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PROCEEDINGS

OF THE

NEW ENGLAND ZOÖLOGICAL CLUB

SIX NEW SPECIES OF DECAPOD AND STOMATOPOD CRUSTACEA FROM THE GULF OF MEXICO[1]

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Museum of Comparative Zoölogy

THE following species of Crustacea, two caridean prawns, three brachyuran crabs and one mantis shrimp, are based on specimens from three collections made in the Gulf of Mexico during the past few years. The prawns were collected by the author in March, 1938, near Sanibel Island off the west coast of Florida. The three crabs are part of a collection made by Mr. T. J. McGinty off Destin, Florida, in October, 1941, and presented to the Museum of Comparative Zoölogy by Mr. J. R. Miller. Finally, the specimens of the stomatopod were found in a large collection gathered by Sr. Pedro Fuentes in Golfo de Campeche, Yucatan, and sent to the Museum in December, 1941, by Dr. Luis Howell Rivero of the Museo Poey, Havana, Cuba.

This opportunity is taken to thank Mr. McGinty and Sr. Fuentes for their zeal and care in collecting and preserving the specimens and Mr. Miller and Dr. Howell Rivero for allowing me the privilege of studying them. I wish also to express my grateful appreciation to Dr. Louise M. Perry of Sanibel, Florida, for providing unsur-

[1] Published with the aid of a grant from the Museum of Comparative Zoölogy at Harvard College.

passed dredging facilities during my visit to the Gulf coast of Florida and for generously sharing with me her remarkable knowledge of the fauna of that region.

All type material has been deposited in the collections of the Museum of Comparative Zoölogy, with the exception of three paratypes of *Odontodactylus nigricaudatus*, which have been selected for the Museo Poey, Havana, Cuba.

Palaemon floridanus sp. nov.

Plate XXIII

Holotype.—Male, M.C.Z., no. 10,136, from tide pool or sinkhole in back of beach at south end of Captiva Island, Florida, March 28, 1938.

Paratypes.—Five ovigerous females from the same locality and one ovigerous female from around wharf pilings at Blind Pass, Sanibel Island, Florida, March 12, 1938.

Description.—Carapace is armed with prominent branchiostegal and antennal spines and the lower margin of the orbit is produced into a bluntly angular lobe above the base of the antennal spine. Branchiostegal spine arises from margin of carapace or, perhaps, the carapace is indented to the base of the spine. Rostrum armed above with from nine to twelve teeth and below with from five to seven. Usually the first three dorsal teeth are placed behind the orbit, although the third tooth may be directly above the posterior margin of the orbit. The first five or six teeth are movable spines, and there may or may not be an unarmed portion behind the one to three subapical teeth crowded near the tip of the rostrum. There are a few setae in front of the bases of all the teeth except the first two dorsal ones.

Antennules with free part of shorter ramus of outer flagellum varying in length from very slightly greater than that of the fused part up to three fourths again as long. Blade of antennal scale usually very much in advance of outer spine, but in one female paratype it is almost imperceptibly so. The total length of the scale is also variable, ranging from very slightly more to very much less than the length of the carapace.

Abdomen devoid of a carina on any somite. Sixth segment from 1.6 to 1.8 times the length of the preceding. Telson armed with two pairs of dorsal spines, the posterior pair often being asymmetrically disposed, or one of this pair may be absent entirely. Apically, the telson terminates in a median fixed spine flanked by a submedian pair of plumose setae, a pair of very long, strong spines and, at the outer corners, a pair of much shorter blunt spines.

Mandible with a two-jointed palp. The first pair of legs has the carpus nearly one and one third times the length of the chela. The second pair has the carpus 0.75 to 0.9 times the length of the chela, and the palm of the latter from 1.19 to 1.45 times the length of the fingers. The propodus of the third leg is from two and one half to two and four fifths times the length of the dactyl. The fifth leg does not reach much beyond the middle third of the antennal scale.

Measurements.—Length of carapace, minus rostrum, of male holotype 5.2 mm.; length of carapace of smallest ovigerous female 6.7 mm.; of largest ovigerous female 9.0 mm.

Color in life.—Similar to that of *P. affinis;* transparent with narrow diagonal and transverse lines of color.

This species is apparently near *P. affinis* H. Milne Edwards, but a comparison of these specimens with several from Bermuda, identified as *P. affinis*, discloses the following differences. The rostrum in *P. floridanus* is noticeably longer, and armed ventrally with from five to seven teeth, rather than three or four. The palm of the second chela is less that one and one half times the length of the fingers, whereas in *P. affinis* it is much more than one and one half times as long as the fingers. The fifth leg does not reach much beyond the middle third of the antennal scale in *P. floridanus*, while in *P. affinis* it extends beyond the tip of the scale. The propodus of the third leg is less than three times the length of the dactyl, whereas in *P. affinis* it is three or more times as long as that segment. Finally, in the Florida species the second joint of the palp of the mandible is about twice as long as the first joint and strongly curved, rather than about one and two thirds times as long as the first and nearly straight, as in *P. affinis.*

Periclimenes (Periclimenes) perryae sp. nov.

Plate XXIV

Holotype.—Male, M.C.Z., no. 10,140, found on a specimen of the ophiuran, *Astrophyton muricatum* (Lamarck), dredged in five and one half fathoms off Sanibel Island, Florida, March 14, 1938.

Description.—Carapace short and robust, but not markedly depressed, with prominent antennal and hepatic spines placed nearly in line with one another. Rostrum deep, down-curved, and buttressed in its basal half by a strong lateral carina. It is armed dorsally with seven prominent teeth, and ventrally with two less prominent ones; there are setae anterior to all of the teeth.

Antennular peduncle with basal segment armed distally with two well-marked spines in addition to the usual lateral one. Outer antennular flagellum fused for the first four segments, and the shorter ramus of the unfused portion somewhat shorter than the fused part. The remaining two free flagella are short, not more than twice the length of the peduncle. Both the antennular peduncle and the well-developed antennal scale reach scarcely as far as the tip of the rostrum. The blade of the scale is broad and far outreaches the outer spine.

Abdomen broadly rounded and unarmed, the margins of all of the pleura rounded. The sixth somite is 1.42 times the length of the fifth, and the telson, including the terminal spines, is 1.53 times the length of the sixth somite. Telson armed with two pairs of dorsal spines placed almost on the lateral margins, and three pairs of terminal spines, of which the intermediate pair is the longest.

Mandible without palp, but all three pairs of maxillipeds are provided with exopods. First pair of legs with carpus distinctly longer than merus or chela, which are subequal. Second pair of legs very unequal. The left, or larger, one has the carpus nearly as wide as long and a little more than one fifth as long as the chela. There is no spine on the merus. The chela is not quite four and one half times as long as wide, and the palm is more than four times as long as the fingers. The dactyl shows a pronounced twist, and is produced into a broad, laminate crest on the outer margin; the inner margin has two prominent teeth which alternate with two similar teeth on the fixed finger. The smaller, or right, second leg has the chela 2.6 times as long as the carpus, and the palm about two and one half times the length of the fingers. Third, fourth and fifth legs similar in form and subequal in length. The merus

is unarmed. The propodus is about five and one half times the length of the dactyl, which is strongly curved and bears an almost inconspicuous, apparently movable, spinule behind the tip.

Measurements.—The unique specimen is about 11 mm. long, of which the carapace measures 1.9 mm. and the carapace plus the rostrum 3.7 mm.

This species is readily distinguished from all western Atlantic pontoniids having a robust body and markedly asymmetrical second legs by the ventral teeth on the rostrum and the two spines at the end of the basal antennular segment. The dactyls of the ambulatory legs resemble those of *P.* (*P.*) *rex* Kemp from the Andaman Islands, but the armature of the rostrum and the presence of two spines on the basal antennular segment easily distinguish the present species. Although bearing a slight resemblance to *P.* (*P.*) *lanipes* Kemp from the Mergui Archipelago, *P.* (*P.*) *perryae* lacks the broad, hairy propodi of the last three legs and has the second chela differently formed. From *P.* (*Ancylocaris*) *brocketti* Borradaile from the Maldives, which has two spines on the basal antennular segment, it is separated by the form of the second legs.

The species is named for Dr. Louise M. Perry of Sanibel, Florida, who has added much to our knowledge of the invertebrate fauna of West Florida, and without whose gracious assistance the present specimen could not have been procured.

Medaeus latifrons sp. nov.

Plate XXV

Holotype.—Male, M.C.Z., no. 11,993, collected eight miles east of Destin, Florida, in 14 fathoms, October, 1941, by T. J. McGinty; presented by J. R. Miller.

Paratype.—Ovigerous female collected south by west of Destin, Florida, in 18 to 20 fathoms.

Description.—Carapace with a few scattered hairs, grossly areolated, especially anteriorly; the raised lobules are prominently tuberculate, the furrows smooth. Front broad and nearly transverse, slightly more advanced in the middle where the two lobes are obscurely divided by a short, narrow fissure. Orbits with two faint dorsal fissures and a third below the outer angle; infero-internal angle more advanced than basal segment of antenna and visible from above. Antero-lateral border cut into four triangular teeth, of which the third is most outstanding; just anterior to and below the first tooth is a subhepatic lobule similar in size and form to the first tooth and partly visible in dorsal view. Pterygostomian regions granulate or tuberculate and sparsely hairy. Outer maxillipeds with a few granules and a few scattered hairs on the merus. Sternum largely smooth and sparsely hairy.

Chelipeds robust and unequal; arm tuberculate on the outer surface, becoming faintly so below, and armed with a row of unequal spines on the superior crest, the most distal spine being the most prominent; wrist surmounted by strong tuberculate lobules, and armed with two teeth at the inner angle; hands decorated above with two longitudinal rows of tuberculous nodules separated by a median furrow and provided on the upper three fourths of the outer surface of the major chela and the entire outer surface of the minor chela with unequal tubercles, the larger of which tend to form longitudinal rows; fingers deeply channeled, those of the minor chela slender and nearly meeting throughout their length when closed, those of the major chela much more robust and with larger teeth on the opposable edges and meeting only at the tips. Ambulatory legs rather hairy, with spines or enlarged sharp tubercles on the upper margins of the meral, carpal and propodal joints; dactyls, except for the corneous tips, nearly hidden by a covering of long and short hairs and with a blunt tooth on the lower margin just behind the tip.

Male abdomen with third to fifth segments fused and with the first few segments sparsely hairy but not granulate.

Measurements.—Length of carapace of male holotype 6.1; breadth 9.8, fronto-orbital width 5.9, front 3.0 mm.; length of carapace of ovigerous female paratype 4.6, breadth 6.9 mm.

Of the three known American species of Medaeus this species shows the greatest similarity to *M. spinimanus* (H. Milne Edwards) from the Bahamas and West Indies, but it can be readily distinguished from that form by the less prominent and proportionately broader front, the fronto-

orbital width being nearer two thirds than one half the breadth of the carapace, and by the very unequal chelipeds and the absence of a dentate crest on the upper margin of the hand. Except for its smaller size, which tends to make it appear like a Micropanope, the female agrees in all essential characters with the male holotype.

Parthenope (Platylambrus) punctata sp. nov.

Plate XXVI

Holotype.—Male, M.C.Z., no. 11,999, collected eight miles east of Destin, Florida, in 14 fathoms, October, 1941, by T. J. McGinty; presented by J. R. Miller.

Description.—Carapace depressed, only slightly broader than long. Antero-lateral margin of branchial region forming an obtuse angle at the third tooth, and separated from the postero-lateral margin by a large triangular, outwardly pointing and slightly upcurved spine. Median ridge ornamented with granulated tubercules, one on the gastric region at the base of the V-shaped ridge and three posterior to that, the most prominent being the median one on the cardiac region which is surmounted by several smaller unequal tubercules. Branchial ridge with an enlarged tubercle at the posterior end and a lower one slightly behind the middle of the ridge. Between the median and the branchial ridges is a single enlarged tubercle and a smaller one in line with it on the postero-lateral border. Posterior margin convex and bearing three prominent tubercles, one of which is median. Rostrum prominent, strongly concave and subtriangular, but with an obtuse lobe on either side near the base. Dorsal surface, aside from the elevations mentioned above, largely smooth and punctate, except for the lateral slopes of the branchial regions outside of the branchial ridges, which are finely and inconspicuously granular. Seven or eight rounded, denticulate teeth on the branchial margin in front of the lateral tooth. Pterygostomian and subhepatic regions excavate, forming covered afferent passages when the chelipeds are retracted.

Chelipeds about twice as long as carapace, lower face fairly convex, smooth and punctate; nine or ten teeth on outer margin of hand, the larger ones blunt-tipped, the smaller ones rounded; 15 or 16 teeth on inner margin are much smaller; upper surfaces of

chelipeds largely punctate, but with a few granulate tubercles on the hand and a prominent median row on the arm; the right hand of the holotype is somewhat larger than the left, and the dorsal surface between the rows of marginal teeth is slightly convex rather than flat or faintly concave as on the left hand. Ambulatory legs largely smooth, but the last two pairs show a few small marginal tubercles.

Abdomen of male with segments three to five fused, sixth segment with a low median tubercle. Sternum granulate.

Measurements.—Length of carapace 8.0, breadth of same 8.8, length of normally extended cheliped 15.8 mm.

Of the previously known American species of the subgenus Platylambrus, this species shows the closest affinity to *P.* (*P.*) *serrata* (H. Milne Edwards), which is widely distributed in the tropical and subtropical region of the western Atlantic. This is due to the depressed carapace, the absence of a strong tooth or spine at the end of the main branchial ridge, and the form and armature of the chelipeds. It can be distinguished from that species at a glance, however, by the narrower and less depressed carapace, the proportionately shorter chelipeds armed with blunt, rather than sharp-pointed teeth, and by the fact that the depressed areas of the dorsal surface of the carapace are largely smooth and punctate rather than rough with irregular granules as in *P.* (*P.*) *serrata*. This latter feature is suggestive of the form of the carapace in *Tutankhamen cristatipes* (A. Milne Edwards), but, of course, the resemblance is wholly superficial.

Libinia cavirostris sp. nov.

Plate XXVII

Holotype.—Immature male, M.C.Z., no. 12,039, collected 18 miles south by west of Destin, Florida, in 18 to 20 fathoms, October, 1941, by T. J. McGinty; presented by J. R. Miller.

Paratype.—A second immature male from the same locality.

Description.—Entire body and appendages covered with a dense pubescence of scale-like setae, with a few clusters of hooked hairs. Median spines six, of which two are gastric, one genital, two cardiac and one intestinal. Lateral marginal spines six on each side, with one of the two pterygostomian spines also visible from above. In addition, there is a single pair of widely spaced small gastric spines in front of the most anterior of the median series, a large spine on the branchial region above the third marginal spine, a similar spine on the inner branchial region between this last and the genital spine, two smaller spines in back of and on a diagonal line with the inner branchial spine, and, finally, paralleling the latter in the branchio-cardiac furrow, are two small spinules. Rostrum ascending and deeply channeled beneath, to form, with the setose antennal peduncles, an effective expiratory channel. Interorbital space somewhat excavate in the mid-line. Preocular and postocular spines prominent. Orbital sinuses open, the ventral one widely so. Basal antennal segment with a strong distal spine visible from above and two smaller spines below the orbit.

Merus of chelipeds with an upright spine near proximal end, a much stronger distal one and a tubercle behind the latter. Ambulatory legs with a proximal distal spine on the merus; this spine decreases in length from the first to the fourth pair, as do the lengths of the legs, themselves.

Abdomen with median spines on the first and second segments, that on the first being visible from above.

Measurements.—Holotype, median length 20.8, width, not including spines, 14.1 mm.; paratype, length 19.8, width 12.9 mm.

Although both of these specimens are immature, they differ so markedly from all known Atlantic species of the genus that they are described in the hope that the knowledge of the existence of such a species will ultimately lead to the discovery of adults. The ascending and ventrally concave form of the rostrum immediately separates the species from all other Atlantic forms and indicates a relationship to *L. setosa* Lockington from the west coast of *Baja California*. It may be easily distinguished from that species, however, by the strong spine on the postocular lobe and the upright terminal spines on the meri of the chelipeds and ambulatory legs, as well as by the spine near the proximal end of the merus of the chelipeds.

Odontodactylus nigricaudatus sp. nov.

Plate XXVIII

Holotype.—Male, M.C.Z., no. 12,087, collected in Golfo de Campeche, Yucatan, by Pedro Fuentes; presented by Dr. Luis Howell Rivero.

Paratypes.—Three males and five females from the same locality.

Description.—Carapace somewhat narrower and more broadly rounded anteriorly than posteriorly. Rostrum about one and three fourths times as broad as long, widest in front of base and broadly rounded apically.

Eyestalks short and broad. Greatest breadth of cornea contained between three and four times in the length of the carapace. Antennal scale large, about five sixths as long as carapace and about two and one half times as long as broad.

Dactyl of raptorial claw rather abruptly swollen in basal half and armed on its inner margin with seven, rarely eight, more or less subequal teeth.

Last four thoracic somites exposed in dorsal view.

Abdominal somites largely smooth but with traces of two lateral carinae or blunt ridges on all but the first; these ridges are scarcely discernible on the second somite, and, although they become more apparent posteriorly, they are not sharply defined even on the fifth somite. Sixth somite with a complete complement of four pairs of longitudinal carinae and a fifth pair of short carinae or elongate tubercles between the second intermediate and the lateral pairs. The submedian and lateral carinae terminate in spines which overhang the telson, while the second intermediate ends in an acute tooth or spine which does not reach the posterior margin of the somite. The first intermediate carina on each side is joined anteriorly to the adjacent submedian carina to form an inverted U; the submedian carinae are less distinctly joined together in the same manner.

Telson with median crest more or less broadly rounded, smoothly arched in lateral view except for an obscure notch near the anterior end and armed with a subterminal spine posteriorly. In males this crest is much broader and more prominent and the terminal tooth or spine is much less conspicuous than in females. Submedian carinae well marked and obscurely joined posteriorly below the end of the median crest. Although there are no apparent second submedian carinae, the vestige of their juncture may be clearly seen behind and below that of the submedian pair. Inter-

mediate carina not continuous with the one running to the apex of the submedian spine. First lateral carina represented only by its posterior portion which runs to tip of intermediate spine. Second lateral carina runs rather obliquely toward lateral spine, but very nearly disappears before joining the marginal carina at that point. The latter is forked in its anterior portion, the inner branch running sharply inward toward the mid-line. In addition to the carinae discussed above, there is a short and inconspicuous carina on each side running to the inner of the two intermediate marginal denticles. The margins of the telson are armed with the usual three pairs of principal spines, two pairs of intermediate denticles and one pair of lateral denticles. The submedian spines and all of the denticles are armed with movable spines or spinules. There are usually about nine, rarely as many as fifteen, pairs of almost microscopic submedian spinules. The ventral surface of the telson is smooth.

Ventral process of uropods with two blunt keels on under surface and ending in two unequal spines, the outer and longer one of which does not extend quite to the end of the endopod. Proximal segment of exopod provided with from nine to eleven movable spines, the distal one of which does not reach nearly to the end of the distal segment of that appendage. The distal segment is subequal in length to the proximal one.

Measurements.—Total length of male holotype in median line from tip of rostrum 75 mm. Male paratypes range in length from 65 to 76, and females from 50 to 65 mm.

Color in alcohol.—Light greenish with darker markings on the carapace, raptorial claws, and dorsal surface of exposed thoracic and first five abdominal somites. Extreme lateral portions of first five abdominal somites with much darker markings. Uropodal spines, proximal segment of exopod and central portion of endopod conspicuously dark brown or nearly black.

The species of Odontodactylus are largely confined to the Indo-Pacific region, only one, *O. havanensis* Bigelow,[1] having been previously found in the Atlantic. The specimen on which that species was based was obviously so very young that it is barely possible that the present series represents the adult form of the species. When the several important differences between the two are noted, however, it seems unlikely that all could be explained by growth

[1]Bigelow, 1894, Proc. U. S. Nat. Mus., vol. 17, no. 1017, p. 497, text figs. 1, 2, pl. 20.

changes. In Bigelow's species only three thoracic somites are exposed to dorsal view behind the carapace, whereas in *O. nigricaudatus* four are uncovered. The width of the cornea of the eyes is contained much less than three times in the length of the carapace in *O. havanensis*, while in *O. nigricaudatus* the carapace is between three and four times as long as the cornea is wide. The dactyl of the raptorial claw of *O. havanensis* is armed with six teeth in addition to the terminal one, whereas there are seven or eight in *O. nigricaudatus*. Perhaps the most distinctive character is the presence of only five carinae on the telson of *O. havanensis* rather than nine as in *O. nigricaudatus*. Finally, in *O. havanensis* the distal segment of the exopod of the uropods is only two thirds as long as the proximal one, whereas these two segments are of subequal length in the present species.

Lunz[1] has reported the presence of what he believed to be an adult male and female of *O. havanensis* at Key West and the Dry Tortugas, Florida. These specimens, which I have not seen, are said to differ from that species by having seven rather than six teeth on the dactyl of the raptorial claw and by having a distinct spine on the ventral surface at the articulation of the uropods. These differences, together with the fact that Lunz's specimens came from shallow water whereas the type of *O. havanensis* was taken in 163 fathoms, suggest the possibility that the Florida specimens may not be the true *O. havanensis*. On the other hand, neither do they agree with *O. nigricaudatus*, for Lunz reports that they have a distinct ventral spine at the uropodal articulation, only three exposed thoracic somites and no second lateral carina on the telson. Without reexamination of the three specimens previously taken in the Atlantic, and probably also without additional data on the degree of differentiation to be expected in the various growth stages of the species of Odontodactylus, it is

[1]Lunz, 1937, Bull. Bingham Oceanogr. Coll., vol. 5, art. 5, p. 5, text fig. 2.

difficult to determine whether we are dealing with one, two or three Atlantic forms.

Actually *O. nigricaudatus* appears to be most closely related to one of the Indo-Pacific species, *O. hansenii* (Pocock), with which Hansen[1] synonymizes *O. latirostris* Borradaile and *O. southwelli* Kemp. The specimens from Golfo de Campeche differ from that species only in the smaller size of the cornea of the eyes, in the facts that the intermediate carinae of the telson are not continuous with the carinae running to the tips of the submedian teeth, that the second lateral carina turns toward and obscurely joins the marginal carina rather than running parallel to the margin for its entire length, and that the terminal segment of the uropod is somewhat longer proportionately than in the Indo-Pacific species.

Explanation of Plates

Plate XXIII

Palaemon floridanus. A. Male holotype. B. Antennule of female paratype. C. Antennal scale of same specimen. D. Telson and uropods of same. E. Mandible of same. F. First maxilla of same. G. Second maxilla of same. H. First maxilliped of same. I. Second maxilliped of same. J. Third maxilliped of same.

Plate XXIV

Periclimenes (Periclimenes) perryae. A. Lateral view of carapace and rostrum. B. Antennule. C. Antennal scale. D. Telson and uropods. E. Mandible. F. First maxilla. G. Second maxilla. H. First maxilliped. I. Second maxilliped. J. Third maxilliped. K. Right leg of first pair. L. Left leg of second pair. M. Right leg of second pair. N. Ambulatory leg. O. Dactyl of same, more highly magnified.

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[1] Hansen, 1926, Siboga-Exped., livr. 54, monogr. 35, p. 23.

Plate XXV

Medaeus latifrons. A. Male holotype. B. Outer face of major chela of same. C. Outer maxilliped from right side of same. D. Posterior view of first abdominal appendage from right side of same. E. Tip of same appendage, more highly magnified.

Plate XXVI

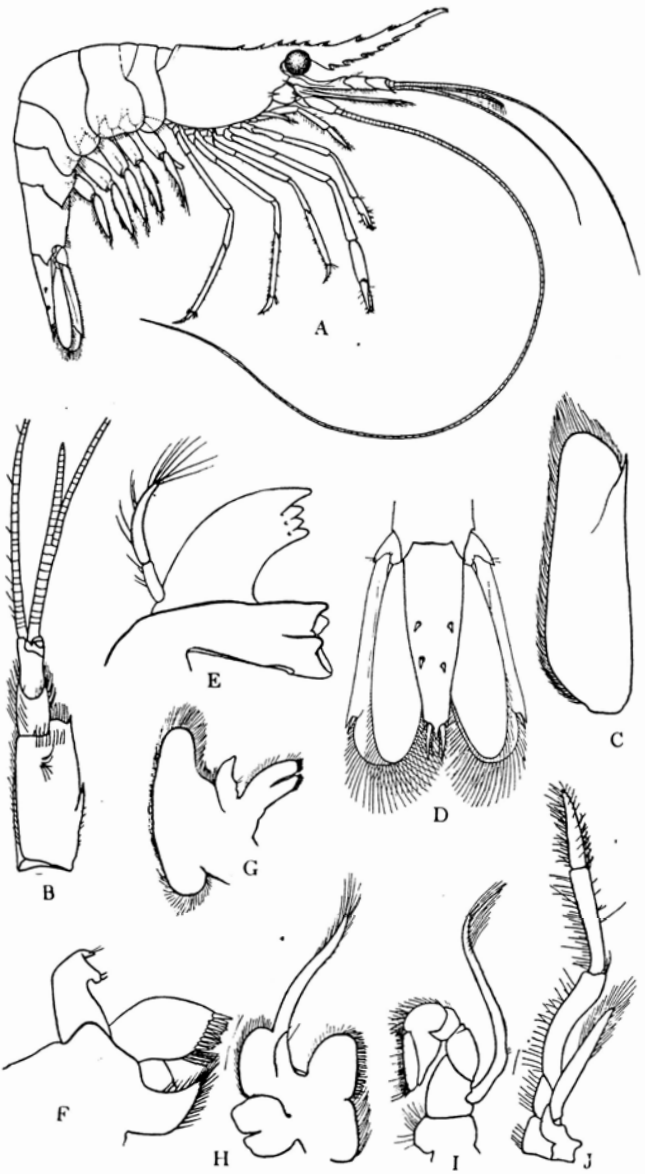
Parthenope (Platylambrus) punctata. A. Male holotype. B. Ventral view of fronto-orbital region. C. Outer maxilliped from right side. D. Abdomen. E. Posterior view of first abdominal appendage from right side.

Plate XXVII

Libinia cavirostris. A. Immature male holotype with right half denuded. B. Lateral view of denuded carapace. C. Ventral view of fronto-orbital region with left half denuded. D. Right outer maxilliped. E. Right cheliped (denuded). F. Right first ambulatory leg (denuded).

Plate XXVIII

Odontodactylus nigricaudatus. Holotype.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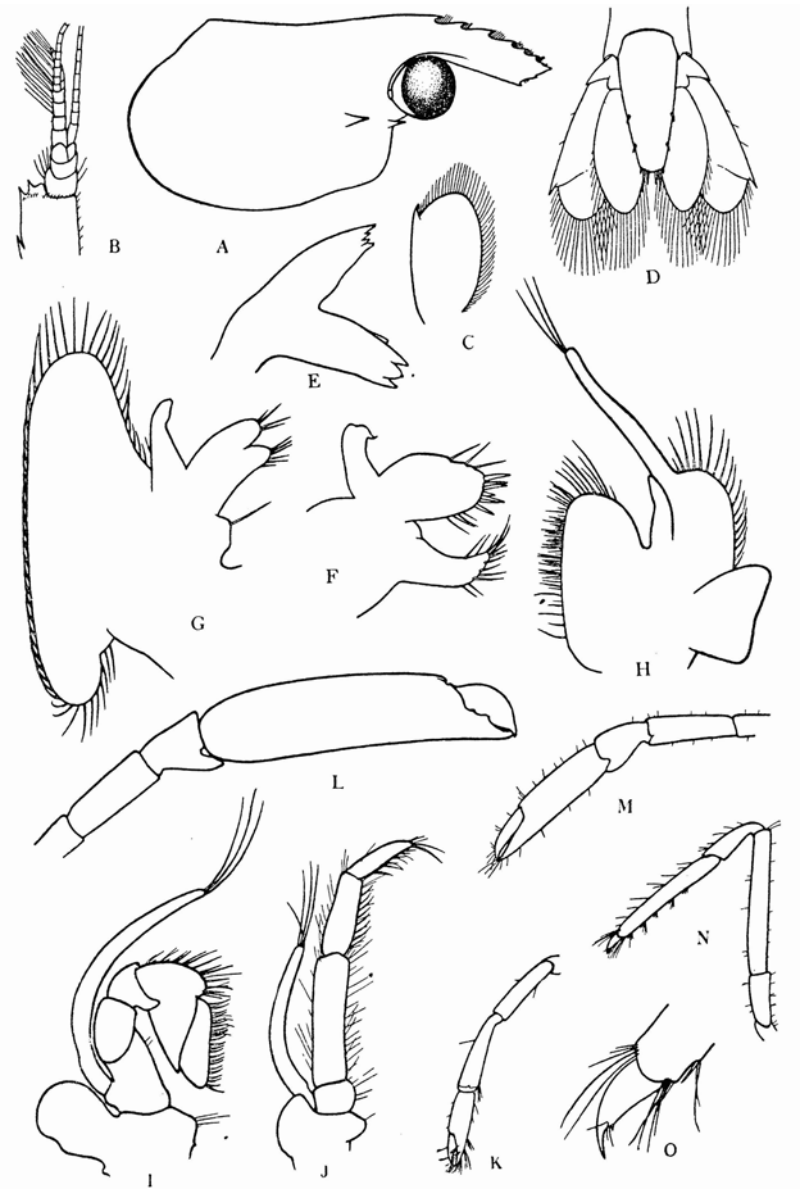
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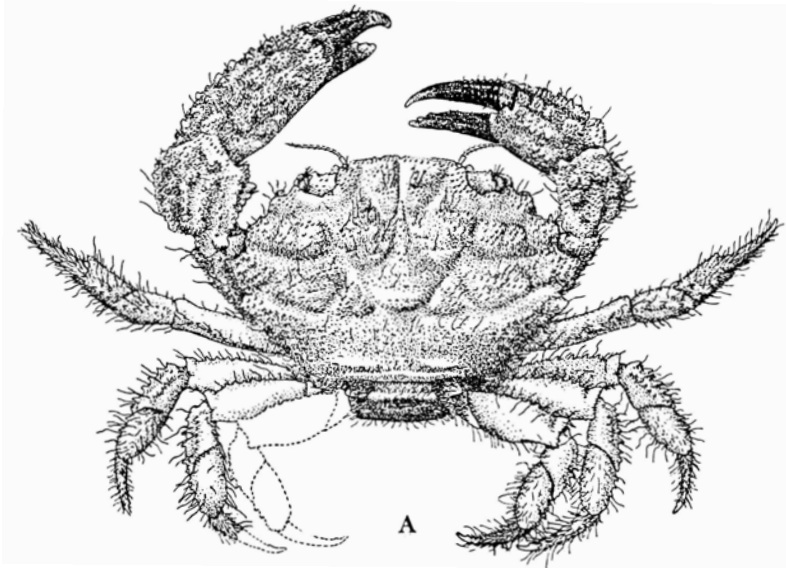

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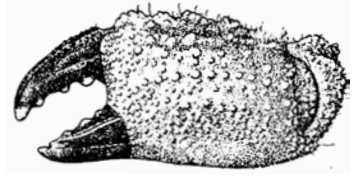

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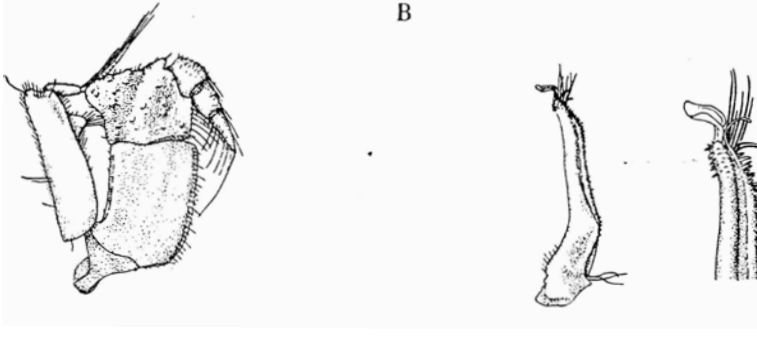

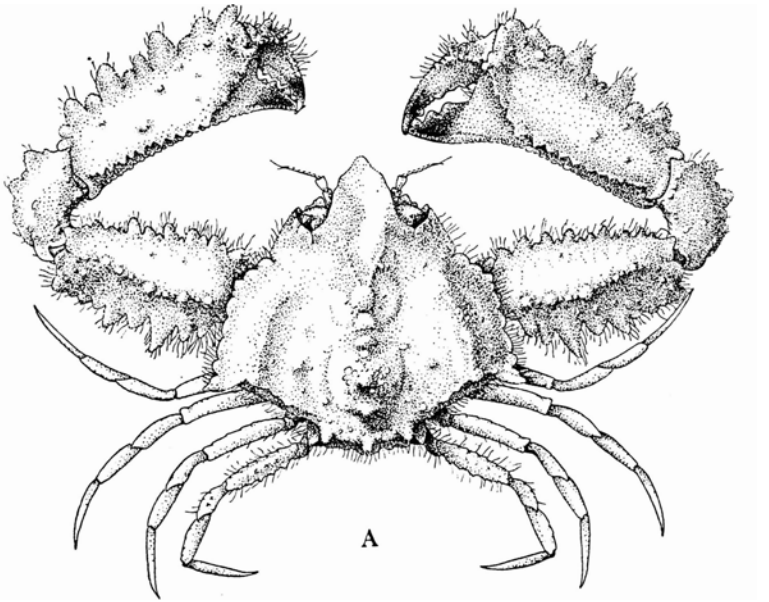

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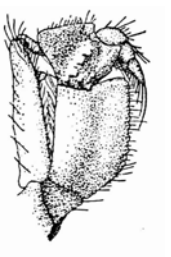

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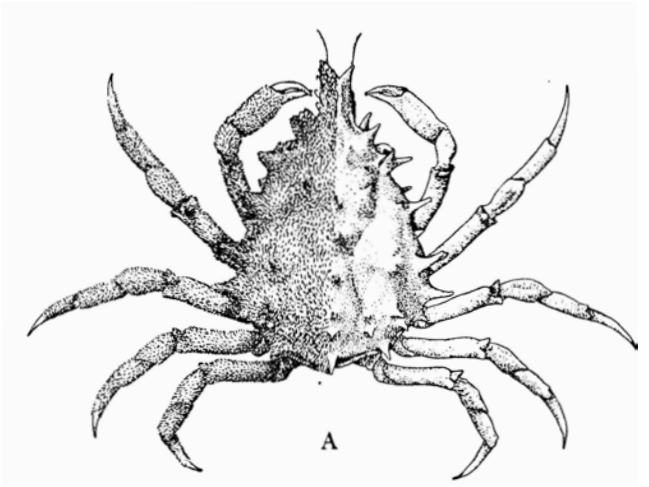
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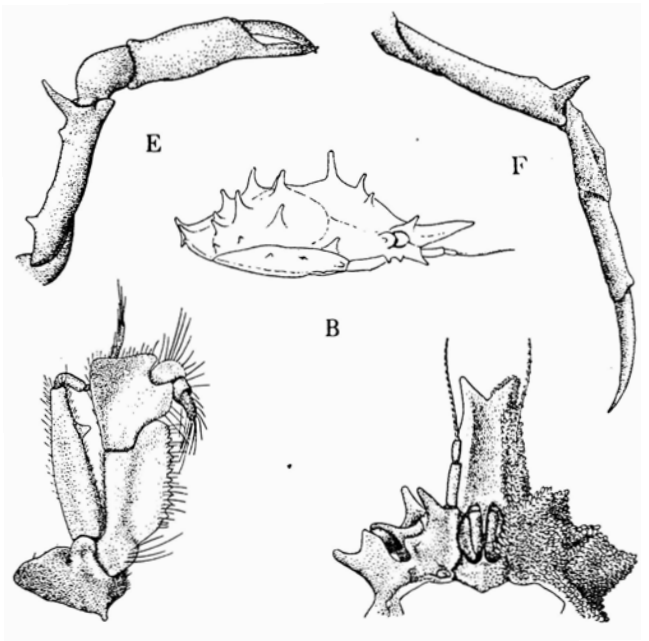
E
F
B