

TREATISE ONLINE

Number 74

Part R, Revised, Volume 1, Chapter 8J:
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2016

KU PALEONTOLOGICAL
INSTITUTE

The University of Kansas

Lawrence, Kansas, USA
ISSN 2153-4012 (online)
paleo.ku.edu/treatiseonline

PART R, REVISED, VOLUME 1, CHAPTER 8J:
SYSTEMATIC DESCRIPTIONS:
INFRAORDER ASTACIDEA

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Infraorder ASTACIDEA
Latreille, 1802

[Astacidea DANA 1852a, p. 515, *pro* Astacini LATREILLE, 1802 in 1802–1803, p. 32]

Carapace subcylindrical; frontal portion of carapace not fused with epistome; long or short rostrum bearing suprarostal and subrostral spines; antennae with five-segmented stalk and scale; third maxilliped pediform; pereopods 1–3 chelate or pseudo-chelate; pereopods 4–5 with a terminal dactylus, rarely pereopod 4 pseudo-chelate; pleon with somite 2 larger than somite 3; exopod of uropods with diaeresis; genital openings coxal (KARASAWA, SCHWEITZER, & FELDMANN, 2013, p. 110). *Lower Jurassic (Pliensbachian)–Holocene.*

Section ASTACIDA Scholtz & Richter, 1995

[Astacida SCHOLTZ & RICHTER, 1995, p. 293]

Carapace subcylindrical; frontal portion of carapace not fused with epistome; long or short rostrum bearing suprarostal and subrostral spines; antennae with five-segmented stalk and scale; third maxilliped pediform; pereopods 1–3 chelate; pereopods 4–5 with a terminal dactylus; pleon with somite 2 larger than somite 3; exopod of uropods with diaeresis; genital openings coxal. (KARASAWA, SCHWEITZER, & FELDMANN, 2013, p. 110). *Upper Jurassic (Kimmeridgian)–Holocene.*

Superfamily ASTACOIDEA
Latreille, 1802

[Astacoidea DE HAAN, 1841 in 1833–1850, p. 169, *pro* Astacini LATREILLE, 1802 in 1802–1803, p. 32]

Carapace subcylindrical; frontal portion of carapace not fused to epistome; rostrum long or short, bearing suprarostal and subrostral spines; genital openings coxal. Antennae with five-segmented stalk and scale; pereopods 1–3 chelate; pereopods 4 and 5 with a terminal dactylus; telson and exopod of uropods with diaeresis (KARASAWA, SCHWEITZER, & FELDMANN, 2013, p. 110). *Upper Jurassic (Kimmeridgian)–Holocene.*

Family ASTACIDAE Latreille, 1802

[*nom. correct.* SAMOUELLE, 1819, p. 94, *pro* Astacini LATREILLE, 1802 in 1802–1803, p. 32, ICZN Direction 12] [=Potamobiidae HUXLEY, 1879, p. 775]

Cylindrical carapace with deep cervical and postcervical grooves; short rostrum with one or two suprarostal teeth; strong scaphocerite with pointed distal extremity. Pereiopod 1 with strong chelae; ischial hooks absent in males. Pleon with rounded pleura; subrectangular telson with diaeresis, longitudinally subdivided by a carina with one pair of lateral spines; telson and exopod of uropods with diaeresis; annulus ventralis absent in females (KARASAWA, SCHWEITZER, & FELDMANN, 2013, p. 110). *Upper Jurassic (Kimmeridgian)–Holocene.*

Astacus FABRICIUS, 1775, p. 413 [**Cancer astacus* LINNAEUS, 1758, p. 631; by designation under the

plenary powers of ICZN, Opinion 104, 1928]. Subcylindrical carapace with deep cervical groove with one or two postcervical spines; long rostrum with one distal suprarostal spine; rostral margins parallel or converging distally only slightly; presence of two postorbital ridges or spines; well-developed chela of pereopod 1 with inner margin of fixed finger shorter than that of dactyl; subrectangular telson with a strong spine on the lateral margins and subdivided into two more or less equal parts, the proximal one of which is fixed and the distal one is mobile. *Lower Cretaceous (Berriasian)–Holocene*: UK, *Berriasian–Hauterivian*; Czech Republic, *Cenomanian*; France, *Paleocene*; UK, *Pleistocene*; Europe, western Asia, *Holocene*.—FIG. 1, 1a–b. **A. astacus* (LINNAEUS, 1758), SMF-13096, Holocene, Germany; a, dorsal view, b ventral view, scale bar, 1 cm (new, photo by Sven Tänkner).

Austropotamobius SKORIKOV, 1907, p. 116 [**Cancer torrentium* SCHRANK, 1803, p. 247; SD BOTT, 1950, p. 18]. Subcylindrical carapace with a deep cervical groove extending into a not very well marked antennal groove; long rostrum with one suprarostal spine; only one postorbital ridge or spine at the base of the rostrum, rostral margins converge distally; chela of pereopod 1 with a marked step in the proximal part of the fixed finger; subrectangular telson, with diaeresis and longitudinal ridge, with a strong spine at distal corner of lateral margins. *Upper Jurassic (Kimmeridgian)*: Spain, *Kimmeridgian–Tithonian*; Europe, *Holocene*.—FIG. 1, 2a, b. **A. torrentium* (SCHRANK, 1803), SMF-39105, Holocene, Germany; a, dorsal view, b, ventral view, scale bar, 1 cm (new, photo by Sven Tänkner).

Pacifastacus BOTT, 1950, p. 24 [**Astacus klamathensis* STIMPSON, 1857, p. 87; OD]. Subcylindrical carapace with deep cervical groove and weak postcervical groove; long rostrum diminishing gradually to the distal extremity, bordered on each side by a strong carina and bearing up to seven pairs of rostral spines; pereopod 1 with one chela longer and more slender than the other; pleonal somite 1 short; somite 2 twice as long as the first; somites 3–5 are of subequal length; somite 6 is about the same length as somites 3–5, with subtriangular pleura; subrectangular telson. *Miocene–Holocene*: USA (Idaho), *Miocene–Pliocene*; Canada (British Columbia), USA (California, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming), introduced into Japan, *Holocene*.—FIG. 2a–b. **P. klamathensis* (STIMPSON, 1857), USNM 20752, Holocene; a, dorsal view, b, ventral view, scale bars, 1 cm (new).—FIG. 2c–d. *P. chenderma* RATHBUN, 1926, Miocene, Oregon; c, USNM 353341, dorsal carapace, scale bar, 1 cm (new); d, USNM 353343, scale bar, 1 cm (Rathbun, 1926, pl. 32, 2).

Palaecambarus TAYLOR, SCHRAM, & YAN-BIN, 1999, p. 122 [**Astacus licenti* VAN STRAELEN, 1928, p. 133–135, fig. 1–2; OD; =*Astacus spinirostris* IMAIZUMI, 1938, p. 176, pl. 22, 1; pl. 23, 9–10, 12–13]. Cylindrical carapace with deep cervical groove and dorsal surface of cuticle covered with fine

granulations; long rostrum with basal lateral spines; elongate bladeliike scaphocerite; pereopod 1 with long and narrow chelae with extensive pitting and spination; no hooks visible on ischium of pereopods 3 or 4; pleurae large and rounded on pleonal somites 2–5, second pleuron largest; subrectangular telson with pair of large lateral spines and rounded distal margin. *Lower Cretaceous*: China.—FIG. 3a–b. **P. licenti* (VAN STRAELEN, 1928); a, MFM 247112, ventral view, b, MFM 247113, left lateral view, scale bars, 1 cm (new).

Family CAMBARIDAE Hobbs, 1942

[*nom. transl.* HOBBS, 1974, p. 10, *pro* Cambarinae HOBBS, 1942, p. 338]

Cylindrical carapace with deep cervical groove and weak postcervical groove; short or long rostrum with or without suprarostal teeth. Pereiopod 1 with short or long equal chelae, occlusal surface of both dactylus and index bearing a row of equal or irregular teeth; pereopods 3 and 4 with ischial hooks on males and annulus ventralis on females. Pleon with rounded pleura; telson subrectangular; telson and exopods of uropod with diaeresis (KARASAWA, SCHWEITZER, & FELDMANN, 2013, p. 112). *Eocene–Holocene*.

Procambarus ORTMANN, 1905, p. 435 [**Cambarus digueti* BOUVIER, 1897, p. 225; SD FOWLER, 1912, p. 340]. Cylindrical carapace with deep cervical groove and weak postcervical and branchiocardiac grooves; rostrum fairly narrow at base, possibly medially keeled with one pair of lateral rostral teeth; postorbital spine prominent; pleonal somite 1 reduced; pereopod 1 with long, thick and about equal-sized chelae, bearing a row of low teeth along occlusal surface of both dactylus and propodus; prominent spine on or near outer side of propodus along line of articulation with dactylus; telson generally smooth with some small pits and bearing laterally spinose transverse diaeresis; exopodite of uropods with rounded diaeresis. *Eocene–Holocene*: USA (Wyoming), *Eocene*; Canada, Japan, Korea, Mexico, Russia, USA, *Holocene (family)*.—FIG. 4a. *P. mexicanus* (ERICHSON, 1846), USNM specimen (number unknown), Holocene, Mexico, scale bar, 1 cm.—FIG. 4b. *P. primaevus* (PACKARD, 1880), SMMP 78.9.41, Eocene, Wyoming, female, scale bar, 1 cm; type species not available in USNM collections (Feldmann & others, 1981, pl. 3, 2).

Family CRICOIDOSCELOSIDAE Taylor, Schram, & Yan-Bin, 1999

[*Cricoidoscelosidae* TAYLOR, SCHRAM, & YAN-BIN, 1999, p. 130]

Rostrum with rounded base, lateral spines; scaphocerite bladeliike; pleura rounded; gonopod 1 in males styliiform,

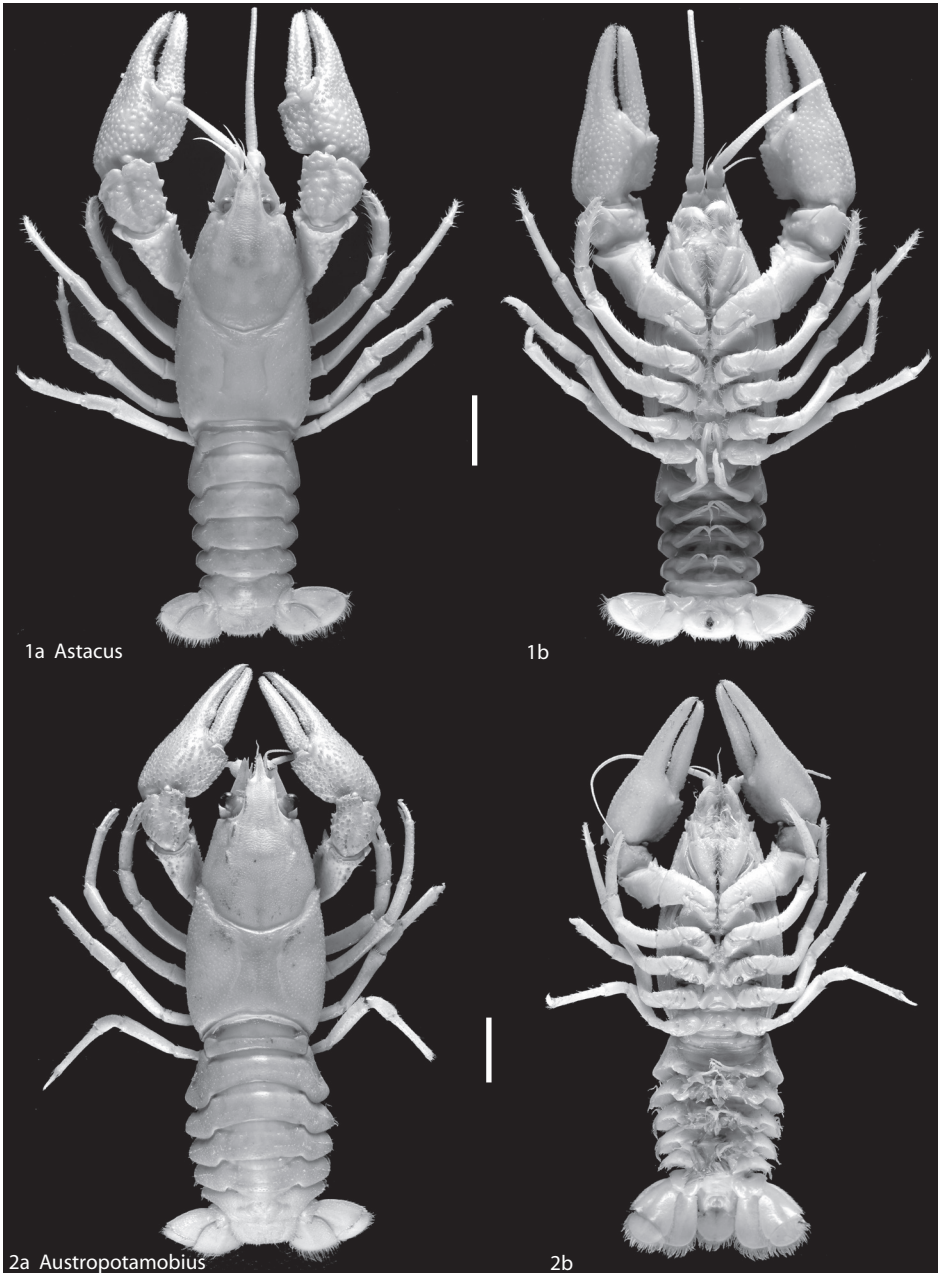


FIG. 1. Astacidae (p. 1–2).

remainder of pleopods annulate; telson large, with lateral spines, not divided by transverse suture; chelae well developed, appearing to be equal; pereiopods without

ischial hooks (TAYLOR, SCHRAM, & YAN-BIN, 1999; KARASAWA, SCHWEITZER, & FELDMANN, 2013, p. 112). *Lower Cretaceous*: China.

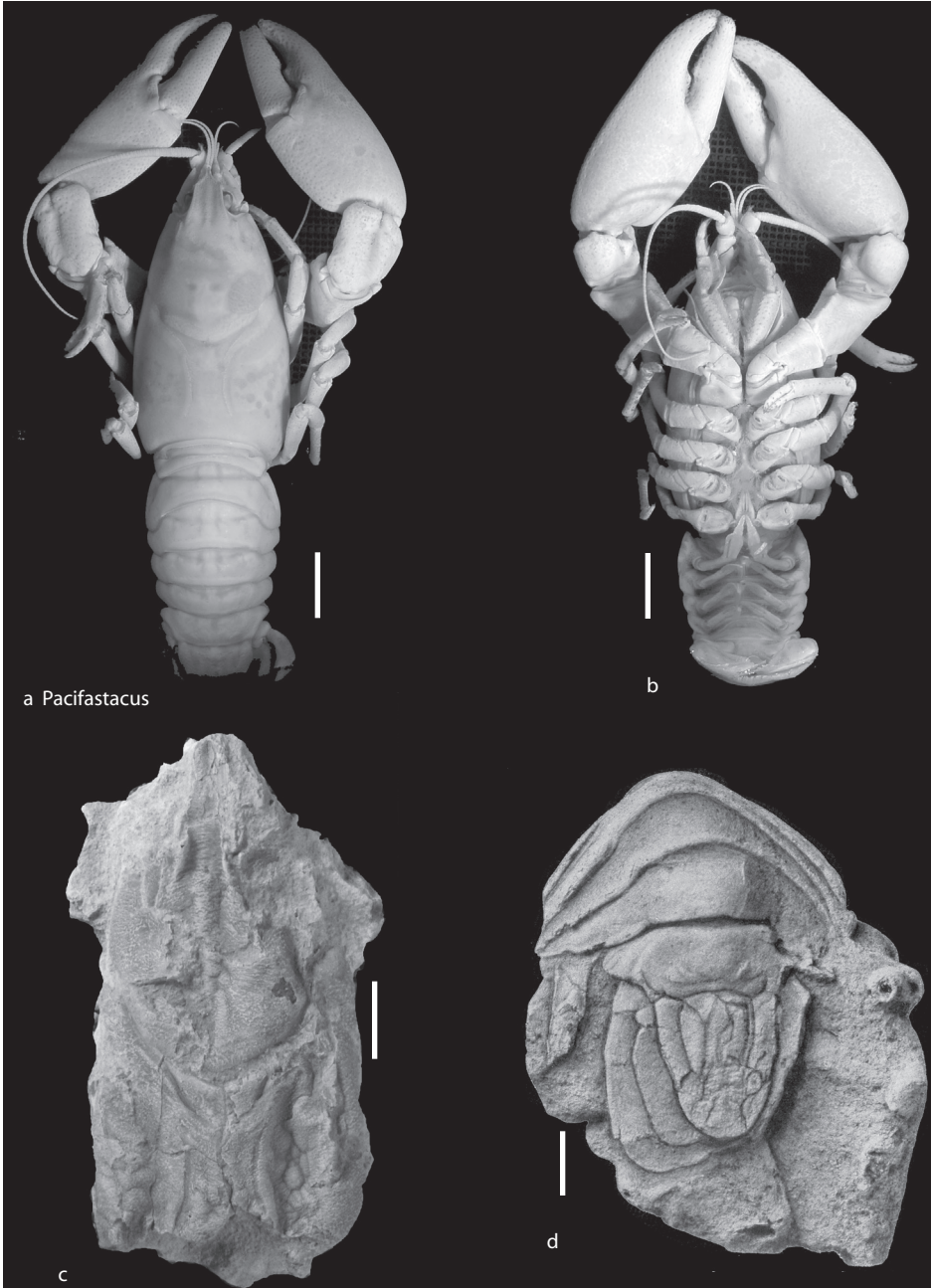


FIG. 2. Astacidae (p. 2).

Cricoidoscelosus TAYLOR, SCHRAM, & YAN-BIN, 1999, p. 130 [**C. aethus*, p. 130; OD]. Rostrum with rounded base, lateral spines; scaphocerite bladeliike; cervical groove present; optic notch present; chelae

well developed, appearing to be equal; pereiopods without ischial hooks; pleurae rounded; gonopod one in males styliform, remainder of pleopods annulate; telson large, with lateral spines; female

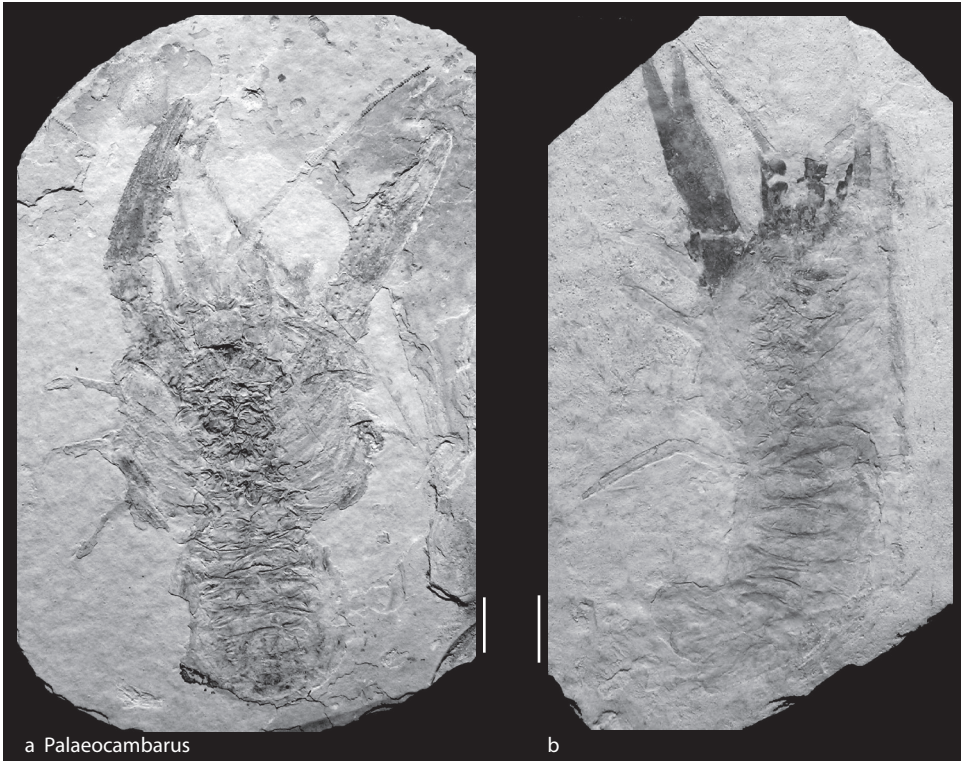


FIG. 3. Astacidae (p. 2).

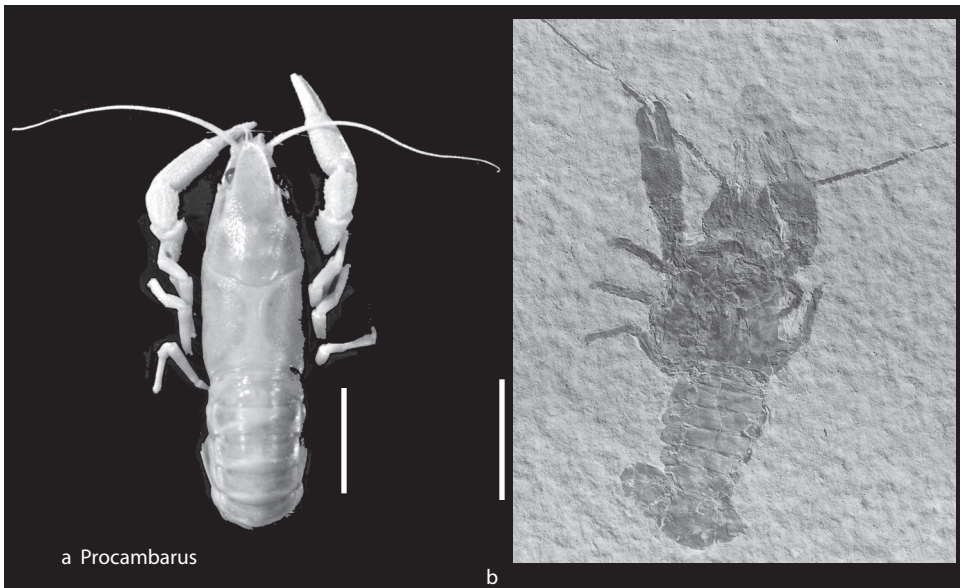
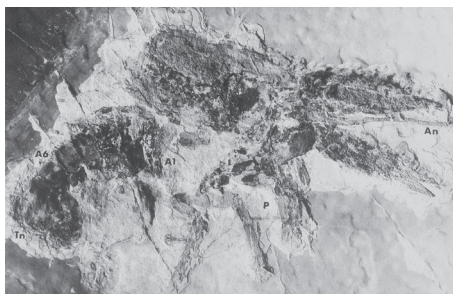


FIG. 4. Cambaridae (p. 2).



Cricoidoscelosidae

FIG. 5. Cricoidoscelosidae (p. 4–6).

with paired openings on third sternite. *Lower Cretaceous*: China.—FIG. 5. **C. aethus*, paratype, NIGP 126355, scale bar, 1 cm (Taylor, Schram, & Yan-Bin, 1999, fig. 8a).

Superfamily PARASTACOIDEA Huxley, 1879

[*nom. transl.* HOBBS, 1974, p. 13, *pro* Parastacidae HUXLEY, 1879, p. 775]

Cylindrical carapace with deep cervical groove and weak postcervical groove; short or long rostrum with or without suprarostal teeth; keeled anterior region on cephalothorax. Pereiopod 1 with strong, stout chelae; occlusal surface of both dactylus and propodus with irregular teeth; bearing hook on inner margin of carpus; inner margin of propodus longer than dactylus. Pleon with pleonite 1 lacking pleopods; subrectangular telson not subdivided by a longitudinal carina and lacking diaeresis; telson may exhibit membrane termination; exopod of uropods with diaeresis. (KARASAWA, SCHWEITZER, & FELDMANN, 2013, p. 112). *Lower Cretaceous (Albian)–Holocene*.

Family PARASTACIDAE Huxley, 1879

[Parastacidae HUXLEY, 1879, p. 775]

As for superfamily. *Lower Cretaceous (Albian)–Holocene*.

Aenigmastacus FELDMANN, SCHWEITZER, & LEAHY, 2011, p. 321 [**A. crandalli*; OD]. Parastacid with smooth carapace; cervical groove diminished or absent; smooth chelipeds with inner surface of propodus longer than dactylus; diaeresis on exopod of uropod; telson without diaeresis. *Eocene (Ypresian)*: Canada (British Columbia).—FIG. 6, 1a–b. **A. crandalli*, a, holotype, TRUIP L-018 F-1146,

dorsal view; b, paratype, TRUIP L-108 F-1151, left lateral view, scale bars, 1 cm (Feldmann, Schweitzer, & Leahy, 2011, fig. 1A, 2C).

Astacopsis HUXLEY, 1879, p. 764 [**Astacops franklinii* GRAY, 1845, p. 409, pl. 3, 1; M]. Subcylindrical carapace with numerous small tubercles and punctae; long rostrum with one suprarostal tooth; subrectangular telson without diaeresis. *Pleistocene–Holocene*: Australia.—FIG. 6, 2a–b. **A. franklinii*, USNM 177715, Holocene, Tasmania (Australia); ventral (a) and dorsal (b) views, scale bars, 1 cm (new).

Lammuastacus AGUIRRE-URRETA, 1992, p. 819 [**L. longirostris*; OD]. Subcylindrical carapace with deep cervical, postcervical, and branchiocardiac grooves; long and broad rostrum with 5 or 6 suprarostal teeth; first postorbital spine large, second spine small; suborbital spine large; pereiopod 1 with one chela elongate with thin propodus and long dactylus and index, the other with square propodus and short, stout dactylus and index, both chelae with tuberculate surfaces and spinous margins; occlusal surfaces of both dactylus and index with irregular teeth; pleonal pleuron 2 large, chordate, covering somite 1; pleura 3–5 triangular and decreasing in size; exopodite of uropods with diaeresis. *Oligocene*: Argentina.—FIG. 7, 1. **L. longirostris*, holotype, MLP 5693, right lateral view, scale bar, 1 cm (new; photo by M. Aguirre-Urreta).

Palaeochinastacus MARTIN & others, 2008, p. 288 [**P. australianus*; M]. Pereiopod 1 moderately heterochelous, spines on upper margin of manus and movable finger; occlusal surfaces of fingers with small spines; outer surfaces of chelae granular; pleonal pleura 2–4 with blunt, small spines, telson quadrate. *Lower Cretaceous (Albian)*: Australia.—FIG. 8. **P. australianus*, holotype, NMV-P 186041, Albian, Australia (Victoria), scale bar, 1 cm (new; photo by Erich Fitzgerald).

Paranephrops WHITE, 1842, p. 79 [**P. planifrons*; M]. Subcylindrical carapace with deep cervical groove and weak postcervical and branchiocardiac grooves; carapace surface with very fine pustules on cephalic region and, possibly, cervical spines; long rostrum with suprarostal teeth; subrectangular pleonal pleura; pereiopod 1 with strong chelae with merus and carpus bearing few, sharp, distally directed spines in a row on upper surface; propodus with rows of slender spines on upper and lower surfaces; exopodite of uropods with diaeresis. *Miocene–Holocene*: New Zealand.—FIG. 7, 2. **P. fordycei* (FELDMANN & POLE, 1994), holotype, OU 39695, Miocene, New Zealand, left lateral view, scale bar, 1 cm (new; photo by E. Fordyce).

Superfamily PROTASTACOIDEA Albrecht, 1983

[*nom. transl.* KARASAWA, SCHWEITZER, & FELDMANN, 2013, p. 113, *pro* Protastacidae ALBRECHT, 1983, p. 10]

Subcylindrical carapace with deep cervical groove at less than 70 degree angle to dorsal

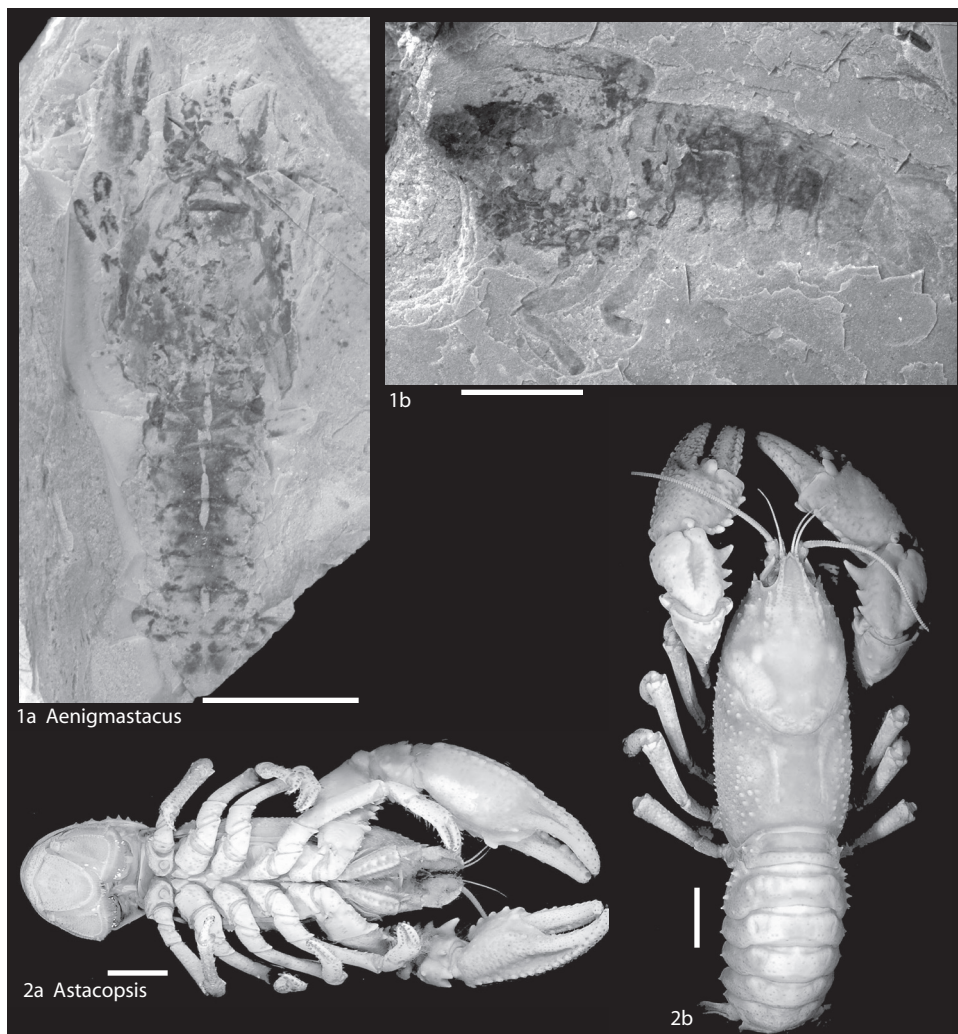


FIG. 6. Parastacidae (p. 6).

surface; postcervical and branchiocardiac grooves absent; rostrum unknown; pereopod 1 stronger than the others and chelate; subrectangular telson with incomplete diaeresis developed as posterolaterally directed marginal slits; exopodite of uropods with diaeresis. *Lower Cretaceous (Berriasian–Hauterivian)*.

Family PROTASTACIDAE
Albrecht, 1983

[Protastacidae ALBRECHT, 1983, p. 10]

As for superfamily. *Lower Cretaceous (Berriasian–Hauterivian)*.

Protastacus ALBRECHT, 1983, p. 10 [**Astacus politus* SCHLÜTER in VON DER MARCK & SCHLÜTER, 1868, p. 302; OD]. As for family. *Lower Cretaceous (Berriasian–Hauterivian)*: Germany. — FIG. 9a–b. **P. politus* (SCHLÜTER in VON DER MARCK & SCHLÜTER, 1868), current disposition of specimens unknown, Berriasian–Hauterivian, Germany; a, right lateral view; b, ventral view showing telson and uropods, scales unknown (von der Marck & Schlüter, 1868, pl. 44, 4–5).

Section HOMARIDA Scholtz & Richter, 1995

[Homarida SCHOLTZ & RICHTER, 1995, p. 293]

Carapace subcylindrical; frontal portion of carapace not fused with epistome; long or short

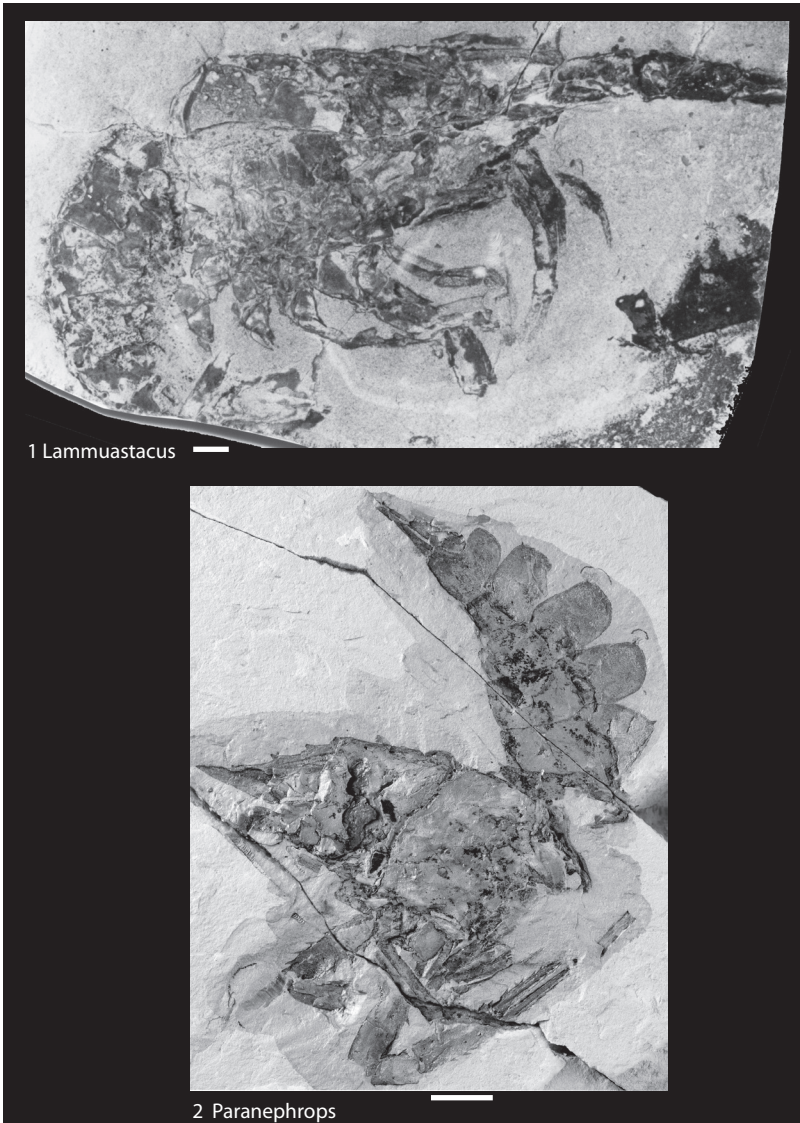


FIG. 7. Parastacidae (p. 6).

rostrum bearing suprarostal and subrostral spines; antennae with five-segmented stalk and scale; third maxilliped pediform; pereiopods 1–3 chelate or pseudochelate; pereiopods 4–5 with a terminal dactylus, with pereiopod 4 rarely pseudochelate; pleon with pleuron 2 larger than pleuron 3; exopodite of uropods with diaeresis; genital openings coxal (KARASAWA, SCHWEITZER, & FELDMANN, 2013, p. 113). *Lower Jurassic (Pliensbachian)–Holocene*.

Superfamily
ENOPLOMETOPOIDEA
de Saint Laurent, 1988

[Enoplometopoidea DE SAINT LAURENT, 1988, p. 59]

Cephalothorax cylindrical, with cephalic ridges; rostrum well developed, with rostral spines; cervical groove short, weak; branchiocardiac groove indistinct; first pereiopods large, chelate; pereiopods 2–4 pseu-



FIG. 8. Parastacidae (p. 6).

dochelate or chelate; pereiopod 4 rarely achelate; pereiopod 5 with terminal dactyli; pleon with small first and large second somite, with pleura expanded anteriorly and posteriorly, rounded or rectangular; telson with or without movable spines; exopodite of uropods usually with diaeresis (KARASAWA, SCHWEITZER, & FELDMANN, 2013, p. 113). *Lower Jurassic (Pliensbachian)–Holocene.*

Family ENOPLOMETOPIDAE
de Saint Laurent, 1988

[Enoplometopidae DE SAINT LAURENT, 1988, p. 59]

Cephalothorax cylindrical; rostrum well developed; cephalic ridges present; cervical groove weak, branchiocardiac groove indistinct; pereiopods 1 large, chelate; pereiopods 2–5 pseudochelate; pleonal pleura rounded, pleon with small first and large second somite; pleura rounded and expanded anteriorly and posteriorly,

sometimes with spines; tailfan well calcified; telson rounded, with movable spines, exopod of uropods with diaeresis (KARASAWA, SCHWEITZER, & FELDMANN, 2013, p. 113). *Holocene.*

Enoplometopus A. MILNE-EDWARDS, 1862, p. 14 [*E. pictus*; M]. As for family. *Holocene*: Australia, Atlantic Ocean, Indo-Pacific Oceans.—FIG. 10a. **E. pictus*, USNM 141329, right lateral view, scale bar, 1 cm.—FIG. 10b–c, *E. debelius* HOLTHUIS, 1983, USNM 252577; b, oblique dorsal view, c, ventral view, scale bars, 1 cm (new).

Family UNCINIDAE Beurlen, 1928

[Uncinidae BEURLEN, 1928, p. 120]

Cephalothorax short; cervical groove short; median suture present; branchiocardiac groove indistinct. Pereiopods 2–3 with small chelae; pereiopods 4 with chelae or terminal dactyli; pereiopod 5 with terminal dactyli; pereiopod 1 long, strong, and spinose, with elongate propodus and strong curved dactylus. Pleon with small

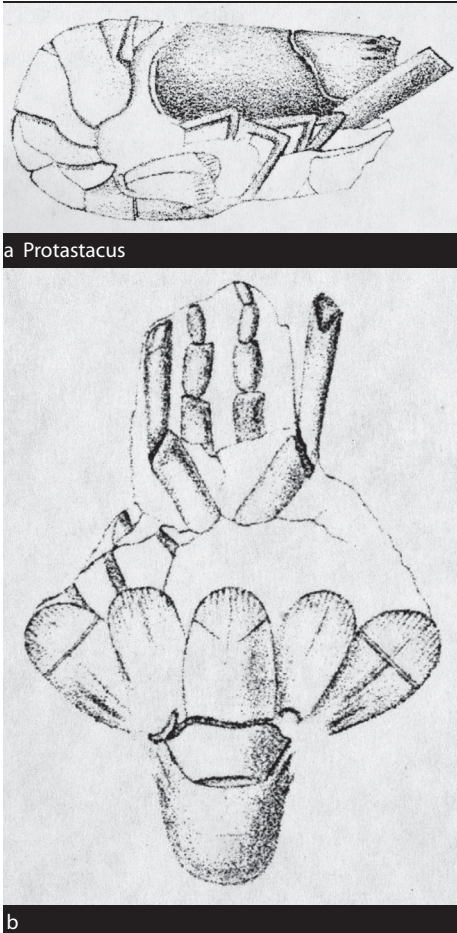


FIG. 9. Protastacidae (p. 7).

first and large second somite, with pleura expanded anteriorly and posteriorly, rectangular; telson triangular, without movable posterolateral spines, exopodite of uropods with or without diaeresis (KARASAWA, SCHWEITZER, & FELDMANN, 2013, p. 115). *Lower Jurassic (Pliensbachian)–Upper Jurassic (Tithonian)*.

Malmuncina SCHWEIGERT & GARASSINO, 2003, p. 3 [**M. wulfi*; OD]. Carapace with cervical groove; rostrum spinose; pereiopods 1 strongly chelate, fingers stout; pereiopods 2 and 3 with tiny chelae; pereiopods 4 and 5 appearing to be achelate; pleonal pleura appearing to be sharp. *Upper Jurassic (Tithonian)*: Germany.—FIG. 11, 1a–b. **M. wulfi*; a, holotype, JME no. Ti 2003/1; b, paratype, JME

no. SOS 4800, scale bars, 1 cm (new; photos by K. A. Frickhinger, Emmering, Germany).

Uncina QUENSTEDT, 1851, p. 269 [**U. posidoniae* QUENSTEDT; M]. Carapace weakly mineralized, median suture present; rostrum strong, with supra- and subrostral spines; cervical groove weak; carapace, pleon, and pereiopods granular; pereiopods 1 strongly chelate, isochelous, fingers curved; pereiopods 2 and 3 chelate. *Lower Jurassic (Pliensbachian–Toarcian)*: Canada (Alberta), *Pliensbachian*; France, Germany, Italy, Japan, *Toarcian*.—FIG. 11, 2. **U. posidoniae*, Urwelt-Museum, Hauff Holzmaden specimen, *Toarcian*, Germany, scale bar, 1 cm (new).

Superfamily STENOCHIROIDEA Beurlen, 1928

[*nom. transl.* KARASAWA, SCHWEITZER, & FELDMANN, 2013, p. 115, *pro* Stenochirinae BEURLEN, 1928, p. 177]

Subcylindrical carapace, cephalic carinae present; cervical groove extending anteroventrally from dorsal midline to antennal groove; postcervical groove extending anteroventrally from near dorsal midline, joining cervical groove at approximately midheight on carapace; branchiocardiac groove subparallel to dorsal midline dorsally; hepatic groove looping to intersect cervical groove; inferior groove extending ventrally; pereiopods 1 long, isochelous or heterochelous, with dactylus held vertically, ischial process distinct, claws usually longer than carapace, and propodus of the chelae usually unsculptured; pereiopods 2 and 3 chelate; pereiopods 4 and 5 with terminal dactylus; pleonal somite 2 larger than somite 3; exopod of uropods with diaeresis (KARASAWA, SCHWEITZER, & FELDMANN, 2013, p. 115). *Middle Jurassic (Bajocian)–Upper Cretaceous (Cenomanian–Turonian)*.

Family STENOCHIRIDAE Beurlen, 1928

[*nom. transl.* BEURLEN, 1930, p. 326, *pro* Stenochirinae BEURLEN, 1928, p. 177] [=Chilenophoberidae TSHUDY & BABCOCK, 1997, p. 259]

Subcylindrical carapace, cephalic carinae present; cervical groove extending anteroventrally from dorsal midline to antennal groove; postcervical groove extending anteroventrally from near dorsal midline, joining cervical groove at approximately midheight on cara-

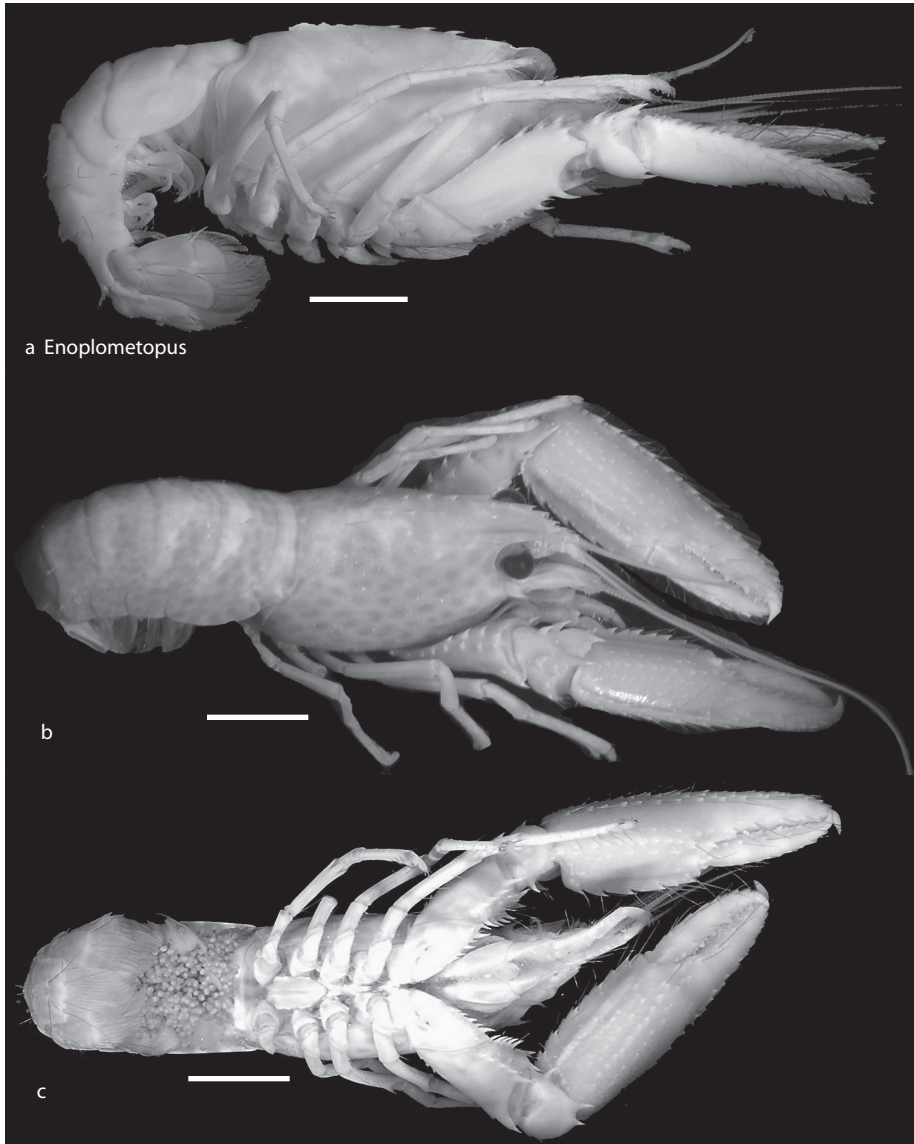


FIG. 10. Enoplometopidae (p. 9).

pace; branchiocardiac groove subparallel to dorsal midline dorsally; hepatic groove looping to intersect cervical groove; inferior groove extending ventrally; pereopods 1 long, isochelous or heterochelous, with dactylus held vertically, ischial process distinct, claws usually longer than carapace, and propodus of the chelae usually unsculptured; pereopods

2 and 3 chelate; pereopods 4 and 5 with terminal dactylus; pleonal somite 2 larger than somite 3; exopod of uropods with diaeresis (KARASAWA, SCHWEITZER, & FELDMANN, 2013, p. 115). *Middle Jurassic (Aalenian–Bajocian)–Upper Cretaceous (Turonian)*.

Chilenophoberus CHONG & FÖRSTER, 1976, p. 148
[**C. atacamensis*; OD]. Subcylindrical carapace



FIG. 11. Uncinidae (p. 10).

with deep cervical groove, curving obliquely anteroventrally at rounded junction with antennal groove; short, reduced postcervical groove; reduced branchiocardiac groove; gastroorbital groove shallow and broad, branched anteriorly; hepatic groove posteriorly as a shallow depression between hepatic and branchial region; carapace without dorsal suture, but with median carina on anterior gastric region and on branchial region; gastric and antennal regions each with one granulated longitudinal carina; pereopod 1 with slender, long chelae; pereopods 2–3 with chelae; pleon longer than carapace; exopodite of uropods with diaeresis. *Upper Jurassic (Oxfordian)*: Chile.—FIG. 12, 1. **C. atacamensis*, BSPG-1976-I-205, holotype, scale bar, 1 cm (new: photo by M. Nose).

Gypsonicus SCHWEITZER & FELDMANN in GUYER, SCHWEITZER, & FELDMANN, 2014, p. 3 [**G. wyomingensis*; OD]. Carapace with prominent cervical and postcervical grooves, both bounded by granular ridges. Postcervical groove composed of two straight elements with point of inflection at about midlength. Branchiocardiac groove weakly developed. Adductor testis region (χ) a broad swelling. Cephalic region with subrostral and gastroorbital carinae. Branchial region with granular ornamentation dorsally, becoming smooth posteroven-

trally. Scaphocerite with straight outer margin and rounded inner margin, both with narrow rim. Pereiopod 1 extremely long and slender, with nodose and spinose ornamentation. Pleopods with long, styliform basal element and long, multiarticulate flagellae. Exopod of uropods with diaeresis. Telson appearing to be triangular, narrow (SCHWEITZER & FELDMANN in GUYER, SCHWEITZER, & FELDMANN, 2014, p. 3). *Middle Jurassic (Bathonian–Bajocian)*: USA (Wyoming).—FIG. 13, 1. **G. wyomingensis*, USNM 593552, holotype, left lateral view, scale bar, 1 cm (Guyer, Schweitzer, & Feldmann, 2014, fig. 4.1).

Gracilimanus FELDMANN & SCHWEITZER in GUYER, SCHWEITZER, & FELDMANN, 2014, p. 8 [**G. obscurus*; OD]. Carapace with weakly impressed cervical and postcervical grooves. Postcervical groove a weakly concave forward arc, terminating at midheight of carapace where concave-forward cervical groove arises. Rostrum long, ensiform, lacking spines. Carapace surface granular. Pleon with triangular pleura terminating in acute tips. Pereiopod 1 isochelous, long, slender, nodose, with long, slender fingers (FELDMANN & SCHWEITZER in GUYER, SCHWEITZER, & FELDMANN, 2014, p. 8). *Middle Jurassic (Bathonian–Bajocian)*: USA (Wyoming).—FIG. 13, 2. **G. obscurus*, USNM 593562a, holotype, left lateral view, scale

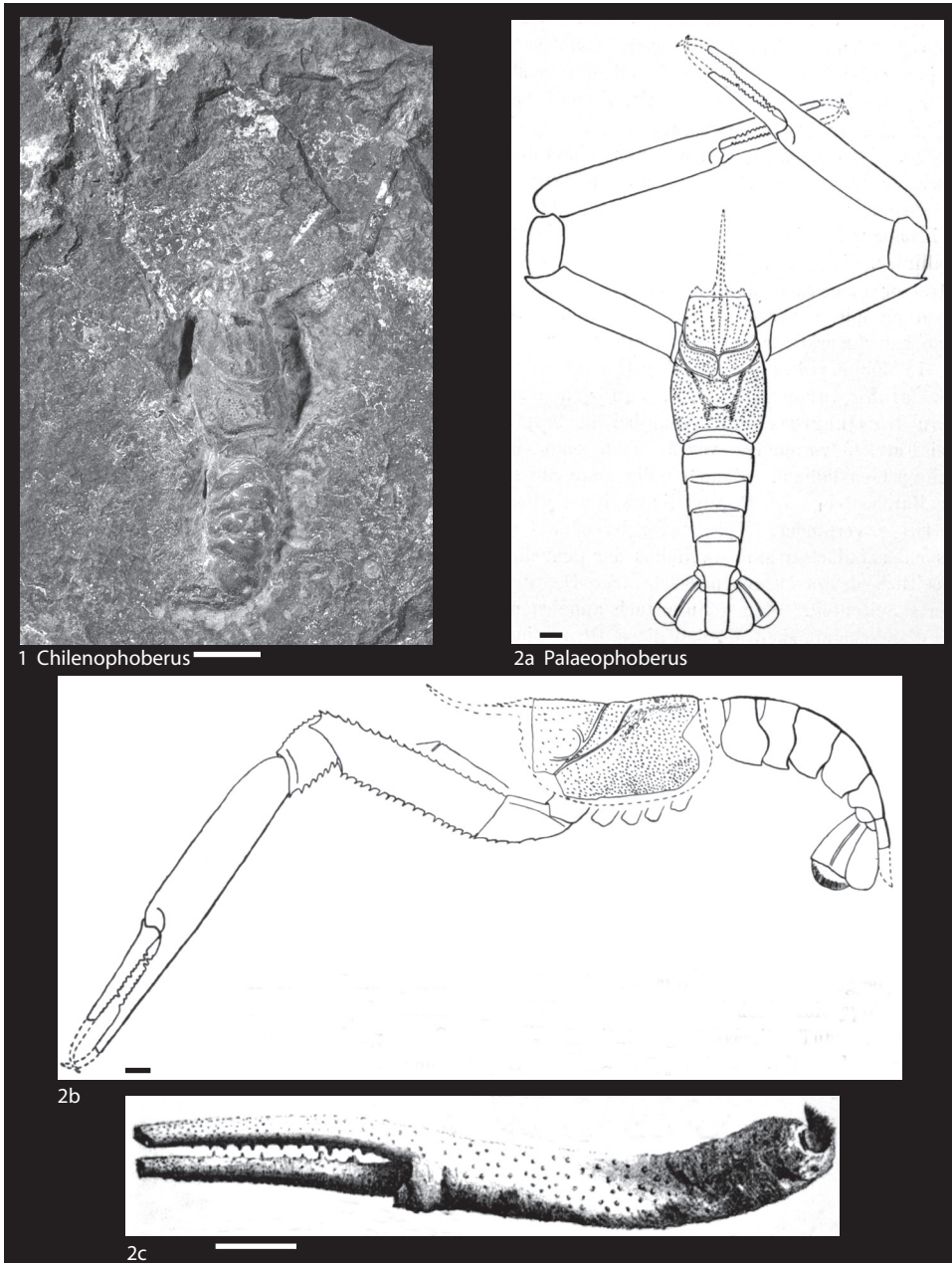


FIG. 12. Stenochiridae (p. 11–14).

bar, 1 cm (Guyer, Schweitzer, & Feldmann, 2014, fig. 9.1).

Palaeophoberus GLAESSNER, 1932, p. 119 [**Stenochirus suevicus* QUENSTEDT, 1867, p. 321, pl. 26, 19; M]. Subcylindrical carapace with distinct cervical and postcervical grooves, joining later-

ally with acute angle; pereopod 1 with long and strong chelae; pleonal somites with truncate pleura. *Middle Jurassic (Aalenian–Bajocian)*–*Upper Jurassic (Tithonian)*: Germany.—FIG. 12, 2a–c. **P. suevicus* (QUENSTEDT); dorsal (a) and left lateral (b) reconstructions of holotype, Sammlung des

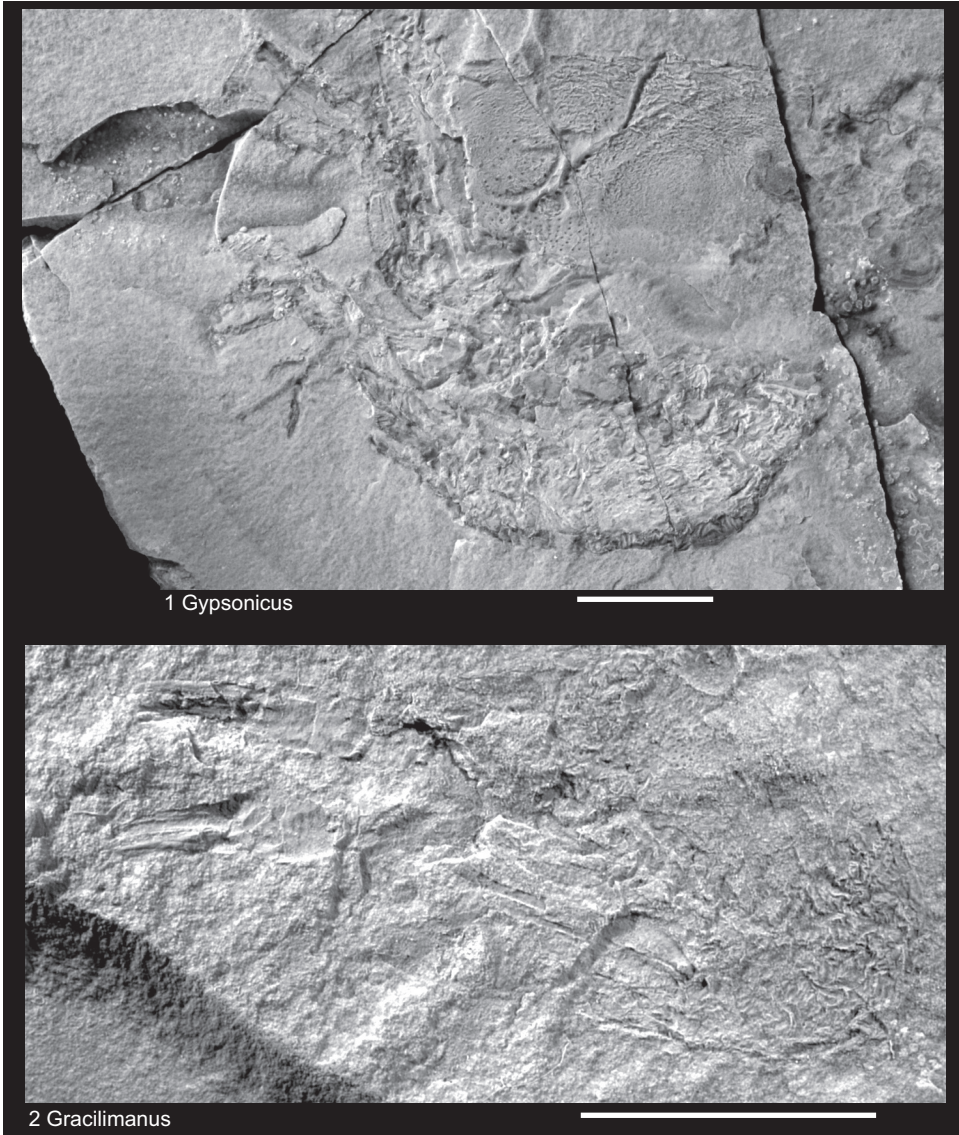


FIG. 13. Stenochiridae (p. 12–13).

Geologischen Instituts der Universität Tübingen, Aalenian–Bajocian, Germany, scale bars, 1 cm (Glaessner, 1932, fig. 5A–B, respectively); 2c, right first chelipeds, scale bar, 1 cm (Quenstedt, 1867, pl. 26,19).

Pseudastacus OPPEL, 1861b, p. 360 [**Bolina pustulosa* MÜNSTER, 1839; SD GLAESSNER, 1929, p. 350 [=*Alvis* MÜNSTER, 1840, p. 20 (type, *A. octopus*, pl. 1,1; M)]. Subcylindrical carapace with deep cervical groove; postcervical groove apparently absent, branchiocardiac intersecting cervical

groove; long rostrum with three suprastroral teeth; elongate antennal scales; pereopod 1 with elongate and strong chelae bearing straight dactylus and index, isochelous to weakly heterochelous; pereopods 2 and 3 with small chelae, pereopods 4 and 5 with terminal dactyli; exopodite of uropods with diaeresis. *Middle Jurassic (Bajocian)–Upper Cretaceous (Cenomanian)*: France, *Bajocian*; Germany, *Upper Jurassic (Tithonian)*; UK, *Berriasian–Hauterivian*; Lebanon, *Cenomanian*.—FIG. 14, 1a–b. **P. pustulosus* (MÜNSTER,

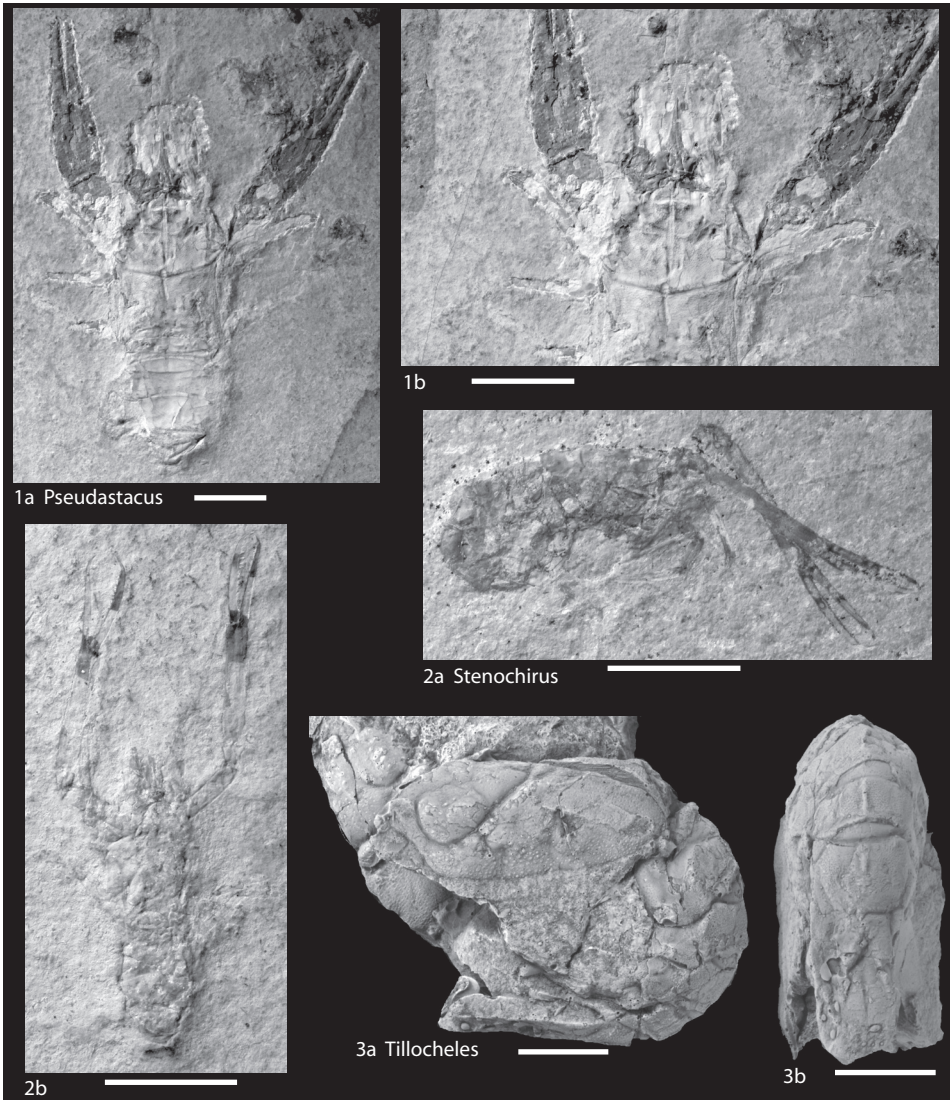


FIG. 14. Stenochiridae (p. 14–16).

1839), BMNH 44760, Tithonian, Germany; *a*, dorsal view, *b*, enlargement of cephalic area, scale bars, 1 cm (new).

Stenochirus OPPEL, 1861a, p. 108 [*S. mayeri* OPPEL, 1862, p. 20, pl. 4, 1–2; SD GLAESSNER, 1929, p. 379]. Carapace subrectangular; rostrum long with suprarostralspines; antennal carinae with spines; cervical groove deep; branchiocardiac groove weak; pereiopod 1 with long and slender chelae, rectangular propodus, and dactylus and index with acicular teeth; pereiopods 2 and 3 with small chelae; pereiopods 2–5 equal in length; pleonal somite 1 much smaller than others; pleurae of

pleonal somite 2 much expanded in size; telson subrectangular, with dorsal spines; uropods with diaeresis. *Middle Jurassic (Callovian)–Upper Jurassic (Tithonian)*: France, *Callovian*; Germany, *Tithonian*.—FIG. 14, 2a–b. *S. mayeri*, Kimmeridgian, Germany; *a*, BMNH In.28982, right lateral view; *b*, BMNH 44822, dorsal view, scale bars, 1 cm (new).

Tillocheles WOODS, 1957, p. 171 [*T. shannonae*; OD]. Subcylindrical carapace; long rostrum with suprarostralspines; gastric region of carapace dorsally with longitudinal fusiform area bounded by recurved carinae; semicircular

antennal groove; cervical, postcervical, and branchiocardiac grooves confluent; branchial region of carapace without lateral carinae; pereopod 1 heterochelous; pleon with median keel. *Lower Cretaceous (Albian)–Upper Cretaceous (Turonian)*: Australia (Queensland), *Albian*; Japan, *Cenomanian–Turonian*.—FIG. 14,3a–b. **T. shannonae*, QMF 3252, Albian, Queensland; left lateral (*a*) and posterior (*b*) views, scale bars, 1 cm (new; photos by Pam Wilson).

Superfamily NEPHROPOIDEA Dana, 1852

[*nom. transl.* HOBBS, 1974, p. 4, *pro* Nephropidae DANA, 1852b, p. 15]

As for family. *Lower Cretaceous (Berriasian)–Holocene*.

Family NEPHROPIDAE Dana, 1852

[Nephropinae DANA, 1852b, p. 15] [=Homaridae HUXLEY, 1879, p. 781; Thaumastocheilidae BATE, 1888, p. 46]

Subcylindrical carapace, typically with longitudinal carina; tuberculate longitudinal carinae in the antennal region; deep cervical groove extending ventrally from level of orbit to antennal groove; postcervical groove typically curving anteroventrally from dorsal midline toward, or to, cervical groove at approximately midheight on carapace; branchiocardiac groove dorsally subparallel or parallel to dorsal midline, joining postcervical groove at level of orbit; rostrum usually large and spinose. Pereiopod 1 with elongate, strong, and equal or unequal chelae with variably shaped denticles along interior margins of dactylus and index; pereiopods 1–3 chelate, pereiopod 5 sometimes chelate. Pleonal somites usually ending in a point and with a transverse median carina; telson quadrangular, entirely hardened, and lacking diaeresis; uropods entirely hardened, exopod of uropods with diaeresis. Antennae with long, whiplike flagella and well-developed scaphocerite. (KARASAWA, SCHWEITZER, & FELDMANN, 2013, p. 115). *Lower Cretaceous (Berriasian–Hauterivian)–Holocene*.

Cardirhynchus SCHLÜTER, 1862, p. 734 [**C. spinosus*; M]. Cervical and branchiocardiac grooves deep; short, forward-directed spines overall; chelipeds with long chelae and fingers; pleonal somites with transverse ridges; pleura sharp. *Upper Cretaceous*: Germany.—FIG. 15,1a–b. **C. spinosus*, STIPB, Schlüter collec-

tion 4b; *a*, possibly holotype, dorsal view; *b*, impression with cuticle remaining, scale bars, 1 cm (new; photos by George Oleschinski).

Dinochelus AHYONG, CHAN, & BOUCHET, 2010, p. 528 [**D. ausubeli*; OD]. Rostrum long, slightly downturned, with lateral spines; scaphocerite present; carapace with cervical, postcervical, hepatic, antennal, and branchiocardiac grooves; postcervical groove strongest; chelipeds strongly heterochelate, fingers very long, with slender spines on occlusal surfaces; pereiopods 2, 3, and 5 chelate; hands globular; exopodite of uropods with diaeresis set very close to posterior margin; pleura of pleonal somites smooth, rectangular; pleura 2–5 with marginal spines; telson subquadrate. *Eocene (Ypresian)–Holocene*: England, *Ypresian*; Philippine Sea, *Holocene*.—FIG. 15,2a–b. **D. ausubeli*, holotype, NMRC Crustacea Collection, Holocene, Philippine Sea; dorsal (*a*) and left lateral (*b*) views, scale bars, 1 cm (new; photos by Tin-Yam Chan).

Homarus WEBER, 1795, p. 94 [**Cancer gammarus* LINNAEUS, 1758, p. 631; SD RATHBUN, 1904, p. 170; ICZN Opinion 104, 1928]. Subcylindrical carapace smooth; rostrum long, with suprarostal spines; supraorbital spine present; scaphocerite present; cervical groove and postcervical groove well developed, postcervical groove extending from midline to about midheight of carapace where it nears or joins cervical groove; branchiocardiac groove weak; strong heterochely of pereiopod 1; major chelipeds with fingers with strong, domal denticles on occlusal surfaces; minor chelipeds with finer, spinose denticles on occlusal surfaces; pereiopods 2 and 3 chelate; terga smooth or weakly ornamented; subrectangular telson; exopodite of uropods with diaeresis. *Lower Cretaceous (Albian)–Holocene*: USA (Texas), *Albian*; Lebanon, *Cenomanian*; USA (Texas), *Turonian*; USA (South Dakota, *Campanian*; Germany, *Upper Cretaceous*; UK, *Eocene*; Germany, *Oligocene*; USA, *Pleistocene*; Atlantic coast of North America, South Africa, eastern Atlantic, northwestern coast of Black and Mediterranean Seas, *Holocene*.—FIG. 16a–b. *H. americanus* H. MILNE EDWARDS, 1837 in 1834–1840, Holocene, North Atlantic; *a*, KSU unnumbered specimen, dorsal view, scale bar, 1 cm (Karasawa, Schweitzer, & Feldmann, 2013, fig. 14E); *b*, USNM 99746, ventral view, scale bar, 1 cm (new).—FIG. 16c, *H. brittonestrus* STENZEL, 1945, KSU 1383, cast of syntype (UT 21106), Turonian, Texas, left lateral view of carapace, scale bar, 1 cm (new).—FIG. 16d, *H. davisi* STENZEL, 1945, KSU 1384, cast of holotype (UT 21103), Turonian, Texas, left lateral view of carapace and partial pleon, scale bar, 1 cm (new).—FIG. 16e–f, *H. mickelsoni* (BISHOP, 1985), cast of holotype (SDSM 10,023), Campanian, South Dakota; right lateral (*e*) and dorsal (*f*) views, scale bars, 1 cm; type species not available in USNM collections (new).

Hoploparia M'COY, 1849, p. 175 [**Astacus longimanus* SOWERBY, 1826, p. 493; SD RATHBUN, 1926, p. 129] [= *Palaeno* ROBINEAU-DESVOIDY, 1849, p.

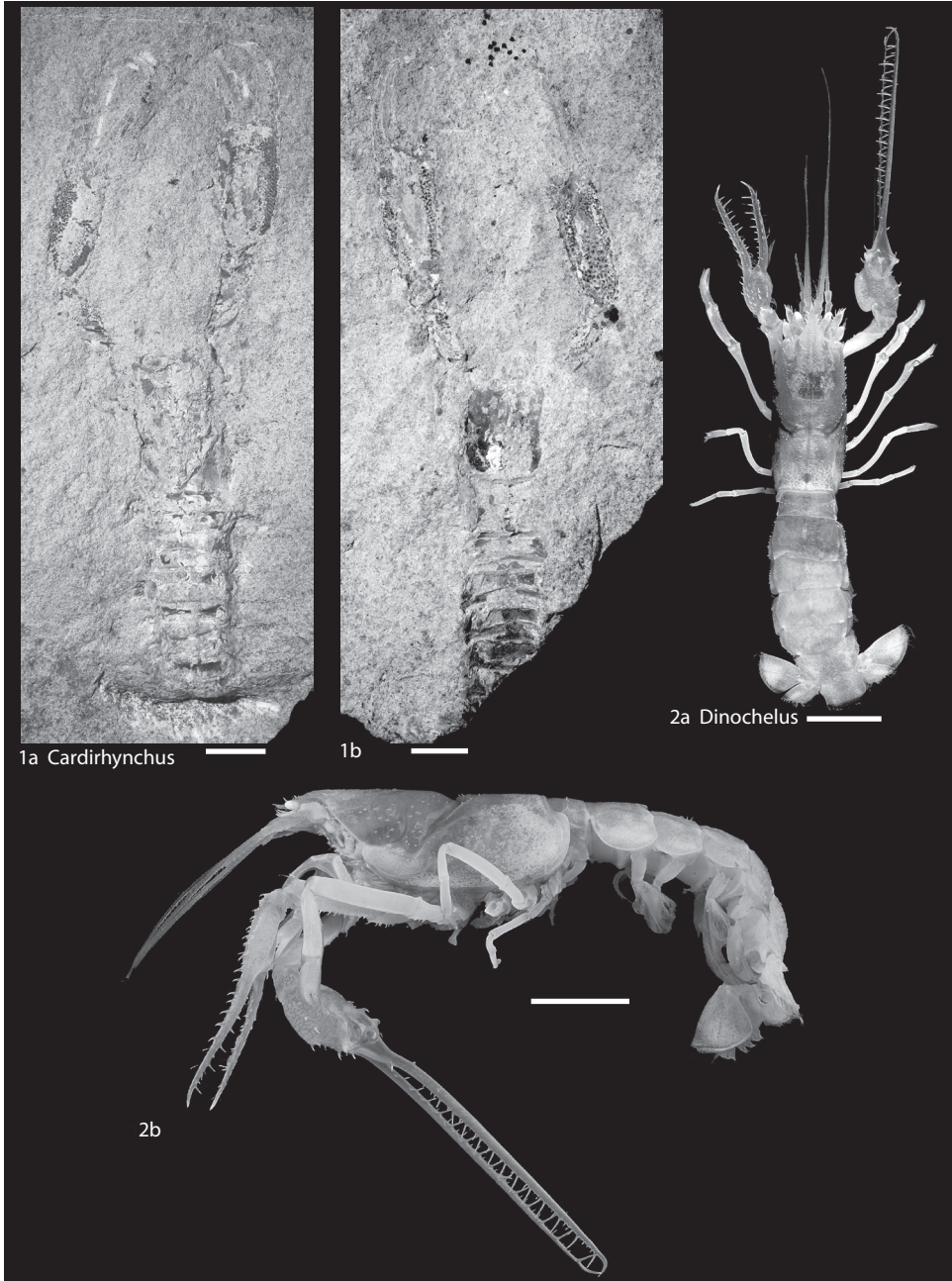


FIG. 15. Nephropidae (p. 16).

129 (type, *P. roemeri*, p. 130, M)]. Subcylindrical carapace smooth; rostrum long, with suprarostal spines; supraorbital spine present; scaphocerite present; subdorsal carina present; cervical groove and postcervical groove well developed, postcer-

vical groove extending from midline to about midheight of carapace where it joins hepatic groove to encircle adductor testis muscle attachment; branchiocardiac groove weak; strong heterochely of pereiopod 1; major chelipeds with fingers with

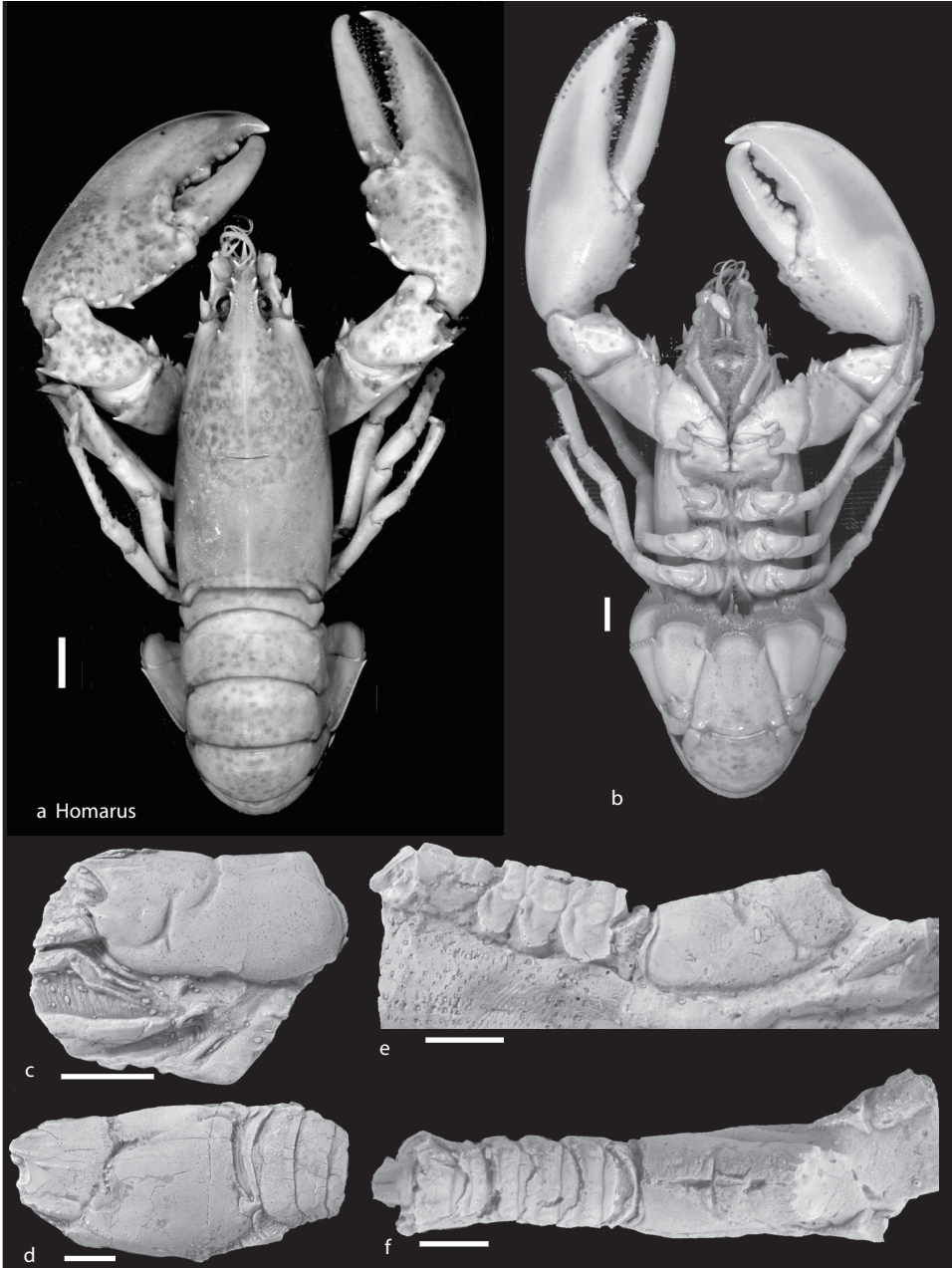


FIG. 16. Nephropidae (p. 16).

strong, domal denticles on occlusal surfaces; minor chelipeds with finer, spinose denticles on occlusal surfaces; pereiopods 2 and 3 chelate; terga smooth or weakly ornamented; subrectangular telson; exopodite of uropods with diaeresis. *Lower Cretaceous* (*Berriasian*)–*Miocene*: Colombia, France, Switzer-

land, Ukraine, *Berriasian*–*Hauterivian*; Germany, *Valanginian*; France, Germany, Russia, Switzerland, USA (Oregon), *Hauterivian*; Japan, *Barremian*; France, *Aptian*–*Albian*; Australia (Queensland), France, Madagascar, USA (Alaska, Texas), UK, *Albian*; Czech Republic, France, UK, Uzbekistan,

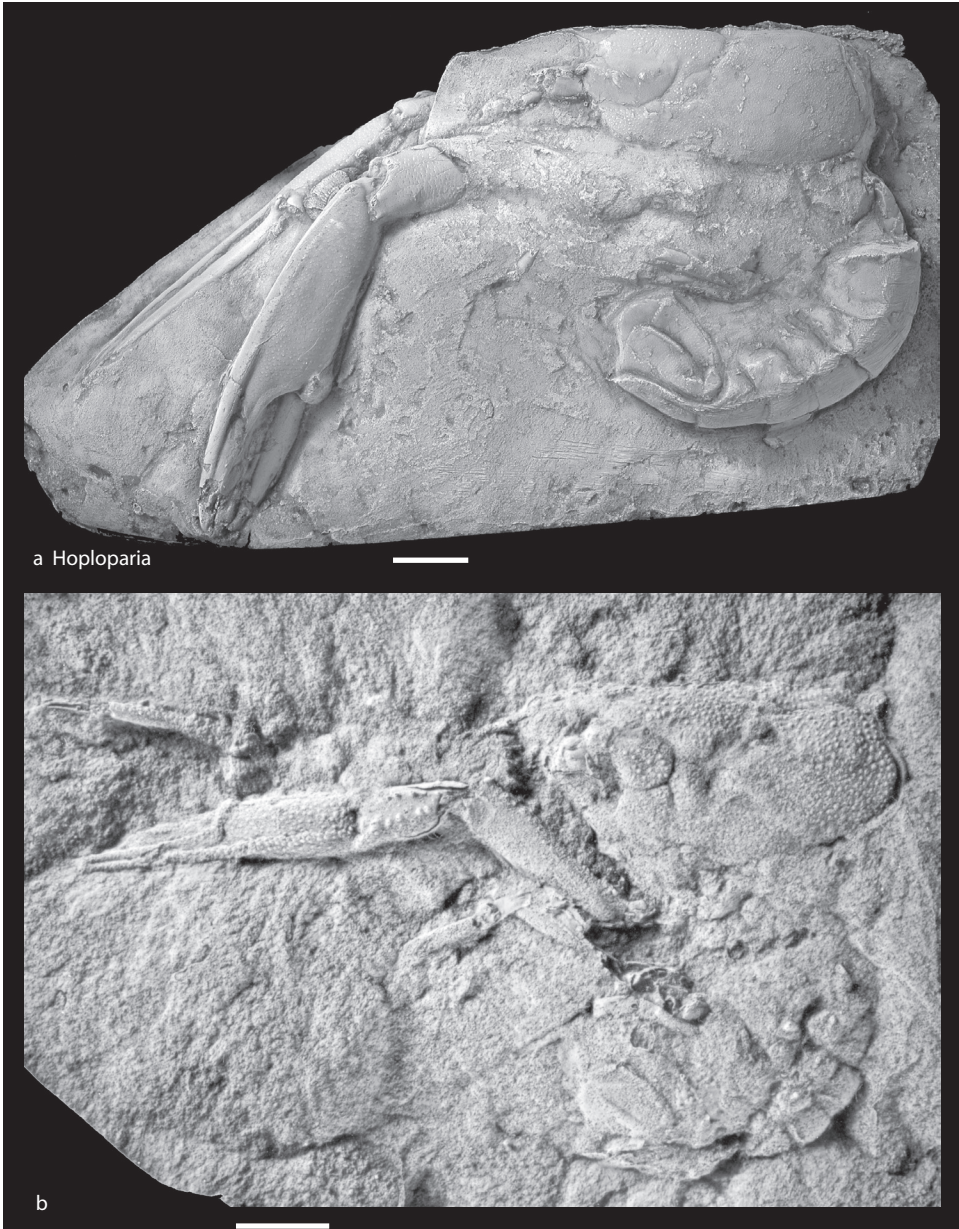


FIG. 17. Nephropidae (p. 16–20).

Cenomanian; Canada (Alberta), USA (Texas), *Coniacian*; Czech Republic; *Turonian*; Argentina, *Turonian–Coniacian*; Japan, *Turonian–Santonian*; Spain, *Santonian*; Belgium, Germany, *Coniacian–Maastrichtian*; Canada (British Columbia), Madagascar, USA (California, New Jersey), *Campanian*; West Antarctica, Netherlands, Japan, *Campanian–Maastrichtian*; West Antarctica, Belgium, Germany;

USA (Maryland, New Jersey, Tennessee), *Maastrichtian*; Canada (British Columbia), *Upper Cretaceous*; Sweden, *Paleocene (Danian)*; West Antarctica, USA (North Dakota), *Paleocene*; Germany, Greenland, UK, *Eocene (Ypresian)*; USA (Alabama), *Eocene (Lutetian–Bartonian)*; Belgium, Germany, Switzerland, *Eocene (Priabonian)*; Hungary, UK, *Eocene*; Belgium, *Oligocene (Rupelian)*; West Antarctica,

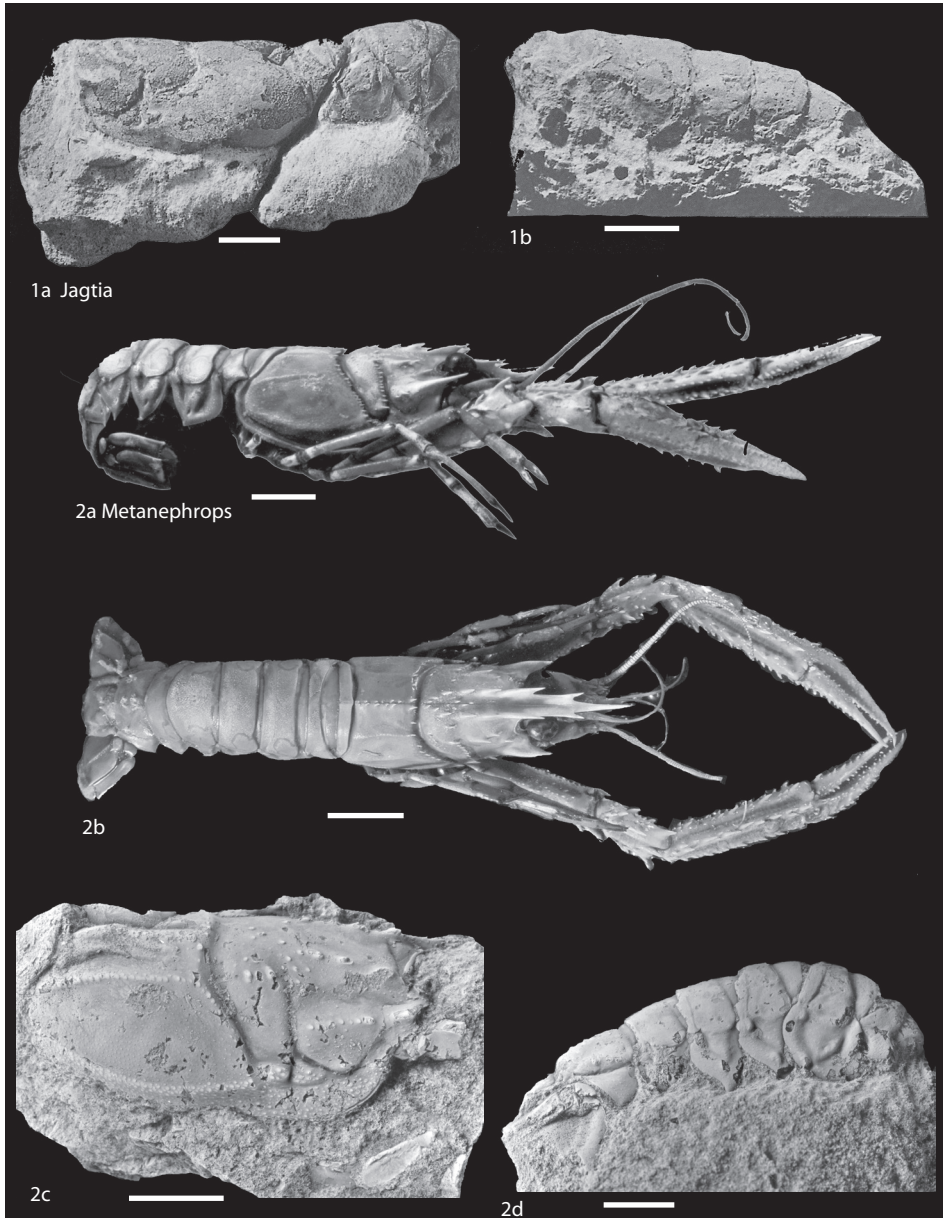


FIG. 18. Nephropidae (p. 20–21).

Miocene.—FIG. 17a. **H. longimana* (SOWERBY, 1826), KSU D 1488, cast of SM B 62690, Albian, UK, left dorsal view, scale bar, 1 cm (Karasawa, Schweitzer, & Feldmann, 2013, fig. 14F).—FIG. 17b. *H. stokesi* (WELLER, 1903), USNM 410883, Maastrichtian, West Antarctica, preserved in Salter's Position, scale bar, 1 cm (Feldmann & Tshudy, 1987, fig. 3).

Jagtia TSHUDY & SORHANNUS, 2000, p. 224 [**J. kunradensis*; OD]. Subcylindrical carapace; scaphocerite absent; cervical and postcervical grooves well developed, postcervical groove not joining cervical or hepatic grooves; lacking ventral extension of branchiocardiac groove, but possessing a subtle parabranchial groove and distinct hepatic, suprahepatic and inferior grooves; pereopod 1



FIG. 19. Nephropidae (p. 21).

with elongate, unequal chelae, with spinose carinae medially and on outer margins; pleonal somites without sculpture and ornamentation; pleuron 2 quadrate, much larger than others; pleura 3–5 cordate. *Upper Cretaceous (Maastrichtian)*: The Netherlands.—FIG. 18, 1a–b. **J. kunradensis*; a, holotype, IRScNB 90-33h, left carapace and pleon; b, paratype, IRScNB 90-19a, left view of pleon; scale bars, 1 cm (new; photos by D. Tshudy).

Metahomarus FRANȚESCU, 2013, p. 341 [**M. reidi*; OD]. Carapace rectangular, longer than wide, with axial suture; cephalic region ornamented with scattered tubercles; thoracic region finely punctate; posterior rim of cervical groove axially ornamented with spines; pleonal somites smooth, without transverse grooves; pleura ending in single, stout spine; pleuron of second pleonal somite overlaps first pleonal somite; sternum with deep axial groove (FRANȚESCU, 2013, p. 341). *Early Cretaceous (Albian)*: USA (Texas).—FIG. 19a–b. **M. reidi*, holotype, USNM 553405, Albian, Texas; dorsal (a) and ventral (b) views, scale bars, 1 cm (new; photos by Ovidiu Franțescu).

Metanephrops JENKINS, 1972, p. 162 [**Nephrops japonicus* TAPPARONE CANEFRI, 1873, p. 327; OD]. [= *Wongastacia* HU, 1983, p. 130 (type, *W. taiwanica*; OD)]. Subcylindrical carapace; long rostrum with supra- and subrostral spines; supra-

orbital carina bearing three, strong spines; weak cervical groove and strong postcervical groove; three pairs of thoracic carinae; pereiopod 1 bearing very large chelae with elongate propodus, isochelous; pleonal somites with narrow transverse furrow posteriorly; subrectangular telson; exopodite of uropods with diaeresis. *Upper Cretaceous (Campanian)–Holocene*: Antarctic Peninsula, *Campanian–Maastrichtian*; Antarctic Peninsula, *Paleocene*; New Zealand, Taiwan, *Pliocene*; Cosmopolitan, *Holocene*.—FIG. 18, 2a–b. *M. rubellus* (MOREIRA, 1903), USNM 170688, Holocene, South Atlantic; right lateral (a) and dorsal (b) views, scale bars, 1 cm (new).—FIG. 18, 2c–d. *M. jenkinsi* FELDMANN, 1989, Maastrichtian, Antarctica; c, paratype, USNM 424603, right view of carapace; d, paratype, USNM 424605, right view of pleon, scale bars, 1 cm; type species not available in USNM collections (new).

Nephrops LEACH, 1814 in 1813–1814, p. 398 [**Cancer norvegicus* LINNAEUS, 1758, p. 632; M; ICZN Opinion 104, 1928]. Subcylindrical carapace; long rostrum bearing at least three pairs of suprarostal spines; weak cervical and branchio-cardiac grooves and strong postcervical groove, intercervical groove present; branchial carinae absent; pereiopod 1 heterochelous; chelae greatly enlarged, right typically larger and more stout

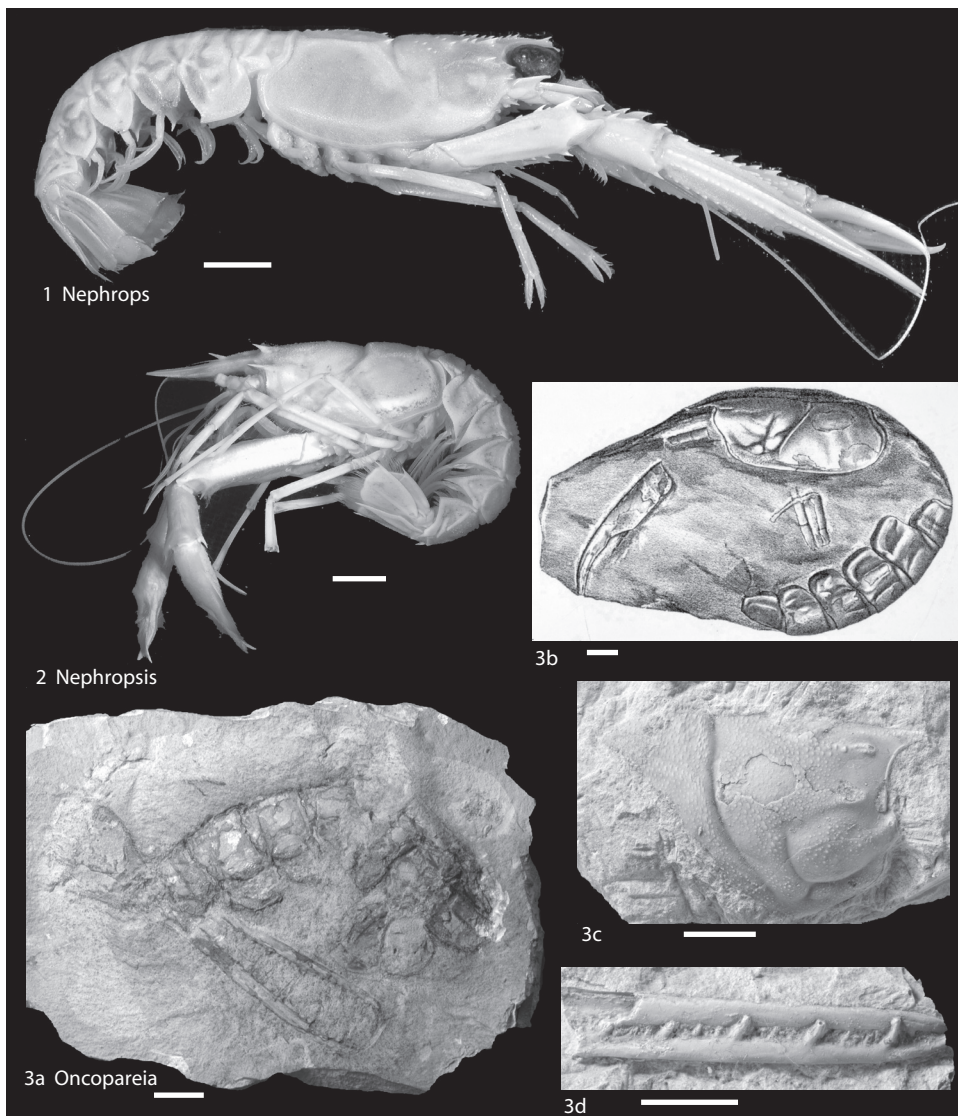


FIG. 20. Nephropidae (p. 21–23).

than left; subrectangular telson; exopodite with diaeresis. *Lower Cretaceous (Berriasian)–Holocene*: France, *Berriasian–Hauterivian*; USA, *Albian*; UK, *Eocene (Ypresian)*; Denmark, *Miocene (Tortonian)*; Dominican Republic, *Miocene*; Italy, Panama, *Pleistocene*; North Atlantic, Mediterranean, *Holocene*.—FIG. 20,1. **N. norvegicus*, USNM 152172, Holocene, North Atlantic, right lateral view, scale bar, 1 cm (new).

Nephropsis WOOD-MASON, 1873, p. 60 [**N. stewarti*; M]. Rostrum elongate, triangular, with one or more pairs of lateral spines and with subdorsal carinae extending onto cephalic region, diverging and

sometimes spinose; carapace with strong supraorbital and antennal spines; dorsomedian, cervical, postcervical, and hepatic grooves well developed; weak marginal, antennal, and intestinal grooves; posteriorly lateral, intermediate, intestinal, and postcervical carinae are developed; chelipeds isochelous; pereiopods 2 and 3 chelate, smaller than chelipeds; pereiopods 4 and 5 achelate; pleonal somite 1 smooth; remainder of somites may possess median carina; pleurae sharp ventrally. *Eocene–Holocene*: USA (Alabama), *Ypresian*; Italy, *Eocene*; Cosmopolitan, *Holocene*.—FIG. 20,2. *N. aculeata* SMITH, 1881, USNM 1024329, Holocene, North Atlantic,

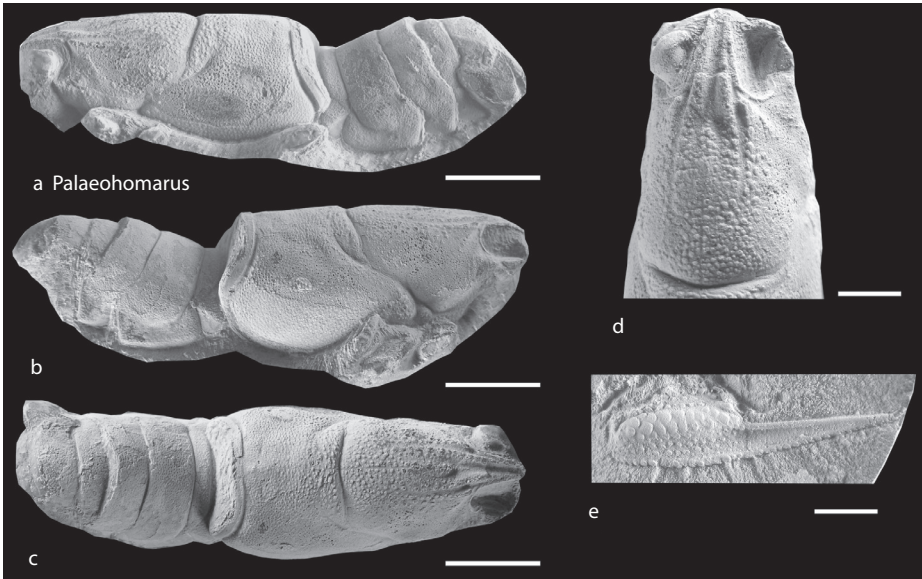


FIG. 21. Nephropidae (p. 23).

left lateral view, scale bar, 1 cm; type species is not available in USNM collection (new).

Oncopareia BOSQUET, 1854, p. 127 [*O. bredai*, p. 128, pl. 10, 5–8; OD] [= *Nymphaeops* SCHLÜTER, 1862, p. 728 (type, *N. coesfeldensis*, p. 728, pl. 13, 3, 6; SD GLAESSNER, 1929, p. 279; = *Ischnodactylus* PELSENER, 1886, p. 163 (type, *Hoploparia macrodactyla* SCHLÜTER in VON DER MARCK & SCHLÜTER, 1868, p. 295; SD GLAESSNER, 1929, p. 226); = *Stenocbeles* FRIČ & KAFKA, 1887, p. 40 (type, *S. esocinus*, p. 40, pl. 4, 7; SD Glaessner, 1969, p. R459)]. Subcylindrical carapace smooth; orbital notch well developed; cervical groove and postcervical groove well developed, inferior and antennal grooves present; chelipeds strongly heterochelous; major chelipeds with bulbous propodus and long, slender fingers with extremely long, needlelike spines on occlusal surfaces; minor cheliped with finer, spinose denticles on occlusal surfaces; pleon with smooth terga and short, quadrate pleura. *Lower Cretaceous (Albian)–Paleocene*: USA (Texas), *Albian*; Czech Republic, *Turonian*; Belgium, Germany, *Coniacian–Maastrichtian*; Belgium, The Netherlands, *Campanian–Maastrichtian*; Denmark, *Paleocene*.—FIG. 20, 3a. *O. esocinus* (FRIČ & KAFKA, 1887), NM O3468, *Turonian*, Czech Republic, scale bar, 1 cm (new).—FIG. 20, 3b, *O. coesfeldensis* (SCHLÜTER, 1862), *Campanian*, Germany (Schlüter, 1879, pl. 15, 1).—FIG. 20, 3c–d, *O. klintebjergensis* JAKOBSEN & COLLINS, 1979, *Paleocene*, Denmark; c, KSU 818a, cast of holotype (MGUH 14437), right lateral carapace, scale bar, 1 cm (new); d, KSU 818b, cast of paratype (MGUH 14438), fingers of cheliped,

scale bar, 1 cm; type species not available in USNM collections (new; casts prepared by Sten Jakobsen).

Palaeohomarus MERTIN, 1941, p. 188 [**P. hembra*; OD]. Rostrum long, slender, with subrostral and without suprarostal spines; cephalic region with subdorsal and postorbital carinae; hepatic groove moderately well developed, not extending to anterior end of carapace; cervical groove concave forward, extending to level of base of orbit; inferior groove convex forward, prominent; postcervical groove deepest, crossing midline posterior to midlength, concave forward, becoming more shallow as it approaches cervical groove; branchiocardiac groove distinct, short, intersecting postcervical groove at midheight of carapace; chelae of pereopod 1 long, slender, heterochelous, and spinose, with fingers appearing to be edentulous; pleon as in *Hoploparia*; somite 2 larger than somite 1; pleuron of somite 2 ovoid, with posteriorly directed spine; pleura of somites 3–5 triangular. *Lower Cretaceous (Hauterivian)–Upper Cretaceous (Coniacian)*: Argentina, *Hauterivian–Barremian*; Germany, *Coniacian*.—FIG. 21a–e. *P. pacifica* AGUIRRE URRETA & others, 2012, *Hauterivian–Barremian*, Argentina. a–d, holotype, CPBA 20800, left lateral (a), right lateral (b), dorsal (c), and enlarged frontal (d) views, scale bars, 1 cm; e, paratype, CPBA 20576, right propodus, scale bar, 1 cm; type species not available in USNM collections (Aguirre-Urreta & others, 2012, fig 4).

Palaeonephrops MERTIN, 1941, p. 168 [**Hoploparia browni* WHITFIELD, 1907, p. 459, pl. 36; OD]. Subcylindrical carapace; deep cervical and postcervical grooves, intercervical groove present; dorsal

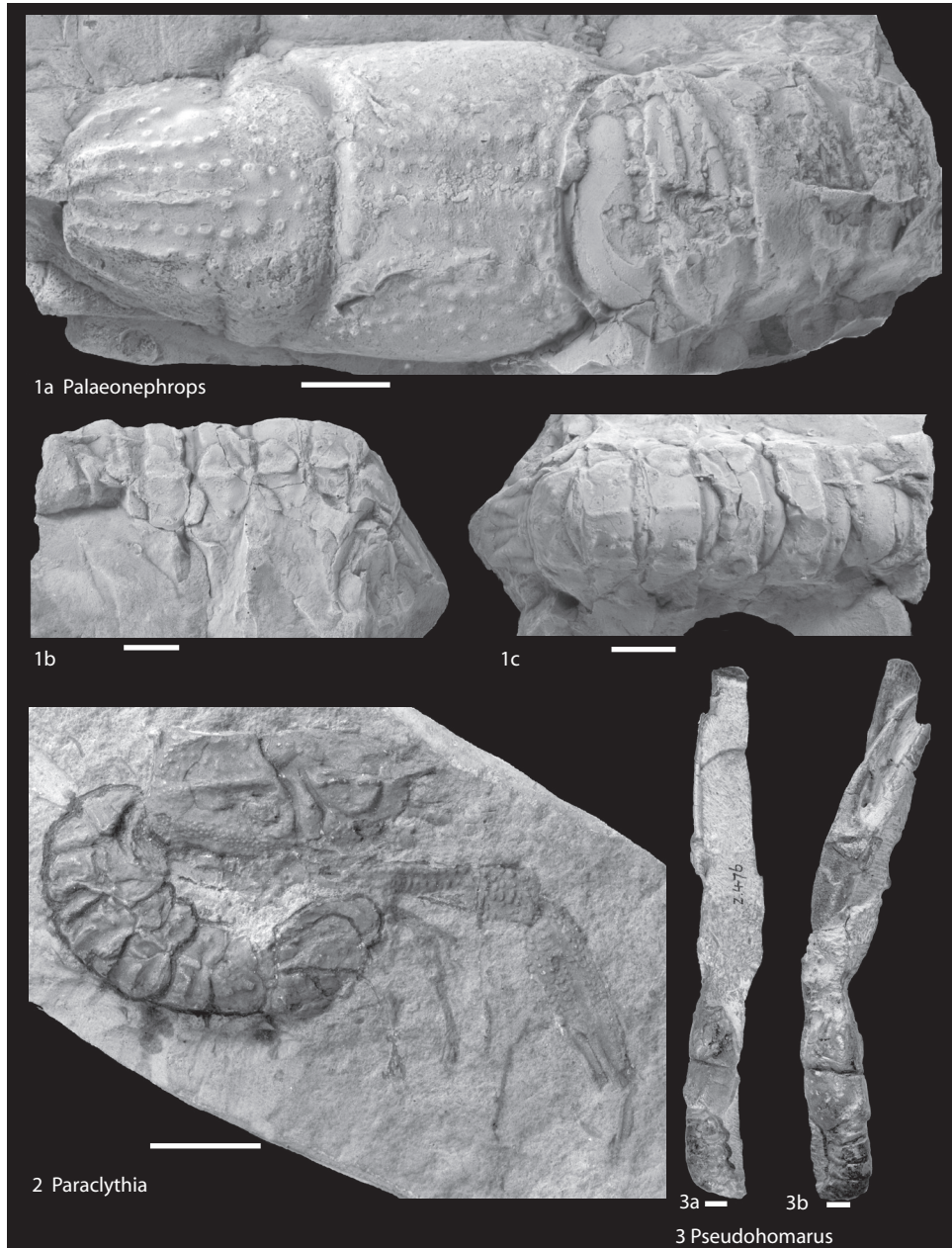


FIG. 22. Nephropidae (p. 23–25).

margin of carapace bearing a row of strong spines; long rostrum with suprarostal spines; chelipeds strongly heterochelous; pleonal somites with transverse grooves and median keel. *Upper Cretaceous (Cenomanian–Maastrichtian)*: USA (Montana), *Cenomanian–Maastrichtian*; Canada, *Campa-*

nian.—FIG. 22, 1a–c. **P. browni* (WHITFIELD), Campanian, Canada; a, KSU 1381a, cast of syntype (AMNH 9572/1), dorsal view, scale bar, 1 cm (new); b–c, KSU 1381b, cast of syntype (AMNH 9572/2); b, left lateral view of pleon; c, dorsal view of pleon, scale bars, 1 cm (new).

- Paraclythia** FRIČ, 1877, p. 145 [**P. nephropica*; M] [=*Paraclythia* ZITTEL, 1885, p. 694, obj., unwaranted spelling correction]. Subcylindrical carapace; pair of strong, spinose or nodose ridges on cephalic region; four longitudinal ridges on thoracic region; rostrum with suprarostreal spines; spinose antennal carina; chelae heterochelous, long, with rows of spines; pleonal somites with deep transverse grooves and longitudinal ridges or bosses; terga strongly separated from pleura. *Upper Cretaceous (Turonian–Campanian)*: Czech Republic, Germany, Turonian–Santonian; Iran, Campanian.—FIG. 22,2. **P. nephropica*, NM O3458, cast of original specimen of FRIČ & KAFKA (1887, pl. 4, 1.3a, b), Turonian, Germany, scale bar, 1 cm (new).
- Pseudohomarus** VAN HOEPEN, 1962, p. 253 [**P. umsinensis*; M]. Cervical groove present; rostrum long; pereopods very long; chelae very long, slender, heterochelous; occlusal surfaces of fingers of major cheliped with domal denticles, those of minor cheliped appear smooth; pleonal pleuron 2 subquadrangular; all somites granular. *Lower Cretaceous (Albian)*: South Africa.—FIG. 22,3a–b. **P. umsinensis*, Council for Geoscience, Pretoria, South Africa, specimen 3476, right lateral (a) and oblique left lateral (b) views, scale bars, 1 cm (new; photos by Ellen de Kock).

ABBREVIATIONS FOR MUSEUM REPOSITORIES

- AMNH, American Museum of Natural History, New York, New York
 SM B, Sedgwick Museum, Cambridge University, UK
 BMNH, The Natural History Museum, London, UK
 BSPG, Bayerische Staatsammlung für Paläontologie und historische Geologie München (Munich), Germany
 IRScNB, Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium
 JME, Juramuseum Eichstätt, Germany
 KSU, Decapod Comparative Collection, Department of Geology, Kent State University, Kent, Ohio, USA
 MFM, Mizunami Fossil Museum, Mizunami, Gifu, Japan
 MGUH, Geological Museum, Copenhagen, Denmark
 MLP, División Paleozoología de Invertebrados, Museo de La Plata, Argentina
 MNHN, Muséum National d'histoire naturelle, Paris, Département Histoire de la Terre, Paris, France
 NHMW, Naturhistorisches Museum Wien (Natural History Museum of Vienna), Austria
 NIGP, Nanjing Institute of Geology and Paleontology, Nanjing, China
 NM, Národní Muzeum, Prague, Czech Republic
 NMV-P, Paleontological Collections, National Museum of Victoria, Australia
 NMRC, Crustacean Collection of the National Museum of the Philippines, Manila, Philippines
 OU, Otago University, Dunedin, New Zealand
 QMF, Queensland Museum, Queensland, Australia
 SDSM, South Dakota School of Mines and Technology, Rapid City, South Dakota, USA
 SMF, Senckenberg Forschungsinstitut und Naturmuseum, Frankfurt, Germany
 SMMP, Science Museum of Minnesota, Department of Paleontology, St. Paul, Minnesota, USA
 STIPB, Steinmann Institut für Geologie, Mineralogie, und Paläontologie, Universität Bonn, Germany
 TRUIP, Thompson River University Invertebrate Paleontology Repository, Kamloops, British Columbia, Canada
 Umwelt-Museum Hauff, Holzmaden, Baden-Württemberg, Germany
 USNM, United States National Museum of Natural History, Smithsonian Institution, Washington, DC, USA
 UT, University of Texas at Austin, Texas Natural Science Center, Non-vertebrate Paleontology Laboratory, Austin, Texas, USA

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