

## BRACHYURAN TYPE SPECIMENS (CRUSTACEA: DECAPODA) IN THE MACLEAY COLLECTION, UNIVERSITY OF SYDNEY, AUSTRALIA

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**ABSTRACT.** – William Sharp MacLeay's (1838) paper was one of the most important for the 19<sup>th</sup> century, with the author establishing 17 suprageneric taxa, seven new genera and 23 new species from South Africa, described. The status, validity and taxonomy of these taxa are discussed and the extant type specimens are figured in detail for the first time. Of the 23 species described, types are extant for 18 species. Examination of these specimens also leads to some changes to the taxonomy of several species of *Eriphia* [Eriphiidae], *Trapezia* (= *Grapsillus*) [Trapeziidae], and *Planes* (= *Nautilograpsus*) [Grapsidae].

**KEY WORDS.** – MacLeay collections, Brachyura, systematics.

### INTRODUCTION

Of the many 19<sup>th</sup> century papers published on Brachyura, MacLeay's (1838) work must rank as one of the most significant. Although small, the size of MacLeay's (1838) paper belies its substantial contribution to brachyuran taxonomy. Of the 53 extant brachyuran families recognised by Ng (1998), 10, viz. the Dorippidae, Hymenosomatidae, Gecarcinidae, Goneplacidae, Grapsidae, Parthenopidae, Eriphiidae, Portunidae, Cancridae and Xanthidae were first validly established by MacLeay (1838). Seven new genera, *Antilibinia*, *Dehaanius*, *Leachium*, *Matutinus*, *Grapsillus*, *Gnathochasmus* and *Potamonantes* were also described, as well as 23 new species, viz. *Dromia rotunda*, *Acanthonyx scutellatus*, *Antilibinia smithii*, *Mithrax quadridentatus*, *Dehaanius acanthopus*, *Leucisca squalina*, *Xaiva pulchella*, *Charybdis smithii*, *Achelous crassimanus*, *Eriphia smithii*, *E. fordii*, *Atergatis compressipes*, *Chlorodius perlatus*, *Halimede pisifer*, *Grapsillus dentatus*, *G. maculatus*, *G. subinteger*, *Goniopsis flavipes*, *Gnathochasmus barbatus*, *Nautilograpsus major*, *N. smithii*, *Plagusia spinosa* and *Cleistostoma edwardsii*.

Of the five new majoid families established by MacLeay (1838), viz. Inachidae, Eurypodidae, Epialtidae, Mithracidae and Huenidae (now equivalent to subfamilies if the spider

crabs are considered to be just one family), four are still recognised. In the recent reappraisal of the Majidae, Griffin and Tranter (1986) recognised Macleay's Inachinae, Epialtinae and Mithracinae, with the status of Eurypodinae pending and they synonymised Huenidae under the Epialtinae. MacLeay also recognised many other families which he attributed to H. Milne Edwards, viz. Dorippidae, Thelphusidae, Goneplacidae (sic Gonoplacidae), Grapsidae, Gecarcinidae, Hymenosomatidae and Parthenopidae. Henri Milne Edwards (1834) had indeed recognised many groups in the Brachyura but unfortunately, he consistently applied French vernaculars for them and his names are thus technically invalid under modern nomenclatural rules (see also Chia & Ng, 2000). Because MacLeay was the first to formally recognise H. Milne Edwards' groups as families, he is effectively the author of these suprageneric taxa. In addition, three other families were established by Macleay, viz. Eriphiidae, Portunidae and Cancridae. Of these, the Eriphiidae, long synonymised under Oziidae Dana, 1851, or Menippidae Ortmann, 1893, was recently resurrected (Ng, 1998). One family, the Thelphusidae Macleay, 1838, although a senior synonym of Potamidae Ortmann, 1896, was suppressed for stability. The International Commission on Zoological Nomenclature, under its plenary power (Opinion 712, International Commission of Zoological Nomenclature, 1964: 336) gave the name Potamidae

Table 1. Current names for MacLeay's genera and species.

MacLeay's name	Current name
<i>Dromia rotunda</i>	<i>Pseudodromia rotunda</i> (MacLeay, 1838)
<i>Leucisca squalina</i>	<i>Leucisca squalina</i> MacLeay, 1838
<i>Acanthonyx scutellatus</i>	<i>Acanthonyx scutellatus</i> MacLeay, 1838
<i>Antilibinia</i>	<i>Antilibinia</i> MacLeay, 1838
<i>Antilibinia Smithii</i>	<i>Antilibinia smithii</i> MacLeay, 1838
<i>Mithrax quadridentatus</i>	<i>Schizophrys aspera</i> (H. Milne Edwards, 1834)
<i>Dehaanius</i>	<i>Acanthonyx Latreille</i> , 1828
<i>Dehaanius acanthopus</i>	<i>Acanthonyx dentatus</i> (H. Milne Edwards, 1834)
<i>Leachium</i>	<i>Hymenosoma</i> Desmarest, 1825
<i>Matutinus</i>	<i>Matuta</i> Weber, 1795
<i>Xaiva</i>	<i>Xaiva</i> MacLeay, 1838
<i>Xaiva pulchella</i>	<i>Xaiva biguttatus</i> (Risso, 1816)
<i>Charybdis Smithii</i>	<i>Charybdis smithii</i> MacLeay, 1838
<i>Achelous crassimanus</i>	<i>Scylla serrata</i> (Forskål, 1775)
<i>Eriphia Smithii</i>	<i>Eriphia smithii</i> MacLeay, 1838
<i>Eriphia Fordii</i>	<i>Eriphia sebana</i> (Shaw & Nodder, 1803)
<i>Atergatis compressipes</i>	<i>Atergatis floridus</i> (Linnaeus, 1767)
<i>Chlorodius perlatus</i>	<i>Pilodius areolatus</i> (H. Milne Edwards, 1834)
<i>Halimede pisifer</i>	<i>Serenepilumnus pisifer</i> (MacLeay, 1838)
<i>Grapsillus</i>	<i>Trapezia Latreille</i> , 1828
<i>Grapsillus dentatus</i>	<i>Trapezia cymodoce</i> (Herbst, 1801)
<i>Grapsillus maculatus</i>	<i>Trapezia rufopunctata</i> (Herbst, 1799)
<i>Grapsillus subinteger</i>	<i>Trapezia ferruginea</i> (Latreille, 1828)
<i>Goniopsis flavipes</i>	<i>Grapsus tenuicrustatus</i> (Herbst, 1783)
<i>Plagusia spinosa</i>	<i>Plagusia chabrui</i> (Linnaeus, 1758)
<i>Gnathochasmus</i>	<i>Cyclograpsus</i> H. Milne Edwards, 1837
<i>Gnathochasmus barbatus</i>	<i>Cyclograpsus punctatus</i> H. Milne Edwards, 1837
<i>Nautilograpsus major</i>	<i>Planes major</i> MacLeay, 1838
<i>Nautilograpsus smithii</i>	<i>Planes minutus</i> (Linnaeus, 1758)
<i>Cleistostoma Edwardsii</i>	<i>Cleistostoma edwardsii</i> MacLeay, 1838
<i>Potamonantes</i>	<i>Potamonantes</i> MacLeay, 1838

Ortmann, 1896, precedence over Thelphusidae MacLeay, 1838, but only for carcinologists who regard the names as synonymous. MacLeay (1838) attributed the family name Carcinidae to Leach, but the name was actually validated by MacLeay. The Carcinidae MacLeay, 1838, is now regarded as a subfamily of the Portunidae.

Of the four genera established by MacLeay (1838), only *Antilibinia* is now generally recognised. The others have been synonymised: *Dehaanius* with *Acanthonyx*, *Grapsillus* with *Trapezia*, and *Gnathochasmus* with *Cyclograpsus*. Of the species MacLeay described, nine are still valid, viz. *Dromia rotunda*, *Acanthonyx scutellatus*, *Antilibinia smithii*, *Leucisca squalina*, *Charybdis smithii*, *Eriphia smithii*, *Halimede pisifer*, *Nautilograpsus major* and *Cleistostoma edwardsii*, although some of their generic placements have changed (Table 1). The other species have been found to be junior synonyms (Table 1).

MacLeay rarely recorded the number of specimens that he examined in making species descriptions. Even when he provided single measurements in his description or discussion, MacLeay may have used more specimens (e.g. for *Parapilumnus pisifer*). Therefore, except where MacLeay explicitly stated he only had one specimen attributable to the type series (e.g. for *Dehaanius acanthopus*), we consider his specimens as syntypes, even if only one specimen is still

extant. Some of the measurements MacLeay provided are problematic. We have found only some specimens with measurements similar or close to his published measurements (i.e., *Grapsillus subinteger*), and it seems that some of his measurements were very approximate at best! In some cases, his carapace length measurements actually more or less match those of the carapace width (e.g. *Eriphia smithii* and *E. fordii*) and in these cases, it seems that he may have been mistaken. For some species, however, such as *Atergatis compressipes*, MacLeay actually gives carapace length and width measurements which differ considerably from the single extant specimen. Possibly in some cases, specimens for which measurements were given are now lost. In four species which he figured in colour and for which specimens are still extant (viz. *Antilibinia smithii*, *Grapsillus dentatus*, *Xaiva pulchella* and *Gnathochasmus barbatus*), the carapace size of these figures agree closely with our present measurements of the specimens. The style and layout of the two plates indicate that most of these species were figured life-size. Only for *Leucisca squalina* did he state in the captions that the coloured figure was magnified. Therefore, regardless of the scenarios stated, measurements alone cannot be used to determine the type status of the various specimens concerned.

The style of writing the name MacLeay varies between "Macleay", "MacLeay" and "McLeay". Manning and

Holthuis (1981) for example, use “MacLeay” throughout their text, whereas Barnard (1950) uses “McLeay”. According to staff at the Macleay Museum (which holds the material from three members of the Macleay family), the Macleay’s themselves were not consistent in the way they spelt their name, and this seems to be somewhat typical in the 19th century. A lower case L was frequently used in their correspondence and various other documents. All memorials to the Macleay’s, however, are spelt with a lower case L and for consistency, the museum spells the name as “Macleay” (see also Stanbury & Horning, 1988; Tilbrook, 1992; Horning, 1994; Ahyong & Norrington, 1997). However, L. B. Holthuis (personal communication) comments: “On the title page of the ANNULOSA, the author’s name MACLEAY is given entirely in capital letters so that it is not possible to see whether or not the L of the name was meant to be in lower case. In the text of the paper, the author usually cites his name in abbreviated form “M’L”. However, on p. 72 (line 14), the author speaks of “... my brother, Mr. George MacLeay” and on p. 75, he uses the same spelling; furthermore, the specific name of “*Arthropterus MacLeaii* Don[ovan]”, the L is also capitalized. The fact that Macleay consistently capitalizes the L in his 1838 paper would be a good reason to adopt that spelling here.” It seems therefore, that William MacLeay himself accepted and used both styles. For consistency and stability, and after many discussions with our carcinological colleagues, we feel that the spelling which MacLeay used in his 1838 work should be adopted, at least for the crustacean literature. As such, we will use “MacLeay” in this paper.

The abbreviations cw and cl are used for carapace width and length measurements respectively. The family classification follows that used by Ng (1998). The original names and combination, as used by MacLeay (1838) is followed and the state of the taxonomy of each species is discussed. As the original publication is difficult to obtain, and several of the species MacLeay described were actually figured in colour, we reproduce some of these in the present paper for the benefit of the reader.

#### A NOTE ON WILLIAM SHARP MACLEAY

William Sharp MacLeay was born in London on 21 July 1792. He was educated at Cambridge University, but also spent time abroad furthering his scientific knowledge. In Paris, MacLeay benefitted from French contemporaries such as Latreille, Cuvier, and Lamarck. In London, MacLeay was active in the Linnean Society and the Zoological Club (which some authors have regarded as the forerunner to the Zoological Society), where he was among those who encouraged a young Charles Darwin to publish an account of the zoology of the expeditions of the “Beagle” (Holland, 1988). MacLeay served the British Government around the world in several capacities, and in each place made natural history collections, many of which remain in the collections of the MacLeay Museum today. From 1825, MacLeay served in Cuba and in 1836 returned to London Prior to leaving for Australia in November 1838, MacLeay published the classic

work, “Illustrations of the Annulosa of South Africa”.

MacLeay was also a visionary in some ways, forseeing the challenges for taxonomy and nomenclature in the 20<sup>th</sup> and 21<sup>st</sup> centuries. In his introduction to his work, he wrote “... I trust no one will detect symptoms of my being tormented by that morbid thirst for naming new species which makes so many modern works in entomology, rather magazines of undigested and insulated facts than harmonious histories of nature. It is really distressing to see the philosophy of our science lost sight of in a pulling passion for that miserable immortality which is made to depend on the invention of some barbarous technical names ... The preservation of the earliest name is a duty so much to the name as to the science ... I shall endeavour to be rigidly observant of that leading principle of nomenclature which is the right of priority. This right, in my opinion, is so necessary to be sustained, if we have any regard for the interests of natural history, that I shall never for one moment wait to consider whether the first namer of a species be an author of reputation or not.” (MacLeay, 1838: 2). These sentiments are relevant even more so today.

#### TAXONOMY

##### FAMILY DROMIIDAE DE HAAN, 1833

##### *Dromia rotunda* MacLeay, 1838 (Fig. 1A, B)

*Dromia rotunda* MacLeay, 1838: 71.

**Material.** – C2922, lectotype, male, cl 22.2 mm, cw 18.1 mm, Cape of Good Hope.

**Remarks.** – MacLeay wrote that the species was about sixteen lines (= 33.87 mm) long but the number of specimens was not specified. There is only one extant specimen, and it is here regarded as the lectotype of the species.

Barnard (1947) first referred *Dromia rotunda* to the genus *Pseudodromia*, and this classification was followed by McLay (1993) in his revision of the dromiid genera.

##### FAMILY MAJIDAE SAMOUELLE, 1819

##### *Acanthonyx scutellatus* MacLeay, 1838 (Fig. 1C-E)

*Acanthonyx scutellatus* MacLeay, 1838: 57.

**Material.** – C2912, lectotype male, cl 16.7 mm, cw 12.6 mm, glued to glass, Cape of Good Hope; C2913, paralectotype female, cl 22.8 mm, cw 16.2 mm, glued to glass, Cape of Good Hope.

**Remarks.** – MacLeay did not indicate how many specimens he examined, but mentioned a specimen “more than an inch long” (i.e., more than 25.4 mm long). The species was described in detail by Barnard (1950), Serène (1971) and

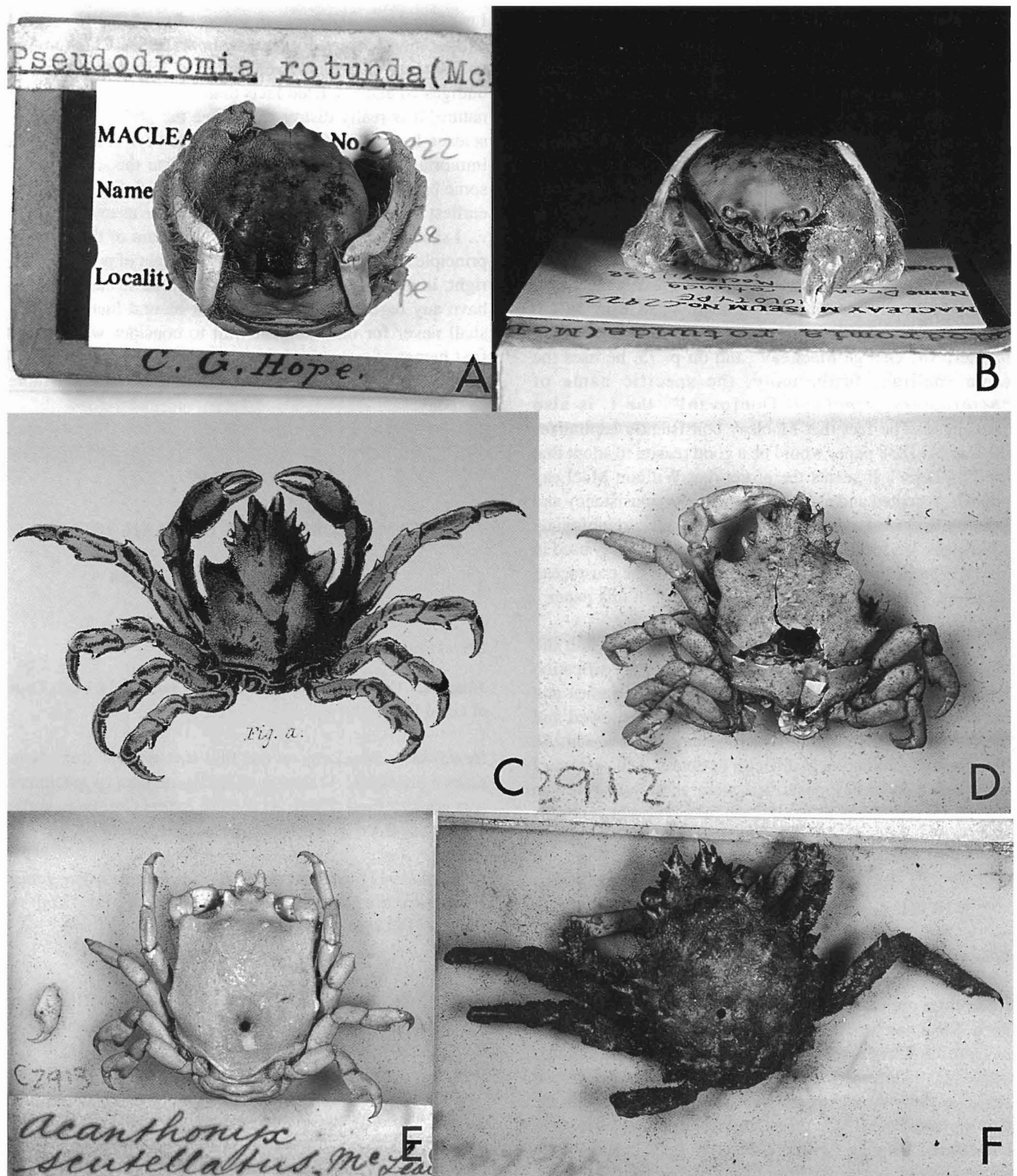


Fig. 1. A, B, *Dromia rotunda*, C2922, lectotype, male, cl 22.2 mm, cw 18.1 mm; A, dorsal view; B, frontal view. C-E, *Acanthonyx scutellatus*; C, after MacLeay (1838: pl. 3); D, C2912, lectotype, male, cl 16.7 mm, cw 12.6 mm; E, C2913, paralectotype, female, cl 22.8 mm, cw 16.2 mm. F, *Mithrax quadridentatus*, C2914, lectotype, female, cl 30.8 mm, cw 26.5 mm.

Tirmizi & Kazmi (1986) (see also key in Griffin & Tranter, 1986: 66). The present male specimen is here designated as the lectotype of *Acanthonyx scutellatus* MacLeay, 1838.

### ***Antilibinia* MacLeay, 1838**

**Remarks.** - MacLeay established *Antilibinia* for only one species, *Antilibinia smithii* MacLeay, 1838, and is therefore the type species of the genus by monotypy. The gender of the genus is feminine.

### ***Antilibinia smithii* MacLeay, 1838** (Fig. 2A, B)

*Antilibinia Smithii* MacLeay, 1838: 57, pl. 2.

**Material.** - C2972, lectotype, male, cl 57.0 mm, cw 52.7 mm, Cape of Good Hope.

**Remarks.** - MacLeay neither mentioned the number of specimens nor their sizes. The colour figure of this species, presumably life-sized, has a cl of 58 mm and a cw of 50 mm. The only extant specimen of *A. smithii* is here regarded as the lectotype.

*Antilibinia smithii* was redescribed and figured by Barnard (1950: 38, Fig. 7c, d). Griffin and Tranter (1986: 70) provide a key to all the species and note that the western Pacific species of *Antilibinia* should be recompared with the type species.

### ***Mithrax quadridentatus* MacLeay, 1838** (Fig. 1F)

*Mithrax quadridentatus* MacLeay, 1838: 57.

**Material.** - C2914, lectotype, female, cl 30.8 mm, cw 26.5 mm, glued to glass, Cape of Good Hope.

**Remarks.** - MacLeay did not record the number of specimens examined, but the carapace size given for the species was one and a half inches (= 38.1 mm) long. The only available specimen, a female, is here regarded as the lectotype of the species.

Griffin & Tranter (1986: 243) reviewed the genus *Schizophrys*, without commenting on *Mithrax quadridentatus* MacLeay, 1838. Barnard (1950: 60) had, however, synonymised *Mithrax quadridentatus* with *S. aspera* (H. Milne Edwards, 1834) (see also Griffin & Stanbury, 1970: 123). The matter, however, is not so simple. *Schizophrys aspera* belongs to a group of species which have an accessory spine at the base of each rostral horn. The other species in this group are *S. dahlak* Griffin & Tranter, 1986, *S. rufescens* Griffin and Tranter, 1986, and *S. pakistanensis* Tirmizi & Kazmi, 1995. Whilst *S. aspera* has a wide Indo-West Pacific distribution, *S. dahlak* and *S. pakistanensis* are presently known only from the northern Indian Ocean,

and perhaps South Africa as well. On the basis of Griffin & Tranter's (1986) key and descriptions, *M. quadridentatus* is unlikely to be *S. dahlak*, especially with regards to the smooth (against granulated) gastric region of the latter species. Tirmizi and Kazmi (1995) distinguished *S. pakistanensis* from *S. aspera* primarily because of its lower anterolateral spines, granulated suborbital margin and the interantennular spine being very prominent and spear-shaped; as well as its different larvae (see Siddiqui et al., 2000). The type specimen of *M. quadridentatus* has the relatively lower carapace spines, but in the form of the suborbital margin and low interantennular spine, it is closer to *S. aspera*. Because the strength of spines may vary with age and size, it seems better to regard *M. quadridentatus* MacLeay, 1838, as a subjective junior synonym of *S. aspera* (H. Milne Edwards, 1834) at present.

### ***Dehaanius* MacLeay, 1838**

**Remarks.** - MacLeay established the genus *Dehaanius* with only *Dehaanius acanthopus* MacLeay, 1838, which becomes its type species by monotypy (gender of the genus masculine). Most authors, however, regard *Dehaanius* MacLeay, 1838, as a junior synonym of *Acanthonyx* Latreille, 1828b. In fact, the only character that apparently distinguishes the two genera is whether there are six or fewer male abdominal somites (i.e. if there is any fusion) (excluding the telson). Manning & Holthuis (1981) discussed the problems of whether the genus *Acanthonyx* Latreille, 1828, is synonymous with *Dehaanius* MacLeay, 1838 (see also Tirmizi & Kazmi, 1986). *Acanthonyx* is characterised by having six male abdominal somites (i.e. with the sutures discernible) (exclusive of telson) while *Dehaanius* has only five or fewer abdominal segments (i.e. two or three segments are fused and the suture separating them not discernible). Both Stephensen (1946) and Barnard (1950) doubted the value of this character. Recently, Wu et al. (1999) also queried the value of this character on the basis that it is the fusion or articulation of the segments that is informative rather than the presence or absence of a suture separating the somites. In some crabs, even though the sutures are still clearly visible, the somites cannot articulate (see Ng & Chia, 1994). For example, in *A. formosa* Wu, Yu & Ng, 1999, from Taiwan, male abdominal somites three to five are immovable, but the sutures demarcating them are still visible.

### ***Dehaanius acanthopus* MacLeay, 1838**

*Dehaanius acanthopus* MacLeay, 1838: 58, pl. 3.

**Material.** - MacLeay noted that he had only one specimen from Dr. Smith but no size was mentioned. The colour figure of the species, presumably life-sized, has a cl of 22 mm (rostrum included) and a cw of 20 mm. The type of *Dehaanius acanthopus* MacLeay, 1838, is no longer extant.

**Remarks.** - *Dehaanius acanthopus* MacLeay, 1838, is now regarded as a junior synonym of *Acanthonyx dentatus* (H. Milne Edwards, 1834) (Barnard, 1950: 44). This species has

been described and figured by Barnard (1950: 44, Fig. 10a, b), and is apparently restricted to the western Indian Ocean.

FAMILY HYMENOSOMATIDAE MACLEAY, 1838

*Leachium* MacLeay, 1838

**Remarks.** – MacLeay (1938: 68) validated the name *Leachium* (incorrectly attributing it to H. Milne Edwards) when he used it for a group which he includes one named species, *Hymenosoma orbiculare*, noting that “Milne Edwards has shown that the *Hymenosoma Leachii* of Guérin belongs to another sub-genus”. As such, *Hymenosoma orbiculare* Desmarest, 1825, becomes the type species of *Leachium* MacLeay, 1838, by monotypy (gender of the genus neuter). Unfortunately, *Hymenosoma orbiculare* Desmarest, 1825, is also the type species of *Hymenosoma* Desmarest, 1825; and as such *Hymenosoma* and *Leachium* become objective synonyms, with the former name having priority. *Hymenosoma leachii* Guérin-Méneville, 1838, is now regarded as a junior subjective synonym of *Halicarcinus planatus* (Fabricius, 1775).

FAMILY MATUTIDAE DE HAAN, 1835

*Matutinus* MacLeay, 1838

**Remarks.** – MacLeay (1838: 70) established *Matutinus* without comment, and listed only one named species in the genus, viz. “(Matutinus) *Matuta* Victor, Fab.”. *Cancer victor* Fabricius, 1781, thus becomes the type species of *Matutinus* MacLeay, 1838, by monotypy. The gender of the genus is masculine. However, *Cancer victor* Fabricius, 1781, is also the type species of *Matuta* Weber, 1795, and as such, *Matutinus* MacLeay, 1838, is an objective junior synonym of *Matuta*.

FAMILY LEUCOSIIDAE SAMOUELLE, 1819

*Leucisca* MacLeay, 1838

**Remarks.** – This genus was established by MacLeay for one species, *Leucisca squalina* MacLeay, 1838, and is its type species by monotypy. The gender of the genus is feminine.

*Leucisca squalina* MacLeay, 1838  
(Fig. 6G)

*Leucisca squalina* MacLeay, 1838: 70, pl. 3.

**Material.** – No longer extant.

**Remarks.** – The taxonomic position of the genus, like that of the species, is poorly known, but Barnard (1950: 371, Fig. 71a-c) redescribed and figured its carapace, frontal region and male first pleopod. *Carcinaspis* Stimpson, 1858, is now

regarded as a junior synonym of *Leucisca* MacLeay, 1838. The type species of *Carcinaspis* Stimpson, 1858, *C. marginatus* Stimpson, 1858, is a junior synonym of *Leucisca squalina* MacLeay, 1838 (see Stebbing, 1910). Peyrot-Clausade & Serène (1976) synonymised *Nursia rubifera* Müller, 1886, with *L. squalina*, but as there appear to be some differences, until specimens of both species are directly compared, we believe it prudent to regard them as distinct taxa.

The number of specimens of *L. squalina* available to MacLeay is not known, but the measurement for one was given as about three lines (= 6.35 mm) long. The coloured figure of the species was stated as being drawn enlarged but the degree of magnification was not indicated.

FAMILY PORTUNIDAE RAFINESQUE, 1815

*Xaiva* MacLeay, 1838

**Remarks.** – The genus *Xaiva* was established by MacLeay (1838: 62) with *Xaiva pulchella* MacLeay, 1838, as the type species. *Xaiva* is the senior synonym of *Portumnoides* Bohn, 1901, whose type species, *P. garstangi* Bohn, 1901, is regarded as a junior synonym of *Portunus biguttatus* Risso, 1816.

*Xaiva pulchella* MacLeay, 1838  
(Fig. 2C-E)

*Xaiva pulchella* MacLeay, 1838: 62, pl. 3.

**Material.** – C2906-2907, lectotype, male, cl 15.1 mm, cw 17.6 mm; paralectotype, male, cl 17.0 mm, cw 18.8 mm, glued to glass, Cape of Good Hope.

**Remarks.** – The number of specimens was not indicated but the size was given as “less than an inch” (25.4 mm) in length (MacLeay, 1838). The specimen figured had a cl of 16 mm and cw of 18 mm. Of the two extant male syntype specimens, we select the more intact specimen (cl 15.1 mm, cw 17.6 mm) as the lectotype.

According to Monod (1956), *Xaiva pulchella* MacLeay, 1838, is a junior synonym of *X. biguttatus* (Risso, 1816). Manning and Holthuis (1981: 76), however, commented that “Material of this species from the northern and southern parts of its reported range (England to Cape Verde Islands versus South-West Africa and South Africa) should be studied to determine whether or not two species might be recognized. If the southern form proves to be distinct, the name *Xaiva pulchella* MacLeay, 1838, is available”.

*Charybdis smithii* MacLeay, 1838  
(Fig. 3A)

*Charybdis Smithii* MacLeay, 1838: 61.



**Material.** – C2908, lectotype, female, cw 55.5 mm, cl 41.8 mm, glued to glass, Cape of Good Hope.

**Remarks.** – MacLeay noted that this crab was about two inches (= 50.8 mm) long, but did not explicitly state that only one specimen was available to him. Ng and Takeda (1999) reported on this specimen and recorded it as the holotype but it should be regarded as the lectotype instead.

The taxonomy of this species was reviewed and clarified by Ng & Takeda (1999). *Charybdis* (*Goniohellenus*) *edwardsi* Leene & Buitendijk, 1949, is a junior synonym; and its relationship with the closely allied *Charybdis omanensis* Leene, 1938, has been clarified by Türkay (1986) and Ng & Takeda (1999). Both Barnard (1950) and Stephenson and Rees (1967) alluded to the type of *C. smithii* but it was figured for the first time by Ng & Takeda (1999). The biology of this Indian Ocean species is well known (see Van Couwelaar et al., 1997; Ng & Takeda, 1999).

#### *Achelous crassimanus* MacLeay, 1838

*Achelous crassimanus* MacLeay, 1838: 61.

**Material.** – The number of specimens was not listed but one male was highlighted in the description. Barnard (1950: 161) commented that “Mr. Ward informs me that MacLeay’s type is not in the MacLeay collection in the Australian Museum”. The type(s) is certainly lost (Griffin and Stanbury, 1970). *Achelous crassimanus* MacLeay, 1838, is, however, now acknowledged to be synonymous with *Scylla serrata* (Forskål, 1775) (Keenan et al., 1998: 228). Keenan et al. (1998: 228) designated a specimen (cw 141.7 mm, Queensland Museum catalogue number W21553) from Richard’s Bay, South

Africa as the neotype male of *Achelous crassimanus* MacLeay, 1838.

**Remarks.** – MacLeay commented that this was a large species measuring “five inches long by seven wide” (127.0 mm by 177.8 mm).

#### FAMILY ERIPHIIDAE MACLEAY, 1838

##### *Eriphia smithii* MacLeay, 1838

(Fig. 3C)

*Eriphia Smithii* MacLeay, 1838: 60.

**Material.** – C2926, lectotype, male, cl 43.0 mm, cw 56.4 mm, Cape of Good Hope, coll. Dr Smith.

**Remarks.** – MacLeay’s brief comments suggest he had at least one male, and he also mentions a specimen (possibly the same male) two inches (30.8 mm) long. The only extant male specimen is here designated the lectotype.

*Eriphia smithii* is a well known species, although its affinities with the closely allied *E. sebana* (Shaw & Nodder, 1803) (whether they are distinct, only subspecies or synonyms) have been debated. Both were traditionally separated based solely on whether the outer surface of the chela is granulated (*E. smithii*) or smooth (*E. sebana*). However, whereas the condition of the outer surface of the chela is usually a reliable distinguishing feature, it is not always reliable (Ng, 1998). A recent revision of the genus (S. K. Koh and P. K. L. Ng, unpublished data) shows that the two species can easily be

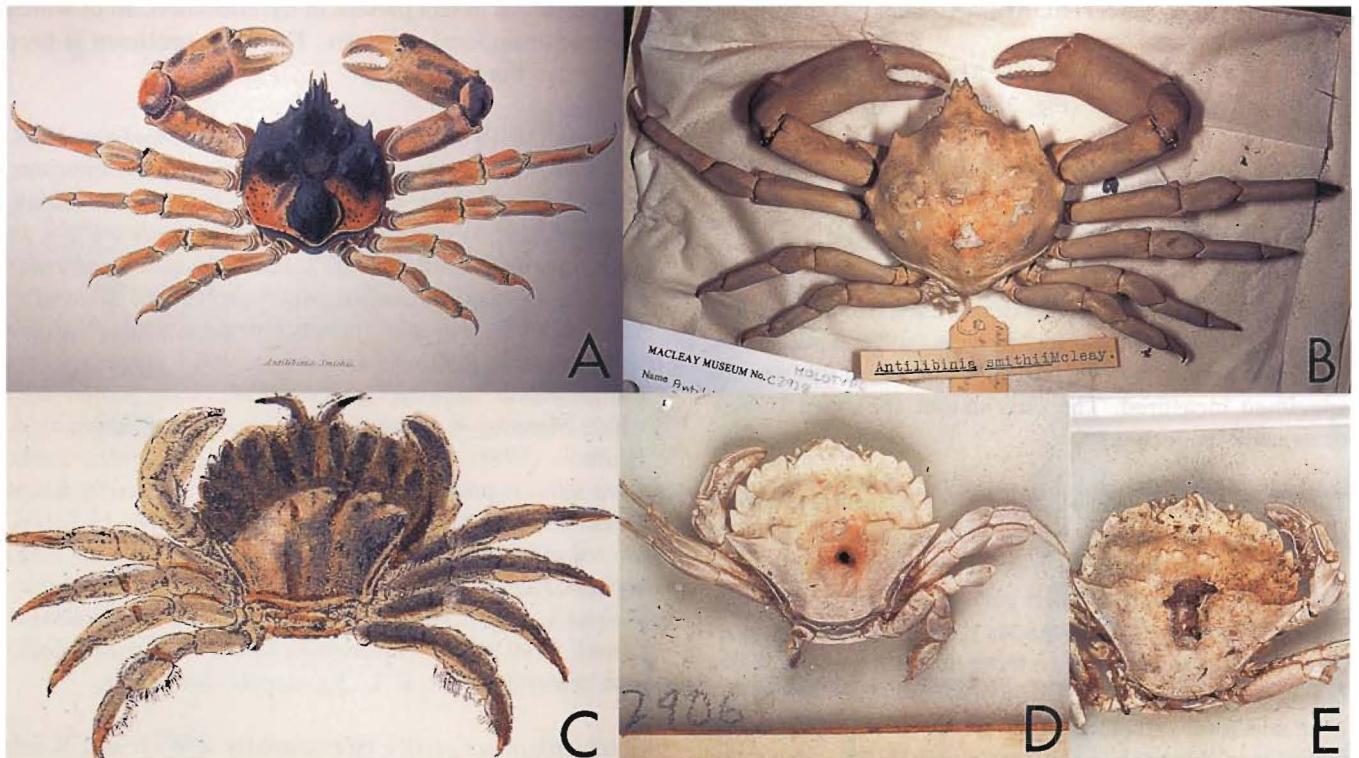


Fig. 2. A, B, *Antilibinia smithii*; A, after MacLeay (1838: pl. 2); B, C2972, lectotype, male, cl 57.0 mm, cw 52.7 mm. C, D, E, *Xaiva pulchella*; C, after MacLeay (1838: pl. 3); D, C2906, lectotype, male, cl 15.1 mm, cw 17.6 mm; E, C2907, paralectotype, male, cl 17.0 mm, cw 18.8 mm.

separated by the structures of their frontal margin, chelae, setal pattern on the ambulatory meri and male first gonopods. In addition, the 'true' *E. smithii* is apparently restricted to the western Indian Ocean. All other records of "*E. smithii*" from the remainder of the Indian Ocean, Southeast Asia and East Asia are referable to a new species. The two species are easily separated by several distinct carapace, chela and male gonopod characters, in addition to the smaller maximum size of *E. smithii* s. str.

***Eriphia fordii* MacLeay, 1838**

(Fig. 3B)

*Eriphia Fordii* MacLeay, 1838: 60.

**Material.** – C2927, lectotype, female, cl 39.2 mm, cw 52.3 mm, Cape of Good Hope, coll. Dr Smith.

**Remarks.** – From MacLeay's (1838: 61) comments, he had at least one female specimen, and one (perhaps the same female) two inches (50.8 mm) long. The only extant female specimen is here regarded as the lectotype.

Ever since Miers (1880), *Eriphia fordii* has been regarded as a junior synonym of *E. smithii* MacLeay, 1838, but a recent revision of the genus (S. K. Koh and P. K. L. Ng, unpublished data) shows that it is instead synonymous with *E. sebana* (Shaw & Nodder, 1803). In the form of the front, chela and setal pattern on the ambulatory meri, *E. fordii* closely resembles *E. sebana*. *Eriphia sebana* is widely distributed in the Indo-West Pacific.

FAMILY XANTHIDAE MACLEAY, 1838

***Atergatis compressipes* MacLeay, 1838**

(Fig. 3D)

*Atergatis compressipes* MacLeay, 1838: 59.

**Material.** – C2973, lectotype, male, 27.4 mm, cw 39.9 mm, Cape of Good Hope.

**Remarks.** – MacLeay recorded a specimen two inches (50.8 mm) long and about four inches wide (= 101.6 mm) wide. He also described a male, but we are unsure if this was the specimen measured. The only extant specimen is here designated the lectotype.

This species is now generally recognised as a junior synonym of the wide ranging *Atergatis floridus* (Linnaeus, 1767). We have examined specimens from the eastern Indian Ocean which have a different colour pattern to those in Southeast Asia and Pacific, which suggests that *Atergatis floridus* as currently recognised, may be more than one species. If this is indeed the case, then *A. compressipes* may become an available name. Another junior synonym of *A. floridus* to consider in this case is *Cancer ocyroe* Herbst, 1801, also from the Indian Ocean.

***Chlorodius perlatus* MacLeay, 1838**

(Fig. 3E)

*Chlorodius perlatus* MacLeay, 1838: 59.

**Material.** – C2919, lectotype, female, cl 7.3 mm, cw 11.2 mm; C2918, paralectotype male, cl 11.7 mm, cw 15.0 mm, Cape of Good Hope.

**Remarks.** – The number of specimens was not recorded, but the size was given as eight lines (= 16.93 mm). The more complete female specimen is here designated the lectotype.

Griffin & Stanbury (1970: 123) comment that *C. perlatus* is a junior synonym of *Pilodius areolatus* (H. Milne Edwards, 1834) following Barnard (1950). However, the two species had already been synonymized (A. Milne Edwards, 1873). The present specimens agree well with existing descriptions of *P. areolatus* (see Serène, 1984; Clark & Galil, 1993) and we have no reason to question the synonymy.

FAMILY PILUMNIDAE SAMOUELLE, 1819

***Halimede pisifer* MacLeay, 1838**

(Fig. 3F-H)

*Halimede pisifer* MacLeay, 1838: 60.

**Material.** – C2909-2911, lectotype, male, cl 11.5 mm, cw 15.2 mm; paralectotypes, 2 females, cl 8.3 mm, cw 12.2 mm; cl 8.8 mm, cw 12.3 mm, Cape of Good Hope.

**Remarks.** – MacLeay's notes imply that he examined only a single specimen "seven lines (14.82 mm) long", but three specimens are in fact present in the collection, all of which must be considered syntypes. The male specimen is here designated the lectotype.

Stebbing (1910) noted that *Halimede pisifer* MacLeay, 1838, is a senior synonym of *Pilumnus verrucosipes* Stimpson, 1858, both of which were described from South Africa. Barnard (1950) classified placed *Halimede pisifer* in *Parapilumnus* Kossmann, 1877, and it was also listed under this combination in Takeda & Miyake's (1969: 139) review. Takeda (1974: 216) subsequently commented that *P. pisifer* was closer to *Leopoldius* Serène, 1971 (type species *Parapilumnus leopoldi* Gordon, 1934), a suggestion with which Manning & Holthuis (1981) concurred. Manning & Holthuis (1981: 136) commented that the generic name *Leopoldius* is preoccupied and would be replaced by Raoul Serène himself. This, however, could not be done by Serène in view of his untimely death. Türkay & Schuhmacher (1985) replaced the name *Leopoldius* with *Serenepilumnus*. Whereas *Halimede pisifer* is certainly not referable to *Halimede* (see Guinot, 1969, 1978), its placement in *Serenepilumnus* should also be reviewed (P. K. L. Ng, unpublished data).

*Serenepilumnus pisifer* is essentially a West and South African species.



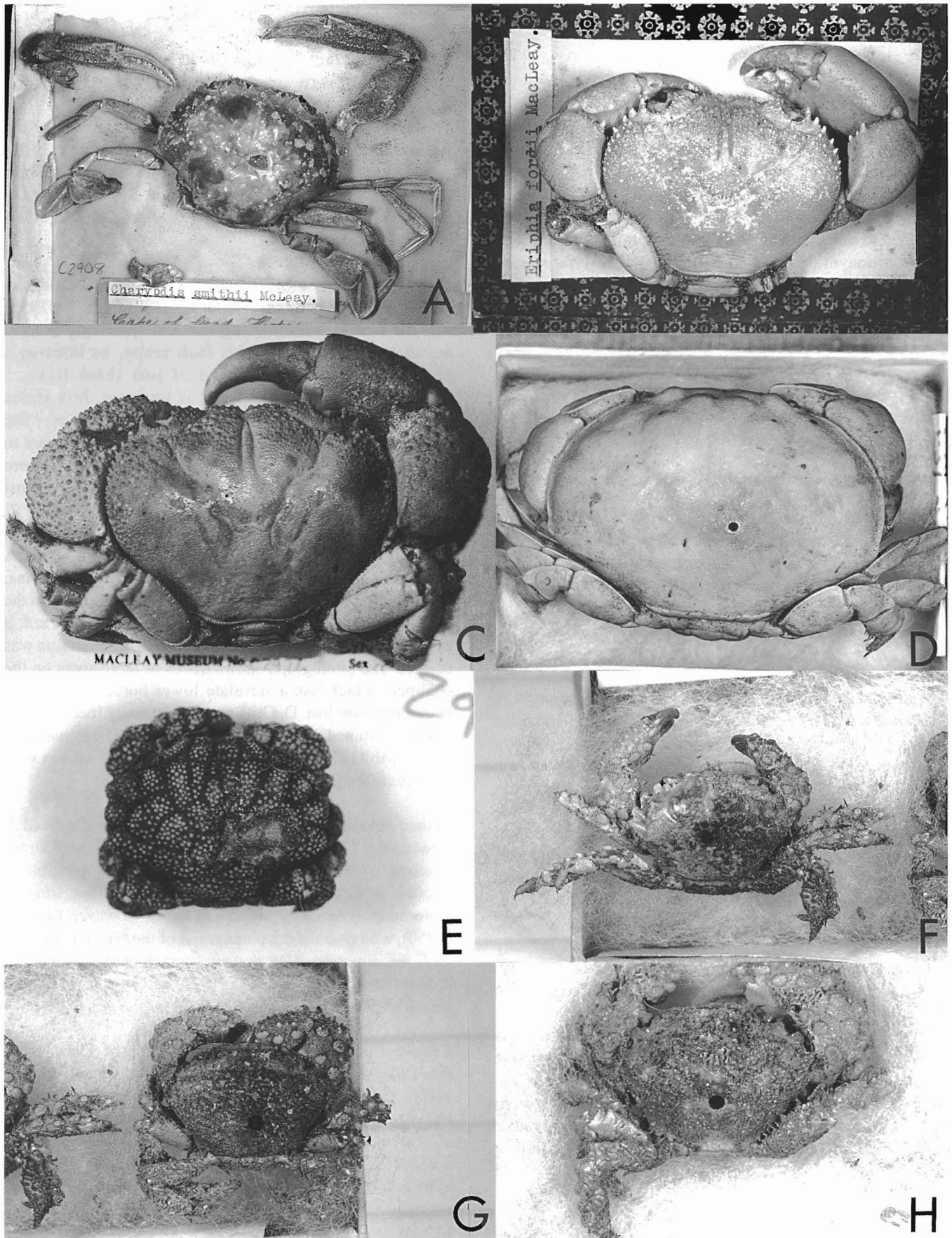


Fig. 3. A, *Charybdis smithii*, C2908, lectotype, female, cw 55.5 mm, cl 41.8 mm. B, *Eriphia fordii*, C2927, lectotype, female, cl 39.2 mm, cw 52.3 mm. C, *Eriphia smithii*, C2926, lectotype, male, cl 43.0 mm, cw 56.4 mm. D, *Atergatis compressipes*, C2973, lectotype, male, 27.4 mm, cw 39.9 mm. E, *Chlorodius perlatus*, C2919, lectotype, female, cl 7.3 mm, cw 11.2 mm. F-H, *Halimede pisifer*; F, C2909, lectotype, male, cl 11.5 mm, cw 15.2 mm; G, C2910, paralectotype, female, cl 8.8 mm, cw 12.3 mm; H, C2911, paralectotype, female, 8.3 mm, cw 12.2 mm.

FAMILY TRAPEZIIDAE MIERS, 1886

***Grapsillus* MacLeay, 1838**

**Remarks.** - MacLeay (1838) established the genus *Grapsillus* for three new species from South Africa, viz. *Grapsillus dentatus*, *Grapsillus maculatus* and *Grapsillus subinteger*, without designating a type species. Rathbun (1930) was the first to designate *Grapsillus maculatus* MacLeay, 1838, as the type species of *Grapsillus* MacLeay, 1838. The genus *Grapsillus* MacLeay, 1838, is now generally regarded as a junior synonym of *Trapezia* Latreille, 1828a (type species *T. dentifrons* Latreille, 1828, a junior synonym of *T. cymodoce* (Herbst, 1801)).

***Grapsillus dentatus* MacLeay, 1838**

(Fig. 4A, B)

*Grapsillus dentatus* MacLeay, 1838: 67, pl. 3.

**Material.** - C2923, lectotype, female, cl 10.5 mm, cw 13.0 mm, Cape of Good Hope.

**Remarks.** - *Grapsillus dentatus* was measured at “half an inch (= 12.7 mm) long, and about the same width”, but the number of specimens was not specified. In the colour figure provided, presumably life-sized, the cl was 11 mm and the cw 13 mm. The only specimen extant is here regarded as the lectotype.

*Grapsillus dentatus* is now regarded as a junior synonym of *T. cymodoce* (Herbst, 1801) (see Castro, 1999). *Grapsillus dentatus* has been regarded as a distinct species only by Klunzinger (1913) but the name has not been in general use for a long time. The present type agrees with the current definition of this species by Castro (1997, 1999). The present type specimen of *G. dentatus* has the sharp external orbital and epibranchial teeth, sinuous anterolateral margin and weakly keeled proximal dorsal margin of the cheliped propodus characteristic of *T. cymodoce* (see Serène, 1984: 270, 271, Pl. 38B; Castro, 1997: 73, Figs. 2A, 2B, pls. 2A, 3A). The frontal margin of the type of *G. dentatus* is badly damaged, but the cleft between the inner supraorbital tooth and the remnants of the submedian frontal tooth is distinctly deep, with the submedian tooth distinctly anterior to the supraorbital teeth as described by Serène. Traces of the dense tomentum on the outer surface of the chela (diagnostic for *T. cymodoce* and *T. lutea* Castro, 1997) are visible on the type. Most of the tomentum has probably been lost through prolonged dessication. The figure of *G. dentatus* is rather schematic, but the colour is certainly closer to *T. cymodoce* than *T. lutea*.

***Grapsillus maculatus* MacLeay, 1838**

(Fig. 4E)

*Grapsillus maculatus* MacLeay, 1838: 67.

**Material.** - C2924, lectotype, male, cl 8.5 mm, cw 10.5 mm, Cape of Good Hope.

**Remarks.** - MacLeay noted that this species was “four lines (8.47 mm) long, by more than five (= 10.58 mm) broad”. The only extant specimen, which is close to his measurements, is regarded as the lectotype of the species.

There has been some confusion in the literature about the fate and identity of MacLeay’s *Grapsillus maculatus*. Griffin & Stanbury (1970: 124) noted that this species was a junior synonym of *T. rufopunctata* (Herbst, 1799) following Barnard (1950), and that the holotype was intact and in fair condition.

In their revision of *T. tigrina*, however, Galil & Lewinsohn (1984: 171) commented that “Dana (1852) [sic for 1855] was the first to include *T. tigrina* into synonymy with *T. maculata* (Macleay), not his fault really, as Macleay’s description (1838) consisted of just three lines.... Unfortunately, Macleay’s type is lost now. Mrs Helen Tranter of the Australian Museum, Sydney wrote us: ‘The position is that the Macleay Museum no longer appears to have the type of this species and there is no record of there ever being any paratypes ... The locality of the type must now be regarded as unknown. However, it seems that *T. maculata* (MacLeay) is close to *T. rufopunctata*. Ward (1939) examined Macleay’s type and then went on to establish a new species, *T. danae* for *T. maculata* as described by Dana, 1852 [sic for 1855] ... Barnard (1950: 278) writes ‘from the photograph of MacLeay’s specimen sent me by Mr. Ward, it appears that Krauss’ surmise that this was *rufopunctata* was correct. The photograph shows traces of large spots on the cheliped, which has a serrulate lower border’. Alas, this photograph was lost. D. Griffin and P. Stanbury [nec Stabury] (1970) examined the type and identified it as *T. rufopunctata*. J. S. Garth (1974), who checked this type too, agrees with this identification.”

In their subsequent paper revising *T. rufopunctata*, Galil & Lewinsohn (1985: 213) further commented that “From Macleay’s (1838) laconic description it was impossible to decide which species was *Grapsillus maculatus*. Unfortunately Macleay’s type is lost now. However, Barnard (1950), who examined a photograph of the type identified it as *T. rufopunctata*. Alas, that photograph too is lost. Griffin & Stanbury (1970) and Garth (1974) agreed with Barnard’s identification.”

Despite the above comments, the type specimen of *G. maculatus* is certainly not lost, and is actually in a relatively good condition. How it was “overlooked” or “misplaced” in the years between 1970 and 1984 cannot be explained.

Serène (1984: 270, 271, 277, Pl. 39B) recognised *T. maculata* as a distinct species, separating it from the closely related *T. rufopunctata* primarily by its carapace having many fewer (40-50 vs. 100-200) but larger spots. Its carapace and ambulatory legs similarly also had fewer and larger spots. Galil & Lewinsohn (1985) and all subsequent workers, however, regarded the two names as synonymous with minimal comment, and have not commented on Serène’s character. Interestingly, the type specimen of *T. maculata*



still clearly shows the pattern of spots on the carapace and chelipeds as described by Serène. The spot pattern on *T. rufopunctata* is known to be very variable (Galil & Lewinsohn, 1985) and cannot be used as a diagnostic character. According to Peter Castro (personal communication), who also examined the type specimen, the MacLeay's type shows the characteristic morphological characters of *T. rufopunctata*: the pointed tubercles along the ventral margin of the chelipeds and sharply defined acute teeth along the anterolateral border" and that "smaller specimens of *T. rufopunctata* have larger and less numerous spots, as in the specimen photographed by Serène, 1984,

which was examined by me and reidentified as *T. rufopunctata*". A watercolour painting of *T. rufopunctata* done for Serène in Vietnam, was reproduced by Castro (1997) and shows the distinct pattern on the type of *G. maculatus* (i.e. having few but large spots). Serène himself identified the specimen on this painting as *T. rufopunctata*, not *T. maculata*. Serène's identification, unfortunately, was trimmed out of the published painting!" (P. Castro, personal communication). As such, *Grapsillus maculatus* should be regarded as a junior subjective synonym of *T. rufopunctata*. In any case, *T. rufopunctata* is known from South Africa (Castro, 1999: 108).

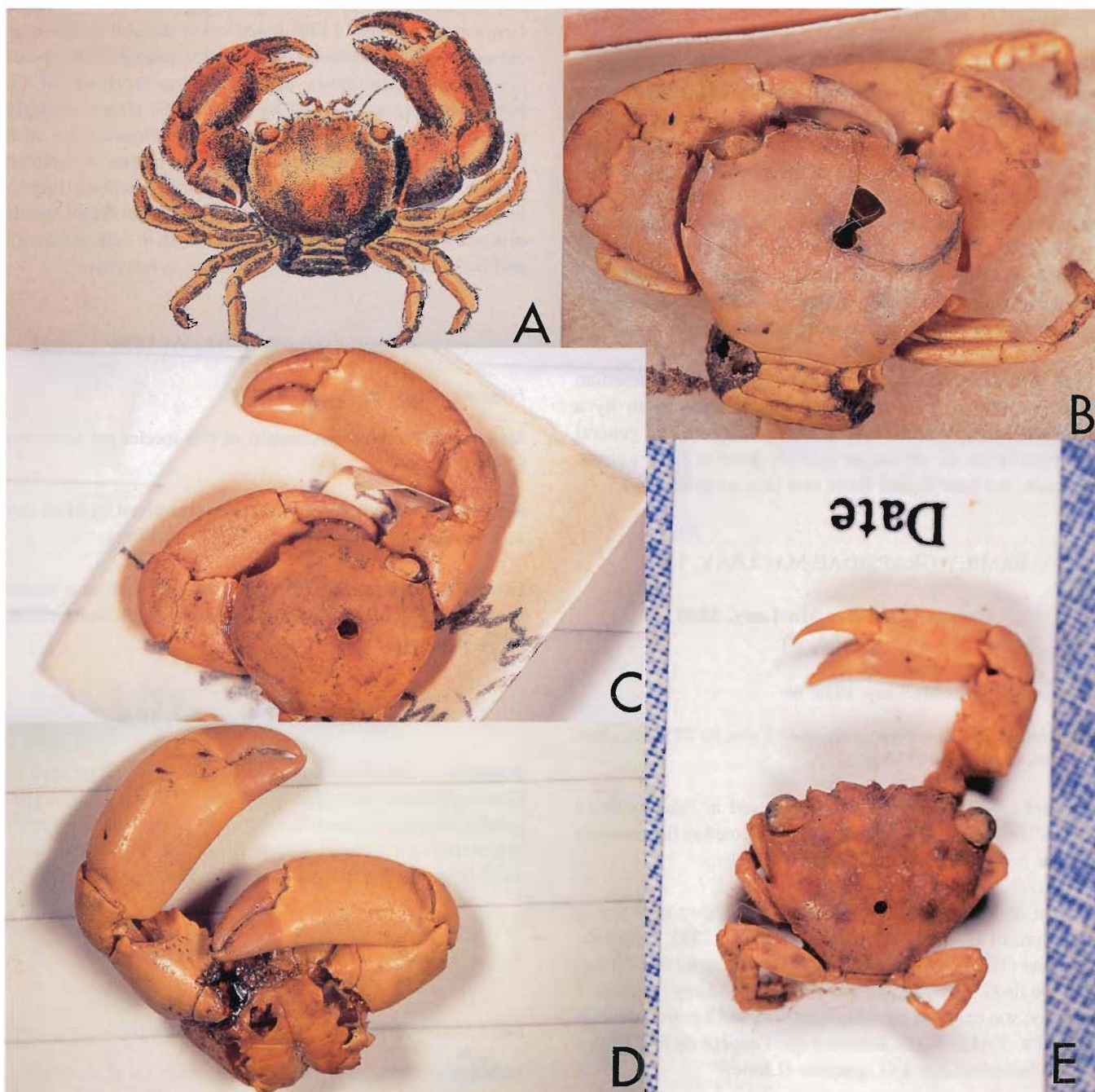


Fig. 4. A, B, *Grapsillus dentatus*; A, after MacLeay (1838: pl. 3); B, C2923, lectotype, female, cl 10.5 mm, cw 13.0 mm. C-D, *Grapsillus subinteger*, C2925, lectotype, male, cl 10.8 mm, cw 12.8 mm; C, dorsal view; D, ventral view. E, *Grapsillus maculatus*, C2924, lectotype, male, cl 8.5 mm, cw 10.5 mm.

***Grapsillus subinteger* MacLeay, 1838**  
(Fig. 4C, D)

*Grapsillus subinteger* MacLeay, 1838: 67.

**Material.** – C2925, lectotype, male, cl 10.8 mm, cw 12.8 mm, Cape of Good Hope.

**Remarks.** – MacLeay described this species as “four lines [8.47 mm] long and rather broader than long”. The only specimen available is here regarded as the lectotype.

*Grapsillus subinteger* has been regarded as a junior synonym of *Trapezia digitalis* Latreille, 1828, for some time (Serène, 1984: 278), although its exact status is somewhat questionable (see Castro, 1999: 107). Ward (1942) recognised *G. subinteger* as a valid species of *Trapezia* on the basis of his specimens from the Chagos Islands. Examination of the present type specimen indicates that it is almost identical to *T. ferruginea* (Latreille, 1828) as presently understood (Serène, 1984; Castro, 1997). *Trapezia digitalis* is characterised by its almost straight and subparallel anterolateral margins as well as its very low epibranchial tooth (in adult specimens), with the antero- and posterolateral margins appearing almost confluent. In these characters, *G. subinteger* differs markedly from *T. digitalis*, with its anterolateral margin arcuate and diverging posteriorly, and the epibranchial tooth, although low, is still pronounced and clearly separates the antero- and posterolateral margins.

With regards to the low frontal margin, with the submedian tooth separated from the inner supraorbital tooth by a relatively shallow cleft, low epibranchial tooth and general carapace facies, *G. subinteger* is much closer to *T. ferruginea*. As such, we here regard these two taxa as synonyms.

FAMILY GRAPSIDAE MACLEAY, 1838

***Goniopsis flavipes* MacLeay, 1838**  
(Fig. 5A, B)

*Goniopsis flavipes* MacLeay, 1838: 66.

**Material.** – C2928, lectotype, male, cl 49.5 mm, cw 53.9 mm, glued to glass, Cape of Good Hope.

**Remarks.** – The species was measured at “nearly three inches” (= 76.2 mm) long. The only specimen in the museum is here designated the lectotype.

Griffin & Stanbury (1970) regard *G. flavipes* as a junior synonym of *Grapsus grapsus* (Linnaeus, 1758), following Crosnier (1965). Crosnier (1965: 17) commented that “Quant au type de *G. flavipes*, il est déposé au Mc Leay Museum à Sydney; son examen, aimablement effectué à notre intention par le Dr. YALDWYN, a montré que l’espèce de MC LEAY est en fait identique à *G. grapsus* (Linné)”

Conversely, Banerjee (1960: 147), in his revision of the Indo-West Pacific species of *Grapsus*, placed MacLeay’s

species in the synonymy of *G. albolineatus* Lamarck, 1818, without examining the type. His discussion was based principally on the brief description of the species by MacLeay, and possibly with some influence from Ortmann (1894), Alcock (1900), Stebbing (1908, 1910) and Barnard (1950). Barnard (1950) synonymised *G. flavipes* with *G. strigosus* (Herbst, 1799), a species now known as *G. albolineatus* Lamarck, 1818 (see Banerjee, 1960: 153 for discussion). Banerjee (1960: 139) also noted that records of *Grapsus grapsus* s. str. from the Indo-West Pacific must be referred to *G. tenuicrustatus* (Herbst, 1783) instead, and listed many differences between the two species.

The type specimen of *G. flavipes* is well preserved and most of the distinguishing characters are obvious. Modifying the key of Banerjee (1960: 134) for the Indo-West Pacific *Grapsus*, Ng (1998: 1139) listed many distinct differences between *G. tenuicrustatus* and *G. albolineatus*. The type of *G. flavipes* possesses all the characteristics of *G. tenuicrustatus* as defined by Ng (1998) (front strongly deflexed, appearing almost vertical from frontal view with the margin gently serrated; inner angle of carpus of cheliped with subtruncate base; pectinated tips of cheliped fingers longitudinally narrow; and adult male sixth abdominal somite distinctly longer than or subequal in length to fifth segment), and both names should be regarded as synonyms.

***Plagusia spinosa* MacLeay, 1838**

*Plagusia spinosa* MacLeay, 1838: 66.

**Material.** – The type specimen(s) of this species are no longer extant.

**Remarks.** – The length of a specimen was given by MacLeay as three quarters of an inch (= 19.05 mm) long.

Griffin & Stanbury (1970) regard this species as a junior synonym of *P. chabrus* (Linnaeus, 1758) (see also Griffin, 1973; Dawson, 1987).

***Gnathochasmus* MacLeay, 1838**

**Remarks.** – *Gnathochasmus* MacLeay, 1838 (type species *Gnathochasmus barbatus* MacLeay, 1838, by monotypy; gender of genus masculine) is now regarded as a junior subjective synonym of *Cyclograpsus* H. Milne Edwards, 1837 (type species *C. punctatus* H. Milne Edwards, 1837).

***Gnathochasmus barbatus* MacLeay, 1838**  
(Fig. 5C-F)

*Gnathochasmus barbatus* MacLeay, 1838: 65, pl. 3.

**Material.** – C2915, lectotype, male, cl 22.0 mm, cw 27 mm; C2916, paralectotype, male, cl 24.5 mm, cw 29.8 mm; C2917, paralectotype, female, cl 17.8 mm, cw 21.3 mm, Cape of Good Hope.



**Remarks.** – MacLeay noted that “This crab was about an inch and a quarter long” (= 31.75 mm long). The colour figure provided (presumably life-sized) has a cl of 21 mm and cw of 27 mm. The smaller but more complete male specimen is here designated the lectotype of the species.

Griffin & Stanbury (1970) listed this species as a synonym

of *Cyclograpsus punctatus* H. Milne Edwards, 1837, citing Campbell & Griffin (1966). Campbell & Griffin (1966: 142), however, listed *Gnathochasmus* MacLeay, 1838, as a junior synonym of *Cyclograpsus* H. Milne Edwards, 1837, and *Gnathochasmus barbatus* MacLeay, 1838, as a synonym of *C. punctatus* H. Milne Edwards, 1837, without any comment. Bennett (1964: 83) had in fact, earlier briefly commented

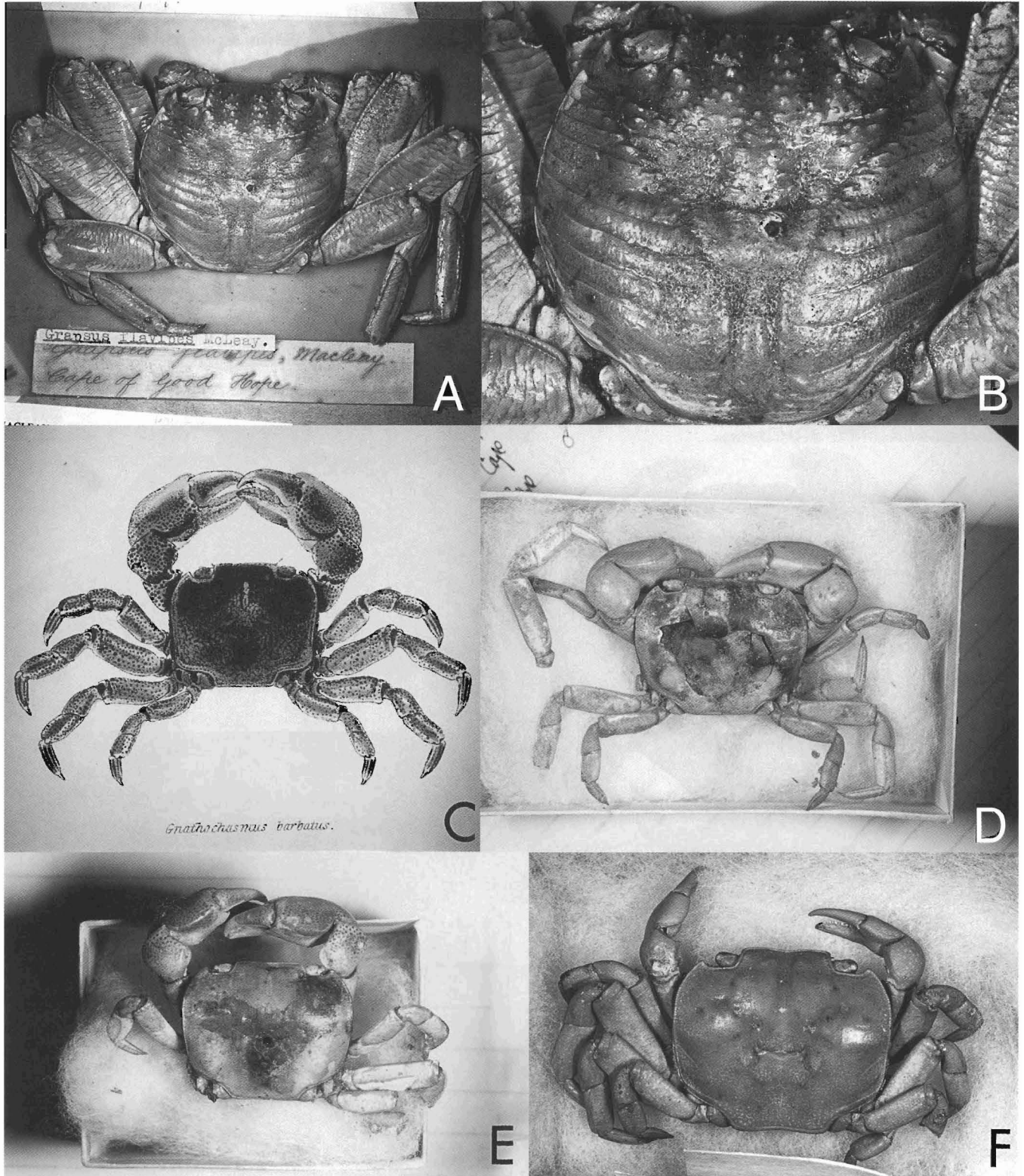


Fig. 5. A, B, *Goniopsis flavipes*, C2928, lectotype, male, cl 49.5 mm, cw 53.9 mm; A, dorsal view; B, carapace. C-F, *Gnathochasmus barbatus*; C, after MacLeay (1838: pl. 3); D, C2915, lectotype, male, cl 22.0 mm, cw 27 mm; E, C2916, paralectotype, male, cl 24.5 mm, cw 29.8 mm; F, C2917, paralectotype, female, cl 17.8 mm, cw 21.3 mm.



that “The superfluous name *Gnathochasmus barbatus* MacLeay ... is only a synonym of *C. punctatus* ... “ (see also Griffin, 1968).

Griffin & Stanbury (1970) listed only two specimens (neither sex or size was noted) in the type series of this species, but we have three on hand, all of which must be considered to be syntypes.

***Nautilograpsus major* MacLeay, 1838**  
(Fig. 6A, B)

*Nautilograpsus major* MacLeay, 1838: 66.

**Material.** – C2921, lectotype, male, cl 16.2 mm, cw 15.7 mm, Cape of Good Hope.

**Remarks.** – Ten lines long by seven wide (= 21.17 by 14.82 mm). The only specimen in the museum is here regarded as the lectotype.

Both *Nautilograpsus major* MacLeay, 1838, and *N. smithii* MacLeay, 1838, have long been regarded as synonyms of *Planes minutus* (Linnaeus, 1758) (see Chace, 1951), a view which was followed by Griffin & Stanbury (1970). The types on hand, however, indicate that the matter is not so simple.

Chace (1951: 68, Table 1), who did not examine the types of the two MacLeay species, listed a good number of

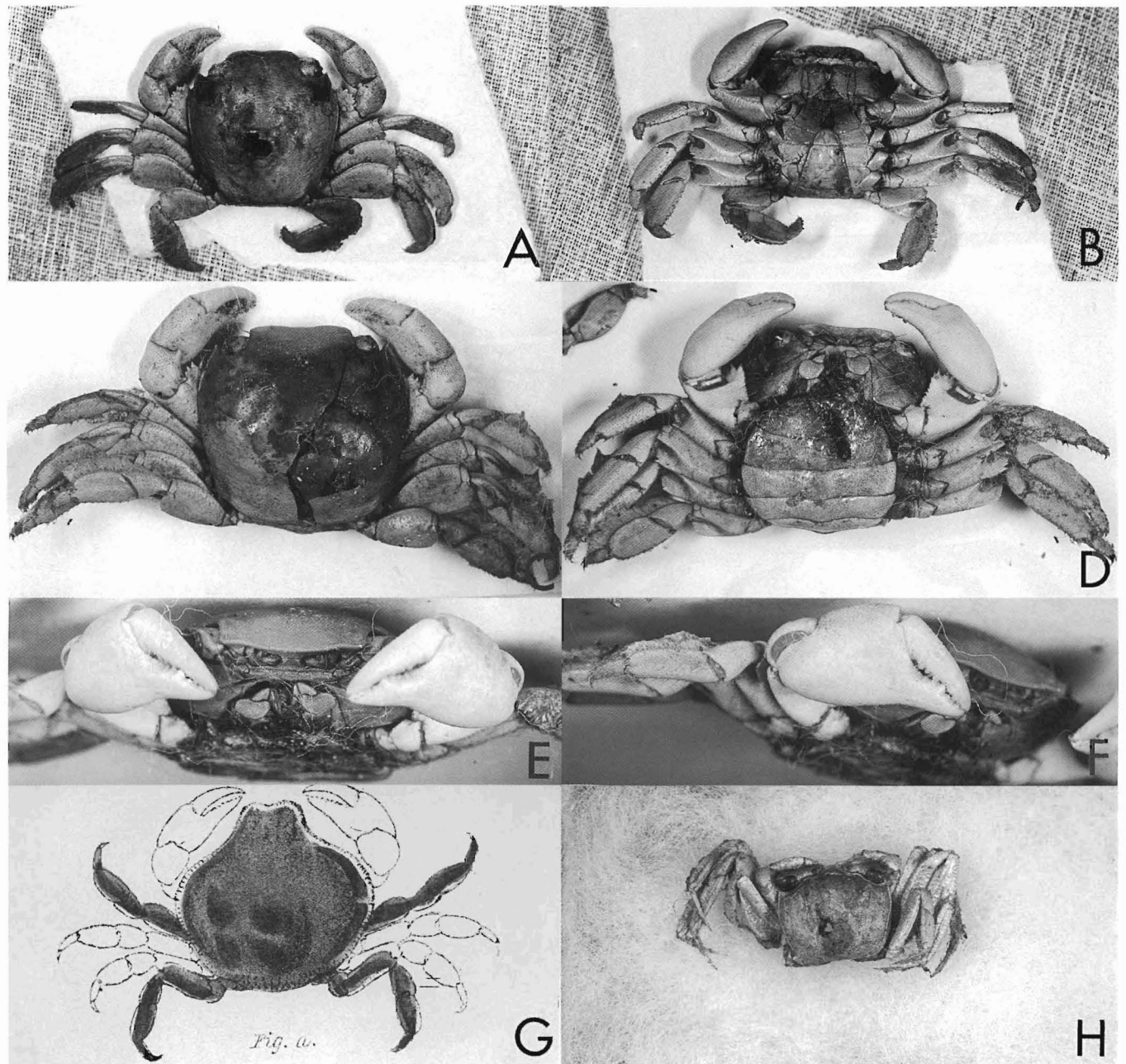


Fig. 6. A, B, *Nautilograpsus major*, C2921, lectotype, male, 16.2 by 15.7 mm; A, dorsal view; B, ventral view. C-F, *Nautilograpsus smithii*, C2920, lectotype, female, cl 14.2 mm, cw 13.6 mm; C, dorsal view; D, ventral view; E, frontal view; F, chela. G, *Leucisca squalina*, after MacLeay (1838: pl. 3). H, *Ocypode* sp., incorrectly identified as “*Cleistostoma edwardsii* MacLeay, 1838”, C2929, juvenile, cl 6.3 mm.

characters which easily distinguish the adults of two commonly mistaken species, *P. minutus* and *P. cyaneus* Dana, 1852. In fact, both species are known from South Africa (Chace, 1951). Using the characters enumerated by Chace (1951) (i.e. carapace proportions, form and proportions of the ambulatory leg and segments, especially the dactylus), the types of *N. major* and *N. smithii* show clearly that the generally accepted synonymy for the two species is incorrect. *Nautilograpsus major* is easily referable to *P. cyaneus*, whereas *N. smithii* is clearly *P. minutus*. Of course, this means that *N. major* MacLeay, 1838, is the senior subjective synonym of *Planes cyaneus* Dana, 1852. Since the latter species is of no major commercial or ecological importance, this should pose no problems.

MacLeay (1838) recognised three species in *Nautilograpsus* H. Milne Edwards, 1837, viz. *Cancer minutus* Linnaeus, 1758, *Nautilograpsus major* MacLeay, 1838, and *N. smithii* MacLeay, 1838. Since H. Milne Edwards (1837: 89) mentioned only one species in his original description, *Cancer minutus* Linnaeus, 1758, this species is the type species by monotypy. Rathbun (1918) subsequently selected *Cancer minutus* Linnaeus, 1758, as the type species, an action which was unnecessary. The gender of the genus is masculine. In any case, *Nautilograpsus* MacLeay, 1838, is now considered to be a junior subjective synonym of *Planes* Bowdich, 1825 (type species *Planes clypeatus* Bowdich, 1825, currently regarded as a junior subjective synonym of *Cancer minutus* Linnaeus, 1758).

***Nautilograpsus smithii* MacLeay, 1838**  
(Fig. 6C-F)

*Nautilograpsus smithii* MacLeay, 1838: 67.

**Material.** – C2920, lectotype, female, cl 14.2 mm, cw 13.6 mm, Cape of Good Hope.

**Remarks.** – MacLeay measured a specimen at seven lines long and as broad (= 14.82 by 14.82 mm). Whether he only had one specimen or not is unknown. The only extant specimen, which approximately matches the dimensions of the specimen MacLeay measured, is here regarded as the lectotype.

See above discussion for *N. major*.

**FAMILY CAMPTANDRIIDAE STIMPSON, 1858**

***Cleistostoma edwardsii* MacLeay, 1838**

*Cleistostoma edwardsii* MacLeay, 1838: 64.

**Material.** – No longer extant, see below.

**Remarks.** – MacLeay noted that his specimen(s) measured only four lines long (= 8.47 mm). The number of specimens was not specified.

Barnard (1950: 106) noted that “Mr Melbourne Ward tells me (4/3/37) that the type of this species is not amongst the MacLeay collection of South African Crustacea in the Australian Museum”. Subsequently, Griffin & Stanbury (1970: 125) also could not find the type(s). In the MacLeay collection, there is one male specimen (C2929) (Fig. 7B) from the Cape of Good Hope, however, which carries a label indicating that it might be the type of *C. edwardsii*. The label, however, post-dates Griffin and Stanbury’s report and it is unclear who was responsible. Specimen C2929 measures only 6.3 mm in carapace length, much shorter than MacLeay’s stated size of “four lines” (= 8.47 mm), but as noted in the introduction, this fact alone cannot dismiss the specimen as a possible type of *C. edwardsii*. More importantly, specimen C2929 does not match MacLeay’s description and is actually a species of *Ocypode* instead! MacLeay (1838) reported on *Ocypode* species as well in his paper and was certainly aware of the differences between *Ocypode* and *Cleistostoma* (which look very different in any case). Therefore, it is unlikely that specimen C2929 is a type of *C. edwardsii* and is not regarded as such. The type(s) must thus be considered lost.

**FAMILY POTAMONAUTIDAE BOTT, 1970**

***Potamonautes* MacLeay, 1838**

**Remarks.** – MacLeay (1838: 64) noted that “I take this occasion to observe, that in my cabinet I separate those species of *Thelphusa*, which, like the present [*Thelphusa perlata*], have a transversal crest in front of the shell, and call them *Potamonautes*. They are easily distinguished from true *Thelphusa*, of which the type is the European *Thelphusa fluviatilis*.” This action is valid under current nomenclatural rules. Although MacLeay hinted that he recognised more than one species of *Potamonautes*, he only listed one by name, viz. *Thelphusa perlata* H. Milne Edwards, 1837. As such, this species becomes the type species of *Potamonautes* MacLeay, 1838, by monotypy. The gender of the genus is masculine.

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# LITERATURE CITED

- Ahyong, S. T. & S. F. Norrington, 1997. Stomatopod Crustacea of the Macleay Museum, University of Sydney. *Proc. Linn. Soc. N.S.W.*, **118**: 97-110.
- Alcock, A., 1900. The Brachyura Catometopa, or Grapsoidae. XVI. Materials for a carcinological fauna of India, No. 6. *J. Asiat. Soc. Bengal*, **69**(II:3): 279-456.
- Bannerjee, S. K., 1960. Biological Results of the Snellius Expedition. XVIII. The Genera *Grapsus*, *Geograpsus* and *Metopograpsus* (Crustacea Brachyura). *Temminckia*, **10**: 132-199.
- Barnard, K. H., 1947. Descriptions of new species of South African Decapod Crustacea, with notes on synonymy and new records. *Ann. Mag. Nat. Hist.*, (11)**13**(102): 361-392.
- Barnard, K. H., 1950. Descriptive catalogue of South African Decapod Crustacea. *Ann. S. Afr. Mus.*, **38**: 1-837.
- Bennett, E. W., 1964. The marine fauna of New Zealand: Crustacea Brachyura. *N. Z. Oceanogr. Inst. Mem.*, No. **22**: 1-120.
- Bohn, G., 1901. Des mécanismes respiratoires chez les Crustacés Décapodes: Essai de physiologie évolutive, éthologique et phylogénique. *Bull. Scient. Fr. Belg.*, **36**: 1-374.
- Bott, R., 1970. Die Süßwasserkrabben von Europa, Asien, Australien und ihre Stammesgeschichte. Eine Revision der Potamoidea und Parathelphusoidea (Crustacea, Decapoda). *Abhand. Senckenberg. Naturforsch. Gesell.*, **526**: 1-338.
- Bowdich, T. E., 1825. *Excursions in Madeira and Porto Santo During the Autumn of 1823, while on his Third Voyage to Africa*. London, xii+278 pp., 12 pls.
- Campbell, B. M. & D. J. G. Griffin, 1966. The Australian Sesarminae (Crustacea: Brachyura): Genera *Helice*, *Heliograpsus* nov., *Cyclograpsus*, and *Paragrapsus*. *Mem. Qld. Mus.*, **14**(5): 127-174, pls. 20-23.
- Castro, P., 1997. Trapeziid crabs (Brachyura: Xanthoidea: Trapeziidae) of New Caledonia, eastern Australia, and the Coral Sea. Pp. 59-107, colour pls. 1-7. In: Richer de Forges, B. (Ed.), *Les fonds meubles des lagons de Nouvelle-Calédonie (Sédimentologie, Benthos)*. *Etudes et Thèses*, 3.
- Castro, P., 1999. Trapeziid crabs (Crustacea, Brachyura, Trapeziidae) of the Indian Ocean and the Red Sea. *Zoosystema*, **21**(1): 93-120.
- Chace, F. A., Jr., 1951. The oceanic crabs of the genera *Planes* and *Pachygrapsus*. *Proc. U.S. Nat. Mus.*, **101** (3272): 65-103.
- Chia, D. G. B. & P. K. L. Ng, 2000. A revision of *Eumedonius* H. Milne Edwards, 1834 and *Gonatonotus* White, 1847 (Crustacea: Decapoda: Brachyura: Eumedonidae), two genera of crabs symbiotic with sea urchins. *J. Nat. Hist.*, **34**: 15-56.
- Clark, P. F. & B. S. Galil, 1993. A revision of the xanthid genus *Pilodius* Dana, 1851 (Crustacea: Brachyura: Xanthidae). *J. Nat. Hist.*, **27**: 1119-1206.
- Crosnier, A., 1965. Crustacés Décapodes, Grapsidae et Ocypodidae. Faune de Madagascar. *Inst. Rech. Sci., Tananarive*, **18**: 1-143, pls. 1-11, text-figs. 1-260.
- Dana, J. D., 1852. Conspectus Crustaceorum, etc., Conspectus of the Crustacea of the Exploring Expedition under Capt. Wilkes, U.S.N., including the Crustacea Cancroidea Corystoidea. *Proc. Acad. Nat. Sci. Philadelphia*, **6**: 73-86.
- Dana, J. D., 1855. Crustacea. *United States Exploring Expedition during the years 1838, 1839, 1840, 1841, 1842 under the command of Charles Wilkes U. S. N.*, 14 (Atlas): 1-27.
- Dawson, E., 1887. A key to the world species of *Plagusia* (Crustacea: Brachyura), with a new record of *P. depressa tuberculata* Lamarck from New Zealand. *Nat. Mus. N. Z. Rec.*, **3**(4): 37-45.
- Desmarest, A. G., 1825. *Considérations générales sur la classe des Crustacés et description des espèces de ces animaux, qui vivent dans la mer, sur les côtes, ou dans les eaux douces de la France*. Paris & Strasbourg. F.G. Levrault: i-xix, 1-446, pl. 1-56, 5 tabl.
- Fabricius, J. C., 1775. *Sistema entomologiae, sistens insectorum, classes, ordines, genera, species, adiectis synonymis, locis, descriptionibus, observationibus*. Flensburgi et Lipsiae, 832 pp.
- Fabricius, J. C., 1781. *Species Insectorum exhibentes eorum Differentias specificas, Synonyma auctorum, Loca natalia, Metamorphosis adiectis Observationibus, Descriptionibus*. Pp. i-viii, 552 pp.
- Forskål, P., 1775. Descriptiones Animalium Avium, Amphiborum, Piscium, Insectorum, Vermium; quae in Itinere orientali observavit. Petrus Forskal. Post Mortem Auctoris edidit Carsten Niebuhr. Adjuncta est materia Medica Kahirina Atque Tabula Maris Rubri Geographica Hafniae: 1-19 + I-XXXIV + 1-164, 1 carte.
- Galil, B. & Ch. Lewinsohn, 1984. On the taxonomic status of *Trapezia tigrina* Eydoux & Souleyet, 1842 (Decapoda, Brachyura). *Crustaceana*, **46**(2): 166-175.
- Galil, B. & Ch. Lewinsohn, 1985. On the taxonomic status of *Trapezia rufopunctata* (Herbst) and *Trapezia flavopunctata* Eydoux & Souleyet (Decapoda, Brachyura). *Crustaceana*, **48**(2): 209-217.
- Garth, J. S., 1974. On the occurrence in the eastern tropical Pacific of Indo West Pacific decapod crustaceans commensal with reef building corals. *Proc. Sec. Int. Coral Reef Symp.*, pp. 397-404.
- Gordon, I., 1934. Crustacea Brachyura. Résultats Scientifique du Voyage aux Indes Occidentales Néerlandaises de LL.AA.RR le Prince et la Princesse Léopold de Belgique. *Mém. Mus. Hist. Nat. Belg.* (n.s.), **3** (15): 1-78.
- Griffin, D. J. G., 1968. A new species of *Cyclograpsus* (Decapoda, Grapsidae) and notes on five others from the Pacific Ocean. *Crustaceana*, **15**: 235-248.
- Griffin, D. J. G., 1973. A revision of the two southern temperate shore crabs *Leptograpsus variegatus* (Fabricius) and *Plagusia chabrui* (Linnaeus) (Crustacea, Decapoda, Grapsidae). *J. Roy. Soc. N. Z.*, **3**(3): 415-440.
- Griffin, D. J. G. & P. J. Stanbury, 1970. Type specimens in the Macleay Museum, University of Sydney. V. Decapod Crustaceans. *Proc. Linn. Soc. N. S. W.*, **95**(1): 122-131.
- Griffin, D. J. G. & H. A. Tranter, 1986. The Decapoda Brachyura of the Siboga Expedition. Part VIII Majidae. *Siboga-Exped. Monogr.*, **39C4**: 1-335, txt fig. 1-112, pls. 1-22.
- Guérin-Ménéville, F. E., 1829-1844. *Iconographie du Règne Animal de G. Cuvier ...* Paris, London, J. B. Baillière. Tome II. Planches des animaux invertébrés, pl. 1-104. III. Crustacés: 1-48.
- Guinot, D., 1969. Recherches préliminaires sur les groupements naturels chez les Crustacés Décapodes Brachyours. VII. Les Goneplacidae (suite). *Bull. Mus. natn. Hist. Nat.*, Paris, (2)**41**(2): 507-528.
- Guinot, D., 1978. Principes d'une classification évolutive des Crustacés Décapodes Brachyours. *Bull. biol. Fr. Belg.*, n.s., **112**(3): 211-292.

- Haan, de H. M., 1833-1849. Crustacea. In: P. F. von Siebold, *Fauna Japonica, sive Descriptio animalium, quae in itinere per Japoniam, jussu et auspiciis superiorum, qui summum in India Batavia imperium tenent, suscepto, annis 1823-1830 collegit, notis, observationibus a adumbrationibus illustravit*. Lugduni Batavorum, fasc. 1-8: I-xxi + vii-xvii + ix-xvi + 1-243, pl. 1-55, A-Q, circ., pl. 2.
- Herbst, J. F. W., 1782. Versuch einer Naturgeschichte der Krabben und Krebse, nebst einer systematischen Beschreibung ihrer verschiedenen Arten. Zürich, Johannes Casper Fuessly. 1(1): 1-86, pls. 1. (For dates of publication, see Rathbun, 1897: 157)
- Holland, J., 1988. Alexander and William Sharp Macleay. In: P. Stanbury & J. Holland (eds.), *Mr Macleay's Celebrated Cabinet*. Macleay Museum, University of Sydney.
- Horning, D. S., 1994. The natural history collections of William John Macleay as reflected through his know diaries (1874-1876, 1878-1881). *Proc. Linn. Soc. N.S.W.*, **114**(2): 91-107.
- International Commission of Zoological Nomenclature, 1964. Opinion 712. Forty-seven genera of Decapod Crustacea: Placed on the Official List. *Bull. zool. Nom.*, **21**(5): 336-351.
- Keenan, C. P., P. J. F. Davie & D. L. Mann, 1998. A revision of the genus *Scylla* de Haan, 1833 (Crustacea: Decapoda: Brachyura: Portunidae). *Raffles Bull. Zool.*, **46**(1): 217-246.
- Klunzinger, C. B., 1913. Die Rundkrabben (Cyclometopa) des Roten Meeres. *Nova Acta Leop. Carol.*, **99** (2): 97-402.
- Lamarck, M. De, 1818. Homobranches Brachyures. In: Les caractères généraux et particuliers de ces animaux, leur distribution, leurs classes, leurs familles, leurs genres, et la citation des principales espèces qui s'y rapportent. Tome 5. Deuxième section., pp. 226-273.
- Latreille, P. A., 1828a. Trapezie, Trapezia. In: *Encyclopédie méthodique: Histoire naturelle, Entomologie, ou histoire naturelle des Crustacés, des Arachnides, et des Insectes*, Paris, **10**: 695-696.
- Latreille, P. A., 1828b. Triangulaires, Trigona. In: *Encyclopédie méthodique: Histoire naturelle, Entomologie, ou histoire naturelle des Crustacés, des Arachnides, et des Insectes*, Paris, **10**: 697-701.
- Leene, J. E., 1938. *The Decapoda Brachyura of the Siboga-Expedition, VII. Brachygnatha: Portunidae*. E. J. Brill, Leiden. 148 pp.
- Leene, J. E. & A. M. Buitendijk, 1949. Notes on *Charybdis ihlei* nov. spec., *Charybdis beauforti* nov. spec., and *Charybdis edwardsi* nov. spec., from the collections of the British Museum (Natural History), London. *Bijd. Dierk.*, **28**: 291-298.
- Linnaeus, C., 1758. *Systema Naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis specierum, synonymis, locis*. 10th edition, 1: i-iii, 1-824 pp.
- Linnaeus, C., 1767. *Systema Naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis specierum, synonymis, locis*. 12th edition, 1: i-iii, 1-1327 pp.
- 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. Published under the Authority of the Lords Commissioners of Her Majesty's Treasury, Invertebratae* (London: Smith, Elder and Co.), [1849], pp. 53-71, pls 2, 3.
- Manning, R. B. & L. B. Holthuis, 1981. West African brachyuran crabs (Crustacea: Decapoda). *Smithsonian Contr. Zool.*, **306**: 1-379.
- McLay, C. L., 1999. Crustacea: Decapoda: Revision of the family Dynomenidae. Pp. 427-569. In: A. Crosnier (Ed.), *Résultats des campagnes MUSORSTOM, 20. Mém. Mus. natn. Hist. Nat.*, Paris, **180**.
- Milne Edwards, A., 1873. Recherches sur la faune carcinologique de la Nouvelle-Calédonie, Deuxième Partre. *Nouv. Arch. Mus. Hist. nat.*, Paris, **9**: 155-332, pls 4-18.
- Milne Edwards, H., 1834-1840. *Histoire naturelle des Crustacés, comprenant l'anatomie, la physiologie et la classification des ces animaux*, 1: xxxv+468pp.; 2: 1-531; Atlas [1834, 1837, 1840]: 1-32, pls. 1-14, 14 bis, 15-25, 25 bis, 26-42, 1-638. Librairie Encyclopédique de Roret, Paris.
- Monod, Th., 1956. Hippidea et Brachyura ouest-africains. *Mém. IFAN*, **45**: 1-674.
- Müller, F., 1886. Zur Crustaceen fauna von Trincomali. *Verh. Naturf. Ges. Basel*, **8**: 470-485.
- Ng, P. K. L., 1998. Crabs. In: *FAO Species identification guide for fishery purposes. The living marine resources of the Western Central Pacific. Volume 2. Cephalopods, crustaceans, holothurians and sharks*. K. E. Carpenter & Niem, V. H. (eds.), Food & Agriculture Org., Rome, pp. 1045-1155.
- Ng, P. K. L. & D. G. B. Chia, 1994. The genus *Glyptocarcinus* Takeda, 1973, with descriptions of a new subfamily, two new genera and two new species from New Caledonia (Crustacea: Decapoda: Brachyura: Xanthidae). *Raffles Bull. Zool.*, **42**(3): 701-730.
- Ng, P. K. L. & M. Takeda, 1999. Notes on the taxonomy of two species of swimming crabs, *Charybdis smithii* MacLeay, 1838, and *C. omanensis* Leene, 1938 (Crustacea: Decapoda: Brachyura: Portunidae) from the Indian Ocean. *J. South Asian Nat. Hist.*, Colombo, **4**(1): 71-81.
- Ortmann, A., 1893. Die Decapoden-Krebse des Strassburger Museums. VII Theil. Abt. Brachyura (Brachyura genuina Boas) II. Unterabtheilung: Cancroidea, 2. Section: Cancrinea, 1. Gruppe: Cyclometopa. *Zool. Jb. (Syst.)*, **7**: 411-195, pl. 17.
- Ortmann, A., 1894. Die Decapoden-Krebse des Strassburger Museums. VIII Teil. 8. Abt. Brachyura III. Cancroidea 2 sec. Cancrinea, 2 Gruppe: Catometopa. *Zool. Jb., Syst.*, **7**: 683-772, pl. 23.
- Ortmann, A., 1896. Das System der Decapoden-Krebse. *Zool. Jb., Syst.*, **9**: 409-453.
- Peyrot-Clausade, M. & R. Serène, 1976. Observations sur quelques espèces de Brachyours (Crustacés Décapodes) de Madagascar. *Bull. Mus. Natn. Hist. Nat.*, Paris, (3)416, *Zool.*, **293**: 1339-1371.
- Rathbun, M. J., 1897. A revision of the nomenclature of the Brachyura. *Proc. Biol. Soc. Wash.*, **11**: 153-167.
- Rathbun, M. J., 1918. The grapsoid crabs of America. *Bull. U.S. Natn. Mus.*, **97**: i-xxii, 1-461, pls. 1-161.
- Rathbun, M. J., 1930. The cancroid crabs of America. *Bull. U.S. Natn. Mus.*, **152**: i-xvi, 1-609, pls. 1-230.
- Risso, A., 1816. *Histoire naturelle des Crustacés des environs de Nice*. Pp. 1-175, pls. 1-3.

- Samouelle, G., 1819. *The Entomologist's Useful Compendium, or an Introduction to the Knowledge of the British Insects*. 496 pp., London.
- Serène, R., 1971. Observations préliminaires sur des Brachyours nouveaux ou Mal Connus du Sud-est Asiatique (Crustacea Decapoda). *Bull. Mus. natn. Hist. Nat.*, Paris, (2)42(5): 903-918.
- Serène, R., 1984. Crustacés Décapodes Brachyours de l'Océan Indien occidental et de la Mer Rouge. Xanthoidea: Xanthidae et Trapeziidae. Addendum Carpiliidae et Menippidae – A. Crosnier. *Faune Tropicale* (ORSTOM), 24: 1-400.
- Shaw, G. & F. P. Nodder, 1803. *Naturalist's Miscellany*, 15: pls. 589-612.
- Siddiqui, F. A., Q. B. Kazmi & N. M. Tirmizi, 2000. Developmental stages of the spider crab *Schizophrys pakistanensis* Tirmizi & Kazmi, 1995 (Crustacea: Decapoda: Majidae). *Raffles Bull. Zool.*, 48(1): 17-29.
- Stanbury, P. & J. Holland, 1988. *Mr Macleay's Celebrated Cabinet. The History of the Macleay's and their Museum*. Macleay Museum, Sydney.
- Stebbing, T. R. R., 1908. South African Crustacea (Part IV). *Ann. S. Afr. Mus.*, 6: 281-599, pls. 1-15.
- 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: 281-599, 8 pls.
- Stephensen, K., 1946. The Brachyura of the Iranian Gulf with an appendix: The male pleopoda of the Brachyura. *Danish Scientific Investigations in Iran*, 4: 57-237. [Dated 1945 but issued in 1946].
- Stephenson, W. & M. Rees, 1967. Portunid crabs collected by the 'Discovery' in the Indian Ocean. *J. Nat. Hist.*, 1: 285-288.
- Stimpson, W., 1858. Prodromus descriptionis animalium evertibratorum, quae in Expeditione ad Oceanum Pacificum Septentrionalem, a Republica Federata missa, Cadwaladaro Ringgold et Johanne Rodgers Ducibus, observavit et descripsit. Pars V. Crustacea Ocypodoidea. *Proc. Acad. Nat. Sci. Philadelphia*, 1857: 93-110.
- Takeda, M., 1974. Pilumnid crabs of the family Xanthidae from the West Pacific. V. Definition of a new genus, with description of its type-species. *Bull. Natn. Sci. Mus.*, Tokyo, 17(3): 215-219.
- Takeda, M. & S. Miyake, 1969. Pilumnid crabs of the family Xanthidae from the West Pacific. I. Twenty-one species of four genera, with descriptions of four new species. *Occ. Pap. Zool. Lab., Fac. Agric., Kyushu Univ.*, 2(7): 93-156.
- Tilbrook, L., 1992. *The Macleay Collectors – A Working Notebook*. Macleay Museum, Sydney.
- Tirmizi, N. M. & Q. B. Kazmi, 1986. Marine Fauna of Pakistan: 4. Crustacea: Brachyura (Dromiacea, Archaeobrachyura, Oxystomata, Oxyrhyncha). *Publication I. BCCI Foundation Chair, Institute of Marine Sciences, University of Karachi*, 246 pp., 1 colour pl.
- Tirmizi, N. M. & Q. B. Kazmi, 1995. A new species of *Schizophrys* from Pakistan with a note on *Schizophrys aspera* (Crustacea: Decapoda: Majidae). *Proceedings on Living Resources and the Environment*, Karachi, M. F. Thompson & N. M. Tirmizi, eds., pp. 136-141.
- Türkay, M., 1986. Crustacea Decapoda Reptantia der Tiefsee des Roten Meeres. *Senckenbergiana marit.*, 18: 123-185.
- Türkay, M. & H. Schuhmacher, 1985. *Latopilumnus tubicolus* n. gen. n. sp., eine neue Korallenassoziierte Krabbe, die Bildung einer Wohnhöhle induziert (Crustacea, Decapoda, Pilumnidae). *Senckenbergiana Marit.*, 17(1/3): 55-63.
- Van Couwelaar, M., M. V. Angel & L. P. Madin. 1997. The distribution and biology of the swimming crab *Charybdis smithii* McLeay, 1838 (Crustacea; Brachyura; Portunidae) in the NW Indian Ocean. *Deep Sea Res.*, Pt II, Trop. Stud. Oceanogr., 44(6-7): 1251-1280.
- Ward, M., 1939. The Brachyura of the Second Templeton Crocker-American Museum Expedition to the Pacific Ocean. *Am. Mus. Novit.*, 1049: 1-15, fig. 1-17.
- Ward, M., 1942. Notes on the Crustacea of the Desjardins Museum, Mauritius Institute, with descriptions of new genera and species. *Mauritius Inst. Bull.*, 2(2): 49-113, pls. 5, 6.
- Wu, S.-H., H.-P. Yu & P. K. L. Ng, 1999. *Acanthonyx formosa*, a new species of spider crab (Decapoda, Brachyura, Majidae) from seaweed beds in Taiwan. *Crustaceana*, 72(2): 193-202.
- Weber, F., 1795. *Nomenclator entomologicus secundum Entomologiam systematicam ill. Fabricii adjectis speciebus recens detectis et varietatibus*. Chilonii et Hamburgi, i-viii, 1-171.