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ЕЖЕГОДНИКЪ
ЗООЛОГИЧЕСКАГО МУЗЕЯ
ИМПЕРАТОРСКОЙ АКАДЕМІИ НАУКЪ.

ТОМЪ VIII.

1903.

СЪ 20 ТАБЛИЦАМИ, 8 РИСУНКАМИ ВЪ ТЕКСТѢ И 2 ГЕОГР. КАРТАМИ.

ИЗДАННЫЙ ПОДЪ РЕДАКЦІЕЮ

В. В. Заленскаго и Р. Г. Шмидта.

ИЗДАНІЕ ИМПЕРАТОРСКОЙ АКАДЕМІИ НАУКЪ.

САНКТПЕТЕРБУРГЪ.

ТИПОГРАФІЯ ИМПЕРАТОРСКОЙ АКАДЕМІИ НАУКЪ.

(Вас. Остр., 9 лин., № 12).

1903.

On the Crustacean Fauna of Central Asia.

By

G. O. Sars.

Part III.

Copepoda and **Ostracoda.**

With autogr. plates IX, X, XI, XII, XIII, XIV, XV, XVI and an **Appendix** containing spezialised lists of species from each locality.

(Présenté le 5 février 1903).

INTRODUCTION.

In 2 previous papers bearing the same chief titre, I have treated of the several species of *Amphipoda*, *Phyllopoda* and *Cladocera* found in the numerous plankton-samples from Central Asia forwarded to me for examination by the Zoological Museum of the Imperial Academy of Sciences in St. Petersburgh. It still remains for me to give an account of the species belonging to 2 other Crustacean orders, viz., the *Copepoda* and *Ostracoda,* these being treated of in the present paper. The former group is very largely represented in the samples, scarcely any of them being quite devoid of some Copepodous forms, and the greater number of them containing such Crustacea in great abundance. On the other head, were species of *Ostracoda* only found in a limited number of the samples, a circumstance which may be easily accounted for by the fact, that in most cases the samples were taken from the surface of the water. Of both orders several interesting forms, apparently new to science, have been found, and these will be described and figured in detail in the present paper.

I also give descriptions and figures of some other species, previously recorded, but in less satisfactory manner. In an Appendix to this paper the local Faunæ are illustrated by specialized lists of the several Crustacea found in each of the different localities investigated.

Copepoda.

Calanoida.

Fam. Centropagidæ.

1. **Boeckella orientalis** G. O. Sars, n. sp.

(Pl. IX).

Specific Characters. Female. Form of body somewhat robust, with the anterior division, seen dorsally, oval in form, greatest width occurring somewhat in front of the middle, anterior extremity somewhat contracted, posterior scarcely at all attenuated. Cephalosome exceeding in length the 3 succeeding segments combined, and only slightly vaulted above, front without any trace of tentacular appendages below. Last segment of metasome well defined from the preceding one, and having the lateral parts greatly expanded, forming large, wing-like lappets pointing obliquely behind and terminating in an acute point, left lappet somewhat larger than right, with the secondary lobule inside the base more developed, cordiform. Urosome comparatively short, not nearly attaining half the length of the anterior division, genital segment somewhat asymmetrical, being obliquely dilated in front. Caudal rami about the length of the anal segment and slightly widening distally, setæ normal. Anterior antennæ rather slender, reaching, when reflexed, to the base of the caudal rami. Posterior antennæ, oral parts, and legs exhibiting the structure characteristic of the genus. Last pair of legs with the terminal joint of the outer ramus well developed, and longer than the penultimate one, carrying outside 2 spines and inside 4 spiniform setæ, apical spine well defined at the base. Ovisac large, flattened.

Male, as usual, more slender than female, with the last segment of metasome not expanded laterally, and the urosome narrower, 5-articulate. Penultimate joint of right anterior antenna produced at the end anteriorly to a distinct hamiform projection. Last pair of legs very large, resembling in structure those in the male of *B. triarticulata,* differing however in the smaller size of the inner rami; serrate lamella issuing from the 2nd basal joint of left leg, on the other hand, larger, extending as far as the corresponding inner ramus.

Length of adult female 1,70 mm., of male 1,40 mm.

Remarks. All the hitherto known species of the genus *Boeckella* are from the southern hemisphere, partly from New Zealand, partly from Australia, and partly from South America. The occurrence of a well-marked species of this genus in Central Asia is therefore of considerable interest. The Asiatic form is nearly allied to the New Zealand species, *B. triarticulata* Thomson, which, as the first one described, ought to be regarded as the type of this genus. On a closer comparison, however, some well-marked differences are found to exist, showing these 2 forms to be in reality distinct species.

Occurrence. This interesting form was only found in one of the samples examined; but in this it occurred rather abundantly. The sample was taken on the 8th June 1899 from the river Kerulen, not far from its outlet into the lake Dalaj-nor in the eastern part of Mongolia.

Fam. **Diaptomidæ.**

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

Generic Characters. Body large and strongly built, with the cephalosome considerably dilated in the middle. Last segment of metasome imperfectly defined from the preceding one, and having the lateral parts scarcely at all expanded. Urosome composed in female of 3 well defined segments. Caudal rami short, and of same appearance in the two sexes. Anterior antennæ of moderate length, and consisting in female of 25 articulations. Posterior antennæ resembling in structure those in *Paradiaptomus*, the outer ramus being much narrower and also shorter than the

inner. Posterior maxillipeds, as in that genus, very powerfully developed, with strong claw-like spines at the tip, terminal part, however, distinctly 5-articulate. Last pair of legs in both sexes of a structure nearly agreeing with that in *Diaptomus*.

Remarks. This new genus in some respects bears a close relationship to *Paradiaptomus* (= *Broteas* Lov.), agreeing with it perfectly in the structure of the posterior antennæ, and partly also in the powerful development and coarse armature of the posterior maxillipeds; but the terminal part of the latter appendages, which in *Paradiaptomus* is only 3-articulate, consists in the present genus of five well defined joints. Moreover, the last segment of the metasome is confluent with the preceding one, and wants the lateral expansions found in *Paradiaptomus*. Finally, is the urosome in the female distinctly 3-articulate, and the caudal rami of exactly same appearance in the two sexes. The structure of the last pair of legs more resembles that of *Diaptomus* than that of *Paradiaptomus*, and, on the whole, this genus forms, as it were, a transition between the said 2 genera. The genus comprises as yet only a single species, to be described below.

2. **Hemidiaptomus ignatovi** G. O. Sars, n. sp.

(Pl. X).

Specific Characters. Female. Anterior division of body oblong in form, greatest width occurring quite in front, across the middle of the cephalosome, anterior extremity abruptly contracted, posterior gradually attenuated. Cephalosome scarcely as long as the 3 succeeding segments combined, and considerably vaulted above, front narrowed and provided below with 2 small juxtaposed nodiform prominences. Last segment of metasome rather narrow, with the lateral parts rounded off. Urosome comparatively robust, nearly attaining half the length of the anterior division, genital segment rather large and somewhat dilated in front of the middle, carrying on each side a well-marked, though rather short spinule. Caudal rami comparatively short and broad, apical setæ subequal and densely plumose. Anterior antennæ scarcely exceeding in length the anterior division of the body. Posterior maxillipeds very powerful, terminal part armed with 4 strong, subequal, anteriorly-curving claws issuing from the 4 outer joints.

Last pair of legs with the terminal joint very small and imperfectly defined at the base, apical spinules likewise small and not very unequal, claw-like projection of penultimate joint very strong and coarsely denticulate on both edges; inner ramus indistinctly biarticulate, and extending nearly to the end of the 1st joint of the outer. Ovisac of moderate size, rounded.

Male somewhat more slender than female, with the urosome narrower and 5-articulate. None of the caudal setæ transformed. Right anterior antenna with the antepenultimate joint produced at the end anteriorly to a rod-like projection reaching somewhat beyond the penultimate joint. Last pair of legs rather powerfully developed, inner rami uniarticulate, that of right leg the smaller and not extending to the middle of the distal joint of the outer ramus, proximal joint of this ramus not produced outside, distal joint comparatively short and broad, with the spine of the outer edge very slender and issuing somewhat beyond the middle; terminal claw very strong and abruptly curved beyond the middle. Left leg extending but slightly beyond the penultimate joint of the right, terminal joint lamellar, and produced at the tip to a distinct digitiform projection, inside which a short spine is attached.

Length of adult female attaining nearly 5 mm., of male 4,40 mm.

Remarks. This is one of the largest known freshwater Copepoda, rivalling in this respect with the big South African form *Paradiaptomus falcifer* (Lovén), to which it also bears some resemblance in the general form of the body. It is very curious, that this handsome Calanoid, which in some places of Central Asia seems to occur in great abundance, has not yet been observed by any of the numerous zoologists, who have made this group the object of their special study.

This form is named in the memory of the lamented Russian naturalist, P. Ignatov, to whom we are particularly indebted for his careful and extensive investigations of the lakes of Central Asia.

Occurrence. The following are the localities, where this form occurred:

1. Bitter-lake Mamai in the territory of Kokschetavsk. 3 samples taken on the 28th May 1899. Rather common.
2. Freshwater lake Tenise-Bidarak, on the southern border of the great bitter-lake Tenise. 1 sample taken on the 15th August same year. Occasionally.

3. Salt-lake Ashi-sor in the territory of Akmolinsk. 4 samples taken on the 31st July. Very abundant.
4. Salt-lake Atshali-kul in the territory of Omsk; 2 samples taken on the 21st August. Occasionally.
5. Lake Chuntu-nor in the eastern part of Mongolia; 3 samples taken on the 21st July 1899. In great abundance.
6. Tarn on the eastern border of the lake Dshujlju-Kol in Altai; 1 sample taken on the 10th August 1901. A few specimens.
7. Pond of Bordo-bá, at the southern border of the Alai-plain, Pamir; 1 sample taken by Dr. Paulsen on the 28th July 1898. Some few specimens.

3. **Diaptomus amblyodon** Marenzeller.

(Pl. XI, fig. 1, *a—h*).

Diaptomus amblyodon Marenzeller, Verhandl. k. k. Zool. bot. Gesellsch. Wien. Vol. XXIII, p. 1, Pl. VII, fig. 1.
Syn.: *Diaptomus bogdanowi* Kortchaguine.

Specific Characters. Female. Body comparatively robust, with the anterior division, seen dorsally, oblong oval in form, greatest width across the middle of the cephalosome, anterior extremity abruptly contracted, posterior gradually attenuated. Cephalosome considerably expanded laterally, front with the tentacular appendages very short, almost obsolete. Last segment of metasome imperfectly defined from the preceding one, lateral lobes comparatively small, each terminating in a somewhat exstant acute point. Urosome rather strongly built, with the genital segment very large and produced on each side at the base to a conical projection tipped by a slender curved spine. Last 2 caudal segments well defined. Caudal rami short and broad, with the setæ very strong and densely plumose. Anterior antennæ about the length of the anterior division of the body. Posterior antennæ of quite normal structure, the outer ramus being much longer than the inner. Posterior maxillipeds rather strong, but having the terminal part normal, without any claw-like spines. Last pair of legs somewhat resembling those in *Hemidiaptomus ignatovi*, the terminal joint not being defined at the base, apical spinules, however, rather unequal, claw-like

projection of penultimate joint coarsely dentate on both edges; inner ramus uniarticulate and shorter than the proximal joint of the outer. Ovisac of moderate size, rounded.

Male more robust than that of most other species, otherwise of normal appearance. Terminal section of right anterior antenna without any projections. Last pair of legs very powerful, penultimate joint of right leg with a small nodiform projection outside, last joint rather large, oval in form, with the inner edge angularly produced in the middle, spine of outer edge rather slender and occurring about in the middle, terminal claw comparatively short and abruptly curved, inner ramus of this leg very small. Left leg extending about to the middle of the last joint of the right, terminal joint somewhat irregular and minutely hairy inside, tip only very slightly produced, and having inside the projection a small spinule; inner ramus considerably larger than that of right leg.

Length of adult female 3,30 mm., of male 3,00 mm.

Remarks. This form was first recorded in the year 1873 by Dr. Marenzeller under the above name, and was subsequently redescribed by Mr. Kortshaguine under another name, viz., *D. bogdanowi*. It is one of the largest species of *Diaptomus*, and moreover easily recognizable by its comparatively robust form of body, somewhat recalling that of *Hemidiaptomus ignatovi*, and by the slender spines issuing from the sides of the genital segment in the female. Another character, not noticed by previous authors, is the rudimentary condition of the tentacular appendages of the front. The structure of the last pair of legs in both sexes has been well represented in the well-known paper of Messr. de Guerne and Richard.

Occurrence. This form occurred rather abundantly in 2 samples taken on the 21st May 1899 from the freshwater lake Tshandak-kul in the territory of Omsk. It was also found occasionally in 2 other samples, the one taken on the 27th May same year from the swamp Kara-saj in the territory of Kokschetavsk, the other taken on the 2nd July from a freshwater lake north of Akmolinsk.

Distribution. Austria (at Vienna), Russia (at Moscou), Siberia (at Inserova).

4. **Diaptomus incrassatus** G. O. Sars, n. sp.

(Pl. XI, figs. 2, *a—g*).

Specific Characters. Female. Body rather robust, with the anterior division somewhat tumefied and, seen dorsally, regularly oblong oval in form, with the greatest width in the middle and both extremities gradually attenuated. Cephalosome scarcely at all expanded laterally and broadly vaulted in front, tentacular appendages unusually prolonged and evenly recurved. Last segment of metasome well defined from the preceding one, which on each side forms a small projecting lobule, lateral lappets broadly lanceolate and reaching to the middle of the genital segment. Urosome comparatively short, with the last 2 segments imperfectly defined, genital segment slightly dilated in its anterior part, but without any trace of lateral spines. Caudal rami unusually large and broad, equalling in length the last 2 segments combined, and densely ciliated both outside and inside, setæ comparatively short and conspicuously thickened at the base. Anterior antennæ scarcely longer than the anterior division of the body. Posterior maxillipeds comparatively robust, though of normal structure. Last pair of legs with a triangular lappet on the hind face of the 1st basal joint, terminal joint well defined at the base and carrying 2 somewhat unequal apical spinules, penultimate joint rather narrow, with the claw-like projection minutely denticulated on both edges; inner ramus long and slender, reaching somewhat beyond the 1st joint of the outer. Ovisac comparatively small, rounded.

Male considerably more slender than female, with the last 2 segments of metasome simple, and the caudal rami narrower. Terminal section of right anterior antenna without any projections. Last pair of legs moderately strong, with a small dentiform projection inside the 2nd basal joint and a similar, but still smaller projection inside the last joint of the right leg, penultimate joint of this leg comparatively short and slightly produced at the end outside, last joint somewhat tapering distally, spine of outer edge very small and occurring beyond the middle, apical claw but very slightly curved; inner ramus of this leg much larger than that of the left, extending beyond the middle of the last joint of the outer. Left leg reaching about as far as the inner

ramus of the right, last joint lamellar, produced at the end to a distinct, somewhat recurved digitiform projection, inside which a slender spine is attached.

Length of adult female 2,20 mm., of male 1,80 mm.

Remarks. In the shape of the last 2 segments of the metasome, this form somewhat recalls *D. theeli* Lilljeborg, described by the present author from the Jana Expedition. It is, however, of somewhat larger size and more robust of form, differing moreover in the structure of the caudal rami and in that of the last pair of legs in both sexes.

Occurrence. This form occurred rather abundantly in 2 of the samples examined, the one taken on the 15th August 1899 from the freshwater lake Tenise-Bidarak in the territory of Atbassar, the other taken on the 28th July same year from some ponds at Baroldushtu in the eastern part of Mongolia. It was also found occasionally in 2 other samples taken, the one from the river Kok-sengir in the territory of Kokschetavsk, the other from the salt-lake Atschali-kul in the territory of Omsk.

5. **Diaptomus asiaticus** Uljanin.

(Pl. XII, figs. 1, *a—h*).

Diaptomus asiaticus Uljanin, Crustacea of Turkestan (Voyage of A. P. Fedtschenko), Vol. II. Zool. III, p. 23, Pl. VI, figs. 1—10 (in Russian).

Specific Characters. Female. Body rather slender, with the anterior division, seen dorsally, oblong in form, greatest width somewhat in front of the middle, anterior extremity evenly contracted posterior scarcely at all attenuated. Cephalosome evenly vaulted above, front without any traces of tentacular appendages below. Last segment of metasome confluent with the preceding one, lateral parts slightly expanded and each terminating in a somewhat exstant corner. Urosome about half the length of the anterior division, genital segment rather large and somewhat asymmetrical, forming at the end on right side a slight bulge, its anterior part scarcely at all dilated, and without any lateral spinules; the last 2 segments well defined. Caudal rami of moderate size, with the setæ rather thick and densely plumose. Anterior antenna, when reflexed, reaching somewhat beyond the

middle of the genital segment. Posterior antennæ, oral parts and natatory legs of normal structure. Last pair of legs comparatively short, terminal joint very small, though distinctly defined at the base, outer apical spinule rudimentary, claw-like projection of penultimate joint of moderate size; inner ramus very short, uniarticulate, not even reaching to the middle of the proximal joint of the outer, and tipped with 2 slender spinules. Ovisac of moderate size, rounded.

Male still more slender than female, and having the last segment of metasome narrower. Caudal rami conspicuously asymmetrical, the right one being the larger and having the outer 2 setæ transformed, as in the genus *Paradiaptomus*. Terminal section of right anterior antenna armed at the tip with a small hook-like projection. Last pair of legs of a rather anomalous structure, 2nd basal joint, especially that of right leg, greatly dilated and densely clothed inside with small spikes, penultimate joint of right leg abruptly much narrower and without any projection outside, last joint irregularly oblong in form, with the spine of the outer edge occurring much nearer to the tip than to the base, apical claw of moderate size and evenly curved; inner ramus of this leg distinct, but rather small, biarticulate. Left leg reaching as far as the penultimate joint of the right, last 2 joints confluent to a somewhat irregular piece, terminating in a rounded lamella and having outside 2 subequal, claw-like spines; inner ramus obsolete.

Length of adult female 1,70 mm., of male 1,50 mm.

Remarks. This forms has hitherto only been observed by the Russian naturalist Uljanin, who in the above-quoted paper has given a short description of it accompanied by some few detail-figures, reproduced together with some additional notes in the work of MM. de Guerne and Richard. It is a rather anomalous form, being especially distinguished by the absolute absence of tentacular appendages to the front, and by the peculiar structure of the last pair of legs in the male, as also by the transformation of some of the caudal setæ in the latter. In all these points it shows a near relationship to another anomalous from described by Mr. Richard as *D. alluaudi*, though being evidently specifically distinct.

Occurrence. I have noted this form from no less than 5 different places of Central Asia, 4 of which belong to the territory

of Akmolinsk, the 5th to that of Atbassar. In all these places the water was stated to be more or less brackish.

Distribution. Swamps near the mountain Karak in the desert Kisil-Kum, Turkestan.

6. **Diaptomus wierzejski** Richard.

(Pl. XII, figs. 2, *a—g*).

Diaptomus wierzejski Richard, Entomostracés nouveaux ou peu connus. Bull. Soc. Zool. France, Vol. XIII, p. 45.

Syn.: *Diaptomus serricornis* Lilljeborg.

Specific Characters. Female. Body moderately slender, with the anterior division, seen dorsally, oblong oval in form, greatest width about in the middle, anterior extremity more attenuated than posterior. Cephalosome evenly vaulted above, front obtusely rounded, and provided below with distinct, though not very large tentacular appendages. Last segment of metasome imperfectly defined from the preceding one, lateral lobes comparatively small and slightly asymmetrical, each terminating in a somewhat exstant point, more prominent on right side, and having inside a small spinule. Urosome rather short, not nearly attaining half the length of the anterior division, genital segment somewhat dilated in its anterior part, and exhibiting on each side a well-marked, though short spinule; last 2 segments imperfectly defined. Caudal rami of moderate size, setæ normal. Anterior antennæ rather slender, reaching, when reflexed, about to the end of the genital segment. Last pair of legs comparatively short and robust, terminal joint very small, though well defined at the base, inner apical spinule more than twice as long as the outer; inner ramus short, extending but slightly beyond the middle of the 1st joint of the outer, tip somewhat incurved. Ovisac of moderate size, rounded.

Male considerably smaller than female and, as usual, of more slender form. Terminal section of right anterior antenna with the antepenultimate joint produced at the end anteriorly to a short, but coarsely serrate projection. Last pair of legs rather large, with small hyaline lamellæ inside the 2nd basal joint, right leg exhibiting on the hind face of all the joints a nodiform prominence, penultimate joint produced outside at the end

to a strong spiniform projection, last joint somewhat trigonal in form, being abruptly contracted distally, spine of outer edge very strong, and occurring in front of the middle, apical claw slender and much curved; inner ramus of this leg much larger than that of left, conical in form, and extending beyond the middle of the last joint of the outer. Left leg extending about to the middle of the last joint of the right, terminal joint subforcipate, being tipped by 2 slender spines, the outer of which forms the immediate prolongation of the joint.

Length of adult female 1,80 mm., of male 1,45 mm.

Remarks. This form was first described in the year 1888 by Dr. Richard under the above name. As observed by Dr. Schmeil, *D. serricornis* of Lilljeborg must be regarded as identical with Dr. Richard's species, though it is rather inferior in size. It is easily recognized by the coarsely serrate projection of the antepenultimate joint of the right anterior antennæ in the male. Otherwise it shows a near relationship to *D. bacillifer* and *D. salinus*.

Occurrence. Only some few specimens of this form were found in a sample taken on the 28th June 1899 from some ponds at Baroldushtu in the eastern part of Mongolia.

Distribution. British Isles, Germany (at Halle), Spain (at Madrid), Russian Lappland, Kola peninsula, Azores.

7. **Diaptomus bacillifer** Koelbel.

Occurrence. Typical specimens of this form, agreeing on the whole perfectly both in size and in the structure of the several appendages with that described by the present author in his work on the Norwegian *Calanoida*, as also with that recorded by him from the Jana Expedition, occurred in no less than 12 of the samples examined, and derived from different parts of Central Asia. Another form of much smaller size and apparently identical with the variety *montana* Wierzejski, occurred in great abundance in some samples taken by the late P. Ignatov from the lake Telecki in Altai.

Distribution. Finmark, mountain lakes of Central Europe, British Isles, France, Siberia, as far north as the New Siberian islands, Kaukasia.

8. **Diaptomus acutilobatus** G. O. Sars, n. sp.

(Pl. XIII, figs. 1, *a—f*).

Specific Characters. Female. Body comparatively robust, with rather strongly chitinized integuments. Anterior division, seen dorsally, oblong fusiform in outline, greatest width occurring about in the middle, anterior extremity gradually narrowed, posterior only slightly attenuated. Cephalosome moderately vaulted above, with the front obtusely rounded, tentacular appendages unusually large and conspicuously thickened at the base. Last segment of metasome confluent with the preceding one, lateral lobes acutely triangular in form and pointing obliquely behind, each lobe tipped by a well defined spinule and having another inside, right lobe a little narrower than left. Urosome not attaining half the length of the anterior division, genital segment rather narrow, though exhibiting near the base, on each side, a well-defined protuberance tipped by a small spinule; last 2 caudal segments wholly confluent. Caudal rami of moderate size, setæ comparatively short. Anterior antennæ scarcely longer than the anterior division of the body. Last pair of legs with a small triangular lappet on the hind face of the 1st basal joint, terminal joint imperfectly defined at the base, inner apical spinule fully twice as long as the outer; inner ramus rather narrow and extending beyond the middle of the 1st joint of the outer. Ovisac large, rounded.

Male much smaller and more slender than female, with the lateral lobes of last segment of metasome very small and somewhat asymmetrical. Antepenultimate joint of right anterior antenna produced at the end anteriorly to a long rod-like projection, acute at the tip, and extending to about the middle of the last joint. Last pair of legs resembling in structure those in *D. bacillifer*, right leg with a nodiform prominence on the hind face of all the joints, that on the last joint remarkably large, almost claw-like, penultimate joint but slightly produced at the end outside, last joint oblong oval, with the spine of the outer edge placed beyond the middle, apical claw very slender and much curved; inner ramus of this leg not extending to the middle of the last joint of the outer. Left leg provided inside the 2nd basal joint with a hyaline rim exserted

behind to a thin, freely projecting stripe, terminal joint about as in *D. bacillifer*.

Length of adult female reaching to 2,50 mm., of male 1,40 mm.

Remarks. This form is closely allied to *D. bacillifer*, though apparently distinct, differing, as it does, very conspicuously in the shape of the lateral lobes of the last segment of the metasome, and partly also in that of the genital segment. It is moreover highly distinguished by the unusual development of the frontal appendages, and also in the structure of the last pair of legs in both sexes some minor differences are found to exist.

Occurrence. Several specimens of this form, chiefly of the female sex, were found in a sample taken on the 10st August 1901 by the late P. Ignatov from a tarn on the eastern border of the lake Dshujlju-Kol in Altai. The same form also occurred occasionally in another sample taken on the 21th May 1899 from the freshwater lake Tshandak-kul in the territory of Omsk. Moreover, a variety of this species, agreeing with the typical form in the shape of the lateral lobes of the last segment of the metasome, but of much smaller size and with the anterior antennæ more elongated, occurred rather abundantly in a sample taken on the 15th July same year from the freshwater lake Tenise-Bidarak in the territory of Atbassar.

10. **Diaptomus salinus** Daday.

(Pl. XIII, figs. 2, *a—f*).

Diaptomus salinus Daday, Monographia *Eucopepodorum* in Hungaria hucusque repertorum, p. 305, Pl. IV, figs. 16 - 18.

Syn.: *Diaptomus blanchardi* Richard.
„ „ *laticeps* de Guerne and Richard (not G. O. Sars).
„ „ *richardi* Schmeil.

Specific Characters. Female. Body moderately slender, with the anterior division, seen dorsally, oblong in form, greatest width occurring far in front, across the middle of the cephalosome, anterior extremity abruptly contracted, posterior gradually attenuated. Cephalosome remarkably expanded in the middle and strongly vaulted above, frontal part somewhat depressed, with the tentacular appendages rather small and closely juxtaposed. Last segment of metasome imperfectly defined from the

preceding one, lateral lobes very small, bidentate, and somewhat asymmetrical, outer denticles of right lobe more extant than that of left. Urosome comparatively short and somewhat robust, genital segment slightly dilated in front and armed on each side with a small spinule; last 2 segments imperfectly defined. Caudal rami of moderate size, setæ comparatively short. Anterior antennæ rather slender, reaching when reflexed, to the base of the caudal rami. Last pair of legs with a small acute lappet on the hind face of the 1st basal joint, terminal joint small, but well defined at the base, inner apical spinule rather elongated, outer rudimentary; inner ramus uniarticulate, extending somewhat beyond the middle of the 1st joint of the outer. Ovisac generally very small, often containing only 2 juxtaposed ova.

Male of the usual slender form, with the right lateral lobe of last segment of metasome narrowly produced, left one obtuse. 1st caudal segment with a distinct dentiform projection on right side; penultimate segment and caudal rami slightly asymmetrical. Right anterior antenna with the antepenultimate joint produced at the end anteriorly to a long rod-like projection, acute at the tip. Last pair of legs built on the same type as in *D. bacillifer* and *D. acutilobatus*, but with the protuberances on the hind face of right leg more fully developed, that of last joint remarkably large, obtusely conical in form and crossing the base of the outer spine, penultimate joint produced at the end outside to a very acute point, last joint attenuated distally, with the spine of the outer edge much elongated and issuing in front of the middle, apical claw slender and considerably curved; inner ramus of this leg not nearly extending to the middle of the last joint of the outer. Left leg almost exactly as in *D. bacillifer*.

Length of adult female 1,40 mm., of male 1,20 mm.

Remarks. This form was first recorded under the above name in the year 1885 by Dr. Daday, and was subsequently redescribed by Dr. Richard under another name, viz., *D. blanchardi*. According to Dr. Schmeil, the form described in the work of MM. de Guerne and Richard as *D. laticeps* and in a supplementary note to that work recorded as *D. richardi* Schmeil, is also identical with Daday's species. It is nearly allied to *D. bacillifer*, and may be regarded as a direct descendent of that species, having adapted itself for living in saline water.

Occurrence. This form occurred in great abundance in several

samples taken from the great bitter-lake Tenise in the territory of Atbassar. It was also found in 2 other samples, the one taken from the salt-lake Djar-sor, the other from the somewhat less brackish lake Kulatu-kul, both in the territory of Akmolinsk.

Distribution. Hungary, Germany, Russia, Egypte, Algeria.

11. **Diaptomus denticornis** Wierzejski.

Remarks. Of this well-known species 2 forms or varieties exist, which according to their different size may be named: forma *major* and *minor*. Both these varieties were represented in the samples examined.

a. *forma major.*

Occurrence. Specimens of this form, attaining an average length of 2,20 mm., were found in 8 different samples, partly from the territory of Kokschetavsk, partly from that of Akmolinsk, and partly from Altai.

b. *forma minor.*

Occurrence. This form, which scarcely attains more than half the size of the former, but otherwise exactly agrees with it, occurred in great abundance in several of the samples taken by the late P. Ignatov in Altai.

Distribution. Norway, Sweden, Tatras mountains, Switzerland, France, Russia, Kaukasia.

12. **Diaptomus coeruleus** Fischer.

(Pl. XIV, figs. 1, *a—f*).

Cyclospina coerulea S. Fischer, Beitr. zur Kenntn. der in der Umgegend von St. Petersburg entdekten *Cyclopiden*. Bull. Soc. Imp. Nat. Moscou, Vol. XXVI, p. 102, Pl. XV, figs. 1—9.

Syn.: *Diaptomus vulgaris* Schmeil.

Specific Characters. Female. Body moderately slender, with the anterior division, seen dorsally, oblong oval in form, greatest width about in the middle, anterior extremity gradually contracted, posterior but very slightly attenuated. Cephalosome evenly

vaulted above, front narrowly rounded, with the tentacular appendages small, but distinct. Last segment of metasome confluent with the preceding one, lateral lobes well developed and somewhat asymmetrical, each terminating in an acute corner, that of right lobe narrower and more exstant than that of left. Urosome comparatively short, genital segment considerably dilated in its anterior part, and armed on each side with a distinct, though small spinule; last 2 segments imperfectly defined. Caudal rami of normal appearance. Anterior antennæ rather slender, reaching, when reflexed, about to the base of the caudal rami. Last pair of legs with a distinct triangular prominence on the hind face of the 1st basal joint, terminal joint well defined, with the inner apical spinule rather slender, reaching considerably beyond the middle of the claw-like projection of the preceding joint; inner ramus imperfectly biarticulate and extending beyond the middle of the 1st joint of the outer. Ovisac very large, cordiform.

Male, as usual, more slender than female, but almost of equal size, lateral lobes of last segment of metasome much smaller. Antepenultimate joint of right anterior antenna produced at the end anteriorly to a somewhat hamiform projection, in some cases rudimentary or quite wanting. Last pair of legs powerfully dedeloped, 1st basal joint of both legs with a distinct projection on the hind face tipped by a delicate spinule, 2nd basal joint with a small lobule inside, penultimate joint of right leg produced at the end outside to an acutely triangular projection and exhibiting inside a narrow projecting lobule, last joint broadly oval in form, with the spine of the outer edge very strong and issuing about in the middle, apical claw slender and but slightly curved; inner ramus of this leg rather small, scarcely reaching beyond the penultimate joint. Left leg extending about as far as the latter joint, terminal joint produced at the end to a well-marked digitiform projection, inside which a curved spinule is attached.

Length of adult female 1,70 mm., of male 1,60 mm.

Remarks. Dr. Schmeil has recently proposed to reject the specific name *coeruleus* assigned to this form by Fischer, in order to avoid confusion with *Cyclops coeruleus* of O. Fr. Müller. As, however, this latter form is a spurious species, there cannot in my opinion be any serious objection to the retention of the specific name, under which this form has been generally known to

carcinologists. In its external appearance, this form somewhat resembles *D. denticornis*, being however, on a closer comparison, easily distinguished by the different shape of the lateral lobes of the last segment of the metasome and of the genital segment in the female. The structure of the last pair of legs in both sexes is also somewhat different, and the right anterior antenna of the male wants the terminal hook, whereas its antepenultimate joint is generally produced to a more or less distinct projection.

Occurrence. This form was found very abundantly in 2 samples taken on the 21st May 1899 from the freshwater lake Tshandak-kul in the territory of Omsk. It also occurred occasionally in 10 other samples, partly from the territory of Kokschetavsk, partly from those of Akmolinsk and Atbassar. In one of the samples (taken from the lake Kotibai) all the male specimens were quite devoid of the hamiform projection on the right anterior antenna, but otherwise perfectly agreed with the typical form.

Distribution. Sweden, Russia, Germany, British Isles, France.

13. **Diaptomus lobatus** Lilljeborg.

(Pl. XIV, figs. 2, *a—g*).

Diaptomus lobatus Lilljeborg, in de Guerne & Richard, Révision des Calanides d'eau douce, p. 49, Pl. I, figs. 1, 2; Pl. IV, fig. 29.

Specific Characters. Female. Body moderately slender, with the anterior division, seen dorsally, oblong oval in form, greatest width about in the middle, anterior extremity evenly contracted, posterior scarcely at all attenuated. Cephalosome only slightly vaulted above, front narrowly rounded, with the tentacular appendages rather small. Last segment of metasome confluent with the preceding one, lateral lobes very large and expanded, each terminating in a conically pointed corner turned outwards, right lobe somewhat larger than left. Urosome comparatively short, genital segment considerably dilated in front and conspicuously asymmetrical, forming on right side a much larger bulging than on left, each bulging carrying a dentiform projection, that on right side the larger and subdorsal; last 2 segments imperfectly defined. Caudal rami normal. Anterior antennæ very slender and elongated, reaching, when reflexed, beyond the caudal rami. Last pair of legs likewise more slender than usual, 1st basal

joint with a small triangular lobe on the hind face, terminal joint well defined at the base, with the inner apical spinule much larger than the outer and extending to about the middle of the claw-like projection of the penultimate joint; inner ramus uniarticulate, cylindric in form, and reaching nearly to the end of the 1st joint of the outer, tip projecting inside to an acute corner.

Male of the usual slender form, with the lateral parts of of last segment of metasome scarcely at all expanded. Right anterior antenna with the antepenultimate joint bordered anteriorly by a thin hyaline rim, and projecting at the end to a very small dentiform process. Last pair of legs unusually slender, penultimate joint of right leg forming at the end outside an obtusely rounded projection, last joint oblong in form, with the spine of the outer edge very small and issuing somewhat in front of the middle, apical claw very slightly curved; inner ramus of this leg reaching about to the end of the 1st joint of the outer. Left leg extending as far as the penultimate joint of the right, terminal joint with the digitiform projection very small, spinule inside it likewise small.

Length of adult female 1,50 mm., of male 1,30 mm.

Remarks. This is an easily recognizable form, being especially distinguished by the large size of the lateral lobes of the last segment of the metasome in the female, and by the greatly dilated and conspicuously asymmetrical genital segment of the same. The structure of the last pair of legs in both sexes is also characteristic.

Occurrence. This form was only found in one of the samples examined, taken on the 11th June 1899 from the freshwater lake Kurgaldjin in the territory of Akmolinsk. It has also been recorded by Dr. Lepeschkin from the same territory.

Distribution. Siberia, at Podiomnoje-Selo, near the river Jenisej; Novaja Semlja.

14. **Diaptomus graciloides** Lilljeborg.

Occurrence. Quite typical specimens of this form were found in 2 different samples, the one taken from the freshwater lake Kaip-Tschelkar, the other from the river Astshi-airyk, both in the territory of Akmolinsk. Dr. Lepeschkin records a variety of this

species from the same territory under the name of var. *tschagalica*. The said author also records another species of *Diaptomus* not present in the samples examined by me, viz., *D. hircus* of Brady.

Distribution. Norway, Sweden, Germany, Russia, Hungary.

15. **Diaptomus paulseni** G. O. Sars, n. sp.

(Pl. XV, figs. 1, *a—f*).

Specific Characters. Female. Body very slender, with the anterior division, seen dorsally, oblong in form, greatest width occurring far in front across the middle of the cephalosome, anterior extremity abruptly contracted, posterior gradually attenuated. Cephalosome rather expanded in the middle and moderately vaulted above, front narrowly rounded, with the tentacular appendages extremely small, almost obsolete. Last segment of metasome confluent with the preceding one, lateral lobes comparatively small and peculiarly contorted, being conspicuously asymmetrical, each terminating in a somewhat curved acute corner, which on the right lobe is remarkably produced and extended straight outwards; on each lobe, moreover, a rather strong subdorsal spinule occurs. Urosome of moderate size, genital segment somewhat dilated in its proximal part, and armed on each side with a rather strong spinule; last 2 segments imperfectly defined. Caudal rami normal. Anterior antennæ very slender and elongated, reaching, when reflexed, considerably beyond the caudal rami. Last pair of legs with a remarkably strong spiniform projection on the hind face of the 1st basal joint, terminal joint well defined, with the inner apical spinule much longer than the outer; inner ramus very small, not nearly extending to the middle of the 1st joint of the outer. Ovisac comparatively small, with a very limited number of ova.

Male of usual appearance, with the lateral lobes of last segment of metasome very small. Urosome very slender, with the penultimate segment slightly asymmetrical. Terminal section of right anterior antenna without any projections. Last pair of legs of a somewhat unusual appearance, 2nd basal joint of right leg very large and dilated, with a hyaline rounded lamella inside, penultimate joint unusually short and produced outside to an acutely triangular projection, last joint almost pyriform, be-

ing abruptly contracted in its distal part, spine of outer edge very strong and coarsely denticulate inside, issuing far in front of the middle, apical claw bent almost at a right angle, and pronouncedly falciform; inner ramus of this leg much larger than that of left, extending almost to the tip of the last joint. Left leg reaching about to the middle of that joint, digitiform projection of terminal joint rather large and distinctly denticulate inside, spinule of inner edge slender, setiform.

Length of adult female 1,50 mm., of male 1,25 mm.

Remarks. This is a very distinct and easily recognizable species, being especially distinguished by its slender form of body, the peculiarly formed lateral lobes of the last segment of the metasome in the female, and the anomalous structure of the last pair of legs in the male.

Occurrence. Numerous specimens of this peculiar form occurred in some samples taken by Dr. Paulsen from the lakes Kara-kul and Jashul-kul in the territory of Pamir, Turkestan. It also occurred in another sample taken by the same gentleman from a tarn in the mountain pass Chargosh at a height of about 4200 metres.

Fam. **Temoridæ.**

16. **Eurytemora affinis** (Poppe).

Occurrence. Found occasionally in 5 different samples, the one of them from the territory of Akmolinsk, the others from that of Atbassar. In all the places the water was stated to be quite fresh.

Distribution. Germany, France, freshwater lagunes of the Caspian Sea at the mouth of Wolga, North America.

17. **Heterocope borealis** (Fischer).

Occurrence. Several specimens of this arctic form were found in a sample taken on the 2nd July 1899 from the bitter-lake Sassik-kul in the territory of Akmolinsk.

Distribution. Finmark, Finland, Switzerland, Hungary, Kola peninsula, Novaja Semlja, Siberia.

Cyclopoida.

Fam. Cyclopidæ.

18. Cyclops vicinus Uljanin.

(Pl. XV, figs. 2, *a—k*).

Cyclops vicinus Uljanin, Crustacea of the Expedition of A. Fedtschenko in Turkestan (in Russian), p. 30, Pl. X, figs. 1—7.
Syn.: *Cyclops strenuus* Schmeil (not Fischer).

Specific Characters. Female. General form of body resembling that of *C. strenuus,* the last 2 segments of metasome, however, expanded laterally to rather large exstant triangular lamellæ. Caudal rami slender, about equalling in length the 3 posterior caudal segments combined, and provided along the dorsal face with a slight carina, seta of outer edge placed not far from the tip, innermost apical seta more than twice as long as the outermost, the 2 middle ones not much unequal in length, and shorter than the urosome. Anterior antennæ rather slender, reaching, when reflexed, beyond the 1st segment, and consisting of 17 articulations, the outer 3 exhibiting outside a delicate, minutely denticulated rim. Terminal joint of outer ramus of all the natatory legs with only 2 spines outside. Last pair of legs resembling those in *C. strenuus,* but with the proximal joint somewhat narrower. Ovisacs rather large, oblong oval in form, and scarcely at all divergent.

Male very slender, with the last 2 segments of the metasome not expanded laterally. Genital segment rather tumid, and carrying behind on each side a small 3-setose lappet. Caudal rami nearly as in female. Anterior antennæ comparatively larger and, as usual, both distinctly geniculate.

Length of adult female 1,50 mm., of male 1,30 mm.

Remarks. This species, first described by the Russian naturalist Uljanin, looks very like certain forms of *C. strenuus,* and has also, as shown by Prof. Lilljeborg, been confounded with that species by Dr. Schmeil. On a closer examination, it may, however, be easily recognized, at any rate in the female sex, by the strongly prominent lateral expansions of the last 2 segments of the metasome, in which respect it somewhat resembles

C. scutifer G. O. Sars. Moreover, the relative length of the caudal setæ is somewhat different, and in the armature of the natatory legs it differs materially from both these species, the terminal joint of the outer ramus in all of them (also the first 2 pairs) having only 2 spines outside.

Occurrence. This form was only found in one of the samples examined, taken on the 8th July 1899 from the river Kerulén in the eastern part of Mongolia.

Distribution. Sweden, British Isles, Germany, Turkestan.

19. **Cyclops strenuus** Fischer.

a. forma *typica.*

Occurrence. Specimens of this form were found occasionally in 4 different samples from the territory of Atbassar. It also occurred in one of the samples from the eastern part of Mongolia, and in another taken by Dr. Paulsen in Turkestan.

Distribution. Throughout Europe, Beeren Eyland, Spitsbergen, Siberia as far north as the new Siberian islands.

b. var. *gracilipes* G. O. Sars, n.

Remarks. This form, of which I hope at another occasion to give a description with figures, should perhaps more properly be regarded as a distinct species. It agrees with the typical form in the armature of the natatory legs, but these appendages are much more slender, especially the 4th pair. Moreover the relative length of the caudal setæ is somewhat different, more resembling that in *C. vicinus.*

Occurrence. This form occurred rather commonly in some samples taken by the late P. Ignatov from the lake Telecki in Altai.

20. **Cyclops viridis** (Jurine).

Occurrence. Found occasionally in no less than 26 samples from different parts of Central Asia.

Distribution. Throughout Europe, Siberia as far north as the New Siberian Islands, North America, Azores.

21. **Cyclops vernalis** Fischer.

Occurrence. Only found in one of the samples examined, taken from the freshwater lake Tshandak-Kul in the territory of Omsk.

Distribution. Throughout Europe, New Siberian Islands, North America, Ceylon.

22. **Cyclops bicuspidatus** Claus.

Occurrence. Found in 3 samples only, the one taken from the lake Ketshkiné-Kara-kul in the territory of Akmolinsk, the other from a pond at the western border of the lake Tenise.

Distribution. Throughout Europe, North America.

23. **Cyclops fuscus** (Jurine).

Occurrence. A few specimens of this easily recognizable form were found in a sample taken from the river Nura in the territory of Akmolinsk.

Distribution. Throughout Europe, North America.

24. **Cyclops leuckarti** Claus.

Occurrence. Found occasionally in 10 samples from different parts of Central Asia.

Distribution. Throughout Europa, Siberia, North America, Brazil, Patagonia, Ceylon, Australia.

25. **Cyclops oithonoides** G. O. Sars.

Occurrence. Only found in one of the samples examined, taken from the river Astshi-airyk in the territory of Akmolinsk.

Distribution. Greater part of Europe, North America.

26. **Cyclops diaphanus** Fischer, var. **dengizica** Lepeschkin.

Remarks. On a closer examination of this remarkable form, I am led to the conclusion, that it more properly should be regarded as a distinct species. It differs from *C. diaphanus* Fischer

not only in the structure of the last pair of legs and the somewhat deviating shape of the caudal rami, but also very markedly in the fact, that all the natatory legs have the rami biarticulate. I hope at another occasion to give a description with figures of this interesting form.

Occurence. This form occurred rather abundantly in a sample taken from a brackish swamp at the eastern border of the lake Tenise. It was also found occasionally in another sample taken from the north-eastern gulf of that lake. The specimens examined by Dr. Lepeschkin were derived from about the same trakt of Central Asia.

27. **Cyclops serrulatus** Fischer.

Occurrence. Found occasionally in 10 samples from different parts of Central Asia.

Distribution. Throughout Europe, Siberia, North America, Brazil, Patagonia, Ceylon, Australia, Azores.

28. **Cyclops macrurus** G. O. Sars.

Occurrence. Some few specimens of this from were found in 2 different samples from the territory of Akmolinsk.

Distribution. Greater part of Europe, Brazil.

Harpacticoida.

Fam. **Canthocamptidæ.**

29. **Marshia blanchardi** (Richard).

(Pl. XVI, figs. 1, *a—l*).

Mesochra blanchardi J. Richard, Bull. Zool. Soc. France, 1889, p. 317.
Syn.: *Canthocamptus ophiocamptoides* Lepeschkin.

Specific Characters. Female. Body moderately slender, with rather strongly chitinized integuments and the segments of the anterior division defined laterally by deep constrictions. Rostral

plate moderately prominent and slightly trilobate at the tip. Urosome a little shorter and narrower than the anterior division, each segment bordered behind with a transverse row of small denticles. Anal operculum smooth. Caudal rami unusually elongated, being nearly twice as long as the anal segment, and slightly thickened in the middle, with the edges partly spinulous, each ramus provided about in the middle of the outer edge with 2 small unequal setæ, and somewhat more behind, on the dorsal face, with a simple such seta generally pointing inwards; middle apical seta very strong and conspicuously thickened at the base, exceeding the urosome in length, outermost one scarcely 1/5 as long and well defined at the base. Anterior antennæ of moderate length and only composed of 6 articulations. Posterior antennæ with the inner ramus very small and indistinctly biarticulate. Inner ramus of all the natatory legs biarticulate, that of 1st pair longer than the outer, that of the 3 succeeding pairs much smaller, being on the 4th pair extremely minute, with only two apical setæ. Last pair of legs lamellar, distal joint wholly confluent with the proximal one, and only indicated by a deep median cleft, number of marginal setæ on each side of the cleft 6, some of them rather elongated. Ovisac of moderate size, oval in form.

Male much more slender than female, with the urosome very narrow. Anterior antennæ transformed in the usual manner. Inner ramus of 3rd pair of legs obscurely 3-articulate, middle joint produced at the end inside to a deflexed spiniform projection, outer ramus of this and the succeeding pais more robust than in female, with the terminal joint comparatively shorter and the spines of the outer edge coarser. Last pair of legs very small, with the median cleft obsolete.

Length of adult female 0,75 mm. of male 0,65 mm.

Remarks. This form was first described in the year 1889 by Dr. Richard from Algeria, and was referred by him to the genus *Mesochra* of Boeck, the hitherto known species of which are all marine. The *Canthocamptus ophiocanthoides* of Lepeschkin is unquestionably identical with Dr. Richard's species, of which I have had specimens for examination, kindly sent to me from that author. On a closer examination of the present form, I find that it ought to be referred to the genus *Marshia* established by Mr. Herrick to comprise 2 North American species, the one of which, *M. albuquerkensis*, is closy allied to the present species,

though apparently distinct. The most prominent character of the genus *Marshia* is unquestionably the complete fusion of the 2 joints in the last pair of legs, not found in any other *Harpacticid.* The reduced number of articulations in the anterior antennæ and the structure of the natatory legs [1]) is also rather characteristic. The present species is chiefly distinguished by the unusual length of the caudal rami.

Occurrence. Several specimens of this form were found in the same sample in which the above-recorded peculiar variety of *Cyclops diaphanus* occurred. It was also found occasionally in 2 other samples, likewise taken from brackish swamps. The specimens examined by Mr. Lepeschkin were derived from about the same tract of Central Asia.

Distribution. Brackish swamps in the neighbourhood of Oran, Algeria.

Ostracoda.

Podocopa.

Fam. Cypridæ.

1. Notodromas monacha (Müller).

Occurrence. This characteristic form occurred in great abundance in a sample taken on the 11th August from some ponds at Tshilapan-kundur in the territory of Atbassar. It was also found occasionally in 2 other samples, the one taken from a tarn north of Akmolinsk, the other from the river Kon in the territory of Atbassar.

Distribution. Throughout Europe, North America.

1. Cyprois madáraszi Orley.

Occurrence. A solitary male specimen of this magnificent form measuring nearly 3 mm. in length, was found in a sample

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1) It may by noted, that in the diagnosis given by Mr. Herrick, the inner ramus of the legs is erroneously described as the outer and vice versa.

taken on the 2nd July 1899 from a freshwater lake north of Akmolinsk.

Distribution. Hungary.

3. **Cyclocypris ovum** (Jurine).

Occurrence. Found occasionally in 2 samples the one from the territory of Kokschetavsk, the other from that of Atbassar.

Distribution. Throughout Europe, North America.

4. **Cyprinotus incongruens** (Ramdohr).

Occurrence. Numerous specimens of this very common species were found in a sample taken on the 13th August 1899 from some ponds at the river Ssudjil-gol in the eastern part of Mongolia. It also occurred occasionally in 2 other samples, the one from the territory of Akmolinsk, the other from that of Atbassar. Moreover, specimens of this form were found in one of the samples taken by Dr. Paulsen in Turkestan.

Distribution. Throughout Europe, North America.

5. **Cypris pubera** Müller.

Occurrence. Found very abundantly in a sample taken on the 2nd July 1899 from a tarn north of Akmolinsk. It also occurred occasionally in 2 other samples from the same territory and in another from that of Kokschetavsk. A slight variety of this species was moreover found rather abundantly in a sample taken on the 28th July 1899 from some ponds at Baroldushtu in the eastern part of Mongolia.

Distribution. Throughout Europe.

6. **Cypris inflata** G. O. Sars, n. sp.

(Pl. XVI, figs. 2, *a—d*).

Specific Characters. Female. Shell very tumid, seen laterally, oval triangular in form, greatest height about in the middle and considerably exceeding half the length, dorsal margin angularly curved in the middle and sloping more steeply in front

than behind, ventral margin distinctly sinuated in the middle, anterior extremity obliquely rounded, posterior more obtusely blunted,—seen dorsally, broadly ovate, greatest width exceeding somewhat the height, both extremities evenly contracted. Valves thin and pellucid, and rather unequal, the left one overlapping considerably the right along the anterior extremity, surface smooth, sparcely punctate and clothed with delicate hairs, edges bordered at each extremity by a narrow hyalin rim strengthened by a dense series of extremely minute denticles. Natatory setæ of inferior antennæ well developed, extending far beyond the terminal claws. Caudal rami comparatively short and gradually tapering distally, outer apical claw considerably exceeding half the length of the ramus, seta of dorsal edge longer than the apical one.

Length of shell 1,05 mm., height 0,62 mm., width 0,66 mm.

Remarks. In the general form of the shell, as also in size, this form somewhat recalls *Cypris tumefacta* Brady & Robertson. It is, however, in reality very different, and does not even belong to the same genus. In the European species the setæ issuing inside the antepenultimate joint of the inferior antennæ are quite rudimentary, and the animal of course is quite devoid of swimming power, for which reason it has been referred by Dr. Kaufmann to the genus *Priconocypris* Brady & Norman. In the present species, on the other hand, these setæ are very fully developed, showing it to be a true *Cypris*.

Occurrence. Some few specimens of this form were found in a sample taken on the 30th July 1899 from the salt-lake Djar-sor in the territory of Akmolinsk.

7. **Cypris ovalis** G. O. Sars, n. sp.

(Pl. XVI, figs. 3, *a—b*).

Specific Characters. Female. Shell moderately tumid, seen laterally, oval in form, greatest height somewhat exceeding half the length and occurring about in the middle, dorsal margin quite evenly arched, ventral distinctly insinuated in front of the middle, both extremities obtusely rounded and nearly equal; — seen dorsally, ovate in form, greatest width not attaining the height and occurring somewhat behind the middle, anterior extremity acuminate, posterior obtuse. Valves rather thin and

somewhat unequal, the left one overlapping the right along the anterior extremity; surface minutely punctate and clothed with comparatively short and delicate hairs, edges smooth. Natatory setæ of inferior antennæ well developed. Caudal rami of moderate length and nearly straight, outer apical claw about half the length of the ramus, seta of dorsal edge small, scarcely longer than the apical one.

Length of shell 1,06 mm., height 0,61 mm, width 0,56 mm.

Remarks. This form bears considerable resemblance to the European species *C. fuscata* (Jur.). It is, however, of somewhat smaller size, less tumid and more distinctly sinuated ventrally. Moreover, the hairs of the surface are much shorter and more delicate. Finally, the caudal rami are somewhat less elongated.

Occurrence. Several specimens of this form were found in a sample taken on the 28th July 1899 from some ponds at Baroldushtu in the eastern part of Mongolia.

8. **Herpetocypris peregrina** Croneberg.

Occurrence. Some few specimens of this form occurred in one of the samples taken by Dr. Paulsen in Turkestan.

Distribution. Russia, Switzerland.

9. **Ilyocypris lacustris** Kaufmann.

Occurrence. Some specimens of an *Ilyocypris,* apparently belonging to the above-named species, were found in a sample taken on the 13th August 1899 from some ponds at the river Ssudjiu-gol in the eastern part of Mongolia.

Distribution. Switzerland.

10. **Cypridopsella aculeata** (Costa).

Occurrence. This form occurred rather abundantly in a sample taken on the 16th August 1899 from some ponds of the hollow Kara-sai in the territory of Atbassar. It was also found occasionally in 2 other samples from the same territory, the water being stated to be slightly saline.

Distribution. Throughout Europe, northern part of Africa, Azores.

11. **Cypridopsella newtoni** Brady & Norm.

Occurrence. Found not unfrequently in the same samples as the preceeding species.

Distribution. British Isles, Bohemia, North America.

12. **Cypridopsella granulata** G. O. Sars, n. sp.

(Pl. XVI, figs. 4, *a*—*b*).

Specific Characters. Female. Shell moderately compressed, seen laterally rounded triangular in form, greatest height equalling about $^2/_3$ of the length and occurring somewhat in front of the middle, dorsal margin angularly curved in the middle, ventral distinctly sinuated, anterior extremity somewhat deflexed and rounded at the tip, posterior obtusely blunted; — seen dorsally, oblong oval in form, greatest width scarcely exceeding half the length, anterior extremity more acute than posterior. Valves slightly unequal, the right one somewhat overlapping the left in front of the dorsal angle; surface closely granular or minutely areolar, and rather densely clothed with hairs, but without any spines, edges smooth. Caudal rami of the structure characteristic of the genus, being very small, each terminating in a slender seta.

Length of shell 0,62 mm., height 0,42 mm., width 0,31 mm.

Remarks. This form is nearly allied to the South African species *C. gregaria* G. O. Sars, but of somewhat smaller size and slightly differing in the shape of the shell.

Occurrence. Several specimens of this form were found in some samples taken on the 31th August 1899 from the salt-lake Astshi-sor in the territory of Akmolinsk.

13. **Cypridopsella arcuata** G. O. Sars, n. sp.

(Pl. XVI, figs. 5, 5*a*).

Specific Characters. Female. Shell much compressed, seen laterally, almost semilunar in form, greatest height not attaining $^2/_3$ of the length, and occurring in the middle, dorsal margin boldly curved, ventral deeply sinuated, both extremities somewhat deflexed, the anterior one obtusely rounded at the tip, the

posterior considerably narrower; — seen dorsally, narrow lanceolate in form, greatest width scarcely exceeding 1/3 of the length, anterior extremity much narrower than posterior and bent somewhat to the left. Valves thin and pellucid, and very unequal, the right one considerably overlapping the left along the whole dorsal part; surface smooth, sparingly punctate, and clothed with comparatively short and very delicate hairs. Eye very conspicuous.

Length of shell 0,64 mm., height 0,38 mm., width 0,21 mm.

Remarks. This form somewhat resembles *C. villosa* (Jur.) in in the general shape of the shell and the unequalness of the valves. It is, however, of much smaller size and more delicate structure. From *C. smaragdina*, which is of about same size, it differs in the deeply sinuated ventral margin of the shell and the much more delicate clothing of hairs.

Occurrence. Some few specimens of this beautiful form were found together with *C. newtoni* and *C. aculeata* in the sample from Kara-sai in the territory of Atbassar.

14. **Candona candida** (Müll.).

Occurrence. Typical specimens of this well-known form were found in the bottom-residue of a sample taken from a small tarn in the valley Sarymsakty in Altai.

Distribution. Throughout Europe, New Siberian Islands, North America.

15. **Candona compressa** (Koch).

Occurrence. Found occasionally in 3 different samples from the territory of Akmolinsk.

Distribution. Greater part of Europe.

Fam. **Cytheridæ.**

16. **Limnicythere incisa** Dahl.

(Pl. XVI, figs. 6, 6*a*).

Remarks. This species is closely allied to *L. inopinata* of Baird, but apparently distinct, being easily distinguished by the abso-

lute want on the valves of the nodiform protuberances found in the former. I give on the accompanying plate figures of a female specimen.

Occurrence. Found occasionally in 5 different samples, one from the territory of Atbassar, the others from that of Akmolinsk.

Distribution. Norway, Germany.

17. **Cytheridea lacustris** G. O. Sars.

Occurrence. A solitary specimen of this form was found in a sample taken by the late P. Ignatov from the lake Toojin-kul in Altai.

Distribution. Norway, British Isles, Germany.

Explanation of the Plates.

Pl. IX.

Boeckella orientalis G. O. Sars.

Fig. 1. Ovigerous female, dorsal view, magnified 68 diameters.
„ 2. Same, viewed from left side.
„ 3. Anterior extremity of body, viewed from left side, more highly magnified.
„ 3*a*. Frontal part, ventral view.
„ 4. Posterior antenna.
„ 5. Mandible with palp.
„ 6. Maxilla.
„ 7. Anterior maxillipeds.
„ 8. Posterior maxilliped.
„ 9. 1st pair of legs.
„ 10. Leg of 2nd pair.
„ 11. Leg of 4th pair.
„ 12. Last pair of legs.
„ 23. Adult male, dorsal view, magnified 68 diameters.
„ 14. Same, extremity of right anterior antenna.
„ 15. Same, last pair of legs.

Pl. X.

Hemidiaptomus ignatovi G. O. Sars.

Fig. 1. Ovigerous female, dorsal view; magnified 28 diameters.
„ 2. Same, without the ovisac, viewed from left side.
„ 3. Frontal part, ventral view.
„ 4. Posterior antenna.
„ 5. Anterior lip.
„ 6. Posterior lip.
„ 6 bis. Mandible with palp.
„ 7. Maxilla.
„ 8. Anterior maxilliped.

Fig. 9. Posterior maxilliped.
„ 10. Leg of 1st pair.
„ 11. Leg of 3rd pair.
„ 12. Last pair of legs.
„ 13. Adult male, dorsal view; magnified 28 diameters
„ 14. Same, terminal section of right anterior antenna.
„ 15. Same, last pair of legs.

Pl. XI.

Diaptomus amblyodon Marenzeller.

Fig. 1. Ovigerous female, dorsal view; magnified 38 diameters.
„ 1*a*. Anterior extremity of body, viewed from left side; more highly magnified.
„ 1*b*. Frontal part, ventral view.
„ 1*c*. Posterior maxilliped.
„ 1*d*. Last pair of legs.
„ 1*e*. Anal segment with the caudal rami, dorsal view.
„ 1*f*. Adult male, dorsal view; magnified 38 diameters.
„ 1*g*. Same, terminal section of right anterior antenna.
„ 1*h*. Same, last pair of legs.

Diaptomus incrassatus G. O. Sars.

Fig. 2. Ovigerous female, dorsal view; magnified 56 diameters.
„ 2*a*. Same, without the ovisac, viewed from left side.
„ 2*b*. Frontal part, ventral view.
„ 2*c*. Posterior maxilliped.
„ 2*d*. Leg of last pair.
„ 2*e*. Caudal rami, dorsal view.
„ 2*f*. Adult male, dorsal view; magnified 56 diameters.
„ 2*g*. Same, last pair of legs.

Pl. XII.

Diaptomus asiaticus Uljanin.

Fig. 3. Ovigerous female, dorsal view; magnified 68 diameters.
„ 1*a*. Same viewed from left side.
„ 1*b*. Frontal part, ventral view.
„ 1*c*. Posterior maxilliped.
„ 1*d*. Last pair of legs.

Fig. 1*e*. Adult male, dorsal view; magnified 68 diameters.
„ 1*f*. Same, terminal section of right anterior antenna.
„ 1*g*. Same, last pair of legs.
„ 1*h*. Same, anal segment with the caudal rami, dorsal view.

Diaptomus wierzejski Richard.

Fig. 2. Ovigerous female, dorsal view; magnified 68 diameters.
„ 2*a*. Same, without the ovisac, viewed from left side.
„ 2*b*. Frontal part, ventral view.
„ 2*c*. Leg of last pair.
„ 2*d*. Adult male, dorsal view; magnified 68 diameters.
„ 2*e*. Same, extremity of right anterior antenna.
„ 2*f*. Same, serrate projection of antepenultimate joint, highly magnified.
„ 2*g*. Same, last pair of legs.

Pl. XIII.

Diaptomus acutilobatus G. O. Sars.

Fig. 1. Ovigerous female, dorsal view; magnified 48 diameters.
„ 1*a*. Same, without the ovisac, viewed from left side.
„ 1*b*. Frontal part, ventral view.
„ 1*c*. Leg of last pair.
„ 1*d*. Adult male, dorsal view; magnified 68 diameters.
„ 1*e*. Same, terminal section of right anterior antenna.
„ 1*f*. Same, last pair of legs.

Diaptomus salinus Daday.

Fig. 2. Ovigerous female, dorsal view; magnified 80 diameters.
„ 2*a*. Same, without the ovisac, viewed from left side.
„ 2*b*. Frontal part, ventral view.
„ 2*c*. Last pair of legs.
„ 2*d*. Adult male, dorsal view; magnified 80 diameters.
„ 2*e*. Same, terminal section of right anterior antenna.
„ 2*f*. Same, last pair of legs.

Pl. XIV.

Diaptomus coeruleus Fischer.

Fig. 1. Ovigerous female, dorsal view; magnified 68 diameters.
„ 1*a*. Same, without the ovisac, viewed from left side.

Fig. 1*b*. Frontal part, ventral view.
„ 1*c*. Leg of last pair.
„ 1*d*. Adult male, dorsal view; magnified 68 diameters.
„ 1*e*. Same, terminal section of right anterior antenna.
„ 1*f*. Same, last pair of legs.

Diaptomus lobatus Lilljeborg.

Fig. 2. Adult female, dorsal view; magnified 75 diameters.
„ 2*a*. Same, viewed from left side.
„ 2*b*. Frontal part, ventral view.
„ 2*c*. Leg of last pair.
„ 2*d*. Urosome, dorsal view.
„ 2*e*. Adult male, dorsal view; magnified 75 diameters.
„ 2*f*. Same, antepenultimate joint of right anterior antenna.
„ 2*g*. Same, last pair of legs.

Pl. XV.

Diaptomus paulseni G. O. Sars.

Fig. 1. Ovigerous female, dorsal view; magnified 75 diameters.
„ 1*a*. Same, without the ovisac, viewed from left side.
„ 1*b*. Frontal part, ventral view.
„ 1*c*. Last pair of legs.
„ 1*d*. Posterior part of metasome, together with the genital segment, dorsal view.
„ 1*e*. Adult male, dorsal view; magnified 75 diameters.
„ 1*f*. Same, last pair of legs.

Cyclops vicinus Uljanin.

Fig. 2. Ovigerous female, dorsal view; magnified 75 diameters.
„ 2*a*. Extremity of anterior antenna, highly magnified.
„ 2*b*. Leg of 1st pair.
„ 2*c*. Leg of 2nd pair.
„ 2*d*. Leg of 3rd pair.
„ 2*e*. Leg of 4th pair.
„ 2*f*. Rudimentary leg of last pair.
„ 2*g*. Anal segment, with the caudal rami, dorsal view.
„ 2*h*. Adult male, dorsal view; magnified 75 diameters.
„ 2*i*. Same, last segment of metasome and 3 first segments of urosome, ventral view.
„ 2*k*. Same, setous lappet at the end of the genital segment; highly magnified.

Pl. XVI.

Marshia blanchardi (Richard).

Fig. 1. Ovigerous female, dorsal view; magnified 130 diameters.
„ 1*a*. Posterior antenna.
„ 1*b*. Leg of 1st pair.
„ 1*c*. Leg of 2nd pair.
„ 1*d*. Leg of 3rd pair.
„ 1*e*. Leg of 4th pair.
„ 1*f*. Last pair of legs.
„ 1*g*. Anal segment, with the caudal rami, dorsal view.
„ 1*h*. Adult male, dorsal view; magnified 130 diameters.
„ 1*i*. Same, leg of 3rd pair.
„ 1*k*. Same, leg of 4th pair.
„ 1*l*. Same, leg of last pair.

Cypris inflata G. O. Sars.

Fig. 2. Shell of adult female, viewed from right side; magnified 68 diameters.
„ 2*a*. Same, dorsal view.
„ 2*b*. Marginal part of left valve, exhibiting the narrow dentate rim.
„ 2*c*. Extremity of left inferior antenna, exhibiting the long natatory setæ.
„ 2*d*. Right caudal ramus.

Cypris ovalis G. O. Sars.

Fig. 3. Shell of adult female, viewed from left side; magnified 68 diameters.
„ 3*a*. Same, dorsal view.
„ 3*b*. Right caudal ramus.

Cypridopsella granulata G. O. Sars.

Fig. 4. Shell of adult female, viewed from left side; magnified 93 diameters.
„ 4*a*. Same, dorsal view.
„ 4*b*. Caudal rami.

Cypridopsella arcuata G. O. Sars.

Fig. 5. Shell of adult female, viewed from left side; magnified 93 diameters.
„ 5*a*. Same, dorsal view.

Limnicythera incisa Dahl.

Fig. 6. Adult female, viewed from right side; magnified 93 diameters.
„ 6*a*. Same, dorsal view.

On the Crustacean Fauna of Central Asia.

By

G. O. Sars.

APPENDIX

Local Faunæ of Central Asia.

In order to show the character of the local faunæ and the relative frequency of the species, I give below specialized listes of the several forms of Crustacea found in each of the localities explored, with short notes.

A.

Territory of Omsk.

1. Freshwater lake Tshandak-kul. (Прѣсное оз. Чандакъ-куль.)

21. V. 99. 2 samples.

Amphipoda.

Gammarus pulex.

Cladocera.

Daphnia magna	1 specimen only.
Alonella excisa	not unfrequently.

Pleuroxus aduncus . . . . . occasionally.
Chydorus sphæricus . . . . . do.

Copepoda.

Diaptomus amblyodon . . . . . very common.
„ *coeruleus* . . . . . in great abundance.
„ *acutilobatus* . . . . . occasionally.
Cyclops vernalis . . . . . do.

Ostracoda.

Cypris pubera . . . . . detached valves.

2. Salt-lake Astshaly-kul. (Соленое оз. Ащалы-куль.)

21. VIII. 99. 2 samples.

Cladocera.

Daphnia longispina, typica . . . . . occasionally.
„ *magna* . . . . . do.
Simocephalus exspinosus . . . . . do.
Scopholeberis mucronata . . . . . do.
Ceriodaphnia quadrangula . . . . . do.
„ *megalops* . . . . . do.
Moina rectirostris . . . . . do.
Alona tenuicaudis . . . . . do.
Chydorus sphæricus . . . . . do.

Copepoda.

Hemidiaptomus ignatovi . . . . . occasionally.
Diaptomus incrassatus . . . . . do.
„ *bacillifer typicus* . . . . . in great abundance.
Cyclops viridis . . . . . rather common.

Ostracoda.

Cypridopsella aculeata . . . . . occasionally.

B.

Territory of Kokschetavsk.

3. River Kok-sengir, affluent to the lake Kok-sengir-sor.

(Р. Кокъ-сенгиръ, притокъ оз. Кокъ-сенгиръ-соръ.)

25. V. 99. 1 sample.

Amphipoda.

Gammarus pulex.

Phyllopoda.

Lepidurus macrurus.

Cladocera.

Daphnia longispina, nasuta	some specimens.
Chydorus sphæricus	occasionally.

Copepoda.

Diaptomus incrassatus	occasionally.
„ *bacillifer, typicus*	rather common.
„ *denticornis*	do.
Cpclops viridis	occasionally.
„ *leuckarti*	do.
„ *serrulatus*	do.

Ostracoda.

Cyclocypris ovum	do.

4. River Atan-kara-su, affluent to the lake Atan-sor (water brackish). (Р. Атанъ-кара-су, притокъ солонов. оз. Атанъ-соръ.)

26. V. 99. 1 sample.

Cladocera.

Daphnia magna	occasionally.
Simocephalus exspinosus	do.
Chyodorus sphæricus	do.

Copepoda.

Diaptomus denticornis . . . . . occasionally.
Cyclops viridis . . . . . do.
Numerous larvæ of *Cyclops*.

5. Bitter-lake Mamai. (Горькое оз. Мамай.)

28. V. 99. 1 samples.

Cladocera.

Daphnia magna . . . . . very abundant.

Copepoda.

Hemidiaptomus ignatovi . . . . . common.
Diaptomus bacillifer, typicus . . . . . less common.

6. River Tatymbet, affluent to the lake Mamai (freshwater).

(Р. Таттымбетъ, притокъ солонов. оз. Мамай.)

29. V. 99. 1 sample.

Cladocera.

Daphnia longispina, typica . . . . . 1 specimen.
Chydorus sphaericus . . . . . occasionally.

Copepoda.

Cyclops viridis . . . . . do.
„ *serrulatus* . . . . . do.

7. Freshwater swamp Kara-saj. (Прѣсноводное болото Кара-сай.)

27. V. 99. 1 sample.

Cladocera.

Eurycercus lamellatus . . . . . 1 specimen.
Pleuroxus trigonellus . . . . . do.
Chydorus sphæricus . . . . . occasionally.

Copepoda.

Diaptomus coeruleus . . . . . do.
„ *amblyodon* . . . . . 1 specimen.
Cyclops viridis . . . . . do.

Ostracoda.

Cypris pubera . . . . . 4 specimens.

C.

Territory of Akmolinsk.

8. Bitter-lake Ittemmen. (Горькое оз. Иттеммень.)

30. V. 99. 1 sample.

Cladocera.

Simocephalus exspinosus . . . . . occasionally.
Alona elegans . . . . . do.

Copepoda.

Diaptomus bacillifer, typicus . . . . . chiefly ♂.
Cyclops viridis . . . . . occasionally.

Ostracoda.

Cypris sp. (juv.) . . . . . 1 specimen.
Limnicythera incisa . . . . . do.

9. Salt-lake near the village Rybinski. (Соленое оз. вблизи пос. Рыбинскаго.)

30. V. 99. 1 sample.

Cladocera.

Moina rectirostris . . . . . occasionally.
Alona elegans . . . . . do.

Copepoda.

Diaptomus asiaticus . . . . . very abundant.

Ostracoda.

Limnicythere incisa . . . . . occasionally.

10. Small freshwater-swamp, 55 wersts north of Akmolinsk.

(Мал. прѣсное болото въ 55 в. къ сѣв. отъ Акмолинска.)

1. VI. 99. 1 sample.

Phyllopoda.

Lepidurus macrurus.

Cladocera.

Scapholeberis mucronata	occasionally.
Alona affinis	do.
„ *elegans*	do.
„ *costata*	do.
Peratacantha truncata	rather common.
Polyphemus pediculus	do.

Copepoda.

Diaptomus coeruleus	do.
Cyclops viridis	occasionally.

Ostracoda.

Cypris pubera	2 valves.

11. Bitter-lake Sassyk-kul. (Горькое оз. Сасыкъ-куль.)

2. VI. 99. 1 sample.

Cladocera.

Daphnia longispina, caudata	occasionally.
Simocephalus exspinosus	do.
Alona costata	do.
„ *rectangula*	do.
Chydorus sphæricus	do.
Acroperus harpæ	do.
Polyphemus pediculus	do.

Copepoda.

Diaptomus denticornis	common.
„ *coeruleus*	do.
Heterocope borealis	rather common.
Cyclops viridis	occasionally.
„ *serrulatus*	do.

12. Freshwater lake, 15 wersts north of Akmolinsk.

(Прѣсное оз. въ 15 в. къ сѣв. отъ Акмолинска.)

2. VI. 99. 1 sample.

Phyllopoda.

Lepidurus macrurus.

Cladocera.

Simocephalus vetulus	occasionally.
Ceriodaphnia megalops	do.
Lathonura rectirostris	do.
Eurycercus lamellatus	do.
Alonella excisa	do.
Chydorus sphæricus	common.
Acroperus neglectus	occasionally.
Polyphemus pediculus	do.

Copepoda.

Diaptomus amblyodon	do.
„ *coeruleus*	do.
Cyclops viridis	do.

Ostracoda.

Notodromas monacha	do.
Cyprois madaraszi	1 specimen ♂.
Cypris pubera	abundant.
Cyprinotus incongruens	occasionally.

13. Freshwater lake Sabanty-kul. (Прѣсное оз. Сабанты-куль.)

6. VI. 99. 1 sample.

Cladocera.

Bythotrephes arcticus	several specimen.

Copepoda.

Diaptomus bacillifer, typicus	chiefly ♂.
„ *coeruleus*	do.

14. Freshwater lake Ketau-kul. (Прѣсное оз. Кетау-куль.)

7. VI. 99. 1 sample.

Amphipoda.

Gammarus pulex.

Cladocera.

Daphnia longispina, typica . . . . . occasionally.
Eurycerus lamellatus . . . . . do.
Alona costata . . . . . do.
Acroperus harpæ . . . . . do.
Polyphemus pediculus . . . . . do.

Copepoda.

Diaptomus bacillifer, typicus . . . . . do.
Cyclops viridis . . . . . do.
„ *macrurus* . . . . . do.

15. River Nura, at the pond Karaul-kul (freshwater).

(P. Нура у оз. Карауль-куль.)

8. VI. 99. 1 sample.

Cladocera.

Sida crystallina . . . . . occasionally.
Ceriodaphnia quadrangula . . . . . do.
Alona costata . . . . . do.
Chydorus sphæricus . . . . . do.

Copepoda.

Cyclops viridis . . . . . do.
„ *fuscus* . . . . . do.
„ *serrulatus* . . . . . do.

Ostracoda.

Cypris pubera . . . . . detached valvas.

16. Freshwater lake Tshulak-Tshelkar, northern part.

(Сѣв. часть прѣснаго оз. Чулакъ-челкаръ.)

10. VI. 99. 1 sample.

Cladocera.

Daphnia longispina v. *jardini* . . . . . in great abundance.
Ceriodaphnia pulchella . . . . . occasionally.

Copepoda.

Diaptomus sp. . . . . do.

17. Salt-lake Konmakshiny-ulkun-sor, at the northern border of the lake Kurgaldjin. (Солен. оз. Конмакшины-улькунъ-соръ у сѣв. бер. оз. Кургальджинъ.)

15. VI. 99. 2 samples.

Phyllopoda.

Artemia salina (only ♀) . . . . . abundant.

Cladocera.

Moina microphthalma . . . . . common.

18. Salt-lake Itterlyan-sor, at the northern border of the lake Kurgaldjin. (Солен. оз. Иттерлыанъ-соръ у сѣв. бер. оз. Кургальджинъ.)

11—15. VI. 99. 2 samples.

Cladocera.

Daphnia magna . . . . . 1 specimen ♂.
„ *triquetra* . . . . . rather common.
Moina rectirostris . . . . . do.
Alona elegans . . . . . occasionally.

Copepoda.

Diaptomus asiaticus . . . . . abundant.

Ostracoda.

Cypris sp. . . . . 1 specimen.
Limnicythere incisa . . . . . occasionally.

19. Freshwater lake Kurgaldjin, from the north-eastern part. (Сѣв.-вост. часть прѣснаго оз. Кургальджинъ.)

11. VI. 99. 2 samples.

Amphipoda.

Gammarus pulex, juv.

Cladocera.

Diaphanosoma brachyurum . . . . . occasionally.
Daphnia longispina, *tenuitesta* . . . . . do.

Daphnia longispina, pulchella . . . . . abundant.
Ceriodaphnia pulchella . . . . . occasionally.

Copepoda.

Diaptomus lobatus . . . . . common.
Eurytemora affinis . . . . . occasionally.
Cyclops leuckarti . . . . . do.

20. Salt-lake Essei-sor. (Соленое оз. Есей-соръ.)

29. VI. 99. 2 samples.

Cladocera.

Daphnia magna . . . . . common.
„ *triquetra* . . . . . occasionally.
Moina microphthalma . . . . . common.

Copepoda.

Diaptomus salinus . . . . . abundant.

21. Freshwater lake Noraibek, near the south-eastern border of the lake Djar-sor. (Прѣсн. оз. Норайбекъ у ю.-в. бер. оз. Джаръ-соръ.)

30. VI. 99. 2 samples (very rich in Cladocera).

Cladocera.

Daphnia longispina, leydigi . . . . . very common.
Simocephalus productus . . . . . do.
„ *vetuloides* . . . . . occasionally.
Scapholeberis aurita . . . . . do.
„ *mucronata* . . . . . do.
„ *echinata* . . . . . very common.
Ceriodaphnia reticulata . . . . . rather common.
„ *quadrangula* . . . . . occasionally.
„ *megalops* . . . . . do.
Moina rectirostris . . . . . common.
Alona costata . . . . . occasionally.
Alonopsis ambigua . . . . . do.
Pleuroxus aduncus . . . . . do.
Dunhevedia setigera . . . . . do.
Chydorus sphæricus . . . . . rather common.
Acroperus neglectus . . . . . occasionally.

Copepoda.

Diaptomus coeruleus . . . . . occasionally.
Cyclops viridis . . . . . do.

Ostracoda.

Condona compressa. . . . . do.

22. Salt-lake Djar-sor. (Соленое оз. Джаръ-соръ.)

30. VI. 99. 3 samples.

Cladocera.

Daphnia triquetra . . . . . occasionally.
Moina microphthalma . . . . . common.

Copepoda.

Diaptomus salinus. . . . . abundant.

Ostracoda.

Cypris inflata . . . . . occasionally.

23. Lake Kulaly-kul (a part of the late Kurgaldjin). Water slightly brackish. (Солонов. оз. Кулалы-куль, часть басс. оз. Кургальджинъ.)

1. VII. 99. 1 sample.

Cladocera.

Diaphanosoma brachyurum . . . . . common.
Daphnia magna . . . . . occasionally.
„ *longispina, tenuitesta* . . . . . common.
Polyphemus pediculus. . . . . occasionally.

Copepoda.

Diaptomus salinus. . . . . abundant.
Cyclops viridis . . . . . occasionally.

24. Stream between the salt-lake Djar-sor and the brackish lake Kulaly-kul (water slightly brackish). (Протокъ между солен. оз. Джаръ-соръ и солонов. оз. Кулалы-куль.)

1. VII. 99. 1 sample.

Cladocera.

Daphnia triquetra . . . . . occasionally.
Moina microphthalma . . . . . common.

Copepoda.

Diaptomus salinus . . . . . do.

25. Salt-lake Istembet-sor. (Соленое оз. Истембетъ-соръ.)

3. VII. 99. 1 sample.

Cladocera.

Moina microphthalma . . . . . abundant.

Copepoda.

Diaptomus asiaticus . . . . . do.

26. Swamp left by the inundation of the river Nura. (Болото, оставшееся послѣ половодья р. Нуры.)

2. VII. 99. 1 sample.

Cladocera.

Sida crystallina . . . . . occasionally.
Diaphanosoma brachyurum . . . . . do.
Ceriodaphnia quadrangula . . . . . do.
Scapholeberis mucronata . . . . . do.
Bosmina longirostris . . . . . do.
Alona costata . . . . . do.
Alonella excisa . . . . . do.
„ *exigua* . . . . . do.
Chydorus sphæricus . . . . . do.
Acroperus neglectus . . . . . do.
Polyphemus pediculus . . . . . do.

Copepoda.

Cyclops viridis . . . . . do.
„ *serrulatus* . . . . . do.
„ *macrurus* . . . . . do.

27. Freshwater lake Kischkine-karakul (southern part of the lake Kurgaldjin). (Прѣсн. оз. Кишкине-кара-куль, южн. часть оз. Кургальджинъ.)

2. VII. 99. 1 sample.

Cladocera.

Daphnia longispina, typica	rather common.
Ceriodaphnia quadrangula	occasionally.
Bosminia longirostris	do.
Chydorus sphæricus	do.
Acroperus neglectus	do.
Polyphemus pediculus	do.

Copepoda.

Cyclops bicuspidatus	do.
„ *scrrulatus*	do.

Ostracoda.

Candona compressa	do.

28. Freshwater lake Saudarsy-kul. (Прѣсн. оз. Саударсы-куль.)

3. VIII. 99. 2 samples.

Cladocera.

Diaphanosoma brachyurum	common.
Daphnia longispina, typica	occasionally.
Scapholeberis mucronata	do.
Ceriodaphnia quadrangula	do.
Pleuroxus aduncus	do.
Chydorus sphæricus	do.
Polyphemus pediculus	do.

Copepoda.

Diaptomus denticornis	rather common.
„ *coeruleus*	occasionally.
Cyclops viridis	do.

29. Freshwater lake Kaip-Tschelkar. (Прѣсн. оз. Каипъ-челкаръ.)

1. VIII. 99. 1 sample.

Cladocera.

Diaphanosoma brachyurum	common.
Daphnia longispina, jardini	occasionally.
Leptodora hyalina	do.

Copepoda.

Diaptomus denticornis . . . . . occasionally.
„ *gracíloides* . . . . . do.
Eurytemora affinis. . . . . do.
Cyclops leuckarti. . . . . do.

30. Salt-lake Astschi-sor. (Солен. оз. Ащи-соръ.)

31. VII. 99. 4 samples.

Cladocera.

Daphnia magna . . . . . abund.

Copepoda.

Hemidiaptomus ignatovi . . . . . very abund.
Diaptomus asiaticus . . . . . do.
Cyclops viridis . . . . . occasionally.
Marshia blanchardi . . . . . do.

Ostracoda.

Cypridopsella granulata . . . . . rather common.
Limnicythere incisa . . . . . occasionally.

31. Freshwater lake Kotybai. (Солен. оз. Котыбай.)

2. VIII. 99. 1 sample.

Amphipoda.

Gammarus pulex.

Cladocera.

Daphnia longispina, typica . . . . . occasionally.
Simocephalus vetuloides. . . . . do.
Ceriodaphnia quadrangula . . . . . do.
Chydorus sphæricus . . . . . do.

Copepoda.

Diaptomus denticornis . . . . . common.
„ *coeruleus*, var.. . . . . do.
Cyclops viridis . . . . . occasionally.
„ *serrulatus* . . . . . do

32. River Astschi-airyk, affluent to the river Selety.
(Рѣка Ащи-айрыкъ, притокъ р. Селеты.)

12. VIII. 99. 1 sample.

Cladocera.

Ceriodaphnia pulchella . . . . . occasionally.

Copepoda.

Diaptomus gracilcides . . . . . abund.
Cyclops oithonoides . . . . . common.

D.

Territory of Atbassar.

33. Bitter-lake Tenise. (Горьк. оз. Тенизъ.)

June—July 99. 10 samples.

Cladocera.

Moina microphthalma . . . . . in great abundance.

Copepoda.

Diaptomus salinus . . . . . abund.
Cyclops diaphanus, v. *dengizica* . . . . . occasionally.
Marshia blanchardi . . . . . do.

34. River Nura, 10 wersts from its mouth, near the tomb Ablai (freshwater). (P. Нура, въ 10 верстахъ отъ устья; вода прѣсн.)

23. VI. 99. 1 sample.

Cladocera.

Diaphanosoma brachyurum . . . . . occasionally.
Daphnia longispina, jardini . . . . . do.

Copepoda.

Eurytemora affinis . . . . . do.
Cyclops viridis . . . . . do.

35. Freshwater lake Kokaï (north-western part of the lake Kurgaldjin). (Прѣсн. оз. Кокай, сѣв.-зап. часть оз. Кургальджинъ.)

23. VI. 99. 2 samples.

Cladocera.

Sida crystallina	occasionally.
Diaphanosoma brachyurum	common.
Chydorus sphæricus	occasionally.
Leptodor kindti	rather common.

Copepoda.

Eurytemora affinis	occasionally.
Cyclops viridis	do.
„ *leuckarti*	do.

36. River Kon, affluent to the river Nura (freshwater). (Р. Конъ, притокъ р. Нуры; вод. прѣсн.)

27. VI. 99. 1 sample.

Cladocera.

Diaphanosoma brachyurum	occasionally.
Simocephalus vetuloides	do.
Ceriodaphnia quadrangula	do.
Eurycercus lamellatus	do.
Alona affinis	rather common.
„ *tenuicaudis*	do.
„ *rectangula*	do.
Graptoleberis testudinaria	do.
Peratacantha truncata	do.
Chydorus sphæricus	do.
Acroperus harpæ	do.

Copepoda.

Eurytemora affinis, juv.	do.
Cyclops viridis	do.
„ *serrulatus*	do.

Ostracoda.

Notodromas monacha	do.
Cyclocypris ovum	do.
Limnicythere incisa	do.

37. River Nura, at its outlet in the lake Tenise (water slightly brackish). (Р. Нура у выхода изъ оз. Кургальджинъ; вод. солонов.)

27. VI. 99. 1 sample.

Cladocera.

Moina microphthalma . . . . . abund.
Ceriodaphnia pulchella . . . . . occasionally.

Copepoda.

Diaptomus salinus . . . . . abund.
Marshia blanchardi . . . . . occasionally.

38. Salt-lake Mergen-sor. (Солен. оз. Мергенъ-соръ, въ 20 в. къ юг. отъ оз. Теннзъ.)

10. VII. 99. 1 sample.

Phyllopoda.

Artemia salina ♂ & ♀.

Cladocera.

Detached *ephippia* of *Moina*.

39. Freshwater ponds at the southern border of the lake Tenise. (Прѣсн. озерки у южн. бер. оз. Теннзъ.)

10 VII. 99. 1 sample.

Cladocera.

Moina rectirostris . . . . . abund.

Copepoda.

Diaptomus bacillifer, typicus . . . . . occasionally.

40. Ponds at the spring Tshilapan. (Лужи у ключ. Чилапанъ.)

11. VII. 99. 1 sample.

Cladocera.

Daphnia pulex, longspined var.. . . . . 4 specimens.
Simocephalus exspinosus . . . . . occasionally.

Scapholeberis aurita . . . . . 1 specimen.
Ceriodaphnia reticulata . . . . . occasionally.
Alona tenuicaudis . . . . . do.
Chydorus sphæricus . . . . . do.

Ostracoda.

Notodromas monacha . . . . . abund.
Cyprinotus incongruens . . . . . occasionally.

41. Pond at the western border of the lake Tenise.

(Мал. водоемъ у зап. бер. оз. Тенизъ.)

18. VII. 99. 1 sample.

Cladocera.

Daphnia pulex (ephippial ♀) . . . . . abund.

Copepoda.

Diaptomus acutilobatus . . . . . occasionally.
„ *coeruleus* . . . . . do.
Cyclops strenuus . . . . . do.
„ *bicuspidatus* . . . . . do.

42. Pond at Tobyl-goly-sai. (Мал. водоемъ у колод. Тобылъ-голы-сай.)

18. VII. 99. 1 sample.

Cladocera.

Daphnia pulex . . . . . abund.

Copepoda.

Diaptomus coeruleus . . . . . common.
Cyclops viridis . . . . . occasionally.
„ *strenuus* . . . . . do.

43. Bitter-swamp at the end of a deepening of Tobyl-goly-sai (eastern border of the lake Tenise). (Горьк. болото въ углубленіи у колод. Тобылъ-голы-сай; вост. бер. оз. Тенизъ.)

18. VII. 99. 1 sample.

Cladocera.

Moina micrura . . . . . occasionally.

Copepoda.

Diaptomus salinus . . . . . abund.
Cyclops diaphanus, v. *dengizica* . . . . . common.
Marshia blanchardi . . . . . rather common.

Ostracoda.

Cypridopsella aculeata . . . . . occasionally.

44. South-eastern border of the lake Tenise. (У юг.-вост. бер. оз. Тенизъ.)

16. VII. 99. 1 sample.

Cladocera.

Daphnia longispina, leydigi . . . . . common.
Simocephalus exspinosus . . . . . do.

Copepoda.

Cyclops strenuus . . . . . occasionally.

Ostracoda.

Cypridopsella aculeata . . . . . common.
„ *newtoni* . . . . . 1 specimen.

45. Freshwater ponds in the deepenings of Kara-sai. (Лужи въ углубленіяхъ у колод. Кара-сай; вода прѣсн.)

16. VII. 99. 2 samples.

Cladocera.

Daphnia longispina, typica . . . . . occasionally.
Simocephalus exspinosus . . . . . do.
Ceriodaphnia reticulata . . . . . do.
Alona rectangula . . . . . do.

Ostracoda.

Notodromas monacha . . . . . abund.
Cypridopsella aculeata . . . . . common.
„ *newtoni* . . . . . do.
„ *arcuata* . . . . . occasionally.

46. Freshwater lake Tenise-Bidarak, at the southern border of the lake Tenise. (Прѣсн. оз. Тенизъ-бйдаракъ у южн. бер. оз. Тенизъ)

15. VII. 99. 1 sample.

Cladocera.

Daphnia carinata . . . . . common.
Moina rectirostris . . . . . do.

Copepoda.

Hemidiaptomus ignatovi . . . . . occasionally.
Diaptomus incrassatus . . . . . common.
„ *acutilobatus, minor* . . . . . do.

47. Mouth of the river Kon, affluent to the lake Tenise (water slightly brackish). (Устье р. Конъ, притока оз. Тенизъ; вода солонов.)

27. VII. 99. 1 sample.

Cladocera.

Diaphanosoma brachyurum . . . . . occasionally.
Daphnia longispina, typica . . . . . do.
Ceriodaphnia pulchella . . . . . do.
Moina microphthalma . . . . . rather common.
„ *rectirostris* . . . . . occasionally.
Bosmina longirostris . . . . . do.
Alona elegans . . . . . do.
Polyphemus pediculus . . . . . do.

Copepoda.

Diaptomus salinus . . . . . common.
Eurytemora affinis . . . . . occasionally.
Cyclops leuckarti . . . . . do.

48. Bitter-lake Kirei-sor. (Горьк. оз. Кирей-соръ.)

28. VII. 99. 1 sample.

Cladocera.

Moina microphthalma . . . . . common.

Copepoda.

Diaptomus asiaticus . . . . . common.
Marshia blanchardi . . . . . occasionally.

E.

Altai.

a. Collections of P. Kozlov and A. Kaznakov.

49. Freshwater tarn in the valley Sarymsakty, not far from Kalun-Kara-gol (Altajskaja Stanitza). (Прѣсн. водоемъ въ долинѣ Сарымъ-сакты, не далеко отъ стан. Алтайской.)

VII. 99. 2 samples.

Cladocera.

Daphnia pulex, typica . . . . . in great abundance.
„ *longispina, simulans* . . . . . rather common.

Copepoda.

Diaptomus denticornis, major . . . . . occasionally.

Ostracoda.

Candona candida . . . . . several specimens.

b. Collections of P. Ignatov.

50. Lake Dshujlju-kol. (Оз. Джюйлю-коль.)

7. VIII. 01. 7 samples.

Amphipoda.

Gammarus pulex.

Cladocera.

Daphnia longispina, microcephala . . . . . abund.
Bosmina longirostris . . . . . rather common.
Eurycercus lamellatus . . . . . occasionally.
Chydorus sphæricus . . . . . do.

Copepoda.

Diaptomus acutilobatus . . . . . occasionally.
Cyclops strenuus, var. . . . . do.
„ *viridis* . . . . . do.

51. Lake Kurtu-kol. (Оз. Курту-коль.)

2. IX. 01. 6 samples.

Amphipoda.

Gammarus pulex.

Cladocera.

Daphnia longispina, turbinata . . . . . common.

Copepoda.

Diaptomus denticornis, minor . . . . . abund.
Cyclops strenuus, var. . . . . occasionally.

52. Lake Esherlju-kol. (Оз. Эжерлю-коль.)

1. IX. 01. 2 samples.

Amphipoda.

Gammarus pulex.

Copepoda.

Diaptomus denticornis, minor . . . . . abund.
Cyclops strenuus, var. . . . . occasionally.

53. Lake Tschejbok-kol. (Оз. Чейбокъ-коль)

30. VIII. 01. 3 samples.

Cladocera.

Daphnia longispina, hyalina . . . . . abund.
Bosmina longirostris . . . . . occasionally.
Leptodora kindti . . . . . 1 specimen.

Copepoda.

Diaptomus denticornis, minor . . . . . abund.
Cyclops leuckarti . . . . . occasionally.

54. Lake Kondoj-kol. (Оз. Кондой-коль.)

22. VIII. 01. 3 samples.

Amphipoda.

Gammarus pulex.

Cladocera.

Daphnia longispina, typica . . . . . rather common.

Copepoda.

Diaptomus denticornis, minor . . . . . abund.
Cyclops strenuus, var. . . . . occasionally.
„ *leuckarti*. . . . . do.

55. Lake Telecki, in different places and depths.

(Телецкое озеро, на разн. мѣстахъ и глубин.)

Numerous (34) samples.

Amphipoda.

Gammarus pulex.

Cladocera.

Bosmina longirostris . . . . . occasionally.
„ „ var. *similis* . . . . . rather common.
Alona affinis . . . . . occasionally.

Copepoda.

Diaptomus bacillifer, v. *montana* . . . . . abund.
Cyclops strenuus, v. *gracilipes* . . . . . common.
„ *leuckarti* . . . . . occasionally.

56. Lake Tooshin-kol. (Оз. Тоожинъ-коль.)

August 1901. 3 samples.

Amphipoda.

Gammarus pulex.

Cladocera.

Daphnia pulex, pulicaria . . . . . rather common.
„ *longispina, typica* . . . . . occasionally.

Copepoda.

Diaptomus denticornis, major . . . . . occasionally.
Cyclops strenuus . . . . . do.
„ *leuckarti* . . . . . do.

Ostracoda.

Cytheridea lacustris . . . . . 1 specimen.

57. Tarn of the eastern border of the lake Dshujlju-kol.

(Водоемъ на вост. бер. оз. Джюйлю-коль.)

10. VIII. 01. 1 sample.

Amphipoda.

Gamarus pulex.

Phyllopoda.

Lynceus brachyurus . . . . . several specimens.

Cladocera.

Daphnia pulex, typica . . . . . occasionally.
Eurycercus lamellatus . . . . . do.
Alona affinis . . . . . do.
Chydorus sphæricus . . . . . do.

Copepoda.

Hemidiaptomus ignatovi . . . . . some few specimens.
Diaptomus acutilobatus . . . . . common.
Cyclops viridis . . . . . occasionally.
„ *serrulatus* . . . . . do.

58. Tarn on the southern border of the lake Dshujlju-kol.

(Водоемъ на южн. бер. оз. Джюйлю-коль.)

8. VIII. 01. 3 samples.

Amphipoda.

Gammarus pulex.

Cladocera.

Daphnia pulex, var. . . . . occasionally.
„ *longispina, leydigi* . . . . . rather common.

Simocephalus vetulus . . . . . occasionally.
Scapholeberis mucronata . . . . . do.
Ceriodaphnia quadrangula . . . . . do.
Eurycercus lamellatus . . . . . do.
Pleuroxus uncinatus . . . . . 2 specimens.
Chydorus sphæricus . . . . . rather common.

Copepoda.

Diaptomus denticornis, major . . . . . occasionally.
Cyclops strenuus, var. . . . . do.
„ *viridis* . . . . . do.

Ostracoda.

Cyclocypris ovum . . . . . do.

59. River Tschulyschman, at its mouth. (Р. Чулышманъ, въ устьѣ.)

12. IX. 01. 1 sample.

Cladocera.

Bosmina longirostris . . . . . common.
„ „ var. *similis* . . . . . occasionally.
Macrothrix hirsuticornis . . . . . do.
Alona affinis . . . . . do.
„ *rectangula* . . . . . do.

Copepoda.

Diaptomus bacillifer, v. *montana* . . . . . common.
Cyclops strenuus, var. . . . . —

60. Lake Tasch-obolon-bashi. (Оз. Ташъ-облонъ-бажи.)

3. VIII. 01. 1 sample.

Cladocera.

Daphnia longispina, microcephala . . . . . common.
Bosmina obtusirostris . . . . . do.

Copepoda.

Diaptomus denticornis, minor . . . . . do.
Cyclops strenuus, var. . . . . do.

61. Lake Kendykty-kol. (Оз. Кендыкты-коль.)

Amphipoda.

Gammarus pulex.

F.

Mongolia.

Collections of Gr. Potanin and W. Soldatov 1899 in the eastern part of the country (between long. E. 115° and 120°).

62. River Kerulen, near its mouth in the lake Dalaj-nor.

(P. Керуленъ близъ ея впаденія въ оз. Далай-норъ.)

8. VI. 1 sample.

Cladocera.

Daphnia carinata	rather common.
„ *longispina, leucocephala*	occasionally.
Moina macrocopa	common.
„ *rectirostris*	occasionally.

Copepoda.

Boeckella orientalis	rather common.
Diaptomus bacillifer	occasionally.
Cyclops vicinus	common.

63. Lake Chujtu-nor, 50—60 wersts south of Buir-nor.

(Оз. Хуйту-Норъ въ 50—60 в. къ югу отъ оз. Буиръ-Нора.)

21. VI. 1 sample.

Amphipoda.

Gammarus pulex.

Phyllopoda.

Branchinecta orientalis	abund.
Estheria propinqua	occasionally.

Cladocera.

Daphnia magna	abund.

Copepoda:

Hemidiaptomus ignatovi . . . . . v. abund.
Diaptomus bacillifer . . . . . occasionally.

64. Locality Chaligala, 20 wersts south of Chujtu-nor.

(Мѣстность Халигала въ 20 в. къ югу отъ Хуйту-Нора.)

23. VI. 1 sample.

Cladocera.

Daphnia pulex . . . . . occasionally.
Simocephalus vetulus . . . . . 5 specimens.

65. Locality Barolduschty, 20 wersts north of Luch-sume.

(Мѣстн. Барольдушты въ 20 в. къ сѣв. отъ Лухъ-Сумэ.)

28. VI. 1 sample.

Cladocera.

Daphnia magna . . . . . common.
„ *pulex*, v. *pulicaria* . . . . . do.
Simocephalus exspinosus . . . . . occasionally.
Moina rectirostris . . . . . do.
Alona elegans . . . . . do.

Copepoda.

Diaptomus incrassatus . . . . . common.
„ *wierzejski* . . . . . occasionally.
Cyclops viridis . . . . . do.
„ *serrulatus* . . . . . do.

Ostracoda.

Cypris pubera . . . . . rather common.
„ *ovalis* . . . . . do.

66. Foreland of the western slope of the Chingan mountain, between the lakes Tschorno-nor and Luksej-nor, 20 wersts south of Luch-sume. (Предгорья зап. Хингана, между оз. Чорно-Номъ и оз. Луксей-Номъ; въ 20 в. къ югу отъ Лухъ-Сумэ.)

4. VII. 1 sample.

Phyllopoda.

Apus granarius . . . . . common.
Branchipodopsis affinis . . . . . occasionally.
Estheria davidi . . . . . common.
Leptestheria tenuis . . . . . occasionally.

67. Ponds at the river Ssudjil-gol, near Chan-tuban-sume; western slope of the Chingan mountain. (Въ лужицахъ близъ р. Суджилъ-голъ, окрестн. мѣста Ханъ-Тубанъ-Сумэ; зап. предгорья Хингана.)

13. VII. 1 sample.

Amphipoda.

Gammarus pulex.

Cladocera.

Daphnia pulex . . . . . occasionally.
Simocephalus mixtus . . . . . rather common.
Scapholeberis mucronata . . . . . occasionally.

Ostracoda.

Cyprinotus incongruens . . . . . rather common.
Ilyocypris lacustris . . . . . do.

68. Streamlet Kirschtyn-gol, near the mongolic military post Dzurkin-karaul. (Ручей Кирштынъ-голъ близъ монгольск. поста Дзуркинъ-караулъ.)

31. VII. 1 sample.

Phyllopoda.

Apus granarius (larvæ).

Cladocera.

Daphnia pulex . . . . . occasionally.
„ *carinata*, var. . . . . 2 specimens.
Moina macrocopa . . . . . v. abund.
„ *rectirostris* . . . . . occasionally.

Copepoda.

Cyclops vicinus . . . . . do.

69. River But-gol. (Р. Бутъ-голъ.)

1. VIII. 1 sample.

Amphipoda.

Gammarus pulex.

Phyllopoda.

Apus granarius, juv.

70. Locality Pajlar, 88 wersts south of Gudjur-sume.

(Мѣстн. Пайларъ, 88 в. къ югу отъ Гуджуръ-Сумэ.)

3. II. 1 sample.

Cladocera.

Daphnia magna . . . . . abund.
Moina rectirostris . . . . . occasionally.

Copepoda.

Cyclops strenuus . . . . . occasionally.
„ *serrulatus* . . . . . do.

G.

North-East-Tibet.

Collections of P. Kozlov and A. Kaznakov.

71. Freshwater lake Kurlyk-nor. (Прѣсн. оз. Курлыкъ-норъ.)

VI. 01. 1 sample.

Amphipoda.

Gammarus pulex.

Cladocera.

Daphnia longispina, caudata . . . . . abund.
Ceriodaphnia quadrangula . . . . . occasionally.

Copepoda.

Diaptomus denticornis . . . . . common.
„ *bacillifer* . . . . . occasionally.
Cyclops strenuus, var. . . . . do.

72. Lake Toso-nor (water brackish). (Солонов. оз. Тосо-норъ.)

3. VII. 01. 2 samples.

Cladocera.

Daphniopsis tibetana. . . . . . abund.

Copepoda.

Diaptomus salinus . . . . . occasionally.

Ostracoda.

Cypris sp. . . . . 1 specimen.

H.

Turkestan.

Collections of Dr. O. Paulsen.

73. Small pond at Bordobá, at the southern border of the Alai-plain. (Мал. прудъ у Бордоба въ южной части Алайской долины.)

28. VI. 98. 3 samples.

Cladocera.

Daphnia longispina, rosea . . . . . common.
Simocephalus exspinosus . . . . . occasionally.
Scapholeberis mucronata . . . . . do.
Ceriodaphnia quadrangula . . . . . do.
Chydorus sphæricus . . . . . common.

Copepoda.

Hemidiaptomus ignatovi . . . . . some few specimens.
Diaptomus denticornis . . . . . common.
„ sp. . . . . 2 specimens ♂.
Cyclops viridis . . . . . occasionally.

Ostracoda.

Cypris sp. . . . . do.

74. Small ditch near Kara-kul in Pamir. (Мал. ровъ вблизи оз. Кара-куль на Памирахъ.)

1. VII. 98. 1 sample (dried up).

Cladocera.

Alona costata . . . . . rather common.

Copepoda.

Cyclops strenuus . . . . . rather common.

75. Lake Kara-kul in Pamir. Height 4000 m. (Оз. Кара-куль на Памирахъ.)

1. VII. 98. 2 samples.

Diaptomus paulseni . . . . . common.

76. Lagune of the lake Kara-kul. (Лагуна на бер. оз. Кара-куль.)

Cladocera.

Alona sp. . . . . occasionally.

Copepoda.

Diaptomus bacillifer . . . . . rather common.
Canthocamptus sp. . . . . occasionally.

77. Small ditches in the swampy ground at the river Alitshur. Height about 3700 m. (Мал. рвы на болотист. берегу р. Аличуръ.)

17. VII. 98. 1 sample (dried up).

Cladocera.

Daphnia pulex . . . . . occasionally.
Macrothrix sp. . . . . do.

Ostracoda.

Cyprinotus incongruens . . . . . rather common.
Herpetocypris peregrinus . . . . . occasionally.

78. Lake Jaschil-kul in Pamir. Height 3700 m. (Оз. Яшиль-куль на Памирахъ.)

25—26. VII. 98. 6 samples.

Cladocera.

Daphnia longispina, var. . . . . occasionally.
Ceriodaphnia quadrangula . . . . . do.

Copepoda.

Diaptomus paulseni . . . . . v. abund.
Cyclops juv. . . . . ccasionally.

79. Tarn in the mountain pass Chargosch. Height ca. 4200 m.
(Лужа на перевалѣ Харгошъ.)

4. IX. 98. 3 samples.

Diaptomus paulseni . . . . . common.
Cyclops sp. . . . . 1 specimen.

80. Small pond in the garden at Osch (Ferghana).
(Мал. прудъ въ садахъ г. Ошъ; Ферганск. обл.)

14. IV. 99. 1 sample.

Cladocera.

Daphnia pulex . . . . . abund.

Copepoda.

Cyclops viridis . . . . . occasionally.
„ *strenuus* . . . . . do.

81. The pond „Haps-i-Chodja-Bulgar" in Buchara. (?)

9. VI. 99. 1 sample.

Daphnia pulex, typica . . . . . v. abund.

82. Brackish pool at China. (?)

Aug. 99. 1 sample.

Artemia salina . . . . . abund.

83. Small ditches in the swampy ground at the lake Jaschil-kul. Height ca. 3700 m. (Мал. рвы на болотист. бер. оз. Яшилъ-куль.)

17. VII. 98. 1 sample.

Phyllopoda.

Branchinecta orientalis . . . . . several specimens.
Chirocephalus grubei . . . . . do.

Cladocera.

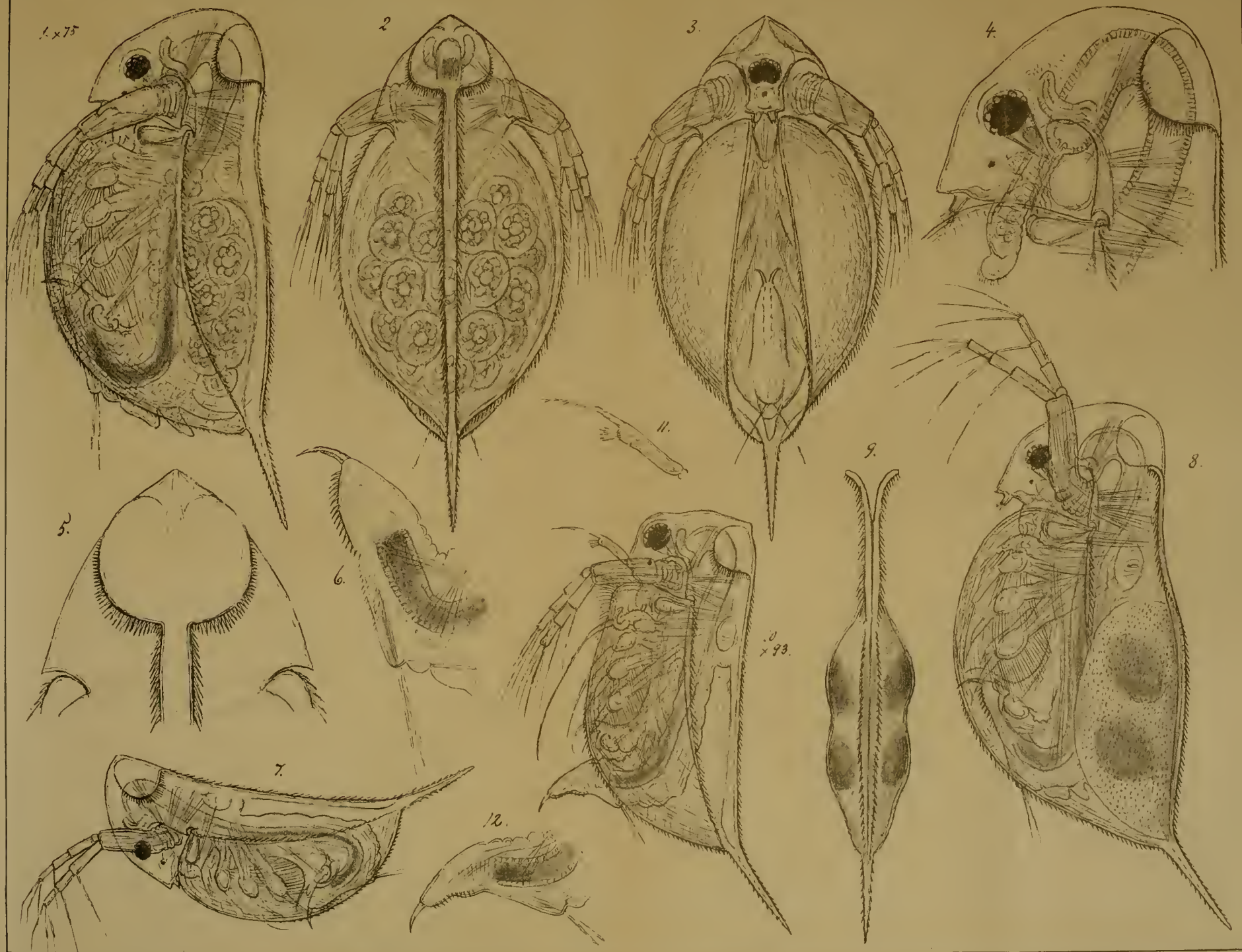
Daphnia pulex . . . . . 1 specimen.
Macrothrix sp. . . . . do.

Copepoda.

Cyclops sp. (juv.) . . . . . occasionally.

G.O. Sars autogr

Trykt i den private Opmaaling. Chra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9.
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12.
×93.

G O Sars autogr

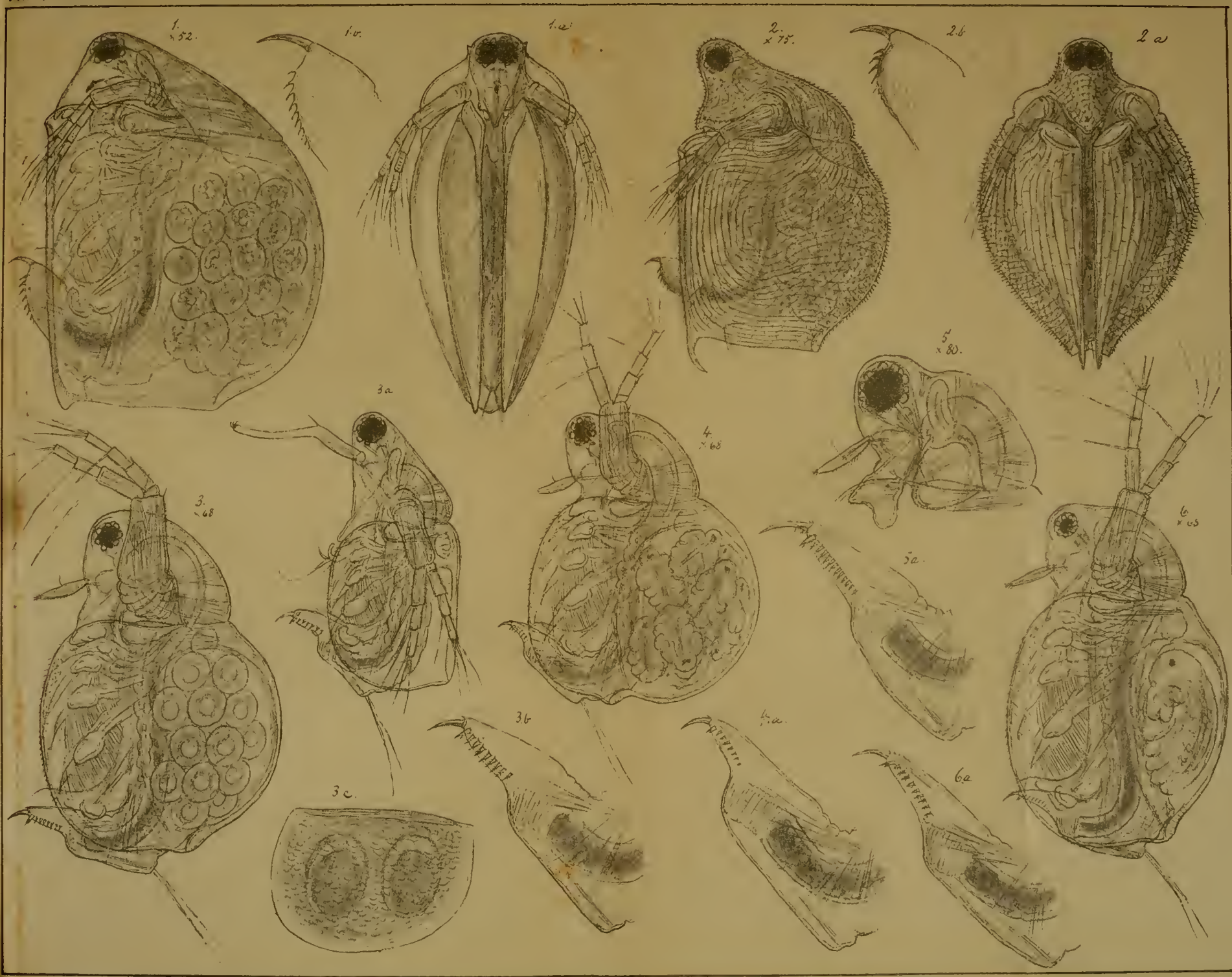
Trykt i den private Opmaaling Chra

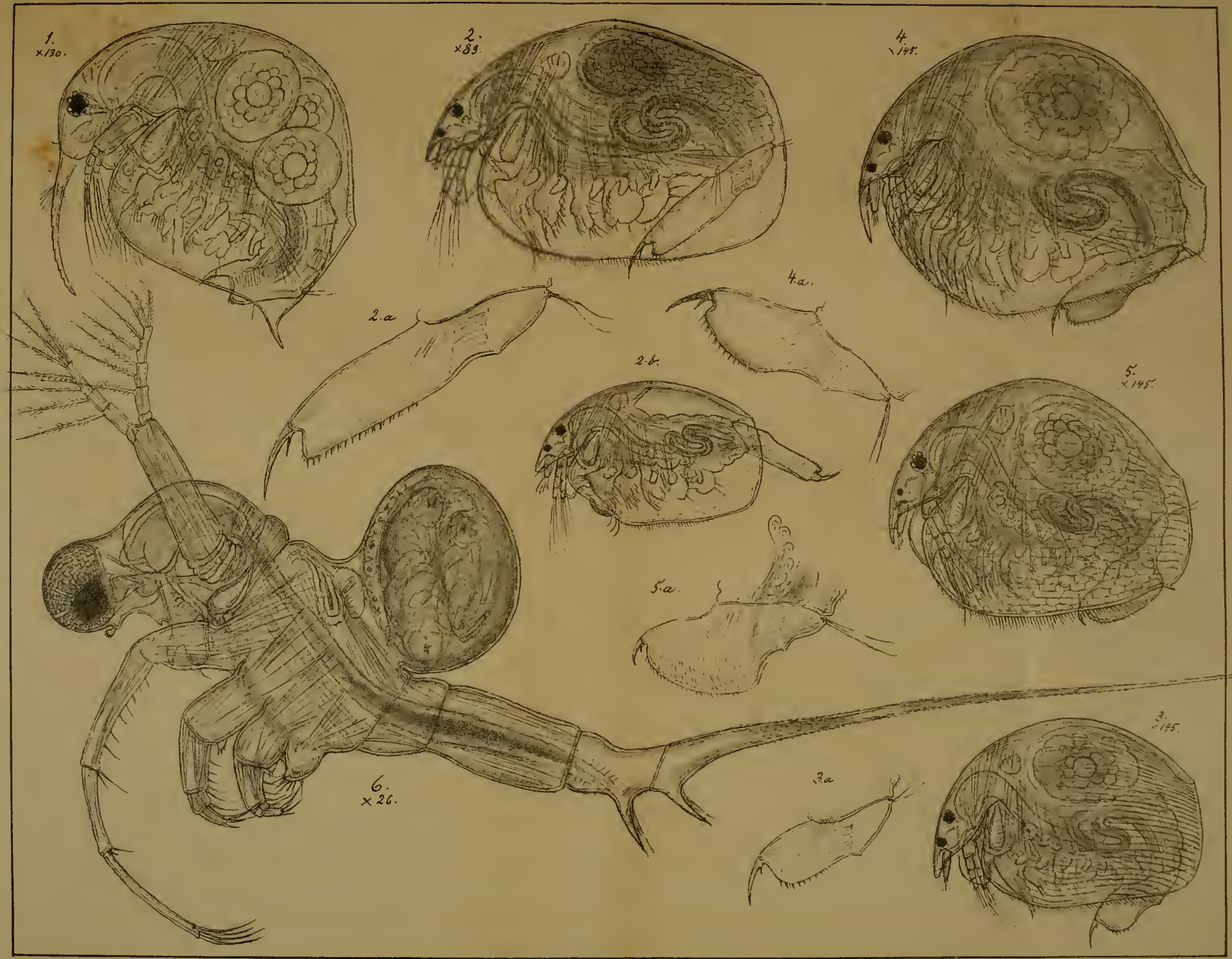
Trykt i den norske Regjerings Chro

G. O. Sars autogr.

Trykt i den private Opmaaling Chra

Trykt den private Opmaaling Chra

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×89.
4
×145.
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4.a.
2.b.
5.
×145.
5.a
6.
×26.
3a
3.
×145.


1.
68.
2.
3.
3.a
4.
5.
6.
7.
8.
9.
10
11.
12.
13.
14.
15.


3.
5.
6.
6
4.
2.
7.
14
1.
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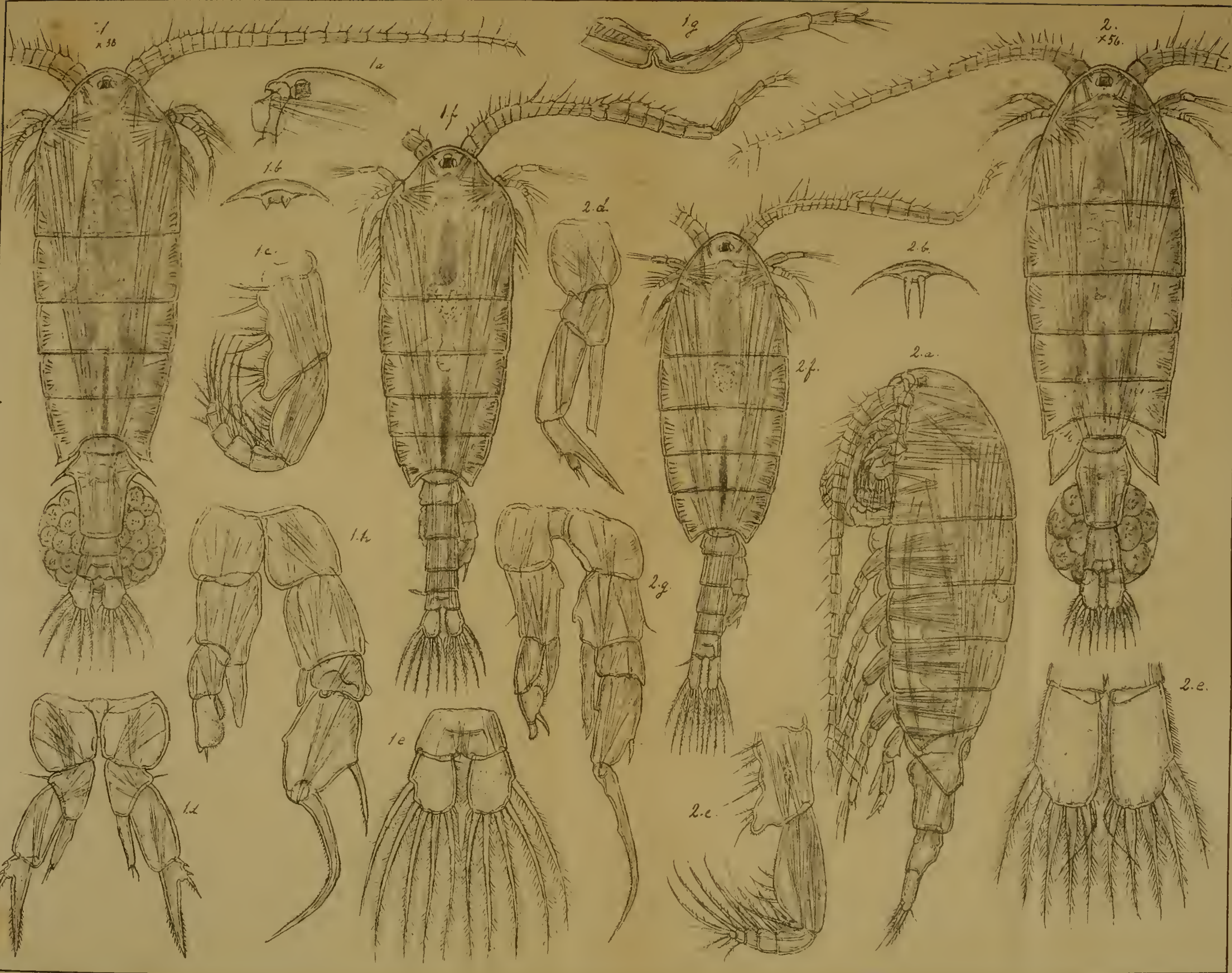
10
13.
11.
12
15.
9.
8.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×38
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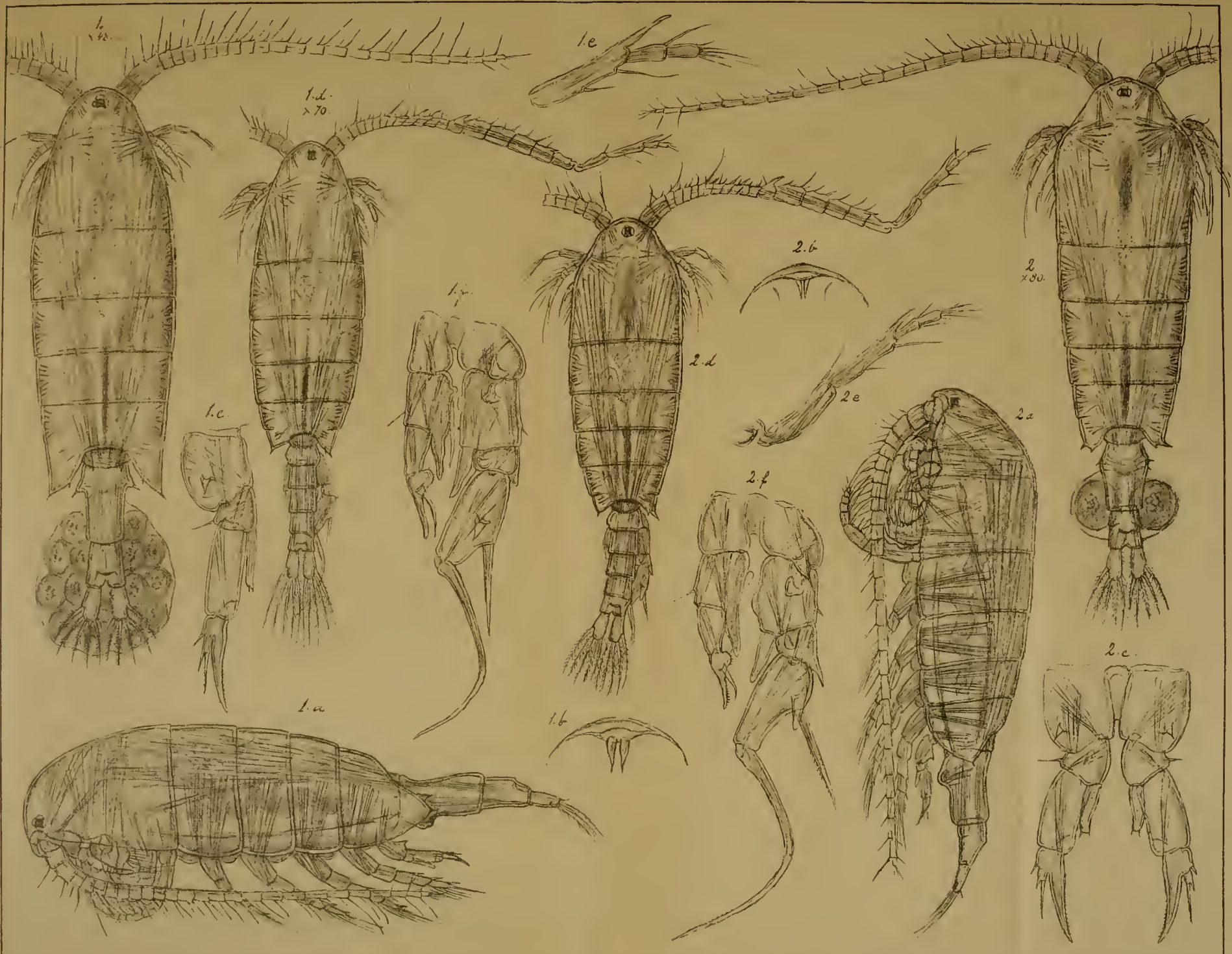
1.b
1.c
1.d
1e
1.f
1.g
1.h
2.
×56.
2.a.
2.b.
2.d.
2.e.
2.e.
2.f.
2.g.

G. O. Sars autogr.

Trykt i den private Opmaaling Chra



G. G. Sars autogr.

Trykt i den private Opmaaling Chra

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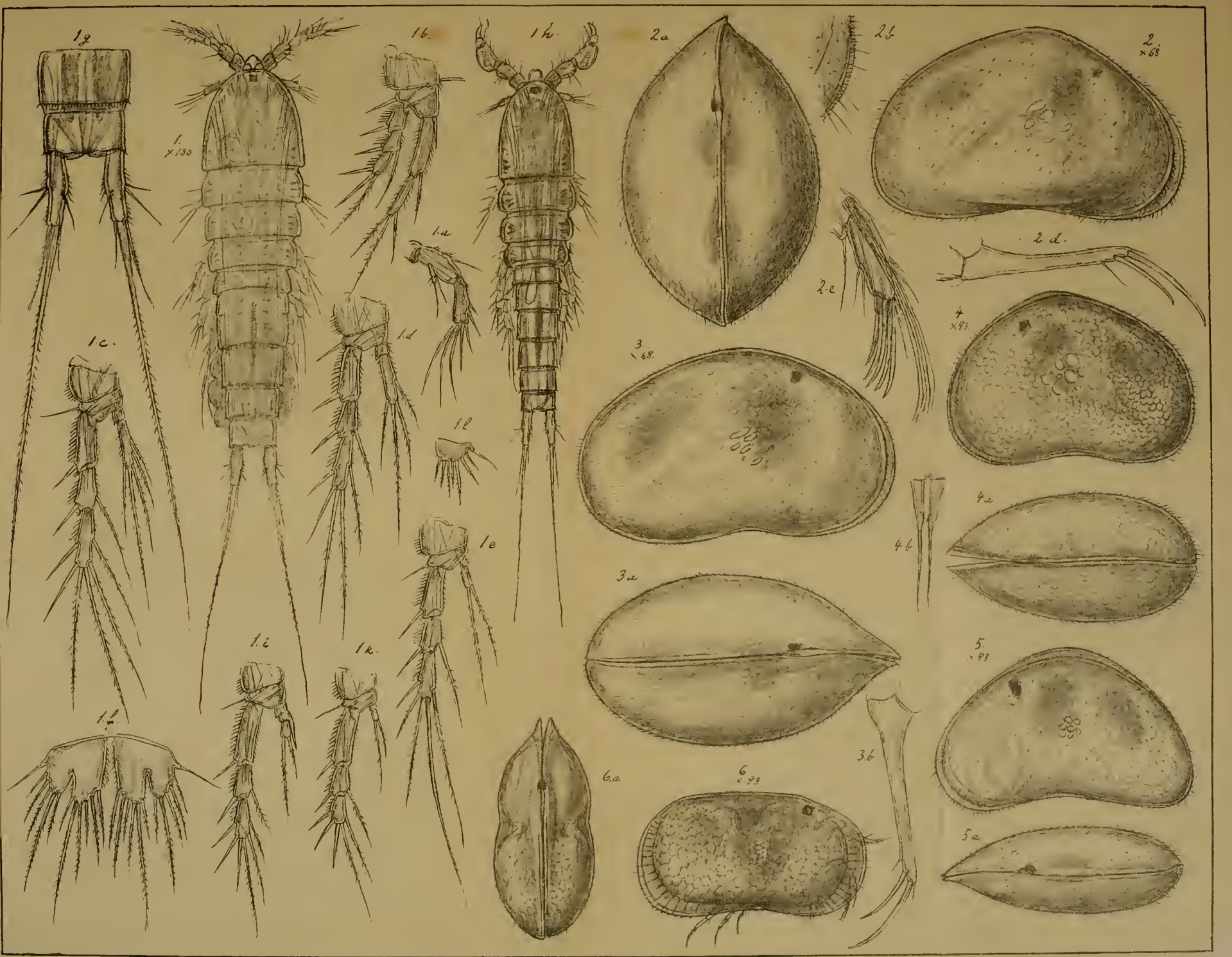
G O Sars autogr

Trykt i den private Opmaaling Chra



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