report upon the Crustacea collected by P. W. Bassett-Smith, Esq., Surgeon R. N., during the survey of the Macclesfield and Tizard Banks, in the China Sea, by H.M.S. *Rambler*, Commander W. U. Moore. *Ann. Mag. nat. Hist.*, (6) 5 (25) : 72-80.
- PRATO, A. DEL, 1896. — I Crostacei della Collezione Eritrea Bottego. *Atti. Soc. ital. Sci. nat.*, 36 (2) : 181-186.
- RAMADAN, M. M., 1936. — Report on a Collection of Stomatopoda and Decapoda from Ghardaga, Red Sea. *Bull. Fac. Sci. Egypt. Univ.*, 6 : 1-43, pls 1-2.

- RANDALL, J. W., 1840. — Catalogue of the Crustacea brought by Thomas Nuttall and J. K. Townsend, from the West Coast of North America and the Sandwich Islands, with Descriptions of such Species as are apparently new, among which are included several species of different Localities previously existing in the collection of the Academy. *J. Acad. nat. Sci. Philad.*, 1839 (1840), 8 (1) : 106-147, pls 3-7.
- RATHBUN, M. J., 1906. — The Brachyura and Macrura of the Hawaiian Islands. *Bull. U.S. Fish Commn.*, 1903 (1906) : i-viii, 827-930, figs 1-79, pls 1-24.
- RATHBUN, M. J., 1907. — Reports on the scientific results of the expedition to the tropical Pacific, in charge of Alexander Agassiz, by U.S. Fish Commission Steamer *Albatross*, from August, 1899, to March, 1900, Commander Jefferson F. Moser, U.S.N., Commanding. IX. Reports on the scientific results of the expedition to the eastern tropical Pacific, in charge of Alexander Agassiz, by the U.S. Fish Commission Steamer *Albatross*, from October, 1904, to March, 1905, Lieut.-Commander L. M. Garrett, U. S. N. Commanding. X. The Brachyura. *Mem. Mus. comp. Zool. Harv.*, 35 (2) : 23-74, pls 1-9.
- RATHBUN, M. J., 1910. — V. Brachyura. In : The Danish Expedition to Siam, 1899-1900. *K. dansk. Vidensk. Selsk. Skr.*, (7) 5 (4) : 301-367, figs 1-144, pls 1-2.
- RATHBUN, M. J., 1911. — N° XI. — Marine Brachyura. In : The Percy Sladen Trust Expedition to the Indian Ocean in 1905 under the leadership of Mr. J. Stanley Gardiner. Volume III. *Trans. Linn. Soc. Lond.*, (Zool.), (2) 14 (2) : 191-261, pls 15-20.
- RATHBUN, M. J., 1923. — Report on the Brachyrhyncha, Oxystomata and Dromiacea. In : *Report on the Crabs obtained by the F.I.S. Endeavour on the Coast of Queensland, New South Wales, Victoria, South Australia and Tasmania. Fisheries. Biological results of the Fishing Experiments carried out by the F.I.S. Endeavour 1909-14.* Sydney, 5 (3) : 95-156, figs 1-3, pls 16-42.
- RICHTERS, F., 1880. — Decapoda. In : K. A. Möbius, *Beiträge zur Meeresfauna der Insel Mauritius und der Seychellen, bearbeitet von K. Möbius, F. Richters und E. von Martens.* Berlin : 139-178, pls 15-18.
- RÜPPELL, W. P. E. S., 1830. — *Beschreibung und Abbildung von 24 Arten kurzschwänzigen Krabben, als Beitrag zur Natugeschichte des rothen Meeres.* Frankfurt a.m., H. L. Brönnner : 1-28, pls 1-6.
- SAKAI, T., 1934. — Brachyura from the coast of Kyusyu, Japan. *Sci. Rep. Tokyo Bunrika Daig.*, Section B, 1 (25) : 281-330, figs 1-26, pls 17-18.
- SAKAI, T., 1936. — Report on the Brachyura collected by Mr. F. Hiro at Palao Islands. *Sci. Rep. Tokyo Bunrika Daig.*, Section B, 2 (37) : 155-177, figs 1-7, pls 12-14.
- SAKAI, T., 1939. — *Studies on the Crabs of Japan. IV. Brachygnatha Brachyrhyncha.* Yokendo, Tokyo : 365-741, figs 1-129, pls 42-111.
- SAKAI, T., 1976. — *Crabs of Japan and the Adjacent Seas.* Kodansha Ltd., Tokyo, [In 3 volumes : (1) English text, xxxix + 773 p., figs 1-379. (2) Plates volume, 16 p., pls 1-251. (3) Japanese text, 461 p., figs 1-2].
- SENDER, A., 1923. — Die Decapoden und Stomatopoden der Hanseatischen Südsee-Expedition. *Abh. senckenb. naturforsch. Ges.*, 38 : 21-41, figs 1-3, pls 5-6.
- SERÈNE, R., 1968. — The Brachyura of the Indo-West Pacific region. In : *Prodromus for a Check List of the (non-planctonic) marine fauna of South East Asia.* Unesco Singapore, Special publication N° 1, Fauna IIIc3 : 33-112.
- SERÈNE, R., 1971. — Observation on species of the group *Trapezia rufopunctata-maculata*, with a provisional key for all the species of *Trapezia*. *J. mar. biol. Ass. India*, 1969 (1971), 11 (1-2) : 126-148, fig 1-33.
- SERÈNE, R., 1973a. — Observations sur les espèces des genres *Quadrella* Dana 1851 et *Sphenomerides* Rathbun 1898 (Decapoda-Brachyura). *Bull. Soc. zool. Fr.*, 98 (1) : 191-209, figs 1-28, pls 1-5.
- SERÈNE, R., 1973b. — Notes sur quelques espèces de Brachyours de Nouvelle-Calédonie. *Cah. Pacif.*, (17) : 119-147, figs 1-31, pls 1-8.
- SERÈNE, R., 1975. — Note additionnelle sur les espèces indo-pacifiques de *Quadrella* Dana, 1851 (Crustacea, Decapoda, Brachyura). *Bull. Soc. zool. Fr.*, 100 (4) : 509-521, figs 1-13, pls 1-2.
- SERÈNE, R., 1984. — Crustacés Décapodes Brachyours de l'Océan Indien occidental et de la Mer Rouge, Xanthoidea : Xanthidae et Trapeziidae. Avec un addendum par Crosnier (A) : Carpiliidae et Menippidae. *Faune tropicale*, n° XXIV : 1-349, figs A-C + 1-243, pls 1-48.
- SERÈNE, R., ROMIMOHTARTO, K., & M. K. MOOSA, 1974. — The Hippidea and Brachyura collected by the Rumphius Expedition I. In : Report of the Rumphius Expedition I (January 6-February 1, 1973). *Oceanologi di Indonesia*, 1 : 17-26.
- SERÈNE, R., ROMIMOHTARTO, K., & M. K. MOOSA, 1976. — The Hippidea, Stomatopoda and Brachyura collected by the Rumphius Expedition II. In : Report of the Rumphius Expedition II (January 15-February 8, 1975). *Oceanologi di Indonesia*, 6 : 15-21.
- SMITH, S. I., 1869. — Notes on new or little known species of American cancrioid Crustacea. *Proc. Boston Soc. nat. Hist.*, 12 : 274-289.
- STEBBING, T. R. R., 1910. — General Catalogue of South African Crustacea (Part V. of S.A. Crustacea, for the Marine Investigations in South Africa). *Ann. S. Afr. Mus.*, 6 : 281-593, pls 15-22 [41-48].
- STEPHENSON, K., 1945. — The Brachyura of the Iranian Gulf. With an Appendix : The male pleopoda of the Brachyura. In : *Danish Scientific Investigations in Iran. Part IV.* Copenhagen, E. Munksgaard : 57-237, figs 1-60.
- TAKEDA, M. & B. GALIL, 1980. — A New Species of *Calocarcinus* (Crustacea, Brachyura) from the Submarine Bank off the Izu Islands, Central Japan. *Bull. natn. Sci. Mus.*, (Zool.), (A) 6 (4) : 191-194, figs 1-8.
- TAKEDA, M., & N. NUNOMURA, 1976. — Crabs collected by the Melanesia Expedition of the Osaka Museum of Natural History, 1958. *Bull. Osaka Mus. nat. Hist.*, 30 : 61-92, figs 1-3.
- THALLWITZ, J., 1892. — N° 3. Decapoden-Studien, insbesondere basirt auf A. B. Meyer's Sammlungen un Ostindischen Archipel, nebst einer Aufzählung der Decapoden und

09 MARS 1990

- Stomatopoden des Dresdener Museums. *Abh. Ber. K. zool. anthrop.-ethn. Mus. Dresden*, (1890/91) 3 : 1-55, pl. 1.
- TWEEDIE, M. W. F., 1947. — On the Brachyura of Christmas Island. *Bull. Raffles Mus.*, (18) : 27-42, fig. 1.
- VATOVA, A., 1943. — I Decapodi della Somalia. *Thalassia*, 6 (2) : 1-37, pls 1-5.
- URITA, T., 1926. — A check list of Brachyura found in Kagoshima Prefecture. Tsingtao, Japan, *The Tsingtao Times*, iv + 41 p.
- WALKER, A. O., 1887. — Notes on a collection of Crustacea from Singapore. *J. Linn. Soc.*, (Zool), 20 (118) : 107-117, pls 6-9.
- WARD, M., 1932. — The True Crabs of the Capricorn Group, Queensland. (Class Crustacea, Order Decapoda Brachyura.) Part 1. Xanthidae. *Aust. Zool.*, 7 (3) : 237-255.
- WARD, M., 1939. — Brachyura of the Second Templeton Crocker-American Museum Expedition to the Pacific Ocean. *Am. Mus. Novit.*, (1049) : 1-15, figs 1-18.
- WARD, M., 1941. — New Brachyura from the Gulf of Davao, Mindanao, Philippine Islands. *Am. Mus. Novit.*, (1104) : 1-15, figs 1-30.
- WARD, M., 1942. — Notes on the Crustacea of the Desjardins Museum, Mauritius Institute, with descriptions of new genera and species. *Bull. Maur. Inst.*, 2 (2) : 49-113, pls 5-6.
- WEDENISSOW, T., 1894. — Di alcuni Crostacei raccolti nel Paese del Somali dall'Ing. L. Bricchetti-Robecchi. *Boll. Soc. ent. ital.*, 26 (3-4) : 408-424.
- WHITE, A., 1847. — *List of the specimens of Crustacea in the collections of the British Museum*. London, viii + 143 p.
- WHITELEGGE, T., 1897. — The Crustacea of Funafuti. In : *The Atoll of Funafuti, Ellice group : its Zoology, Botany, Ethnology and General Structure based on the Collections made by Mr Charles Hedley, of the Australian Museum, Sydney, N. S.W.* *Mem. Aust. Mus.*, 3 : 125-151, pls 6-7.
- ZEHNTNER, L., 1894. — Crustacés de l'Archipel malais. Voyage de MM. Bedot et C. Pictet dans l'Archipel Malais. *Revue Suisse Zool.*, 2 : 135-214, pls 7-9.

