

T1436

From the ANNALS AND MAGAZINE OF NATURAL HISTORY for
September 1892.

A. M. Norman on *British Mysidæ*.

setæ. *Mandible* with second and third
 remarkable on account of the dense clothing
 both margins, and especially on the sides,
 length on the third joint; simple or plumose,
 absent*. *Maxillipeds* and *gnathopods*
 are and strong, terminating in a strong
 on the outer side of which are several large spines
 on one margin. *Legs* having the 4-articu-
 and much shorter than preceding joint,
 are lanceolate, shorter than inner uropods,
 ending to the extremity, which is narrowly
 edged with three pairs of spines, the inner
 intermediate pair very long, the outer pair
 as long as the central pair; sides of telson with
 of equal size, and about equal distances
 throughout the entire length. *Uropods* very
 with a group of five spines, closely packed,
 length distally, arranged round the curve of
 the spines beyond these. The *pleopods* of the
 are of a peculiar character in the genus; the specialized
 fourth pair consists of nine joints, and
 bears, like the preceding joint, a pair of
 penultimate is without appendages, the
 long spine-like seta, which is densely
 at the extremity. Length 15 millim.
 The female specimen were procured by me
 on the captain's yacht 'The Osprey,' at Valentia,
 I do not know under what circumstances
 they were obtained, as I had only labelled
 and named them "Valentia, 1870."

They are often present, as in *M. didelphys*, at the
 distal joint, the other setæ being plumed or simple.

[To be continued.]

ON BRITISH *MYSIDÆ*, A FAMILY OF
 CRUSTACEA SCHIZOPODA. BY THE REV.
 CANON A. M. NORMAN, M.A., D.C.L., F.R.S.,
 ETC.

On British Mysidæ, a Family of Crustacea Schizopoda. By the Rev. Canon A. M. NORMAN, M.A., D.C.L., F.R.S., &c.

[Continued from p. 166.]

Genus 7. LEPTOMYSIS, G. O. Sars, 1869.

Eyes subglobose, not compressed. *Antennal scale* subulate, ciliated all round, second joint very long and running out to a narrow extremity. *Legs* long and slender; tarsus 3-articulated; a very slender nail. *Telson* linguiform or lanceolate, of considerable size, margins spined, entire at the extremity, which is aculeated with spines of unequal length. *Uropods* long and narrow, ciliated on all sides; acoustic organ large. *Pleopods* in female one-jointed, small and narrow; in male well developed, biramose, multiarticulate, natatory; lateral basal lobe of inner branch small; outer branch of fourth pair having 1-3 terminal articulations furnished with ciliated spines (instead of setæ).

1. *Leptomysis gracilis*, G. O. Sars.

1864. *Mysis gracilis*, G. O. Sars, Beret. om en i Somm. 1863 foretagen Zool. Reise i Christiania Stift, p. 23.
 1869. *Mysis hispida*, Norman, "Last Report Dredging Shetland Isles," Brit. Assoc. Rep. 1868, p. 267.
 1869. *Leptomysis gracilis*, G. O. Sars, Undersøgelser over Christianiafjordens Dybvandsfauna, p. 29.
 1879. *Leptomysis gracilis*, G. O. Sars, Carcinol. Bidrag til Norges Fauna, I. Monogr. Mysider, p. 31, pls. xix., xx.
 1882. *Leptomysis gracilis*, Czerniavsky, Monogr. Mys. Imp. Ross. fasc. i. p. 90, iii. p. 20.

Form slender and elongate; pellucid and almost colourless, except some rosy-coloured blotches at the base of the pleopods; cephalothorax scarcely wider than the unusually long pleon; dermis everywhere (even to the eyestalks and antennules) hispid, with minute scales. *Rostrum* broadly triangular, large, acutely pointed at extremity, reaching beyond the middle of the first joint of the antennules; a notch on front margin on each side of the base of the rostrum over the insertion of the eyes. *Eyes* pyriform, very narrow at the base, and much widening, projected greatly beyond the sides of the cephalothorax. *Antennules* with a long and slender peduncle; first joint hollowed on upper surface, long and slender, the two following much thicker, their combined length equal to that of first. *Antennal scale* very long, narrowly lanceolate (or subulate), twice as long as the long peduncle of the antennules and about nine times as long as the greatest breadth at the base; second joint occupying nearly one third of total length, extremely narrow, furnished with five setæ on each side and one terminal. *Legs* very slender, the 3-articulated tarsus not longer than the preceding joint; nail very long and slender. *Telson* elongated, narrowly linguiform, shorter than inner uropods, constricted near the base, beyond which the sides are gently arched; margins throughout furnished with crowded spines, which towards the extremity are ranged in series of three or four of gradually increasing length; apex narrowly rounded, bearing four spines, the inner pair of which are about two thirds the length of the outer. *Uropods* very narrow, the outer very long, one third longer than the inner; inner swollen at the base, where the otolith is large, bearing a large spine at the extremity itself, and a range of spines of unequal size and irregular arrangement all along the inner margin. Length 13 millim.

Hab. A single male was dredged by me in 40-50 fath. five to seven miles off Balta, Shetland, in 1867. Shortly afterwards both sexes were sent to me by T. Edward from Banff. Moray Firth and Firth of Forth (*T. Scott*): *Mus. Nor.*

Distribution. Sars has taken this species in the Christiania Fiord, at Stavanger, and at Mosterhavn in the Hardanger Fiord, in 10-40 fath. (*Mus. Nor.*). Boulonnais, France (*Giard*).

The hispidity of the dermis of *L. gracilis* distinguishes it at a glance from its allies.

2. *Leptomysis mediterranea*, G. O. Sars.

1876. *Leptomysis mediterranea*, G. O. Sars, Nye Bidrag til Kundskaben om Middelhavets Invertebratfauna, I. Middelhavets Mysider, p. 27, pls. xix., xx., xxi.
 1882. *Leptomysis mediterranea*, Czerniavsky, l. c. fasc. i. p. 90, ii. p. 21.
 1885. *Leptomysis mediterranea*, Carus, Prod. Faun. Medit. p. 467.

General form very slender and narrow and produced; cephalothorax scarcely wider than the pleon, everywhere adorned with arborescent brown pigment markings, which on the pleon, as seen from above, present to the naked eye two blotches on each segment, and at the base of the telson two dark spots. *Rostrum* largely developed, elongate-triangular or conical, extending to the end of the first joint of the peduncle of the antennules. *Eyes* clavate, but not much constricted at the base. *Antennal scale* of extraordinary length, nearly three times as long as the peduncle of the antennules, narrowly lanceolate, length equal seven to eight times the greatest breadth; second joint very distinctly articulated, very long, fully one third of total length, with nine to twelve setæ on each side and one terminal; all the setæ of the antennal scale are shorter than usual. *Telson* linguiform, more than twice as long as the greatest breadth of the base, only slightly constricted near the base; extremity widely rounded (but not nearly so broad as in *L. lingvura*); margin with very numerous spines of unequal length, which towards the extremity arrange themselves in sets of four or five; middle of extremity with a pair of long spines and two (varying from two to four) much smaller spines between them. *Inner uropods* longer than the telson; otolith not very large; inner margin with numerous (about thirty to forty) spines, which are small, and very crowded near the base, but increase in length distally, the last spine being very long and situated just before the end of the uropod. Length 15-16 millim.

Hab. Taken by me in great abundance at Guernsey in 1865, and remaining with a MS. name in my collection until it was described by Prof. Sars. I have since obtained it at Jersey, and Starcross, Devon.

Distribution. Adriatic (*Claus*). When at the Zoological Station at Naples in 1887 I found this species to be very abundant in the Bay: *Mus. Nor.* Sars has found it at Goletta, Syracuse, and Spezia. Arenys de Mar, Spain (*Antiga*, fide *de Buer*).

The great development of the second joint of the antennal scale enables this species easily to be separated from all other *Mysidæ*.

3. *Leptomysis lingvura*, G. O. Sars.

1842. *Cynthia Flemingii*, H. Goodsir, Edin. New Phil. Journ. vol. xxxiii. p. 175, pl. ii. fig. 1. = *etc 1031*
 1850. *Cynthia Flemingii*, Bell, Brit. Stalk-eyed Crust. p. 379.
 1850. *Cynthilia Flemingii*, Gray, List Specimens of Brit. Anim. in B. M., Crustacea, p. 46; White, Pop. Hist. Brit. Crust. p. 147.
 1866. *Mysis lingvura*, G. O. Sars, Beret. om i Somm. 1865 foretagen Reise, p. 21.
 1876. *Leptomysis sardica*, G. O. Sars, Middel. Mysider, p. 46, pl. xxxvi.
 1879. *Leptomysis lingvura*, G. O. Sars, Carcin. Bidrag til Norges Fauna, I. Monogr. Mysider, p. 35, pl. xxi.
 1882. *Leptomysis pontica*, Czerniavsky, l. c. fasc. i. p. 91, fasc. iii. p. 21, pl. viii. figs. 1-24, pl. ix. figs. 1-13.
 1882. *Leptomysis lingvura*, Czerniavsky, l. c. fasc. i. p. 90, fasc. iii. p. 22.
 1883. *Leptomysis sardica*, Czerniavsky, l. c. fasc. iii. p. 21.
 1886. *Leptomysis lingvura*, Norman, Fourth Ann. Rep. Fish. Board of Scotland, p. 159, and Ann. & Mag. Nat. Hist. ser. 5, 1887, vol. xix. p. 94.

In general form this is much shorter than the last two species, the dermis not hispid, the animal not so pellucid, but stained with yellow and having two black dendritic spots at the termination of the sixth segment of the pleon, from whence the colour branches down into the telson. *Rostrum* not much produced, shortly triangular, acute at the apex, shorter than half the length of the basal joint of the antennules; no notch on the front margin of the cephalothorax over the eye. *Eyes* shorter than in *L. gracilis* and not so very much contracted at the base. *Antennules* with basal joint hollowed above, subequal in length to the two following joints. *Antennal scale* almost exactly as in *L. gracilis*, except that the second joint is somewhat shorter, occupying scarcely one fourth of the total length, with four or five setæ on each side and two terminal. *Telson* shorter than the inner uropods, linguiform, extremity remarkably broad and widely rounded, and occupied by four long spines and two, three, or four shorter spines in each interval between them; margins of telson furnished with very numerous densely-set spines, usually of rather unequal length towards the extremity. *Inner uropods* much shorter than the outer (as about 2 to 3); otolith large; beyond the otolith the uropod is narrower and bears no spine at the extremity, but the inner margin is edged with very numerous spines throughout its length, the spines opposite the otolith being much smaller, slender, and crowded. Length 17 millim.

Hab. This species has been known to me as a member of the British fauna for the last twenty-six years, at which time I took it abundantly between tide-marks at Cullercoats,

Northumberland, and within a year or two afterwards at Howden and Seaham Harbour on the Durham coast. It has also been procured for me at Starcross, Devon, by Mr. C. Parker, and I took it in 1889 at Plymouth: *Mus. Nor.* In 1885 Mr. G. Brook sent me a specimen to determine from Tarbert, Loch Fyne. I have always considered it to be the "*Cynthia Flemingii*, H. Goodsir," although his description is very inexact. It is evident from his description of the antennal scale that he had no true *Siriella* (= *Cynthia*) before him, but the account is not sufficiently accurate to allow of his name being adopted.

Distribution. Florö, Norway, 10-12 fath.; Naples (*A. M. N.*); Adriatic (*Claus*): Farsund, 10-12 fath.; Moldö and Aalesund, Norway; Cagliari, Mediterranean (*G. O. Sars*); Black Sea (*Czerniavsky*); Boulonnais (*Giard*).

A *Leptomysis* has been described from the Mediterranean under the names *Leptomysis sardica*, *G. O. Sars*, and *Leptomysis pontica*, *Czerniavsky*, which it appears to me cannot be separated specifically from the northern *Leptomysis lingvura*, *G. O. Sars*. The fact is that the telson is subject to very considerable variation in northern and Mediterranean specimens. That *L. lingvura* occurs in the Mediterranean basin is certain, as some unnamed Mysidæ sent to me by Prof. Claus from the Adriatic unquestionably belong to that species. *Leptomysis sardica* I took at Naples in 1887. The specimens were very much smaller than *L. lingvura* as found in the north, and some only 7 millim. long have the marsupial pouch fully developed; the telson of some of these closely agreed with Sars's figure, but there was considerable variation (from three to five) in the number of small spines between the central long pair of spines; in other specimens there were one or two more pairs of spines on the sides of greater length than the others. On examining small northern specimens of *M. lingvura* of about similar size I find the spination of the telson closely to accord with that of *L. sardica*, and as the animal increases in size the number of larger spines interspersed among the smaller ones of the lateral margins increases also. It appears to me that *L. sardica* must be regarded as a small race of *L. lingvura*, with which it agrees in all general characters. It is no new thing to find that southern examples of an animal are of smaller size than more northern brethren.

Subfam. V. *MYSINÆ*.Genus 8. HEMIMYSIS, *G. O. Sars*, 1869.

Carapace having part of one or one and part of a second segment of cephalothorax exposed behind. *Eyes* subglobose, peduncles short. *Antennal scale* rather small, shortly lanceolate; outer margin more or less ciliated, no spine. Mouth-organs generally resembling those of *Mysis*, but the mandibles with second joint of palp expanded and subovate. *Legs* with 4-5-jointed tarsus, ending in a very slender spine-like nail. *Marsupial pouch* formed of three pairs of laminae, one of which is very small. *Pleopods* in female small, rudimentary: in male, two first pairs rudimentary, third with large basal joint and one branch; fourth very long, styliform, terminating in two filaments; fifth with large basal joint and two multiarticulate, strongly ciliated branches adapted for swimming. *Telson* not large, cleft at the extremity. *Outer uropods* one-jointed, long and narrow, truncate at the extremity, ciliated all round.

The character of the pleopods in the male distinguishes this from all other genera: while the fourth pair are very like the same organ in *Schistomysis ornata*, the third and fifth pairs are wholly different; these are formed for swimming and closely resemble the same pairs in the genus *Leptomysis*. The female may be distinguished from *Mysis* by the mandible-palp, the short antennal scale, and slender nail of the peræopods.

Hemimysis Lamornæ (*Couch*).

1856. *Mysis Lamornæ*, Couch, 'The Zoologist,' p. 5286.
 1860. *Mysis Lamornæ*, Norman, Ann. & Mag. Nat. Hist. ser. 3, vol. vi. pl. viii. figs. 4, 5.
 1863. *Mysis Lamornæ*, Goës, Crust. decap. podoph. Sueciæ, p. 15.
 1864. *Mysis aurantia*, *G. O. Sars*, Beret. om en i Somm. 1863 foretagen Zool. Reise, p. 20.
 1879. *Mysis Lamornæ*, *G. O. Sars*, Carcinol. Bidrag til Norges Fauna, I. Monogr. Mysider, p. 65, pl. xxx.
 1882. *Hemimysis pontica*, *Czerniavsky*, l. c. fasc. i. p. 117, pl. vii. fasc. iii. p. 48.
 1883. *Mysis aurantia* and *Lamornæ*, *Czerniavsky*, l. c. fasc. iii. p. 54.

General form short and robust, anterior portion of cephalothorax as broad as or broader than earlier segments of pleon; colour bright red or orange. *Eyes* short but very large, projected only slightly beyond margin of cephalothorax. *Rostrum* very short, obtusely angulated. *Antennules* having the peduncle robust, basal joint equal to the two following. *Antennal scale* elongated-subovate, about three times as long

as wide, only slightly longer than peduncle of antennules; outer margin without any spine, but naked (that is without setæ) on the lower half; from the spot where the setæ commence the margin slopes inwards to the narrowly rounded point, which is subcentral to the length of the scale. *Legs* rather slender; tarsus of 4-6 articulations, the last very slender and terminating in a very slender nail. *Telson* much shorter than inner uropods, gradually narrowing, cleft about one fourth its length, widely open; upper half of sides of telson without spines, distal half with 6-12 lateral spines, the penultimate of which is some distance from the extremity; terminal spines more than usually developed and long, their length often equal to about half the depth of the cleft. *Inner uropods* with 6-10 spines on the inner margin, gradually increasing in length distally and confined to the anterior two thirds of the margin; otolith of moderate size.

Male.—*Pleopods* of first two pairs simple; third pair with large and broad basal joint and a single one-jointed ciliated branch, which gives off a small laterally projected process on the outer side of its base: fourth pair very long, consisting of two basal joints, the second of which is long, and two branches; of these the inner is minute, two-jointed, the first giving off a little lateral process, the second terminating in three setæ; outer branch of great length, basal portion composed of five articulations, of which the first is nodulous below at the extremity, and the third and fourth are subequal in length; the limb terminates in two long filaments, which are ciliated towards the extremities, and the outer about half as long again as the inner: fifth pair formed for swimming, of considerable length, reaching to half the length of telson; basal joint long, branches 4-5-jointed, furnished with long setæ; inner branch with a small lateral projection at the base. Length 8-10 millim.

Hemimysis Lamornæ is a true *Hemimysis*, agreeing in all generic characters with the type *H. abyssicola*, from which indeed it seems to be chiefly distinguished by its more robust form and fewer lateral spines on the telson. It agrees with that species in the broad flattened second joint of the mandible-palp, in the slender nails in which the legs terminate, in the narrow outer uropods, abruptly truncate at the extremity, and above all in the characters of the pleopods in the male. Prof. G. O. Sars, pl. xxx. fig. 13 (Mon. Norges Mys.), figures the fourth pleopod of the male; but, as he correctly states, it must be "maris junioris," since it is very different from that of the adult.

Czerniavsky's *Hemimysis pontica* altogether agrees with not quite mature specimens of this species.

Hab. Falmouth, Plymouth (*A. M. N.*); Banff (*T. Edward*); Seaham, co. Durham (*G. Hodge*); Loch Goil (*D. Robertson*); Tarbert, Loch Fyne, and Firth of Forth (*T. Scott*); *Mus. Nor.* Port Glasgow (*D. Robertson*); Colwyn Bay, N. Wales (*A. O. Walker*).

Distribution. When I was at the Zoological Station at Naples I found this species, which had been previously sent to me from the station, breeding in immense numbers in the tanks. Suchum, Black Sea (*Czerniavsky*); Norwegian coast from Christiania to Lofoten (*G. O. Sars*); West Sweden (*Goës*); Denmark (*Meinert*).

Genus 9. MACROPSIS, G. O. Sars.

= *Podopsis*, Van Beneden &c. (? Thompson), = *Parapodopsis* and *Mesopodopsis*, Czerniavsky (subgenera).

Animal very slender; cephalothorax much narrower in front than behind; carapace leaving the two hind segments uncovered, and the central portion of the antepenultimate; in front the rostral portion is slightly produced, rounded, its external angles with a well-developed spine. *Antennules* with greatly produced peduncles; antennal scale subulate, ciliated all round. *Eyes* enormously developed, being elevated on very long and nearly cylindrical stalks, so that the total length of the eye is much greater than the breadth of the front portion of the carapace. *Legs* subequal in length, tarsus multiarticulate, no nail. *Telson* very short, basal portion subquadrate, and the apex triangularly produced and serrated beyond the distal spines of the lateral margins.

Male.—*Antennules* terminating with the usual two filaments, and having besides a very large hirsute lobe (as usual in male Mysidæ) and a fourth appendage consisting of a long narrow, conical, basal process, to the distal extremity of which is attached a single very long seta. *Third pleopods* consisting of a large basal joint and two branches, the inner and larger of one joint, ciliated on the inner margin, the outer much smaller, of two joints. *Fourth pleopods* greatly developed and very like in general form to those of *Schistomysis ornata*: basal joint very long, with two branches—inner minute, one-jointed, with a lateral lobe at the base; outer consisting of three articulations, the second very long, and third short and terminating in two flagella, outer long, many-jointed, inner about one fourth its length, not jointed.

Ann. & Mag. N. Hist. Ser. 6. Vol. x.

Macropsis Slabberi (Van Beneden).

1778. "Steurgermaal met trompetwijze oogen," Martin Slabber, Natuurkundige Verlostingingen, pl. xv. figs. 3, 4.
 1860. *Podopsis Slabberi*, V. Beneden, Rech. sur la faune litt. de Belgique, Crustacés, p. 18, pl. vi.
 1863. *Mysis Slabberi*, Goëss, Crust. decap. podoph. mar. Sueciæ &c. p. 16.
 1867. *Podopsis Slabberi*, Marcusen, "Zur Fauna des Schwarzen Meeres," Archiv für Naturg. 1867, p. 359.
 1876. *Macropsis Slabberi*, G. O. Sars, Middelhavets Mysider, p. 28, pls. xi-xiii.
 1882. *Podopsis* (*Mesopodopsis*) *Slabberi* and (*Parapodopsis*) *Goësi*, Czerniavsky, l. c. fasc. i. p. 145.
 1882. *Podopsis* (*Parapodopsis*) *cornuta*, id. ibid. p. 149, pls. i., ii., and iii., figs. 1-15.
 1883. *Podopsis Slabberi*, Goësi, and *cornuta*, id. ibid. fasc. iii. pp. 48, 49.
 1885. *Macropsis Slabberi*, Carus, Prod. Faun. Medit. p. 466.

Basal joint of *antennules* subequal in length to rest of peduncle. *Antennal scale* very narrow, subulate, subequal in length to peduncle of antennules, ciliated all round; second joint with a pair of lateral and three terminal setæ. *Telson* short, about one third the length of the outer uropods, exclusive of terminal portion about as long as the breadth at the base; hinder portion of lateral margins with three to seven spines; the extremity of the telson is projected beyond the lateral margin in somewhat triangular form, but the apex is rounded; the entire margin of this terminal portion is serrated. *Legs* having the tarsus composed of seven to eight articulations. *Inner uropods* with a single spinule on the inner margin, a little behind the otolith. *Outer uropods* much longer than inner, narrow, ciliated all round. Length 11-13 millim.

Hab. Granton, Firth of Forth, 1884 (*J. R. Henderson*); Falmouth (*G. C. Bourne*).

Distribution. Naples, 1887 (*A. M. N.*); Bahusia, Sweden (*Lovén*); Belgium (*Van Beneden*); *Mus. Nor.* Denmark (*Meinert*); Holland (*P. P. C. Hoek*); mouth of the Seine (*de Kerville*); in the Mediterranean, at Goletta, Syracuse, and Spezzia (*G. O. Sars*); Black Sea (*Marcusen &c.*); Odessa and Sebastopol (*Czerniavsky*)*.

* The embryology of this species has been studied by Boutchinsky (P.), 'Observations sur le développement de *Parapodopsis cornuta*, Czerniavsky, 1888 (in Russian).

Genus 10. MACROMYSIS, A. White * (1847).

= *Themisto*, H. Goodsir, = *Mysidia*, Dana, = *Synmysis* and *Keslerella*, Czerniavsky.

Antennal scale elongated, linear, nearly parallel-sided, four to nine times as long as broad; outer margin naked, terminated by a spine; apex of scale not surmounting or only slightly projected beyond the extremity of this spine. *Legs* with tarsus of four to seven articulations, terminating in a nail. *Telson* cleft at the extremity, cleft serrated. *Fourth pleopod* of male having the inner branch small, two-jointed, the first giving off an outward-directed seta-tipped lobe; outer branch very long and stiliform, consisting of seven gradually attenuating articulations, the terminal one distally verticillately ciliated and bulb-formed at the extremity.

1. *Macromysis flexuosa* (Müller).

1788. *Cancer flexuosus*, Müller, Zool. Dan. vol. ii. p. 34, pl. lxvi. figs. 1-9.
 1808. *Cancer astacus multipes*, Montagu, Linn. Trans. vol. ix. p. 86, pt. ii. fig. 26.
 1815 (?). *Praunus flexuosus*, Leach, Edin. Encycl. vii. p. 401.
 1815. *Mysis spinulosa*, Leach, Linn. Trans. vol. xi. p. 350.
 1828. *Mysis chameleon*, J. V. Thompson, Zoolog. Researches, i. p. 28, pl. ii. figs. 1-10.
 1828. *Mysis Leachi*, id. ibid. p. 27.
 1844. *Mysis spinulosus*, Zaddach, Synopses Crust. Prussic. prodrumus, p. 2, ♂ ♀.
 1855. *Mysis flexuosa*, Krøyer, Gaimard, Voyage en Scandinavie &c., Crust. pl. ix. figs. 1-3.
 1853. *Mysis chameleon*, Bell, Brit. Stalk-eyed Crust. p. 336, ♀.
 1853 †. *Themisto brevispinosa* (H. Goodsir), Bell, Brit. Stalk-eyed Crust. p. 384, ♂.
 1860. *Mysis flexuosus*, Norman, Ann. & Mag. Nat. Hist. ser. 3, vol. vi. pl. viii. figs. 1-3.
 1860. *Mysis chameleo*, P. J. Van Beneden, Recher. sur la faune litt. de Belgique, Crustacés, p. 14, pls. ii-v.
 1861. *Mysis flexuosa*, Krøyer, Nat. Tidsskr. 3^{die} Række, vol. i. p. 2.
 1879. *Mysis flexuosa*, G. O. Sars, Carcinol. Bidrag til Norges Fauna, I. Monogr. Mysider, p. 45, pls. xxiv, xxv.
 1882. *Synmysis flexuosa*, *chameleo*, *Benedeni*, and *Mecznikoi*, Czerniavsky, l. c. fasc. i. pp. 31, 32.

* A. White, 'List of Crust. in Brit. Mus.' (1847), p. 81; 'Popular History of British Crustacea' (1857), p. 146.

† It seems probable that Goodsir's *Themisto brevispinosa* was the male of this species, but what his *T. longispinosa* was I cannot guess. One thing is certain, that his genus *Themisto*, = *Macromysis*, White, was founded on males of the genus to which I apply the name.

1883. *Symmysis Normani, flexuosa, chameleon, Benedeni, Mecnikowi*, and *spinulosa*, Czerniavsky, *l. c.* fasc. iii. pp. 58, 64.
 1887. *Mysis flexuosa*, Kœhler, "Structure du Cerveau," *Ann. Sci. Nat. Zool. sér. 7*, vol. ii. p. 159, pls. x., xi.
 1887. *Mysis chameleo*, Nausbaum, "L'embryologie," *Arch. de Zool. Expl. et Gén. sér. 2*, vol. v. p. 123, pls. vi.-xii.

Antennal scale very long, narrow and linear, more than twice as long as peduncle of antennules, and seven to eight times as long as broad; outer margin naked, terminating in a forward-directed spine, the extreme apex of the scale scarcely overtopping the point of that spine. *Tarsus* of legs six-articulated, of last pair five-articulated, nail well developed. *Telson* having cleft at extremity extending about one sixth of total length of telson, moderately open; about twenty-one to twenty-seven spines on each side of telson. *Inner uropods* with largely developed otolith; inner side with about ten to twelve spines, which are confined to the anterior two thirds of the length and situated within the margin of the under surface; these spines gradually increase in size distally. Length 25 millim.

Hab. *Mysis flexuosa* is found on all parts of our coasts between tide-marks in rock-pools, and in the Laminarian zone.

Distribution. Norway (*G. O. Sars & A. M. N.*); Sweden (*Goës*); Baltic (*Lindström*); Finland (*Cajander*); Denmark (*Meinert*); Holland (*P. P. C. Hoek*); Belgium (*Van Beneden*); France (*Brebisson &c.*). [Black Sea (*Greb-nitzky*)?]*

2. *Macromysis neglecta* (G. O. Sars).

1869. *Mysis neglecta*, G. O. Sars, *Undersøgelse over Christianiafjordens Dybvandsfauna*, p. 37.
 1879. *Mysis neglecta*, G. O. Sars, *Carcinol. Bidrag til Norges Fauna*, I. Monogr. Mysider, p. 51, pl. xxvi.
 1882. *Symmysis neglecta*, Czerniavsky, *l. c.* fasc. ii. p. 26, fasc. iii. pp. 57 and 61.

Very like *M. flexuosa* in all its parts, but distinguished by the following characters:—*Antennal scale* about five times as long as broad and not twice the length of the peduncle of the antennules, its apex slightly more extended, to about twice the length of the spine of the external margin. *Tarsus* of legs five-articulated, of last pair four-articulated. *Telson*

* Grebnitzky (N. A.), *Fauna of the Black Sea*, 1873 (in Russian). Marcusen (Joh.), 'Zur Fauna des schwarzen Meeres,' also gives *M. spinulosa*, *chameleon*, and *vulgaris*, and *Podopsis Stabberi* as living in the Black Sea.

cleft to about one fifth of its entire length, the cleft very narrow and constricted at the base; margins of telson with eighteen to twenty spines. *Inner uropods* spined almost as in the last, but the otolith is proportionately smaller. Length about 20 millim.

Hab. Jersey; Guernsey; Starcross, Devon; Plymouth (*A. M. N.*); mouth of Loch Fyne (*Dr. Henderson*): *Mus. Nor.* North Wales (*A. O. Walker*).

Distribution. Hardanger Fiord, Norway (*A. M. N.*); South and West Norway and Lofoten Islands (*G. O. Sars*); Denmark (*Meinert*).

3. *Macromysis inermis* (Rathke).

- ✓1843. *Mysis inermis*, Rathke, *Beiträge zur Fauna Norwegens*, p. 20.
 1852. *Mysis inermis*, Lilljeborg, *Oefvers. af Vet.-Akad. Forhand.* p. 3.
 1861. *Mysis cornuta*, Krøyer, *Nat. Tidsskr. 3die Række*, vol. i. p. 26, pl. i. figs. 3 a-g.
 1863. *Mysis cornuta*, Goës, *Crust. decap. podoph. marina Suecica*, p. 14.
 1864. *Mysis truncatula*, G. O. Sars, *Beret. om en i Somm. 1863 foretagen Zoolog. Reise*, p. 16 (*monstrositas*).
 1869. *Mysis inermis*, Norman, "Last Report Dredging Shetland Isles," *Brit. Assoc. Rep. for 1868*, p. 266.
 1879. *Mysis inermis*, G. O. Sars, *Carcinol. Bidrag til Norges Fauna*, I. Monogr. Mysider, p. 54, pl. xxvii.
 1882. *Kesterella cornuta*, Czerniavsky, *l. c.* fasc. ii. p. 36.
 1882. *Kesterella similis*, Czerniavsky, *l. c.* fasc. ii. p. 38.
 1883. *Kesterella cornuta, similis, inermis, truncatula*, and *Goësi*, Czerniavsky, *l. c.* fasc. iii. pp. 67-71.

Anterior margin of cephalothorax not produced, widely rounded, and exposing in front of it a sharp triangular spine which springs from between the bases of the antennules; while thus the margin is not rostrately produced as in the last two species, this spine gives the appearance of a rostrum. *Antennal scale* half as long again as the peduncles of antennules and about four times as long as broad; apex produced beyond base of spine of outer margin to two or three times the length of that spine. *Tarsus* of legs consisting of four articulations; nail well developed and stronger than in allies. *Telson* cleft to nearly one third of total length, cleft very narrow; margins of telson with about seventeen spines. *Inner uropods* having few marginal spines, only about six, which, as in the preceding species, gradually increase in size distally. Length about 20 millim.

Hab. Rock-pools, Shetland; Cullercoats, Northumberland; Oban; Plymouth; Guernsey (*A. M. N.*); Banff (*T. Edward*); Tarbert, Loch Fyne (*Thomas Scott*): *Mus. Nor.* Firth of Forth (*T. Scott*); Isle of Cumbræ (*J. R. Henderson*).

Distribution. Kors Fiord; Bukken, Bergen Fiord; Lervig and other places in the Hardanger Fiord; Florö,—all in Norway; Klosterelv Fiord, E. Finmark (*A. M. N.*); Baltic Sea (*Lovén*); Bergen (*Lilljeborg*): *Mus. Nor.* Many localities from Christiania to Vadsø (*G. O. Sars*); Sweden (*Goës*); Denmark (*Meinert*); Baltic (*Lindström*); Murman Sea (*Jarzynsky*); Spitsbergen (*Kröyer*). It is a shallow-water species.

Genus 11. SCHISTOMYSIS, gen. nov.*

= *Synmysis* (partim) and *Austromysis*, Czerniavsky.

Antennal scale subrhomboidal or lozenge-shaped, length to breadth as $2\frac{1}{2}$ – $4\frac{1}{2}$ to 1; outer margin not ciliated, with a spine-like tooth at the extremity †; the end of the scale very oblique and reaching far beyond this spine-point. *Maxillipeds* not unguiculate. *Legs* having the tarsus 5–9-articulated, terminating in a setiform spine. *Telson* cleft at the extremity, cleft serrated. *Fourth pleopods* in male very long: peduncle and inner ramus as usual in Mysinæ; outer ramus composed of five or six ‡ articulations and then divided into two long flagella, both of which are ciliated on the distal portion, the outer the longer.

1. *Schistomysis spiritus*, Norman.

1860. *Mysis spiritus*, Norman, Ann. & Mag. Nat. Hist. ser. 3, vol. vi. p. 431, pl. viii. fig. 1; and Trans. Tyneside Nat. Field Club, vol. iv. p. 329, pl. xvii. fig. 1.
 1866. *Mysis spiritus*, G. O. Sars, Beret. om en i Somm. 1865 foretagen Zool. Reise, p. 19.
 1869. *Mysis spiritus*, Norman, "Last Report Dredging Shetland Isles," Brit. Assoc. Rep. for 1868, p. 266.
 1879. *Mysis spiritus*, G. O. Sars, Carcinol. Bidrag til Norges Fauna, I. Monogr. Mysider, p. 58, pl. xxviii.
 1883. *Synmysis spiritus*, Czerniavsky, l. c. fasc. iii. p. 56.

Form very slender, perfectly hyaline and transparent, almost entirely free from pigment-markings; anterior portion of cephalothorax very narrow, narrower than first joints of pleon. *Eyes* cylindrical, narrow; cornea small, projected outwards and reaching far beyond the sides of cephalothorax. *Antennules* with greatly elongated peduncle, basal joint

* σχιστός, cleft, with reference to the two flagella in which the fourth pleopod of male terminates.

† In *Macromysis* the similar process is an articulated spine; in this genus it seems to be not articulated, but a process of the scale itself.

‡ The very short first articulation generally indistinct.

subequal to or rather longer than the two distal combined; flagella unusually short, the outer not half the length of cephalothorax. *Antennal scale* narrow, subrhomboidal, rather longer than the peduncles of the antennules, more than four times as long as broad, one third of total length extended beyond the spine which terminates the outer margin; termination of the peduncle of flagellum reaching that spine. *Tarsus* of legs subequal in length to the preceding joint, slender, composed of 7–9 articulations; no nail. *Telson* constricted near the base, beyond which constriction the sides are gently arched; cleft shallow and broad, scarcely exceeding one sixth of total length of telson, external margins with 25–30 small spines. *Inner uropods* subequal in length to the telson, curiously twisted and bent inwards at the extremity; inner margin as far as the twist just referred to densely packed with very numerous setiform spines, which overlie each other; otolith large.

Hab. Off Balta, Shetland, in 40–50 fath.; Blackhall Rocks, co. Durham, tide-marks; Jersey (*A. M. N.*); Banff (*T. Edward*); Firth of Forth (*T. Scott*): *Mus. Nor.*

Distribution. Professor G. O. Sars once observed this species swimming by the shore at Lister, on the Christiania Fiord, in enormous shoals. North Sea, lat. $56^{\circ} 50' N.$, long. $5^{\circ} 10' E.$ (*Kinberg*, fide *Goës*); Denmark (*Meinert*); Holland (*P. P. C. Hoek*); Boulogne, France (*Giard*)*.

2. *Schistomysis ornata* (G. O. Sars).

1864. *Mysis ornata*, G. O. Sars, Beret. om en i Somm. 1863 foretagen Zool. Reise, p. 18.
 1869. *Mysis ornata*, Norman, "Last Report Dredging Shetland Isles," Brit. Assoc. Rep. for 1868, p. 266.
 1879. *Mysis ornata*, G. O. Sars, Carcinol. Bidrag til Norges Fauna, I. Monogr. Mysider, p. 62, pl. xxix.
 1883. *Synmysis ornata*, Czerniavsky, l. c. fasc. iii. p. 56.
 1885. *Mysis Kervillei*, G. O. Sars, in de Kerville, "Crust. Schizopodes de l'estuaire de la Seine," Bull. Soc. des Amis des Sci. Nat. de Rouen, p. 92, pl. v.

General form less slender than that of *S. spiritus*; anterior portion of cephalothorax nearly as wide as the earlier segments of pleon; ornamented with red, yellow, or brown branching pigment-spots. *Eyes* short and large, scarcely longer than broad; cornea largely developed. *Antennules* having the peduncle of moderate length and stoutness; flagella long, the

* See Giard (A.), "Le Laboratoire de Wimereux en 1888, Recherches Fauaniques" (Bull. Sci. de la France et de la Belgique, 1888, p. 220), for this and other references to him.

outer as long as cephalothorax. *Antennal scale* subrhomboidal, slightly longer than peduncle of antennules, three times as long as broad; external margin short, and this portion of the scale extended beyond the spine which terminates the outer margin; typically almost equal to half of the total length, but sometimes proportionately shorter. *Tarsus* of legs rather longer than preceding joint, consisting of five to seven articulations; nail slender, setiform. *Telson* in form and armature nearly as in *S. spiritus*, but the cleft somewhat deeper and occupying about one fourth of the total length. *Inner uropod* (not twisted at the extremity as in *S. spiritus*) with about sixteen well-separated rather slender spines on the inner margin; otolith large. Length 18 millim.

Hab. Dredged in 40-50 fath. 5-8 miles off Balta, Shetland; off Seaham, on the Durham coast; off Valentia, Ireland (*A. M. N.*); Banff (*T. Edward*); 25 miles off May Island, in the Firth of Forth, 35 fath. (*Dr. John Murray*); Firth of Forth (*T. Scott*): *Mus. Nor.* Liverpool Bay (*A. O. Walker*).

Distribution. Bukken, Bergen Fiord (*A. M. N.*); Dröbak and several places in South and West Norway, and among Lofoten Islands (*G. O. Sars*); Denmark (*Meinert*); Concarneau, France (*Bonnier*); mouth of the Seine (*de Kerville*); Holland (*P. P. C. Hoek*, who records both *S. ornata* and *S. Kervillei*).

Mysis Kervillei is founded on large specimens of *S. ornata* in which the eye is proportionately larger, the antennal scale, more especially the part before the extremity of lateral margin, longer, and the number of articulations in tarsus of legs seven. But among specimens kindly sent me by M. de Kerville I find some with the spine-point of the scale on a level with the end of the peduncle of antenna and the tarsus five-jointed; and in specimens from other localities I find considerable variation both in the scale and tarsus, the latter in the front feet having sometimes seven articulations besides the nail.

3. *Schistomysis Parkeri*, sp. n. (Pl. X. figs. 1-7.)

Mandible having the penultimate and last joints of the palp remarkably broad, the latter more so than in any other member of the genus, scarcely more than twice as long as broad. *Eyes* nearly globular, length scarcely exceeding the breadth. *Antennules* with peduncles short, first joint equalling the two following, second joint transversely narrowly triangular, third joint expanded and very broad, breadth exceeding

length; distally furnished with a circlet of very long plumose setæ, which reach nearly half the length of the very short inner filament, which in the described specimens has only thirteen articulations. *Antennal scale* ovate, broad, with broad, well-rounded extremity; breadth two fifths of length; outer margin naked, terminating in a large spine which is just on a level with the extremity of peduncle of antennæ; extremity reaching far beyond that spine; the second joint bearing six setæ. *Legs* having tarsus composed of four or five articulations. *Telson* cleft at the apex to rather more than one fourth of the length, serrations of cleft unusually few and large (about 40); lateral margin with 15-17 spines. *Inner uropods* remarkably twisted and bent; inner margin with about 15 spines on its central portion, of which the more distal are of great size and equal in length to the breadth of the uropod at that part; beyond this the uropod is very narrow, and just before the extremity there is a single very large spine. *Outer uropods* much longer than inner, unusually parallel-sided; extremity widely truncate, eight setæ taking their origin from this blunt extremity. Length 10 millim.

The male has the sexual lobe of the antennules of great size and linguiform, the extremity arching backwards and inwards; inner filament longer than in female, outer directed at nearly a right angle outwards. *Penis* not twice as long as broad.

Hab. Starcross, Devon (*Mr. C. Parker*, 1884): *Mus. Nor.*

This species is distinguished at once from all others by the character of the uropods, especially the inner. There is a slight tendency to a twist in the same organ in *S. spiritus*, but to nothing like the extent to which it is carried in the present species, while the spination of the inner margin is quite different from that and from all other forms.

Recent. paranyxis helleri

4. *Schistomysis Helleri* (G. O. Sars).

1876. *Mysis Helleri*, G. O. Sars, Nye Bidrag til Kundskaben om Middelhavets Littoralfauna, I. Middelhavets Mysider, p. 8, pls. i. and ii.

1883. *Austromysis Helleri*, Czerniavsky, l. c. fasc. iii. p. 67.

1885. *Mysis Helleri*, Carus, l. c. p. 266.

General form short and robust; width of cephalothorax in front subequal to that of first segments of pleon; adorned with branching pigment-cells. *Eyes* short, somewhat pyriform; the cornea reaching a little beyond the sides of the cephalothorax. *Antennules* having the peduncles moderately long and moderately robust; the flagella long, the external longer than the cephalothorax. *Antennal scale* rhomboidal,

about three times as long as broad and one third longer than peduncles of antennules, about one third of its length extended beyond the spine which terminates the naked outer margin. *Legs* having the tarsus subequal in length to the preceding joint, composed of four articulations, the first of which is very short and nodulously swollen; nail long and slender; last peræopods very short, about half the length of preceding pairs, and without any nail. *Telson* broad, sides flexuous, but the breadth much more equal throughout the length than usual, scarcely narrowing distally; greatest breadth subequal to half the length; cleft short, scarcely one fifth of length, triangular, widely open; lateral margins of telson with 14–16 spines distributed throughout the length. *Inner uropods* a little longer than telson, with only about nine widely separated spines on the inner margin, the most distal some way from the extremity. *Outer uropods* nearly one third longer than the inner. Length 11 millim.

Hab. Guernsey; Starcross, Devon (*A. M. N.*); Jersey (*Sinel*): *Mus. Nor.*

Distribution. In the Mediterranean at Goletta, Syracuse, and Spezia (*G. O. Sars*).

The nodulous first joint of tarsus of the legs and the few spines on the margin of the inner uropods distinguish *S. Helleri* from the species which have a somewhat similar antennal scale.

Recent Paramysis arenosa
5. *Schistomysis arenosa* (*G. O. Sars*).

1876. *Mysis arenosa*, *G. O. Sars*, Nye Bidrag til Kundskaben om Middelhavets Invertebratfauna, I. Middelhavets Mysider, p. 16, pls. v. and vi.

1883. *Austromysis arenosa*, Czerniavsky, *l. c.* fasc. iii. p. 67.

1885. *Mysis arenosa*, *Carus*, *l. c.* p. 466.

1886. *Mysis arenosa*, *Norman*, Fourth Annual Report Fishery Board of Scotland, p. 159; and *Ann. & Mag. Nat. Hist. ser. 5*, vol. xix. 1887, p. 95.

A small species of short and very robust form, much coloured with pigment-cells, especially upon the cephalothorax; pleon shorter than usual. *Eyes* very short, subglobose, scarcely reaching beyond the sides of the cephalothorax; cornea large. *Antennules* with robust peduncle. *Antennal scale* short, subrhomboidal or subovate, scarcely longer than peduncle of antennules; length scarcely exceeding twice the breadth; inner margin more arched than usual, outer margin also slightly arcuate; nearly one half of the total length of scale extended beyond the spine which terminates the naked outer margin. *Legs* with tarsus shorter than preceding

joint, in the anterior pairs composed of four to five articulations, of which the first (as in *S. Helleri*) is very short and nodulously swollen; nail setiform. *Telson* long and not broad, breadth at base scarcely equal to half the length, considerably narrowing to the extremity; cleft of moderate width, extending about one fourth of total length; outer margin with about sixteen spines, the four or five basal spines separated by an interval from the following. *Inner uropods* with numerous spines (20–22) arranged in sets, each set commencing with a small spine, followed by others of gradually increasing length, the most distal spine at (but not on) the extremity—a position most unusual; otolith small. *Fourth pleopods* of male of the structure which usually prevails in this group, but rather shorter than usual. Length 7 millim.

Hab. Starcross, Devon, 1884 (*Mr. C. Parker*); Tarbert, Loch Fyne, 1885 (*Mr. G. Brook*): *Mus. Nor.*

Distribution. The types of the species were taken by Prof. *G. O. Sars* at Goletta, in the Mediterranean.

Characteristic features of this species are the nodulous character of the first joint of the tarsus of the legs, by which it may be distinguished from all species except *S. Helleri*; and from that species its smaller size, stouter build, and the narrower telson, shorter antennal scale, and armature of uropods distinguish it; moreover in this species the outer uropod is not more than one fifth longer than the inner, but in *S. Helleri* it is at least one third longer.

Genus 12. *MYSIS*, Latreille.

Very like in all respects to *Schistomysis*, but *antennal scale* lanceolate (or subulate in *M. mixta*), four and a half to nine times as long as broad, ciliated all round; apex narrowly rounded (or spiniform in *M. mixta*). *Fourth pleopod* of male similar in jointing and general structure to those of *Schistomysis*, and in *M. mixta* in all ways conforming to that genus; but in other species (*M. oculata* and *M. relictæ*) the outer branch is much shorter, not more than two or three times the length of inner branch, while the outer flagellum is reduced to a spine-like process and the inner has the first articulation much thickened, so as to almost resemble the joint from which it springs, and the second articulation is reduced to a spine-like process.

M. oculata, *Fabr.*, must be regarded as the type of the genus *Mysis*.

Mysis relicta, Lovén.

1861. *Mysis relicta*, Lovén, Öfversigt af Vet.-Akad. Förhand. p. 285.
 1867. *Mysis oculata*, var. *relicta*, G. O. Sars, Hist. Nat. des Crust. d'eau douce de Norwège, i. p. 14, pls. i.-iii.
 1868. *Mysis relicta*, Kessler, Materialia ad cognos. lacus Onegæ, p. 78, pl. i. figs. 1 a-d.
 1870. *Mysis relicta*, Jarzynsky, Præmissus Catal. Crust. decap. invent. in mari albo &c. p. 317.
 1872. *Mysis diluvianus*, Stimpson, MS., Hoy, Trans. Wisconsin Acad. vol. i. p. 100 (no description).
 1871. *Mysis relicta*, S. I. Smith, Amer. Journ. Sci. and Arts, vol. ii. p. 5.
 1874. *Mysis relicta*, S. I. Smith, Report 1872-3 Commission Fish and Fisheries, p. 643, pl. i. fig. 2.
 1879. *Mysis relicta*, G. O. Sars, Carcinol. Bidrag til Norges Fauna, I. Monogr. Mysider, p. 73, pl. xxxii.
 1882. *Mysis relicta*, Czerniavsky, l. c. fasc. ii. p. 8, fasc. iii. p. 51, pl. xv. figs. 17-20, pl. xvi., and pl. xvii. fig. 1.

Form rather slender; anterior portion of cephalothorax subequal in breadth to earlier segments of pleon; hyaline, with arborescent pigment-cells. *Eyes* large, pyriform; peduncle long; almost the whole of the cornea projected beyond the sides of the cephalothorax. *Antennules* having the peduncle long and moderately stout, basal joint as long as the two following. *Antennal scale* in form as a long ellipse, fully one fourth longer than peduncle of antennules and four times as long as broad; greatest breadth subcentral; ciliated all round, and right down the outer margin to the very base; apical joint bearing four setæ. *Legs* having the tarsus much longer than the preceding joint and composed of six to seven articulations, of which the first is much the longest; nail very slender and setiform. *Telson* gradually tapering, with straight sides; length to greatest breadth as 5 to 2; cleft shallow and very broad and open, about one seventh the length of the telson; sides of telson with about sixteen spines, which are crowded towards the base, but widely separated towards the extremity, and the most distal anterior to the cleft. *Inner uropods* with only four or five spines on the anterior two thirds of the inner margin. *Fourth pleopods* of male having the basal joint of moderate length and the inner branch as usual, but the outer branch remarkably short, not twice the length of the inner. Length 18 millim.

Hab. Lough Neagh, Ireland (*A. M. N.*).

Distribution. Lakes Vettern, Venern, Malar, and other lakes in Sweden (*Lovén & Lilljeborg*); Lake Mjösen, Norway (*G. O. Sars*); Lake Onega, Russia, and Lakes Ladoga and Putko, in Finland (*Jarzynsky*); northern part of the Gulf of Bothnia, but not observed south of Quarken; Kallavesi,

Maaninga sjö, Päijänne, Pielisjarvi, and other lakes in Finland (*Nordquist*)*.

In America in Lake Michigan (*Stimpson*); Lake Superior, in 12-148 fath. (*S. I. Smith*).

Genus 13. NEOMYSIS, Czerniavsky, 1882.

= *Heteromysis*, Czerniavsky, 1882 (nec Smith).

Antennal scale subulate, very long and narrow, six to ten times as long as broad (running out into an acute spine-like termination), ciliated on both margins. Labrum acutely pointed in front. *Legs* with multiarticulate tarsus; posterior pairs more strongly built than the anterior and with more articulations in tarsus. *Telson* subtriangular, elongated; apex entire, pointed; margins spined, the spines subequal, no smaller spines alternating with larger. In the male the third as well as the first, second, and fifth *pleopods* are simple, and resemble the same organs in female: fourth pleopod with a short peduncle, not much longer than broad: inner branch as usual in Mysinae; outer branch consisting of only two articulations, the first very long, the second rather short, from its end spring two subequal, spiniform, ciliated filaments of no great length.

Mysis avatschensis, F. Brandt, *M. americana*, Smith, *Heteromysis mirabilis*, Czern., and *H. intermedia*, Czern., are referable to this genus.

Neomysis vulgaris (J. V. Thompson).
(Pl. X. figs. 12, 13.)

1828. *Mysis vulgaris*, J. V. Thompson, Zoolog. Researches, i. p. 30, pl. ii.
 1844. *Mysis vulgaris*, Zaddach, Synops. Crust. prussicorum prod. p. 3.
 1853. *Mysis vulgaris*, Bell, Brit. Stalk-eyed Crust. p. 339.
 1860. *Mysis vulgaris*, P. J. Van Beneden, Recher. sur la Faune littorale de Belgique, Crustacés, p. 13, pl. i.
 1861. *Mysis vulgaris*, Krøyer, Nat. Tidssk. 3^{die} Række, vol. i. p. 21.
 1879. *Mysis vulgaris*, G. O. Sars, Carcinol. Bidrag til Norges Fauna, I. Monogr. Mysider, p. 24, pl. i.
 1882. *Neomysis vulgaris*, Czerniavsky, l. c. fasc. ii. p. 23, fasc. iii. p. 81, pl. xviii. figs. 18-22, pl. xxx. figs. 12-14.

Antennal scale of great length and very narrow, lanceolate, nine or ten times as long as greatest breadth and three

* Nordquist (Osc.), "Bidrag till känn. om Crustacéfauna, I. Nagra af Mellersta Finlands Sjöar, 1886," Act. Soc. pro Fauna et Flora Fennica, iii. n. 2; and "Bid. till känn. om Bottniska vikens och norra Österjüns evertibratfauna," Soc. pro Fauna et Flora Fennica, 17 (1890).

times as long as peduncle of antennules, ciliated all round right down to the base of outer margin; a long very narrow second joint, which is furnished with two setæ on each side and terminates in an acute spine-like point. *Legs* having tarsus longer than the preceding joint, of six articulations in the earlier pairs and of eight in the last; nail slender. *Telson* rather more than twice as long as the breadth at the base, in the form of an elongated triangle, gradually attenuating, but with flexuous side to the extremity, which is very narrow, abruptly truncated, and entire, bearing four spines, the outer pair of large size and the pair between them of about half their length; sides of telson with 20-25 spines, most crowded towards the base and becoming more widely separated distally. *Inner uropods* having a group of densely packed spinules situated on the inner margin just below the large otolith; these spines occupy about one fourth of the total length of the margin. *Third pleopods* of male similar to those of female.

Hab. Found all round our coast in brackish water at mouths of rivers, estuaries, salt-marshes, and such like places; but it seems to require more saline ingredients in the water than does *Palæmonetes varians*, Leach, which latter species is often found living in water in which no trace of salt is perceptible and which is occupied by an otherwise freshwater fauna and flora.

Mr. A. O. Walker tells me that about one out of every three specimens received by him from the little river Alt, which is a short way north of the Mersey, was more or less abnormal in the spination of, and in some cases in the form of, the telson. He adds that "a good deal of sewage runs down the river," which may account for the irregular development. These specimens had in some cases the two terminal small spines replaced by spines of similar size to the outer pair. This gave a totally different appearance to the end of the telson, which now appeared narrowly rounded and beset with equal-sized spines. I figure the abnormal terminations of the telson in the case of two specimens which Mr. Walker kindly gave me (Pl. X. figs. 12, 13).

Distribution. Norwegian coast, from Christiania to Trondhjem (*G. O. Sars*); Baltic (*Lindström*); Sweden (*Lilljeborg*); Finland (*Cajander*); Denmark (*Krøyer*); Holland (*P. P. C. Hoek*); Belgium (*Van Beneden*); Boulonnais, France (*Giard*); Havre; Concarneau (*J. Bonnier*); mouth of the Seine (*de Kerville*); [Black Sea (*Grebnitzky*)?]; White and Murman Seas (*Jarzynsky*)*.

* In Wagner (N.), 'Die Wirbellosen des weissen Meeres,' 1885, p. 170.

CORRIGENDA.

- (1) In the first part of this paper, in the Table of Distribution, p. 145, for "*Synmysis*" read "*Macromysis*."
- (2) At p. 144 and pp. 149-152 *passim*, for "*Cynthilia*" read "*Siriella*."
- (3) At pp. 147 and 149, for "Subfam. *Cynthiliinæ*" read "Subfam. *Siriellinæ*."

These corrections are necessary from the fact that I find that the genus *Siriella* does not date from 1852, as had been supposed, but was first instituted by Dana in his preliminary descriptions in 'American Journal Sci. and Arts,' ser. 2, vol. ix. p. 4, and that this paper appears to have been published in the early part of 1850; whereas the Brit. Mus. Cat. Brit. Crustacea, which bears J. E. Gray's name, but was "prepared by Mr. Adam White," is signed "June 15, 1850," and must have been published subsequently to that date.

EXPLANATION OF THE PLATES.

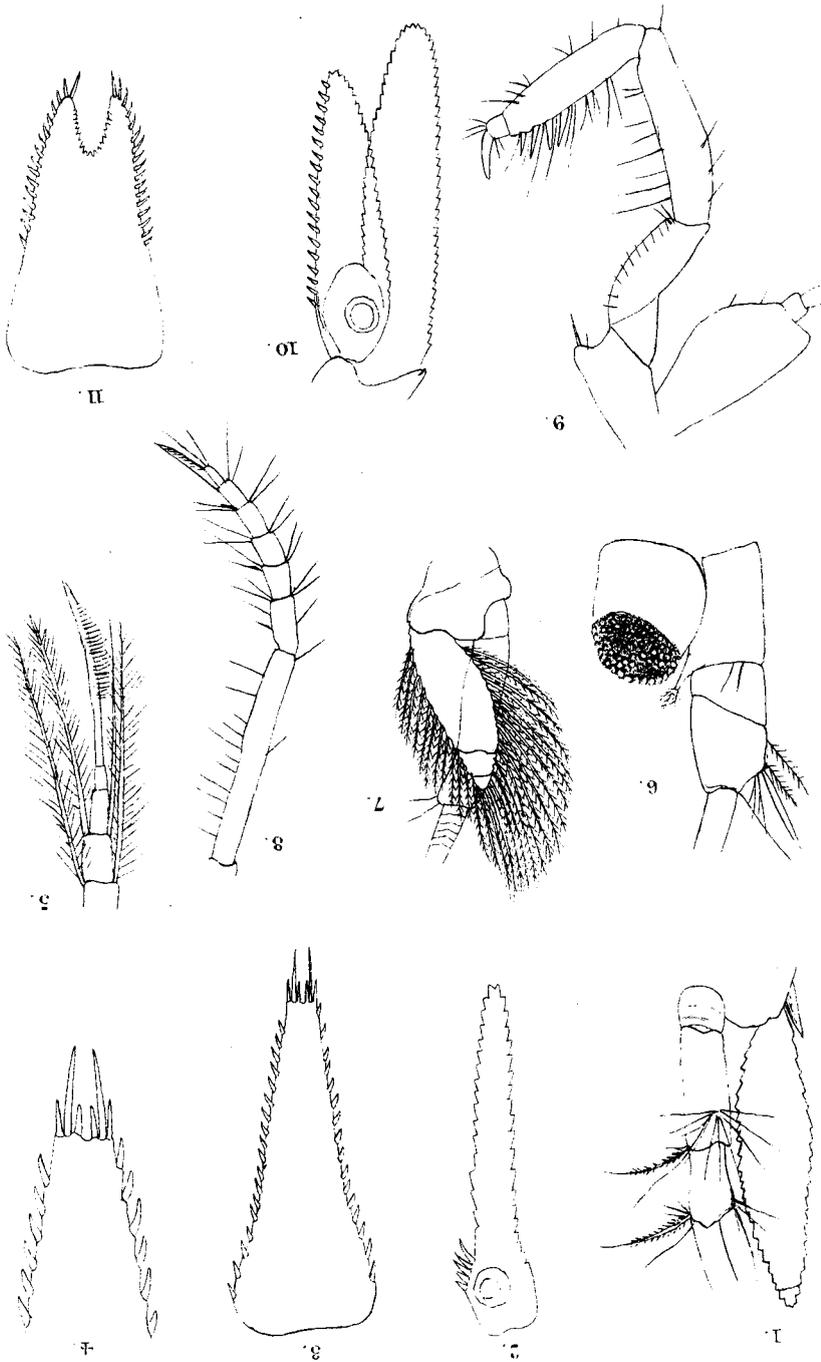
PLATE IX.

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|----------|---|--|
| Fig. 1. | <i>Mysidopsis hibernica</i> , Norman. | Antenna and its scale. |
| Fig. 2. | " " " | Inner uropod. |
| Fig. 3. | " " " | Telson. |
| Fig. 4. | " " " | Extremity of telson, more magnified. |
| Fig. 5. | " " " | Terminal joints of outer branch of fourth pleopod of the male. |
| Fig. 6. | <i>Heteromysis formosa</i> , S. I. Smith. | Antennule and eye. |
| Fig. 7. | " " " | Antenna and scale. |
| Fig. 8. | " " " | Terminal joints of a posterior leg. |
| Fig. 9. | " " " | First leg. |
| Fig. 10. | " " " | Uropod. |
| Fig. 11. | " " " | Telson. |

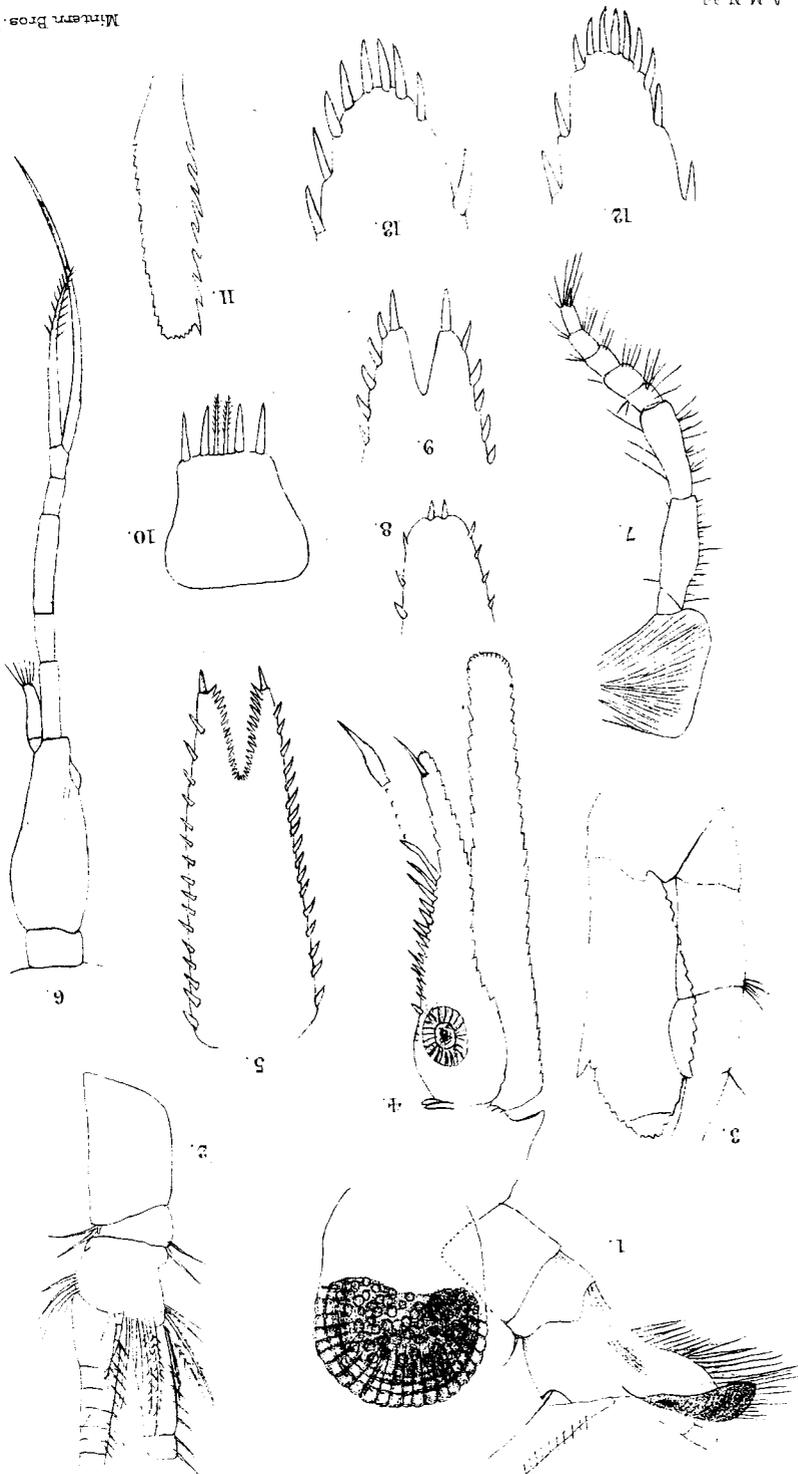
PLATE X.

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| Fig. 1. | <i>Schistomysis Parkeri</i> , Norman. | Antennule, ♂. |
| Fig. 2. | " " " | Antennule, ♀. |
| Fig. 3. | " " " | Antenna and scale. |
| Fig. 4. | " " " | Uropods. |
| Fig. 5. | " " " | Telson. |
| Fig. 6. | " " " | Fourth pleopod, ♂. |
| Fig. 7. | " " " | Endopodite of a leg. |
| Fig. 8. | <i>Mysidopsis gibbosa</i> , G. O. Sars. | End of telson. |
| Fig. 9. | " <i>angusta</i> , G. O. Sars. | End of telson. |
| Fig. 10. | <i>Erythrope elegans</i> , G. O. Sars. | Telson. |
| Fig. 11. | " <i>serrata</i> , G. O. Sars. | Antennal scale. |
| Figs. 12, 13. | <i>Neomysis vulgaris</i> , J. V. Thompson. | Abnormal developments of the end of the telson. |

The figures in the foregoing Plates are of parts magnified to various degrees of enlargement.



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