

Last thoracic segment unarmed in the female, in the male with a mesial process.

(2) *Campecopea* (Leach).

The section *Monolistrini* comprises three (probably four¹) genera closely allied to each other, but distinguishable by at least one practical character.

(a) *Urp.* consists of the sympod and an elongate movable exp.

(3) *Monolistra* (Gerst.).

(β) *Urp.* consists only of a very small oblong-triangular joint.

(4) *Cæcosphæroma* (Dollf.).

(γ) *Urp.* wanting.

(5) *Vireia* (Dollf.).

The section *Cassidinini* comprises four genera, three of which are exceedingly characteristic, while the fourth, *Chitinopsis* (Whitel.), has only sub-generic value.

(a) Seen from above, the epistome protrudes as a rather or very long process separating the antennulæ. Two proximal joints of the antennulæ considerably or exceedingly expanded in front of the head. Lobe of fifth joint of the maxillipeds rather long, proceeding only from the proximal part of its inner (front) margin (fig. 6 a). Endp. of plp.¹ oblong, but not fully twice as long as broad. Exp. of plp.³ two-jointed. Terminal margin of abdomen freely exposed, rounded without notch.

(†) Body rather broad. Two proximal joints of the antennulæ considerably expanded. Endp. of plp.¹ only somewhat longer than broad.

(6) *Cassidina* (M.-Edw.).

(††) Body oblong-oval. Two proximal joints of the antennulæ exceedingly expanded. Endp. of plp.¹ almost twice as long as broad.

(7) *Chitinopsis* (Whitel.).

¹ The genus *Spelæosphæroma* belongs probably to this section, but is omitted, as not only the animal, but the recently published description is unknown to me.

(β) Seen from above, the epistome protrudes as a broad but very short plate separating the antennulæ. Two proximal joints of the antennulæ protrude as a narrow rim in front of the head. Fifth joint of maxillipeds short and broad, with a low lobe occupying nearly the whole interior (front) margin and reaching its distal end. Endp. of plp.¹. about three times as long as broad at the base. Exp. of plp.³ unjointed. Terminal margin of abdomen freely exposed, sub-truncate.

(8) *Cassidinidea* (n. gen.).

(γ) Epistome very short, invisible from above. Two proximal joints of the antennulæ strongly expanded, forming a broad rim in front of the head; the inner margin of the expansion of one antennula touches that of the opposite antennula in the mesial line. Fifth joint of maxillipeds short, with a moderately developed lobe proceeding from the whole interior (front) margin. Endp. of plp.¹ exceedingly narrow, four times as long as broad. Exp. of plp.³ two-jointed. Terminal margin of abdomen completely surrounded by the very long endopods of the uropods; the end turned somewhat upwards, vaulted, with a longitudinal groove below, so that an aperture, visible from behind, is found between the margin of abdomen and the uropods. Body exceedingly flattened; the two proximal joints of the antennulæ, both rami of urp. and the lateral parts of the thoracic segments and of the anterior section of abdomen are strongly expanded, and their margin constitutes a continuous outline with the fringe of ciliæ very dense, regular, and conspicuous; head and last abdominal segment totally excluded from partaking in forming the outline of the animal.

(9) *Leptosphæroma* (Hilgendorf).

The section Ancinini comprises three genera, one of which is founded on a new form described in the notes below. The diagnosis of the genus *Ancinus* (M.-Edw.) is incomplete from want of material.

(a) Eyes conspicuous, dark. Antennulæ inserted on the front end of the head, their two proximal joints rather broad,

entirely visible from above. Epistome produced, reaching to the front margin of first joint of the antennulæ, separating these as a sub-quadrangular plate. Last segment of abdomen has the lateral part of the wall bent downwards and somewhat inwards, constituting near the end the sides of a groove; the end itself truncate. Urp. without endp., exp. long, slender.

(10) *Ancinus* (M.-Edw.).

(β) Eyes colourless; feebly developed. Antennulæ inserted on the front end of the head; their basal joint much produced; about as broad as long, depressed; entirely visible from above. Epistome produced into a triangular process, reaching about to the middle of the inner margin of the first antennular joint. Lobes on fourth, fifth, and sixth joints of maxillipeds very low. Exp. of plp.³ two-jointed. Plp.⁴ and plp.⁵ have their rami sub-similar; endp. of plp.⁴ with a single terminal seta; exp. of plp.⁴ without setæ; exp. of plp.⁵ with the bosses feebly developed, without spines. Last abdominal segment with the distal lateral part of the wall not bent inwards, the end narrowly rounded or nearly acute. Urp. has the sympod directed outwards and somewhat forwards, without endp.; exp. long, narrow. Male with the inner margin of endp. of plp.² much thickened, longitudinally canaliculated on the inner side, and appendix masculina is wanting.

(11) *Ancinella* (n. gen.).

(γ) Eyes well developed, black. Antennulæ inserted on the lower side of the head, their basal joint longer than broad, and quite concealed by the protruding front border of the head. Epistome reaches scarcely the middle of the inner margin of the basal joint of the antennulæ; its end is broadly rounded. Lobes of fourth, fifth, and sixth joints of maxillipeds long. Exp. of plp.³ unjointed. Exp. of plp.⁵ and plp.⁴ closely set with plumose setæ along their distal and outer margin. Endp. of plp.⁴ with a few plumose terminal setæ. Exp. of plp.⁵ without bosses. Last abdominal segment has not the distal lateral part of the wall bent inwards; the end

acute in the male, rather obtuse in the female. Urp. with both rami long, in the female sub-equal in length, in the male exp. is elongate, considerably longer than endp. Male with appendix masculina on endp. of plp.²

(12) *Tecticeps* (Richardson).

VII. NOTES ON THE GENERA AND THEIR SPECIES.

The genera are here dealt with in the same consecutive order as in the preceding chapter. As to the enumeration of the species I refer to the "Introductory Remarks."

Sub-family *Limnoriinæ*.

Limnoria (Leach).—The type is *L. lignorum* (Rathke). On the three other species known see Stebbing in 'Fauna Maldive and Laccadive Archip.,' vol. ii, p. 714.

Sub-family *Plakarthriinæ*.

Plakarthrium (Chilt.)—The type is *P. typicum* (Chilt.) Whether *P. (Chelonidium) punctatissimum* (Pfeff.) be a closely allied species or only a synonym I am unable to decide. Pfeffer published (1887) a very detailed, and as a whole useful account of his form, but some of his anatomical statements and morphological interpretations are incorrect, and his opinion on the systematic position of the genus is without foundation.¹

Sub-family *Sphærominæ*.

A. *Sphærominæ hemibranchiataæ*.

(1) *Sphæroma* (Bosc).—To the characters given above it may be added that in all species the end of abdomen, even if moderately narrow, is really rounded, not triangular or subacute; its marginal part, seen from below, shows scarcely any trace of a longitudinal mesial excavation, not to speak of a longitudinal groove as in *Isocladus*. According to my own examination the following species belong to this genus:

¹ Pfeffer establishes it as the type for a new family, and adds "Die Fam scheint mit den Onisciden am nächsten verwandt."

S. serratum (Fabr.), *S. rugicauda* (Leach), *S. Hooker* (Leach), *S. siciliense* (Leach), *S. trigonum* (Risso), *S. verrucauda* (White), *S. quadridentatum* (Say) (types or co-types of the six latter species in the British Museum), *S. Bolivari* (de Buen) (co-types from Canon A. M. Norman), *S. destructor* (Richardson) (co-types from U.S. Nat. Mus.), the latter, according to Stebbing, a synonym, as is also *S. vastator* (Bate), to *S. terebrans* (Bate); finally *S. marginatum* (M.-Edw.) (Copenhagen Museum). Of the other species described in the literature *S. chilense* (Dana) and *S. pentodon* (Richardson) seem to belong to this genus.

Most of the remaining very numerous species established in the literature as members of the genus *Sphæroma* belong to other genera. Some of them have been or must be referred to *Exosphæroma* (Stebb.), viz. *S. gigas* (Leach), *S. lanceolatum* (White), *S. leucura* (White) (types of these three species were seen in the British Museum), *S. Stimpsonii* (Hell.) (Copenhagen Museum), and probably *S. calcareum* (Dana); *S. scabriculum* (Hell.) is mentioned in the footnote on p. 102. *S. armatum* (M.-Edw.) has been established as type for the genus *Isocladus* (Miers), to which besides *S. spinigerum* (Dana) has been referred. *S. dicanthum* (Péron, M.-Edw.) must be a *Zuzara* (Leach); *S. integrum* (Hell.) is probably a species of *Zuzara* (Leach), or perhaps of *Isocladus* (Miers). Many species referred to *Sphæroma* are in reality females or immature specimens of the genus *Cymodoce* (Leach); according to typical specimens in the British Museum, *S. spongiosum* (White) is the female of an Australian *Cymodoce*, while *S. Prideauxianum* (Leach), *S. Dumerilii* (Leach), *S. Griffithsii* (Leach), *S. curtum* (Leach), and *S. spinosum* (Risso) belong to *Cymodoce truncata* (Leach), and the specimens of *S. Ritchianum* (Leach) to two species of *Cymodoce*; judging from descriptions or figures in the literature, *S. Lesueuri* (Risso), *S. granulatum* (M.-Edw.), *S. pubescens* (M.-Edw.), *S. Gaimardii* (M.-Edw.), and *S. yucatanum* (Richardson) have been established on females or young

males of animals belonging to *Cymodoce*. *Sphæroma gibbosum* (M.-Edw.) and *S. micracanthum* (Tristan, M.-Edw.) are young males of *Dynamene* (Leach), probably of *D. bidentata* (Mont.); *Sphæroma? egregium* (Chilt.) and *S. algoense* (Stebb.) must be referred to the genus *Cymodocella* (Pfeff.); *S. orientale* (Dana) is a young specimen of the genus *Cerceis* (M.-Edw.). *Sphæroma perforatum* (M.-Edw.) and *S. globicauda* (Dana) are probably species of *Dynamenella* (n. gen.); if not so, one of them is or both are to be referred to the same genus as *S. scabriculum* (Hell.) (see the footnote on p. 102). *Sphæroma Jurinii* (Sav.), *S. Savignii* (M.-Edw.), *S. tristense* (Leach), *S. anomalum* (Hasw.), *S. asperum* (Hasw.), *S. amplicauda* (Stimps.), *S. rhombura* (Richardson), *S. octoncum* (Richardson), *S. plumosum* (Whitelegge), and *S. latifrons* (Whitelegge) do not belong to *Sphæroma*, but I cannot refer them to genera, because the descriptions and figures are too defective in some respects. On *S. Quoyanum* (M.-Edw.), *S. oregonense* (Dana), *S. obtusum* (Dana), *S. læviusculum* (Hell.), *S. triste* (Hell.), *S. læve* (Hasw.), *S. crenulatum* (Richardson), and *S. australe* (Whitelegge) I have no opinion.

(2) *Hemisphæroma* (n. gen.).—The type is *H. pulchrum* (n. sp.), of which I have seen an adult male and an immature female. To the diagnosis of the genus on p. 103 a short description of the species may be added. The epistome has a rather deep longitudinal groove and two pairs of marginal processes; first pair, placed near the middle of the margin, is low; second pair, situated near the proximal end, is rather long, vertical. Antennulæ essentially as in *Sphæroma*. The three anterior pairs of thoracic legs are moderately slender and furnished with a large number of exceedingly long stiff setæ along the whole outer margin of the long third joint and along the distal two thirds of the same margin of fourth joints, besides some rather long setæ on the most distal part of the outer margin of fifth joint. The three following pairs of legs are much shorter and more robust, seventh pair as

long as the second, rather slender and strongly compressed; all four pairs along the margins and on a portion of the sides very densely set with fine hairs; most of the marginal hairs long or exceedingly long. Last abdominal segment is broad behind, the posterior margin as a whole rather flatly convex with a very obtuse angle, but the tip of this angle is feebly produced, acute; the posterior margin is very broad on the lower surface, constituting a rather broad rim, which has a longitudinal mesial carina. The rami of the uropods similar in shape, reaching in the male completely, in the female scarcely, to the apex of abdomen. Length of the male 13.5 mm., of the female without marsupium 8.5 mm. Locality: Sourabaya, Java. Collected by Captain Andréa (Copenhagen Museum).

(3) *Exosphæroma* (Stebb.).—The genus has been established on *Sphæroma gigas* (Leach) and *S. lanceolatum* (White). In these species the end of abdomen is either rather convex, subangular, or constitutes an angle with the tip rounded; the terminal margin is, seen from below, rather sharp and the excavation containing the pleopods produced a little backwards, but no real longitudinal groove is formed. According to an examination of dried typical specimens of *Sphær. leucura* (White) in the British Museum this species must be referred to *Exosphæroma*; *Sphæroma Stimpsonii* (Hell.) (specimens in the Copenhagen Museum) belongs also to the present genus. Several of the nearly twenty species enumerated above as referred to *Sphæroma* by earlier authors, but whose systematic position I am unable to settle, will certainly prove themselves to belong to *Exosphæroma*. On the other hand, of the three species established in 1902 by Stebbing as species of *Exosphæroma*, *E. validum* (Stebb.) is the immature male and *E. setulosum* (Stebb.) the female of the same species of *Cymodoce*, while *E. amplifrons* (Stebb.) is the adult male of an aberrant species of *Cymodoce* (see below under this genus).

(4) *Isocladus* (Miers).—The genus comprises two closely allied species, *I. armatus* (M.-Edw.) and *I. spiniger*