

Figure 107. A—*Periclimenes (Periclimenes) impar* Kemp; B—*Periclimenes (Harpilius) brevicarpus* (Schenkel) (from Holthuis, 1955).

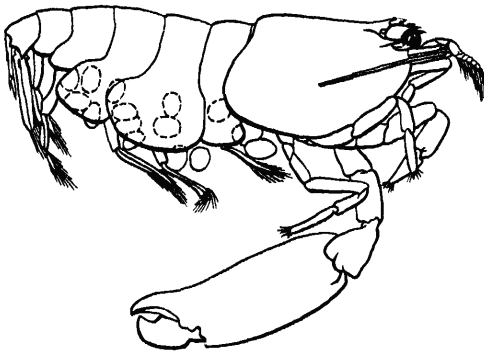


Figure 108. *Periclimenaeus tridentatus* (Miers) (from Holthuis, 1955).

- size. Fingers of these pereopods elongated, with small teeth, but sometimes without hammershaped one. Outer margin of basal antennular segment without lateral triangular projection 14.
14. Rostrum very short, does not extend beyond eye stalk, and with or without very small teeth. Chelae of pereopod II high and somewhat compressed; fingers with one and two teeth (Figure 109)
 *Onyccaris* Nobili, 1904.
- Rostrum extends beyond eye stalk and very often dentate. Chelae of pereopod II cylindrical and slightly broad; fingers with large number (more than three) of denticles 15.
15. Scaphocerite broad and oval; terminal tooth does not extend beyond

- lamella16.
- Scaphocerite narrow and sharply pointed; terminal tooth extends beyond lamella17.
- 69 16. Telson with two large ventrally curved terminal spines.
.....*Hamopontonia* Bruce, 1970.
- Telson without these processes (Figure 110)
.....*Anchistus* Borradaile, 1898.

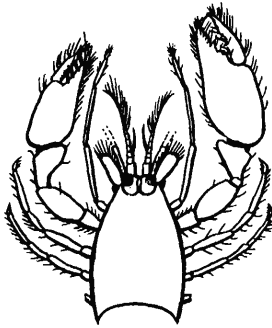


Figure 109. *Onycocaris quadratophthalma* (Bals): anterior part of body (dorsal view) (from Holthuis, 1955).

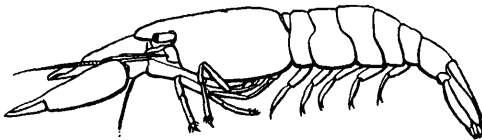


Figure 110. *Anchistus custos* (Forskäl) (from Holthuis, 1955).

- 17. Antennal spine present (Figure 111, A) ...*Philarius* Holthuis, 1952.
- Antennal spine absent18.
- 18. Body moderately compressed. Dorsal spine on telson absent. Lateral margin of exopod of uropod with numerous teeth
.....*Anapontonia* Bruce.
- Body very highly compressed. Dorsal spine present on telson and located on its distal third. Lateral margin of exopod of uropod armed with one large falcate spine.*Ischnopontonia* Bruce.
- 19. Telson rather broad; large dorsal spines usually present. Lateral margin of endopod* of uropod armed with one tooth20.
- 70 — Telson quite long; very small dorsal spines present. Outer margin of endopod* of uropod terminates in two spines; inner spine movable (Figure 112, A and B).*Pontoniopsis* Borradaile, 1915.
- 20. Maxilliped III without arthrobranchiae. Body not highly depressed. Dactyl on last three pereopods straight and usually with one or more accessory teeth behind tip (Figure 111, B and C)

*Error in original. Should read "exopod of uropod"—Technical Editor.

-*Pontonia* Latreille, 1829.
- Maxilliped III with arthrobranchiae. Body very highly depressed. Dactyl on last three pereopods simple and highly curved (Figure 112, *C* and *D*)*Platycaris* Holthuis, 1952.

69 Figure 111. *A*—*Philarius imperialis* (Kubo); *Pontonia pinnophyllax* (Otto): *B*—male; *C*—female (from Holthuis, 1955).

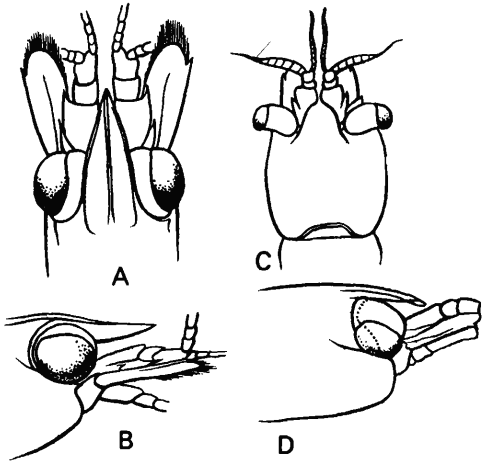
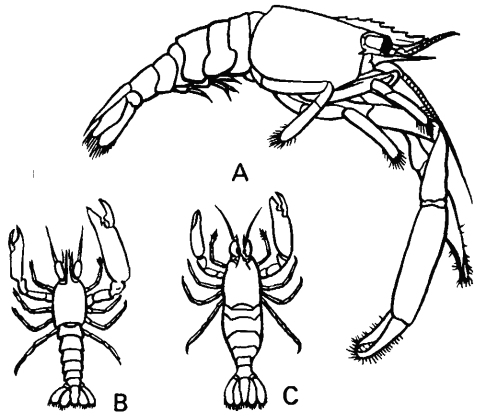


Figure 112. *Pontoniopsis comanthi* Borradaile, anterior end: *A*—dorsal view; *B*—lateral view; *Platycaris latirostris* Holthuis, anterior end: *C*—dorsal view; *D*—lateral view (from Holthuis, 1955).

- 21. Body clumsy and not depressed. Carapace and abdomen sculptured. Lower margin of rostrum entire. Pleura of third abdominal segment sharply pointed (Figure 113).....*Dasycaris* Kemp, 1922.
- Body highly depressed. Carapace and abdomen smooth. Lower margin of rostrum dentate. Pleura of third abdominal segment broadly rounded (Figure 114, *A*)....*Harpiliopsis* Borradaile, 1917.
- 22. Carapace with three to four spines behind antennal spine. Pereopod II with short, noncompressed fingers (Figure 114, *B*)
.....*Fennera* Holthuis, 1951.

- Carapace without spines, except antennal and hepatic ones. Pereopod II with laterally compressed fingers23.
- 23. Body highly depressed. Basal projections of last three pereopods unguulate. Rostrum usually dentate24.
- Body clumsy and not highly depressed. Basal projections of last



Figure 113. *Dasycares ceratops* Holthuis (from Holthuis, 1955).



Figure 114. A—*Harpiliopsis depressus* (Stimpson); anterior part of cephalothorax; B—*Fennera chacei* Holthuis; anterior part of cephalothorax (from Holthuis, 1955).

- three pereopods flat. Rostrum usually edentate25.
- 24. Hepatic spine absent. Pereopod II similar in shape although sometimes unequal in size (Figure 115, A)
.....*Coralliocaris* Stimpson, 1860.
- Hepatic spine present. Pereopod II very different in shape and size (Figure 115, B) *Jocaste* Holthuis, 1952.
- 25. Rostrum depressed and edentate. Antennal spine absent (Figure 116)*Conchodytes* Peters, 1852.
- Rostrum compressed. Antennal spine present26.
- 26. Rostrum edentate. Basal projections of dactyl of last three pereopods rounded and smooth. Maxilliped III with arthrobranchiae (Figure 115, C and D)*Dasella* Labour, 1945.
- Rostrum dentate. Basal projections of dactyl of last three pereopods sharply pointed with small ventral squamae. Maxilliped III without arthrobranchiae (Figure 117, A)*Cavicheles* Holthuis, 1952.
- 71 27. Pleura of first five abdominal segments broadly rounded or obtuse28.
- Pleura of at least abdominal segments IV and V distinctly pointed34.
- 28. Hepatic spine present29.
- Hepatic spine absent31.
- 29. Antennal spine present30.

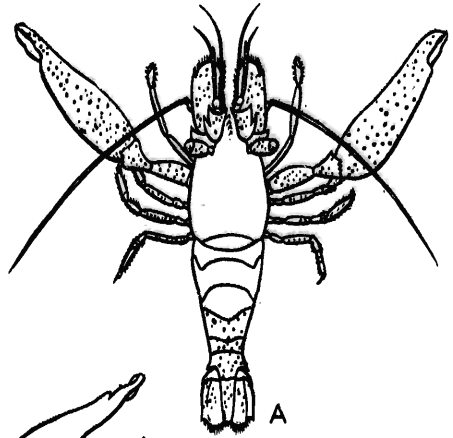


Figure 115. A—*Coralliocaris superba* (Dana); B—*Jocaste lucina* (Nobili); *Dasella herdmaniae* (Lebour); C—lateral view; D—chela of pereopod 11 (from Holthuis, 1955).

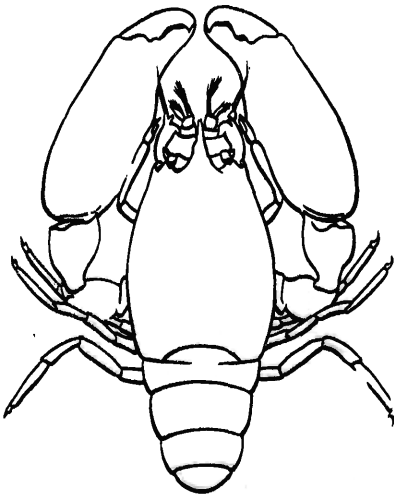


Figure 116. *Conchodytes monodactylus* Holthuis (from Holthuis, 1955).

- Antennal spine absent (Figure 117, *B*)*Waldola* Holthuis, 1951.
30. Exopod on maxilliped II absent (Figure 118)*Hamodactylus* Holthuis, 1952.
*Hamodactylus* Holthuis, 1952.
- Exopod on maxilliped II present*Propontonia* Bruce, 1969.
31. Maxilliped II with well-developed exopod. Dactyl of last three pereopods biunguiculate. Rostrum compressed and dentate. Post-orbital tubercle present (Figure 119)*Anchistioides* Paulson, 1875.
- Maxilliped II without exopod. Dactyl of last three pereopods simple. Rostrum depressed, at least in basal part. Postorbital tubercle absent32.
32. Rostrum depressed throughout length and without dorsal teeth33.
- Rostrum distally compressed; dorsal teeth usually present (Figure 120, *A*)*Neopontonides* Holthuis, 1951.
33. Rostrum dorsally terminates in a point or is tridentate. Posterior orbital margin without incision; margin formed by anterior margin of carapace (Figure 119, *B*)*Pontonides* Borradaile, 1917.
- 72 — Rostrum frontally obtuse with anterior margin straight or toothed. Posterior orbital margin formed by carina located at some distance behind anterior margin of carapace; margin with distinct incision (Figure 120, *B* and *C*)*Veleronia* Holthuis, 1951.
34. Rostrum with dorsal teeth. Postorbital and antennal spines present; two additional spines present on middle and posterior regions of lateral surfaces of carapace (Figure 121, *A*)*Balssia* Kemp, 1922.

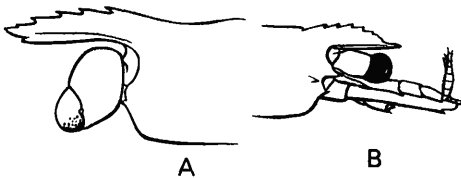


Figure 117. *A*—*Cavicheles kempi* Holthuis: anterior part of cephalothorax; *B*—*Waldola schmitti* Holthuis: anterior part of cephalothorax (from Holthuis, 1955).

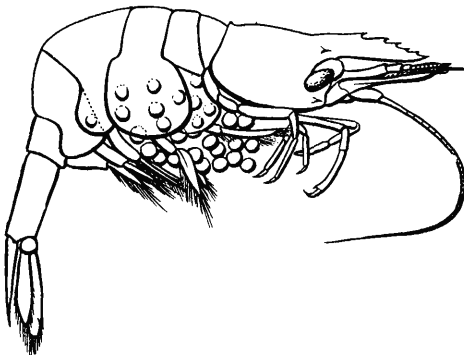


Figure 118. *Hamodactylus boschmai* Holthuis (from Holthuis, 1955).

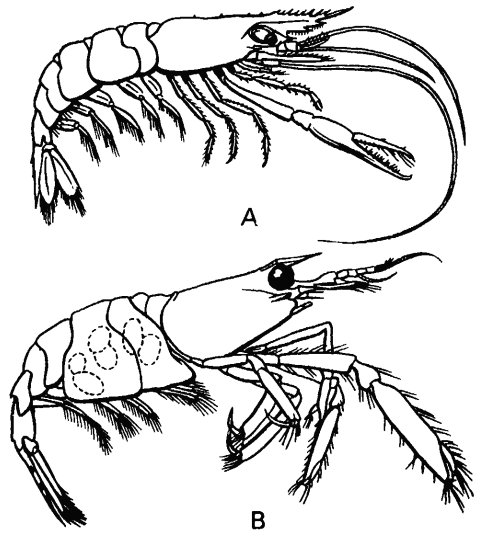


Figure 119. A—*Anchistiodes willeyi* (Borradaile); B—*Pontonides unciger* Calman (from Holthuis, 1955).

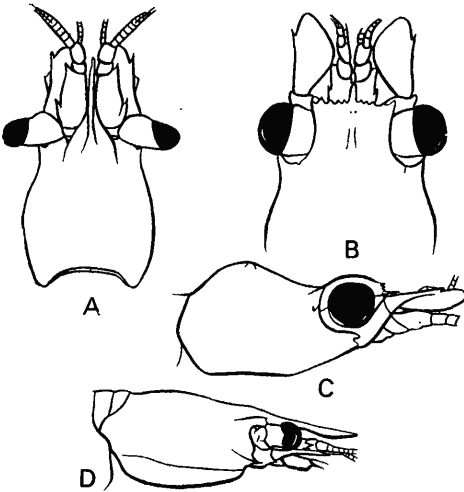


Figure 120. A—*Neopontonides beaufortensis* (Borradaile): cephalothorax (dorsal view); *Veleronia serratifrons* Holthuis: B—anterior part of cephalothorax (dorsal view); C—cephalothorax (lateral view); D—*Pseudocoutiërea elegans* Holthuis: cephalothorax (lateral view) (from Holthuis, 1955).

- Rostrum edentate 35.
- 73 35. Branchiostegal sinus and groove present 36.
- Branchiostegal sinus and groove absent *Lipkebe* Chace, 1969.
- 36. Pterygostomian and postorbital spines present. Dactyl of first* three pereopods with basal outgrowths (Figure 121, B) *Coutiërea* Nobili, 1901.
- Pterygostomian and postorbital spines absent. Dactyl of last three

*Error in original. Should read "last three pereopods"—Technical Editor.

- pereopods without basal outgrowths (Figure 120, *D*)
*Pseudocoutierea* Holthuis.
- 37. Exopod present on all maxillipeds. Rostrum present. Dactyl of last three pereopods biunguiculate (Figure 121, *C*)
*Typton* Costa, 1844.
- Maxillipeds II and III without exopods. Rostrum absent. Dactyl of last three pereopods simple (Figure 122) ... *Paratypton* Balss, 1914.

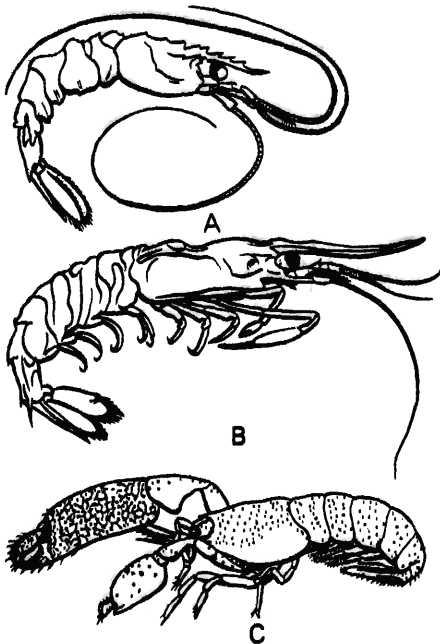


Figure 121. *A*—*Balssia gasti* (Balss); *B*—*Coutierea agassizi* (Coutière); *C*—*Typton tortugae* McClendon (from Holthuis, 1955).

FAMILY GNATHOPHYLLIDAE ORTMANN, 1890

KEY TO GENERA (FROM HOLTHUIS, 1955)

1. Width of last two segments of maxilliped III less than half width of third from last, which is approximately equal in width to preceding one. Dactyl of pereopod II edentate on upper side; carpus and merus without spine on anterior margin2.
- Last two segments of maxilliped III almost equal in width or broader than third from last, which is distinctly broader than preceding one. Dactyl of pereopod II dentate on upper side; carpus and merus with strong spines on anterior margin3.
2. Exopod of maxilliped III shorter than endopod. Dactyl of last three pereopods biunguiculate and without tubercles on posterior

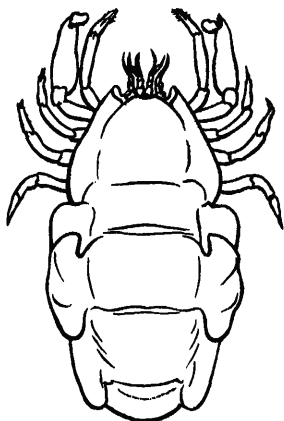


Figure 122. *Paratypton siebenrocki*
Balss (from Holthuis, 1955).

- 74 margin. Outer antennular flagellum bifid (Figure 123)
 *Gnathophyllum* Latreille, 1819.
- Exopod of maxilliped III longer than endopod. Dactyl of last three
 pereopods simple and with blunt tubercles along posterior margin.
 Outer antennular flagellum simple (Figure 124)
 *Gnathophylloides* Schmitt, 1933.
3. Outer antennular flagellum normal and flagellar. Chelae of
 pereopod II broad and flat but not discoid. Last two segments of
 maxilliped III, although broad, not broader than third from last
 (Figure 125) *Phyllognathia* Borradaile, 1915.
- Outer antennular flagellum broad, flat, and foliate. Propodus of two
 chelate legs broad; inner part in the form of a thin foliate appendage.
 Last two segments of maxilliped III significantly broader than third
 from last segment (Figure 126) *Hymenocera* Latreille, 1819.

FAMILY ALPHEIDAE BATE, 1888

KEY TO GENERA (FROM HOLTHUIS, 1955)

1. Pleura of thorax and abdomen horizontally positioned and very
 broad. Pleura of first abdominal somite cover a large part of
 carapace (Figure 127) *Pterocaris* Heller, 1862.
- Pleura of thorax and abdomen normal, not horizontal in position,
 and not unusually broad. Pleura of first abdominal somites cover
 at most a small section of posterolateral corners of carapace ... 2.
2. Epipods present on at least first two pairs of pereopods. 3.
- Epipods on pereopods absent 17.
3. Abdominal somite VI with movable plate joined to posterolateral
 corner 4.

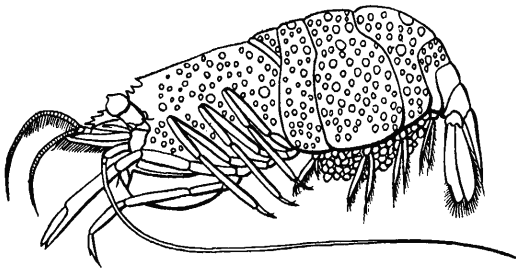


Figure 123. *Gnathophyllum panamense* Faxon (from Holthuis, 1955).

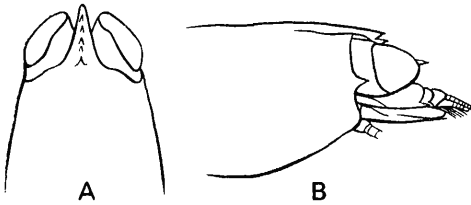


Figure 124. *Gnathophylloides mineri* Schmitt: frontal part of carapace: A—dorsal view; B—lateral view (from Holthuis, 1955).

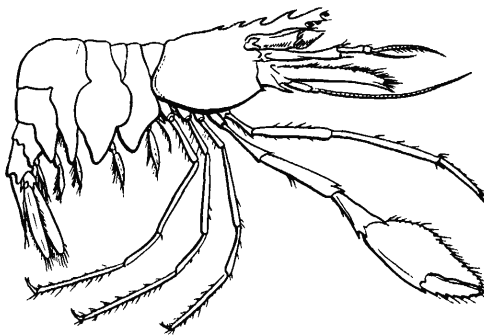
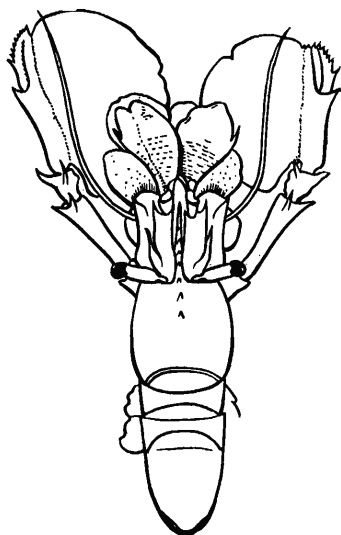


Figure 125. *Phyllognathia ceratophthalma* (Balss) (from Holthuis, 1955).

- Abdominal somite VI without movable posterolateral corner 11.
- 75 4. Rostrum prominent 5.
- Rostrum absent or very poorly developed 10.
- 5. Rostrum slender and sharply pointed in lateral view 6.
- Rostrum with a broad vertical lamella on ventral surface; tip of rostrum broadly rounded 9.
- 6. Arthrobranchiae present on maxilliped III or pereopod I 7.
- Arthrobranchiae either absent on maxilliped III or on pereopod I 8.
- 7. Posterior margin of telson straight or slightly rounded (Figure 128, A and B) *Alpheopsis* Coutière, 1897.
- 76 — Posterior margin of telson terminates in a sharply pointed triangular median tooth (Figure 128, C and D) *Neoalpheopsis* Banner, 1953.



75 Figure 126. *Hymenocera elegans*
Heller (from Holthuis, 1955).

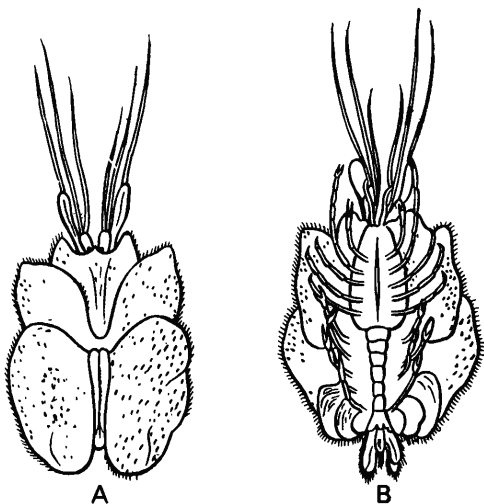


Figure 127. *Pterocaris typica* Heller. *A*—dorsal view; *B*—ventral view (from Holthuis, 1955).

8. Epipods present on first three pairs of pereopods. Carpus of pereopod II five-subsegmented (Figure 129)
.....*Athanas* Leach, 1814.
- Epipods present on just first two pairs of pereopods. Carpus of pereopod II four-subsegmented (Figure 130, *A* and *B*)
.....*Arele* Stimpson, 1860.
9. Dactyl of last three pairs of pereopods simple. Eyes almost not visible in dorsal view (Figure 130, *C* and *D*).
.....*Athanopsis* Coutière, 1897.

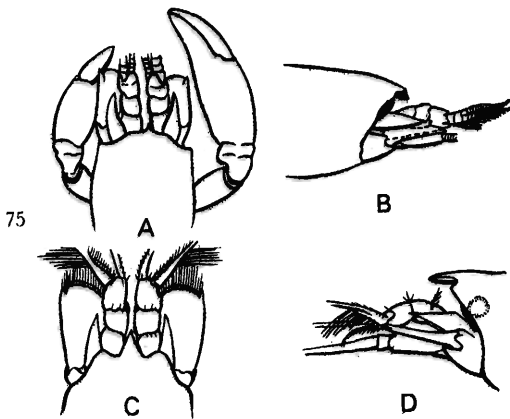


Figure 128. *Alpheopsis equalis* Coutiére: anterior part of cephalothorax: *A*—dorsal view; *B*—lateral view; *Neoalpheopsis hiatti* Banner: anterior part of cephalothorax; *C*—dorsal view; *D*—lateral view (from Holthuis, 1955).

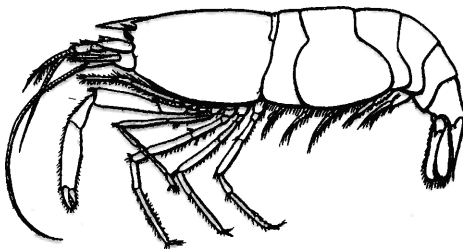


Figure 129. *Athanas nitescens* (Leach) (from Holthuis, 1955).

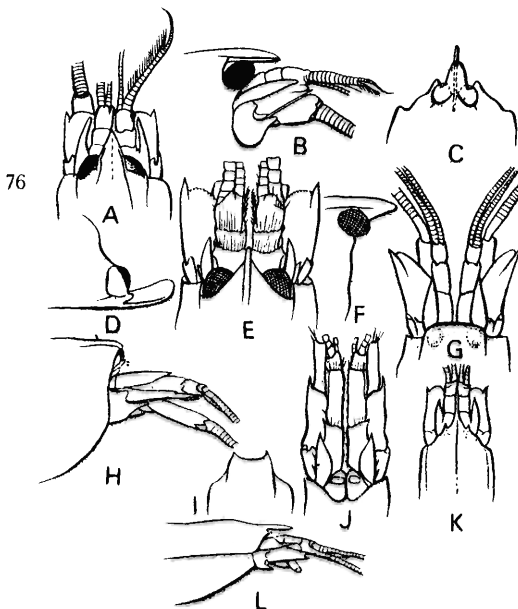


Figure 130. *Arete dorsalis* Stimpson: anterior part of body. *A*—dorsal view; *B*—lateral view; *Athanopsis platyrhynchus* Coutiére: *C*—dorsal view; *D*—lateral view; *Aretopsis amabilis* de Man: *E*—anterior end (dorsal view); *F*—rostrum (lateral view); *Betaeus truncatus* Dana: anterior end; *G*—dorsal view; *H*—lateral view; *Parabetaeus culhiete* Coutiére: *I*—rostrum, dorsal view; *Automate anacanthopus* de Man: *J*—anterior end, dorsal view; *Salmoneus jarli* (Holthuis): anterior end; *K*—dorsal view; *L*—lateral view (from Holthuis, 1955).

- Dactyl of last three pairs of pereopods biunguiculate. Eyes free and not covered (Figure 130, *E* and *F*)*Aretopsis* de Man, 1910.
- 10. Telson broad and distally rounded (Figure 130, *G* and *H*)*Betaeus* Dana, 1852.
- Telson slender and terminates distally in a sharp triangular point (Figure 130, *I*)*Parabetaeus* Coutière, 1897.
- 11. Movable finger of large chela without a large “chewing” tooth. Eyes always visible in frontal view12.
- Movable finger of large chela with a large “chewing” tooth lodged in socket on fixed finger. Eyes often totally hidden by carapace, even in frontal view14.
- 12. Eyes not covered in dorsal view. Rostrum, if present, does not extend to end of eye stalks (Figure 130, *J*)*Automate* de Man, 1888.

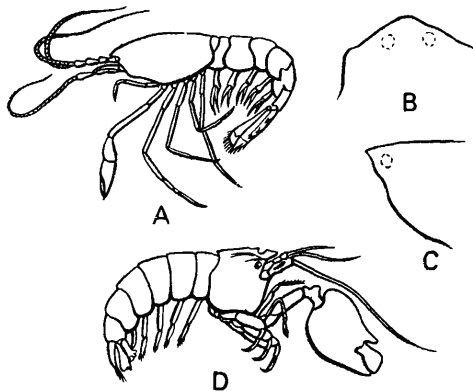


Figure 131. *A*—*Metabetaeus mimutus* (Whitelegge); *Amphibetaeus jousseaumei* Coutière: rostrum; *B*—dorsal view; *C*—lateral view; *D*—*Racilius compressus* Paulson (from Holthuis, 1955).

- 77 — Eyes fully or partly covered dorsally by carapace. Rostrum present and extends beyond eyes13.
- 13. Arthrobranchiae present on maxilliped III (Figure 130, *K* and *L*)*Salmoneus* Holthuis, 1955.
- Arthrobranchiae absent on maxilliped III (Figure 131, *A*)*Metabetaeus* Borradaile, 1899.
- 14. Eyes dorsally covered by carapace but visible in frontal view. Pereopod I folded under body (Figure 131, *B* and *C*)*Amphibetaeus* Coutière, 1897.
- Eyes more or less fully covered by carapace in frontal view and dorsally to some extent. Pereopod I not folded under body15.
- 15. Body highly compressed laterally. Abdomen with dorsal carina. Carapace with median dorsal carina throughout its length (Figure 131, *D*)*Racilius* Paulson, 1875.
- Body not compressed laterally. Abdomen without carina. Carina

- on carapace, if present, does not extend throughout its length16.
16. Cardiac notch present on posterior margin of carapace. Exopods of uropods with transverse suture (Figure 132)*Alpheus* Fabricius, 1798.
- Cardiac notch absent. Exopods of uropods without transverse suture (Figure 133, A)*Thunor* Armstrong, 1949.
17. Movable finger of large chela without “chewing” tooth. Dactyl of last three pereopods simple. Chelae of pereopods II very long, with unusually short fingers (Figure 133, B)*Batella* Holthuis, 1955.
- Movable finger of large chela with “chewing” tooth lodged in socket of immovable finger. Dactyl of last three pereopods bi- or triunguiculate. Chela of pereopod II normal18.
18. Ischium and merus of maxilliped III considerably broadened; form an operculum over remaining oral appendages (Figure 133, C and D)*Pomagnathus* Chace, 1937.
- Maxilliped III normal (Figure 134)*Synalpheus* Bate, 1888.

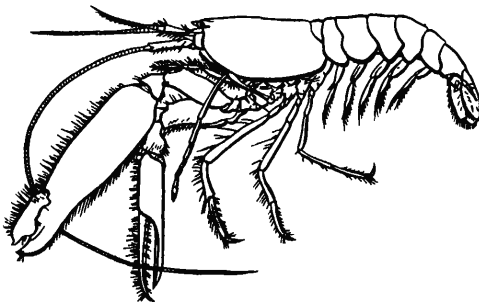


Figure 132. *Alpheus glaber* (Olivi)
(from Holthuis, 1955).

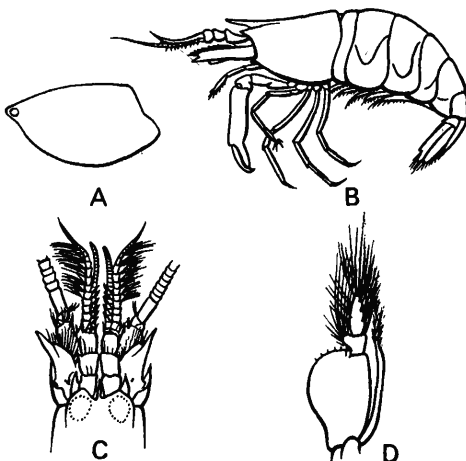


Figure 133. A—*Thunor rathbunae* (Schmitt): carapace (lateral view); B—*Batella parvimanus* (Bate); C—*Pomagnathus corralimus* Chace: C—anterior part of cephalothorax (dorsal view); D—maxillipeds III (from Holthuis, 1955).

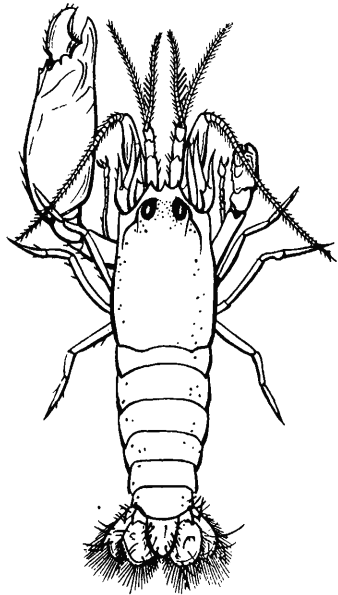


Figure 134. *Synalpheus brevicarpus*
(Herrick) (from Holthuis,
1955).

FAMILY HIPPOLYTIDAE BATE, 1888

KEY TO GENERA (FROM HOLTHUIS, 1955)

1. Arthrobranchiae present on bases of first four pairs of pereopods2.
- Arthrobranchiae absent on bases of pereopods5.
2. Posterolateral angle of abdominal somite VI with an articulated plate3.
- Posterolateral angle of abdominal somite VI without an articulated plate4.
3. Mandibles with incisorial process (Figure 135, A)*Saron* Thalwitz, 1891.
- Mandibles without incisorial process (Figure 135, B)*Nauticaris* Bate, 1888.
4. Mandibles with incisorial process (Figure 136, A)*Merhippolyte* Bate, 1888.
- Mandibles without incisorial process (Figure 136, B)*Ligur* Sarato, 1885.
5. Mandibles with palpus6.
- Mandibles without palpus15.
- 79 6. Supraorbital spines absent on carapace7.
- Supraorbital spines present on carapace10.

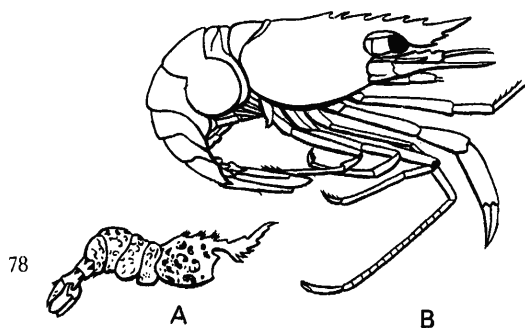


Figure 135. *A*—*Saron marmoratus* (Olivier); *B*—*Nauticaris marionis* Bate (from Holthuis, 1955).

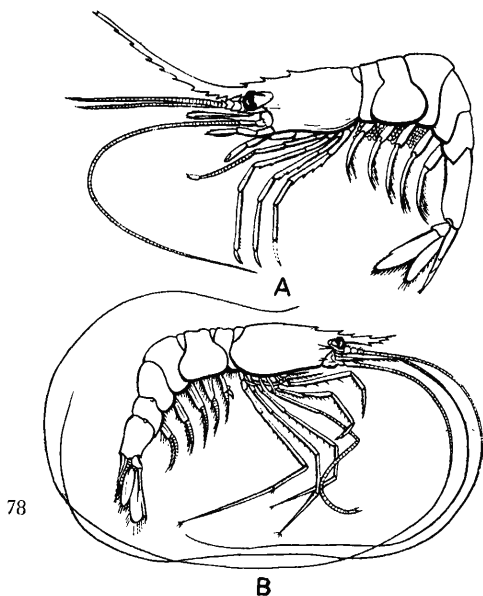


Figure 136. *A*—*Merhippolyte calmani* Kemp and Sewell; *B*—*Ligur ensiferus* (Risso) (from Holthuis, 1955).

7. Mandibular palpus three-segmented (Figure 137, *B*)
 *Alope* White, 1847.
 — Mandibular palpus two-segmented8.
 8. Carapace with two or more supraorbital spines on each side.
 Maxilliped III with exopods (Figure 138, *B*)
 *Spirontocaris* Bate, 1888.
 — Carapace with only one supraorbital spine on each side. Maxil-
 liped III without exopods9.
 9. Abdominal somites dorsally rounded. Antennal and pterygosto-
 mian spines present. Branchiostegal spines absent (Figure 139, *A*)
 *Lebbeus* White, 1847.

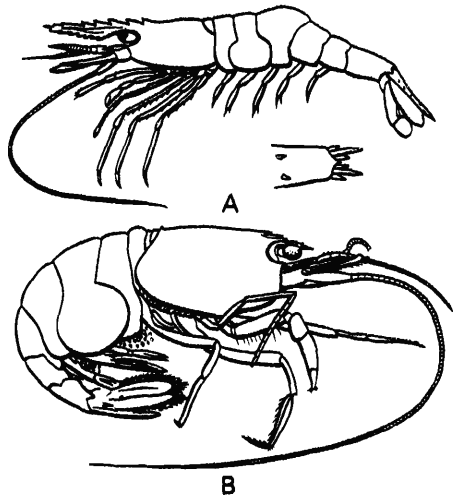


Figure 137. A—*Heptacarpus minutus* Yokoja; B—*Alope orientalis* (de Man).

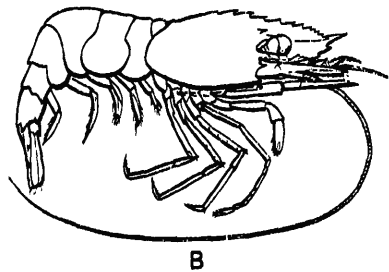
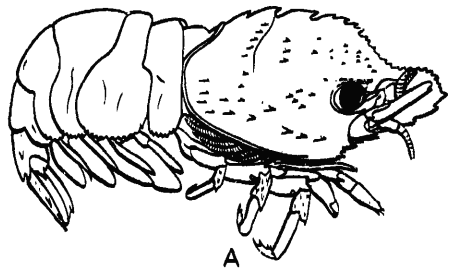


Figure 138. A—*Trachycaris restricta* (A. Milne-Edwards); B—*Spirontocaris lilljeborgi* (Danielsen) (from Holthuis, 1955)

- Abdominal segments I and II* with two, and II, III, and IV with one dorsal carina. Carapace with one large branchiostegal spine. Antennal or pterygostomial spines absent (Figure 139, B) *Birulia* Brashnikow; 1903.
- 10. Mandibular palpus three-segmented 11.

*Error in original. Should read "Abdominal segments I and V"—Technical Editor.

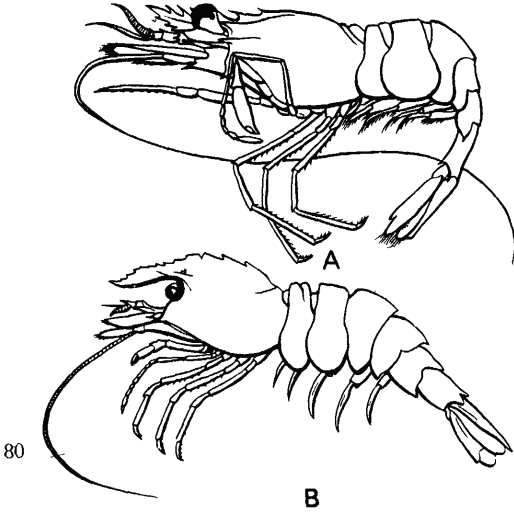


Figure 139. A—*Lebbeus polaris* (Sabine); B—*Birulia kishinouyei* (Yokoja) (from Holthuis, 1955).

- Mandibular palpus one- or two-segmented13.
- 11. Mandibles without incisorial process (Figure 140)
.....*Barbouria* Rathbun, 1912.
- Mandibles with incisorial process12.
- 12. Carpus of pereopod II two-subsegmented (Figure 141, A) . ❄
.....*Caridion* Goes, 1863.
- Carpus of pereopod II 9- to 12-subsegmented (Figure 141, B)
.....*Chorismus* Bate, 1888.
- 13. Carpus of pereopod II four-subsegmented. Mandibular palpus
unsegmented (Figure 142, A)*Leontocaris* Stebbing, 1905.
- Carpus of pereopod II seven-subsegmented. Mandibular palpus
two-segmented14.
- 80 14. Maxilliped III with endopod* (Figure 142, B)
.....*Eualus* Thallwitz, 1892.
- Maxilliped III without exopod (Figure 137, A)14.

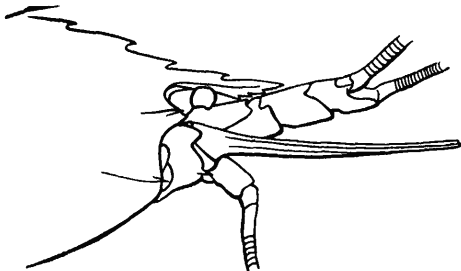


Figure 140. *Barbouria cubensis* (van Martens): anterior end (from Holthuis, 1955).

*Error in original. Should read “Maxilliped III with exopod”—Technical Editor.

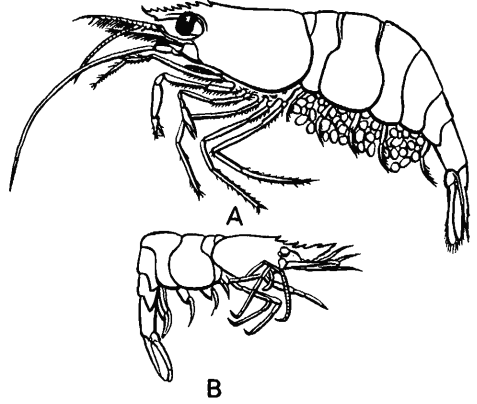


Figure 141. A—*Caridion gordonii* (Bate); B—*Chorismus antarcticus* (Pfeffer) (from Holthuis, 1955).

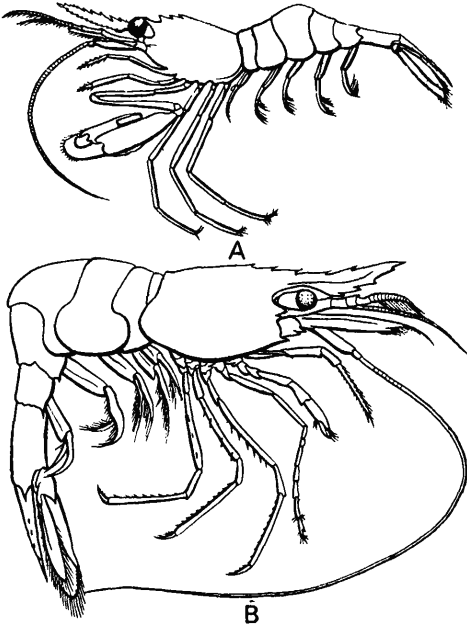


Figure 142. A—*Leontocaris lar* Kemp; B—*Eualus gaimardi* (H. Milne-Edwards) (from Holthuis, 1955).

81

-*Haptacarpus* Holmes, 1900.
- 15. Mandibles with incisorial process16.
- Mandibles without incisorial process20.
- 16. Carpus of pereopod II two- to three-subsegmented17.
- Carpus of pereopod II six- to seven-subsegmented18.
- 17. Carpus of pereopod II two-subsegmented (Figure 143)
-*Phycocaris* Kemp, 1916.
- Carpus of pereopod II three-subsegmented (Figure 144)
-*Hippolyte* Leach, 1814.



Figure 143. *Phycocaris simulans* Kemp (from Holthuis, 1955).

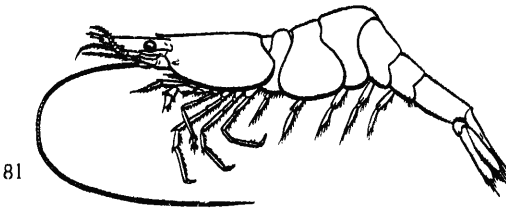


Figure 144. *Hippolyte varians* Leach (from Holthuis, 1955).

18. Dactyl of pereopod 1 less than one-sixth length of propodus. Telson with approximately 20 spinules on each lateral margin (Figure 145, A)*Cryptocheles* Sars, 1869.
 — Dactyl of pereopod I one-third or more length of propodus. Telson with less than five pairs of spinules arranged at some distance from lateral margin19.

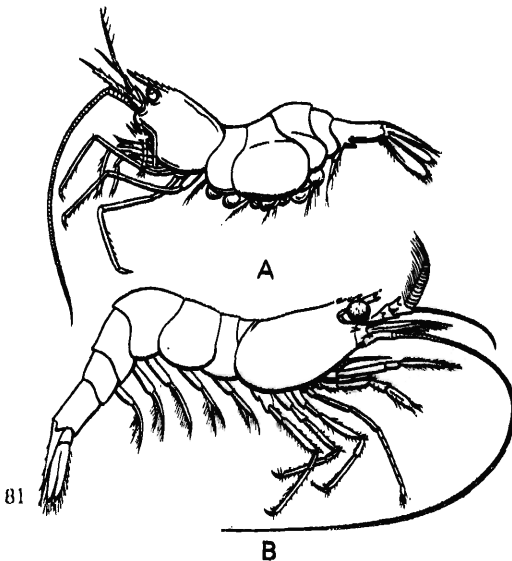
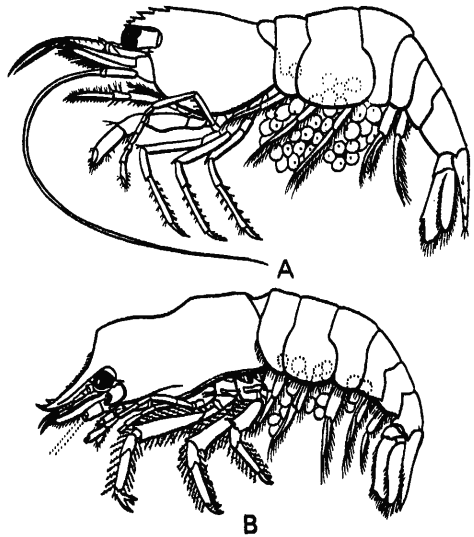


Figure 145. A—*Cryptocheles pygmaea* Sars; B—*Thoralus cranchi* (from Holthuis, 1955).

19. Epipods present on first two pairs of pereopods. Immobile* plate present on anterior margin of third segment of antennular peduncle (Figure 145, *B*) *Thor* Holthuis, 1947.
 — Epipods absent at bases of pereopods. Third segment of antennular peduncle with broad movable plate on upper part of anterior margin (Figure 146, *A*) *Thor* Kingsley, 1878.
20. Carpus of pereopod II two- to three-subsegmented 21.
 — Carpus of pereopod II multisubsegmented 25.



81 Figure 146. *A*—*Thor paschalis* (Heller); *B*—*Gelastocaris paronae* (Nobili) (from Holthuis, 1955).

- 82 21. Carpus of pereopod II two-subsegmented (Figure 138, *A*)
 *Trachycaris* Calman, 1906.
 — Carpus of pereopod II three-subsegmented 22.
22. Dactyl of last three pairs of pereopods with group of large teeth. Outer margin of scaphocerite armed with small movable teeth. Lower margin of abdominal pleura denticulate (Figure 146, *B*) ...
 *Gelastocaris* Kemp, 1914.
 — Dactyl of last three pairs of pereopods normal. Outer margin of scaphocerite edentate. Abdominal pleura without denticulation ...
 23.
23. Maxilliped III with exopods (Figure 147, *A*)
 *Latreutes* Stimpson, 1860.
 — Maxilliped III without exopods 24.
24. Epipods present on first four pairs of pereopods. Anterolateral

*Error in original. Should read "No movable plate present on anterior margin of third segment of antennular peduncle"—Technical Editor.

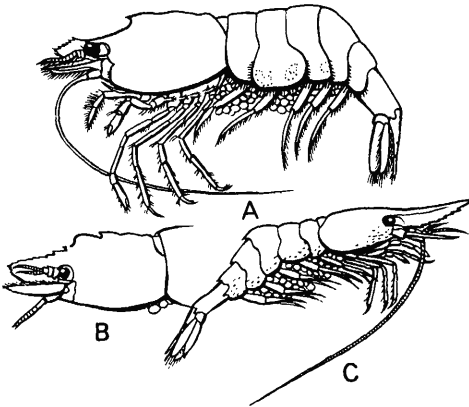


Figure 147. A—*Latreutes murconatus* (Stimpson); B—*Paralatreutes bicornis* Kemp; C—*Tozeuma novaezealandiae* Borradaile: cephalothorax, lateral view (from Holthuis, 1955).

- angle of carapace with several spinules (Figure 147, B)
 *Paralatreutes* Kemp, 1925.
- Epipods absent on pereopods. Anterolateral angle of carapace smooth, without spinules (Figure 147, C)
 *Tozeuma* Stimpson, 1860.
- 25. Abdominal segments terminate bluntly in a large, posteromedian spine. Pleura terminate in one or two points. Carapace with longitudinal carina (Figure 148, A) *Mimocaris* Nobili, 1908.

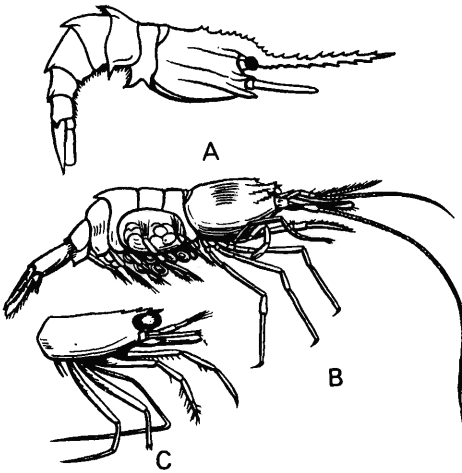
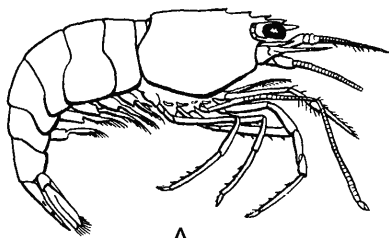


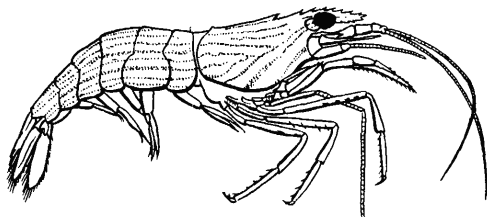
Figure 148. A—*Mimocaris heterocarpoides* Nobili; B—*Bythocaris leucopis* Sars; C—*Merguia oligodon* (de Man): cephalothorax (from Holthuis, 1955).

- 83 — Abdominal segments without large posterior spines. Pleura rounded. Carapace smooth26.
- 26. Supraorbital spines present on carapace (Figure 148, B)
 *Bythocaris* Sars, 1870.
- Supraorbital spines absent on carapace27.

27. Maxilliped III with exopods28.
 — Maxilliped III without exopods (Figure 148, C)
*Merguia* Kemp, 1914.
 28. Outer antennular flagellum bifid (Figure 149, A)
*Lysmata* Risso, 1816.
 — Outer antennular flagellum not bifid (Figure 149, B and Figure
 150)*Hippolysmata* Stimpson, 1860.



A



B

82 Figure 149. A—*Lysmata trisetacea* (Heller); B—*Hippolysmata vittata* (Stimpson) (from Holthuis, 1955).

FAMILY PANDALIDAE BATE, 1888

KEY TO GENERA (FROM HOLTHUIS, 1955, WITH ADDITIONS)

1. Carpus of pereopod II divided into more than three subsegments2.
 — Carpus of pereopod II divided into two or three subsegments
13.
2. Carapace without longitudinal carinae (except for postrostral crest)3.
 — Carapace with longitudinal carinae on lateral surfaces. Integument very firm12.*
3. Rostrum articulates with carapace (Figure 151, A)
*Pantomus* A. Milne-Edwards, 1883.
 — Rostrum does not articulate with carapace4.
4. Eyes poorly developed; cornea narrower than eye stalks (Figure 151, B)*Dorodotes* Bate, 1888.

*Error in original. Should read "14"—Technical Editor.

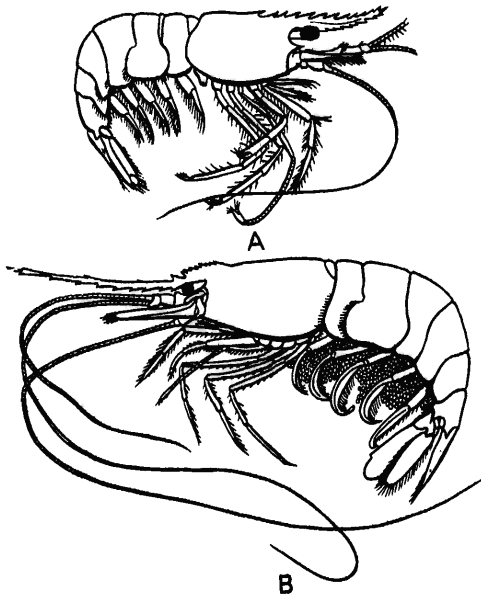


Figure 150. A—*Hippolysmata* (*Lysmatella*) *prima* (Borradaile); B—*Hippolysmata* (*Exhippolysmata*) *ensirostris* Kemp (from Holthuis, 1955).

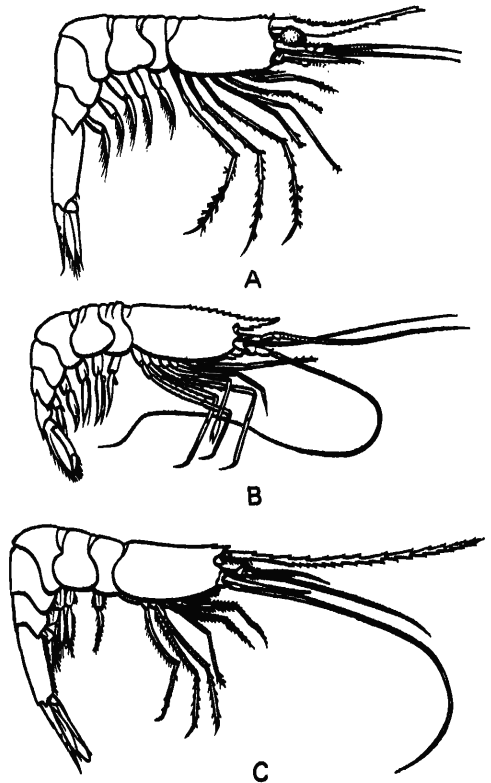


Figure 151. A—*Pantomus affinis* Chace; B—*Dorodotes reflexus* Bate; C—*Parapandalus richardi* (Coutiére) (from Holthuis, 1955).

- 84 — Eyes well developed; cornea much broader than eye stalks5.
 5. Maxilliped III with exopods6.
 — Maxilliped III without exopods8.
 6. Epipods present on at least first two pairs of pereopods7.
 — Epipods absent on pereopods (Figure 151, C)
*Parapandalus* Borradaile, 1899.
 7. Posterior lobe of scaphognathite broadly rounded or truncated.
 Stylocerites anteriorly pointed. Rostrum dorsally armed with at
 least a few fixed teeth (Figure 152, A)*Plesionika* Bate, 1888.

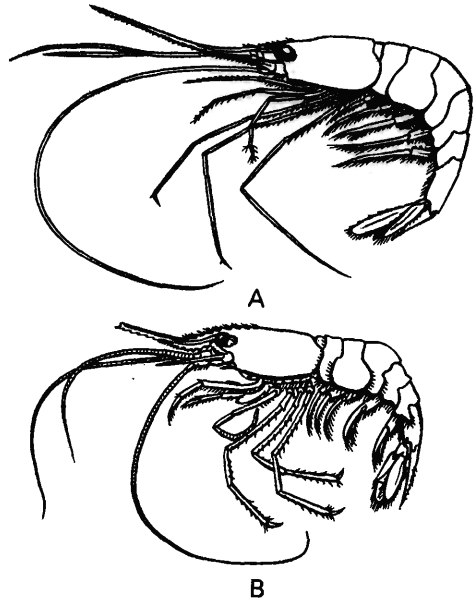


Figure 152. A—*Plesionika martia*
 (A. Milne-Edwards); B—*Panda-*
lopsis ampla Bate (from Holthuis,
 1955).

- Posterior lobe of scaphognathite acutely pointed. Stylocerites
 broad and rounded. Rostrum dorsally armed with only movable
 teeth (Figure 153, A)*Dichelopandalus* Caullery, 1896.
 8. Discoid widening of inner margin of ischium of pereopod I promi-
 nent (Figure 152, B)*Pandalopsis* Bate, 1888.
 — Discoid widening of inner margin of ischium of pereopod I absent
 or undetectable9.
 9. Epipods absent on pereopods (Figure 153, B)
*Peripandalus* de Man, 1917.
 — Epipods present on at least first two pairs of pereopods10.
 10. Epipods present on pereopods I and II only
*Notopandalus* Yaldwyn, 1960.
 — Epipods present on pereopods I to IV11.
 11. Arthrobranchiae absent on pereopods (Figure 154)

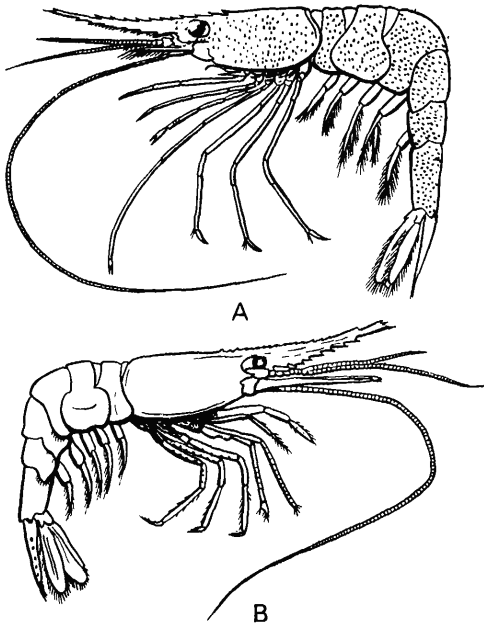


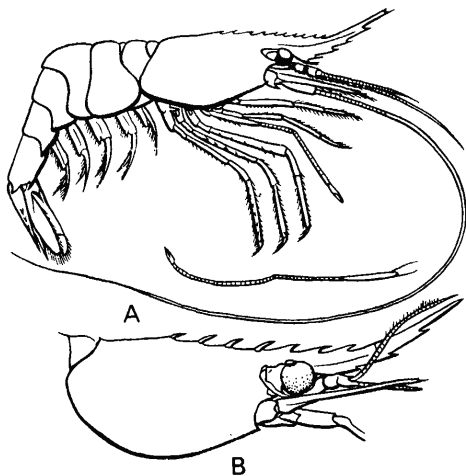
Figure 153. A—*Dichelopandalus leptoceras* (Smith); B—*Peripandalus serratus* (A. Milne-Edwards) (from Holthuis, 1955).

- *Pandalina* Calman, 1899.
- Arthrobranchiae present on first four pairs of pereopods 12.
- 85 12. Posterior lobe of scaphognathite acute. Upper margin of rostrum with only movable teeth (Figure 155, A) *Pandalus* Leach, 1814.
- Posterior lobe of scaphognathite truncated. Upper margin of rostrum with both fixed and movable teeth (Figure 155, B)
..... *Austropandalus* Holthuis, 1952.
- 13. Pereopods II very unequal (Figure 156, A)
..... *Heterocarpus* A. Milne-Edwards, 1881.
- Pereopods II equal; carpus six-subsegmented (Figure 156, B)
..... *Heterocarpoides* de Man, 1917.

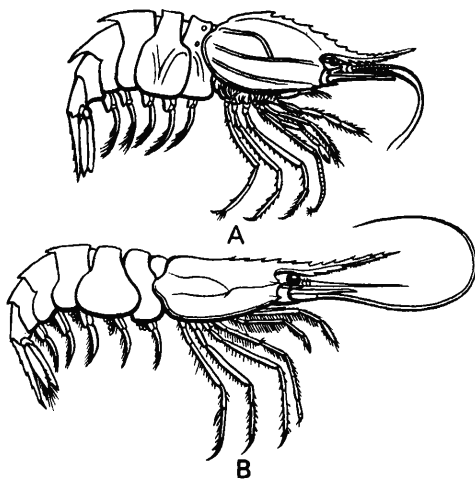


Figure 154. *Pandalina brevirostris* (Rathke) (from Holthuis, 1955).

- 86 14. Arthrobranchiae and epipods present on first four pairs of pereopods. Maxilliped III with exopods. Carpus of pereopod II two-subsegmented 15.
- Pereopods without arthrobranchiae and epipods. Maxilliped III



85 Figure 155. *A*—*Pandalus montagui* Leach; *B*—*Austropandalus grayi* (Cunningham) (from Holthuis, 1955).



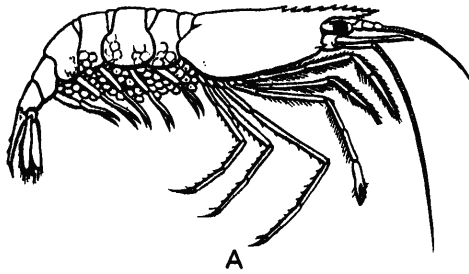
85 Figure 156. *A*—*Heterocarpus sibogae* de Man; *B*—*Heterocarpooides levicarina* (Bate) (from Holthuis, 1955).

- without arthrobranchiae.* Carpus of pereopod II three-subsegmented15.**
15. Pleura of first four abdominal somites rounded. Abdominal somite VI without median spine. Tip of telson pointed (Figure 157, *A*)*Chlorotocus* A. Milne-Edwards, 1882.
- Pleura of abdomen pointed on lower side. Abdominal somite VI with a large spine in middle of distal margin. Tip of telson bifurcate (Figure 157, *B*)*Chlorotocoides* Kemp, 1925.
16. Supraorbital spine present. Mandibles with three-segmented palpus. Rostrum long and slender (Figure 158).

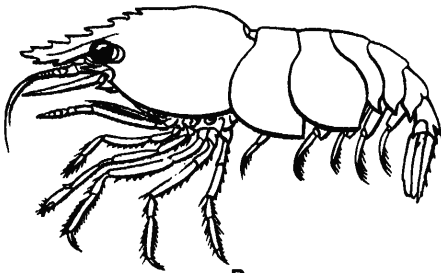
*Error in original. Should read "Maxilliped III without exopods"—Technical Editor.

**Error in original. Should read "16"—Technical Editor.

-*Chlorotocella* Balss, 1914.
 — Supraorbital spine absent. Mandibles without palpus. Rostrum short and high (Figure 159)*Chlorocurtis* Kemp, 1925.



A



B

35

Figure 157. A—*Chlorotocus novaezealandiae* (Borradaile); B—*Chlorotocooides spinicauda* (de Man) (from Holthuis, 1955).

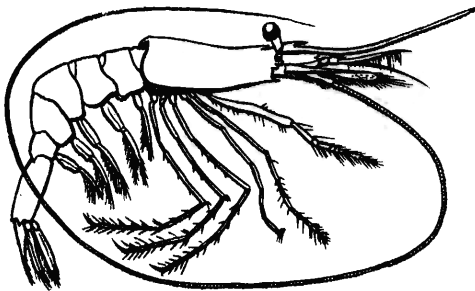


Figure 158. *Chlorotocella gracilis* Balss (from Holthuis, 1955).

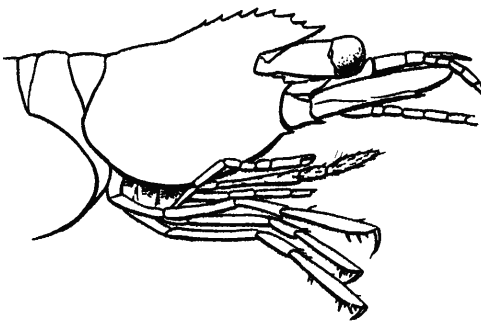
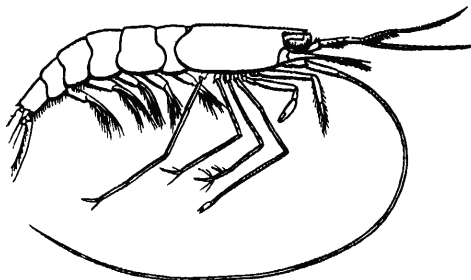


Figure 159. *Chlorocurtis jactans* (Nobili): anterior end (from Holthuis, 1955).

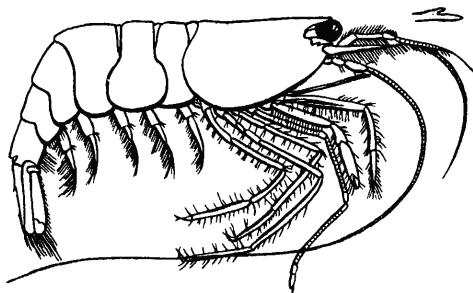
FAMILY PROCESSIDAE ORTMANN, 1898

KEY TO GENERA

1. Both pereopods I chelate. *Ambidexter* Manning and Chace, 1971.
- Only one (usually right) pereopod I chelate; other with simple dactyl 2.
2. Pereopod I without exopods (Figure 160) *Processa* Leach, 1815.
- Pereopod I with exopods (Figure 161) *Nikoides* Paulson, 1875.



87 Figure 160. *Processa canaliculata*
Leach (from Holthuis, 1955).



87 Figure 161. *Nikoides maldivensis*
Borradaile (from Holthuis,
1955).

FAMILY CRANGONIDAE BATE, 1888

KEY TO GENERA (FROM HOLTHUIS, 1955; ZARENKOV, 1965)

1. Pereopod II absent (Figure 162, A) *Paracrangon* Dana, 1852.
- Pereopod II present 2.
2. Pereopod II simple, without chelae 3.
- Pereopod II chelate 5.
3. Eyes reduced to a small sharp process; cornea absent
. *Prionocrangon* Wood-Mason and Alcock, 1891.
- Eyes well developed; cornea present and large 4.
4. Pereopod II rudimentary, slender, and short; does not reach end
of merus of pereopod I. Scaphocerite with a terminal spine (Figure

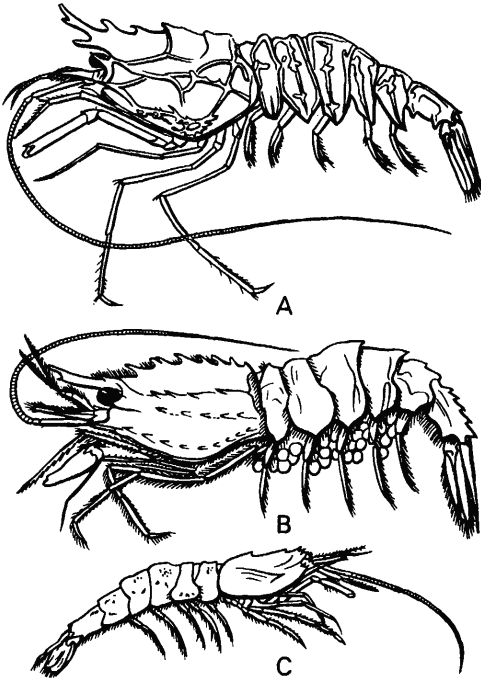


Figure 162 A—*Paracrangon areolata* Faxon; B—*Sabinea hystrix* (A. Milne-Edwards); C—*Argis toyamaensis* (Yokoya) (from Holthuis, 1955).

- 162, B)*Sabinea* Ross, 1835.
- 87 — Pereopod II well developed and with broad segments; extends beyond merus of pereopod I. Scaphocerite without terminal spine (Figure 163)*Vercoia* Baker, 1904.
- 5. Dactyl of pereopods IV and V flat and broad (Figure 164).
.....*Nectocrangon* Brandt.
- Dactyl of pereopods normal and broad*6.
- 6. Pereopod II almost equal in length to other pereopods7.
- Pereopod II shorter than other pereopods12.
- 88 7.**Endopod on pleopod II of male totally reduced; appendix masculina long, slender, and with several short terminal spines (Figure 165)*Notocrangon* Coutiére, 1905
(only species: *N. antarcticus* Pfeffer, 1887).
- 8. Body sculpture well developed. Not less than two spines on median line of carapace9.
- Body sculpture poorly developed. Only one spine on median line of carapace (Figure 166)*Crangon* Fabricius, 1758.
- a. Maxilliped III with reduced arthrobranchiae. Dorsal carina on

*Error in original. Should read “Dactyl of pereopods IV and V normal and not broad”—Technical Editor.

**Key for No. 7 omitted in original—Technical Editor.

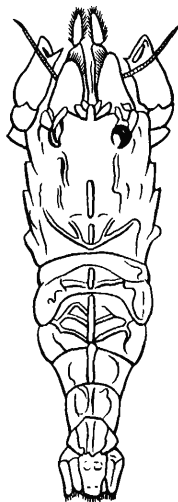


Figure 163. *Vercoia gibbosa* Baker
(from Holthuis, 1955)

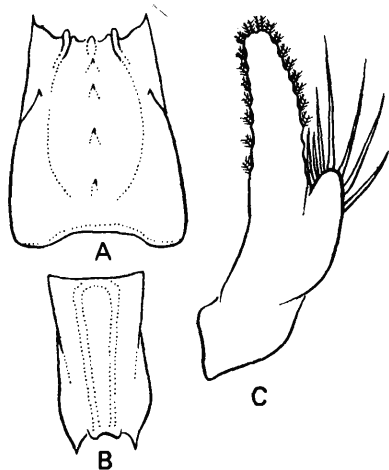
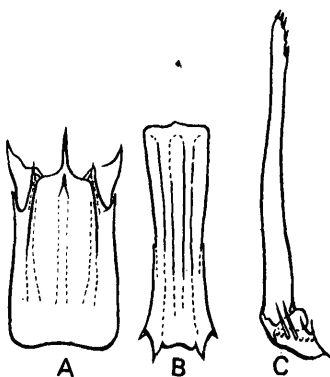


Figure 164. *Nectocrangon crassa*
Rathbun. (legend same as in
Figure 166) (from Zarenkov,
1965).

Figure 165. *Nectocrangon antarcticus*
(Pfeffer) (legend same as in
Figure 166) (from Zarenkov,
1965).



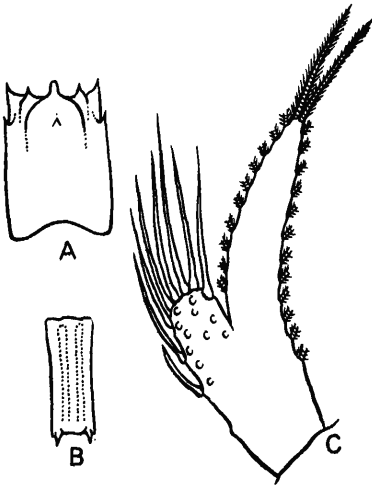


Figure 166. *Crangon ralli* Rathbun: A—carapace (dorsal view); B—sixth abdominal segment; C—endopod of pleuropod II of male (from Zarenkov, 1965).

sixth abdominal segment barely noticeable or absent

.Subgenus *Crangon* Fabricius, 1758.

— Maxilliped III without arthrobranchiae. Dorsal carina on sixth abdominal segment well developed but does not reach to posterior margin of segment.

.Subgenus *Neocrangon* Zarenkov, 1965.

9. Not less than three spines or low tubercles on median line of carapace10.

— Two spines or tubercles on median line of carapace; lateral spine in gastric region. Sixth abdominal segment cylindrical with two distinct carinae which do not reach its posterior margin (Figure 167)*Mesocrangon* Zarenkov, 1965.

89

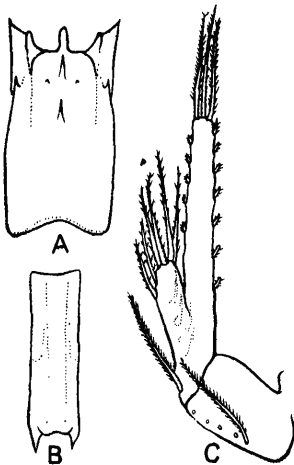


Figure 167. *Mesocrangon intermedia* (Stimpson) (legend same as in Figure 166) (from Zarenkov, 1965).

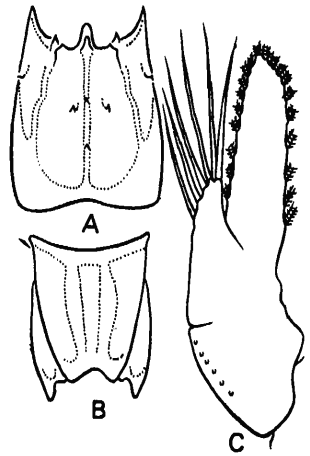


Figure 168. *Metacrangon robusta* (Kobjakova) (legend same as in Figure 166) (from Zarenkov, 1965).

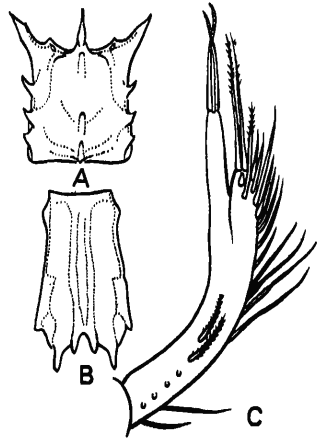


Figure 169. *Rhynocrangon sharpi* (Ortmann) (legend same as in Figure 166) (from Zarenkov, 1965).

10. Dorsal carinae of sixth abdominal segment sharp and reach its posterior margin 11.
- Dorsal carinae of sixth abdominal segment distinct but do not reach its posterior margin. Anterior margin of carapace raised. Suborbital spine separated from orbital by a narrow incision (Figure 168) *Metacrangon* Zarenkov, 1965.
- 90 11. Endopod of pleopod II of male with only one or two terminal setae and longer than appendix masculina (Figure 169) *Rhynocrangon* Zarenkov, 1965.
- Endopod of pleopod II of male highly reduced; appendix masculina large and with thick naked setae (Figure 170). *Sclerocrangon* G. O. Sars, 1883.
12. Lateral sides of body with six or seven branchiae each; branchial tips directed backward (Figure 171) *Pontophilus* Leach, 1917.

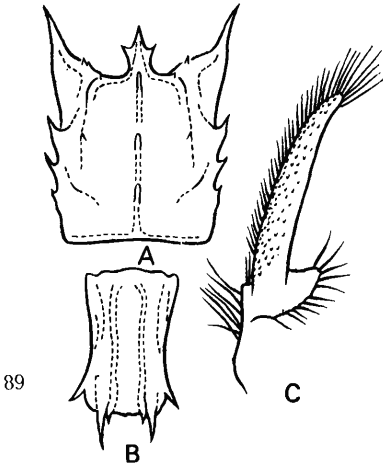


Figure 170. *Sclerocrangon derjugini* Kobjakova (legend same as in Figure 166) (from Zarenkov, 1965).

89

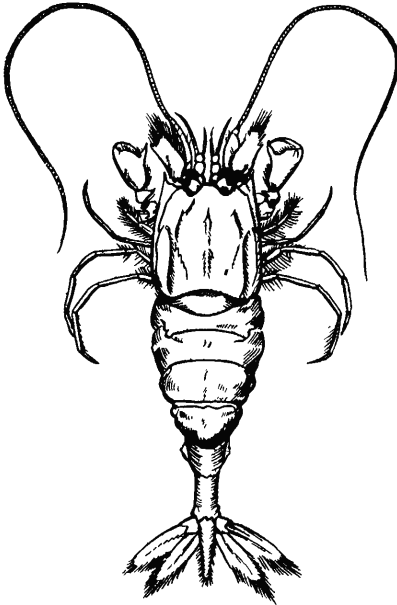


Figure 171. *Pontophilus bidentatus* (de Haan) (from Holthuis, 1955).

— Lateral sides of body with eight branchiae each; branchial tips directed forward (Figure 172) *Pontocaris* Bate, 1888.

Tribe Stenopodidea Bate, 1888

FAMILY STENOPODIDAE HUXLEY, 1878

KEY TO GENERA (FROM HOLTHUIS, 1955)

1. Body compressed. Telson elongated; tip terminates in two strong

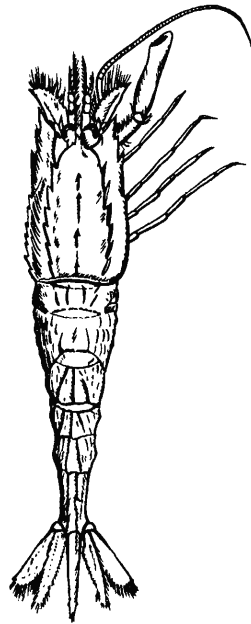


Figure 172. *Pontocaris lacazei*
(Gourret) (from Holthuis,
1955).

- spines, sometimes with a small spinule between them. Endopod of uropod with two dorsal crests: median crest strong and inner one weaker with several dorsal hairs. Maxilliped III with well-developed exopod 2.
- Body depressed. Telson broad and lanceolate or rectangular; terminates in three or five spines of equal size (sometimes without terminal spinule). Endopod of uropod with one median dorsal crest. Maxilliped III without or with rudimentary exopod (sometimes exopod well developed). 5.
2. Dactyl of pereopods IV and V biunguiculate and short 3.
- Dactyl of pereopods IV and V simple and relatively long and slender 4.
- 91 3. Carapace and abdomen densely covered with uniformly distributed stout spines sometimes arranged in longitudinal rows. Spines hard and anteriorly directed. Ischium of maxilliped III with outer spinules (Figure 173, A) *Stenopus* Latreille, 1819.
- Abdomen without dorsal spines, sometimes with spinules near lateral margins of pleura. Carapace with spines along posterior margin of cervical groove, often in parallel rows. Spines erect, anteriorly directed, and pressed to surface of carapace. Ischium of maxilliped III without outer spinules (Figure 173, B)
. *Odontozona* Holthuis, 1946.
4. Carapace with distinct dorsal row of spines along posterior margin

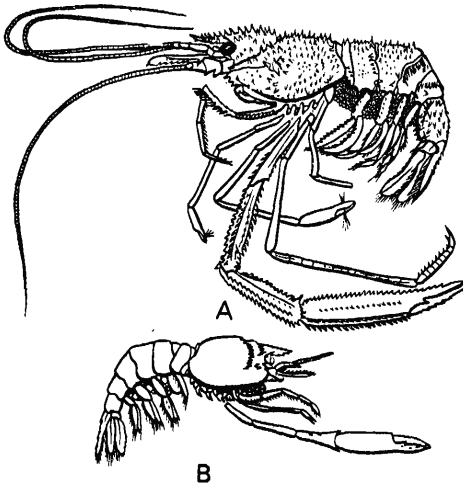


Figure 173. A—*Stenopus hispidus* (Olivier); B—*Odontozona spongicola* Alcock and Anderson (from Holthuis, 1955).

of cervical groove. Propodus of pereopod III not more than twice as wide as carpus. Fingers of pereopod III edentate (Figure 174) *Richardina* A. Milne-Edwards, 1881.

- Carapace smooth or with uniformly arranged spines in an indistinct row along posterior margin of cervical groove. Propodus of pereopod II* more than twice as wide as carpus. Fingers of pereopod III distinctly dentate along cutting edges (Figure 175). *Engystenopus* Alcock and Anderson, 1894.

92

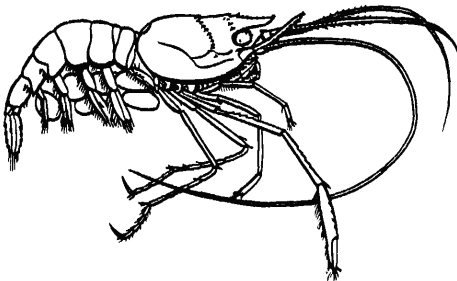
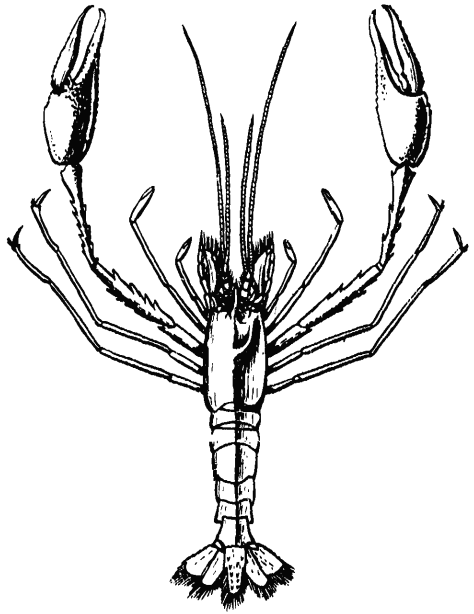


Figure 174. *Richardina spinicincta* A. Milne-Edwards (from Holthuis, 1955).

91

- 5. Maxilliped III with long and slender exopod. Carapace covered with large number of spines. Pereopod I with setigerous organ on ventral side of anterior part of carpus and on posterior part of propodus (Figure 176) *Microprosthema* Stimpson, 1860.
- Exopod on maxilliped III absent or rudimentary. Carapace smooth or with few spines near anterior margin. Pereopod I without setigerous organ 6.

*Error in original. Should read "Propodus of pereopod III"—Technical Editor.



91 Figure 175. *Engystenopus palmipes*
Alcock and Anderson (from
Holthuis, 1955).

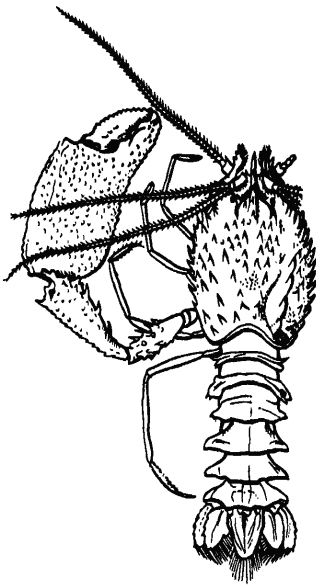


Figure 176. *Microprosthema vali-*
dum Stimpson (from Holthuis,
1955).

6. Chela of pereopod III with serrate upper and lower margins. Exopod present on maxilliped II, and rudimentary on maxilliped III (Figure 177, A) *Spongicola* de Haan, 1844.
— Chela of pereopod III with smooth upper and lower margins.

Exopod absent on maxillipeds II and III (Figure 177, *B*)
*Spongicoloides* Hansen, 1908.

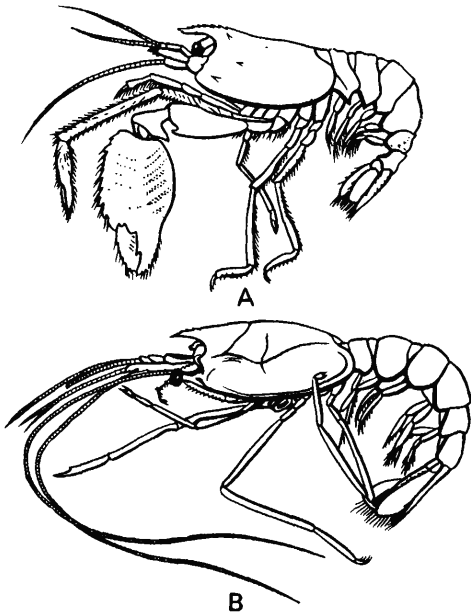


Figure 177. *A*—*Spongicola venusta* de Haan; *B*—*Spongicoloides inermis* (Bouvier) (from Holthuis, 1955).

Genus *Stenopus* Latreille, 1819

KEY TO SPECIES (FROM HOLTHUIS, 1955)

1. Outer margin of scaphocerite smooth over quite some distance before terminal tooth. No distinct transverse rows of spinules on last three abdominal somites; somite VI with spinules arranged more or less in distinct longitudinal rows2.
- Outer margin of scaphocerite serrate up to terminal tooth. Spinules on last three abdominal somites arranged in distinct transverse rows3.
2. Rostrum ventrally smooth. All segments of pereopods I, II, IV, and V smooth or armed with scattered spinules (Figure 173, *A*) ...
*S. hispidus* (Olivier, 1811).
- 93 — Rostrum with three to nine spines on ventral surface. Most segments of pereopods I, II, IV, and V with longitudinal rows of numerous spinules*S. tenuirostris* de Man, 1888.
3. Rostrum with a lateral row of spines. Scaphocerite with three or more spinules on base of outer margin; upper surface always with longitudinal rows of spinules*S. spinosus* Risso, 1826.

- Rostrum with one lateral spine or no spine, and rarely with two spines. Scaphocerite with one spinule at base of outer margin; upper surface smooth *S. scutellatus* Rankin, 1898.

Genus *Odontozona* Holthuis, 1946

KEY TO SPECIES (FROM HOLTHUIS, 1946)

1. Species inhabits Indo-Pacific region 2.
- Species inhabits northwest coast of Africa from Sudan to Bojador Cape *O. edwardsi* (Bouvier, 1908).
2. Posterior half of carapace groove with several distinct transverse rows of spinules. Carapace flat 3.
- Posterior half of carapace, behind row of spinules along cervical groove, without spinules. Carapace convex (Figure 173, *B*) *O. spongicola* (Alcock and Anderson, 1899).
3. Abdomen without grooves. Carapace with several distinct rows of spinules behind cervical groove; several spinules located near anterior margin but not dense rows *O. ensifera* (Dana, 1852).
- Abdominal somites I, II, IV, V, and VI with distinct transverse grooves and somite III with distinct longitudinal grooves. Carapace densely covered with numerous spinules arranged more or less in transverse rows *O. sculpticaudata* Holthuis, 1946.

Genus *Richardina* A. Milne-Edwards, 1881

KEY TO SPECIES (FROM HOLTHUIS, 1946)

1. Row of 25 to 30 spines located posterior to cervical groove. Outer margin of scaphocerite with two to five median teeth. Outer margin of exopod of uropod with four to five teeth (Figure 174) *R. spinicincta* A. Milne-Edwards, 1881.
- Row of 16 spines located posterior to cervical groove. Outer margin of scaphocerite with six to eight teeth. Outer margin of exopod of uropod usually with seven teeth *R. fredericii* Le Bianco, 1903.

Genus *Engystenopus* Alcock and Anderson, 1894

KEY TO SPECIES (FROM HOLTHUIS, 1946)

1. Carapace without spinules. Fingers of chelae of pereopod I not very long but slender. Propodus and carpus of pereopods IV and V not divided into subsegments or indistinctly subdivided (Figure 175) *E. palmipes* Alcock and Anderson, 1894.

- Carapace covered with spinules. Fingers of chelae of pereopod I very long and slender. Propodus and carpus of pereopods IV and V distinctly subsegmented *E. spinulatus* Holthuis, 1946.

94 **Genus *Microprosthema* Stimpson, 1860**

KEY TO SPECIES (FROM HOLTHUIS, 1946)

1. Propodus of pereopod III with distinct dorsal crest 2.
 — Propodus of pereopod III without distinct dorsal crest 3.
 2. Posterior half of dorsal surface of abdominal somite III with short longitudinal median carina. Outer margin of scaphocerite with two or three strong teeth (Figure 176)
 *M. validum* Stimpson, 1860.
 — Longitudinal median carina absent on posterior half of dorsal surface of abdominal somite III. Outer margin of scaphocerite with five to six small teeth *M. semilaeve* (van Martens, 1872).
 3. Abdomen smooth. Telson with two longitudinal crests, each with three strong spines. Scaphocerite broad
 *M. plumicorne* (Richters, 1880).
 — Abdomen with transverse rows of tubercles. Telson with longitudinal crests, each with one strong spine. Scaphocerite very narrow with poorly developed external tooth
 *M. scabricaudatum* (Richters, 1880).

Genus *Spongicola* de Haan, 1849

KEY TO SPECIES (FROM HOLTHUIS, 1946)

1. Dactyl of pereopod III with one ventral tooth located against dorsal tooth of fixed finger. Dactyl of pereopods IV and V triunguiculate (Figure 177, A) *S. venusta* de Haan, 1841.
 — Ventral tooth on dactyl of pereopod III coincident with two dorsal teeth of fixed finger. Dactyl of pereopods IV and V biunguiculate 2.
 2. Merus of pereopod III with two ventral spines. Fingers of pereopod III less than three-fourths length of palm
 *S. andamanica* Alcock, 1901.
 — Merus of pereopod III without ventral spines but with one dorsal and one lateral spine. Fingers of pereopod III more than three-fourths length of palm *S. henshawi* Rathbun, 1906.

Genus *Spongicoloides* Hansen, 1908

KEY TO SPECIES (FROM HOLTHUIS, 1946)

1. Epipods present on bases of pereopods I to IV

-*S. kochleri* (Caullery, 1896).
- Epipods absent on bases of pereopods I to IV but sometimes scars visible in their place2.
2. Maxilliped III and pereopods I to IV with two arthrobranchiae each. Scars of epipods visible on pereopods.
.....*S. evolutus* (Bouvier), 1905.
- Maxilliped III and pereopods I to IV with only one arthrobranchia each. Scars of epipods not visible on pereopods3.
3. Cornea equal to or wider than stalk. Carapace with some spinules on anterior portion*S. profundus* Hansen, 1908.
- Cornea much narrower than stalk. Carapace smooth (Figure 177, B)*S. inermis* (Bouvier), 1905.

SUBORDER REPTANTIA BOAS, 1880

KEY TO SECTIONS (FROM BALSS, 1957)

1. Pereopod III similar to pereopod I, either chelate or simple, or almost cylindrical. Abdomen always straight and symmetrical with well-developed pleura and a broad tail fan2.
- 95 — Pereopod III differs from pereopod I and nonchelate. Abdomen rarely straight but symmetrical with well-developed pleura and a tail fan3.
2. Rostrum small or absent (except in *Palinurellus*). Body often slightly depressed. Chelae usually absent; if present, movable finger located on outer side
.....Section **Palinura** (spiny lobsters or rock lobsters).
- Rostrum well developed. Body almost cylindrical. Pereopods chelate; movable finger of chelae located on inner side
.....Section **Astacura** (cray fishes).
3. Pereopod V always differs from pereopod III in size, shape, and location. Abdomen slightly reduced, very rarely straight and symmetrical, but still performs a number of functions other than reproduction and egg-laying. Uropods almost always present. Maxilliped III usually narrowSection **Anomura**.
- Pereopod V similar to pereopod III. Abdomen small, symmetrical, straight, folded under cephalothorax, and functions only in reproduction. Uropods absent. Maxilliped III usually broad
.....Section **Brachyura** (crabs).

Section PALINURA Borradaile, 1907

KEY TO TRIBES (FROM BALSS, 1957)

1. Pereopods I to IV chelate; movable finger of chelae located on

- outer side. Pereopod I rarely longer than all others. Telson terminates in a cuspTribe **Eryonidea**.
- Pereopods I to IV nonchelate. Pereopod I rarely longer than others. Telson lobateTribe **Scyllaridea**.

Tribe Eryonidea de Haan, 1844

FAMILY POLYCHELIDAE WOOD-MASON, 1877

Polychelidae is the only extant family of this tribe. The other families are extinct.

KEY TO GENERA

1. Eye stalks located in deep incision on anterior margin of carapace. Finger of cheliped I without tooth2.
- Eye stalks located below and parallel to anterior margin of carapace. Finger of cheliped I with subapical tooth
.....*Willemoesia* Grote, 1873.
2. Epipod of maxilliped III fairly large, normal, and raised into branchial chamber (Figure 178).*Polycheles* Heller, 1862.
- 96 — Epipod of maxilliped III resembles a simple papilla, a membranous outgrowth of the podobranchia (Figure 179).
.....*Stereomastis* Bate, 1888.

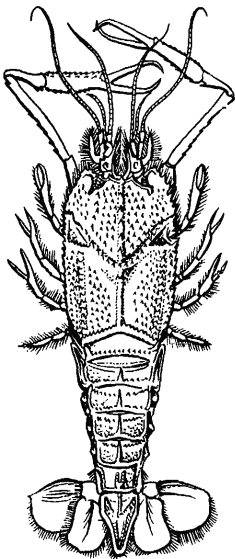


Figure 178. *Polycheles typhlops perarmatus* Holthuis (from Holthuis, 1955).

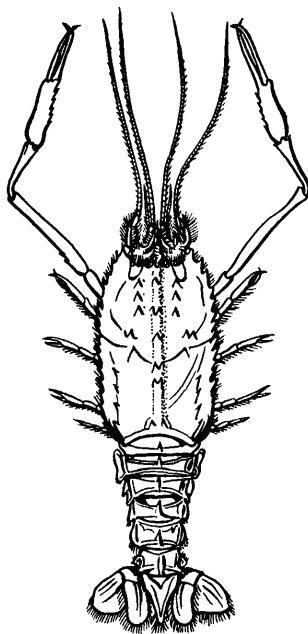


Figure 179. *Stereomastis sculpta*
(Smith) (from Holthuis, 1952).

Tribe Scyllaridea Borradaile, 1870

KEY TO FAMILIES

1. Carapace almost cylindrical in shape. Antennae with long segmented flagella.....Family **Palinuridae** Gray, 1847.
- Carapace more or less flat. Antennae short and flat; flagella nonsegmented, flat, and spatulate
.....Family **Scyllaridae** White, 1847.

FAMILY PALINURIDAE GRAY, 1847

KEY TO GENERA

1. Supraorbital spines or processes present above eye stalks and directed anteriorly. Carapace armed with spines and tubercles
.....2.
- Supraorbital spines or processes absent. Carapace uniformly covered with tubercles but without spines
.....*Palinurellus* van Martens.⁴
2. Supraorbital spine dorsally smooth. Abdominal somites never

⁴George and Main (1967) have placed this genus in the family Synaxidae.

- with more than one dorsal transverse groove; surface sometimes covered with a scaly sculpture3.
- Supraorbital spine dorsally serrated. Abdominal somites with four to five transverse grooves; surface nonsculptured*Justitia* Holthuis.
3. Carapace almost prismatic in shape. In female pleopod II with well-developed appendix interna, equal in size to those of other pleopods4.
- Carapace cylindrical. In female appendix interna of pereopod* II reduced (or absent) compared to other pleopods6,
4. Antennules short; only third segment of peduncle reaches last segment of antennal peduncle. Pleopod I absent in female. Pereopods smooth or covered with short hairs5.
- 97 — Antennules very long; first segment of peduncle extends beyond last segment of antennal peduncle. Pereopods covered with dense woolly-looking bristles. Supraorbital spines resemble expanded outgrowths with serrate anterior margin*Palinustus* A. Milne-Edwards.
5. Supraorbital spines confluent with median line of carapace*Linuparus* White
(only species: *L. trigonus* [von Siebold, 1824]).
- Supraorbital spines well separated*Puerulus* Ortmann.
6. Antennular flagella short, shorter than half length of peduncle. In female endopod of pereopod** II with well-developed appendix interna7.
- Antennular flagella longer than peduncle. Supraorbital spines ventrally smooth. In female endopod of pleopod II without appendix interna*Panulirus* White.
7. Stridulatory organ at base of antenna absent. Anteroventral margin of supraorbital spine smooth8.
- Stridulatory organ present. Anteroventral margin of supraorbital spine serrate*Palinurus* Fabricius.
8. Carapace with rounded sides and covered with a large number of almost similar spines. Abdomen smooth or covered with a scaly sculpture*Jasus* Parker.
- Carapace with angular sides and longitudinal crests armed with spines. Abdomen with median carina*Projasus* George and Grindley, 1964
(only species: *P. parkery* [Stebbing, 1902]).

*Error in original. Should read "In female appendix interna of pleopod II reduced"—Technical Editor.

**Error in original. Should read "In female endopod of pleopod II"—Technical Editor.

Genus *Jasus* Parker, 1884

KEY TO SPECIES

1. Transverse grooves present on dorsal surface of abdominal somites2.
- Transverse grooves absent on abdominal somites. Species found off Australia *J. verreauxi* (H. Milne-Edwards, 1851).
2. First somite of abdomen either fully or partially sculptured.3.
- First somite of abdomen entirely smooth. Species found off island of Juan-Fernandez (Chile)
..... *J. frontalis* (H. Milne-Edwards, 1837).
3. First somite of abdomen sculptured posteriorly only behind transverse groove4.
- First somite of abdomen sculptured throughout. Species found off South Africa *J. lalandii* (H. Milne-Edwards, 1837).
4. Sculpturing behind transverse groove of first somite of abdomen in form of a broad band covering almost entire posterior portion
.....5.
- Sculpturing behind transverse groove of first somite of abdomen restricted to a narrow strip6.
5. Abdominal somites II to VI entirely sculptured with convex scales. Scales numerous and small and arranged in four to five transverse rows. Only that part of somite covered by tergum of preceding one smooth. Species found off southwest coast of Australia and near Tasmania
..... *J. novaehollandiae* Holthuis, 1963.
- Abdominal somites II to VI sculptured with larger scales arranged in just two to three rows. Species found off New Zealand
..... *J. edwardsii* (Hutton, 1875).
6. Sculpturing on abdominal somites II to VI in form of a ribbon in middle of abdomen; anterior and posterior margins smooth. Species found near Tristan-de-Cunha Islands
..... *J. tristani* Holthuis, 1963.
- Abdominal somites II to VI without smooth anterior and posterior margins. Species found off San Paolo and Amsterdam
..... *J. paulensis* (Heller, 1863).

Genus *Palinurellus* van Martens, 1878

KEY TO SPECIES

1. Species found in West Indies *P. gundlachi* van Martens, 1878.
- Species found off Mauritius Island (Indian Ocean)
..... *P. wieneckii* (de Man, 1881).

Genus *Palinurus* Fabricius, 1798

KEY TO SPECIES

1. Spiny lobsters found in eastern Atlantic Ocean and Mediterranean Sea 2.
- Spiny lobsters found in Indian Ocean along southeastern coast of Africa, from Agulhas up to Mozambique
P. gilchristi Stebbing, 1898.
2. Spiny lobsters found along African coast and in Mediterranean Sea 3.
- Spiny lobsters found around Cape Green. Body color red. Bell-shaped pattern present on body, especially on pereopods
P. charlestoni Forest and Postel, 1964.
3. Pereopod I with false chela due to deep incision on distal end of propodus opposed to dactyl. Body color wine-red. Species found primarily in Mediterranean Sea and along African coast no farther south than Cape Bojador *P. elephas* (Fabricius, 1787).
- Pereopod I almost nonchelate since incision in distal part of propodus only in form of a small notch. Body color pink; appears marbled, especially on walking legs. Species found primarily near Africa, from the Canary Islands up to Cape Green; also found along northern African coast only up to Tunisia in the Mediterranean Sea *P. mauritanicus* Gruvel, 1911.

Genus *Palinustus* A. Milne-Edwards, 1881

KEY TO SPECIES

1. Median tooth present on anterior margin of carapace
P. truncatus A. Milne-Edwards, 1880.
- Median tooth absent on anterior margin of carapace
P. mossambicus Barnard, 1926.

Genus *Justitia* Holthuis, 1946

KEY TO SPECIES

1. Pereopod I slightly shorter than pereopod II and has a straight dactyl *J. japonica* (Kubo), 1955.
- Pereopod I significantly longer than pereopod II and has a considerably curved dactyl *J. longimana* (H. Milne-Edwards), 1837.

Genus *Puerulus* Ortmann, 1897

KEY TO SPECIES (FROM BERRY, 1969)

1. Postorbital spines absent. Tubercles on carapace well developed

- and nonpubescent. Eyes small and longer than broad2.
- Postorbital spines present. Tubercles on carapace low and pubescent. Eyes large and broader than long. *P. velutinus* Holthuis, 1963.
2. Two teeth situated between supraorbital horns and cervical grooves3.
- 99 — Three or more teeth situated between supraorbital horns and cervical grooves. Dactyl of pereopod* V does not form chela
- *P. angulatus* (Bate, 1888).
3. Median carina of carapace with three postcervical spines. Pereopod V chelate in male *P. carinatus* Borradaile, 1910.
- Median carina of carapace with five postcervical spines. Pereopod V nonchelate in male *P. sewelli* Ramadan, 1938.

Genus *Panulirus* White, 1847

KEY TO SPECIES

1. Exopod present on maxilliped III2.
- Exopod absent on maxilliped III11.
2. Exopod with flagellum on maxilliped III3.
- Exopod without flagellum on maxilliped III9.
3. Spiny lobsters found in Indian and Pacific Oceans4.
- Spiny lobsters found in Atlantic Ocean (east of American coast from Florida to Rio de Janeiro, and near Bermuda, Bahamas, and Antilles) *P. argus* (Latreille, 1804).
4. Spiny lobsters found in Indo-Pacific region but not found along Pacific coast of America. Transverse grooves on abdomen continuous5.
- Spiny lobsters found along Pacific coast of America. Transverse grooves on abdomen interrupted. . . . *P. interruptus* (Randall, 1839).
5. Transverse grooves on abdominal somites III and IV connected with respective grooves of pleura. Pleopods on abdominal somite II without endopod in male6.
- Transverse grooves on abdominal somites III and IV not connected with respective grooves of pleura. Pleopods on abdominal somite II with exopod and endopod (Figure 180)
- 100 *P. japonicus* (von Siebold, 1924).
6. Transverse grooves on abdominal somite II connected with grooves of pleura7.
- Transverse grooves on abdominal somite II not connected with grooves of pleura (Figure 181) *P. pascuensis* Reed, 1954.

*Omission in original. Should read "Dactyl of pereopod V in male does not form chela"—Technical Editor.

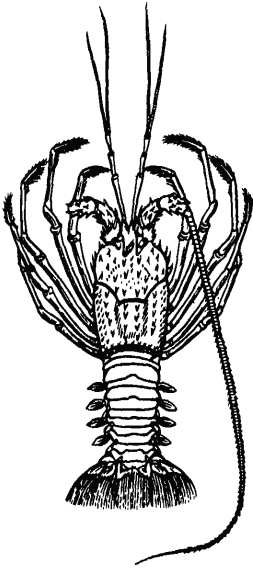


Figure 180. *Panulirus japonicus*
(from von Siebold, 1924).

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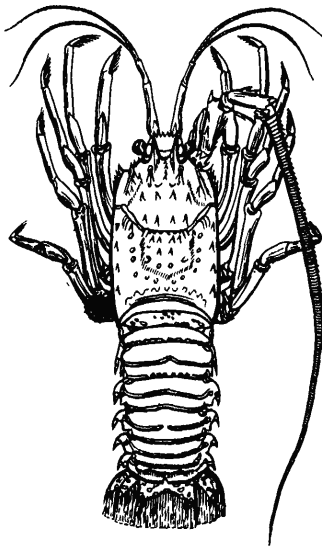


Figure 181. *Panulirus pascuensis*
Reed (female) (from George and
Holthuis, 1965).

- 7. Anterior margin of pleura of abdominal somite II edentate; abdomen with dorsal spots8.
- Anterior margin of pleura of abdominal somite II with a series of distinct teeth; abdomen with transverse stripes (Figure 182)
.....*P. marginatus* (Quoy and Gaimard, 1825).
- 8. Posterior margin of thoracic sternite in adult female with two dis-

- tinct teeth; posterior half of abdominal somite II without pubescent zone *P. longipes* (A. Milne-Edwards, 1868).
- Posterior margin of thoracic sternite in adult female edentate; pubescent zone present on abdominal somite II behind transverse groove in form of transverse belt (Figure 183)

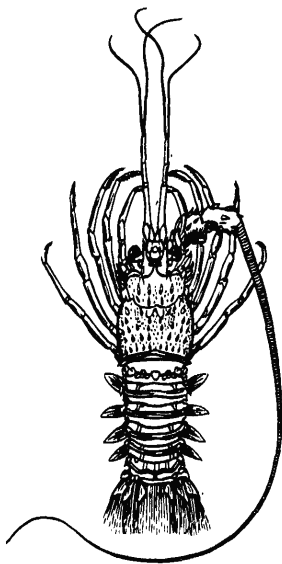


Figure 182. *Panulirus marginatus* (Quoy and Gaimard) (male) (from George and Holthuis, 1965).

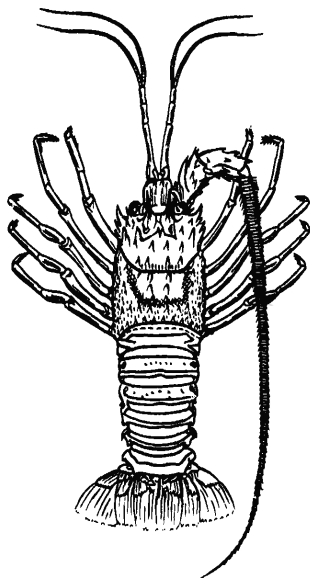


Figure 183. *Panulirus cygnus* George (male) (from George and Holthuis, 1965).

- *P. cygnus* George, 1862.
9. Antennular plate with one pair of spines. Species found in Atlantic Ocean 10.
 — Antennular plate with two pairs of spines connected by their bases. Species found in Indo-Pacific region
 *P. penicillatus* (Olivier, 1791).
10. Transverse grooves on abdominal somites II to V interrupted. One or more well-developed sharp teeth present on anterior margin of abdominal pleura *P. echinatus* Smith, 1869.
 — Transverse grooves on abdominal somites II to V continuous. At most, tubercles present on anterior margin of pleura of abdominal somites I to V, which are very rarely pointed
 *P. guttatus* (Latreille, 1804).
11. Exopod of maxilliped II with well-developed flagellum 12.
 — Exopod of maxilliped II without flagellum or with a reduced one 14.
12. Spiny lobsters found in Atlantic Ocean 13.
 — Spiny lobsters found in Indo-Pacific region
 *P. polyphagus* (Herbst, 1793).
13. Transverse grooves absent on dorsal side of abdominal somites. Species distributed throughout western Atlantic Ocean
 *P. laevicauda* (Latreille, 1817).
 — Interrupted transverse grooves present on dorsal side of abdominal somites. Species distributed throughout eastern Atlantic Ocean ...
 *P. rissonii* (Desmarest, 1825).
14. Exopod of maxilliped II without flagellum 15.
 — Exopod of maxilliped II with reduced flagellum
 *P. homarus* (L., 1758)—(*P. bürgeri* de Haan, 1841—
P. dasyopus Latreille, 1804).
15. Spiny lobsters found along Pacific coast of America 16.
 — Spiny lobsters found in Indo-Pacific region, but never along Pacific coast of America 17.
16. Small number of scattered, but not highly raised spines on carapace. Three large spines occur in hepatic region of carapace and one small spinule above posterior spine. *P. gracilis* Streets, 1871.
 — Numerous highly raised spines on carapace. In addition to three large spines in hepatic region, three to four smaller ones also present *P. inflatus* (Bouvier, 1895).
17. Groove in front of posterior margin of carapace at least equal in width to marginal crest and broad in the middle. Abdomen with narrow transverse dull stripes or without them 18.
 — Groove in front of posterior margin of carapace narrower than marginal crest and almost the same width throughout its length. Abdomen smooth, without narrow transverse dull stripes

-*P. ornatus* (Fabricius, 1798).
18. Abdominal somites with well-developed lower pubescent regions. Pleopod V in male twice as long as wide. Uniform small dots scattered over abdomen and no transverse dull stripes
.....*P. simpsoni* Holthuis, 1963.
- Abdominal somites without lower pubescent regions or with poorly defined ones. Pleopod V in male approximately three times as long as wide. Abdomen with narrow transverse dull stripes
.....*P. versicolor* Latreille, 1804.

FAMILY SCYLLARIDAE WHITE, 1847

KEY TO GENERA

1. Body moderately depressed. Carapace equal in length to width . . . 2.
— Body highly depressed and discoid. Carapace width greater than length 4.
2. Exopod of maxilliped III with flagellum; 21 branchiae present . . . 3.
— Exopod of maxilliped III without flagellum; 19 branchiae present ..
.....*Scyllarus*.
- 102 3. Abdominal somite I with transverse continuous groove. Distal segment of antenna with large number of distinct teeth*Arctides*.
— Abdominal somite I without transverse groove. Distal segment of antenna edentate*Scyllarides*.
4. Eyes located between median line of body and outer corners of carapace 5.
— Eyes located nearer outer corners of carapace*Thenus*
(only species: *T. orientalis* [Lund]).
5. Eyes located nearer to median line than to outer corners of carapace*Ibacus*.
— Eyes located midway between median line and outer corners of carapace*Parribacus*.

Genus *Ibacus* Leach, 1815

KEY TO SPECIES

1. Species not found near New Zealand 2.
— Species found near New Zealand and Chatham Islands
.....*I. alticrenatus* Bate, 1888.
2. Inner side of merus of maxilliped III divided by incomplete grooves into septa 3.
— Inner side of merus of maxilliped III not divided into septa
.....*I. ciliatus* (von Siebold, 1824).
3. Septa of distal end of merus of maxilliped III do not bulge 4.

- Septa of distal end of merus of maxilliped III in form of rounded knobs *I. verdi* Bate, 1888.
- 4. All three anterior teeth on epistome directed ventrally. Branchial carina behind cervical groove highly raised. . . *I. peronii* Leach, 1815.
- Only posterior tooth of three anterior ones on epistome directed ventrally, other two directed anteriorly. Branchial carina behind cervical groove straight. *I. novemdentatus* Gibbes, 1850.

Genus *Arctides* Holthuis, 1960

KEY TO SPECIES

- 1. Species found in Indo-Pacific region 2.
- Species found in Atlantic Ocean *A. guineensis* (Spengler, 1799).
- 2. Species found near Hawaiian Islands. *A. regalis* Holthuis, 1963.
- Species found near New Zealand and eastern Australia
 *A. antipodarum* Holthuis, 1960.

Genus *Parribacus* Dana, 1852

KEY TO SPECIES

- 1. Rostrum dentate 2.
- Rostrum edentate 4.
- 2. Fourth segment of antenna usually armed with six teeth along outer margin (excluding tip of segment) 3.
- Fourth segment of antenna usually armed with seven teeth along outer margin (excluding tip of segment)
 *P. caledonicus* Holthuis, 1960.
- 3. Abdominal somite I with five red spots along posterior margin; spots absent anteriorly *P. scarlatinus* Holthuis, 1960.
- Abdominal somite I with 8 to 10 red spots anteriorly
 *P. perlatus* Holthuis, 1967.
- 4. Anterior half of abdominal somites II to V almost smooth, with a few reticulate grooves 5.
- Anterior half of abdominal somites II to V covered with a large number of close-set tubercles *P. antarcticus* (Lund, 1793).
- 103 5. Abdominal somite I with 8 to 10 irregularly scattered and brightly colored spots. Species found near Haiti and Tuamotu Islands
 *P. holthuisi* Forest, 1954.
- Abdominal somite I with five bright spots, of which one small spot median and four large spots lateral, two on each side. Species found along coast of Japan *P. japonicus* Holthuis, 1960.

Genus *Scyllarides* Gill, 1898

KEY TO SPECIES

1. Spiny lobsters found in Atlantic Ocean2.
- Spiny lobsters found in Indo-Pacific region8.
2. Spiny lobsters found in eastern Atlantic Ocean and Mediterranean Sea3.
- Spiny lobsters found in western Atlantic Ocean4.
3. Carapace sparsely pubescent and body relatively smooth. Anterior half of abdominal somite I with three large red spots of approximately the same shape*S. herklotsi* (Herklots, 1851).
- Carapace densely pubescent and highly granular. Anterior dorsal half of abdominal somite I with median dark red spot surrounded by a light-colored yellowish ring and two semilunar spots along sides; concave side of spots directed toward median spot*S. latus* (Latreille, 1803).
4. Basal part of posterior margin of pleura of abdominal somite II distinctly concave5.
- Basal part of posterior margin of pleura of abdominal somite II distinctly convex*S. brasiliensis* Rathbun.
5. One round bright red spot each side of dorsal surface of abdominal somite I*S. deceptor* Holthuis, 1963.
- Pattern of abdominal somite I differs from one described above . .6.
6. Abdominal somites II to IV without median crest7.
- Abdominal somites II to IV with median crest*S. nodifer* (Stimpson, 1866).
7. Branchial region of carapace with longitudinal row of large tubercles. One large round red spot in center of abdominal somite I. Midway between this spot and base of pleura another small spot occurs, which is roughly triangular in shape*S. delfosi* Holthuis, 1960.
- Branchial region of carapace without longitudinal row of large tubercles. Four large red spots on abdominal somite I arranged symmetrically in relation to axial line*S. aequinoctialis* (Lund), 1793.
8. Basal part of posterior margin of pleura of abdominal somite II distinctly concave9.
- Basal part of posterior margin of pleura of abdominal somite II distinctly convex*S. squamosus* (H. Milne-Edwards, 1837).
9. Abdominal somites II to IV with crests. Spiny lobsters not found off Galapagos Islands10.
- Abdominal somites II to IV without crests. Spiny lobsters found off Galapagos Islands*S. astori* Holthuis, 1960.

10. Crest of abdominal somite IV does not form a very high ridge. 11.
 — Crest of abdominal somite IV forms a very high ridge
 *S. haami* (de Haan, 1841).
 104 11. Spiny lobsters not found off southeastern coast of Africa 12.
 — Spiny lobsters found off southeastern coast of Africa
 *S. elisabethae* (Ortmann, 1894).
 12. Pregastric tooth on carapace with single tip. Species found in central
 region of Pacific Ocean (Easter Island)
 *S. roggeveeni* Holthuis, 1967.
 — Pregastric tooth on carapace bifid. Species found in the Red Sea . . .
 *S. tridacnophaga* Holthuis, 1967.

Genus *Scyllarus* Fabricius, 1775

KEY TO SPECIES

1. Species found in Indo-Pacific region 11.
 — Species found in Atlantic Ocean 2.
 2. Species found in western Atlantic Ocean 8.
 — Species found in eastern Atlantic Ocean (including Mediterranean
 Sea) 3.
 3. Rostral teeth well developed and raised 4.
 — Rostral teeth very small or absent 6.
 4. Pleura of abdominal somite II sharp and curve dorsally. Anterior
 part of abdominal somites overlapped by preceding somite, without
 a transverse groove, and covered with backwardly directed hairs.
 5.
 — Pleura of abdominal somite II obtuse and curve ventrally. Anterior
 part of abdominal somites overlapped by preceding somite, with a

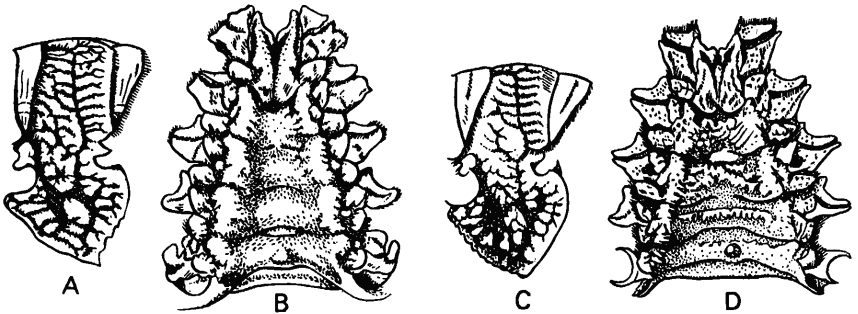


Figure 184. *Scyllarus arctus* (L.): A—abdominal somite II and smooth part of abdominal somite III. (lateral view); B—sternite of cephalothorax (ventral view); C and D—*Scyllarus pygmaeus* (Bate) (legend same as above) (from Forest and Holthuis, 1960).

- distinct transverse groove, and covered with backwardly directed hairs (Figure 184, *C* and *D*) *S. pygmaeus* Bate, 1888.
5. Tip of first tooth of median carina of carapace (pregastric tooth) located slightly closer to second (gastric) tooth than to rostrum. Gastric tooth slightly above remaining teeth of median carina. Median tubercle of thoracic sternite small and conical (Figure 184, *A* and *B*) *S. arctus* (L.), 1758.
- Tip of pregastric tooth slightly closer to tip of rostrum than to gastric tooth. Gastric tooth much above remaining teeth of median carina. Median tubercle of thoracic sternum V quite large, broad, and with a ridge on anterior margin *S. subarctus* Crosnier, 1969.
- 105 6. Anterior margin of thoracic sternum forms two large lobes divided by a small cleft. Median carina of abdominal somites II, III, and IV high and raised (Figure 185) *S. caparti* Holthuis, 1952.
- Anterior margin of thoracic sternum with a broad cleft and straight or concave margins. Median carinae of abdomen not high but

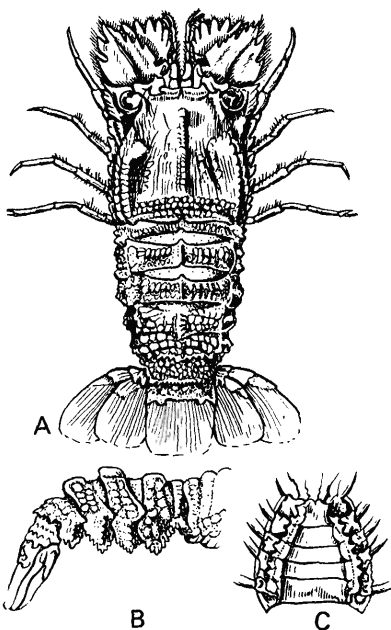


Figure 185. *Scyllarus caparti* Holthuis.

A—dorsal view; *B*—abdomen (lateral view); *C*—thoracic sternites (ventral view) (from Holthuis, 1952).

- mildly raised 7.
7. Median tubercle of last thoracic sternum small. Anterior tooth of inner margin of orbit longer than posterior one (Figure 186) *S. paradoxus* Miers, 1881.

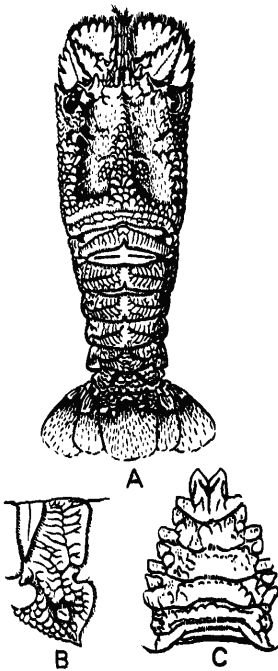


Figure 186. *Scyllarus paradoxus*
Miers.

A—dorsal view; B—abdominal somite II (lateral view); C—thoracic sternites (ventral view).

- Median tubercle of last thoracic sternum sharp and curves backward; in male additional pair of large lateral teeth present. Anterior tooth of inner margin of orbit shorter than posterior one (Figure 187) *S. posteli* Forest, 1963.
- 8. Abdominal somites I to IV with a small rounded cleft in middle of posterior margin 9.
- Abdominal somites I to IV with a deep sharply pointed cleft in middle of posterior margin 10.
- 9. Inner margin of orbit with two sharp, strong teeth
..... *S. chacei* Holthuis, 1960.
- Inner margin of orbit smooth *S. planorbis* Holthuis, 1969.
- 106 10. Second segment of antennular peduncle dorsally flat. Abdominal somite IV with a carinate area *S. americanus* (Smith, 1896).
- Second segment of antennular peduncle cylindrical. Abdominal somite IV without carinate area *S. nearctus* Holthuis, 1960.
- 11. Species not found off Juan Fernandez Islands 12.
- Species found off Juan Fernandez Islands
..... *S. delfini* (Bouvier), 1909.
- 12. Large distoventral tooth present on propodus of pereopod III, giving it a subchelate appearance 13.
- Distoventral tooth absent on propodus of pereopod III; tip appears normal 14.

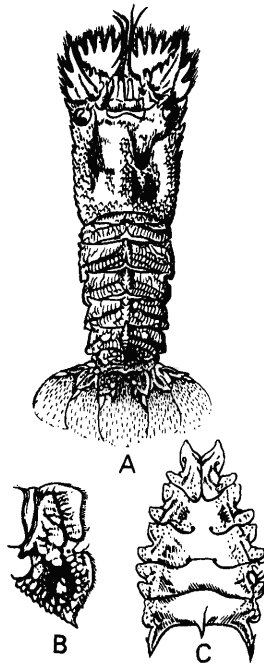


Figure 187. *Scyllarus posteli*
Forest. *A*—dorsal view; *B*—ab-
dominal somite II (lateral
view); *C*—thoracic sternites
(ventral view) (from Forest,
1963).

13. Second tooth of median carina of carapace very high, much higher than the first one *S. cultrifer* (Ortmann), 1897.
— Second tooth of median carina of carapace not very high, only slightly higher than the first one *S. aureus* Holthuis, 1963.
14. Abdominal somites with tuberculate sculpture 15.
— Abdominal somites smooth or with dendroid or scaly sculpture 17.
15. Outer margin of second segment of antenna with not less than four (four to seven) teeth 16.
— Outer margin of second segment of antenna with just three teeth *S. brevicornis* Holthuis, 1946.
16. Posterior margin of sternum of thoracic somite V with series of tubercles. Posterior half of abdominal pleura without tubercles *S. rugosus* H. Milne-Edwards, 1837.
— Posterior margin of sternum of thoracic somite V without tubercles. Posterior half of abdominal pleura with longitudinal row of tubercles *S. demani* Holthuis, 1963.
17. Median carina present on abdominal somites II to V. 18.
— Median carina absent on abdominal somites II to V. 27.
18. Abdominal terga with more or less distinct dendroid or scaly sculpture 19.
107 — Abdominal terga smooth, without dendroid or scaly sculpture.

- Crest on abdominal somite II higher than that of other somites.
Species found near New South Wales (Australia)
..... *S. crenatus* (Whitelegge), 1900.
19. Antennal squame divided by two oblique crests 20.
— Antennal squame divided by just one oblique crest 21.
20. Scaly sculpture on abdomen prominent only on somite VI and on
pleura *S. rubens* (Alcock and Anderson), 1894.
— Scaly sculpture well defined throughout abdomen
..... *S. martensi* Pfeffer, 1881.
21. Tooth either present or absent on last thoracic sternite; if present, in
form of small obtuse tubercle 22.
— Large sharp tooth present on last thoracic sternite
..... *S. ornatus* Holthuis, 1960.
22. Crests on abdominal somites II to V approximately equal in
height 26.
— Crest on one of these somites much higher than on others 23.
23. Crest on abdominal somite III higher than those on other
somites 24.
— Crest on abdominal somite IV higher than those on other somites. .
..... *S. gibberosus* (de Man), 1905.
24. Rostral tooth present 25.
— Rostral tooth absent. Species found in the Red Sea
..... *S. lewinoehni* Holthuis, 1967.
25. Abdominal somite I smooth. Species found around Fiji Islands,
northern coast of Celebes, and near Ambionia Island
..... *S. vitiensis* (Dana), 1852.
— Large number of curved and branched longitudinal grooves present
on abdominal somite I. Species found near Sulu Archipelago
(Philippines) *S. aesopius* Holthuis, 1960.
26. Longitudinal grooves on terga of abdominal somite I partly curved
and branched. Species found near Hawaiian Islands
..... *S. modestus* Holthuis, 1960.
— Longitudinal grooves on terga of abdominal somite I straight and
unbranched. Species found in Japan and near Sumbawa Island
(Flores Sea) *S. bicuspidatus* (de Man), 1905.
27. Second median tooth of carapace, if higher than other median teeth,
only slightly so 28.
— Second median tooth of carapace much higher than other teeth.
Species found near Sulu Archipelago (Philippines) and Hawaiian
Islands *S. timidus* Holthuis, 1960.
28. Propodus of pereopods II and III broad and laterally
compressed 29.
— Propodus of pereopods II and III not broad and very slightly
compressed 30.

29. Anterior unsculptured part of terga of abdominal somite II smooth, without transverse groove. *S. batei* (Bate), 1888.
 — Anterior unsculptured part of terga of abdominal somite II with two parallel transverse grooves. *S. bertholdi* Paulson, 1875.
30. Typical dendroid pattern found on abdominal somites II to IV 31.
 — Pattern on abdominal somites II to IV in form of simple loop with straight lateral margins. Species found in Red Sea, near Madagascar, and near Mauritius Island *S. pumilus* Nobili, 1906.
31. Rostrum distinctly dentate; large, compressed, triangular cardiac tooth present 32.
 — Rostrum edentate; cardiac tooth very low, short, and bifid. Species found off Australia *S. amabilis* Holthuis, 1963.
32. Additional transverse groove absent between posterior marginal groove of carapace and its posterior margin. Median tubercle present on last thoracic sternite *S. dubius* Holthuis, 1963.
 — Additional transverse groove present between posterior marginal groove of carapace and its posterior margin. Median tubercle not present on last thoracic sternite. *S. sordidus* (Stimpson), 1860.

Section ASTACURA Borradaile, 1907

KEY TO FAMILIES (FROM BALSS, 1957)

1. Last thoracic somites free and movable 2.
 — Last thoracic somites fused with preceding ones Family **Homaridae**.
2. Podobranchiae without lamina but stems may be alary; short falcate structures originate from ends of joints. Pleopods I absent in both sexes 3.
 — Podobranchiae with broad bilobate lamina; falcate structures originate from ends of joints. Pleopod I present in both sexes Family **Astacidae**.
3. Antennules with well-developed flagella. Carapace not broad from below Family **Parastacidae**.
 — Antennular flagella either reduced or absent. Carapace broad from below Family **Austroastacidae**.

FAMILY HOMARIDAE

KEY TO GENERA (FROM MANNING, 1969)

1. Eyes present. Pleura of abdominal somites III to VI triangular . . 2.

- Eyes absent. Pleura of abdominal somites III to VI rectangular . . .
 *Thaumastocheles*.
- 2. Scaphocerites present 3.
- Scaphocerites absent 7.
- 3. Scaphocerites foliate. Carapace with longitudinal carina 4.
- Scaphocerites triangular; tips sharp. Carapace without carina
 *Homarus*.
- 4. Eyes pigmented 5.
- Eyes nonpigmented *Neophoberus*
 (one species: *N. caecus* A. Milne-Edwards).
- 5. Propodus of chela with longitudinal carina. Carapace with paired
 postcervical rows of spines along median line 6.
- Propodus of chela without longitudinal carina. Carapace without
 paired postcervical rows of spines along median line *Enoplometopus*.
- 6. Carapace without submedian carina behind cervical groove
 *Eunephrops*.
- Carapace with submedian carina behind cervical groove
 *Nephrops*.
- 7. Eyes nonpigmented. Pleura of abdominal somite II triangular
 *Nephropsis*.
- Eyes pigmented. Pleura of abdominal somite II rounded rec-
 tangles *Nephropides*.

Genus *Homarus* Weber, 1795

KEY TO SPECIES

- 1. Species distributed in eastern Atlantic and southwestern Indian
 Oceans 2.
- Species distributed along Atlantic coast of North America and
 region from Labrador to Carolina
 *H. americanus* H. Milne-Edwards.
- 2. Species distributed in European waters up to Tromsö (Norway) in
 the north and along coasts of France and Portugal, in Mediter-
 ranean and Black Seas, and off northwestern coast of Africa
 *H. gammarus* (L.).
- Species found only off southern Africa, from Cape of Good Hope up
 to Gulf of Algoa *H. capensis* (Herbst).

Genus *Eunephrops* Smith, 1885

KEY TO SPECIES

- 1. Spines present on posteromedian margin of cervical suture of
 carapace. Second segment of antennal peduncle unarmed

-*E. bairdii* Smith, 1885.
 — Spines absent on posteromedian margin of cervical suture of carapace. Second segment of antennal peduncle with anterolateral spines*E. cadenasi* Chace, 1939.

Genus *Enoplometopus* A. Milne-Edwards, 1862

KEY TO SPECIES

1. Postcervical spines (one or two) present on carapace2.
 — Postcervical spines absent on carapace
*E. pictus* A. Milne-Edwards.
 2. One postcervical spine present3.
 — Two postcervical spines present*E. holthuisi* Gordon.
 3. Spines present on pleura of abdominal somites III to V4.
 — Spines absent on pleura of abdominal somites III to V
*E. occidentalis* (Randall).
 4. Pleura of abdominal somite VI rounded; only two teeth present on posterior transverse margin of this somite ...*E. antillensis* Lütken.
 — Pleura of abdominal somite VI sharp; six teeth present on posterior margin of somite, one of which larger and located medially
*E. biafri* Burukovksy, 1972.

Genus *Nephropsis* Wood-Mason, 1872

KEY TO SPECIES (FROM BOUVIER, 1917)

1. Median crest present on terga of abdominal somites II to VI ...2.
 — Median crest absent on terga of abdominal somites II to VI6.
 2. Rostral spines present3.
 — Rostral spines absent; pair of postrostral spines present. Anterior margin of epimera of abdominal somites unarmed. Epimera of abdominal somites II to V with long lower ends
*N. ensirostris* Alcock, 1901.
 3. Only one pair of rostral spines present4.
 — Several spines present: at least two pairs of rostral spines, one pair of postrostral spines, one spine on anterior margin of each epimeron of abdominal somite II, and one pair of hepatic spines, rarely rudimentary*N. atlantica* Norman, 1882.
 4. Hepatic spines not present. Lower ends of epimera of abdominal somites II to V very short5.
 — One pair of hepatic spines present, sometimes rudimentary. Epimera of abdominal somites II to V with long ends
*N. aculeata* Smith, 1881.
 5. Dorsal spine present near base of telson

- *N. occidentalis* Faxon, 1895.
- Dorsal spine absent on telson *N. carpenteri* Wood-Mason, 1885.
- 6. Rostrum with at least two pairs of spines. Epimera of abdominal somites II to V with long lower ends 7.
- Rostrum with only one pair of spines. Epimera of abdominal somites II to V with short lower ends and anterior margin unarmed. Transverse suture present on exopod of uropod
- *N. stewarti* Wood-Mason, 1873.
- 7. Transverse suture present on exopod of uropod 8.
- Transverse suture absent on exopod of uropod. Spine present on anterior margin of epimera of somites II to V . . . *N. suhmi* Bate, 1888.
- 110 8. Anterior margin of epimera of abdominal somite II armed with spine. Hepatic spine absent *N. malhaensis* Borradaile, 1910.
- Anterior margin of epimera of abdominal somites II, III, and IV armed with spine. Hepatic spine present
- *N. agassizi* A. Milne-Edwards, 1880.

Genus *Nephropides* Manning, 1969

KEY TO SPECIES

- 1. Median crest absent on abdomen *N. caribbaeus* Manning.
- Median crest present on abdomen (Figure 188)
- *N. birsteini* Zarenkov and Semjonov.

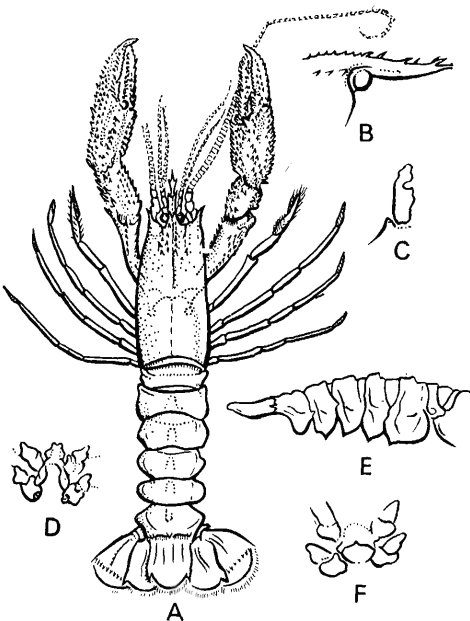


Figure 188. *Nephropides birsteini* Zarenkov and Semjonov.

A—general (dorsal view),
 B—rostrum (lateral view);
 C—pleopod I of male; D—base
 of pereopods IV and V of male;
 E—abdomen (lateral view);
 F—base of pereopods IV and V
 of female (from Zarenkov and
 Semenov, 1972).

Genus *Nephrops* Leach, 1815

KEY TO SPECIES

1. Carapace with seven longitudinal carinae behind cervical groove. Dorsolateral margin of rostrum continues onto carapace in the form of a postrostral carina. Antennal spines large. Scaphocerite semi-circular and broad 2.
- Carapace with five longitudinal carinae behind cervical groove. Dorsolateral margin of rostrum does not continue onto carapace. Antennal spines small. Scaphocerite narrow and lanceolate
..... *N. norvegicus* (Linne, 1875).
2. Species found in Atlantic Ocean (western Atlantic) 3.
- Species found in Indo-Pacific region 4.
- 3.* Spinules absent between rows of postrostral teeth. Margin above base of pleura of abdominal somites III to V unarmed
..... *N. binghami* Boone, 1927.
- Spinules present between rows of postrostral teeth. Margin above base of pleura armed with spine on abdominal somites III to V ...
..... *N. rubellus* Moreira, 1903.
4. Carapace covered with spines 5.
- Carapace smooth or covered with small granules 7.
5. One pair of transverse grooves on each terga of abdominal somites II and III (same part of terga) which do not extend under preceding somite on bending the abdomen 6.
- Terga of abdominal somites II and III with two pairs of transverse grooves each *N. neptunus* Bruce, 1965.
6. Each groove with complex lateral margins, pubescent anterior and posterior margins, smooth floor, and transverse row of granules. Additional groove connects in middle of anterior margin with lateral end of groove, separating jointed and nonjointed surface of terga ..
..... *N. arafurensis* de Man, 1905.
- Each groove simple and entirely pubescent
..... *N. australiensis* Bruce, 1966.
7. No longitudinal raised spinescent crests on chelae of pereopod I 8.
- Longitudinal raised spinescent crests present on chelae of pereopod I 12.
8. Transverse pubescent grooves present on some abdominal somites 9.
- Transverse pubescent grooves absent on abdominal somites ... 10.

111

*According to Manning (1969) *N. binghami* is armed with one spine and *N. rubellus* is unarmed—Technical Editor.

- 9. Distinct transverse grooves present on first five abdominal somites. Thick tufts of setae present on ventromedian sides of dactyl of cheliped I *N. sinensis* Bruce, 1966.
- Transverse grooves distinct only on abdominal somites II to III, poorly developed on abdominal somites IV to V, and absent on abdominal somite I. Dactyl of cheliped I without ventromedian setae *N. thomsoni* Bate, 1888.
- 10.*Spines present on longitudinal crest in cardiac region of carapace 11.
- Spines absent on longitudinal crest in cardiac region of carapace *N. challengerii* Balss, 1914.
- 11. Distinct tooth present midlength of inner margin of merus of cheliped I. Scaphocerite with maximum width in middle third (Figure 189) *N. boschmai* Holthuis, 1964.
- Distinct tooth absent among small spines on inner margin of merus of cheliped I. Scaphocerite with maximum width in distal third *N. sibogae* de Man, 1916.

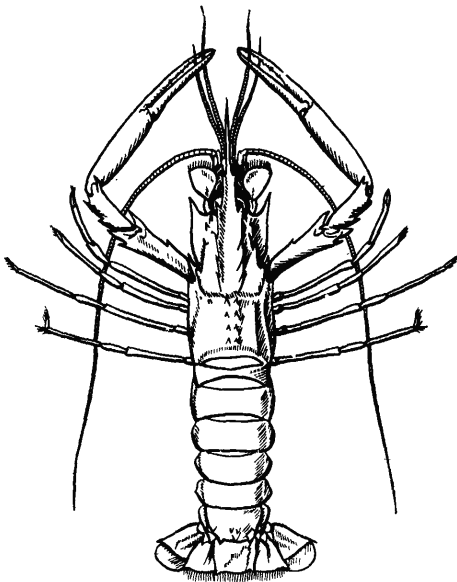


Figure 189. *Nephrops boschmai* Holthuis (from Holthuis, 1964).

- 12. Two pairs of small spines present on abdominal somite VI.
 *N. japonicus* Tapparone Canefri, 1873
 (? *N. sagamiensis* Parisi, 1917—*N. intermedium* Balss, 1921).

*According to Manning (1969) the presence or absence of a “spinescent longitudinal crest” is an important diagnostic character—Technical Editor.

- Spines absent on abdominal somite VI
 *N. andamanicus* Wood-Mason, 1892.

Genus *Thaumastocheles* Wood-Mason, 1874

KEY TO SPECIES

1. Species found off West Indies
 *T. zaleucus* (Willemoes-Suhm, 1875).
 — Species found off Japan *T. japonicus* Bate, 1888.

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INDEX*

- Acanthephyra* 55
 —*purpurea* 55
Albunea 7
Allocaris 63
Alope 79
 —*orientalis* 79
 Alpheidae 54, 74
Alpheopsis 75
 —*equalis truncatus* 75
Alpheus 77
 —*glaber* 77
Ambidexter 86
Amphibetaeus 77
 —*jousseaume* 76
Anapontonia 69
Anchistioides 71
 —*willeyi* 72
Anchistus 69
 —*custos* 69
Anomura 10, 95
Antecaridina 58
 —*lauensis* 58
 Appendix
 —*interna* 10
 —*masculina* 10
Arctides 102
 —*antipodarum* 102
 —*guineensis* 102
 —*regalis* 102
Arete 76
 —*dorsalis* 76
Aretopsis 76
 —*amabilis* 76
Aristeinac 15, 47
Aristaeomorpha 13, 47
 —*foliacea* 47
Aristeus 13, 47, 48
 —*alcocki* 48
 —*antennatus* 49
 —*antillensis* 49
 —*mabahisse* 49
 —*occidentalis* 49
 —*semidentatus* 49
 —*varidens* 48
 —*virilis* 48
Artemesia 16
 —*longinaris* 16
 Astacidae 108
Astacura 9, 10, 11, 95, 108
Athanopsis 76
 —*platyrhynchus* 76
Athanas 76
 —*nitescens* 75
Atya 58
 —*crassa* 58
Atyaephyra 57
 —*desmaresti* 57
Atyella 59
 —*brevirostris* 59
Atyidae 9, 53, 56
Atypopeneaeus 17, 28
 —*dearmatus* 29
 —*formosus* 28, 29
 —*stenodactylus* 29
 Austroastacidae 108
Austropandalus 85
 —*grayi* 85
Automate 76
 —*anacanthopus* 76
 Axiidae 10

Balssia 73
 —*gasti* 73
Barbouria 79
 —*cubensis* 80
Batella 77

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—*parvimanus* 77
Bathypalaemonella 62
 —*zimmeri* 62
Bentheogennema 46, 47
 —*borealis* 47
 —*intermedia* 47
 —*pasithea* 47
Benthesicyminae 15, 46
Benthesicymus 12, 46
Benthonectes 47
 —*filipes* 47
Betaeus 76
 —*truncatus* 76
Birulia 79
 —*kishinouyei* 80
Brachycarpus 65
 —*biunguiculatus* 66
Brachyura 7, 10, 95
Bresilia 61
 —*atlantica* 62
Bresiliidae 53, 62
Bythocaris 83
 —*leucopis* 82

Campylonotidae 53, 62
Campylonotus 62
 —*rathbunae* 62
Cancer 12
Caridea 14, 52
Caridella 59
 —*cumnigtoni* 58
Caridina 59
 —*acuminata* 58
Caridinides 58
 —*wilkinsi* 58
Caridinopsis 59
 —*chevallieri* 59
Caridion 79
 —*gordoni* 80
Cavicheles 71
 —*kempi* 72
Chlorotocella 86
 —*gracilis* 86
Chlorotocoides 86
 —*spinicauda* 85
Chlorocurtis 86
 —*juctans* 86
Chlorotocus 86
 —*novae-zealandiae* 85
Chorismus 79
 —*antarcticus* 80

Conchodites 70
 —*monodactylus* 71
Coralliocaris 70
 —*superba* 71
Coutierea 73
 —*agassizi* 73
Crangon 88
 —*dalli* 88
Crangonidae 54, 86
Creaseria 64
 —*morleyi* 63
Cryphiops 65
 —*caementarius* 66
Cryptocheles 80
 —*pygmaea* 81

Dantecia 60
 —*caudani* 60
Dasella 70
 —*hermaniae* 71
Dasycaris 70
 —*ceratops* 70
Decapoda 4, 15
Desmocarid 63
 —*trispinosa* 63
Dichelopandatus 84
 —*leptoceras* 84
Disciadiidae 53
Discias 53
Dorodotes 83
 —*reflexus* 83
Dromia 4
Dromiacea 11
Dromiidae 11
Dugastella 57
 —*marocana* 58

Engystenopus 92, 93
 —*palmipes* 91, 93
 —*spinulatus* 93
Enoplometopus 6, 108, 109
 —*antillensis* 109
 —*biafri* 109
 —*holthuisi* 109
 —*occidentalis* 109
 —*pictus* 109
Ephyrina 55
 —*hoskyni* 56
Eryonidea 95
Eualus 80
 —*gaimardi* 81

- Eucyphidea 8, 9, 10
Eugonatonotus 61
 —*crassus* 61
Eunephrops 108, 109
 —*bairdii* 109
 —*cadenasi* 109
Eupagurus 12
Eupasiphaë 60
 —*latirostris* 60
Eupontonia 66
 Euryrhynchinae 62
Euryrhynchus 62
Exopalaemon 65
 —*shylicherus* 64

Fennera 70
 —*chacei* 70
Funchalia 16, 24
 —*balboae* 24
 —*danae* 24
 —*taaningi* 25
 —*villosa* 25
 —*woodwardi* 24

 Galatheidae 6
 Galatheidea 9, 11
Gelastocaris 82
 —*paronae* 81
 Gennadas 46
Glyphocrangon 54
 Glyphocrangonidae 54
Glyphus 60
 Gnathophyllidae 53, 73
Gnathophylloides 74
 —*mineri* 74
Gnathophyllum 74
 —*panamense* 74
Gordonella 46
 —*polyarthra* 46

Haliporus 43, 44
 —*curvirostris* 44
 —*thetis* 44
Hamodactylus 71
 —*boschmai* 72
Hamopontonia 69
Harpiliopsis 70
 —*depressus* 70
Harpilius 67
 —*brevicarpus* 68
Hemipenaeus 47, 48
 —*carpenteri* 48
 —*crassipes* 48
 —*gracilis* 48
 —*sibogae* 48
 —*speciosus* 48
 —*spinidorsalis* 48
Hepomadus 47
 —*gladialis* 47
 —*tener* 47
Heptacarpus 80
 —*minutus* 79
Heterocarpoides 85
 —*levicarina* 85
Heterocarpus 85
 —*sibogae* 85
 Hippidae 11
Hippolysmata 83
 —*ensirostris* 83
 —*prima* 83
 —*vittata* 82
Hippolyte 80
 —*varians* 81
 Hippolytidae 7, 54, 78
 Homaridae 108
Homarus 6, 8, 108
 —*americanus* 108
 —*capensis* 108
 —*gammarus* 108
Homola 4
Hymenocera 74
 —*elegans* 75
Hymenodora 55
 —*gracilis* 56
Hymenopenaeus 43, 45
 —*aequalis* 46
 —*aphoticus* 46
 —*chacei* 46
 —*debilis* 46
 —*diomedeeae* 45
 —*doris* 45
 —*fattachi* 46
 —*halli* 46
 —*laevis* 45
 —*lucasii* 45
 —*modestus* 45
 —*mülleri* 45
 —*neruus* 45
 —*neptunus* 46
 —*obliquirostris* 46
 —*propinquus* 46
 —*robustus* 45
 —*sewelli* 46
 —*sibogae* 45

- aprobansensis* 45
- tropicalis* 45
- villosus* 45

Ibacus 102

- alticrenatus* 102
- ciliatus* 102
- novemdentatus* 102
- peronii* 102
- verdi* 102

Ichnopontonia 69*Jasus* 97

- edwardsii* 97
- frontalis* 97
- lalandii* 97
- novae-hollandiae* 97
- paulensis* 97
- tristani* 97
- verrauxi* 97

Jocaste 70

- lucina* 71

Justitia 96, 98

- japonica* 98
- longimana* 98

Latreutis 82

- mucronatus* 82

Leander 64

- urocaridella* 63

Leandrites 63

- celebensis* 63

Lebbeus 79

- polaris* 80

Leucosiidae 9*Leontocaris* 79

- lar* 81

Leptocarpus 65

- fluminicola* 65

Leptochela 61

- bermudensis* 61

Leuciferinae 16*Ligur* 78

- ensifer* 78

Limnocaridella 60

- aeberti* 59

Limnocaridina 60

- tanganyike* 59

Linuparus 97

- trigonus* 97

Lipkebe 73*Lipkius* 61

Lithodidae 11

Lucaya 61

- bigelowi* 62

Lysmata 83

- trisetacea* 82

Macrobrachium 65

- lar* 66

Macropetasma 16

- africanum* 16

Mehrippylyte 78

- calmani* 78

Meningodora 55

- mollis* 56

Merguia 83

- oligodon* 82

Mesocaris 58*Mesocrangon* 89

- intermedia* 89

Metabetaeus 77

- minusus* 76

Metacrangon 89

- robusta* 89

Metapenaeopsis 10, 12, 13, 16, 32

- andamanensis* 38

—*akayebi* 36

- acclivis* 34, 36

—*barbata* 34, 36

- barbensis* 35

—*beebei* 33

- borradaili* 37

—*coniger* 39

- crassissima* 34, 35

—*dalei* 37

- distincta* 37

—*dura* 34, 35

- evermanni* 36

—*gerardoii* 32, 33

- goodei* 33

—*hilarula* 37

- hobbsi* 32, 33

—*incompta* 38

- insona* 38

—*kishinouyei* 33

- kyushensis* 39

—*lamellata* 36

- lata* 39

—*martinella* 33, 34

- miersi* 32

—*mineri* 33

- mogiensis* 37
- novaeguineae* 34, 36
- palmensis* 34, 35
- philippi* 38
- provocatoria* 39
- quinquedentata* 37, 38
- rosea* 34, 35
- sibogae* 38
- sinuosa* 34
- smithi* 31, 32
- stridulans* 34, 36
- toloensis* 35
- tarawensis* 37, 38
- velutina* 35, 36
- Metapenaeus* 13, 16, 39
 - affinis* 42
 - bennettiae* 43
 - brevicornis* 40
 - burkenroadi* 43
 - conjunctus* 41
 - dalli* 43
 - demani* 41
 - dobsoni* 40
 - eboracensis* 42
 - elegans* 42
 - endeavouri* 40
 - ensis* 41
 - insolitus* 42
 - intermedius* 39
 - incisipes* 41
 - joyneri* 40
 - lysianassa* 40
 - macleayi* 39
 - mastersii* 41
 - monoceros* 41
 - mutatus* 42
 - necopinans* 42
 - papuensis* 42
 - singaporensis* 42
 - spinulatus* 40
 - stebbingi* 41
 - suluensis* 41
 - tenuipes* 40
- Micratya* 59
 - poeyi* 59
- Microprosthemis* 92, 94
 - plumicorne* 94
 - scabricaudatum* 94
 - semilaeve* 94
 - validum* 92, 94
- Mimocaris* 82
 - heterocarpoides* 82
- Natantia* 9, 15
- Nauticaris* 78
 - marionis* 78
- Nectocrangon* 87
 - crassa* 88
- Nematocarcinidae 53
- Nematocarcinus* 53
 - ensifer* 54
- Nematopalaemon* 65
 - tenuipes* 64
- Neolpheopsis* 76
 - hiatti* 75
- Neocrangon* 88
- Neophoberus* 108
 - caecus* 108
- Neopontonides* 71
 - beaufortensis* 72
- Nephropidae 10
- Nephropides* 108, 110
 - birsteini* 110
 - caribbeus* 110
- Nephrops* 8, 108, 110
 - andamanicus* 111
 - arafurensis* 111
 - australiensis* 111
 - binghami* 110
 - boschmai* 111
 - challengeri* 111
 - intermedium* 111
 - japonicus* 111
 - neptunus* 110
 - norvegicus* 110
 - rubellus* 110
 - sagamiensis* 111
 - sibogae* 111
 - sinensis* 111
 - thomsoni* 111
- Nephropsis* 108, 109
 - aculeata* 109
 - agassizi* 109
 - atlantica* 109
 - carpenteri* 109
 - ensirostris* 109
 - malhaensis* 110
 - occidentalis* 109
 - stewarti* 109
 - suhmi* 109
- Nicoides* 86
 - maldivensis* 87
- Notocrangon* 88
 - antarcticus* 88
- Notopandalus* 84

- Notostomus* 55
 —*robustus* 56

Odontozona 91, 93
 —*edwardsi* 93
 —*ensifera* 93
 —*sculpticaudata* 93
 —*spongicola* 91, 93
Ogyrididae 54
Ogyrides 54
Onycocaris 68
 —*quadratophtalma* 69
Oplophoridae 8, 9, 53, 54
Oplophorus 54
 —*spinus* 55
Oxystomata 9

Paguridae 4, 10
Paguroopsis 10
Palaeander 65
 —*floridanus* 64
Palaemon 64, 65
 —*longirostris* 63
Palaemonella 66
 —*vestigialis* 67
Palaemonetes 63
 —*antrorum* 65
 —*kadiakensis* 64
Palaemonias 57
 —*ganteri* 57
Palaemonidae 7, 53, 62
Palaemoninae 63
Palinura 9, 10, 95
Palinurellus 96, 98
 —*gundlachi* 98
 —*wieneckii* 98
Palinuridae 96
Palinurus 97, 98
 —*charlestoni* 98
 —*elephas* 98
 —*gilchristi* 98
 —*mauritanicus* 98
Palinustus 97, 98
 —*mossambicus* 98
 —*truncatus* 98
Pandalidae 54, 83
Pandalina 84
 —*brevirostris* 85
Pandalopsis 84
 —*ampla* 84
Pandalus 85
 —*montagui* 85

Pantomus 5, 83
 —*affinis* 83
Panulirus 97
 —*argus* 99
 —*birgeri* 101
 —*cygnus* 100
 —*dasyptus* 101
 —*echinatus* 101
 —*gracilis* 101
 —*guttatus* 101
 —*homarus* 101
 —*inflatus* 101
 —*interruptus* 99
 —*japonicus* 99, 100
 —*laevicauda* 101
 —*longipes* 100
 —*marginatus* 100
 —*ornatus* 101
 —*pascuensis* 99, 100
 —*penicillatus* 100
 —*polyphagus* 101
 —*rissoni* 101
 —*stimpsoni* 101
Parabetaeus 76
 —*cullierete* 76
Paracrangon 86
 —*areolata* 87
Paralatreutes 82
 —*bicornis* 82
Paranchistus 68
 —*biunguiculatus* 67
Parapandalus 84
 —*richardi* 83
Parapasiphae 60
 —*sulcatifrons* 60
Parapenaopsis 13, 16, 17, 26
 —*acclivirostris* 29
 —*atlantica* 26
 —*balli* 27
 —*cornuta* 27
 —*gracillima* 27
 —*hardwickii* 27
 —*hungerfordi* 27
 —*maxillipedo* 27
 —*nana* 27
 —*sculptilis* 27, 28
 —*stylifera* 27
 —*tenella* 28, 29
 —*uncta* 27
 —*venusta* 29
Parapenaeus 13, 16, 25
 —*americanus* 25

- australiensis* 26
- fissurus* 26
- investigatoris* 26
- lanceolatus* 26
- longipes* 25
- longirostris* 26
- sextuberculatus* 26
- Parastacidae 108
- Paratya* 57
 - compressa* 57
- Paratypton* 73
 - siebenrocki* 73
- Parribacus* 102
 - antarcticus* 102
 - caledonicus* 102
 - holthuisi* 103
 - japonicus* 103
 - perlatus* 102
 - scarlatinus* 102
- Pasiphaea* 12, 60
 - multidentata* 60
- Pasiphaeidae 8, 9, 10, 52, 60
- Penaeidae 7, 9, 12, 14, 15
- Penaeidea 3, 8, 10, 12, 15
- Penaeinae 15
- Penaeus* 13, 14, 16, 17
 - aztecus aztecus* 22
 - aztecus subtilis* 22
 - brasiliensis* 21
 - brevirostris* 23
 - californiensis* 23
 - canaliculatus* 23
 - duorarum duorarum* 21, 22
 - duorarum notialis* 22
 - esculentus* 19, 20
 - indicus* 19
 - kerathurus* 23
 - latisulcatus* 23
 - longystylus* 23
 - marginatus* 23
 - merguiensis* 19, 20
 - monodon* 19, 20
 - occidentalis* 19
 - orientalis* 19
 - paulensis* 23
 - penicillatus* 21
 - plebejus* 24
 - schmitti* 18
 - semisulcatus* 19, 20
 - setiferus* 17, 18
 - stylirostris* 18
 - vannamei* 18
- Penaeopsis* 13, 16, 31
 - megalops* 31
 - rectacuta* 31
 - serrata* 31
- Periclimenes* 67
 - impar* 68
- Periclemeneus* 68
 - tridentatus* 68
- Peripandalus* 84
 - serratus* 84
- Phycocaris* 80
 - simulans* 81
- Philarius* 69
 - imperialis* 69
- Phyllognathia* 74
 - ceratophthalma* 74
- Physetocarididae 54
- Physetocaris* 54
- Platycaris* 70
 - latirostris* 69
- Plesionika* 84
 - martia* 84
- Plesiopenaeus* 48
 - armatus* 48
 - corruscans* 48
 - edwardsianus* 47
- Podophthalmus* 7
- Polycheles* 96
 - typhlops* 95
- Polychelidae 95
- Pomagnathus* 77
 - corralinus* 77
- Pontocaris* 90
 - lacazei* 90
- Pontonia* 70
 - pinnophylax* 69
- Pontonides* 71
 - unciger* 72
- Pontoniinae 63, 66
- Pontoniopsis* 70
 - comanthi* 69
- Pontophilus* 90
 - bidentatus* 90
- Porcellana* 4
- Portunidae 7, 10
- Potamobiidae 10
- Potimirim* 59
 - mexicana* 58
- Prionocrangon* 86
- Procarididae 52
- Procaris* 52
 - ascensionis* 52, 53

- Processa* 86
 —*canaliculata* 87
 Processidae 54, 86
Projasus 97
 —*parkery* 97
Propontonia 71
Protrachypene 17
 —*precipua* 17
 Psalidopodidae 53
Psalidopus 53
Psathyrocaris 61
 —*infirma* 61
Pseudocoutierea 73
 —*elegans* 73
Pseudopalaemon 65
 —*houvieri* 66
Pterocaris 74
 —*typica* 75
Puerulus 97, 98
 —*angulatus* 99
 —*carinatus* 99
 —*sewelli* 99
 —*velutinus* 98

Racilius 77
 —*compressus* 76
 Reptantia 4, 8, 9, 10, 15, 94
 Rhynchocinetidae 53, 61
Rhynchocinetus 5, 61
 —*typus* 61
Rhynocrangon 90
 —*sharpi* 89
Richardina 91, 93
 —*fredericii* 93
 —*spinicincta* 91, 93

Sabinea 86
 —*hystrix* 87
Salmoneus 77
 —*jarli* 76
Saron 78
 —*marmoratus* 78
Sclerocrangon 90
 —*derjugini* 89
 Scyllaridae 6, 8, 96, 101
 Scyllaridea 10, 11, 95, 96
Scyllarides 102
 —*aequinocialis* 103
 —*astori* 103
 —*brasiliensis* 103
 —*deceptor* 103
 —*delfosi* 103
 —*elisabethae* 104
 —*haani* 103
 —*herklotsi* 103
 —*latus* 103
 —*nodifer* 103
 —*roggeveeni* 104
 —*squamosus* 103
 —*tridacnophaga* 104
Scyllarus 101, 104
 —*aesopius* 107
 —*amabilis* 107
 —*americanus* 106
 —*arctus* 104
 —*aureus* 106
 —*batei* 107
 —*bertholdi* 107
 —*bicuspidatus* 107
 —*brevicornis* 106
 —*caparti* 105
 —*chacei* 105
 —*crenatus* 107
 —*cultrifer* 106
 —*delfini* 106
 —*demani* 106
 —*dubius* 108
 —*gibberosus* 107
 —*lewinsohni* 107
 —*martensi* 107
 —*modestus* 107
 —*nearctus* 106
 —*ornatus* 107
 —*paradoxus* 105
 —*planorbis* 105
 —*posteli* 105, 106
 —*pumilus* 107
 —*pygmaeus* 104
 —*rubens* 107
 —*rugosus* 106
 —*sordidus* 108
 —*subarctus* 105
 —*timidus* 107
 —*vitiensis* 107
 Sergestidae 7, 9, 15
 Sergestinae 16
Sicyonia 49
 —*affinis* 52
 —*alliaffinis* 52
 —*brevirostris* 50, 51
 —*burkenroadi* 50
 —*carinata* 50
 —*disedwardsi* 51
 —*disdorsalis* 52

- disparri* 51
- dorsalis* 50
- edwardsii* 50
- foresti* 52
- gal'ata* 52
- ingentis* 52
- laevigata* 49, 51
- parri* 50
- penicillata* 51
- picta* 52
- stimpsoni* 50
- Sicyoninae 15, 49
- Silentia 11
- Solenocera* 7, 13, 43
 - africana* 43
 - agassizii* 44
 - atlantidis* 44
 - florea* 44
 - geijeskesi* 44
 - membranacea* 43, 44
 - mutator* 44
 - necopina* 44
 - vioscai* 44
- Solenocerinae 15, 43
- Spirantocaris* 79
 - lilljehorgi* 79
- Spongicola* 92, 94
 - andamanica* 94
 - henshawi* 94
 - venusta* 92, 94
- Spongiocoloides* 92, 94
 - evolutus* 94
 - inermis* 92, 94
 - kochleri* 94
 - profundus* 94
- Stegopontonia* 67
 - commensalis* 67
- Stenopodidae 90
- Stenopodidea 3, 8, 10, 11, 15, 90
- Stenopus* 91, 92
 - hispidus* 91, 92
 - scutellatus* 93
 - spinus* 93
 - tenuirostris* 93
- Stereomastis* 96
 - sculpta* 96
- Stridulentia 11
- Stygiocaris* 58
- Stylodactilidae 8, 53
- Stylodactilus* 53
- Sympasiphaea* 60
 - annectens* 6, 60
- Synalpheus* 77
 - brevicarpus* 77
- Synaxidae 96
- Syncaris* 57
 - pasadene* 58
- Systellaspis* 56
 - debilis* 56
- Tanypenaeus* 17
 - caribeus* 17
- Thalassinidea 8
- Thalassocarididae 54
- Thalassocaris* 54
- Thaumastocaris* 68
 - streptopus* 67
- Thaumastocheles* 111, 108
 - japonicus* 111
 - zaleucus* 111
- Thenus* 102
 - orientalis* 102
- Thor* 80
 - paschalis* 81
- Thoralus* 80
 - cranchi* 81
- Thunor* 77
 - rathbunae* 77
- Tozeuma* 82
 - novaezealandiae* 82
- Trachycaris* 82
 - restricta* 79
- Trachypenaopsis* 16, 29
 - mobilispinis* 29
 - richtersii* 29
- Troglocaris 57
 - anophthalmus* 57
- Troglocubanus* 65
 - gibarensis* 65
- Tuleariocaris* 67
- Typhlocaridinae 62
- Typhlocaris* 62
 - typhlatya* 58
 - garciai* 58
- Typhlopatsa* 58
- Typton* 4, 73
 - tortugae* 73
- Veleronia* 72
 - serratifrons* 72
- Vercaia* 87
 - gibbosa* 87
- Vir* 66
 - orientalis* 67

Waldola 71

—*schmitti* 72

Willemoesia 95

Xiphocaris 56

—*elongata* 56

Xiphopenaeus 17, 25

—*kroyeri* 25

—*rivetti* 25