CRUSTACEA CASPIA.

ACCOUNT OF THE MYSIDÆ

IN THE COLLECTION OF Dr O. GRIMM.

BY

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With 8 autographic plates.

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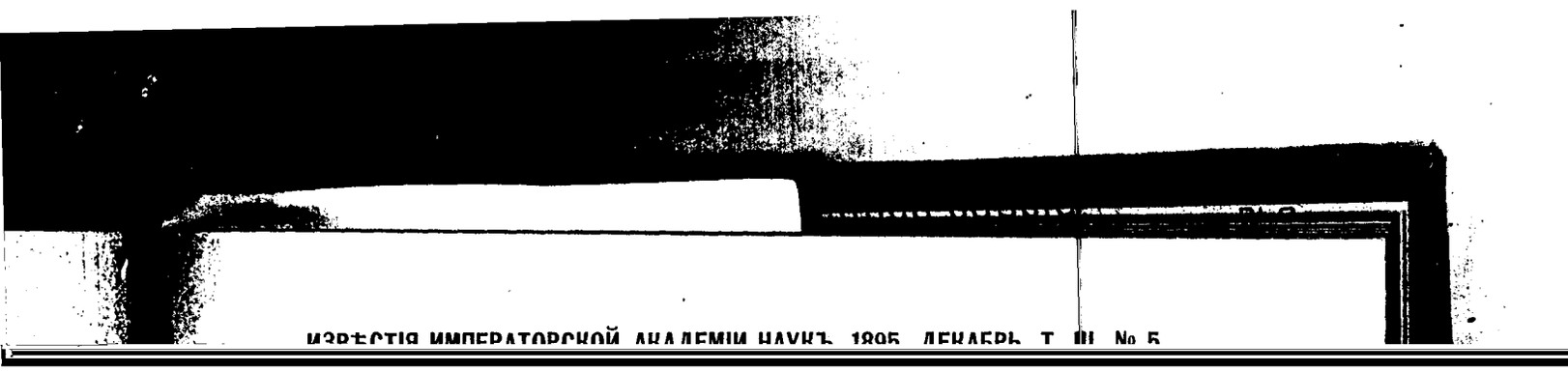


ИЗВѢСТІЯ ИМПЕРАТОРСКОЙ АКАДЕМІИ НАУКЪ. 1905. ДЕКАБРЬ. Т. III. № 5.

form, belonging to the genus *Paramysis*, and will be described below under the specific name proposed by that distinguished naturalist.

As my first paper on Caspian Mysidæ was published before the collection of Dr. Grimm came into my hands, all the species in the latter collection will be here enumerated, with their respective finding-places; but only the new species will be described and figured in detail.

The plates have been prepared with the greatest care by the autographic method also applied in my previous papers on Caspian Crustacea, and will, I hope, serve for easily recognizing the species, though in some instances, for want of specimens, I have not been enabled to give such complete detail-figures as could have been desirable.

1. Paramysis Baeri Czern.

Paramysis Baeri, Czerniavsky, Monogr. Mysidarum, fasc. 2, p. 56, Pl. XXVII, Pl. XXVIII, figs. 1—16, Pl. XXIX, figs. 1—15.
Paramysis Baeri, G. O. Sars, Crustacea caspia, Part. 1. Mysidæ. Mél. biol. T. XIII, livr. 3, p. 403, Pl. 1 and 2.

Of this form a single female specimen is contained in the collection. According to the label, it was taken south of the peninsula Mangyschlak, from a depth of 7 fathoms.

2. Paramysis Kessleri, (Grimm).

(Pl. I).

Mysis Kessleri, Grimm, MS.

Specific Characters. — Cephalic part of carapace about as broad as the 1st segment of metasome, frontal margin evenly arcuate in the middle, interocular spine freely projecting. Eyes of moderate size, pyriform, projecting slightly beyond the sides of the carapace. Antennal scale rather large, about twice the length of the peduncle of the superior antennæ, oblong linear in form, being nearly 4 times as long as it is broad, tip narrowly truncated, with the outer corner produced to a strong spine, inner corner obtuse-angular. Second pair of maxillæ with the exognath not expanded at the base, and carrying setæ of uniform size. Pereiopoda moderately robust, with the ischial and meral joints about same size, tarsal part longer than the meral joint, with the 2nd articulation the largest. Inner plate of uropoda with only 5 spines on the proximal part of the inner edge. Telson about two and a half times longer than it is broad at the base, outer part considerably tapered, lateral denticles 12—16 on each side, the outmost far

removed from the tip, apical sinus very slight and evenly rounded at the bottom, with from 2 to 4 small denticles, spines of the outer corners rather elongated. Length of adult female nearly 40 mm.

Remarks. — This is a very magnificent form, and by far the largest of all the Caspian Mysidæ. It is nearly allied to *P. Baeri*, Czern., but evidently specifically distinct, differing both in its much larger size and also in some anatomical details mentioned in the above diagnosis. It is rather strange that even in the structure of the oral parts, which generally are considered to be essentially alike in all species of the same genus, there is at least one very pronounced difference to be found between it and its ally, *P. Baeri*, viz., the structure of the exognath of the 2nd pair of maxillæ, which in the present form is quite normal, whereas in *P. Baeri* it exhibits several peculiarities both as to form and to the relative length of the marginal setæ. It now clearly appears, that this difference is only of specific significance, not, as formerly believed by me, of generic value.

Description. — The largest specimens attain nearly a length of 40 mm., measured from the tip of the antennal scales to that of the uropoda, and this form accordingly grows to a much larger size than *P. Baeri*, and is in reality one of the largest known Mysidæ.

The general form of the body (see fig. 1) resembles that in *P. Baeri*, though perhaps somewhat less robust.

The carapace is rather large, covering the whole mesosome, except the dorsal part of its last segment. The cervical sulcus is fairly conspicuous, marking off rather distinctly the cephalic part from the rest of the carapace. This part is somewhat narrowed, being scarcely broader than the 1st segment of the metasome, and occupies about $^1/_4$ of the length of the carapace. The frontal margin (see also fig. 2) is rather strongly arcuate in the middle and immediately beneath it a rather large spiniform projection issues, extending in front between the bases of the eyes.

The metasome (see fig. 1) gradually tapers posteriorly, and exceeds the anterior division of the body by its last segment, which, as usual, is the longest of the 6 segments composing this part of the body.

The eyes (see fig. 2) are of moderate size and pyriform in shape, only slightly projecting beyond the sides of the carapace. The corneal part is deeply emarginated above, and provided with dark pigment and well developed visual elements.

The superior antennæ exhibit the usual structure, being each composed of a short triarticulate peduncle, and 2 multiarticulate flagella. The 1st joint of the peduncle (see fig. 3) is somewhat flattened, and projects at the end outside into a conical prominence tipped by a number of bristles, 2 of which

are densely ciliated. The 2nd joint is rather short, whereas the 3rd is nearly as large as the 1st and rather thick, clavate. It carries at the end above the usual small squamiform plate, and has inside a row of ciliated setæ increasing in length distally, those issuing from the inner projecting corner being particularly long and densely crowded together. Of the flagella, the inner one is, as usual, the smaller, being about 3 times as long as the peduncle. The outer flagellum is considerably longer than the inner, and provided in its proximal part with band-like olfactory filaments.

In the male, the peduncle of these antennæ (see fig. 2) is comparatively larger, and has at the end below the usual hairy appendage.

The inferior antennæ (fig. 4) are each composed of a thick, indistinctly segmented basal part, and 2 terminal appendages, the inner of which constitutes the true antenna, whereas the outer one has the form of a setiferous scale. The basal part, as in *P. Baeri*, projects at the end exteriorly to a pointed triangular prominence. The antennal part is divided into a comparatively short 3-articulate scape and a filiform flagellum exceeding in length those of the superior antennæ. The scale is rather large, and comparatively more prolonged than in *P. Baeri*, being about twice as long as the peduncle of the superior antennæ, and nearly 4 times as long as it is broad. It exhibits an oblong linear form, and tapers gradually in its outer part, the tip being narrowly truncated, with the inner corner but little projecting, and obtuse-angular, the outer, produced into a strong spiniform projection. The outer edge is perfectly straight and smooth, whereas the inner is slightly convex and, like the tip, fringed with strong plumose setæ.

The anterior and posterior lips, as also the mandibles are of quite normal sructure.

The 1st pair of maxillæ (fig. 5), as in *P. Baeri*, have each, at the end of the basal part exteriorly, a series of curved plumose setæ, 5 in number. The outer masticatory lobe is rather strong and has outside a notch similar to that found in *P. Baeri*. The inner masticatory lobe exhibits the usual cordiform shape.

The 2nd pair of maxillæ (fig. 6) differ very pronouncedly from those in *P. Baeri* in the structure of the exognath, which is rather small, and of quite normal appearance, without any expansion at the base, and with the marginal setæ of uniform size. The terminal joint of the palp is rather narrow, elliptical in form, with about 14 ciliated setæ on the outer edge.

The maxillipeds and gnathopoda do not exhibit any marked difference from those in *P. Baeri*, and need not therefore be described in detail.

The pereiopoda (fig. 7), on the other hand, appear rather more elongated, with the meral joint fully as long as the ischial one, and having in-

side 5 dense fascicles of slender bristles. The terminal part considerably exceeds in length the meral joint, especially on the anterior pairs, and, as in *P. Baeri*, is divided into 5 articulations, the 1st of which is quite short, whereas the 2nd is rather elongated. In the last pair this part (fig. 9) is, however, considerably shorter and stouter than in the preceding pairs.

The 3rd pair of pleopoda in the male (fig. 14) scarcely differ in their structure from those in the male of *P. Baeri*; the 4th pair (fig. 15) are also constructed in a very similar manner, though being somewhat more elongi ated, extending as far as the tip of the caudal appendages.

The inner plate of the uropoda (fig. 10) is somewhat more dilated at the base than in *P. Baeri*, and has also the otolith comparatively larger. The inner edge of the plate is only armed with 5 spines, which are confined to its proximal part, whereas in *P. Baeri* they are distributed along almost the whole inner edge, and amount to about the number double.

The telson (fig. 11) resembles in form and size that in *P. Baeri*, being rather large, about two and a half times longer than it is broad at the base, and tapering considerably in its outer part. The lateral denticles are, however, less numerous, about 16 on each side, the outmost being rather remote from the tip. The apical sinus is very shallow and rounded at the bottom, with from 2 to 4 small denticles. The terminal lobes are conical, and each tipped by a rather long spine.

The pigmentation of the body is nearly as in *P. Baeri* (see fig. 1).

Occurrence. — This pretty form has been collected by Dr. Grimm in 5 Stations of the south Caspian Sea; but only in 2 of the Stations does it seem to have occurred in any abundance. The depth in 4 of the Stations is recorded to be from 22 to 38 fathoms; in the 5th, however, from which the greater part of the specimens were derived, the depth is stated to be no less than 108 fathoms.

Paramysis bakuensis, G. O. Sars, n. sp.

(Pl. II, figs. 1—10).

Specific Charcters. — Form of body rather short and stout, somewhat depressed. Cephalic part of carapace broader than the 1st segment of metasome, and having the frontal margin but very slightly convex, interocular spine distinctly projecting. Eyes short and thick, scarcely projecting beyond the sides of the carapace. Antennal scale comparatively shorter and broader than in the other 2 species, and scarcely narrowed distally, tip somewhat obliquely truncated, with the inner corner rounded, outer one produced to a strong spine. Pereiopoda short and stout, with the meral joint

smaller than the ischial one, tarsal part rather thick, with the 2nd articulation not longer than the succeeding one. Inner plate of uropoda with 6 spines on the proximal part of the inner edge. Telson but little more than twice as long as it is broad at the base, and gradually tapering distally, lateral denticles about 16 on each side, apical sinus very small, with only 2 minute denticles near the bottom. Length of female 14 mm.

Remarks. — This form differs from the other 2 species of the genus in its much smaller size, more robust form of body, and especially in the shape of the antennal scale. At first I believed it to be identical with the form recorded by Mr. Czerniavsky as *P. Baeri* var. *littoralis*, but the apical sinus of the telson is rather different in the two forms, both in shape and armature.

Description. — The general form of the body (see fig. 1) appears rather short and stout, more so than in either of the other two species, with the metasome somewhat depressed in front, and considerably tapering behind.

The carapace is comparatively large and broad, covering nearly the whole mesosome, and has the cervical sulcus very strongly marked. The cephalic part is somewhat broader than the 1st segment of the metasome, and is but little produced in front, the frontal margin being only slightly convex in the middle. The interocular spine is well marked and freely projecting beyond the frontal margin.

The eyes (see also fig. 2) are very short and thick, clavate, and do not project at all beyond the sides of the carapace. The corneal part is distinctly emarginated above, exhibiting, in a dorsal aspect of the animal, a pronounced reniform shape.

The superior antennæ exhibit the usual structure. In one of the 2 specimens examined, the peduncle was provided at the end below with a comparatively small conical appendage, which did not exhibit any setous armature, and thereby showed the specimen to be a still immature male (see fig. 2). In the other specimen these appendages were wholly wanting.

The inferior antennæ (fig. 4) have the basal part produced outside to a remarkably strong triangular projection. The scale differs conspicuously from that in the other 2 species, being comparatively shorter and broader, with the outer part scarcely at all narrowed. It only exceeds the length of the peduncle of the superior antennæ by $^1/_3$, and is scarcely 3 times as long as it is broad. The tip appears somewhat obliquely truncated, with the inner corner more produced than in the other 2 species, though surmounted by the spine of the outer corner.

The oral parts could not be examined in detail for want of specimens.

The pereiopoda (figs. 6, 7) are short and robust, with the ischial and meral joints considerably expanded and of somewhat unequal size, the

ischial joint being much the larger. The terminal part somewhat exceeds in length the meral joint, and, as in the other species, is divided into 5 articulations, the 1st of which is very short, and obliquely truncated at the end. The 2nd articulation does not in this species exceed in size the succeeding one.

The inner plate of the uropoda (fig. 8) is considerably tumefied at the base, with the otolith well developed. It is armed in its proximal part inside with 6 slender spines, the outmost of which is somewhat remote from the others.

The telson (figs. 3 and 9) appears, like most of the other appendages, comparatively shorter than in the other 2 species, though otherwise exhibiting a rather similar structure. It is but little more than twice as long as it is broad at the base, and gradually tapers distally, with the outer part rather narrowed. The lateral denticles are about 16 on each side, the outmost being, as in the other species, placed at some distance from the tip. The apical sinus (see fig. 10) is rather small and narrow, with only 2 minute denticles placed near the bottom. The terminal lobes are conical in form and each tipped by a rather strong spine.

The pigmentation of the body (see fig. 4) is somewhat peculiar, being especially very pronounced on the carapace and the last segment of the metasome, which latter is ornamented all over with ramified pigmentary stripes and thereby assumes a very dark hue. On the dorsal face of the carapace 2 very conspicuous longitudinal, parallel pigmentary stripes are seen, and from these numerous delicate ramifications issue in different directions. On the 5 anterior segments of the metasome, the usual dorsal pigmentary centres occur, and a similar row of pigmentary patches are also found on the ventral face of these segments. Moreover the eye-pedicles, antennæ, pereiopoda and telson are more or less conspicuously pigmented.

Occurrence. — Only 2 specimens of this form, labelled *Mysis relicta*, are contained in the collection, a female and a male, both apparently not yet fully grown. According to the label, they were collected in the Bay of Baku from a depth of 6 fathoms.

Gen. **Metamysis,** G. O. Sars, n.

Generic Characters. — Carapace well developed, covering the greater part of the mesosome. Metasome remarkably elongated. Eyes thick, clavate. Antennal scale obliquely truncated at the tip, with the inner corner projecting beyond the spine of the outer. Oral parts on the whole normal. Pereiopoda remarkably robust and densely hirsute, meral joint lamellarly expanded,

terminal part divided into 5 articulations. Pleopoda about as in *Paramysis*. Telson rather elongated, tapering distally, tip transversely truncated, without any sinus.

Remarks. — This new genus is somewhat intermediate between the genera *Paramysis* and *Mesomysis*, though perhaps being nearest allied to the first-named genus. It differs however very markedly from that genus in

In a dorsal view of the animal (Pl. III, fig. 1), the body appears rather slender and elongated, with the metasome very fully developed, being almost twice the length of the anterior division.

The carapace is well developed, advancing even laterally somewhat beyond the metasome (comp. Pl. IV, fig. 7). Dorsally it is, however, rather deeply emarginated, so as to exhibit the last segment of the mesosome partly uncovered above. It exhibits a well-defined cervical sulcus marking off the cephalic part, which does not attain the breadth of the 1st segment of the metasome. Anteriorly it appears almost transversely truncated, the frontal margin being not at all produced in the middle. Immediately beneath the latter, the large interocular spine projects in front. It exhibits (see fig. 2) a rather anomalous appearance, being very broad and depressed at the base, and of triangular form. In front of this spine, another much narrower

recurved, plumose setæ. The exognath is simple elliptical in form, with the marginal setæ of uniform size.

The maxillipeds (fig. 9) resemble those in the genus *Paramysis*, except that the penultimate joint is fringed outside with long, recurved, ciliated bristles.

The gnathopods (Pl. IV, fig. 1) have the ischial joint rather broad

the uropoda. It is about two and a half times as long as it is broad at the base, and gradually tapers distally. The lateral edges are nearly straight, and each armed with about 25 denticles, the outmost of which is placed at some distance from the tip. The apical sinus is wholly wanting, the extremity of the telson (fig. 11) being narrowly truncated, with the terminal edge perfectly straight, and divided into a regular, comb-like row of dentiform projections, flanked on each side by a somewhat stronger denticle.

The adult male (Pl. IV, fig. 7) reaches a length of no less than 38 mm., and resembles the female as to the general form of the body, though being perhaps a little more robust. It exhibits the usual sexual characters, and in this respect agrees with the males of *Paramysis* and *Mesomysis*. The hairy appendage of the superior antennæ is well developed, and almost as long as the peduncle. The 3rd and 4th pairs of pleopoda are quite normally modified, the former (fig. 8) having the outer ramus shorter than the inner and of narrow subulate form, with a single terminal bristle. The 4th pair (fig. 9) are rather largely developed, extending almost to the end of the caudal fan (see fig. 7). They consist, as usual, each of an elongated and somewhat compressed basal part and 2 rami, the inner of which, however, is very small. The outer ramus, on the other hand, forms a long, cylindric stem, divided into 6 well defined articulations, and terminating in 2 diverging stylets, the outer of which is the longer, and has the distal part fringed on one side with slender spinules. The inner stylet is distinctly biarticulate, with the outer joint denticulate on both edges.

As to the pigmentation of the body, in both sexes (see Pl. III, fig. 1, Pl. IV, fig. 7) the usual dorsal and ventral row of pigmentary centres are found on the metasome. There is also on each side of the carapace, immediately behind the cervical sulcus, a very conspicuous pigmentary patch, from which rich ramifications extend, chiefly backwards; but otherwise no trace of any dorsal pigmentary spots is found on the carapace. At the base of the telson, as usual, 2 juxtaposed pigmentary patches occur, and also on the eye-pedicles, and partly also on the antennæ, slight pigmentary ramification may be observed.

5. **Mesomysis Kowalevskyi**, Czern.

Forma typica.

Pl. V.

Mesomysis Kowalevskyi, Czerniavsky, l. c. fasc. 2, p. 50, Pl. XXI, Pl. XXII, figs. 1—13.

Specific Characters. — Form of body rather short and stout. Cephalic part of carapace narrower than the 1st segment of metasome, frontal margin but slightly arcuate in the middle, interocular spine freely projecting. Eyes rather large, pyriform. Antennal scale of moderate size, exceeding the

The superior antennæ (fig. 4) are quite normally constructed.

The scale of the inferior antennæ (fig. 5) resembles in shape that of the North Caspian form, though, on a closer comparison, it appears somewhat shorter and more obliquely truncated at the tip, the terminal part in front of the outer corner occupying nearly $^1/_5$ of the length of the scale.

The pereiopoda (fig. 6) are rather feeble, and resemble on the whole, in their structure, those in the North Caspian form.

The uropoda (see fig. 8) differ, however, in the fact of the inner plate 7 spines, considerably more tumefied at the base, and having inside only (fig. 9) being the outmost of which is rather far distant from the tip.

The telson (fig. 8 and 10) also differs conspicuously from that in the North Caspian form. It is rather short, not nearly attaining the length of the last segment of the metasome, and being scarcely twice as long as it is broad at the base. It tapers very slightly and gradually towards the tip, and has the lateral edges perfectly straight, not, as in the North Caspian form, convex beyond the middle. The number of lateral denticles is from 16 to 20 on each side, the outmost being placed at some distance from the tip. The apical sinus (see fig. 11) is very slight, appearing merely as a shallow emargination of the tip, and is bordered by a regular series of dentiform projections, about 19 in number. The lateral corners, as usual, are each armed with a somewhat stronger denticle.

In one of the specimens, the only one which was in a good state of preservation, the pigmentation of the body was pretty clearly visible, and showed itself to be rather peculiar and unlike that in the North Caspian form, consisting of numerous irregular patches of a dark brown colour distributed all over the body (see figs. 1 and 2). The usual dorsal and ventral rows of pigmentary centres on the metasome are, it is true, present in this form present, but they are far less conspicuous, and not nearly so also arborescent as in the North Caspian form.

Occurrence. — This form has been collected by Dr. Grimm in the Bay of Baku, at depths ranging from 6 to 26 fathoms, and likewise in the Basin at Leukoran. The specimens examined by Mr. Czerniavsky were derived from about the same tract of the Caspian Sea.

6. **Mesomysis Czerniavskyi**, G. O. Sars.

Mesomysis Czerniavskyi, G. O, Sars, l. c. p. 410, Pl. V.

Occurrence. — Two specimens of this species were collected by Dr. Grimm in the Bay Balchansky, at a depth of 7—12 feet.

7. **Mesomysis intermedia**, Czern.

Mesomysis intermedia, Czerniavsky, l. c. fasc. 2, p. 52, Pl. XXII, figs. 14—20, Pl. XXIII, figs. 1—15.

Mesomysis intermedia, G. O. Sars l. c. p. 411, Pl. VI.

Occurrence. — Numerous, for the greater part very badly preserved specimens of this species are contained in the collection, having been found in the Bay of Baku at a depth of 6 fathoms. Moreover some specimens of the same form were extracted by Mr. Kessler in the year 1871 from the stomach of a perch at Birjutshja Kossa.

8. **Mesomysis incerta**, G. O. Sars, n. sp.

(Pl. II, figs. 11—13).

Specific Characters. — Frontal margin of carapace slightly arcuate in the middle, leaving the interocular spine uncovered. Eyes rather large, pyriform. Antennal scale rather elongated, oblong linear in form, tip narrowly truncated, with the inner corner not projecting beyond the spine of the outer. Pereiopoda rather feeble. Uropoda with the outer plate narrow and elongated, exceeding the inner by nearly $^1/_3$ of its length. Telson fully twice as long as it is broad at the base, and considerably narrowed distally, lateral edges perfectly straight, and each armed with about 18 denticles, apical sinus very small and evenly rounded at the bottom, being, as usual, fringed with a regular row of dentiform projections, denticles of the outer corners scarcely larger than the lateral ones and somewhat incurved. Length about 17 mm.

Remarks. — The present species is only established from a single, very badly preserved specimen, the examination of which has therefore been rather imperfect. It is, however, evidently distinct from any of the earlier known species, differing, among other characteristics, very pronouncedly in the form of the antennal scale.

Description. — The solitary specimen examined has been by some accident crushed in the middle, so as to leave only the anterior and posterior parts of the body tolerably uninjured. Its length would seem to have been about 17 mm.

The form of the body can only conjecturally be assumed to have been rather slender.

The carapace gradually tapers in front, and has the cephalic part well defined by the usual cervical sulcus. The frontal margin (see fig. 11) is but slightly arcuate in the middle, and in front of it the interocular spine projects freely.

The eyes (ibid.) are rather large and massive, of the usual pyriform shape, though scarcely projecting beyond the sides of the carapace. The corneal part is distinctly emarginated above, with dark pigment and well-developed visual elements.

The peduncle of the superior antennæ (ibid.) is comparatively robust, but otherwise of the usual structure.

The scale of the inferior antennæ (ibid.) differs very pronouncedly in its shape from that in the other species of the genus, and more resembles that in the genus *Paramysis*. It is rather elongated, exceeding the peduncle of the superior antennæ by nearly half its length, and exhibits an oblong linear form, with the tip narrowly truncated, and not nearly so oblique as in the other species, the inner corner being but little produced, and even surmounted by the spine of the outer one.

The pereiopoda (fig. 12) are comparatively feeble, and agree in their structure with those in the other species of the genus *Mesomysis*.

The uropoda (see fig. 13) have the outer plate very narrow and elon-

9. **Austromysis loxolepis**, G. O. Sars, n. sp.

(Pl. VI.)

Specific Characters. — Form of body very slender. Cephalic part of carapace narrower than the 1st segment of metasome, frontal margin very slightly arcuate in the middle, interocular spine exposed. Eyes well developed, pyriform. Antennal scale pronouncedly rhomboidal in form, the tip being very obliquely truncated, with the inner corner produced in the form of a narrow linguiform lobe having a distinct terminal segment, spine of outer corner occurring about at the middle of the length of the scale. Pereiopoda rather slender, with the ischial and meral joints narrow and elongated, terminal part about the length of the meral joint, and 5-articulate, 1st articulation very short. Fourth pair of pleopoda in male extending as far as the end of the caudal fan. Inner plate of uropoda rather tumefied at the base, and armed in its proximal part inside with only 4 spines. Telson scarcely twice as long as it is broad at the base, and considerably narrowed distally, lateral edges straight, and each armed with about 17 denticles, apical sinus very slight, not angular, and fringed with a regular row of dentiform projections, spines of the outer corners very strong. Body without any perceptible pigmentation. Length 12 mm.

Remarks. — The present new species is easily distinguishable from either of the Mediterranean forms by its much more slender body, as also by the shape of the antennal scale, and especially that of the telson.

Description of the female. — The length of fully adult, ovigerous specimens measures about 12 mm.

The form of the body (see fig. 1) is comparatively slender and elegant, and the present form is thereby at once distinguished from the 2 Mediterranean species, which both have a rather robust body.

The carapace is comparatively small, only imperfectly obtecting the mesosome, the last 2 segments of which appear exposed behind it. The cephalic part is well defined, and somewhat narrower than the 1st segment of the metasome. The frontal margin is but very slightly arcuate in the middle, and in front of it, the interocular spine appears freely projecting.

The eyes are well developed and of the usual pyriform shape, projecting laterally somewhat beyond the edges of the carapace. The corneal part is slightly emarginated above, and has the pigment very dark.

The peduncle of the superior antennæ (fig. 2) is but little longer than the eyes, and has only a restricted number of plumose setæ at the end inside.

The inferior antennæ (fig. 3) have the basal part rather thick and produced at the end outside to a somewhat incurved dentiform projection. The scale is not very large, only exceeding the length of the peduncle of the superior antenna by $^1/_3$. It exhibits a narrow rhomboidal shape, being very obliquely truncated at the end, with the inner corner projecting in the

It is rather narrowed distally, being about twice as broad at the base as at the tip. The lateral edges are nearly straight, and each armed with about 17 denticles, the outmost of which is somewhat remote from the tip. The apical sinus is very unlike that in the 2 Mediterranean species, appearing merely as a slight and even emargination of the tip, not as an angular incision. The edge of the emargination is divided into regular dentiform projections, about 17 in number, and from each of the lateral corners a very strong denticle, fully twice as large as the lateral ones, proceed

10. **Mysis caspia**, G. O. Sars, n. sp.

(Pl. VII).

Specific Characters. — Form of body moderately slender. Cephalic part of carapace fully as broad as the 1st segment of metasome, and produced anteriorly to an evenly rounded frontal plate advancing over the bases of the eyes. The latter large, pyriform, with dark pigment. Antennal scale very much elongated, being two and a half times as long as the peduncle of the superior antennæ, form narrowly lanceolate, with the tip obtuse and exhibiting a small terminal segment. Pereiopoda slender, with the terminal part 8—11-articulate. Inner plate of uropoda with 5 slender spines on the proximal part of the inner edge. Telson rather elongated, and considerably narrowed in its outer part, lateral denticles about 22 on each side, the outmost placed at some distance from the others and from the tip, apical sinus not very deep, subangular at the bottom, and densely fringed with dentiform projections, denticles of the outer corners scarcely larger than the lateral ones. Body with a well-marked series of pigmentary centres along the dorsal face. Length nearly 30 mm.

Remarks. — The present new species is allied to the typical form, *M. oculata*, but differs rather conspicuously in the much more elongated antennal scale, as also in the shallower apical sinus of the telson. In the latter respect it more resembles *M. relicta*; but the narrow and elongated antennal scale distinguishes it at once from that species, which has the scale rather short.

Description of the female. — The length of adult specimens nearly attains 30 mm., and this form accordingly grows to a considerably larger size than *M. relicta*, and in this respect about equals the typical species *M. oculata*.

The form of the body (see fig. 1) is moderately slender, resembling, on the whole, more that of *M. oculata* than that of *M. relicta*.

The carapace is of moderate size, and but slightly emarginated posteriorly, leaving only the last segment of the mesosome uncovered above. The cephalic part is well defined, and produced anteriorly to a rather prominent frontal plate, advancing over the bases of the eyes (see fig. 2). No interocular spine is present.

The eyes (see fig. 2) are rather large, pyriform, and project considerably beyond the sides of the carapace. The corneal part is rather expanded and slightly emarginated above. The pigment is very dark, and the visual elements well developed.

The peduncle of the superior antennæ (fig. 3) is comparatively short and stout, though a little longer than the eyes, and has the last joint provided at the inner corner with numerous plumose setæ extending also along its inner edge.

The inferior antennæ (fig. 4) have the basal part rather short, and produced at the end outside to a strong dentiform projection. The scale is remarkably elongated, being fully 3 times as long as the scape and two and a half times as long as the peduncle of the superior antennæ. It exhibits a very narrow lanceolate form, its greatest breadth scarcely exceeding $^1/_6$ of the length, and is fringed all round with plumose setæ, those of the inner edge being much the longest. The tip is somewhat blunted, and exhibits a small terminal segment, carrying 4 of the marginal setæ (see fig. 4 a).

The oral parts agree in their structure with those in the other species of the genus.

The 1st pair of maxillæ (fig. 5) are constructed much as in the genus *Mesomysis*.

The 2nd pair of maxillæ (fig. 6), on the other hand, differ in the form and armature of the terminal joint of the palp. This joint is rather large and expanded, of a somewhat spatulate form, with the terminal edge strongly convex and carrying a dense row of slender spines denticulated in their outmost part (see fig. 6 a). The number of these spines amounts to about 20 in all, and they are accordingly placed close together, forming a dense fringe. The exognath is of moderate size, and somewhat lanceolate in form, its anterior part being exserted to an obtuse point, carrying a rather elongate seta. The other marginal setæ are of uniform size and very densely plumose.

The maxillipeds (fig. 7) nearly agree in their structure with those in the genus *Austromysis*.

This is also the case with the gnathopoda (fig. 8).

The pereiopoda (fig. 9) are rather slender and densely setiferous. The ischial and meral joints are narrow and elongated, being of about equal size. The terminal part is very flexible, and considerably exceeds in length the meral joint. It is divided into numerous short articulations carrying, inside, fascicles of slender setæ, outside, a few considerably shorter and partly ciliated bristles. The number of the articulations on the anterior pairs is 8, increasing in the posterior ones (fig. 10) to no less than 11. Of the articulations, unlike what is the case in the genera *Paramysis*, *Mesomysis* and *Austromysis*, the 1st is much the largest. The last articulation (see fig. 9 a) is extremely minute, narrow conical in form, and carries on the tip 3 bristles, the largest of which may represent the terminal claw.

The inner plate of the uropoda (fig. 11) is moderately tumefied at the base, with the otolith well developed, though not very large. The inner edge of the plate is armed in its proximal part with 5 slender spines.

The telson (fig. 12) is rather elongated, exceeding in length the last seg-

Antennal scale lanceolate, about twice as long as the last joint of

segment. The scape of these antennæ is, at least in the male, considerably stronger than in the preceding species.

The oral parts (figs. 6—10) agree on the whole perfectly with those in the preceding species, though the terminal joint of the palp in the 2nd pair of maxillæ (fig. 10) appears somewhat less expanded, and provided with a smaller number of marginal spines.

The pereiopoda (figs. 11, 12) are considerably elongated and very densely setiferous. In structure they agree with those in the preceding species, except that the ischial joint is somewhat longer, and that the terminal part of the posterior pairs has 10, instead of 11 articulations.

The sexual appendages of the male (fig. 13), issuing at the base of the last pair of pereiopoda, are of cylindrical form, and somewhat curved anteriorly. They have each along the anterior edge a row of 4 plumose setæ, and exhibit at the tip 2 rounded lips bounding the opening for the vas deferens, the anterior lip being the more prominent and fringed with curved bristles.

The 3rd and 4th pairs of pleopoda in the male (figs. 14, 15) are constructed in the very same manner as in the preceding species. The 4th pair (fig. 15) are, however, comparatively more strongly developed, extending about to the end of the telson, and have one joint less in the outer ramus.

The inner plate of the uropoda (fig. 16) does not exhibit any trace of spines on the inner edge; otherwise it looks very like that of *M. caspia*.

The telson (fig. 17) also exhibits a very similar appearance to that in the preceding species, being rather elongated and considerably narrowed distally. The lateral edges are each armed with about 16 denticles, the outmost of which is placed at a rather great distance from the others as well as from the tip. The apical sinus is comparatively short and narrowly rounded at the bottom, being fringed with a dense, comb-like series of dentiform projections similar to that in the preceding species. The denticles of the outer corners are not particularly strong, though somewhat larger than the lateral ones.

The body in both sexes is quite devoid of any pigmentation.

Occurrence. — Numerous specimens of this form are contained in the collection, the greater part of them being, however, still immature. They were collected in 9 different Stations belonging partly to the southern, partly to the middle part of the Caspian Sea, the depth being in one of the Stations, 75—80 fathoms, in the others, ranging from 140 to 485 fathoms. This species accordingly appears to be a true deep-water form, and the poor development of the eyes would also seem to corroborate such a supposition.

Explanation of the Plates.

Pl. I.

Paramysis Kessleri (Grimm).

Fig. 1. Adult female, viewed from the dorsal face.
» 2. Anterior part of the body of a male specimen, more strongly magnified; dorsal view.
» 3. Peduncle of the right superior antenna (female), with the bases of the flagella, viewed from above.
» 4. Basal part of the right inferior antenna, with the scale (without the marginal setæ) and the base of the flagellum; dorsal view.
» 5. First maxilla.
» 6. Second maxilla.
Fig. 7. Pereiopod of 2nd pair.
» 8. Terminal part of a pereiopod of 1st pair.
» 9. Same part of last pereiopod.
» 10. Inner plate of left uropod (without the marginal setæ).
» 11. Telson viewed from above.
» 12, 13. Outer part of the telson of 2 other specimens, showing the variation in the shape and armature of the apical sinus.
» 14. Third pleopod of male.
» 15. Fourth pleopod of male.

Pl. II.

Paramysis bakuensis, G. O. Sars.

Fig. 1. Young female, viewed from the dorsal face.
» 2. Anterior part of body of a young male specimen, more strongly magnified; dorsal view.
» 3. Extremity of the last segment, with the caudal appendages (outer plate of left uropod not delineated); dorsal view.
» 4. Basal part of left inferior antenna, with the scale (marginal setæ omitted) and the base of the flagellum; ventral view.
Fig. 5. Extremity of the scale, more highly magnified.
» 6. Pereiopod of 2nd pair.
» 7. Outer part of another pereiopod.
» 8. Inner plate of left uropod; ventral view.
» 9. Telson viewed from above.
» 10. Extremity of same, more highly magnified.

Mesomysis incerta, G. O. Sars.

Fig. 11. Anterior part of body, viewed from above.
» 12. Pereiopod, without the exopodite.
Fig. 13. Extremity of last segment, with telson and right uropod (marginal setæ omitted); dorsal view.

Pl. III.

Metamysis Grimmi, G. O. Sars.

Fig. 1. Female viewed from above.
» 2. Anterior part of body of same, more highly magnified; dorsal view.
» 3. Peduncle of right superior antenna, with the bases of the flagella.
» 4. Basal part of right inferior antenna, with the scale (marginal setæ omitted) and the base of the flagellum; dorsal view.
» 5. Left mandible with palp; ventral view.
» 6. Masticatory part of same, more highly magnified.
Fig. 7. First maxilla.
» 8. Second maxilla.
» 9. Maxilliped, with exopodite and epipodite.
» 10. Extremity of last segment, with telson and right uropod (marginal setæ omitted); dorsal view.
» 11. Extremity of telson, more highly magnified.

Pl. IV.

Metamysis Grimmi, G. O. Sars.

(Continued.)

Fig. 1. Gnathopod.
» 2. Pereiopod of 1st pair.
» 3. One of the posterior pereiopods.
» 4. Pleopod of 1st pair.
» 5. Pleopod of 3rd pair.
Fig. 6. Inner plate of right uropod (marginal setæ omitted); ventral view.
» 7. Adult male, viewed from left side.
» 8. Third pleopod of same.
» 9. Fourth pleopod of same.

Pl. V.

Mesomysis Kowalevskyi, Czern.

(forma typica).

Fig. 1. Adult, ovigerous female, viewed from the dorsal face.
» 2. Same, seen from left side.
» 3. Anterior part of body, more highly magnified; dorsal view.
» 4. Peduncle of left superior antenna with bases of the flagella; dorsal view.
» 5. Scale of right inferior antenna.
» 6. Pereiopod of 2nd pair.
» 7. Extremity of same, more highly magnified.
Fig. 8. Extremity of last segment, with telson and right uropod (marginal setæ omitted); dorsal view.
» 9. Inner plate of left uropod (without the marginal setæ); ventral view.
» 10. Telson, viewed from above.
» 11. Extremity of same, more highly magnified.

Pl. VI.

Austromysis loxolepis, G. O. Sars.

Fig. 1. Adult, ovigerous female, viewed from above.
» 2. Peduncle of left superior antenna, with bases of the flagella.
» 3. Basal part of left inferior antenna, with the scale (marginal setæ omitted) and base of the flagellum; dorsal view.
» 3a. Extremity of the scale, more highly magnified.
» 4. First maxilla.
Fig. 5. Second maxilla.
» 6. Maxilliped.
» 7. Pereiopod of 2nd pair.
» 8. Inner plate of right uropod, viewed from the ventral face.
» 9. Telson, seen from above.
» 9a. Extremity of same, more highly magnified.
» 10. Adult male, viewed from left side.
» 11. Fourth pleopod of same.

Pl. VII.

Mysis caspia, G. O. Sars.

Fig. 1. Adult female, viewed from the dorsal face.
» 2. Anterior part of body, more highly magnified.
» 3. Peduncle of right superior antenna, with bases of the flagella.
» 4. Basal part of left inferior antenna, with the scale (marginal setæ omitted) and base of the flagellum; dorsal view.
» 4a. Extremity of the scale, more highly magnified.
» 5. First maxilla.
» 6. Second maxilla.
» 6a. One of the marginal spines of the palp, highly magnified.
» 7. Maxilliped, with exopodite and epipodite.
Fig. 8. Gnathopod (exopodite not fully delineated).
» 9. Pereiopod of 1st pair.
» 9a. Extremity of same, more highly magnified.
» 10. Outer part of one of the posterior pereiopods.
» 11. Inner plate of right uropod (without the marginal setæ), viewed from the ventral face.
» 12. Telson, viewed from above.
» 13. Extremity of same, more highly magnified.
» 14. Third pleopod of male.
» 15. Fourth pleopod of male.

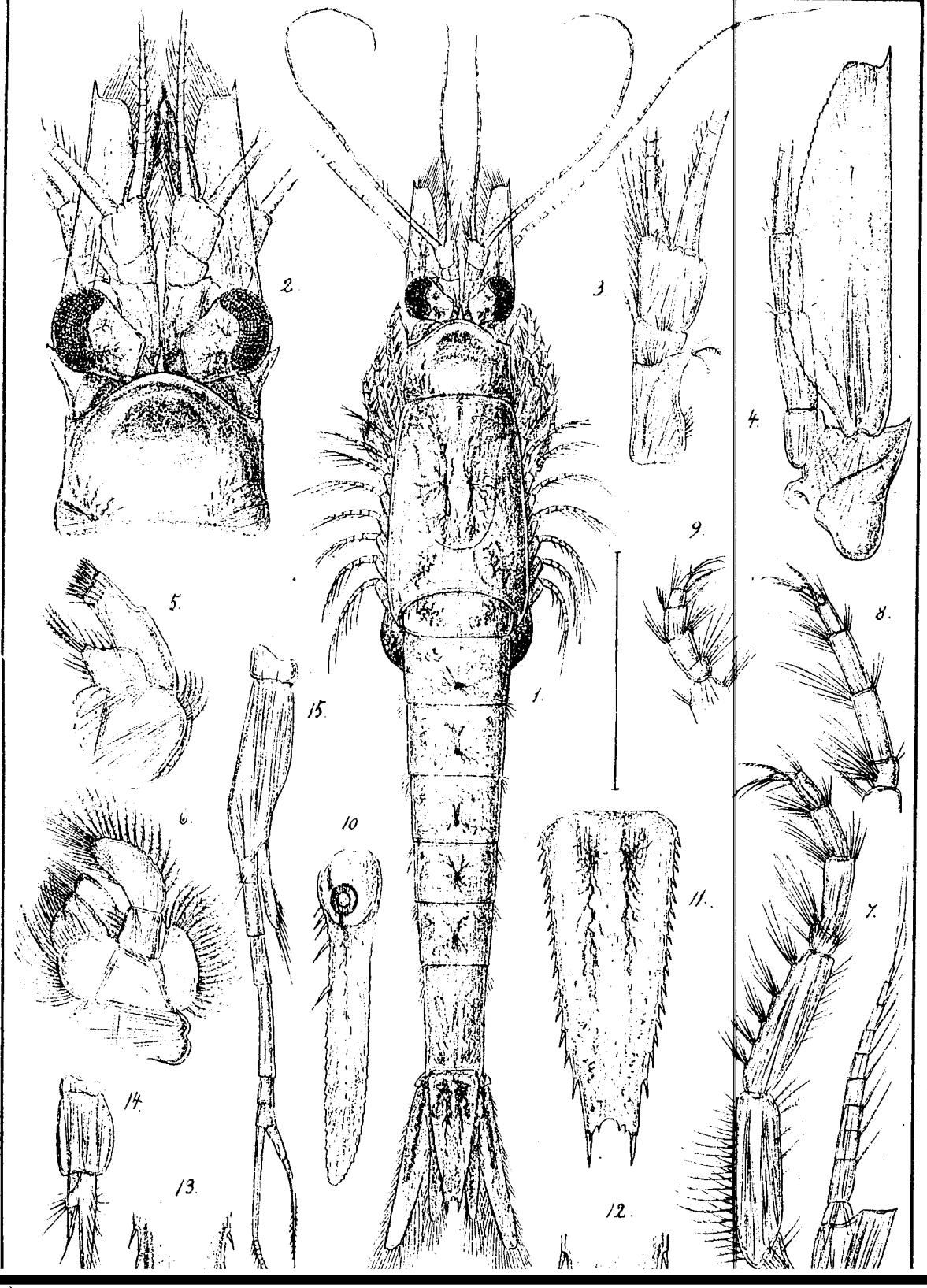
Pl. VIII.

Mysis microphthalma, G. O. Sars.

Fig. 1. Young female, viewed from the dorsal face.
» 2. Anterior part of body of an adult male; dorsal view.
» 3. Right eye of same.
» 4. Peduncle of right superior antenna of an adult male, viewed from the ventral face.
» 5. Basal part of right inferior antenna, with the scale (marginal setæ omitted) and base of the flagellum.
» 6. Anterior lip.
» 7. Posterior lip.
» 8. Mandibular palp.
Fig. 9. Masticatory parts of the mandibles.
» 10. Second maxilla.
» 11. Pereiopod of 1st pair.
» 12. Outer part of one of the posterior pereiopods.
» 13. One of the outer sexual appendages.
» 14. Third pleopod of male.
» 15. Fourth pleopod of same.
» 16. Inner plate of left uropod, viewed from the ventral face.
» 17. Telson, viewed from above.
» 18. Extremity of same, more highly magnified.

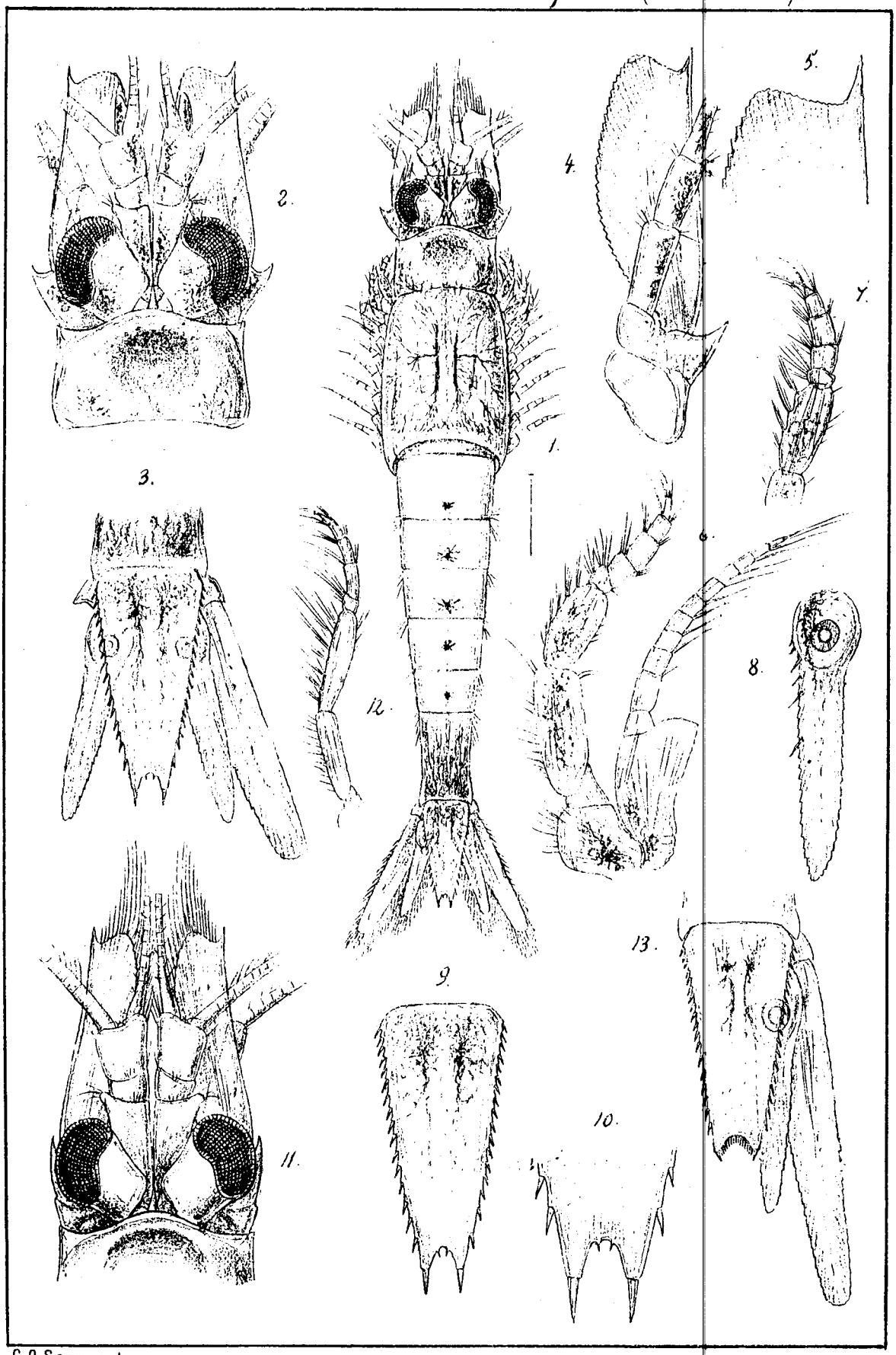
G.O.Sars Crustacea caspia.

Mysidæ (coll. Grimm) Pl. I.



G.O.Sars Crustacea caspia.

Mysidæ (coll. Grimm) Pl. II.

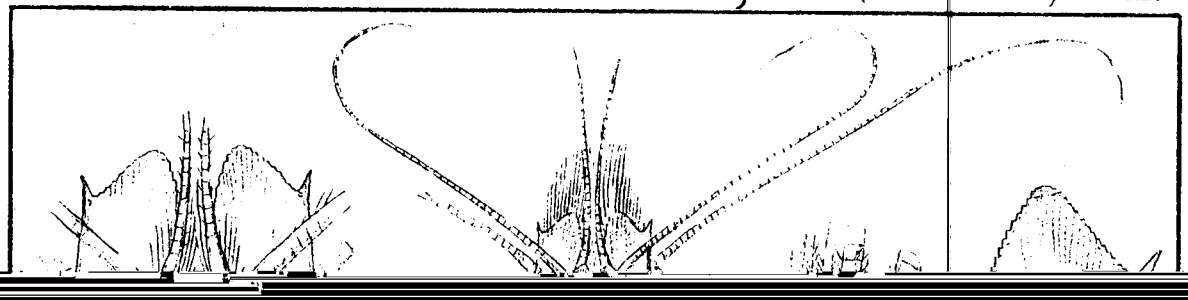


G.O.Sars. autogr.

1-10. Paramysis bakuensis, n. sp.
11-13. Mesomysis incerta, n. sp.

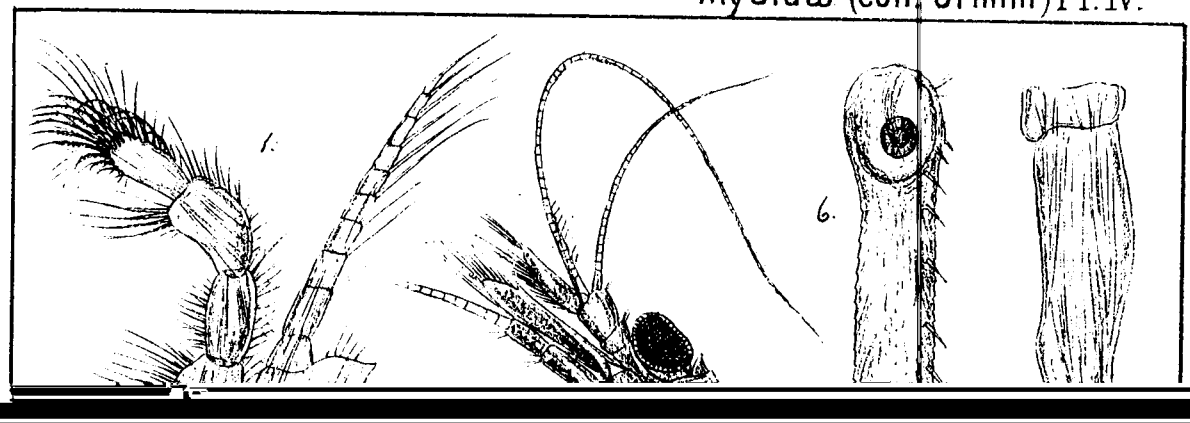
G.O.Sars Crustacea caspia.

Mysidæ (coll. Grimm) Pl. III.



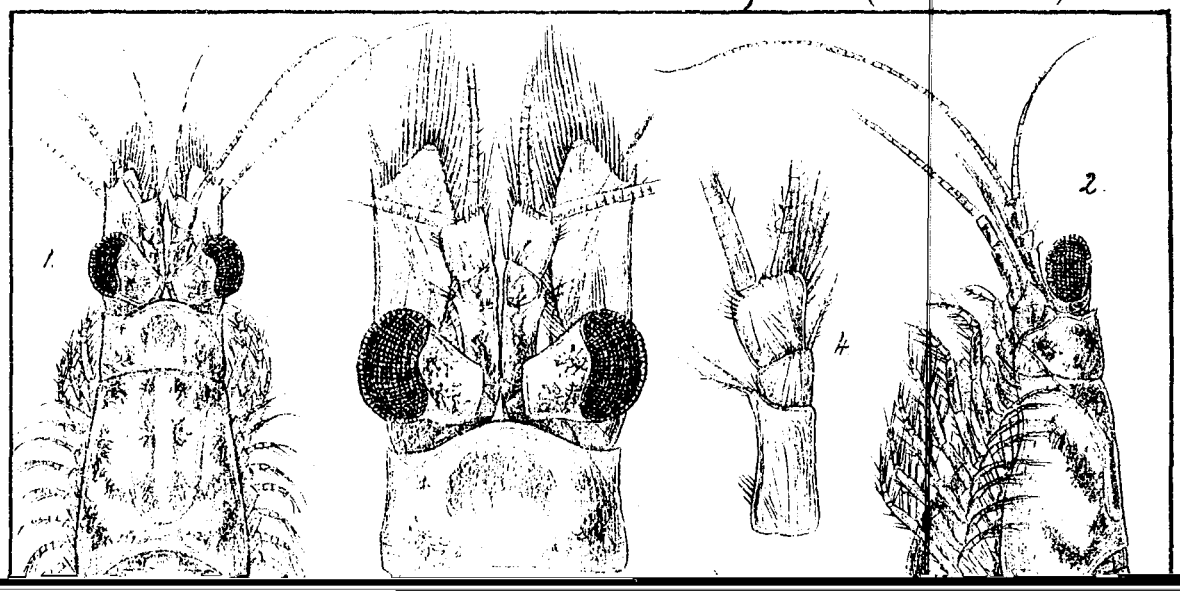
G.O.Sars Crustacea caspia.

Mysidæ (coll. Grimm) Pl. IV.



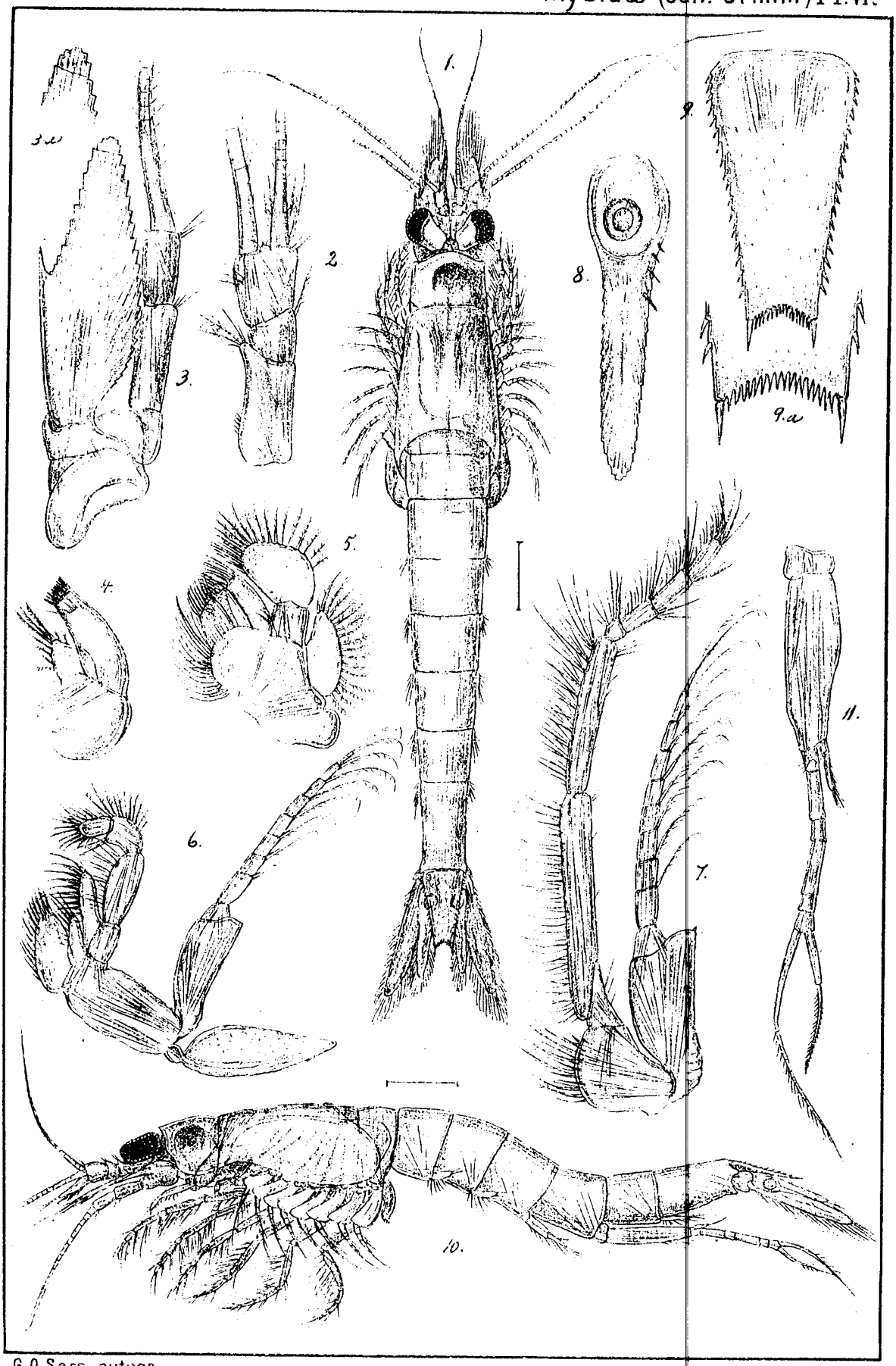
G.O.Sars Crustacea caspia.

Mysidæ (coll. Grimm) Pl.V.



G.O.Sars Crustacea caspia.

Mysidæ (coll. Grimm) Pl. VI.

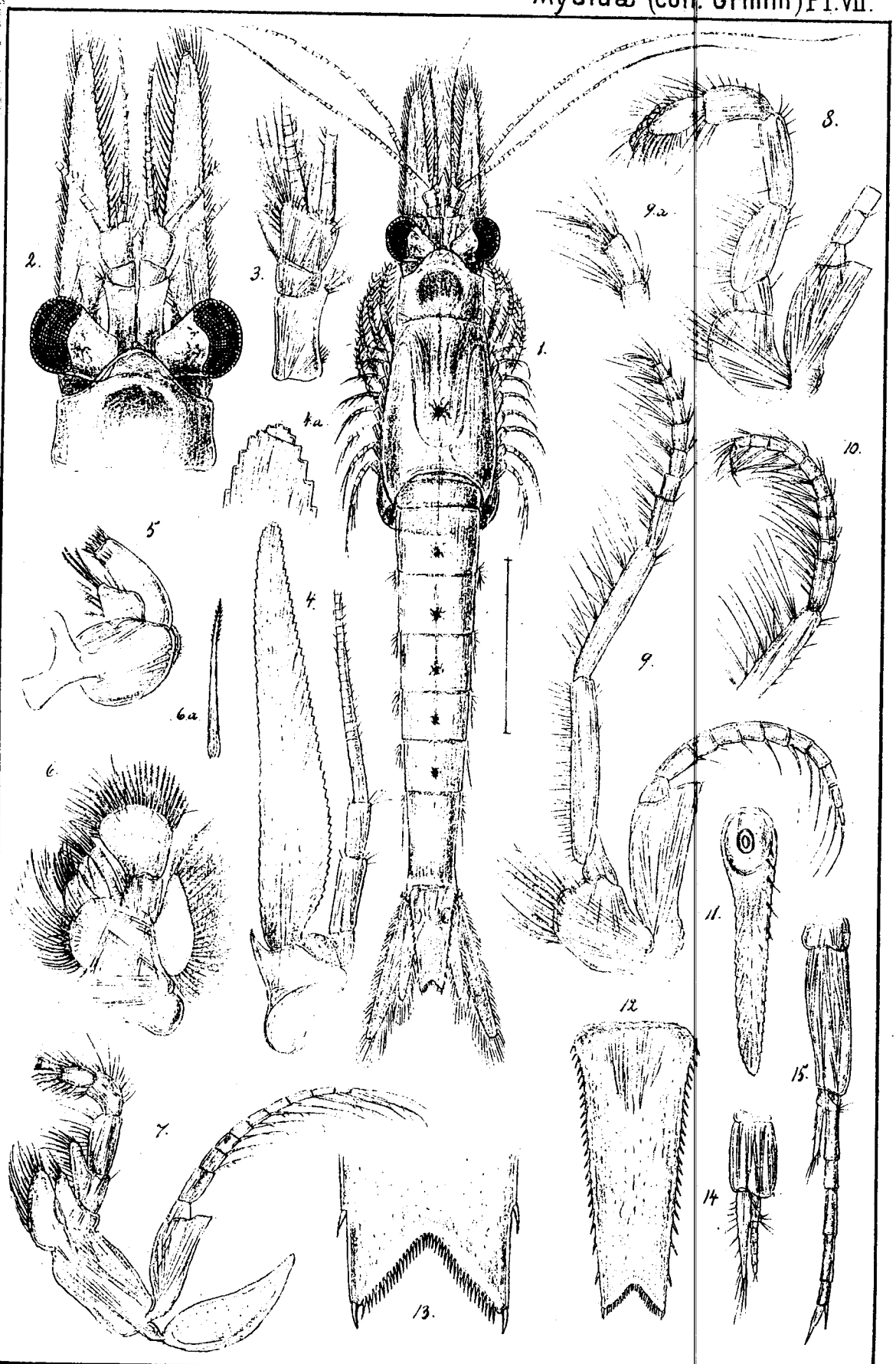


G.O.Sars autogr.

Austromysis loxolepis, n. sp.

G.O.Sars Crustacea caspia.

Mysidæ (coll. Grimm) Pl. VII.



G.O.Sars autogr.

Mysis caspia, n. sp.

G.O.Sars Crustacea caspia.

Mysidæ (coll. Grimm) Pl.VIII.