

TRANSACTIONS AND PROCEEDINGS

AND

REPORT

OF THE

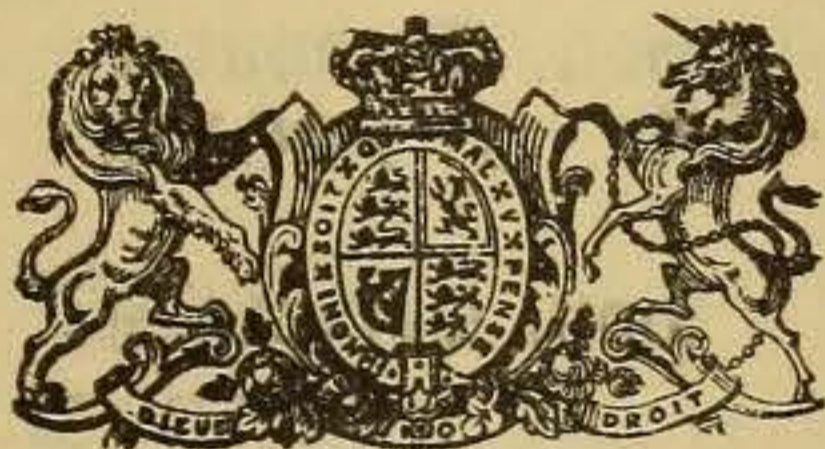
ROYAL SOCIETY of SOUTH AUSTRALIA

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[WITH FORTY-SIX PLATES AND FOUR FIGURES IN THE TEXT.]

EDITED BY WALTER HOWCHIN, F.G.S



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NOTES ON SOME SPECIES OF THE ISOPOD FAMILY
SPHÆROMIDÆ FROM THE SOUTH AUSTRALIAN
COAST.

By W. H. BAKER, F.L.S.

PART II.

[Read September 6, 1910.]

PLATES XXI. TO XXIV.

In my notes on this family of Isopods published in these Transactions for 1908, I included what appeared to be a form of *Cymodoce tuberculosa*, Stebbing, showing that while my specimens agreed largely with the original species, yet they were different chiefly in that the male had two processes on the anterior portion of the abdomen; these I regarded as sexual the innermost and outermost being small. The antero-lateral developments are not shown in younger males. Since then I have examined a colony of *C. tuberculosa*, which were found in a sponge, and in that there were males, certainly mature and of uniform size, bearing no indications of processes; also mature females and immature specimens; these I have figured in this paper.

With regard to the first-mentioned, I now endeavour to show them as a distinct variety or sub-species, and add figures and notes of a probable female and a rather more doubtful immature male and female.

Respecting the mature female of *C. tuberculosa*, it will, from an examination of the figures, be surmised that at no stage of its existence does it possess a notch on the posterior margin of the abdomen. I do not think sufficient distinction has been made in descriptions between the longitudinal channel referred to by Dr. Hansen and the notch, which are quite different structures. In all the examples under *C. tuberculosa* and varieties here given a channel is present and its exit open, except in the case of the immature male of *C. tuberculosa*, where it shallows away not reaching the margin, thus leaving it without insinuation of any kind, either in the vertical or horizontal direction, yet even here may be seen by a transparency of the integument the promise of a future notch. In the supposed mature female of the larger variety the true notch is faintly represented by two shallow insinuations of the margin.

In all the specimens included under this species and varieties the palps of the maxillipeds—except, of course, in modi-

fied females—are of the same curious structure, the lobes are long and, especially the last, carry dense brushes of setæ.

From observations of the three species—namely *Zuzara*, *Isocladus*, and *Exosphæroma*—included in this and other papers, I agree with Dr. Hansen as to their close relationship and the necessity of uniting them. As there are no longitudinal channels for the passage of currents of water beneath in these three species, the same can evidently be provided for by the large uropoda set in oblique direction.

In my opinion *Cycloidura venosa*, Stebbing, and *Zuzara integra*, Haswell, are the same species, and I have treated them as such.

The descriptions always refer to the male except when otherwise stated.

Family SPHÆROMIDÆ.

Subfamily SPHÆROMINÆ, Hansen.

Group HEMIBRANCHIATÆ, Hansen.

Genus *Cymodoce*, Leach.

Cymodoce tuberculosa, Stebbing. Pl. xxi., figs. 1 to 20.

Cymodoce tuberculosa, Stebbing, Ann. and Mag. Nat. Hist., ser. 4, vol. xii., 1873, p. 95.

Cymodoce tuberculosa, Whitelegge, "Thetis," Scientific Results, p. 258.

The body, except the head and first thoracic segment, is covered with granules, which become spiniform and arrange themselves in two transverse rows with smaller granules between on each thoracic segment; small stiff hairs are scattered amongst the granules, and are fairly plentiful.

The forehead, which is gradually declivous anteriorly, is slightly excavate in the transverse direction, and higher up a faint rounded projection can be detected.

The eyes are large and scarcely project.

Indications of two depressed and coalesced rostral teeth are present, while the two epistomial teeth are large and recurved, like those of the basal antennular joint, projecting further than these. The antennular teeth are six in number, the innermost and outermost being small.

The antero-lateral angle of the first thoracic segment is produced somewhat, truncated at the tip, and the groove of the head in which it works is deep; the posterior angle is less produced. The three following epimera are obtusely pointed, the first and second of these slightly produced behind; the following three are rounded, the last more so, and it does not reach the level of the ones which precede it.

The posterior portion of the abdomen is somewhat excavated at the origin of the uropods. The posterior margin has a small notch on each side above the median notch. The median notch is deeply cut, widens inwardly, the median process is raised, and does not nearly reach the level of the sides.

The outer branch of the first maxilla has the outermost distal spines compacted together, thus forming an apparent 5-dentate plate; the next spine below this is 3-branched, while between these are slenderer setæ. The inner branch has four plumose setæ.

The two outer lobes of the second maxilla are setose and obliquely truncated.

The legs are robust and spinulate on the usual joints. The spines are usually long, and some are barbed or pectinate.

The uropods are very granulate to spiniform, especially underneath; the terminal spine on the inner ramus is recurved, and there are two well-developed spines at its base underneath. The external ramus is much shorter and deeply bifid, with its wider surface presented outwards.

The sternal filaments are short and stout.

The mature female has the body loaded with young, and the mouth parts are modified.

The body is smooth and slightly setose.

The basal joints of the antennules have a faint slightly-lobed crest, but there are no projecting, rostral, or epistomial teeth.

The posterior margin of the abdomen is turned up, showing a wide shallow insinuation in place of a longitudinal channel.

The uropods are reduced.

The marsupial plates overlap.

In the immature male the body is shorter and broader, smooth, very sparingly setose.

The upper angles and sides of the face anterior to the eyes are very distinct.

The posterior angle of the first thoracic segment seen from below is broadly truncated, the truncation with a slight insinuation.

The second, third, and fourth thoracic epimera are rather narrowly pointed.

The posterior margin of the abdomen is arcuate and quite entire, the longitudinal channel shallowing away completely at its exit.

The uropods are a little roughened on the margins, the inner ramus acuminate and laminate with a slight groove on the inner margin, the outer margin more distinctly grooved

to hold and partially cover the external ramus. The external ramus is shorter than the inner and bifid at the end.

Budding sternal filaments are present, but there is no *appendix masculina*.

The colour is light-brown with black pigment, which in some specimens is coarse and striped with a wider median stripe; other specimens have more dendridic spots, in some parts there being a bluish tinge—spirit specimens. Females with young have a bleached appearance, with small black spots not very numerous. The adult males are somewhat between these two as to colour. The adult males vary a little in size among themselves, while the females are a little larger.

The young ready to quit the parent have the end of the abdomen pointed like that of the immature male of the next variety.

***Cymodoce tuberculosa*, n. var. *bispinosa*.** Pl. xxi.,
figs. 21 to 23; Pl. xxii., figs. 1 to 7.

Cymodoce tuberculosa, Baker, Trans. Roy. Soc., S. Aus., vol. xxxii., 1908, p. 140, pl. iii.

Besides the two processes on the anterior portion of the pleon, the following differences may be noted:—

The body is rather less granulated.

The posterior portion of the abdomen is not so excavated at the bases of the uropods, and there is a small conical tubercle beneath each process of the anterior portion.

The notch of the posterior border is much more open, and the excavation is not so broad at its base, and the median process is not so much raised, and just reaches the level of the sides. The more external notches noted in *C. tuberculosa* are seen below only as small tubercles, scarcely reaching the margin.

The epistome has the two tubercles much reduced, while the rostral pair are quite prominent.

The antennular teeth are 5-6 in number.

The sternal filaments are long and slender.

The difference in size also is considerable.

The specimen regarded as the mature female has the body comparatively smooth and the hairs scanty, except that on the segments corresponding with the male there are transverse rows of very minute granules arranged in two lines as the spines of the male.

The epimera of the thoracic segments are like those of the male, and like it there is a faint rounded tubercle on the forehead.

There are no indications of processes on the anterior portion of the abdomen; the abdomen itself is minutely granulate, and close to the posterior margin the surface is flattened or slightly turned up. The exit to the moderately deep longitudinal channel is open, and two faint insinuations of the margin are all that there is of a notch.

The uropods are reduced, scarcely compressed, and slightly rough; each inner ramus is tipped with a small tooth, and the outer rami, which are shorter, are slightly bifid.

The outer surface of the basal antennular joint bears a row of small spinulate granules; but there are no teeth, nor are there rostral or epistomial teeth.

The mouth parts are modified, but not strikingly so; the palps of the maxillipeds bear long lobes, but they are destitute of setæ.

The epistome is rounded and rather swollen anteriorly, and is setose.

The legs are slightly less robust than in the male.

A supposed immature male of this variety resembles much that of *C. tuberculosa*—except again in size. The body is rather more elongate, and apparently budding processes are to be found on the anterior portion of the abdomen.

There are no indications of rostral, antennular, or epistomial teeth.

The uropods are laminate and rather abruptly acuminate.

The posterior portion of the abdomen is very obtusely pointed, with the exit of the channel almost vanishing.

The epimera of the second, third, and fourth thoracic segments are more narrowly pointed.

The posterior angles of the thoracic segment are similarly truncated, as in *C. tuberculosa*.

Budding sternal filaments are present, but there is no *appendix masculina*.

In the collection there is one immature female similar to this.

I have figured an immature male, which I think should be placed here (plate xxxii., figs. 3, 6, and 7), with a slightly different abdomen and with epistome more like that of the mature female recorded above; this one, it will be seen, has a more pointed abdomen with commencing processes on the anterior portion, with small tubercles near them; the channel also is similar to the mature female, except that the insinuations of the margin are not present. The sternal filaments are moderately long.

There are three immature females in the collection closely resembling this, except having no protuberances on the anterior portion of the abdomen.

Measurement of these four, about 8 mm. long by 5 mm. wide.

Measurement of *C. tuberculosa*, 5 mm. by $2\frac{1}{2}$ mm.

Measurement of *C. tuberculosa*, var. *bispinosa*, 7 mm. by $3\frac{1}{2}$ mm.

All specimens are from South Australian coast.

Cymodoce septemdentata, n. sp. Pl. xxii, figs. 8 to 17.

The body is rather narrow, very convex, with the sides nearly straight. The head is rounded, very abruptly declivous anteriorly, and its surface a little roughened. The eyes are prominent.

The first thoracic segment is a little longer than any of those which follow, and the last three are each provided with a row of tubercles on their posterior borders; these become more numerous and spiniform on the last. The epimeral plates of all the thoracic segments except the last are truncated behind and are vertical in direction.

The abdomen is covered with large tubercles, the posterior portion descending abruptly behind to near the margin, which is slightly produced, while its upper surface has a median shallow depression. On the inferior view the abdomen shows a narrow V-shape, being produced to a triangular point at the exit of the channel, which is moderately deep; on each side of the median one there are three other small projections or teeth, thus showing six small notches on the posterior border.

The surface of the basal joints of the antennules are on the same level as the surface of the head, the rostrum meeting the epistome in a broadly truncate manner. The epistome is small, the upper lip long.

The first antennular joint is not produced distally at either angle, the third joint is about twice as long as the second, the flagellum is shorter than the peduncle, and has 8 joints.

The antenna is slightly shorter than the antennule, and its very short flagellum has only 5 or 6 joints.

The mandibles are strong and project much.

The legs are robust, with rather short dactyli, except for a longish nail, and they are without the furry pads noticed in other species.

The first pleopods have the inner ramus short, about as broad at its base as its length; the inner margin with short

fine hairs, the outer margin slightly insinuate; the outer ramus longer than the inner, showing areolate structure. The second pleopods have the appendix longer than the lamina of the inner ramus. The inner ramus of the third pleopods is opaque and distally truncated; the outer ramus with a division rather distant from the end, terminating in a small notch on the inner margin. The outer ramus of the fifth pleopods is narrow, with a distal thickening obscurely three-lobed, with a small lobe, perhaps double, on the inner margin just below. The division is indistinct.

The uropods project obliquely downwards, the external ramus is sublaminar, bifid at the extremity, the outer margin cut with four teeth, the inner with one. The inner ramus also is bifid and much reduced.

Integument hard.

The female is unknown.

Gulf St. Vincent. One specimen.

Cilicæa tridens, n. sp. Pl. xxiii., figs. 1 to 12.

The body is very convex, with nearly parallel sides, slightly setose, and nodular to rugged on the abdomen.

The head is nearly vertical anteriorly, and very nodular; some of the tubercles inclined to be spiniform. There is a much-thickened anterior border projecting, and there is a median rounded tubercle just above the rostral process and a thickening above each antennule. The rostral process is truncated, and does not project. Looked at from below the epistome recedes towards the rostrum anteriorly, and at the angle where it meets the apex of the labrum it slightly projects.

The eyes are rounded and prominent.

The first segment of the thorax is also nodular; its posterior lateral angle is truncated and little produced backwards. Each of the remaining thoracic segments bears a row of strong spines on its posterior margin, especially the seventh. The epimera have each a nodule, and they are vertical in direction; those of the third and seventh segments are shorter than the others. A suture line is evident.

The abdomen is very tuberculate and jagged. The anterior portion projects behind as a trident, the median process of which is slightly bent downwards and slightly overreaches the end of the abdomen; also, this part of the abdomen projects downwards laterally a good deal. The posterior portion has three conspicuous tubercles on each side of the median process of the anterior portion, and behind these the descent is abrupt and excavate medianly with three prominent tubercles on each side, arranged triangularly two

above and one below; in the immediate region of the posterior border the surface is oblique. The posterior notch is deep; the median process does not reach the lateral projections. These are acute, and have an oblique direction, while the median process is more horizontal in direction. Another small acute projection is higher up on each side, and higher still a third on each side is faintly indicated; thus there are six notches corresponding in a degree with those of the preceding species.

The first antennular joint is rather short, convex externally, not distally notched; but the posterior angle is subacute and projects slightly. The second joint is about half as long as the first, the third joint is longer than the second, and the flagellum has 10 joints.

The last joint of the peduncle of the antenna is longer than the one preceding it; its flagellum also has 10 joints.

The mandibles have the incisory processes oblique and entire. A secondary plate on the left mandible is also nearly entire; spine rows and molars are well developed.

Maxillæ strongly spined.

The legs are provided with spines, and the furry pads are absent. In the first gnathopods, which are more robust, the anterior side of the ischium projects as a prominent angle about the middle; the dactylus is large, and about as long as the propodus.

The sternal filaments are rather long.

The external ramus of the fifth pleopod has a distal thickening, which probably represents two lobes, and one on the inner margin distally from the division line, with one on the proximal part just below this. Below this is another slight lobe, some distance down. The outer margin bears small setæ.

The external ramus of the uropods is smaller than the inner; it has an oblique upward direction, and is apically acute. There is an acute process on the inner side, another on the upper surface near the outer angle, and a small one on the outer angle itself. The inner ramus has a strong obtuse projection on the outer side, with another one behind it, and one on the inner side; the apex is obtuse.

The specimen I take to be the female of this species is much less nodular. The median process of the posterior notch of the abdomen projects considerably as a slightly tridentate process. The channel is deep. There are no rows of spines on the thoracic segments, and the anterior portion of the abdomen has no process.

The mouth parts are modified.

Gulf St. Vincent. Two male and one female specimens.

Genus *Zuzara*, Leach.

Sp. **Zuzara venosa**, Stebbing. Pl. xxiii., figs. 13 to 16 ;
Pl. xxiv., figs. 1 to 3.

Cycloidura venosa, Stebbing, Jour. Linn. Soc., vol. xii., 1876,
p. 146, pl. vi.

Zuzara integra, Haswell, Proc. Linn. Soc., N.S.W., vi.,
1881-2, pp. 186-188, pl. iii., fig. 6.

Zuzara integra, Richardson, Proc. U.S. Nat. Mus., vol. xxxi.,
p. 12.

The body is minutely granulate and pubescent.

The eyes are large.

The rostral process of the head is rather acute, and has a slight median elevation.

The epistome has an arcuate crest, and a triangular area on a different plane occupies the space between it and the rostrum. The lateral limbs of the epistome thin away and recede; below the crest the surface is rather excavated.

The epimeral plates of the thoracic segments, except the first, are marked by suture lines, and project a little laterally before taking a vertical direction, then the ends are a little turned outward again, the second, third, fourth, and fifth with points a little produced backwards also.

The process of the seventh thoracic segment is sometimes nearly truncate, in other specimens abruptly narrowed to a small obtuse point. In some males there is a small tubercle on the posterior edge on each side of this process.

The after-portion of the abdomen has a very shallow longitudinal median depression, and it is more granulate than other parts of the body. The terminal process is dorsally raised and keel-like, with a hump. The under side of this process has also a narrow longitudinal keel, and immediately in front of it is a slight excavation, apart from the general excavation of the abdomen.

A small group of five or six long setæ springs from the outer side of the mandible close by the molar process.

The legs are very furry on the usual joints.

The upper surface of the external ramus of the uropod is excavated for nearly the whole of its length, having a raised and thickened external border: it is produced much beyond the end of the abdomen. The venation of the uropods is seen in the females and young males, but is obscured in adult males. The inner margin of the inner ramus is slightly bent, to conform to the indentation at the side of the terminal process of the abdomen.

The adult female is quite without process to the seventh segment of the thorax, and there are two faint median tubercles on the posterior portion of the abdomen.

A crest on the epistome is nearly obsolete in some female specimens.

The mouth parts are unmodified, and the marsupial plates are not overlapping in mature females, as observed by Dr. Hansen.

I have always found specimens bearing any indication of a median process on the seventh thoracic segment, as also rudimentary narrowing of the posterior extremity of the abdomen, to be immature males.

Gulf St. Vincent. One of our commonest marine isopods littoral species.

Zuzara (Isocladus) excavata, n. sp. Pl. xxiv., figs. 4 to 6.

This closely-allied species has the body almost completely glabrous.

The segments of the thorax differ little in length, except the seventh; seventh segment with a process reaching as far as the end of the abdomen, abruptly contracted to a small obtuse point at the distal end.

The anterior portion of the abdomen is short, the posterior portion triangular in shape, and towards the end again slightly contracted, ending in an obtusely-rounded point; the inferior surface of this is slightly excavated, as in the preceding species.

The anterior part of the epistome is not crested, but the surface gradually curves over to the rostrum; the lateral limbs thin away and recede more than in *Z. venosa*.

The antennular flagellum has 12 joints, the basal joint with uneven surface. The antennal flagellum has 15 joints.

The mandibles have the incisory plates entire, the secondary plate absent from the left mandible.

The uropods are broad and lamellate, with the venation more evident than in *Z. venosa*.

The female of this species has not been recognized.

Gulf St. Vincent, littoral. One specimen.

Zuzara (Exosphæroma) lævis, n. sp. Pl. xxiv., figs. 7 and 8.

Body smooth and glabrous.

Eyes large and prominent.

Thorax not expanding so much posteriorly as in the two preceding specimens.

First segment of the thorax shorter than the head, and only slightly longer than those which follow. The seventh segment is without process.

The anterior abdominal segment is short and acutely angular at the sides. The posterior segment is triangular,

not specially contracted at the end, which is acute and slightly bent downwards.

The epistome is without anterior crest; the sides thin away and recede more than in the two preceding species.

The antennules have the flagellum with 10 joints, that of the antenna with 16 joints.

The mandibles have the group of setæ near the molar process, as in *Z. venosa* and *Z. excavata*.

The mouth parts, legs, and pleopods resemble those of the preceding species. The *appendix masculina* is long; its apex bears a few setules.

The uropods are broad and lamellar, the inner ramus not reaching quite to the end of the abdomen, the outer one a little beyond.

A young male, apparently of this species, has the end of the abdomen much more rounded, the uropods not reaching as far as it.

Females of this species I have not observed.

Gulf St. Vincent. Two adult male and one young male specimens.

Group EUBRANCHIATÆ, Hansen.

Genus *Cerceis*, M. Edw.

Cerceis trispinosa, Haswell. Pl. xxiv., figs. 9 to 15.

Cymodocea trispinosa, Haswell, Proc. Linn. Soc., N.S.W., vi., p. 189, pl. iii., fig. 7.

The body of the male has the usual shape of species of this genus. The head is gradually declivous anteriorly without a distinct transverse ridge. The rostral process is well marked, and not fused with the epistome.

The segments of the thorax do not differ much in length; their epimeral plates are large, and are marked off from their respective segments by a faint longitudinal groove. That of the seventh is hooked behind.

The anterior portion of the abdomen is short, and has a small median tubercle on its posterior border. There are also besides the median larger tubercle of the posterior portion two smaller tubercles side by side just above it; this portion is sparingly granular and setose. The posterior notch is deeply cut, narrow, and as its median process is only slightly raised above the lateral processes the channel below is not very deep.

The epistome is broad, apically acute, its lateral limbs much spread out, their extremities each with two small tubercles; there is also a small tubercle at the base of each limb. The labrum is rather large. The basal joint of the antennule is deeply notched, its distal anterior limb is

hooked, and the posterior one reaches nearly to the end of the second joint. The flagellum has 19 short joints.

The flagellum of the antenna has 20 joints.

The legs are uniform, with furry pads on the usual joints.

The sternal filaments are short.

The first pleopods are short and broad, the outer ramus has few or no teeth—apart from the slight elevations which carry the setæ—and there are few setules, as observed in other species; there is a ridge near the inner margin. The inner ramus is much broader than long, and is also without marginal teeth. The outer ramus of the second pleopods has several marginal teeth and setules, which arise in the intervals between the plumose setæ. The *appendix masculina* arises, as in other members of this genus, about half-way along the inner margin of the inner ramus. The outer ramus of the fifth pleopod has the division quite near the end, the terminal lobes are well developed; there is also one on the inner margin, which is smaller, longer, and narrower than usual. The external margin bears fine hairs. Near the external margin of the outer ramus of the fourth pleopods there is a small conical process near the base, slightly serrate.

The external ramus of the uropod is large, acute, and slightly serrate on the external margin near the end; it reaches much beyond the inner ramus. The inner ramus reaches nearly to the abdominal notch, and is distally truncated, the inner angle being rounded, the outer acute.

The female of this species is smaller than the male. It is distinguished by its shape, and by having the median triangular tubercle of the after-part of the abdomen much larger than in the male; in having the outer ramus of the uropod only slighter longer than the inner ramus; the posterior notch of the abdomen is not so open and not so deeply cut into the margin, and the median process is more raised, making the narrow channel deeper. The epimera of the seventh thoracic segment is pointed behind, but not hooked. The anterior process of the antennular joint is long, but not quite so hooked. The female also has a larger number of teeth on the external rami of the first and second pleopods.

Several specimens from North Tasmania. Females probably not quite mature. Collected by Dr. Torr.

EXPLANATION OF PLATES.

PLATE XXI.

- Fig. 1. *Cymodoce tuberculosa*, Stebbing, side view of male, magnified $4\frac{1}{2}$ diameters.
 „ 2. „ „ „ posterior portion of abdomen of male.

- Fig. 3. *Cymodoce tuberculosa*, antennule, antenna, epistome, etc., of mature female.
- „ 4. „ „ „ antennular and epistomial teeth of male, showing depressed rostral teeth.
- „ 5. „ „ „ right mandible of male.
- „ 6. „ „ „ left mandible of male.
- „ 7. „ „ „ second maxilla of male.
- „ 8. „ „ „ first maxilla of male.
- „ 9. „ „ „ maxillipeds of male.
- „ 10. „ „ „ first gnathopod of male.
- „ 11. „ „ „ fifth pereopod of male.
- „ 12. „ „ „ second pleopod of male.
- „ 13. „ „ „ exopod of fifth pleopod of male.
- „ 14. „ „ „ posterior portion of abdomen of mature female.
- „ 15. „ „ „ mandible of mature female.
- „ 16. „ „ „ first maxilla of mature female.
- „ 17. „ „ „ second maxilla of mature female.
- „ 18. „ „ „ maxilliped of mature female.
- „ 19. „ „ „ posterior portion of abdomen of immature male.
- „ 20. „ „ „ immature male, magnified 4 diameters.
- „ 21. „ „ „ n. var. *bispinosa*, posterior portion of abdomen of male.
- „ 22. „ „ „ *bispinosa*, the same, superior view.
- „ 23. „ „ „ „ „ antennular, epistomial, and rostral teeth of male.

PLATE XXII.

- Fig. 1. *Cymodoce tuberculosa*, n. var., *bispinosa*, mature female, magnified 4 diameters.
- „ 2. „ „ „ *bispinosa*, posterior portion of abdomen, mature female.
- „ 3. „ „ „ „ „ immature male, magnified $4\frac{1}{2}$ diameters.
- „ 4. „ „ „ „ „ epistome of mature female.
- „ 5. „ „ „ „ „ posterior portion of abdomen of an immature male (another specimen). Compare pl. xxi., fig. 19.
- „ 6. „ „ „ „ „ posterior portion of abdomen of fig. 3.
- „ 7. „ „ „ „ „ antennule, antenna, epistome, etc., of fig. 3.
- „ 8. „ „ *septemdentata*, n. sp., male, magnified 4 diameters.
- „ 9. „ „ „ „ male, magnified 4 diameters, side view.

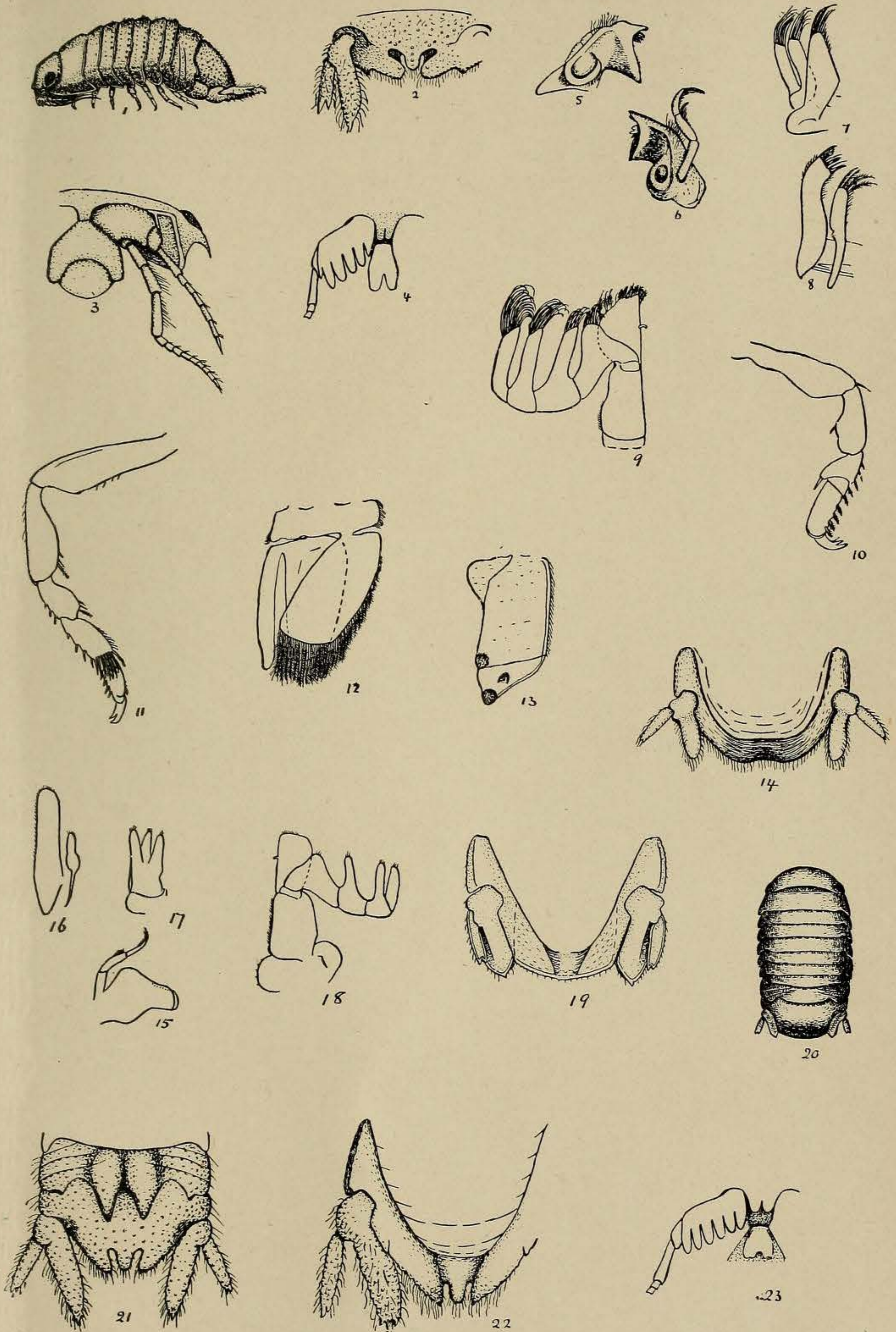
Fig. 10.	<i>Cymodoce septemdentata</i> ,	antennule, antenna, epistome, etc., of male.
„ 11.	„ „	posterior portion of abdomen of male.
„ 12.	„ „	first gnathopod of male.
„ 13.	„ „	second gnathopod of male.
„ 14.	„ „	fifth pereopod of male.
„ 15.	„ „	first pleopod of male.
„ 16.	„ „	second pleopod of male.
„ 17.	„ „	exopod of fifth pleopod of male.

PLATE XXIII.

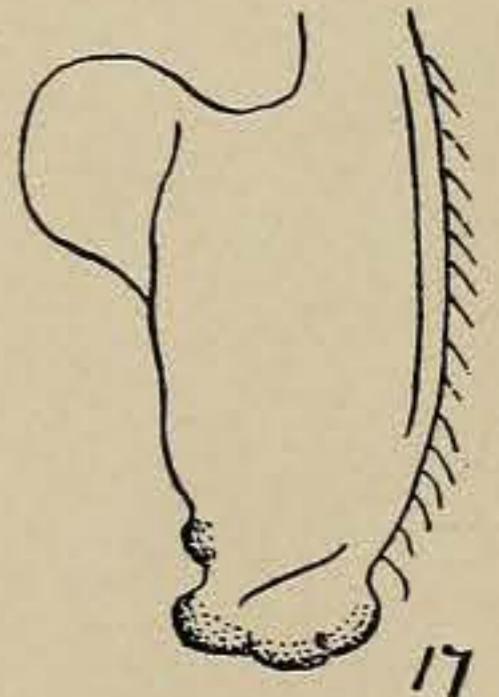
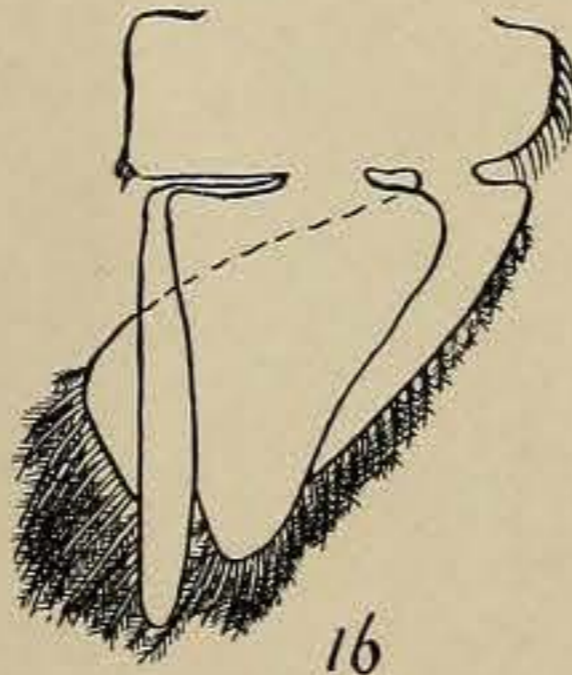
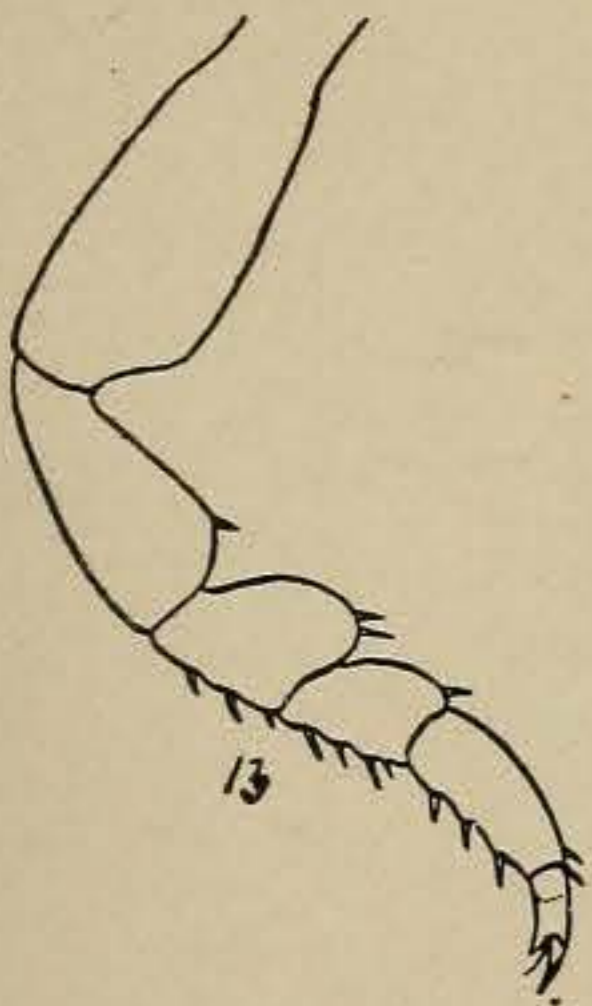
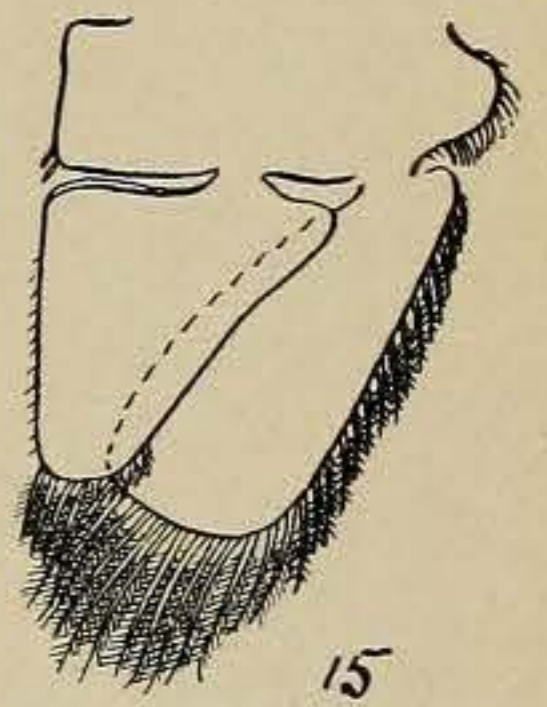
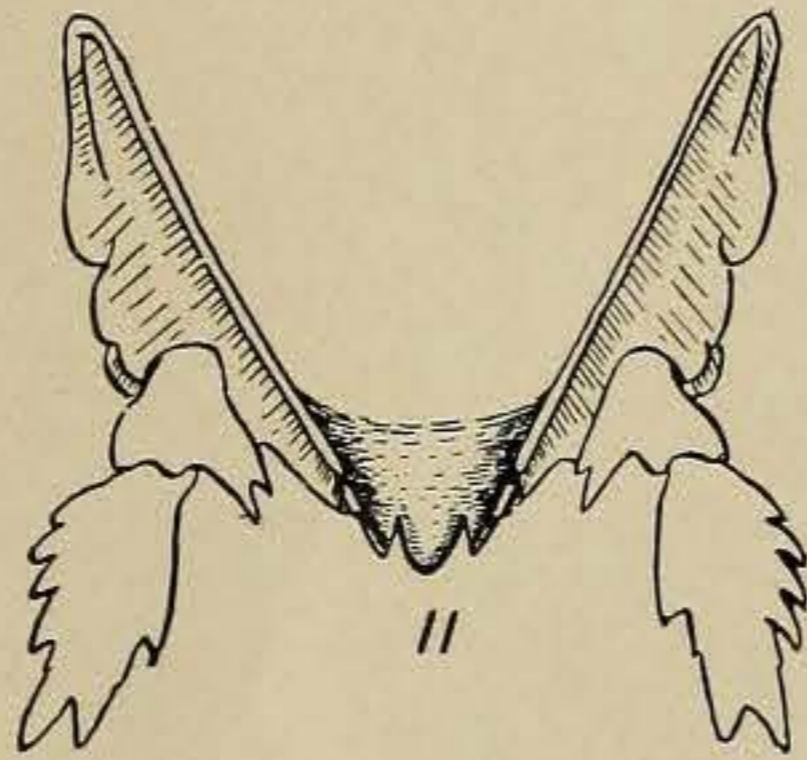
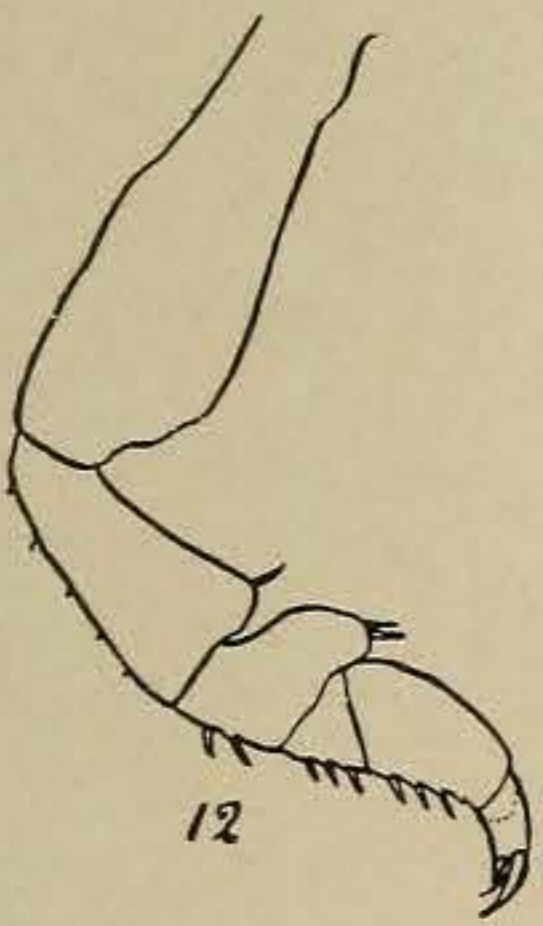
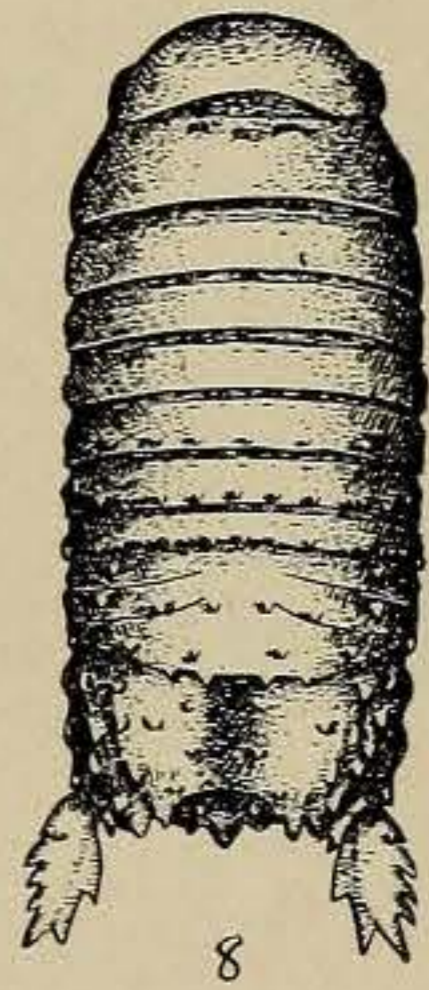
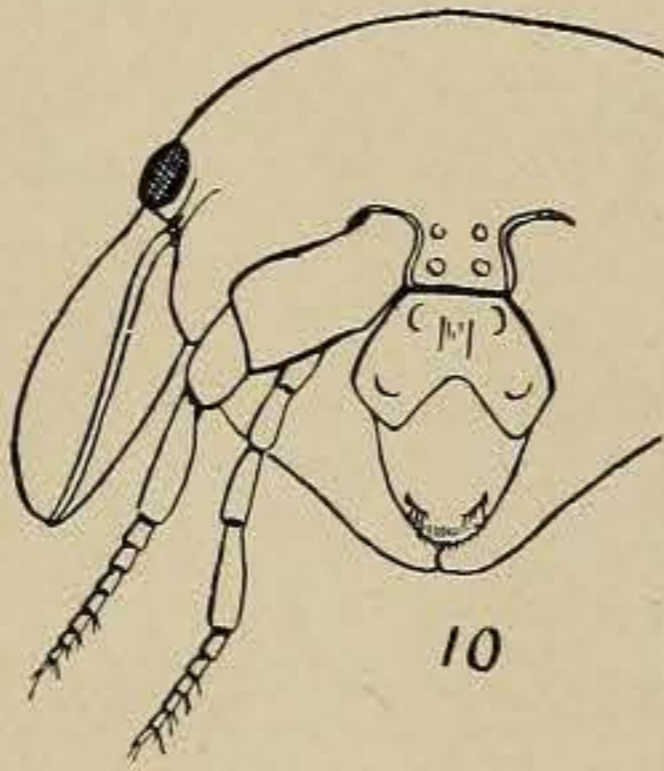
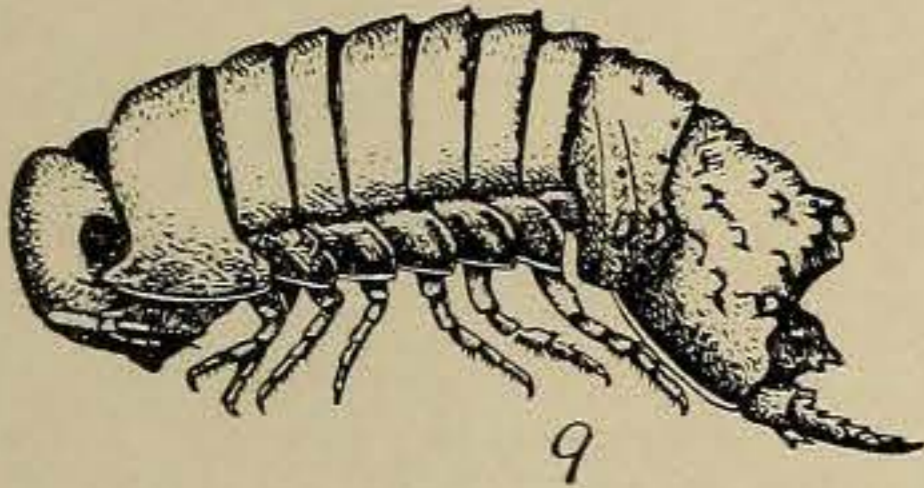
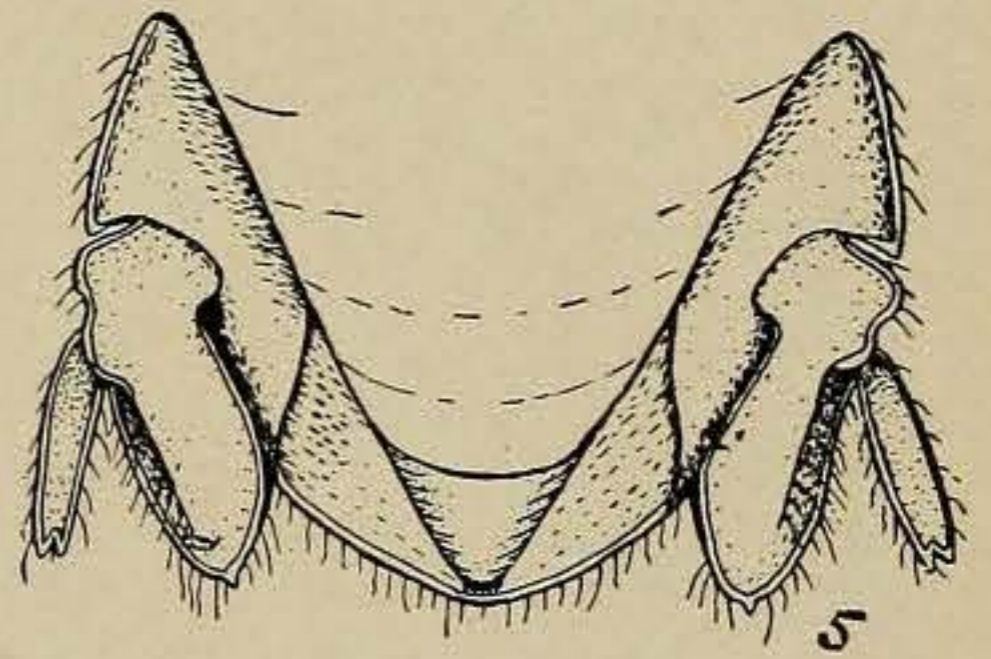
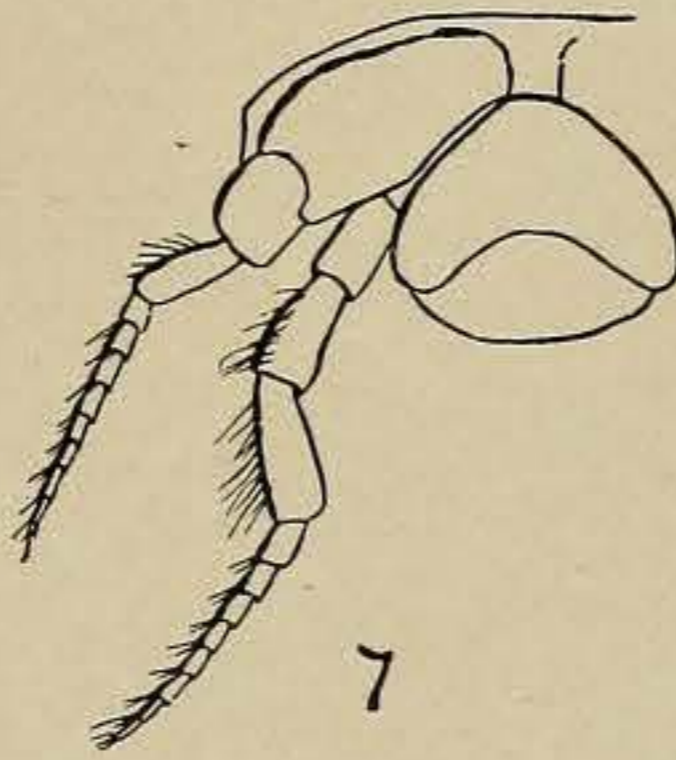
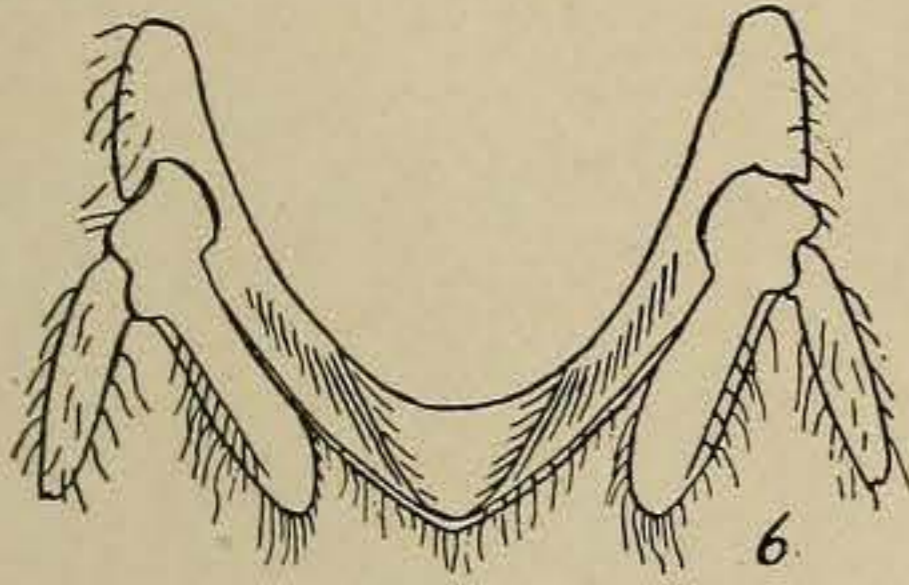
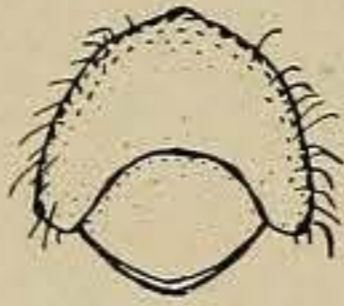
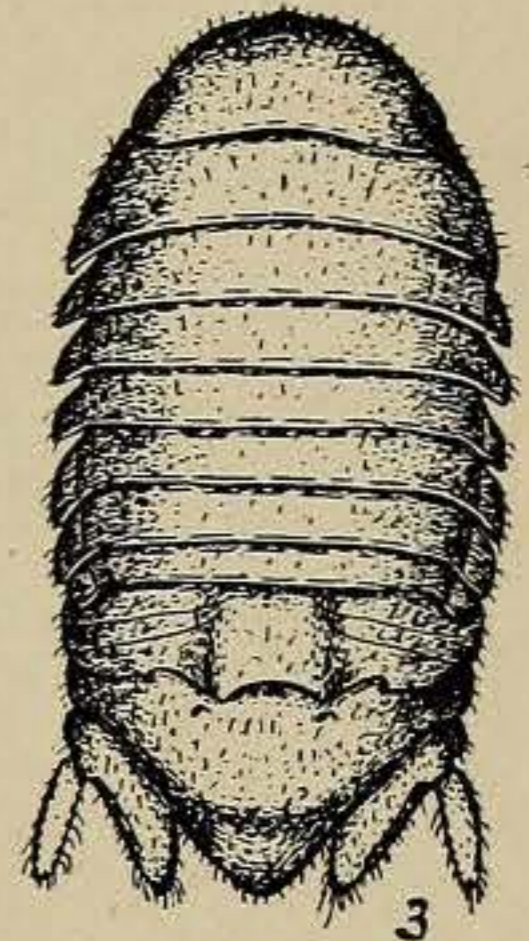
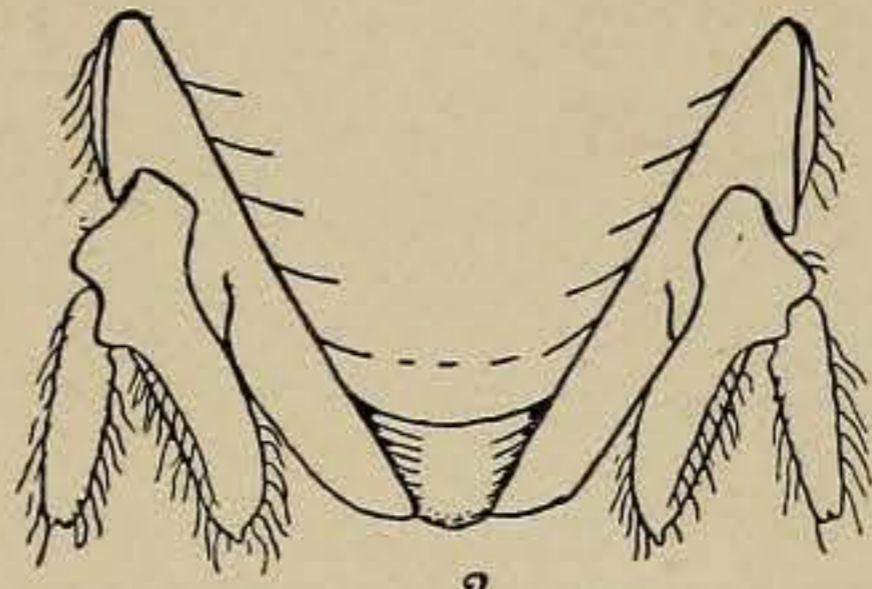
Fig. 1.	<i>Cilicæa tridens</i> , n. sp., male, magnified 5 diameters.
„ 2.	„ „ posterior portion of abdomen of male.
„ 3.	„ „ antennule, antenna, epistome, etc., of male.
„ 4.	„ „ antennule, antenna, epistome, etc., of female.
„ 5.	„ „ female, magnified 5 diameters.
„ 6.	„ „ second gnathopod of male.
„ 7.	„ „ first gnathopod of male.
„ 8.	„ „ fifth pereopod of male.
„ 9.	„ „ maxilliped of male.
„ 10.	„ „ first pleopod of male.
„ 11.	„ „ exopod of fifth pleopod of male.
„ 12.	„ „ second pleopod of male.
„ 13.	<i>Zuzara venosa</i> , Stebbing, male, magnified $3\frac{1}{2}$ diameters.
„ 14.	„ „ right mandible.
„ 15.	„ „ posterior portion of body of mature female.
„ 16.	„ „ maxilliped of male.

PLATE XXIV.

Fig. 1.	<i>Zuzara venosa</i> , posterior portion of abdomen and uropod of male.
„ 2.	„ „ antennule, antenna, epistome, etc., of male.
„ 3.	„ „ exopod of fifth pleopod of male.
„ 4.	„ „ (<i>Isocladus</i>) <i>excavata</i> , n. sp., male, magnified $4\frac{1}{2}$ diameters.
„ 5.	„ „ „ „ epistome of male.
„ 6.	„ „ „ „ posterior portion of abdomen of male.
„ 7.	„ „ (<i>Exosphæroma</i>) <i>lævis</i> , n. sp., male, magnified 4 diameters.
„ 8.	„ „ „ „ antennule, antenna, epistome, etc., of male.
„ 9.	<i>Cerceis trispinosa</i> , Haswell, male, magnified $2\frac{1}{2}$ diameters.
„ 10.	„ „ female, magnified 3 diameters.
„ 11.	„ „ antennule, antenna, epistome, etc., of male.
„ 12.	„ „ first pleopod of male.
„ 13.	„ „ posterior portion of abdomen of male.
„ 14.	„ „ portion of exopod of fifth pleopod of male.
„ 15.	„ „ second pleopod of male.

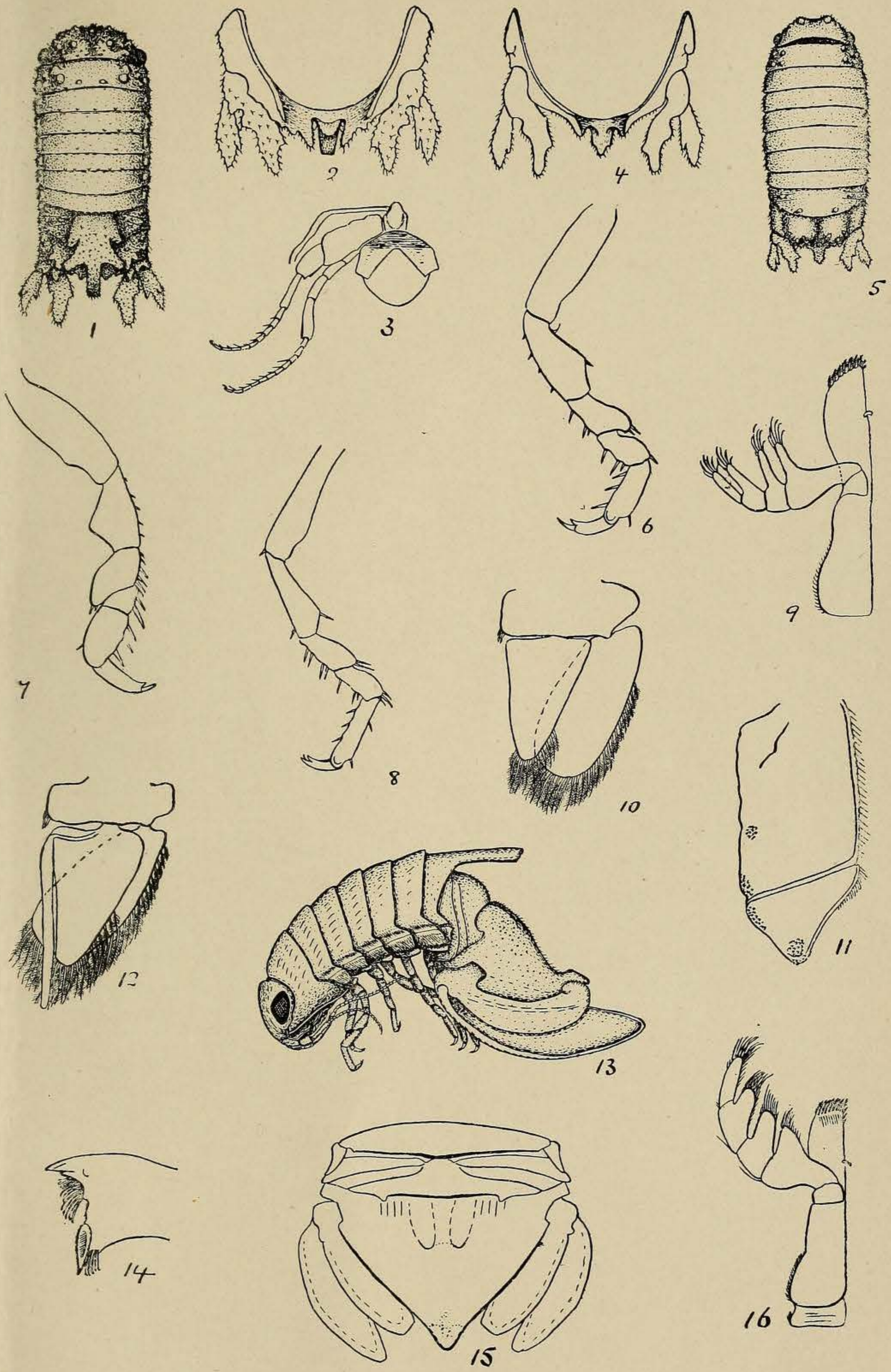


CYMODOCE TUBERCULOSA (Stebbing). C. TUBERCULOSA, n. var., BISPINOSA.
Hussey & Gillingham, Printers, Adelaide.



CYMOECCE TUBERCULOSA, n. var., BISPINOSA. C. SEPTEMDENTATA, n. sp.

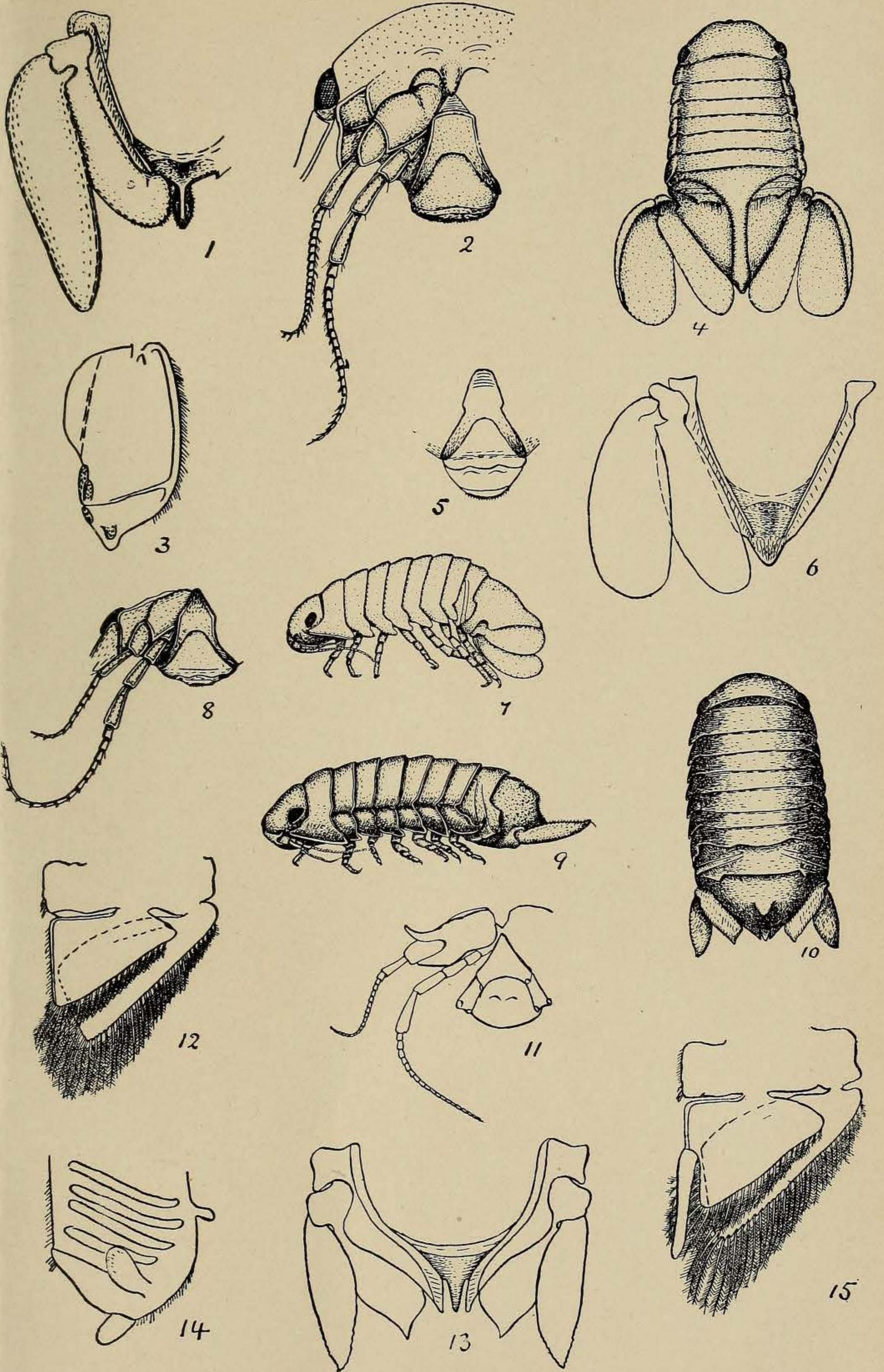
Hussey & Gillingham. Printers. Adelaide.



CILICÆA TRIDENS, n. sp.

ZUZARA VENOSA (Stebbing).

Hussey & Gillingham. Printers, Adelaide.



ZUZARA VENOSA. Z. (ISOCLADUS) EXCAVATA, n. sp. Z. (EXOSPHEROMA) LÆVIS, n. sp. CERCEIS TRISPINOSA (Haswell).