Bulletin of the Mizunami Fossil Museum, no. 29 (2002), p. 81-92.

A taxonomic review of British decapod Crustacea

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Abstract

Recent changes in the taxonomic position of a number of British decapod crustaceans are brought together from their respective publications. A new crab genus, *Stintonius*, is described to contain *Portunites subovata* Quayle & Collins, 1981, *Panopeus kempi* Ouayle & Collins, 1981, is also transferred to a new genus, *Sereneopeus*, and a subspecies, *Dromilites lamarckii humerosus* Quayle & Collins, 1981, is raised to specific status.

Key words: Crustacea, Decapoda, Mesozoic, Cenozoic, England

Introduction

Accounts of the fossil crabs of the British succession are widely distributed in the scientific literature and there is no recent review that considers their taxonomic diversity. Continuing research and refinement of diagnoses, often as not reflecting the constant differences of opinion between the 'splitters' and the 'lumpers', latterly largely attendant upon the revision of the *Treatise on Invertebrate Palaeontology* (Decapoda, Part R) (Feldmann, R. M. & Schweitzer, C. E. in progress), has led to the introduction of numerous changes in the taxonomic position of many species, a number of which effect the British fossil fauna dating back to the monographic work of Thomas Bell (1858).

Alterations and additions subsequent to such major, and other, publications, scattered among a diversity of journals and monographs, are herein gathered together, along with the description of a new genus, *Stintonius*, erected to accommodate a species left in limbo, while another species, left in similar state, is transferred to a new genus, *Sereneopeus*.

Lists of Plio/Pleistocene crabs published by Alfred Bell (1897, 1921) remain the sole contribution to our knowledge of the Quaternary species of the British Isles. Of the twenty six species listed in these two works all but two, *Cancer deshayesii* A. Milne Edwards, 1861, and *Maja verrucosa* H. Milne Edwards, 1834, are extant in British waters; sixteen have undergone taxonomic reform. *Coeloma* sp., from Boxstones, in Suffolk requires verification, while A. Bell (1921) himself, cast doubt on the identification of *Calappa* sp. that he first recorded in 1897. *Cancer deshayesii* is considered herein; *Maja veruccosa*, recorded from an almost entire carapace from the Coralline Crag of Butley, presently occurs in the Mediterranean (Zariquiey Alvarez, 1946). *The Monograph of the Crustacea of the London Clay* by Thomas Bell (1858) remains the only collective work concerning the Eocene species. Additions, largely concerning new species from the neighbourhood of Portsmouth, were made by Woodward (1867, 1871, 1873); *Plagiolophus wetherelli* Bell, 1858 was properly referred to as [*Clyphithyreus*=] *Glyphithyreus wetherelli* (Bell) by Brown & Castell (1954). Glaessner & Withers (1931) and Collins (1961) discussed Lower Eocene crabs. Cooper (1974) published a stratigraphical distribution of the English Palaeocene decapods, in which he included *Harpactoxanthopsis* cf. *quadrilobata* (Desmarest, 1822) from the Isle of Sheppey, based on an oral report by the present author. Some generic revision, largely attendant upon synonymy, was listed by Morris (1980) in which work the synonymy surrounding *Zanthopsis leachii* (Desmarest, 1822) and allied species was resolved. In the same work, *Xanthopsis leachii* var. Bell, 1858 (pl. 1, fig. 10) was properly identified as *Zanthopsis dufouri* (H. Milne Edwards, 1850). Crane & Quayle (1986) and Crane (1981) described new Middle Eocene species and discussed London Clay species. Quayle (1984) described a new species,

Portunites stintoni, from the London Clay, and in 1987 revised and added new macruran species from the London Clay, Bracklesham and Barton Beds. A contribution to Middle and Upper Eocene crab species by Quayle & Collins appeared in 1981.

The description of a rare Upper Albian glypheiid, *Glypheopsis sanctaecrucis woodsi* Collins, appeared in 1969, together with the description of the nominative species which comes from the Upper Albian of Annapol on the Vistula, Poland. Only three works concerning Cretaceous species have appeared since the major review of British Cretaceous crabs by Wright & Collins was published in 1972; Simpson (1983) recorded *Mithracites vectensis* Gould, 1859, *Callianassa* claws and, following Förster's (1971, see below) generic opinion, *Mecochirus magnus* (McCoy, 1849) from the Lower Aptian, Atherfield Clay, Punfield Marine Band of Dorset; but in 1985 he assigned *Mecochirus magnus* to a new genus, *Meyerella*, in a list of species from the Lower Aptian Atherfied Clay Formation. At the same time (Simpson, 1985) notice was drawn to the occurrence of *M. vectensis* from the Atherfield Clay of Sussex and Surrey, from which latter county *Hoploparia longimana* (G. B. Sowerby) was also recorded. Wright (1997) described a new galatheid and prosoponid, *Rathbunopon*? *atherfieldensis*, from the Upper Aptian of the Isle of Wight.

No collective work on British Jurassic decapods exists, although some attempt was made by Salter & Woodward (1865) (Woodward & Salter of some authors) to illustrate the known species at the time, and a comprehensive assessment of taxa was made by Van Straelen (1925). Full descriptions of all known macruran species were included in the monographic work of Woods (1925-1931). The earliest description in a British journal appears to be that of *Astacus leachii* Mantell, 1822, later (1849) assigned to *Enoploclytia* by McCoy. *Gebia clypeatus* Carter, 1898, was included in *Mecochirus* by Förster (1971). *Eryma portlandica* Woods (1930) was relegated to junior synonomy of *Eryma duretrei* Sauvage, 1891, by Förster (1966), who later (1971) included *Gebia clypeatus* Carter (1898) in *Mecochirus*. Species assigned to the Erymidae, Glypheidae, Mecochiridae and Palinuridae underwent considerable revision by Förster (notably in 1966, 1971, 1973).

In the discussion of their new species, *Pseudoglyphea foersteri*, from the Lower Jurassic (Pliensbachian) of Scotland, Feldmann *et al.* (2002) concluded that cephalic characters of the Mecochiridae were more consistant with the Astacidae than the Palinura.

Diagnostic descriptions of the thalassinoids, *Etallonia isochela* (Woodward, 1876) (Upper Kimmeridgian) and *Magila pichleri* Oppel, 1962 (Callovian) were given by Förster (1977), who at the same time questioned the status of *Magila laevimana* Carter, 1886, and *Magila dissimils* Carter, 1886 (both Oxfordian). The description of the Oxfordian pagurid *Goniochirus cristatus* by Carter (1886) was followed (1898) by his recording of the galatheid *Gastrosachus wetzleri* von Meyer, 1854, from the Coral Rag.

The first notice of a British Jurassic crab, *Protocarcinus longipes* Bell MS, was that figured by Salter & Woodward (1865) and described as *Palaeinachus longipes* by Woodward (1866). However, Woodwood was obviously unaware that he had published a junior synonym of *Homolus audini* Deslongchamps, 1835, a fact made known by Glaessner (1929a), by which time *audini* had been assigned to *Protocarcinus* by Van Straelen (1923). A further change of name was effected by Wehner (1988) when she transferred the species to *Foersteria* Wehner, 1988. The description of *Prosopon mammillatum* by Woodward (1868) was followed by that of *Prosopon richardsoni* Woodward, 1907. Descriptions of both species were extended by Withers (1951), who, previously (1932) had described the earliest known British crab, *Eocarcinus praecursor* from the Upper Lias of Oxfordshire – a species which received further attention from Förster (1979). Donovan (1962) described *Pithonoton* sp. and extended the geographic range of *P. richardsoni*, and the prosoponids received further attention from Wehner (1988). Contributions were made to British Jurassic decapods by Glaessner (1933) and Fraaye & Collins (1996) described two species from the Portland beds of Dorset. However, from the generic point of view, the galatheid, *Eomunidopsis portlandica*, included by Fraaye and Collins (1996) in the Munidopsinae Ortmann, 1898, was transferred to the Galatheinae Samoulle, 1819, by Schweitzer & Feldmann (2000c).

Tropifer laevis Gould, 1857, from the Upper Triassic Rhaetian stage of Avon (formely Gloucestershire) was redescribed and tententively placed in the Coleiidae by Duffin (1978).

Systematics

Infraorder Anomura MacLeay, 1838
Superfamily Thalassinoidea Latreille, 1831

Family Callianassidae Dana, 1852

Genus *Callianassa* Leach, 1814 *sensu lato*

***"Callianassa" batei* Woodward, 1869**

1869 *Callianassa Batei* Woodward, 75, pl. 2, fig. 4.

Remarks: This species, founded on chelae from the Headon and Hampstead Beds, Upper Eocene/Lower Oligocene, of the Isle of Wight, and recorded only by figured left and right chelae, is a senior homonym of the Recent *Callianassa batei* Borradaile (1903, p. 546), a species with an involved history which included the synonym and replacement name *Callianassa profunda* Biffar, 1973 (Sakai, 1999).

Family Galatheidae Samouelle, 1819

Subfamily Galatheinae Samouelle, 1819

Genus *Luisogalathea* Karasawa & Hayakawa, 2000

***?Luisogalathea* sp. Wright, 1996**

1996 *Galathea* sp., Wright, 137, fig. 8.

Remarks: Reexamination of the specimen, from the Atherfield Clay, Lower Greensand, Crackers Bed, Atherfield Point, Isle of Wight, showed it to be an internal cast with remains of shell thickness adpressed to the surrounding matrix, thus, evidence of possible lateral spines – a generic requirement – is largely illusory. Otherwise, the specimen agrees with *Luisogalathea tomatai* Karasawa & Hayakawa, 2000, in having a long triangular, smooth margined rostrum without a median ridge; the gastric region is rather more granular overall, rather than limited to the hepatic regions as in *L. tomatai*; the cervical and postcervical furrows are equally well developed and the branchial region is similarly transversely ridged.

The presence of a smooth sided, non-serrate rostrum and lack of gastric ridges immediately distinguishes *Luisogalathea* from *Galathea*, and it would seem that the present carapace more readily suits the requirements for *Luisogalathea*. Thus, it considerably extends the known geological and geographical ranges of the genus, hitherto known from the Upper Cretaceous Yezo Group of Japan and possibly by *Luisogalathea cobbani* (Bishop, 1985) from the Campanian of Colorado, which was included in the genus by Karasawa & Hayakawa (2000), but not referred to by Schweitzer & Feldmann (2002c).

Superfamily Paguroidea Latreille, 1802

Family Paguridae Latreille, 1802

Genus *Pagurus* Fabricius, 1775

***Pagurus bernhardus* Linnaeus, 1758**

Remarks: This species was recorded by A. Bell (1921) from chelae fragments from the Coralline Crag, Red Crag and Pleistocene from several localities, as *Eupagurus*, a genus recognised as a junior synonym of *Pagurus* (q.v. Glaessner, 1969).

Section Dromiacea de Haan, 1833

Superfamily Dromioidea de Haan, 1833

Family Prosopidae von Meyer, 1860

***Genus Rathbunopon* Stenzel, 1945**

***Rathbunopon? atherfieldensis* Wright, 1997**

Remarks: This species may well be conspecific with the *Rathbunopon* referred to by Simpson (1985). This possible new *Rathbunopon* is from the Lower Aptian of the Isle of Wight, and was considered by Wright (1997) to have, "some resemblance [of *R.? atherfieldensis*] to the fragmentary holotype of the Hauterivian" considerably extends the lower range of the genus from the Lower Albian. In the same work (1997), Wright drew attention to *Homolopsis tuberculata* Van Straelen, 1936, from the Hauterivian which may also be a *Rathbunopon*.

Family Dromiidae de Haan, 1833

***Genus Basinotopus* McCoy, 1849**

Type species: *Inachus lamarckii* Desmarest, 1822, by monotypy.

***Basinotopus lamarckii* (Desmarest, 1822)**

1822 *Inachus Lamarckii* Desmarest, 116.

1849 *Basinotopus lamarckii* (Desmarest); McCoy, 168.

1858 *Dromilites Lamarcki* (Desmarest); Bell, 29.

1981 *Dromilites lamarckii lamarckii* (Desmarest); Quayle & Collins, 738.

In prep. *Basinotopus lamarckii* (Desmarest); Collins & Jakobsen.

Remarks: While superficially close, *Basinotopus lamarckii* is distinguished from *Dromilites bucklandii* H. Milne Edwards, 1837, the type species of *Dromilites*, in having a produced rostrum between elongated spines (rostral horns) extending from the upper orbital margin. These characters are invariably abraded and reconstructed figures/retouched photos of *D. lamarckii* have hitherto shown only a short, triangular rostrum. However, the rostral characters, vaguely referred to by Bell (1858) and remarked upon by Glaessner (1929b)

when discussing *Dromilites alpina* Glaessner, 1929b, are revealed in a recently developed carapace (In48212) from Bognor Regis, in The Natural History Museum London (BMNH), and a fragmentary carapace from the Isle of Sheppey, in the Geological Museum, University of Copenhagen, which retains the rostrum, thereby allying *B. lamarckii* with an as yet, unpublished species from the Middle Eocene of Denmark.

Genus *Dromilites* H. Milne Edwards, 1837

Type species: *Dromilites bucklandii* H. Milne Edwards, 1837, by monotypy.

***Dromilites humerosus* Quayle & Collins, 1981**

1981 *Dromilites lamarckii humerosus* Quayle & Collins, 731.

Remarks: This species, founded on three fragmentary carapaces from the Elmore Formation, Bracklesham Group, of Lee-on-the-Solent, Hampshire, is readily distinguished from *Basinotopus lamarckii* by its prominent subhepatic lobes. Furthermore, although the front is poorly preserved on all three available specimens, the holotype has a short, weakly sulcate rostrum, bounded by continued thickening of the upper orbital margin. No basal scars can be discerned to support presence of rostral horns. Therefore, Quayle and Collins's (1981) assumption of derivation of *D. l. humerosus* from *D. l. lamarckii* is illusionary, and the former species is here raised to specific status and retained, for the time being, in *Dromilites*.

Superfamily Homoloidea de Haan, 1833

Genus *Mithracites* Gould, 1859

***Mithracites vectensis* Gould, 1859**

Remarks: Described within the Cymonomidae by Wright & Collins (1972), this species was considered by Guinot & Tavares (2001) to have podotreme sexual characters more closely related to the Homoloidea and transferred the genus to that superfamily without reference to a family.

Section Podotremata Guinot, 1977

Family Etyidae Guinot & Tavares, 2001

Genera *Etyus* Leach (*in* Mantell, 1822) : *Xanthosia* Bell, 1863

Remarks: Discovery of a carapace (B22703) of *Etyus martini* Mantell, 1822, retaining 'openings of oviducts' on misinterpreted 3rd sternites, played an influential part in restoring *Etyus* and the closely allied genus *Xanthosia*, from the Dynomenidae (q.v. Glaessner, 1969) to the Xanthidae by Wright & Collins (1972). Recent research by Guinot & Tavares (2001) on the presence of spermathecae in diverse families and genera, embraced *Etyus* and *Xanthosia*. The above mentioned pores were recognised as spermathecae opening between the 7th/ 8th sternal sutures. This a character which, while not conforming to the Xanthidae, is shared within the Podotremata, thus warranting placement in a new family.

Section Eubrachyura Saint Laurent, 1980

Subsection Raninoida de Haan, 1839

Superfamily Raninoidea de Haan, 1841

Family Raninidae de Haan, 1841

Subfamily Palaeocorystinae Lőrenthey *in* Lőrenthey & Beurlen, 1929

Type genus: *Palaeocorystes* Bell, 1863 (= *Notopocorystes* McCoy, 1849).

Remarks: Palaeocorystinae is the valid name for this subfamily under Article 40.1 of the International Code of Zoological Nomenclature (1999, 4th ed., p. 46). The action of Haj & Feldmann (2002) is incorrect either under Article 40.1, or 40.2 of the code had their work been published before 1961.

Genera *Notopocorystes* McCoy, 1849: *Cretacoranina* Mertin, 1941: *Eucorystes* Bell, 1863

1972 Wright & Collins, 73-86, pl. 13, figs. 4-6; pl. 14, figs. 1-7; pl. 15, figs. 1-4; pl. 17, figs. 1-5; pl. 18, figs. 1-5; pl. 2, fig. 7 ; pl. 22, fig. 7. (See also for prior synonomy.)

Remarks: Treated as subgenera by Wright & Collins (1972), with *Notopocorystes* as nominate genus, the three abovementioned Albian – Lower Chalk genera were raised to full generic status by Tucker (1998), who at the same time, raised the three subspecies, of the nominate genus, *N. stokesii stokesii* Mantell, 1844, *N. stokesii praecox* Wright & Collins, 1972 and *N. stokesii serotinus* Wright & Collins, 1972, to specific rank. However, since the phylogenetic transition of these forms is readily traceable, absolute distinction becomes finite only with advanced development. With specific status, progressive forms would be left in limbo, therefore, retention of subspecific status would seem the more appropriate. The subspecies of *Eucorystes carteri* (McCoy, 1854), *E. c. ligulatus* Wright & Collins, was overlooked by Tucker (1998).

Functional morphology of the cuticular structure present in *Eucorystes [carteri] carteri*, (McCoy, 1854) was discussed and figured by Haj & Feldmann (2002).

Superfamily Cyclodorippoidea Ortmann, 1892
(= Superfamily Tymolidae Alcock, 1896)
Family Torynommatidae Glaessner, 1980
(*rectae*, ICZN, from Torynommidae Glaessner, 1980)

Genus *Dioratiopus* J. Woods, 1953

Remarks: Some British members of this genus have had an extremely chequered taxonomic history. *Dioratiopus spinosus* (Van Straelen, 1936) and *Dioratiopus depressus* (Carter, 1898), both from the Albian, were considered by their respective authors to belong to *Homolopsis*. In the absence of diagnostic *lineae homolicae*, those taxa, with other, newly described, species (Lower Aptian-Cenomanian) were placed in *Glaessneria* by Wright & Collins (1972), but that genus, found to be a homonym of *Glaessneria* Takeda & Miyake, 1969, was replaced by *Glaessnerella* Wright & Collins, 1975 (family Cymonomidae Bouvier, 1898). Transferred to *Dioratiopus* and considered close to *Torynomma* J. Woods, 1953, Glaessner (1980) included both genera in a new family. The earliest known (Jurassic) member, *Dioratiopus primitivus* from the Portland Beds of Dorset, was described by Fraaye & Collins (1996), who remarked upon the relationship of *Dioratiopus* to the prosoponid, *Foersteria*.

Superfamily Calappoidea de Haan, 1833
Family Necrocarcinidae Förster, 1968b

Genus *Campylostoma* Bell, 1858

Remarks: Previously contained in the Calappidae, the genus was transferred to the Necrocarcinidae by Schweitzer & Feldmann (2000b). The full extent of the spine at the lateral angle – referred to by Bell (1858) as 'evidently unnaturally developed' − of the sole species *Campylostoma matutiforme* Bell, 1858 (London Clay), was figured by Collins (1961). As figured in Schweitzer & Feldmann (2000b), the reconstruction is similar to that presented by Salter & Woodward (1865).

Genus *Goniochele* Bell, 1858

Goniochele angulata Bell, 1858

Remarks: Previously classified in the Dorippoidea, Dorippinae, this London Clay species was transferred to the Necrocarcinidae by Schweitzer & Feldmann (2000b).

Genus *Orithopsis* Carter, 1872

***Orithopsis tricarinatus* (Bell, 1863) nov. comb.**

1972 *Necrocarcinus tricarinatus* Bell, 1863; Wright & Collins, 1972, 66. (See also for previous synonymy).

Remarks: Recognised as being conspecific, *Orithopsis bonneyi* Carter, 1872, was classified by Wright & Collins (1972) as a junior synonym of *Necrocarcinus tricarinatus* Bell, 1863. On raising the Necrocarcininae Förster, 1968, to full family status, Schweitzer & Feldmann (2000a) believed that *Orithopsis* should be kept distinct. This, being accepted, *tricarinatus* Bell, 1863, remains the senior taxon in the new combination *Orithopsis tricarinatus* (Bell, 1863) and in this form should replace '*Orithopsis bonneyi* Carter, 1872' elected as type species by Schweitzer & Feldmann (2000b).

Subgenera *Paranecrocarcinus* (*Paranecrocarcinus*) Van Straelen, 1936: *Paranecrocarcinus* (*Pseudonecrocarcinus*) Förster, 1968b

Remarks: These subgenera were distinguished by Wright & Collins (1972), largely on the presence or [presumed] absence of post-rostral slits; forms in *Pseudonecrocarcinus* having 1 or 2 pairs of slits, while none was present in [available] species assigned to *Paranecrocarcinus*. However, as shown by Wright (1997), one pair of slits is present in the type species, *Paranecrocarcinus hexagonalis* (Van Straelen, 1936) (Cenomanian, France), and one pair of slits is seen in well preserved specimens of *Paranecrocarcinus* (*Paranecrocarcinus*) *digitatus* Wright & Collins, 1972. Maintenance of subgenera was questioned by Wright, who was in favour of abandonment of the junior *Pseudonecrocarcinus*.

Superfamily Cancroidea Latreille, 1802
Family Atelyclyclidae Ortmann, 1893

Genus *Atelycyclus* Leach, 1814

***Atelycyclus rotundatus* (Olivi, 1792)**

Remarks: Recorded from the Coralline Crag of Aldeburgh, Suffolk, by A. Bell (1897) as *Atelycyclus heterodon* Leach, 1815, this extant species was recognised as a junior synonym of *A. rotundatus* by Ingle (1980). *Cancer* (*Hippa*) *septemdentatus* Montague, 1813 is also placed in junior synonomy by Ingle (1980), as it was by Adema (1991), who included the earlier date of *Atelecyclus septemdentatus* Montague, 1808, and Salva & Feldmann

(2001).

Family Cancridae Latreille, 1802
Subfamily Lobocarcininae Beurlen, 1930
Genus *Lobocarcinus* Reuss, 1857

***Lobocarcinus sismondai* (von Meyer, 1859)**

1861 *Cancer deshayesii* A. Milne Edwards, 74.

Remarks: Formerly described and figured as *Cancer deshayesii* by A. Bell (1921), a partial carapace from the Pliocene Coralline Crag of Aldeburgh, Suffolk now in the York Museum (No. YM68), retains entire left ?6/7th typically spinulose marginal lobes conforming to figures in Bonfiglio & Donadeo (1982). This species, also recorded in the fossil record by Holthuis (1949) on the evidence of isolated dactyli and fixed fingers from Miocene-Lower Pleistocene deposits in The Netherlands, was placed by Glaessner (1924) in *Lobocarcinus* Reuss, 1857, as a subgenus of *Cancer*, but was soon returned to *Cancer*. *Cancer deshayesii* was synonymized with *Cancer sismondai* by Glaessner (1929a). Müller (1984) considered that there is no difference between *Cancer illyricus* Bittner, 1883, and *C. sismondai* which was transferred to *Lobocarcinus* Reuss, 1857, by Schweitzer & Feldmann (2000a). Neither the British nor Dutch records for this species were mentioned specifically by Schweitzer & Feldmann (2000a), who simply recorded northern Europe, with an upward range limited to the Pliocene.

Family Cheiragonidae? Ortmann, 1893
***Stintonius* gen. nov.**

Type species: *Portunites subovata* Quayle & Collins, 1981, by monotypy.

Diagnosis: Carapace subovate with four slender anterolateral spines increasing in length posteriorly, regions well defined and weakly tumid; epibranchial lobe weakly ridged; a tubercle on each mesobranchial and two on each metabranchial lobe form a diverging row, and one marginal tubercle on each metabranchial lobe.

Derivation of name: In memory of the late F. C. Stinton, an outstanding authority on the Eocene Barton Beds of Hampshire.

***Stintonius subovatus* (Quayle & Collins, 1981) nov. comb.**

1981 *Portunites subovata* Quayle & Collins, 749.

Remarks: In a revision of *Portunites* by Schweitzer & Feldmann in 1999 (*vide* Schweitzer & Feldmann, 2000d), *subovata* was found to have characters inconsistent with that genus and removed therefrom. No further steps were taken, apart from suggesting the species might be referred to *Montezumella* Rathbun, 1930b, a genus represented in the Barton fauna by *Montezumella scabra* Quayle & Collins, 1981. Indeed, there is remarkable conformation of the carapace outline of *subovatus* with that of *Montezumella*. However, with the disparity in size between the two species, it is difficult to conceive the degree of ontogenetic development necessary for *subovata* to develop the characters of *M. scabra*, and inclusion in a new genus, tentatively included in the Cheiragonidae, is considered necessary. For description and figures, see Quayle & Collins (1981).

Superfamily Portunoidea Rafinesque, 1815
Family Portunidae Rafinesque, 1815
Subfamily Polybiinae Ortmann, 1893
Genus *Leiocarcinus* Stimpson, 1870

Remarks: The following species recorded from Pliocene, Pleistocene or Holocene deposits were all listed in *Portunus* by A. Bell, 1897: *P. corrugatus* Pennant, 1777; *P. depurator* Linnaeus, 1758; *P. puber* Linnaeus, 1767 and *P. pusillus* Leach, 1815. In 1921, A. Bell listed a further two species, *P. marmoreus*, Leach, 1814 and *P.* ?*holsatus* (Fabricius, 1798). All were included in *Leiocarcinus* by Ingle (1980) in his survey of Recent species. Adema (1991) recognised, *L. holsatus*, *L. marmoreus* and *L. pusillus* as present in the Recent Dutch and Belgian fauna, but recorded *puber* in *Necora* Holthuis, 1987.

Superfamily Xanthoidea MacLeay, 1838
Family Goneplacidae MacLeay, 1838
Genus *Orthakrolophus* Schweitzer & Feldmann, 2001

***Palaeograpsus bartonensis* Quayle & Collins, 1981: *Palaeograpsus depressus* Quayle & Collins, 1981**

Remarks: Both of these species, considered to have characters inconsistent with *Palaeograpsus*, were assigned, to *Orthakrolophus* by Schweitzer & Feldmann, 2001, with *depressus*, from the Bracklesham Group of Lee-on-the-Solent and Barton Beds of Christchurch Bay and the Isle of Wight, as the type species. *Orthakrolophus bartonensis* (Quayle & Collins) is known only from Barton Beds of Christchurch Bay.

Family Panopeidae Ortmann, 1893

Genus *Sereneopeus* gen. nov.

Type species: *Panopeus kempi* Quayle & Collins, 1981, by monotypy.

Diagnosis: Carapace hexagonal with rounded anterolateral margins; wider than long; front gently sinuous with shallow median notch; first, of four, anterolateral spines weak, third and fourth spines oblong rather than triangular, lobes weakly defined; epibranchial lobe weakly ridged.

Derivation of name: In recognition of the contributions to the study of crabs made by Raoul Serène + familial root.

Sereneopeus kempi

(Quayle & Collins, 1981) nov. comb.

1981 *Panopeus kempi* Quayle & Collins, 752.

Remarks: Considered to have characters inconsistent with *Panopeus, kempi* was removed from that genus by Schweitzer (2000). However, in general diagnostic characters, *kempi* complies with the requirements of Panopeidae, yet which, in combination, are distinct from genera presently included in that family. The principle reason for removal of *kempi* from *Panopeus* was lack of, "transverse [hepatic, epigastric, protogastric] ridges, fewer, more poorly developed spines and carapace regions of a different shape'. It should be borne in mind that all available specimens of *kempi* are internal casts; 'shell'-surface detail is absent – and surface detail is frequently not reflected in internal casts. Nevertheless, *kempi* has the, "five marginal spines, the first forming the outer angle of the orbit" (Quayle & Collins, 1981), a carapace that is wider than long, and weakly sinuous margins either side of a frontal notch, thus far complying with the familial requirement . While lacking the abovementioned transverse ridges (and in this respect resembling the somewhat aberrant *Panopeus whittenensis* Glaessner, 1980, Upper Eocene, Australia), the epibranchial lobe is as strongly ridged as in the Recent, *e.g. Panopeus purpureus* Lockington, 1877, which also has comparatively weakly defined lobes. These conditions are particularly noticeable among species of *Eurypanopeus* A. Milne Edwards, 1880, in which genus the development of the anterolateral spines is variable (*vide* Rathbun, 1930a).

Sereneopeus also shares characters seen in the Pilummidae Samoulle, 1819, but can be eliminated from that family by its greater length/width ratio, in having a relatively straight, unadorned frontal margin and large, triangular hepatic regions.

Family Carcineretidae Buerlen, 1930

Genus *Withersella* Wright & Collins, 1972

***Withersella crepitans* Wright & Collins, 1972**

Remarks: Vega *et al*. (1997) were adamant in their exclusion of *Withersella crepitans* in the Carcineretidae Beurlen, 1930, in which family it was placed by Wright & Collins (1972). Glaessner's (1980) reference of *Withersella* to the Tymolidae was reiterated. However, Wright (1997) provided additional details of the front of *W. crepitans* showing that it is, "extremely close to that of *Carcineretes walcotti* Withers [Maastrichtian, Jamaica] except for the greater projection of the rostrum of *Withersella*." Taking into account the considerable difference in age between the species retained in Carcineretidae by Vega *et al*. (1997), their arguments against inclusion of *Withersella* within the Carcineretidae – that "*Withersella* lacks a transverse ridge, has more distinctly defined surface regions and is square rather than wider than long" - provides no latitude for possible phylogenetic development within the family. A more important character, that is, the possession of a flattened, paddle-shaped fifth limb, has yet to be determined in *Withersella* and ultimate familial position is probably best deferred until this character is established.

The transverse ridge (across the protogastric lobes) of *Carcineretes planetarius* Vega *et al*. (1997) (Lower Maastrichtian of Belize) is weaker than that of the type species, *Carcineretes woolcotti*, which, while lacking the definition of the anterior mesogastric process seen in *C. planetarius*, has regions as well defined as *Withersella*.

Unfortunately, Wright did not draw attention to a massive bopyric swelling occupying the entire right metabranchial region of his figured specimen (1997, fig. 12) which comes from the Lower Greensand, Crackers Bed, Lower Aptian of the Isle of Wight.

Acknowledgements

Warmest thanks are extended to Dr Phil Manning (Yorkshire Museum) for loan of *Lobocarcinus sismondai*, to Dr S. K. Donovan (Nationaal Natuurhistorisch Museum, Leiden), and Dr Hiroaki Karasawa (Mizunami Fossil Museum), for their encouragement and critical comments on the MS, and to Mr John Cooper (The Natural History Museum, London) for assistance with

references. Verification of the status of Palaeocorystinae was kindly made by Dr A. Wakeham-Dawson, Executive Secretary, International Code of Zoological Nomenclature (The Natural History Museum, London).

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Manuscript accepted on August 29, 2002