REPORT ON THE DANISH OCEANOGRAPHICAL EXPEDITIONS 1908-10
TO THE MEDITERRANEAN AND ADJACENT SEAS
Vol. II. Biology.

D. 1.

Isopoda, Tanaidacea, Cumacea, Amphipoda (excl. Hyperiidea)

by

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With 33 figures in the text.

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THE present work, being Part I of the Report on the Crustacea of the Expedition, comprises Isopoda, Tanaidacea, Cumacea and Amphipoda, excl. Hyperiidea. These last have, for practical reasons, not been included here, but will appear as Part II of the Crustacea. A great deal of the material has, it is true, already been classified, but the descriptions and drawings of the new or little known species are not yet completed, and the total material of the Hyperiidea is so enormous (abt. 3000 tubes) that its inclusion here would probably involve the postponement of publication of the present groups for at least a year.

As will be seen, from Dr. SCHMIDT's introductory remarks on the material (Vol. I, p. 22—24), and from the list of stations (Vol. I, p. 25—49), the expedition was based on plankton investigations, and dredgings were only occasionally made. The groups here dealt with consist mainly of bottom organisms, and the result will thus necessarily be but poor. I have thought it advisable to call attention to this point, lest the present work should be taken as a typical example of the methods of work employed by the expedition, which is very far from being the case. Not until the reports on the plankton have been published will it be possible to form any idea as to the quality of the work done by the expedition.

The geographical area to be dealt with in the works on the Crustacea embraces the Mediterranean with adjacent waters, bounded approximately by lat. 50° N., long. 30° W. and lat. 30° N. Only where quite exceptional circumstances rendered it advisable have I included species found outside this field.

The fact that most of the species here treated are represented only by single or very few specimens renders it almost impossible for me to furnish those biological details, the procuring of which otherwise forms one of the principal objects of the expedition. And indeed the groups here dealt with should, in order to rightly estimate their value, rather be considered as the "refuse" of the expedition. This refuse is, however, by no means lacking in interest, proving as it does, *inter alia,* that the deeper portions of the Mediterranean still contain a number of unknown species.

The present work includes altogether 80 species, of which 13 n. spp., viz:

25 Isopoda,	of which 4 n. spp.	39 Gammaridea of which 5 n. spp.
5 Tanaidacea	„ „ 1 „ „	1 Caprellid.
10 Cumacea	„ „ 3 „ „	

Of the 5 new Gammaridea, 2 must be regarded as types representing new families.

The species are as follows: (those marked * being new)

Isopoda.

1. **Flabellifera.**

Fam. Anthuridæ. Paranthura nigropunctata Lucas.
Fam. Gnathiidæ. *Gnathia Thori n. sp.
Fam. Ægidæ. Æga incisa Schiødte & Meinert.
Rocinela Danmoniensis Leach.
Syscenus infelix Harger.
Fam. Cirolanidæ. Cirolana borealis Lilljeb.
— Cranchii Leach.
Eurydice spinigera H. J. Hansen.
— truncata Norman.
— Grimaldii Dollfus.
Fam. Cymothoidæ. 2 spp. juv.
Fam. Sphæromidæ. Cymodocea truncata Leach.

2. **Valvifera.**

Fam. Idoteidæ. Idotea metallica Bosc.
— baltica Pallas.
Stenosoma capito Rathke.
— acuminatum Leach.
— appendiculatum Risso.

Fam. Arcturidæ. *Astacilla (?) Bonnierii n. sp.
— Deshayesii Lucas.

3. **Asellota.**

Fam. Ianiridæ. *Ianirella Bonnierii n. sp.

Fam. Desmosomidæ *Desmosoma chelatum n. sp.

Fam. Munnopsidæ. Munneurycope Tjalfiensis K. St.

4. **Epicaridea.**

Fam. Dajidæ. Holophryxus Richardi Koehler.
Heterophryxus appendiculatus G. O. Sars.

Tanaidacea.

Fam. Apseudidæ. *Apseudes graciloides n. sp.
— retusifrons Richardson.
— grossimanus Norman & Stebb.
— echinatus G. O. Sars.

Fam. Tanaidæ. Tanais robustus Moore.

Cumacea.

Fam. Vaunthompsoniidæ. ?Bathycuma longicaudatum Calman.

Fam. Bodotriidæ. Cyclaspis longicaudata G. O. Sars.

Fam. Platysympodidæ. Platysympus typicus G. O. Sars.

Fam. Diastylidæ. *Diastylis processifera n. sp.
* — Stebbingii n. sp.
Adiastylis longipes G. O. Sars.
Makrokylindrus Josephinæ G. O. Sars.

Fam. Procampylaspididæ. Procampylaspis armata Bonnier.

Fam. Campylaspididæ Campylaspis vitrea Calman.
* — horridoides n. sp.

Amphipoda.

1. **Gammaridea.**

Fam. Lysianassidæ. Trischizostoma nicæense Costa.
Lysianassa ceratina Walker.
Aristias tumidus H. J. H.
Ichnopus spinicornis Boeck.
*Hippomedon tunisiacus n. sp.
Katius obesus Chevreux.
Cyphocaris anonyx Boeck.
— Richardi Chevreux.
— Alicei Chevreux.
Metacyphocaris Helgæ Tattersall.
Crybelocephalus megalurus Tattersall.
*Thoriella islandica n. gen., n. sp.
*Chevreuxiella metopoides n. gen., n. sp.

Fam. Ampeliscidæ. Ampelisca diadema Costa.
— spinipes Boeck.
— brevicornis Costa.
?Haploops Dellavallei Chevreux.

Fam. Haustoriidæ. Urothoe pulchella Costa.

Fam. Colomastigidæ. Colomastix pusilla Grube.

Fam. Oediceratidæ. Monoculodes carinatus Bate.

Fam. Calliopiidæ. Stenopleura atlantica Stebbing.
Apherusa bispinosa Bate.

Fam. Atylidæ. Nototropis vedlomensis Bate & Westwood.
— guttatus Costa.

Fam. Eusiridæ. Eusirus longipes Boeck.

Fam. Gammaridæ. Mæra grossimana Mont.
* — Schmidtii n. sp.
Gammarus locusta L.

Fam. Dexaminidæ. Dexamine spinosa Mont.

Fam. Talitridæ. Hyale Grimaldii Chevreux.
— pontica Rathke.
— Schmidtii Heller.
? — camptonyx Heller.

Fam. Photidæ. 1 sp. indeterm.
Photis longicaudata Bate.
Eurystheus sp.

Fam. Ampithoidæ. Ampithoe vaillantii Lucas.

Fam. Corophiidæ. ?Ericthonius difformis M. Edw.
*Corophium rotundirostre n. sp.

2. **Caprellidea.**

Fam. Caprellidæ. Caprella acutifrons Latr. forma Andréæ P. Mayer.

Finally, I beg to express my best thanks to the authors who have aided me by forwarding works inaccessible to me by other means. To mention all by name would be to give a list including almost every living writer quoted in the following pages; I must, however, particularly thank the Rev. T. R. R. Stebbing. to whom I am further indebted for most valuable assistance rendered in other ways.

In this, as in my previous works, an asterisk * affixed to the title of any publication quoted denotes (where nothing is otherwise stated) the best description, with illustrations, of the species referred to.

All the figures are drawn by the author.

ISOPODA

1. Flabellifera.

Fam. ANTHURIDÆ.

Genus PARANTHURA.

PARANTHURA NIGROPUNCTATA, Lucas.

Anthura nigropunctata Lucas, Explor. Scient. de l'Algérie, Anim. Artic., 1849, vol. 1, p. 64, vol. 4, Pl. 5, fig. 9.

— — Heller, Verhandl. K. K. zool.-botan. Gesellsch. Wien, 1866, p. 732.

Paranthura costana Bate & Westwood, British sessile-eyed Crust., vol. 2, 1866, p. 165.

— — Dohrn, Bau u. Entwickl. d. Arthropoden, Heft 1, 1870, p. 91, Pl. 9.

— *nigropunctata* Norman & Stebbing, Isop. Lightning; Transact. Zool. Soc., vol. 12, pt. 4, 1886, p. 129, Pl. 26, fig. 2

St. 17. *37°49′ N., 23°27′ E.*, 55 m., 30-12-1908. Dredge. 1 spec. (♀), 11 mm.

This specimen agrees well with Dohrn's outline drawing, which is the best illustration extant; telson and uropoda are, however, slightly narrower in the specimen from the "Thor" than shown in Dohrn's figure.

Also found in: Algeria (Lucas); Adriatic (Heller); Guernsey (Norman and Stebbing); Jersey (Norman; Ann. Mag. Nat. Hist. ser. 7, vol. 20, 1907, p. 362).

Fam. GNATHIIDÆ.

As will be seen from the following, the material from the "Thor" contains one ♂ of genus *Gnathia*. This appears to belong to a new species; I have, however, in order to determine whether this was the case, collected all the works in which the *Gnathia* species were classed, going through for instance the whole of the Zoological Record. No complete synopsis having hitherto been published, I give my list below. Al. Brian has, it is true, (l. c. 1909, *vide* list of works *infra*) given a catalogue of works and species; this is however, not complete.

The genus *Gnathia*, with its great number of species, of which several are only known in the *Praniza* stage, needs to be thoroughly revised. Almost all the species in older works on the subject are described and drawn in a manner so schematic as doubtless to render them very difficult, if not impossible, of recognition.

For a brief historical survey of what is known as to the relation between *Gnathia* (*Anceus*) and *Praniza*, *vide* G. O. Sars, l. c. 1899, p. 51.

Where the titles of the works in the following list do not distinctly indicate the species treated, these are separately noted for each.

Reference list to Gnathiidæ.

Bate, Sp.: On Praniza and Anceus and their affinity to each other; Ann. Nat. Hist., ser. 3, vol. 2, 1858, p. 165—72, Pl. 6—7 (*Praniza Edwardsii*, *P. coerulata* Lilljb., *Anceus maxillaris*).

Bate, Sp. & Westwood: On the gen. Anceus (Anceus and Praniza auct.); Report 35. Meeting British Assoc. Adv. Sci., 1865, Notice p. 83.

— A History of the British sessile-eyed Crust., vol. 2, 1868 (*G. maxillaris* Mont., *G. fuscata* Johnston, *G. maculata* Westwood, *G. Edwardsii* Bate, *G. Halidayi* n. sp.)

Beddard: Prelim. Note Isop. Challenger; Proc. Zool. Soc. London, 1886, p. 120. (*A. bathybius* (*Bathygnathia b.*), *A. gigas* (*Euneognathia g.*), *A. tuberculosus*, *A. latidens*.)

— Isop., Challenger-Report 1886.

Bonnier, J.: Rés. sci. de Camp. du »Caudan«; Ann. Univ. Lyon 1896, p. 571 (*G. propinqua*).

Brian, Al.: Nota di forme larvali dei Anceidi (*Gn. maxillaris* Sars) raccolte sui pesci; Revista mensile di Pesca e Idrobiologia, Napoli, Anno 11, 1909, No. 4—6.

Carus, V.: Prodromus faunæ Mediterraneæ, vol. 1, Stuttgart 1885.

Costa, O.[1]: Fauna del Regno di Napoli, Entomostraca 1840 (1852?) (*teste* Brian l. c. 1909).

Dohrn, A.: Entwickl. u. Organisation von *Praniza* (*Anceus*) *maxillaris*; Zeitschr. f. Wiss. Zool., vol. 20, 1870, p. 65—90, Pl. 6—8.

Dollfus, A.: Etude preliminaire des Gnathiidæ recuillis dans les camp. de l'Hirondelle et de la Princesse Alice; Bull. Soc. Zool. France, vol. 26, 1901, p. 239—46 (key to the genera; *G. Grimaldii*, *G. Richardii*, *G. robusta*

[1] This work I have not been able to consult.

ars, *G. sp.?*, *Cæcognathia Sarsii*, *C.* (*Gnathia*) *stygia* . O. S.).
)s, vide MILNE-EDWARDS.
E.: Ueber die Beziehungen d. zehnfüss. Isopoden-attungen Anceus u. Praniza zu einander; 41 Jahres-er. d. Schles. Gesellsch. f. vaterl. Kultur, 1863, p. 64 –65.
, H. J.: Malacostraca Groenlandiæ occ.; Vid. Meddel. aturh. Foren. Kbhvn. 1887 (1888) (*G. cristata*).
L: Revis. Austral. Isop.; Proc. Linn. Soc. N. S. Wales, ol. 9, 1884, pt. 3, p. 1005 (*G. ferox*).
, C.: Carcinolog. Beiträge zur Fauna d. Adriat. Ieeres; Verh. K. K. Zool.-botan. Gesellsch. Wien, ol. 16, 1866, p. 733.
E.: Mém. sur la transformation des Pranizés en ncées; Comptes Rendus de l'Acad. de Sci., vol. 46, 858, p. 568, (a short report on Hesse l. c. 1863—1864).
Iém. sur les Pranizés et les Ancées; Ann. Sci. Nat., ool., ser. 4, vol. 9, 1863, p. 93—99 (a copy of Hesse 864, but without descriptions of the species and gures).
Iém. sur les Pranizés et les Ancées et sur les moyens urieux à l'aide desquels certains Crust. parasites ssurent la conservation de leur espèce; Acad. des Sciences, Savants Etrangers, Paris, vol. 18, 1864, p. 1—4, 5 Pl.s (*A. asciaferus*, *A. brivatensis*, *A. erythrinus*, *A. falcarius*, *A. formica*, *A. lupi*, *A. manticorus*, *A. ra-ax*, *A. scarites*, *A. trigli*, *A. verrucosus*).
Pranizés et Ancées nouveaux; Ann. Sci. Nat., Zool., er. 5, vol. 19, 1874, 29 p. p., Pl. 21—22 (*A. balani*, *A. cotti bubali*, *A. platyrhynchus*, *A. scombri*, *A. sur-nuleti*, *A. uncifera*).
Descript. d'un nouvel Ancée, l'Ancée du Congre, *An-ceus Congeri*, faite sur des individus vivants; Revue Scient. Nat., vol. 4, 1875, p. 449—69, 1 Pl.
Crust. rares ou nouveaux des Côtes de France, 36. Article, Descript. d'un nouvel Ancée, *Anceus Danielii*; Ann. Sci. Nat., Zool., ser. 6, vol. 17, 1884, No. 5—6, 11 pp., Pl. 18.
N: Crust.; »Southern-Cross«-Exped. 1902 (*G. polaris* Hodg. = *G. antarctica* Studer).
Isop.; National Antarct. Exped. 1901—04, Natural Hist., London, vol. 5, 1910 (*Euneogn. gigas* Beddard, *Gn. antarctica* Studer).
ON, G.: On *Praniza fuscata;* Loudon's Magazine of Nat. Hist., London, vol. 5, 1832, p. 520—22, fig. p. 521.
IELT u. HEIDER: Lehrbuch d. vergleich. Entwick-lungsgesch., Spec. Theil, 2. Heft, 1892, p. 489.
ANN, R.: Zoolog. Ergebn. einer Reise in der Küsten-gebiete des Rothen Meeres, 2. Hälfte, Lief. 1, 1880, p. 105, Pl. 8 fig. 1—6 (*G. rhinobatis*).
R, H.: Grønlands Amfipoder; Kgl. Danske Vid. Selsk. naturvid. math. Afhandl., vol. 7, 1838, p. 301 (73), Pl. 4, fig. 20 (*Praniza Reinhardi*).
Karcinolog. Bidrag; Naturhist. Tidsskrift, Ny Række, vol. 2, 1847, p. 388 (*G.* (*A.*) *elongata*).
Crust.; Gaimard, Voyage en Scand., Planches, 1846 (1849). (*G.* (*A.*) *elongata*).
, W. E.[1]): Crustaceology; Edinburgh Encycl., vol. 7, 1813.
A tabular view of the external characters of four classes of animals ....; Transact. Linn. Soc., London, Zool., vol. 11, 1815, p. 306—400.

work I have not been able to consult.

LILLJEBORG, W.: Om Hafs-Crustaceer vid Kullaberg i Skåne; Öfvers. Kgl. Svenska Vet. Akad. Förh., Årgang 12, No. 3, 1852 (1855), p. 132 (*G. oxyuræa*, *P. coeruleata*).
LUCAS: Hist. Nat. des Animaux artic. de l'Algérie, vol. 1, 1849, p. 87, No. 150 *bis*, No. 150 *ter* (*G. mauritanica*, *G. obesa*).
— Observations sur quelques espèces nouvelles de Crust. du Nord de l'Afrique; Ann. Soc. Entomol. France, ser. 2, vol. 7, 1849, p. 463, Pl. 15 (*G. mauritanica*, *G. obesa*, *G. vorax*).
MILNE-EDWARDS: Hist. Nat. des Crust., vol. 3, 1840 (*G.* (*A.*) *rapax*).
— Atlas du Règne animal de Cuvier, Crust., 1849(?) (*G.* (*A.*) *rapax*).
MONTAGU, G.: Descript. of several marine animals found on the south coast of Devonshire; Transact. Linn. Soc. London, Zool., vol. 9, 1808, p. 81—114, 7 Pl. (*G. max-illaris*).
NORMAN, A. & SCOTT, TH.: The Crust. of Devon and Corn-wall, London 1906 (*G. maxillaris*, *G. oxyuræa*).
OHLIN, A.: Arctic Crust. collected during the Swedish Arctic Exped. 1898—99, 1, Leptost., Isop., Cumac.; Bihang Kgl. Svenska Vet. Akad., vol. 26, ser. 4, No. 12, 1901 (*G. elongata* Kr., *Bathygn. stygia* G. O. Sars).
OTTO: Nova Acta physico-med. Acad. Cæsareo-Leopold. nat. Curios., vol. 14, 1828, p. 348, Pl. 22 fig. 1—2 (*Praniza branchialis*).
RICHARDSON, H.: Monograph Isop. N.-America; Bull. U. S. Nat. Mus., No. 54, 1905, p. 56 (*G. cristata* H. J. H., *G. elongata* Kr., *G. cerina* Stimpson).
— Isop.; Charcot: Exped. Antarct. Française 1903—05 (1907?), p. 3 (*G. antarctica* Studer = *G. polaris* Hodgson).
— Some new Gnathiidæ from the Atlantic coast of N.-America; Proc. U. S. Nat. Mus., vol. 35, 1908, p. 483 (*G. multispinis*, *G. serrata*, *Bathygn. curvirostris*).
— Isop. .... N. W. Pacific; Proc. U. S. Nat. Mus., vol. 37, 1909, p. 75. (*G. tuberculata*).
— Crust. Isop. du Travailleur et du Talisman; Bull. Mus. d'Hist. Nat. Paris, 1911, No. 7 (*G. cæca*, *G. frontalis*).
RISSO, A.: Hist. Nat. des Crust. des environs de Nice, 1816 (*G. forficularis*).
— Hist. Nat. de l'Europ. Méridionale, 1826, p. 82—83, Pl. 5, fig. 2 (*Praniza mesasoma*, *P. plumosa*, *P. ventri-cosa;? Zuphea sparicola*).
SARS, G. O.: Undersøg. over Christianiafjordens Dybvands-fauna, 1869 (*G. oxyuræa* Lilljeb. p. 49),
— Undersøg. over Hardangerfjordens Fauna; Christiania Vid. Selsk. Forh., 1871, p. 32 (*G. dentata*, *G. abyssorum*).
— Prodromus descript. Crust.; Archiv f. Math. og Natur-vid., Christiania, vol. 2, 1877 (*G.* (*Cæcogn.*) *stygia*, *G. hirsuta*).
— Crust. et Pycnog. nova; Archiv f. Math. og Naturvid., Christiania, vol. 4, 1879 (*G. robusta*).
— Norske Nordhavs-Exp., Crust. pt. 1, 1885, p. 85—95, Pl. 8 (*G.* (*Cæcogn.*) *stygia*, *G. hirsuta*, *G. robusta*).
— Account of the Crust. of Norway, vol. 2, 1899 Isop., p. 50, Pl. 21—23 (*G. maxillaris* Mont. (non M.-Edw.), *G. dentata*, *G. elongata*, *G. abyssorum*).
SCHOENICHEN, W.: *Gnathia aldabrensis* n. sp.; Reise in Ost-afrika von A. Voeltzkow, vol. 2, Stuttgart 1908, p. 193—98.
SMITH, GEOF.: Metamorphosis and Life-hist. of *Gnathia max-illaris;* Mitt. Zool. Stat. Neapel, vol. 16, 1904, p. 469 —79, Pl. 18.

STEBBING: A History of Recent Crust.; Internat. Sci. Ser., vol. 74, 1893, p. 335.
— Crust. brought by Dr. Willey from the South Seas; Willey's Zoological Research, pt. 5, 1901 (*G. aureola*).
— Isopoda .... Ceylon; Report Ceylon pearl oyster fisheries, vol. 4, 1905, p. 9 (*G. insolita*).
— Isop. Porcupine-Exped.; Transact. Zool. Soc. London, vol. 20, pt. 4, 1913, p. 432 (Abstract in Proc. Zool. Soc. London 1912, p. 42) (*G. cristatipes*, *G. schistifrons*, *Pra-niza* sp.).
STIMPSON: Marine Invert. Grand-Manan; Smithson. Con-trib. to Knowledge, vol. 6, 1853, p. 42 (*Praniza ce-rina* = *Anceus americanus*).
STUDER: Isop. .... »Gazelle«; Anhang Abhandl. Akad. Wiss. Berlin, 1883 (1884) (*G. antarctica*).
TATTERSALL: Isop.; Nord. Plankton, Lief. 14, 1911, vol. 6, p. 192 (*G. maxillaris* Mont., *G. oxyuræa* Lilljeb.).
WAGNER, NIC.: Observat. sur l'Organisation et le developpe-ment des Ancées; Bull. Acad. Imp. St. Pétersbourg, vol. 10, 1866, p. 497—502.
WALTER, A.: *Anceus* (*Praniza*) *Torpedinis* n. sp. aus Ceylon, Jena Zeitschr. f. Naturgesch., vol. 18, Heft. 3, 1885, p. 445—51, Pl. 15.
WESTWOOD, J. O.: Extrait de recherches sur les Crust. du genre Praniza de Leach; Ann. Sci. Nat., Zool., vol. 27, 1832, p. 316—32, Pl. 6 (*P. maculata* Westw., *P. marina* Slabber, *P. coeruleata* Mont., *P. Montagui* Westw., *P. branchialis* Otto, *P. fuscata* Johnst.).

List of the genera and species.

(Key to the genera Dollfus 1901, p. 243).

1. gen. **Cæcognathia** Dollfus 1901, p. 244.

1. *C.* (*Anceus*) *stygia* G. O. Sars 1877, No. 65, p. 348. — G. O. Sars 1885, p. 85, Pl. 8, fig. 1—22. — Dollfus 1901, p. 244. — Ohlin 1901, p. 22, fig. 3.
2. *C. Sarsii* Dollfus 1901, p. 244, fig. 3.

2. gen. **Euneognathia** Stebbing 1893, p. 338.
Euneog., Dollfus 1901, p. 240.

1. *E.* (*Anceus*) *gigas* Beddard, Proc. Zool. Soc. 1886, pt. 1, p. 120. — Beddard, Challenger Report 1886, p. 137, Pl. 18, fig. 8—10. — Hodgson 1910, p. 15 (*ubi lit.*). Pl. 1 fig. 3.

3. gen. **Bathygnathia** Dollfus 1901, p. 240.

1. *B.* (*Anceus*) *bathybia* Beddard, Proc. Zool. Soc. 1886, pt. 1, p. 119. — Beddard, Challenger Re-port 1886, p. 135, Pl. 18 fig. 1—7.
2. *B. curvirostris* Richardson 1908, p. 483, fig. 1—3.

4. gen. **Akidognathia** Stebbing 1912, p. 42.
Akidogn. Stebbing 1912, p. 42.—Stebbing 1913, p. 235.

1. *A. ædipus* Stebbing 1912, p. 42. — Stebbing 1913, p. 235, Pl. 25.

5. gen. **Gnathia** Leach.
(Literature see Stebbing 1913, p. 232).
The species are enumerated in alphabetical order.

1. *G.* (*A.*) *abyssorum* G. O. Sars 1871, p. 34. — G. O. Sars 1899, p. 56, Pl. 23 fig. 2.
2. *G. aldabrensis* Schoenichen 1908, p. 193—98, with figs. (a *Praniza*)
[*G.* (*A.*) *americana* Stimpson 1853, p. 42 = *A. cerina* Stimpson].
3. *G.* (*A.*) *antarctica* Studer 1883 (1884) p. 4. — Ri-chardson 1907, p. 3. — Hodgson 1910, p. 11 (*ubi lit.*), Pl. 1, fig. 2. — *G. polaris* Hodgson 1902, p. 241—43, Pl. 32.
4. *G.* (*A.*) *ascifera* Hesse 1864, p. 48, Pl. 2, fig. 2, Pl. 3 fig. 12.
5. *G. aureola* Stebbing 1901, p. 627, Pl. 66, fig. A, Pl. 74, fig. E.
6. *G.* (*A.*) *balani* Hesse 1874, p. 8, Pl. 21 fig. 1—19.
7. *G.* (*A.*) *branchialis* Otto 1828, p. 328, Pl. 22 fig. 1—2. — Westwood 1832, p. 327.
8. *G.* (*A.*) *brivatensis* Hesse 1864, p. 42, Pl. 1 fig. 22—25, Pl. 2 fig. 17, 18, 32, 33, Pl. 3 fig. 8—11.
9. *G. cæca* Richardson 1911, p. 519.
10. *G.* (*P.*) *cerina* (+ *A. americanus*) Stimpson 1853, p. 42, Pl. 3 fig. 31. — Richardson 1905, p. 59 (*ubi lit. et syn.*), fig. 43—46.
11. *G.* (*A.*) *cotti bubali* Hesse 1874, p. 16, Pl. 22 fig. 1—5.
12. *G.* (*A.*) *congeri* Hesse 1875, p. 445, Pl. 1.
13. *G. cristata* H. J. Hansen 1887 (1888), p. 182, Pl. 7 fig. 2. — H. Richardson 1905, p. 56 fig. 41.
14. *G. cristatipes* Stebbing 1912, p. 42. — Stebbing 1913, p. 232, Pl. 24 fig. A.
15. *G.* (*A.*) *Danielii* Hesse 1884, p. 1—11, Pl. 18.
16. *G.* (*A.*) *dentata* G. O. Sars 1871, p. 32. — G. O. Sars 1899, p. 54, Pl. 22 fig. 2.
[*G.* (*P.*) *Edwardsii* Bate = *G. oxyuræa* Lilljeborg].
17. *G.* (*A.*) *elongata* Krøyer 1847, p. 388. — Krøyer 1846 (1849?), Pl. 30 fig. 3. — G. O. Sars 1899, p. 55, Pl. 23 fig. 1. — H. Richardson 1905, p. 58 (*ubi lit. et syn.*), fig. 42.
18. *G.* (*A.*) *erythrina* Hesse 1864, p. 50, Pl. 2 fig. 3, Pl. 3 fig. 13.
19. *G.* (*A.*) *falcaria* Hesse 1864, p. 52, Pl. 1 fig. 19, Pl. 2 fig. 4, Pl. 3 fig. 14.
20. *G.* (*A.*) *ferox* Haswell 1884, p. 1005, Pl. 52 fig. 1—5.
21. *G.* (*A.*) *forficularis* Risso 1816, p. 52, Pl. 2 fig. 10.
22. *G.* (*A.*) *formica* Hesse 1864, p. 39, Pl. 1 fig. 28, Pl. 2 fig. 15, Pl. 3 fig. 5—7.
23. *G. frontalis* Richardson 1911, p. 520.
G. furcata Sp. Bate (*ubi*?; *teste* Brian 1911).
24. *G.* (*P.*) *fuscata* Johnston 1832, vol. 5, p. 520, fig. p. 521. — Westwood 1832, Pl. 6 fig. 26. — Bate & Westwood 1868, p. 197.
25. *G. Grimaldii* Dollfus 1901, p. 240 fig. 1.
26. *G. Halidaii* Bate & Westwood 1868, p. 203, fig. — Fixation of *G. H.*, Boutan, Comptes Rendus Paris, vol. 153, 1911, p. 639—41.

27. *G. (A.) hirsuta* G. O. Sars 1877, No. 66. — G. O. Sars 1885, p. 92, Pl. 8 fig. 23—24.
28. *G. insolita* Stebbing 1905, p. 9, Pl. 12 fig. B.
29. *G. (A.) latidens* Beddard, Proc. Zool. Soc. London 1886, p. 120. — Beddard, Challenger Report 1886, p. 141, Pl. 18 fig. 11.
30. *G. (A.) lupi* Hesse 1864, p. 59, Pl. 4 fig. 5—6.
31. *G. (P.) maculata* Westwood 1832, p. 326, Pl. 6 fig. 4—25. — Bate & Westwood 1868, p. 199.
G. (A.) manticora Hesse 1864, p. 53, Pl. 3 fig. 15—16, Pl. 4 fig. 2—4 (=? *G. maxillaris* Mont.)
32. *G. (Oniscus) marina* Slabber; Westwood 1832, p. 326, Pl. 6 fig. 1—2.
33. *G. (A.) mauritanica* Lucas, Algérie 1849, p. 87, No. 150 *bis*. — Lucas, Nord d'Afrique 1849, p. 463, Pl. 15 fig. 2.
34. *G. (Cancer) maxillaris* Montagu. (*non* G. O. Sars 1899). — Latreille, Encyclopédie méthodique 1817, Pl. 336, fig. 25. — Bate & Westwood 1868, p. 187 (*ubi lit. et syn.*). — G. Smith 1903. — Norman & Scott 1906, p. 36, Pl. 2 fig. 1—8. —? *G manticora* Hesse 1864.
[*G. maxillaris* G. O. Sars = *G. oxyuræa* Lilljeb.].
35. *G. (P.) mesasoma* Risso 1826, p. 83.
36. *G. (P.) Montagui* Westwood 1832, p. 327.
37. *G. multispinis* Richardson 1908, p. 485, fig. 4—5.
38. *G. (P.) obesa* Lucas, Algérie 1849, p. 88, No. 150 *ter*. — Lucas, Nord de l'Afrique 1849, p. 463, Pl. 15 fig. 3.
39. *G. (A.) oxyuræa* Lilljeborg 1852 (1855), p. 133. — Norman & Scott 1906, p. 37, Pl. 2 fig. 9—10, Pl. 3 fig. 1—5. — Tattersall 1911, p. 197, fig. 18—30. — *G. maxillaris* G. O. Sars 1899, p. 52, Pl. 21, 22 fig. 1. — *G. max.* Brian 1911. — *A. Edwardsii* Bate 1858, p. 165, Pl. 6 fig. 1—2. — *A. Edw.* Bate & Westwood 1868, p. 201, fig. — *Praniza coeruleata* Lilljeborg 1852 (1855), p. 132.
40. *G. (A.) platyrhynchus* Hesse 1874, p. 23, Pl. 22 fig. 12—15.
41. *G. (A.) plumosa* Risso 1826, p. 82.
[*G. polaris* Hodgson = *G. antarctica* Studer].
42. *G. propinqua* Bonnier 1896, p. 571, Pl. 31 fig. 4.
43. *G. (A.) rapax* Milne-Edwards 1840, p. 196, Pl. 33 fig. 12. — Milne-Edwards 1849, p. 182, Pl. 62 fig. 3.
44. *G. (A.) rapax* Hesse 1864, p. 61, Pl. 4 fig. 7—9.
45. *G. Richardi* Dollfus 1901, p. 242, fig. 2.
46. *G. (A.) rhinobatis* Kossmann 1880, p. 105—07, Pl. 8 fig. 1—6 (a *Praniza*).
47. *G. (A.) robusta* G. O. Sars 1879, No. 6, p. 432. — G. O. Sars 1885, p. 94, Pl. 8 fig. 25—27. — Dollfus 1901, p. 243.
48. *G. (A.) scarites* Hesse 1864, p. 57, Pl. 3 fig. 15—16.
49. *G. schistifrons* Stebbing 1912, p. 42. — Stebbing 1913, p. 233. Pl. 24 fig. B.
50. *G. (A.) scombri* Hesse 1874, p. 25, Pl. 22 fig. 22—24 (a *Praniza*).
51. *G. serrata* Richardson 1908, p. 487, fig. 6—7.
? *G. (Zuphea) sparicola* Risso 1826, p. 104 (a *Praniza*?).
[*G. (A.) stygia* G. O. Sars = *Cæcognathia s.*].
52. *G. (A.) surmuleti* Hesse 1864, p. 64. — Hesse 1874, p. 19, Pl. 22 fig. 6—11.
53. *G. (A., P.) torpedinis* Walter 1885, p. 445 (a *Praniza*).
54. *G. (A.) triglæ (trigli)* Hesse 1864, p. 56, Pl. 4 fig. 12.
55. *G. tuberculata* Richardson 1909, p. 75 fig. 1—3.
56. *G. (A.) tuberculosus* Beddard, Proc. Zool. Soc. London 1886, pt. 1, p. 120. — Beddard, Challenger-Report 1886, p. 139, Pl. 10 fig. 8—12, Pl. 18 fig. 12.
57. *G. (A.) uncifera* Hesse 1874, p. 20, Pl. 22 fig. 16—21.
58. *G. (A.) ventricosa* Risso 1826, p. 82, Pl. 5 fig. 2.
59. *G. (A.) verrucosa* Hesse 1864, p. 63, Pl. 4 fig. 1, 10.
60. *G. (A.) vorax* Lucas, Nord de l'Afrique 1849, p. 85, Pl. 15 fig. 1 (no descript.). — Heller 1866, p. 749.
Praniza sp. Dollfus 1901, p. 243.
— Stebbing 1913, p. 234.
— *Reinhardi* Krøyer 1838, p. 301 (78), Pl. 4 fig. 20 (a *Praniza*).

GNATHIA THORI n. sp. (Fig. 1—2).

St. 140. 20-7-1910. *37°29′ N., 12°34′ E.* 112 m. clay. 1 spec., ♂.

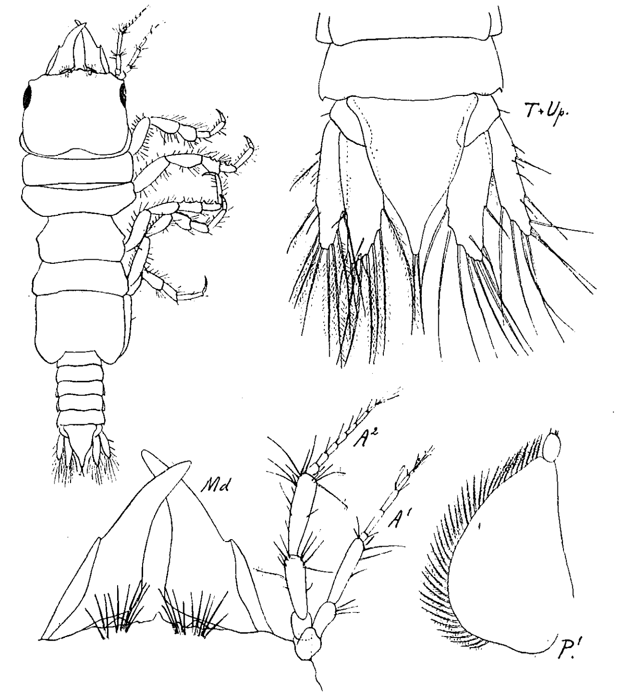

Fig. 1. Gnathia Thori.

Despite a careful study of all descriptions and illustrations of the species from the north Atlantic and the Mediterranean, I have not been able to ascribe the specimen from the "Thor" to any hitherto determined

species. It is characteristic, by the way, that practically speaking, none of the more recent writers have been able to identify their species with those described by earlier authors; most of the older species have, moreover, at least as far as I have been able to judge from the works on the subject, only been found once, and never subsequently recognised, which also seems to suggest that the descriptions are bad. Only by actual examination of the original specimens from which the old species were named would it seem possible to reduce this difficult genus to order, refer synonyms to their proper species, etc.

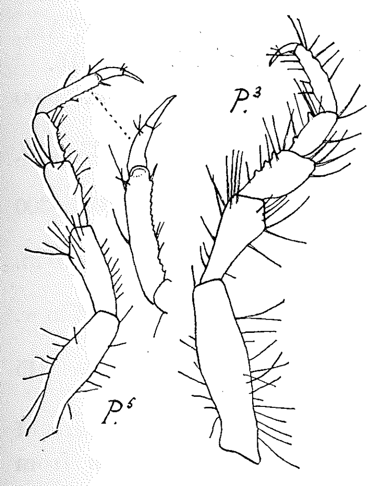

Fig. 2. Gnathia Thori.
P. 3. P. 5.

There being but one specimen from the "Thor", I can only give figures and descriptions of such features as could be observed without having recourse to dissection.

Length, 5,5 mm.

On the whole, the species very much resembles *G. maxillaris*, G. O. Sars, (1899, Pl. 21). differing, however, by a number of good characteristic features.

The whole surface is smooth, without areolations etc., Cephalosome and oral parts highly calcified, with a consistency resembling that of the Cumacea. Cephalosome almost square, length nearly equal to breadth. Eyes usual size. Frontal edge turned slightly downward, teeth somewhat small, the middle tooth especially so. The two pairs of antennæ are of the usual shape; Ant. 1 with 5 joints in the flagellum, of which Nos. 1 and 5 much shorter than the others; Ant. 2 has 7 joints of almost equal length.

The shape of the mandibles is very characteristic; they are fairly narrow, with no dentition on the inner edge: in the broad proximal part, the outer edge is turned upward, a feature which, as far as I have been able to ascertain, does not occur in any other species. With regard to p. 1 (Gnathopoda) there is nothing particular to be said. The remaining pereiopoda are of approximately equal length. The small, but strong teeth shown by Sars (1899, Pl. 23) on the inner side of 3rd and 4th joints of p. 2 in *G. elongata* are found in the same shape and number in *G. Thori* on p. 3—5; on p. 2 and p. 6 these teeth are lacking. The sixth segment of the body is almost as long as 4 and 5 together; the seventh is not visible from the dorsal side. The metasome is of the usual shape. The proximal half of the telson is shaped almost identically with that of *G. maxillaris* G. O. Sars (1899, Pl. 21) but it is much narrower towards the point, ending in two long setæ, but having no setæ on the dorsal side. Of the uropoda, the exopodite is of approximately the same length as the telson, the endopodite being somewhat longer. The shape and arrangement of setæ may be seen in the figures.

Remarks. This species, which I have named after the ship of the expedition, is very easily distinguishable from the other species by its mandibles, frontal edge and telson.

Fam. ÆGIDÆ.

Genus ÆGA.

ÆGA INCISA Schiødte & Meinert

Æga incisa Schiødte & Meinert, Monogr. Cymothoarum; Naturh. Tidsskrift, ser. 3, vol. 12, 1879, p. 373, Pl. 4 fig. 13—15.
* — — H. Richardson, Isop. N. America; Bull. Mus. U. S. Nat. Mus., vol. 54, 1905, p. 180, fig. 162—64 (*ubi lit.*).

St. 132. *38°57′ N, 9°47′ E.* 14-7-1910. 1227 m. 3^{05} am.
St. 133. *38°18′ N, 9°59′ E.* 14-7-1910. 600 m. 9^{20} pm. 600 m. w. 1 spec.

Also found: Mediterranean (Schiödte & Meinert); Capri (Lo Bianco, Mitt. Zool. Stat. Neapel, vol. 16, 1903, p. 257); Fernandina (Florida); Georgia; St. Augustine (Florida); *31°57′ N, 78°18′35″ W.* (Richardson l. c.).

Genus ROCINELA.

ROCINELA DANMONIENSIS Leach

Rocinela danmoniensis Leach, Dict. Sci. Nat., vol. 12, p. 349 (**teste** G. O. Sars).
Æga rotundicauda Lilljeborg, Norges Crust.; Öfvers. Kgl. Svenska Vet. Akad. Förh., 1851, p. 23.
— *nasuta* Norman, in Wyville Thomson: Depths of the Sea, 1873, p. 127, woodcut.
**Rocinela danmoniensis* G. O. Sars, Account vol. 2, 1899, p. 65, Pl. 27.
* — — Norman, British Isop.; Ann. Mag. Nat. Hist., ser. 7, vol. 14, 1904, p. 436 (**ubi lit. et syn.**).
* — — Norman & Scott, Crust. of Devon and Cornwall 1906, p. 38, Pl. 3, fig. 6—8.

St. 1. *49°17′ N, 4°13′ W*. 28-11-1908. 25 m. w. 3 spec.
St. 41. *43°23′ N, 2°01′ W*. 14-6-1906. 60 m. w. 3 spec.
St. 195. *48°20′ N, 5°42′ W*. 13-9-1906. 170 m. 65 m. w. spec.

There is no doubt of the fact that all the specimens ally belong to this species, which is very apt to be onfused with the closely related *R. Dumerilii* Lucas ee Norman & Scott l. c. p. 39, Pl. 3, fig. 10),

Also found: Mediterranean (Carus). Plymouth, Polperro Norman & Scott). *60°39′ N, 3°9′ W*, 203 fath., and *60°45′ N, 6′ W*, 250 fath. (W. of Shetland; Norman l. c. 1904). Kattegat I. J. Hansen, Danmarks Isop. .... etc. 1909). Færoes chiödte & Meinert, Cymoth.). The whole of Norway, or least S. of Trondhjem (Sars, Account; Norman l. c. 1904).

Genus SYSCENUS.

SYSCENUS INFELIX Harger (Fig. 3).

yscenus infelix Harger, Report U. S. Comm. Fish and Fisheries for 1878, pt. 6, 1880, p. 387.
— — Harger, Bull. Mus. Comp. Zool. Harvard Coll., vol. 9, 1883, No. 4, p. 100, Pl. 3, fig. 5, Pl. 4, fig. 3.
arponyx pranizoides G. O. Sars, Oversigt af Norges Crust.; Forh. Vid. Selsk. Christiania 1882, No. 18, p. 60, Pl. 2, fig. 1.

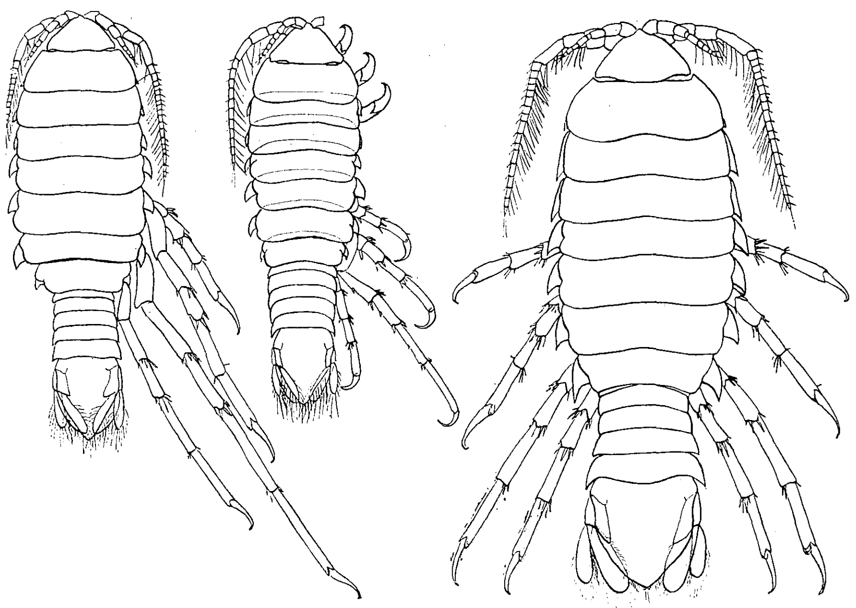

Fig. 3. Syscenus infelix.
St. 14 : 8 mm. — St. 99 : 6 mm. — St. 220 : 10 mm.

Rocinela Lilljeborgii Bovallius, A new Isop. from the coast of Sweden; Bihang Kgl. Svenska Vet. Akad. Handl., vol. 10, No. 10, 1885, p. 3, Pl. 1—2.
Syscenus infelix G. O. Sars, Account vol. 2, 1899, p. 67, 247, Pl. 28, Suppl. Pl. 1.
Syscenus infelix Lo Bianco, Mitt. Zool. Stat. Neapel vol. 16, 1903, p. 257, Pl. 7, fig. 10 (color. fig.).
* — — H. Richardson, Monogr. Isop. N. Am. 1905, p. 212 (*ubi lit.*), fig. 216.

St. 14. *41°24′ N, 17°15′ E*. 1125 m. 21-12-1908. 1000 m. w. 8[20] am. 1 spec., 8 mm.
St. 220. *36°25′ N, 0°42′ E*. 375 m. 4-9-1910. 25 m. w. 2[15] am. 1 spec., 10 mm.
St. 108. *36°03′ N, 0°27′ W*. 2435 m. 25-6-1910. 300 m. w. 10[30] pm. 2 spec., 8—9 mm.
St. 99. *36°02′ N, 5°16′ W*. 750 m. 23-6-1910. 300 m. w. 11[25] pm. 1 spec. 7 mm.
St. 99. *36°02′ N, 5°16′ W*. 750 m. 23-6-1910. 65 m w. 0[10] am. 1 spec., 6 mm.
St. 204. *38°52′ N, 7°43′ E*. > 1000 m. 27-8-1910. 945 m. w. 5[45] am. 1 spec., 8 mm.

The specimens taken on board the "Thor" are of considerable interest as showing the transition from the youngest known stage (G. O. Sars' *Harponyx pranizoides*) to the adult. The smallest specimen from the "Thor" however, (St. 99, 65 m. w.) though of the same size (6 mm) as the young form described by Sars, has already 7 pairs of legs highly developed. In the specimen from St. 14, which, judging by its size (8 mm.) and by the greater number of joints in the antennæ, must be somewhat older, the 3 posterior pairs of pereiopoda especially are considerably longer. In the older individuals, the cephalon is relatively far smaller than in the younger. The telson becomes shorter and broader with increasing age; this feature is, however, subject to considerable variation. It will be noticed, for instance, that in the specimen from the "Thor" taken at St. 220 (10 mm, Fig. 3) the telson has almost the same shape as that shown in Sars' illustration of the adult (Account, Suppl. Pl. 1) whereas the specimen described by Bovallius, which is more than twice as large (32 mm.) has a far longer, and thus more "youthful" telson. The largest specimen from the "Thor" has contracted in the spirit to such a degree that 1. abdominal segment is almost entirely hidden.

Also found: East N. America. N. of Delaware Bay (Richardson), *50°90′ N, 7°21′ W*, 516 fathoms (N. of Hebrides: Norman 1904) Hvitingsø and Bekkervig (W. Norway) 80—150 fathoms. (Sars, Account) Bohuslän, on operculum of a whiting (Bovallius) Skagerak and Kattegat, 23—112 fathoms (H. J. Hansen, Danmarks Isop. .... 1909 (1910) p. 203). Capri, (Lo Bianco, Mitt. Zool. Stat. Neapel, vol. 15, 1903) *35°06′05″ N, 138°40′20″ E.*, 211—293 fathoms, fine black sand, (Richardson; Proc.

U. S. Nat. Mus. Vol. 37, 1910, p. 85). As the record of distribution shows, the species has never hitherto been found in the neighbourhood of the localities where it was taken by the "Thor". All the specimens from the "Thor" were found in a free state, not attached to any other animal serving as host.

Genus CIROLANA.

CIROLANA BOREALIS Lilljb.

Cirolana borealis Lilljeborg, Norges Crust.; Öfvers. Kgl. Svenska Vet. Akad. Handl., 1851, p. 23.
— *spinipes* Bate & Westwood, British sessile-eyed Crust., vol. 2, 1867, p. 299.
* — *borealis* H. J. Hansen, Cirolanidæ; Kgl. Danske Vid. Selsk. Skr., math. naturvid. Afd., vol. 3, 1890, p. 321, Pl. 1, fig. 1.
* — — G. O. Sars, Account vol. 2, 1899, p. 70, Pl. 29.
— — Norman, British Isop.; Ann. Mag. Nat. Hist., ser. 7, vol. 14, 1904, p. 437.
— — Richardson, Monogr. Isop. N.-Am. 1905, p. 101 (*ubi lit. et syn.*).

St. 104. *54°16′ N, 6°06′ E*. 2-7-1905. 41 m. 1 spec.
Distribution. The works of H. J. Hansen, Norman, Richardson and Sars quoted above record a great number of finds from the eastern part of N. America, and the western coast of Europe from Norway to the Adriatic.

CIROLANA CRANCHII Leach

Cirolana Cranchii Leach, Cymothoadées; Dict. des Sci. Nat., vol. 12, Paris 1818, p. 347.
Nelocira Swainsonii Leach, *ibid.*, p. 347.
— — Desmarest, Considérations générales sur la classe des Crust.; Isop., Paris 1825, p. 302, Pl. 48, fig. 2.
Cirolana Cranchii Desmarest, *ibid.*, p. 302.
* — — H. J. Hansen, Cirolanidæ; Kgl. Danske Vid. Selsk. Skr., 6. Række, naturvid. mat. Afd., vol. 3, 1890, p. 341, Pl. 3, fig. 3 (*ubi lit et syn.*)

Cadiz' Roads, 6 m., among algæ. 24-2-1909, Dredge. 1 spec.

Also found: From the English Channel to Sardinia and Senegambia (H. J. Hansen l. c.; Norman, Ann. Mag. Nat. Hist., ser. 7, vol. 14, 1904, p. 438).

Genus EYRYDICE.

EURYDICE SPINIGERA H. J. Hansen

Eurydice spinigera H. J. Hansen, Cirolanidæ; Kgl. Danske Vid. Selsk. Skr., 6. Række, math.-naturvid. Afd., vol. 3, 1890, p. 367, Pl. 5, fig. 4, Pl. 6, fig. 1.
Eyrydice spinigera Norman, British Isop.; Ann. Mag. Nat. Hist., ser. 7, vol. 14, 1904, p. 440.
— — H. J. Hansen, Revision .... Cirolaninæ; Journ. Linn. Soc., London, Zool., vol. 29, 1905, p. 359.
— — H. Richardson, Monogr. Isop. N.-Am. 1905, p. 125, fig. 109.
* — — Tattersall, Nord. Plankton, vol. 6 (Lief. 14) 1911, p. 205 (*ubi lit.*). fig. 37—41.

St. 104. *54°16′ N, 6°06′ E*. 41 m. 2-7-1905. 1 spec.
Also found: South and west coasts of British Isles, Channel Islands, and eastern part of Atlantic. (Tattersall 1911). Atlantic between Denmark and Danish West Indies (H. J. Hansen l. c. 1905). — Is generally found at the surface of the water, but has occasionally been taken at the bottom (Tattersall 1911).

EURYDICE TRUNCATA Norman

Cirolana truncata Norman, Ann. Mag. Nat. Hist., ser. 4, vol. 2, 1868, p. 421, Pl. 23, fig. 12—15.
Eurydice — H. J. Hansen, Isop., Cumac. u. Stomat. d. Plankton-Exp., 1895, p. 13, Pl. 1, fig. 5.
— — Tattersall, Isop.; Fisheries, Ireland, Sci. Invest. 1904, pt. 2 (1905), p. 45, Pl. 11, fig. 5—8.
* — — Tattersall, Isop.; Nord. Plankton, vol. 6 (Lief. 14), 1911, p. 214 (*ubi lit.*) fig. 72—79.

St. 34. *43°27′ N, 8°16′ E*. 23-1-1909. 200 m. w. 6[35] am. 1 spec.
St. 35. *43°36′ N, 7°36′ E*. 29-1-1909. 2000 m. 25 m. w. 9[10] pm. 1 spec.
St. 62. *35°45′ N, 5°59′ W*. 22-2-1909. 25 m. w. 9[10] pm. 1 spec.
St. 62. *35°45′ N, 5°59′ W*. 22-2-1909. 100 m. w. 8[25] pm. 5 spec.
St. 135. *37°17′ N, 10°28′ E*. 16-7-1910. 200 m. 25 m. w. 0[55] am. 2 spec.
St. 140. *37°29′ N, 12°34′ E*. 20-7-1910. 112 m. Dredge. 1 spec.
St. 148. *30°45′ N, 19°02′ E*. 26-7-1910. 290 m. Dredge. 1 spec.
St. 179. *40°02′ N, 25°55′ E*. 13-8-1910. 85 m. 65 m. w. 2[15] am. 1 spec.
St. 182. *38°13′ N, 24°48′ E*. 13-8-1910. 480 m. 65 m. w. 10[30] am. 1 spec.
St. 207. *39°58′ N, 3°41′ E*. 28-8-1910. 64 m. 25 m. w. 8[40] pm. 1 spec.

Also found: Capri, and between Capo Corso and Monaco (Lo Bianco, Mitl. Zool. Stat. Neapel, vol. 15, 1903) Shetland, W. Scotland, W. Ireland, S. England, Atlantic coast of France, Morocco, Mediterranean. "Probably always pelagic, but not found over greater depths than 100 fathoms (= 183 m.)" (Tattersall, l. c. 1911). As is evident from the foregoing, attersall's statement as to the occurrence of this species is ıcorrect, since it has been taken by the "Thor" over depths f 290, 480, and even over 2000 m.

EYRYDICE GRIMALDII Dollfus.

urydice Grimaldii Dollfus, 3ième campagne de l'Hirondelle 1887; Bull. Soc. Zool. de France 1888, p. 6, fig.

— *elegantula* H. J. Hansen, Cirolanidæ; Kgl. Danske Vid. Selsk. Skr., math. naturvid. Afd., 6. Række, vol. 5, 1890, p. 364, Pl. 5, fig. 2.

— *Grimaldii* Norman, Brit. Isop.; Ann. Mag. Nat. Hist. ser. 7, vol. 14, 1904, p. 439.

— — Tattersall, Isop.; Fisheries, Ireland, Sci. Invest., 1904, pt. 2 (1905), p. 63.

— — H. J. Hansen, Revision .... Cirolaninæ; Journ. Linn. Soc., London, Zool. vol. 29, 1905, p. 361.

* — — Tattersall, Isop.; Nord. Plankton, vol. 6 (Lief. 14) 1911, p. 212, fig. 65—71.

St. 82. *51°00′ N, 11°43′ W.* 1020—1370 m. 800 m. w. 15-6-1905. 1 spec.

(No number) *51°40′ N, 6° W.* Surface. 29-8-1905. 1 spec.

St. 398. ("Ingolf" 1) *36°48′ N, 14°22′ W.* 2600 m. 26-10-1911. 12⁴⁰—1¹⁰ am. 10 spec.

Also found: Eastern Atlantic, near Azores, Spain, SW. and W. Ireland, SW. Iceland, between Iceland and Scotland, near the Færoes. It is more oceanic than most other species of the genus, and is found both at the surface and at depths of 500 fath. (= 914 m.) (Tattersall, 1911).

Fam. CYMOTHOIDÆ.

St. 61. 740 m. *35°57′ N, 5°35′ W.* 21-2-1909. 3²⁵ pm. 60 m. w. 1 spec., 6,5 mm.

St. 99. 750 m. *36°02′ N, 5°16′ W.* 23-6-1909. 11²⁵ pm. 300 m. w. 1 spec., 5 mm.

These two specimens, which are both young stages, I have been unable to classify.

Fam. SPHÆROMIDÆ.

(Literature *vide* Stebbing, Journ. Linn. Soc. Zool., vol. 31, 1910, p. 222).

Genus CYMODOCEA.

CYMODOCEA TRUNCATA Leach

Cymodocea truncata (Mont.) Leach; Bate & Westwood, Brit. sessile-eyed Crust., vol. 2, 1868, p. 426 (♂).

— *emarginata* Leach; Bate & Westwood, *ibid.* p. 428 (♂).

Sphæroma curtum Leach; Bate & Westwood, *ibid.* p. 412 (♀).

— *Prideauxianum* Leach; Bate & Westwood, *ibid*, p. 415 (♀).

**Cymodoce truncata* Tattersall, Isop.; Fisheries, Ireland, Sci. Invest. 1904, pt. 2 (1905), p. 6, Pl. 2.

* — — Norman & Scott, Crustacea of Devon and Cornwall 1906, p. 44 (*ubi syn.*), Pl. 4, fig. 3—14.

Sphæroma inerme Tattersall, Report British Assoc. 1904 (1905), p. 601.

St. 44. *38°31′ N, 8°57′ E.* 8—25 m. 4-2-1909. 2 spec.
St. 105. *36°43′ N, 2°08′ W.* 20 m. 24-6-1910. 1 spec.
St. 149. *30°30′ N, 19°02′ E.* 75—80 m. 26-7-1910. 1 spec.

Also found: Round British Isles, Mediterranean (Tattersall, l. c. 1911) "Nordeuropäische Meere" (Thielemann; Isop. Ostasiens, Abh. d. 2 Kl. d. Akad. d. Wiss. 2 Suppl.-bd. 3 Abth. München, 1912, p. 100). The Zoological Museum at Copenhagen possesses specimens from the British Isles, France, and the Mediterranean.

2. Valvifera.

Fam. IDOTEIDÆ.

Genus IDOTEA.

IDOTEA METALLICA Bosc (Fig. 4).

Idotea metallica Bosc, Hist. Nat. des Crust., vol. 2, 1802, p. 179, Pl. 15, fig. 6.

— *robusta* Krøyer, Naturhist. Tidsskrift, Ny Række, vol. 2, 1846, p. 108.

— — Krøyer, in Gaimard, Voyage en Scand., 1846 (1849?), Pl. 26, fig. 3.

— — Harger, Report U. S. Comm. Fish and Fisheries, pt. 6, 1880, p. 349, Pl. 6, fig. 30—32.

* — *metallica* Miers, Revis. of Idot.; Journ. Linn. Soc. Zool., vol. 16, 1883, p. 35 (*ubi lit. et syn.*).

— — Dollfus, Les Idot. des côtes de France; Feuille des jeunes Naturalistes, vol. 24, 1895, p. 8, fig. 24.

— — Richardson, Monogr. Isop. N.-America 1905, p. 362 (*ubi lit. et syn.*).

— — Tattersall, Isop.; Nord. Plankton, vol. 6 (Lief 14), 1911, p. 227 (*ubi lit. et syn.*), fig. 116.

St. 116. *39°27′ N, 5°26′ E.* 2860 m. 30-6-1910. 300 m. w. 30 min. 1⁴⁰ am. 1 spec., 8 mm.
St. 171. *41°07′ N. 29°05′ E.* 60 m. 10-8-1910. 50 m. w. 15 min. 3³⁰ pm. 3 spec., 3 mm.

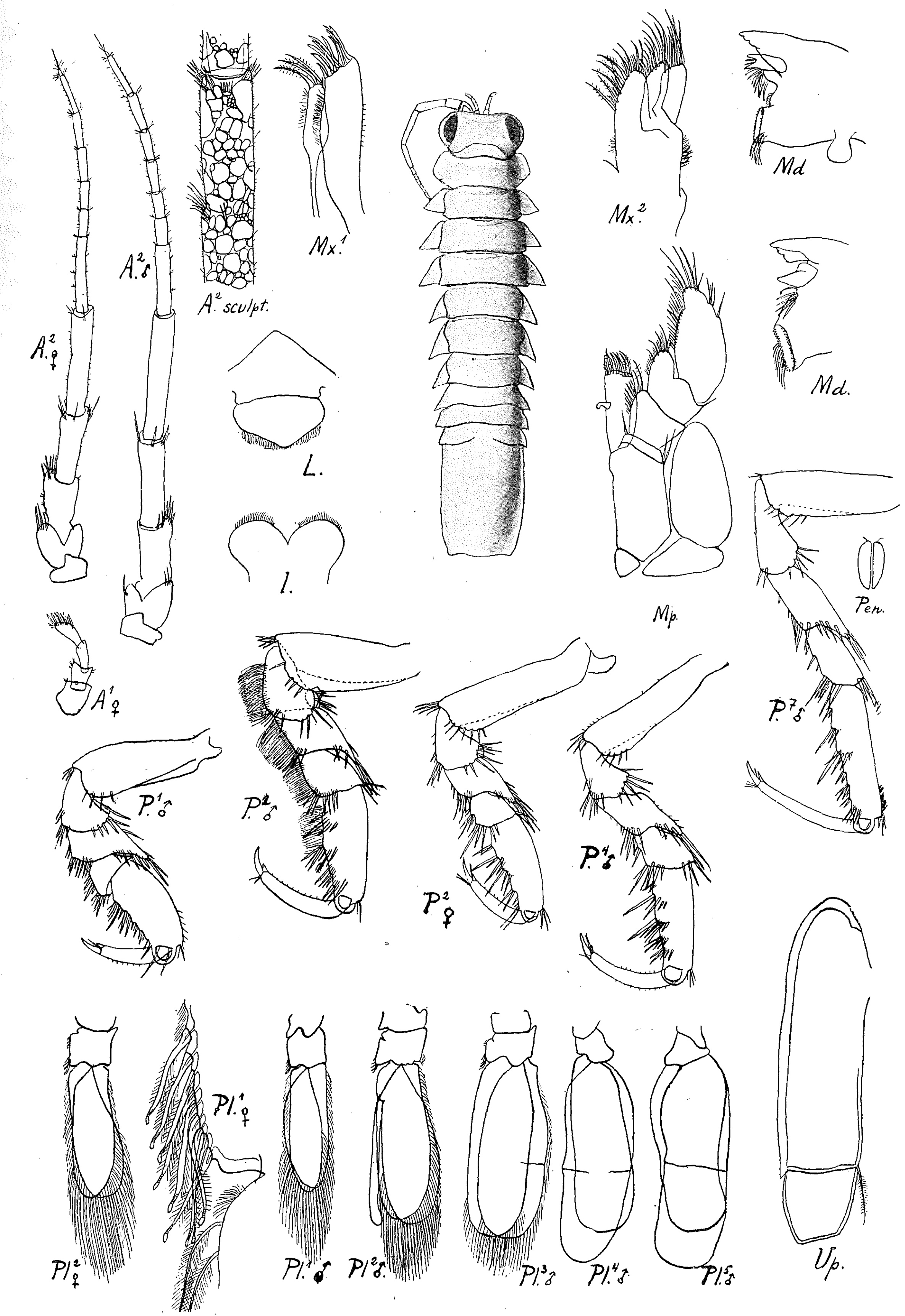

Fig. 4. Idotea metallica. *A² sculpt.* = the sculpture of a joint of A². *Pen.* = penis.

St. 172. *41°32′ N, 29°24′ E.* 11-8-1910.
10 m. w. 3^{50} am. 15 min. 188 ♂♂ 18—31 mm., 120 ♀♀ 18—24 mm.
50 m. w. 2^{25} am. 15 min. 606 ♂♂ 18—29 mm., 215 ♀ 18—24 mm.; 75 spec. 3—4 (6) mm.
100 m. w. 2^{50} am. 15 min. 94 spec. 22—28 mm, 40 spec. 3—4 mm.
600 m. w. 2^{05} am. 20 min. 54 spec. 18—27 mm, 6 spec. 3—5 mm.
St. 173. *41°17′ N, 29°11′ E.* 11-8-1910. 65 m. 6^{30} am. 15 min. 65 m. w. 1 ♀ (with eggs). 20 mm.
St. 174. *40°54′ N, 28°53′ E.* 11-8-1900, 120 m. 11^{59} am. 65 m. w. 30 min. 2 ♀♀: 19 mm (with eggs) and 25 mm (with young).
St. 175. *40°48′ N, 27°59′ E.* 11-8-1910. 1103 m.
10 m. w. 9^{45} pm. 15 min. 1 ♀ 25 mm, 2 ♂♂ 13—15 mm, 3 spec. 4—8 mm.
35 m. w. 10^{15} pm. 15 min. 1 spec. 6 mm.
100 m. w. 10^{45} pm. 15 min. 1 spec. 3 mm.
St. 176. *40°45′ N, 27°43′ E.* 12-8-1910. 560 m. 4^{00} am. 30 min. 65 m. w. 1 spec. 4 mm.
St. 178. *40°16′ N, 26°32′ E.* 12-8-1910. 68 m.
10 m. w. 0^{40} pm. 15 min. 1 ♀ (without eggs) 20 mm.
65 m. w. 0^{20} pm. 15 min. 1 ♀ (with eggs) 19 mm, 1 spec. 6 mm.
St. 208. *40°18′ N, 3°20′ E.* > 1600 m. 28-8-1910. Surface. 4 ♂♂, 11—16 mm.
St. 340. ("Pangan" 2). *35°50′ N, 21°30′ E.* 26-8-1911. 9^{00} pm 28 m. w. 1 ♂, 19 mm.
St. 341. ("Pangan" 3). *34°00′ N, 26°20′ E.* 27-8-1911. 11^{00} pm 28 m. w. 1 ♀ (with eggs), 14 mm.

The determination of this species proved at first a matter of some difficulty, owing to the fact that all the specimens — with the exception of those from St. 208 and St. 341, which had exactly the same outline as the figure given by Dollfus, l. c. — were far narrower than they should be according to the statements and illustrations published. On closer examination, however, it was found that this character was the only one in which the specimens from the "Thor" deviate from the normal, so there can be no doubt that all of them actually belong to the species in question.

Krøyer l. c. 1846 (1849?) gives some more or less schematic illustrations of a part of the appendages; other writers content themselves with figures of the outline. I have therefore dissected both ♂ and ♀, and now give illustrations of all the appendages.

In contrast to most other Idoteidæ, there is but very little difference in outline between individuals of the one sex and those of the other; the mesosome of ♀ is only very slightly broader than that of ♂. The surface is finely scaled; this character is shown in a detail figure of 2 Ant. The 2. Ant. of ♂ is only very little longer than that of ♀, and has one joint more in the flagellum (7 and 6 respectively). The pereiopoda are somewhat weaker in ♀ than in ♂; the only essential difference, however, is that ♂ has a close covering of thin, but stiff setæ on the inner edge of 2—5 joints of p. 2. For the rest, reference may be made to my illustrations.

Biology. On comparing the yield of the different hauls made at St. 172, it is here especially noticeable that the species keeps near the surface, which, by the way, as far as can be seen from works on the subject, is also evident from all previous investigations. As by far the greater number of specimens were taken in the waters about the Sea of Marmora and adjacent parts of the Black Sea, the following biological results are based exclusively on individuals from this region (St. 171—178). They may be divided into two groups according to size; 3—4 (6—8) mm. and 18—31 mm. All the small specimens appear to be newly born young, those found in the marsupia of ♀♀ being of the same size, as a rule about 3 mm. As, moreover, a large number of ♀♀ have either ova or young in the marsupion (of the large specimens taken at St. 172, 100 and 600 m. w., abt. 10% were ♀♀ with ova) it is evident that the egg-laying period falls at the beginning of August, and the ova appear to develop very rapidly into young. In view of the great difference between the sizes of the two groups, it would seem that the larger ones must be about 1 year old, and thus propagate at this age. ♂♂ appear to attain a somewhat larger size than ♀♀ (18—31 mm. as against 18—24 mm.)

Distribution: The species is apparently cosmopolitan, being found in almost all seas, and even off the W. coast of Greenland. A synopsis of the distribution will be found in my Conspectus Crust. et Pycnog. Groenlandiæ (Meddel. om Grønland vol. 22, 1913) p. 236. The most recent find which I have been able to discover in extant works is from Saldanha Bay, Cape Colony (Tattersall, Transact. R. Soc. Edinburgh, vol. 49, pt. 4 No. 16, 1913, p. 889).

IDOTEA BALTICA Pallas.

Oniscus balticus Pallas, Specilegia Zoologica 1772, p. 67, Pl. 4, fig. 6.
Idothea tricuspidata Desmarest, Dictionaire des Sci. Nat., vol. 28, 1823, p. 373, Pl. 46, fig. 11.
— — Dollfus, Les Idot.; Feuille des jeunes Naturalistes, vol. 24, 1895, p. 39, fig. 19, p. 55.
— *marina* Miers, Revision Idot.; Journ. Linn. Soc. London, Zool., vol. 16, 1893, p. 25 (*ubi lit. et syn.*).
* — *baltica* G. O. Sars, Account vol. 2, 1899, p. 80, Pl. 32.
— — Richardson, Monograph Isop. N.-America 1905, p. 364 (*ubi lit. et syn.*) fig. 394—95.
— — Tattersall, Isop.; Nord. Plankton, vol. 6 (Lief. 14), 1911, p. 219, fig. 83—87.

St. 41. *39°10′ N, 9°35′ E.* On the shore. 2-2-1909. 1 spec.

Also found: Eastern N. America; almost the whole of the European coast from Norway to the Black Sea (G. O. Sars l. c.).

Genus STENOSOMA.

Literature *vide* Tattersall, Isop.; Nord. Plankton, vol. 6 (Lief. 14) 1911, p. 230. — Dolfus, Les Idotheidæ des côtes de France; Feuille des jeunes Naturalistes, ser. 3, vol. 25, No. 289, 1894, p. 5, 54.

Of the 4 species belonging to this genus which Dollfus (l. c.) mentions as French, 3 are represented in the material from the "Thor", the fourth, however, *S. lancifer* Leach, is wanting.

There being 2 specimens of 2 of the species from the "Thor", I have dissected one of each in order to investigate the relation to the genus Idotea. The principal difference, apart from the abdomen, seems to be that the protuberance on the upper side of Md. is much larger than in the *Idotea* (*vide* Sars, Account, vol. 2, 1899, pl. 32). Of the genus *Idotea* I have only had occasion to dissect *I. metallica* (*vide supra*). In this species, Plp. 3 is furnished with natatory setæ, as in the case of Plp. 1—2, whereas in the two species of *Stenosoma* dissected, these setæ are not found on Plp. 3. This has doubtless some connection with the fact that the 3 first pairs of Plp. in the *Idotea* are connected in pairs, by means of crooked spines at the median edge of the 2. stem-joint, whereas in the *Stenosoma*, this only applies to the two first pairs of Plp. By means of these spines, each pair of the appendages in question will be moved together. Furthermore, the articulation of the exopodite in Plp. 3—4 is more distinct in *Idotea* than in *Stenosoma*; in Plp. 5, the articulation of 2 joint is actually complete. The pereiopoda of ♂ lack the abundant setose covering which may be found in *Idotea*.

STENOSOMA CAPITO Rathke. (Fig. 5 *partim*, fig. 6).

Leptosoma capito Rathke, Zur Fauna d. Krym; Mém. Acad. St.-Petersbourg, vol. 3, 1837, p. 384, Pl. 6, fig. 7—9.
Idotea angustata Lucas, Hist. Nat. des Animaux Articulés de l'Algérie; Explorat. Scient. de l'Algérie, Zool., vol. 1, 1849, p. 62; vol. 4, Pl. 6, fig. 3.
— *acuminata* var. *lanciformis* Miers, Idot.; Journ. Linn. Soc., London, Zool., vol. 16, 1883, p. 61.
**Stenosoma capito* Dollfus, Feuille de jeunes Naturalistes, vol. 25, 1894—95, p. 5, fig. 11, p. 54 (*ubi lit. et syn.*).
non — *acuminatum* Leach, *teste* Norman, Brit. Isop.; Ann. Mag. Nat. Hist., ser. 7, vol. 14, 1904, p. 444.

St. 17. *37°49′ N, 23°27′ E.* 55 m. 30-12-1908. 2 ♂♂. 15—17 mm.

The species is easily recognisable from others of the genus by the perpendicular horn between the eyes and the marked sculpture of the back. The two specimens agree on the whole very well with the descrip-

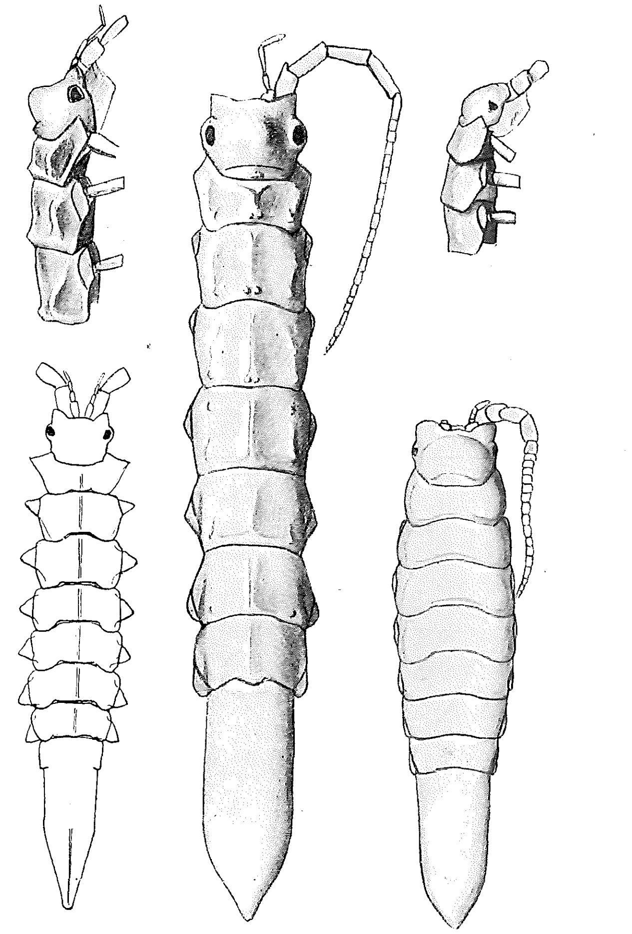

Fig. 5. *Genus* Stenosoma.
S. capito. S. capito. S. acuminatum.
S. appendiculatum. S. acuminatum.

tions given by Rathke and Dollfus; there are, however, certain deviations. Rathke has overlooked the quite short proximal joint in the peduncle of Ant. 2; the flagellum has 19 short joints. The abdomen is, save for the pointed end, almost cylindrical, and is not, as shown in all the figures above quoted, slightly expanded in front of the point.

There being no analytical figures extant, I have dissected one of the specimens, and give drawings of all the appendages.

Also found: Mediterranean, among algæ; Nice, Villefranche, Cannes, Marseille, Banyuls, Porto Vecchio (Dollfus l. c., Adriatic (Norman l. c. 1904) Crimea (Rathke l. c.).

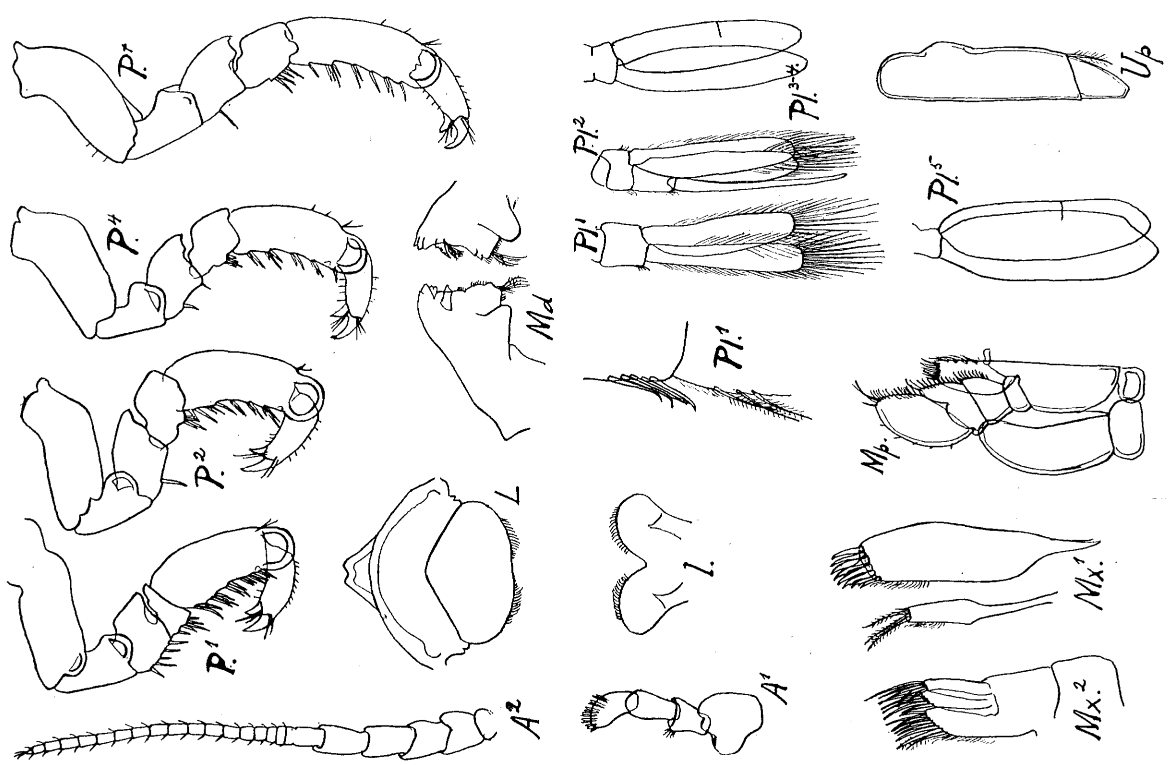

Fig. 7. Stenosoma acuminatum.

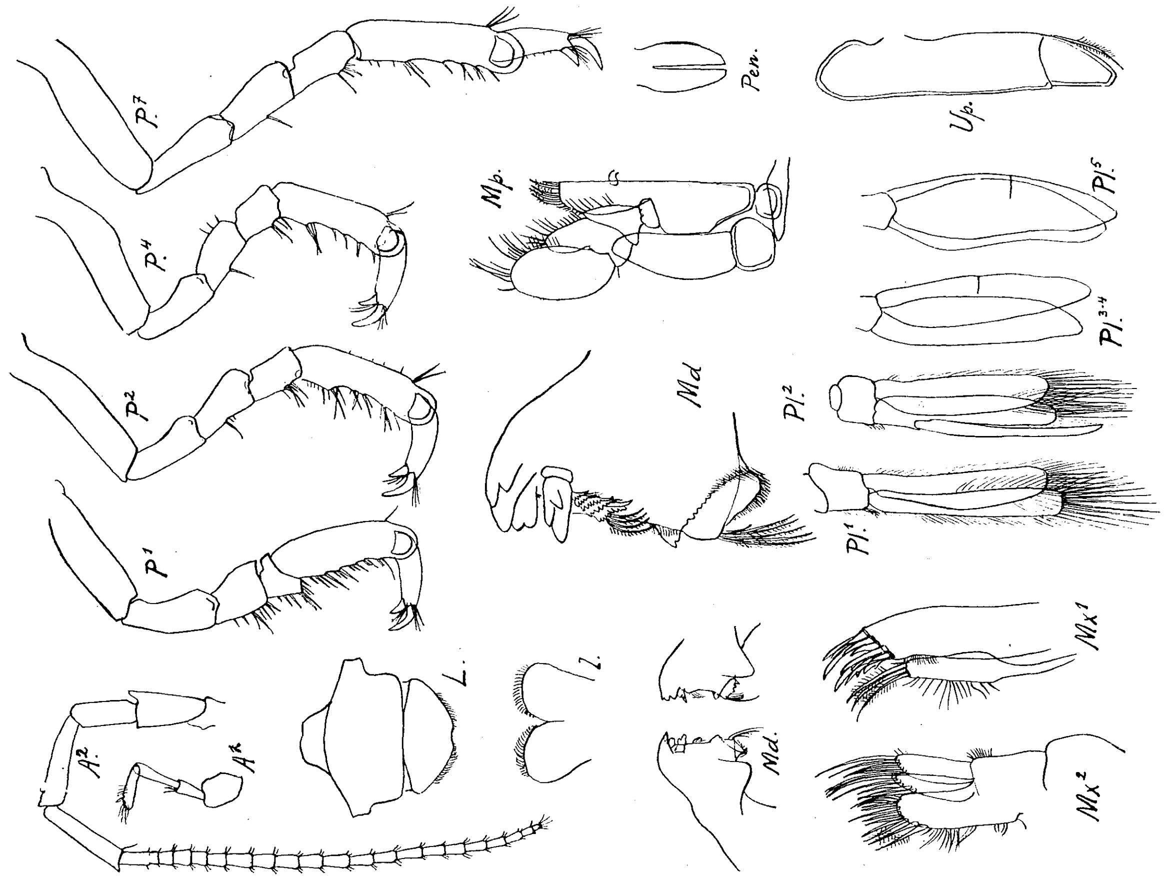

Fig. 6. Stenosoma capito. *Pen.* = penis.

STENOSOMA ACUMINATUM Leach
(Fig. 5 *partim*, fig. 7).

Stenosoma acuminatum Leach, Crustaceology, in Edinburgh Encyclopedia, vol. 7, 1814, 433.

Idotea — Bate & Westwood, British sessile-eyed Crust., vol. 2, 1868, p. 394, with fig.

— — Miers, Idoteidæ; Journ. Linn. Soc., London, Zool., vol. 16, 1883, p. 59.

**Stenosoma* — Dollfus, Idot.; Feuille des jeunes Naturalistes, vol. 25, 1894—95, p. 5, fig. 14, p. 54 (*ubi lit.*).

* — — Tattersall, Isop.; Nord. Plankton, vol. 6 (Lief. 14), 1911, p. 231, fig.

St. 44. Galita's E. side, on the shore. 5-2-1909. 2 ♂♂: 11—12,5 mm.

This species is known by its almost cylindrical body, which is nearly devoid of sculpture. The frontal part is slightly domed, but without a projecting horn. The two specimens from the "Thor" agree well enough with the figures and descriptions given by DOLLFUS and TATTERSALL, being, however, somewhat broader than DOLLFUS' figures; the abdomen again, is by no means so sharply pointed. The flagellum of ant. 2 has, in the specimen drawn, 17 short joints (TATTERSALL gives abt. 10).

Here again, as in the case of the other species, no analytical figures exist; I have therefore dissected and drawn one of the specimens; it will be noticed that there is a considerable similarity to *S. capito*, the appendages being, however, far thicker and heavier.

Also found: St. Aubins (Jersey, Channel Islands) (Koehler: Faune maritime des Îsles Anglo-normandes 1885).

STENOSOMA APPENDICULATUM Risso
(Fig. 5 *partim.*).

Leptosoma appendiculata Risso, Hist. Nat. de l'Europe Mirid., vol. 5, 1826, p. 107, Pl. 4, fig. 23.

**Stenosoma appendiculatum* Dollfus, Idot.; Feuille des jeunes Naturalistes, vol. 25, 1894—95, p. 5, fig. 12, p. 54 (*ubi lit.*).

non Idotea appendiculata Bate & Westwood, British sessile-eyed Crust., vol. 2, 1868, p. 396, fig.

St. 106. *36°53' N, 2°00' W.* 24-6-1910. 1150 m. 0^{20} am. 1200 m. w. 1 spec., 11 mm.

This species, which, in contrast to the two previously described, is hyaline and transparent, is easily recognised by its greatly applanated form, its large triangular coxal plates, and the small incision on either side of the proximal end of the abdomen. The specimen from the "Thor", which is unfortunately somewhat defective, is slightly narrower than shown in DOLLFUS' figure, the abdomen also being less sharply pointed at the hinder end. The specimen here described, despite its having been kept in spirits for 4 years up to time of writing, is still almost as transparent as glass.

There can be no doubt that RISSO's species really is the same as DOLLFUS'. True RISSO's figure (dorsal view) mostly resembles a sort of hybrid form between *S. capito* and *S. appendiculatum* DOLLFUS, while his figure and text make no mention of the incision on either side of the abdomen; he does, however, state that it is hyaline and pellucid, which would not apply to the other species.

The colour when alive is said to be a fine green (RISSO).

Also found: Mediterranean (rare); Marseilles, among algæ (DOLLFUS).

Fam. ARCTURIDÆ = ASTACILLIDÆ.

Literature and key to the species, *vide* Stebbing, South African Crust. pt. 4 (Ann. S. African Museum, vol. 6, pt. 1, 1908, p. 50-52) and R. Koehler, Arcturidés nouveaux (Bull. Inst. Océanogr. Monaco, No. 214, 1911) p. 1 *seq.* Koehler points out (l. c. p. 3 *seq.*) the great systematic importance of the number of marsupial plates (oostégites); *vide infra*.

Genus ASTACILLA.

Of this genus, of which 15 species are hitherto known, 2 (1) will be found represented among the material from the "Thor". Of these, the one, *A.* (?) *Bonnierii* is new to science.

The species hitherto known are:

A. longicornis Sowb., see Sars, Account vol. 2, 1899, p. 88, Pl. 36.

A. arietina G. O. Sars, l. c. 1899, p. 90, Pl. 37, fig. 1.

A. affinis G. O. Sars = *A. intermedia* Goods.; Sars, l. c. 1899, p. 90, Pl. 37, fig. 2.

A. pusilla G. O. Sars, l. c. p. 91, Pl. 37, fig. 3.

A. granulata Harger = *A. americana* Harger; Richardson, Monogr. Isop. N.-America 1905, p. 324.

A. coeca Benedict; Richardson, *ibid.* p. 326.

A. Deshayesii Lucas; see later on; p. 20.

A. amblyura Stebbing, Isop.; Ceylon pearl oyster report, vol. 4, 1905, p. 46, Pl. 11, fig. B.

. *Bocagei* Nobre, Ann. Sci. Nat. Porto, vol. 8, 1903, p. 93, Pl. 1.
. *falclandica** Ohlin, Svenska Magellan-Exp., vol. 2, 1901, p. 266, Pl. 20, fig. 1.
. *magellanica** Ohlin, *ibid.* p. 263, Pl. 20, fig. 2.
. *diomedeæ* Benedict, Proc. Biol. Soc. Washington, vol. 12, 1898, p. 50, fig. 10.
. *marionensis* Beddard, Challenger Isop. 1886, p. 107, Pl. 25, fig. 5.
. *mediterranea* Koehler, Arcturidés nouveaux; Bull. Inst. Océanogr. Monaco, No. 214, 1911, p. 44, fig. 25—29.
. *dilatata* Richardson, Proc. U. S. Nat. Mus., vol. 37, 1909, p. 96, fig. 22.
4. *Giardi* Bonnier (Ann. Univ. Lyon 1896, p. 581, Pl. 32, fig. 3—4, is by Koehler l. c. 1911 referred to a new genus, *Arcturopsis*].

The most important character in the new species aken by the "Thor" is the almost complete fusion of he foremost segment of the body with the head (the pimeral part, however, being entirely free). This haracter, which should perhaps, after all, only be aken as specific, is, — apart from the number of marupial plates, further referred to below — the only ne in which this species differs from the diagnosis iven by Sars in his Account (vol. 2, p. 87) of the genus *Astacilla*.

As will be seen from my figures (fig. 8), this new pecies distinctly exhibits 4 pairs of marsupial lates. Stebbing gives (l. c. 1908, p. 51—52) a classiication list of the species of *Astacillidæ*, based on the umber of marsupial plates; according to this, (as also G. O. Sars, in the Account) the *Astacilla* should have nly a single pair (on 2. pair of pereiopoda); Koehler, owever (l. c. 1911, p. 3) gives 3 pairs (on 2—4 pairs of pereiopoda). In order to ascertain which statement s correct, I have gone through the whole material of *Astacilla* species contained in the Zoological Museum at Copenhagen. We have ♀♀ of the species *A. affinis* G. O. Sars, *A. granulata* Harger, and *A. longicornis* Sowb. I have unfortunately only been able to dissect ♀♀ of the last-named species; this exhibits distinctly 3 pairs of plates. The whole of the material in the museum of the other two species is being dealt with by Dr. H. J. Hansen for the Ingolf Expedition, and I did not therefore feel justified in dissecting. On superficial investigation of ♀ of these two species, I have only been able to discover the 2 pairs of plates (on p. 3—4) this, however, I can only consider as of slight importance, as the plate on p. 2 would certainly be small, and partly concealed beneath the next pair (this is, at any rate, the case with *A. longicornis*).

With its partial fusion of the head with the first segment of the body, as well as the four pairs of marsupial plates, the present species from the "Thor" resembles *Astacilla* (*Arcturopsis*) *Giardi*, Bonnier (Edriophthalmes du "Caudan"; Ann.Univ.Lyon, vol.16, 1896, p. 581, Pl. 32, fig. 3—4). True, Koehler says, in Arcturidés nouveaux (l. c. 1911) p. 6—7, that *A. Giardi* has in reality only 3 pairs of plates; this statement, however, I must pass over, having no material of the species in question.

Koehler (l. c. 1911, p. 8) takes *Astacilla Giardi* as belonging to a new genus, *Arcturopsis*, together with I new species distinguished by himself. For generic diagnosis see Koehler, p. 8.

Of the species from the "Thor" we have only 2 ♀, no ♂; it is thus impossible to determine whether the remarkable copulatory organ referred to by Bonnier (l. c. 1896) and Koehler is also found in the present species. ♂ can thus not be used for purposes of generic determination. ♀ does not agree with Koehlers diagnosis of the genus *Arcturopsis*, the fourth segment of the body not being much broader at the fore end than at the hinder do., but on the contrary, almost cylindrical in form.

Despite the uncertainty of the generic classification, I suggest that the new species should for the present be taken as belonging to the genus *Astacilla*; elucidation of the actual facts of the case must unfortunately be left to the future.

ASTACILLA (?) BONNIERII n. sp. (Fig. 8).

St. 66. *36°16' N, 6°52' W.* 735 m. 25-2-1909. 8^{00} am. 2 spec. (♀).

Of all the species of *Astacilla* described (the descriptions of Ohlin's 2 species however, I have, as already mentioned, been unable to consult) the present species resembles in externals mostly *A. longicornis* Sowb. (Sars, Account, vol. 2, 1899 p. 88, Pl. 36) but is altogether somewhat stronger, as will readily be seen on comparing Sars' and my figures together. The species is almost entirely smooth; the quite small protuberance in the centre of the hinder edge of the three posterior segments of the body is distinctly shown in my figures, which, by the way, exhibit all such features as I have been able to observe.

Both the specimens in question are ♀, abt. 9,5 mm. long. They are fairly soft. I have named the species after the French zoologist, the late J. Bonnier.

See also the remarks above as to genus *Astacilla*.

* I have been unable to obtain the description of these two species. Both the University Library and the Royal Library at Copenhagen lack that part of the 2nd Volume of the Magellan Expedition containing Ohlin's work. On inquiring of the publishers (Norstedt och Söner, Stockholm) I received the astonishing reply that the part in question could not be procured!

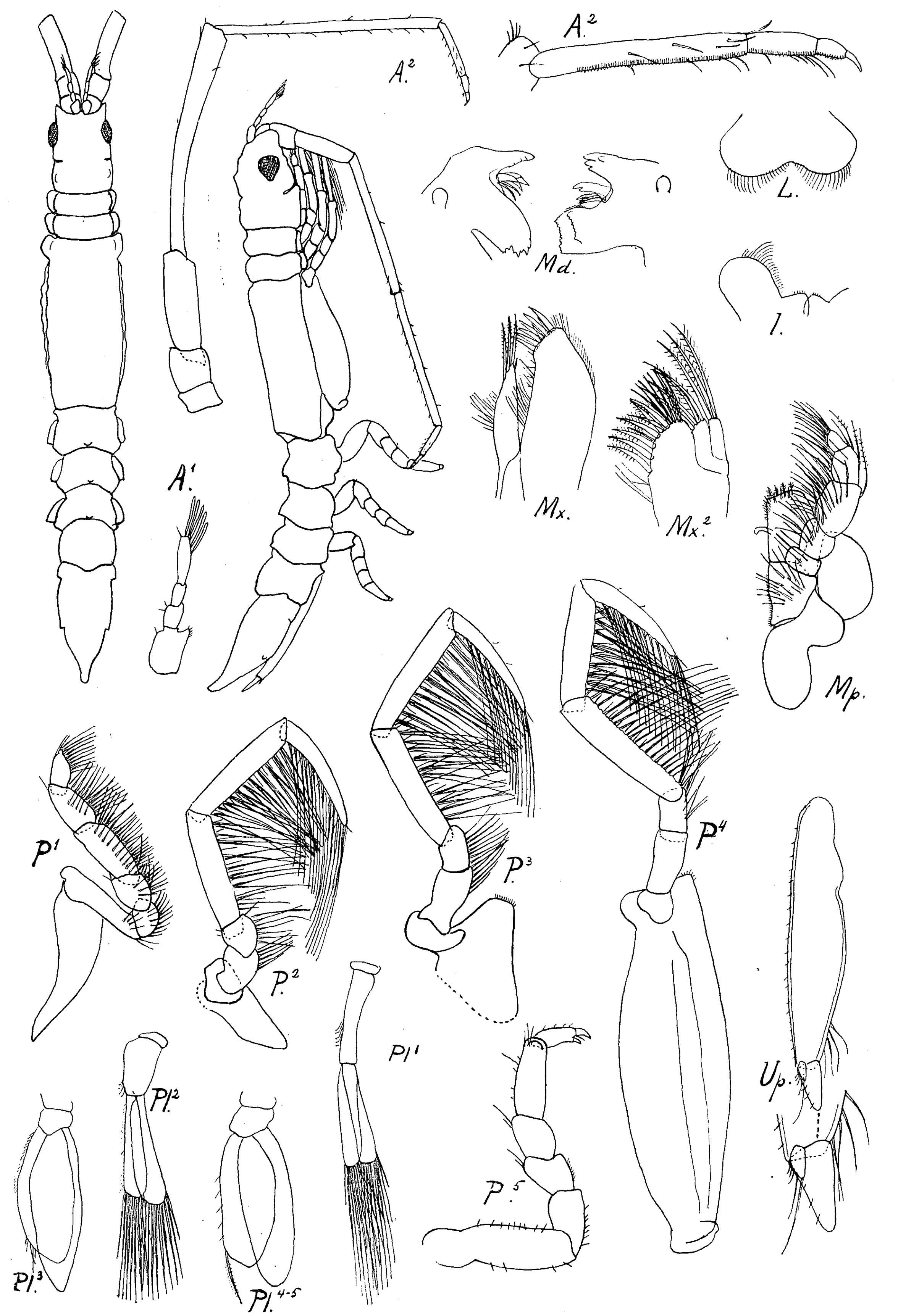

Fig. 8. Astacilla (?) Bonnierii ♀. *Mx* = 1. Mx.

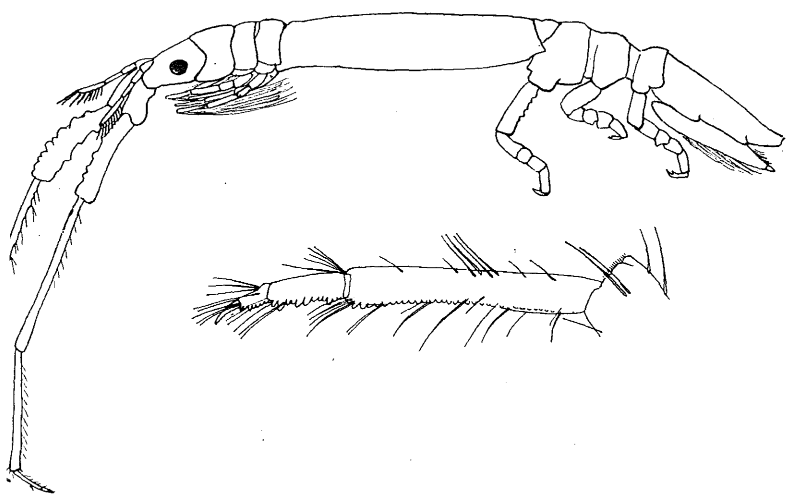

Fig. 9. Astacilla Deshayesii and the apex of Ant. 2.

ASTACILLA DESHAYESII Lucas. (Fig. 9).

rcturus Deshayesii Lucas, Animaux Articulés de l'Algérie, 1849, vol. 1, p. 59, vol. 4, Pl. 5, fig. 7.

— *gracilis* Stebbing (*non* Goodsir), Sessile-eyed Crust. of Devon; Transact. Devon Assoc. Advanc. Science, 1874, p. 8, fig. 2—4.

— *linearis* Stebbing, Notes on Sessile-eyed Crust.; Ann. Mag. Nat. Hist., ser. 5, vol. 1, 1878, p. 36.

stacilla Deshayesii Stebbing, Hist. of Crust. 1893, p. 371.

— — Norman & Scott, Crust. of Devon and Cornwall 1906, p. 47, Pl. 5, fig. 6—10.

— — Koehler, Arcturidés nouveaux; Bull. Inst. Océanogr. Monaco, No. 214, 1911, p. 3, 4, 5, fig. 1b.

107. *36°13' N, 1°28' W.* 25-6-1910. 2250 m. 300 m. w. 9[05] am. 1 ♂, 11,5 mm.

As will be seen on comparing the figures, there is slight difference in the arrangement of the proturances on the antennæ between Lucas' specimens .d that from the "Thor". I am nevertheless of ›inion that there can be no doubt as to the correctness my classification. I have further considered it most lvisable to give a figure showing the point of 2 pair antennæ, this portion being entirely different from .e same as shown by Norman and Scott.

The animal was, strangely enough, taken pelagically f. relation between depth and length of wire).

Also found: S. England (Norman, Brit. Isop. 1904). . of Gibraltar (Lucas). Adriatic (Claus).

3. Asellota.

Fam. IANIRIDÆ.

Genus IANIRELLA.

IANIRELLA BONNIERII n. sp. (Fig. 10).

St. 132. *38°57' N, 9°47' E.* 1227 m. Clay. 14-7-1910. Sifted bottom material. 5 ♀♀, 4 ♂♂, 2 sex undeterminable.

At the station above mentioned, the hauls made on board the "Thor" yielded parts of in all 11 individuals (of some of the specimens only portions are preserved) of a species closely related to *Ianirella Nanseni* Bonnier; Campagne du "Caudan" dans le Golfe de Gascogne, Edriophthalmes; Ann. de l'Univ. de Lyon, 1896, p. 537, Pl. 33, fig. 1).

The accompanying figures show all that I have been able to observe; I may therefore restrict myself to emphasising certain points, especially those features in which the species differs from *I. Nanseni*. Bonnier's description is also very complete, and his statements regarding the oral parts, etc. may on the whole also apply to the present species.

We have, in works extant up to time of writing, descriptions of 4 species belonging to this genus, *viz*, besides *I. Nanseni* Bonnier, the following 3 (a freshwater species, *vide infra*): *I. lobata* H. Richardson (Proc. U. S. Nat. Mus. vol. 35, 1909, p. 78—79, fig. 8—11), *I. glabra*, H. Richardson (Isop. "Travailleur" et "Talisman"; Bull. Mus. d'Hist. Nat. Paris 1911, No. 7, special ed. p. 10, no fig.) and *I. abyssicola* H. Richardson (*ibid.* 1911, p. 11, no fig.).

The outline is exactly the same as that of *I. Nanseni*: the new species differs, however, in having no dorsal spines, the back being almost perfectly smooth, save for a very fine, faintly raised reticulation, and occasional setæ. The frontal spine and all the lateral processes, on head, segments of body, and pleon, terminate in a thick, apparently soft, injointed spine; those situate on the edge of the lateral processes however, are not thick and heavy as in *I. Nanseni*, but quite thin.

No trace whatever of eyes is be found.

Ant. 1 has in the largest individuals 8 joints in the flagellum, otherwise 7. Of ant. 2, only the proximal segments of the stem are preserved; 3. segment has a small antennal scale, (found neither in the description nor in the drawing of *I. Nanseni.*)

With regard to the oral parts, there is nothing particular to note beyond the remarkable spiny armour on the molar process of the mandibles. Only the left mandible is drawn, the right being of exactly

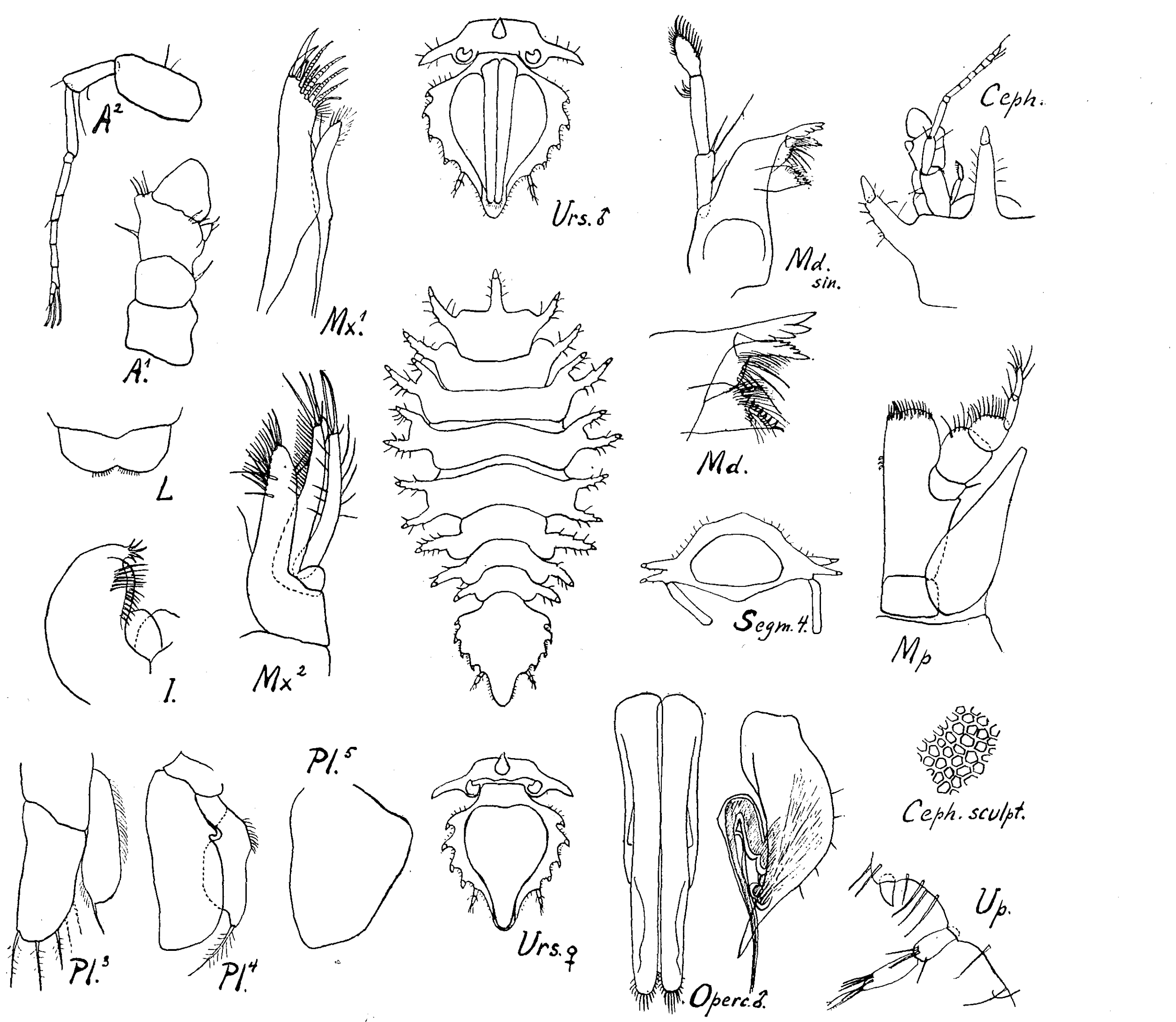

Fig. 10. Ianirella Bonnierii. *Ceph. sculpt.* = the sculpture of the cephalon. *Ant. 1* is by a misprint called *Ant. 2*, and vice versa.

the same form, save that the lacinia mobilis is naturally lacking in this. The pereiopoda are wanting entirely, with the exception of 1. segment. The operculum is, both in ♂ and ♀, somewhat longer than that of *I. Nanseni*, reaching in both sexes almost out to the point of the pleon. With regard to the uropoda, there is nothing particular to remark. The length is 4—5 mm., colour (in alcohol) white.

This new species I have named after the French zoologist the late Jules Bonnier, who has given an excellent description of the type species of the genus.

One of the specimens had, attached to the under side of the head or one of the foremost rings, an almost spherical *Rhizocephalid*; unfortunately, it fell off at the moment of commencing investigation.

Remarks. Of the two species last described by Miss Richardson, there are, unfortunately, no illustrations available, there being, moreover, only a single specimen of each species, both of these defective.

In the following table, I have attempted to give a brief survey of the species belonging to this genus:

1. Lateral processes rounded .... *I. lobata.*
1. — — pointed 2
2. With dorsal spines.............. *I. Nanseni.*
2. Smooth backed.................. 3
3. Besides the small process at the basis of the uropoda, the pleon has on either side:
   - 3 lateral processes .... *I. glabra.*
   - 4 — — .... *I. Bonnierii.*
   - 5 — — .... *I. abyssicola.*

Dr. H. J. Hansen will, in the Isopoda from the Danish Ingolf-Expedition, describe a new, smooth backed species.

Genus Ianirella. Sayce has, in Proc. Soc. Victoria, vol. 13, 1900, evidently in ignorance of Bonnier's work quoted above, formed a new genus with the same name as Bonnier's, in order to include a new

pecies, *I. pusilla*, from fresh water in Victoria. (Un-
ortunately, I have been unable to obtain access to
ayce's work, and an application to the author proved
ruitless). In view of this common denomination of
wo genera, Miss Richardson suggests, in Proc. U. S.
Nat. Mus., vol. 27, 1904, p. 6, that the name *Heterias*
e adopted for the marine species (only *I. Nanseni*
eing then known); evidently, however, Miss Richardson
as relinquished this idea, having subsequently, as
bove mentioned, designated 3 marine species as
anirella.

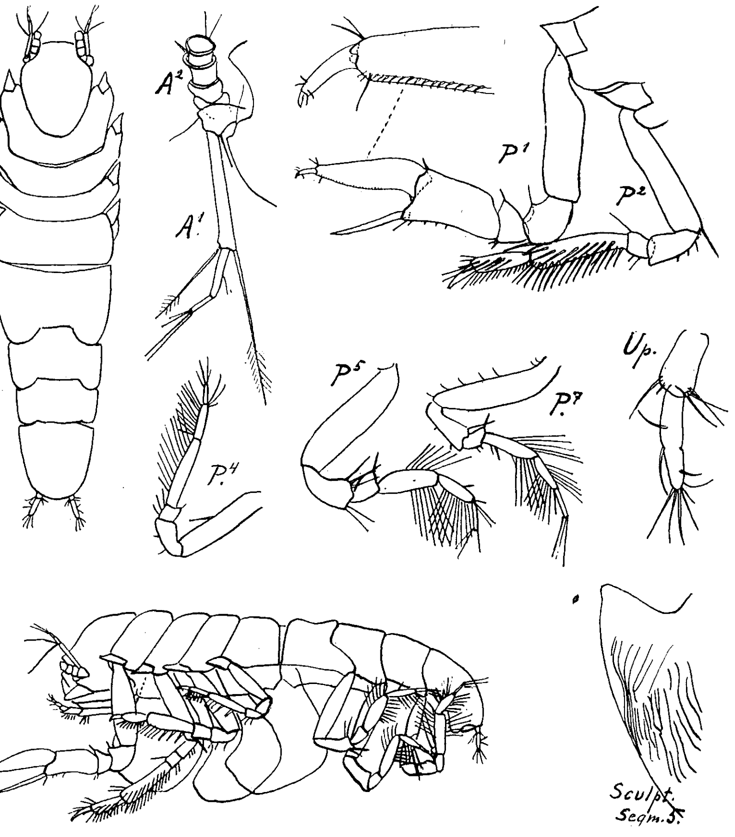

Fig. 11. Desmosoma chelatum.
Sculpt. Segm, 5 = the sculpture of the 5. segment.

Fam. DESMOSOMIDÆ.

Genus DESMOSOMA.

DESMOSOMA CHELATUM n. sp. (Fig. 11).

St. 126. *42°43' N, 9°50' E.* 600—620 m. 10-7-1910. 10^{10}pm. 25 m. w. 1 spec. (♀, 4,5 mm).

The *Desmosoma* species hitherto described in extant works are as follows:

D. lineare G. O. Sars, described in Account vol. 2, 1899, p. 125, Pl. 53, Pl. 54, fig. 1.

D. armatum G. O. Sars, *ibid.* p. 127, Pl. 54, fig. 2.

D. angustum H. J. H., *ibid.*, p. 250, Suppl.-Pl. 2, fig. 2, Suppl.-Pl. 4, fig. 2.

D. elongatum Bonnier, Edriophthalmes du »Caudan«; Ann. Univ. Lyon, 1896, p. 605, Pl. 34, fig. 3.

Among the Isop. from the Danish Ingolf-Expedition, which Dr. H. J. Hansen is at present working up, will be found about ten new species.

The specimen from the "Thor" is at the very first glance distinguishable from the species described, by the remarkable shape of p. 1; in other respects, however, it agrees well with the characterization given by Sars (Account, vol. 2, p. 124) of the genus *Desmosoma*. Having had but a single specimen at my disposal, I have not subjected this to dissection, and can therefore furnish no description or illustrations of the oral parts, or of the pleopoda.

The body is somewhat broader in proportion than in the other species, the length being 3 or 4 times the breadth. The cephalon is comparatively narrow; the neck in particular is unusually long. (It should be noted that in drawing habitus figure, dorsal view, the animal has n o t been subjected to pressure from the cover glass). The 3 first segments in the mesosome are of equal length, the fourth half as long again; these four segments extend laterally in a pointed process: 1. segment of the respective legs. The three posterior segments are longer than the anterior; all 7 are sharp-edged, the lateral edges of the cephalon and urosome however, being evenly rounded. 1. ant. has only four joints; of these, the second is as long as the three others together. Of 2. ant., only the 4 short proximal segments are preserved. 1. pair of pereiopoda are very strong, almost forming a chela, the 5th joint bearing a strong spine equal in length to 6. joint. At a casual glance, when the articulation of this spine is not noticed, the whole presents almost the appearance of a decapod claw. P. 2—7 are of the usual shape, size decreasing from p. 2 to p. 4; p. 5 — p. 7 are of approximately the same length as p. 4. The uropoda have two joints, the second being almost half as long again as the first, and somewhat thinner. In a figure showing the anterior lateral process on the 5. segment of the body, I have indicated the slight folds in the sculpture of the body.

Length, 4—5 mm. Colour, (in Alcohol) whitish, semitransparent; very soft.

The specimen was found east of the northernmost point of Corsica. This is, as far as I have been able to see from extant works, the first find of a *Desmosoma* made in the Mediterranean. It would moreover appear to be the first time any species of this genus has been taken pelagically, the others having, it seems, been taken on the bottom.

Fam. MUNNOPSIDÆ.

Genus MUNNEURYCOPE.

MUNNEURYCOPE TJALFIENSIS K. St. (Fig. 12, 13).

Munneurycope Tjalfiensis K. Stephensen, Report on the Malac. collected by the Tjalfe-Exped. .... especially at W.-Greenland; Vid. Meddel. Naturh. Foren. Kbhv., vol. 64, 1913, p. 99, fig. 6—8.

St. 62. *50°25' N, 12°44' W.* 2480—2775 m. 5-6-1906. 1500 m. w. 1 ♂, 2 ♀♀.
St. 65. *35°53' N, 7°26' W.* 1300 m. 24-8-1909. 1600 m. w. 0^{30} pm. 3 ♂, 2 ♀.
St. 74. *49°23' N, 12°13' W.* 1245—1298 m. 10-6-1906. 2000 m. w. 4 ♂, 9 ♀.
St. 76. *49°27' N, 13°33' W.* >2800 m. 11-6-1906. 2800 m. w. 6 ♂, 3 ♀, 3 of undeterm. sex.
St. 180. *48°19' N, 13°53' W.* 4000 m. 3-9-1906. 1800 m. w. 3 ♀, 1 of underterm. sex.
St. 181. *49°22' N, 12°52' W.* 1350 m. 4-9-1906. 1800 m. w. 5 ♂, 4 ♀.
St. 190. *46°30' N, 7°00' W.* 4000 m. 11-9-1906. 2700 m. w. 6 ♂, 3 ♀, 5 of undeterm. sex.

In the Report of the "Tjalfe"-Expedition (l. c.) where I have described this species on the basis of a single specimen (♂) very ill preserved, I have also included some illustrations; the figure and description there, however, are, owing to paucity and badness of material, far from satisfactory. I therefore propose to give a supplementary description here, with new drawings.

Eyes are wanting. Ant. 1 is about half the length of the whole body. In a ♂ having these antennæ in complete preservation, they appear to contain 55 joints. The first segment of the stem is large and thick, far heavier than the second; no. 3 is quite small. Then follows the flagellum with two long joints with a single, quite short one between them (this is not distinctly visible in all specimens) and thereafter, the small, short joints. It should be noted however, that it is not always possible, in the proximal portion of the antennæ, to distinguish with certainty between accidental breaks and true articulation; it is therefore not certain that all the markings shown in the figure as articulate divisions really are such, or that the two long joints not are combined by many small joints. In all the specimens, the flagellum of ant. 2 has been lost; the four joints which have been preserved are very thick, the third having a small antennal scale on the distal end of its lateral side. This last feature has not, as far as I am aware, hitherto been found in any *Munnopsid*.

The mandibles resemble very closely those of *Munnopsis Murrayi* Walker (Tattersall, Isop. Fisheries,

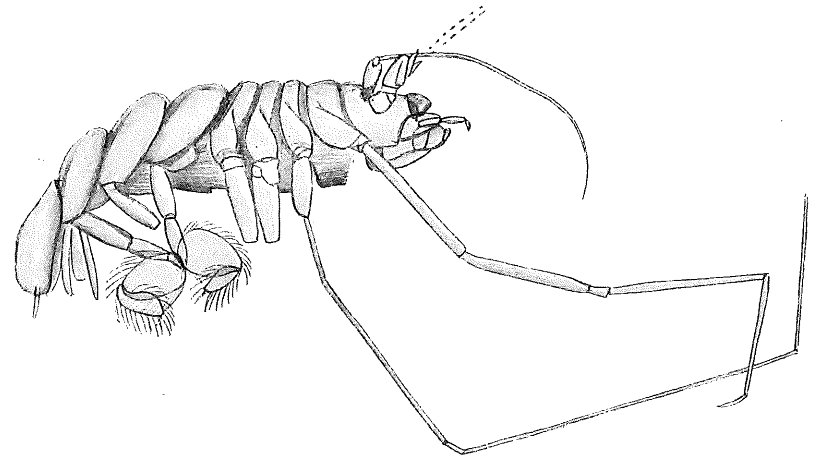

Fig. 12. Munneurycope Tjalfiensis, ♂.

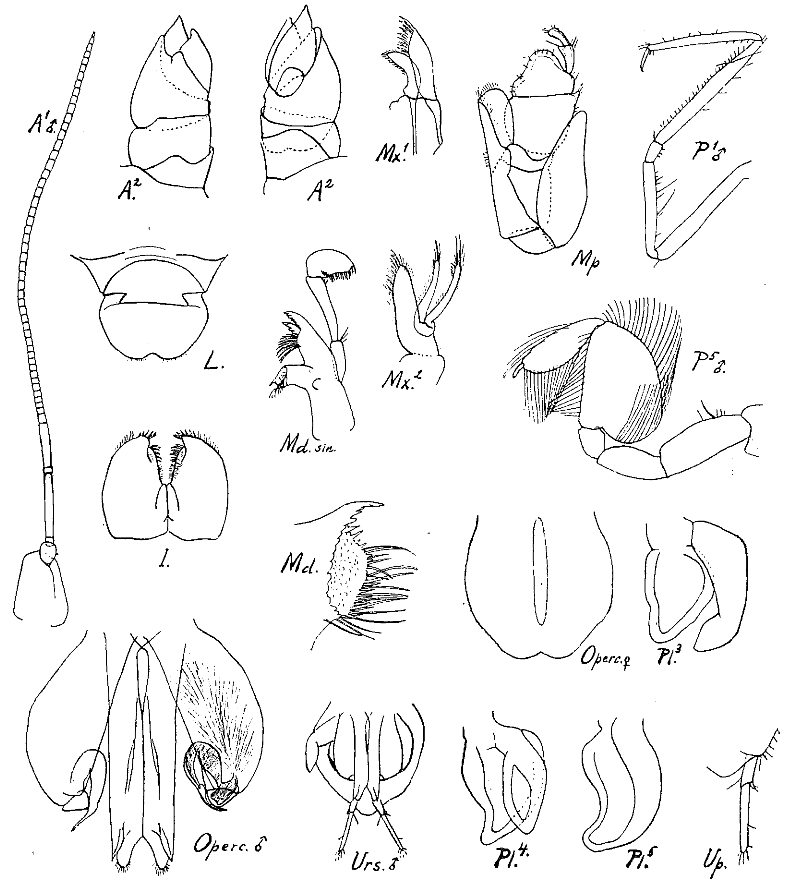

Fig. 13. Munneurycope Tjalfiensis.

Ireland, Scienst. Invest. 1904, pt. 2, 1905, p. 25, Pl. 5, fig. 8) and exhibit a great molar expansion, with indentations on the one side, the other having an array of stiff setæ. The part between the two edges is entirely covered with small warty protuberances. The two mandibles are entirely alike save for the lacinia mobilis, which is naturally only found on the left.

The maxillæ and maxillipeds are of the form typical for *Munnopsis*, as also p. 1, this last, however, being slightly longer than the whole of the body. Of p. 2 only a fragment is preserved, and this only in a single specimen (♂); the piece in question is almost twice the length of the entire animal. Of p. 3 and p. 4, we have only the first joints, which are much longer than in the case of *Munnopsis typica*. P. 3—p. 7 are almost exactly identical in shape with those of *M. Murrayi*, and have a distinct dactylus.

The operculum of ♀ is oval, with a small incision in the posterior edge, and a faint longitudinal carina. The shape of the operculum in ♂, and also the pleopoda, are distinctly shown in Fig. 13.

The distal segment of the uropoda is slightly more than twice the length of the proximal; there is a very small exopodite, which is easily overlooked, but has been found on closer examination to be similarly present in the specimen from the "Tjalfe".

The length varies from abt. 7 mm. to a little over 8 mm. (♂).

Remarks. I have myself, in the Report of the "Tjalfe"-Expedition, where a catalogue of references will also be found, endeavoured to make clear the systematic position of this species with regard to the genus *Munnopsis* and related species. A better survey is given by Tattersall, (to whom, however, this species was unknown) in Isop. Fisheries, Ireland, Scient. Invest. 1904, pl. 2 (1905) p. 24—25, and in Isop. Nordisches Plankton (vol. 6, Lief. 14, 1911) p. 186—87. The species is extremely closely related to *M. Murrayi* Walker (for references, see "Tjalfe" Exp., p. 99—102), differing however, in the palp of the maxillipeds, the median edge of 4. joint being somewhat concave, and the distal segment broadest towards its termination, not pointed. The exopodite is evenly rounded, not indented. In addition, the blackish brown or dark brown colour is doubtless also a specific character. True, neither Walker nor Tattersall make any statement regarding the colour of their specimens; they would, however, doubtless have done so had this been so unusual as in the present instance. Furthermore, the metasome of *M. Murrayi* is stated as having a blunt carina; no trace of any such is visible in the specimens here concerned.

Genus Munneurycope. This genus should probably only comprise *Munnopsis Murrayi* Walker and the present species; not, as suggested in the "Tjalfe" Expedition, also *M. oceanica* Tattersall and *M. longicornis* H. J. Hansen. It is closely related to *Munnopsis*, differing, however, in the following characters:

1. The outline of the body is oblong, without that sudden narrowing of the posterior segments of the body which is characteristic of most of the other species. 2. There is a small antennal scale (not known in the case of *M. Murrayi*). 3. Mandibles with cutting edge strongly dentate; setose lobe, and broad molar expansion present (Tattersall). 4. Second joint of p. 2 — p. 4 long, as in *Eurycope*, not short as in *Munnopsis typica*. 5. Natatory legs with a distinct dactylus (Tattersall). 6. Uropoda have a small exopodite (not described however in *M. Murrayi*).

Distribution. The specimen from the "Tjalfe" was taken near S. Greenland, *60°07′ N, 48°26′ W*, 2000 m. w. The species thus belongs to the deep Atlantic.

4. Epicarida.

Fam. DAJIDÆ.

Synopsis of genera and species: K. Stephensen, »Tjalfe«-Exped. Malacostraca; Vid. Meddel. Naturhist. Foren. Kbhv. vol. 64, 1912 (1913), p. 104—07.

Genus HOLOPHRYXUS.

HOLOPHRYXUS RICHARDI Koehler.

**Holophryxus Richardi* Koehler, Isop. nouveaux de la fam. des Dajides; Bull. Inst. Océanogr. Monaco, No. 196, 1911, p. 23—26, fig. 15—17.

— — K. Stephensen, »Tjalfe«-Exped. Malacostraca; Vid. Meddel. Naturh. Foren. Kbhvn. vol. 64, 1912, p. 108, fig. 9—10.

— sp. (*H. Richardi* Koehler?) K. Stephensen, *ibid.* p. 109, fig. 11—14.

St. 88. *48°09′ N, 8°30′ W.* 600—995 m. 300 m. w. 20-6-1905. 1 spec. (♀) without host.

The specimen, which is 8 mm. long, agrees well with my Fig. 9—10 in "Tjalfe" Expedition. The animal was found loose in a glass, not attached to any host, and is considerably shrunken.

After renewed examination of the specimens from the "Tjalfe" I have no longer any doubt that of the fact that *H. sp.* ("Tjalfe", p. 159) is really the adult *H. Richardi*.

Distribution. *64°22′ N, 56°00′ W.* 400—800 m. w.; *66°21′ N, 57°04′ W.* 680 m., 800 m. w. (K. Stephensen, "Tjalfe") — *33°41′ N, 36°55′ W.*, 0—2500 m. (Koehler l. c.). The species thus belongs to the plankton of the Atlantic (lives on *Sergestes arcticus* Kr.).

Genus HETEROPHRYXUS.

HETEROPHRYXUS APPENDICULATUS G. O. Sars. (Fig. 14).

Heterophryxus appendiculatus G. O. Sars, Challenger Report, Zool. vol. 13, Schizop., 1885, p. 220, Pl. 38 fig. 8.

— — Giard & Bonnier, Sur les Epicarides de la fam. des Dajides; Bull. Sci. France et Belgique vol. 20, 1889, p. 284—85, textfig. 9 (copy of Sars' fig.).

* — — Tattersall, Isop.; Fisheries Ireland, Sci. Invest., 1904, pt. 2 (1905), p. 77, Pl. 11 fig. 1—4.

* — — Tattersall, Nord. Plankton, Lief. 14, vol. 6, 1911 p. 247, fig. 146—49.

— — Tattersall, Schizop., Stomatop. and non-antarctic Isop. Scottish Nat.-Antarct. Exp.; Transact. Royal Soc. Edinburgh, vol. 49, pt. 4, No. 16, 1913, p. 891, fig. 14—15.

St. 66. *36°16′ N, 6°52′ W.* 25-2-1909. 735 m. 5^{15} am. 600 m. w. 1 ♀ with ♂.

The only good illustrated description of this species is that given by Tattersall l. c. 1904 (1905); a copy, translated, is found in Tattersall l. c. 1911. Sars' original figure, which is copied by Giard and Bonnier, is not particularly good, and his original description extremely brief.

The ♀ here in question, which is 5 mm. long, (excl. p. 5) was, with its attached ♂, found loose in a glass, not fixed to any host. The highly emarginated lateral parts beyond the epimeral plates indicate the animal as being of an age between those of the specimens drawn by Tattersall and Sars; unfortunately, however, neither of these writers makes any record as to the size of the specimens shown. My specimen differs from Tattersall's figure in having the cephalon drawn somewhat back from the anterior edge of the body, which appears to be formed by the pronounced projection of 1. pair of epimeral plates; the cephalon does not, however, contribute to the formation of this. A dark stripe runs down the centre of the back along the four anterior segments.

As no figure exists showing this species as seen from the ventral side, I have made a drawing, but have unfortunately not been able to give all details of oral parts and antennæ. Strange to say, the marsupial plates number not 5 but 6, there being one pair situate in front of those belonging to p. 1; this anterior pair, which thus belongs to the gnathopoda, (which I have not been able to find) are of approximately the same shape and size as those belonging to p. 1, but project only by a narrow edge. The marsupial plates, by the way, overlap but very little, and as they are pressed in to the body, the specimen must be comparatively young, and cannot yet have had ova. P. 5 is long and thin as in Tattersall's fig. (l. c. 1904) differing, however, somewhat from extant figures in the shape of the branches.

Distribution. This species, which lives on the back of the carapace of various *Euphausia*-species (see in particular Tattersall, l. c. 1913) is known from *0°22′ N, 18°43′ W; 6°43′ N, 25°48′ W.* (Tattersall 1913) Cape Verde Islands (Sars l. c.) Mediterranean (Lo Bianco 1903) Bay of Biscay, (Fowler) and W. Ireland (Tattersall 1904).

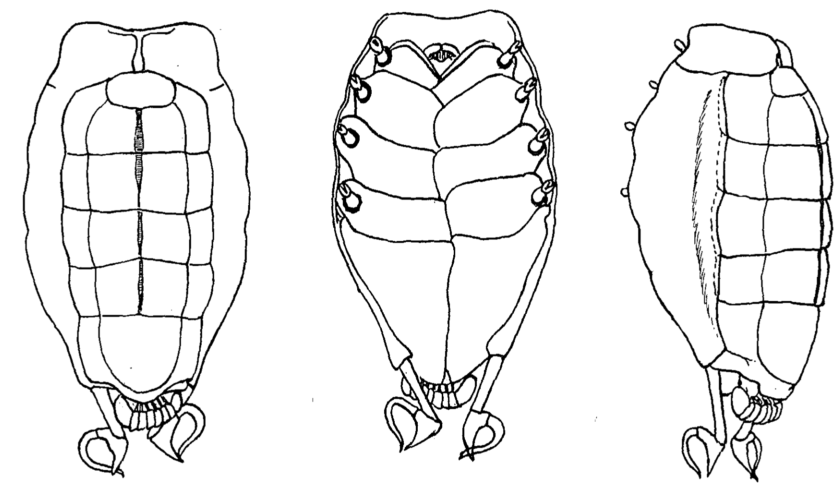

Fig. 14. Heterophryxus appendiculatus. Dorsal, ventral and lateral view.

TANAIDACEA.

As the "Thor" was chiefly occupied with the collecting of plankton, and only occasionally using the dredge, it is not to be expected that the yield of Tanaidacea should be very great, and as a matter of fact there are but 5 species represented in the material, including 1 n. sp.

Though insignificant in point of quantity, however, the material is all the more important in biological respects, a number of specimens having been taken pelagically. A feature of supreme interest is the fact that the pelagic occurrence has been verified as a certainty, the question being not merely one of biological but also of zoogeographical importance. H. J. Hansen mentions, among the Tanaidacea of the Ingolf Expedition (The Danish Ingolf Exped., vol. 3, pt. 3, 1913, p. 4—5) certain species, the occurrence of which is contrary to zoogeographical laws, inasmuch as they appear to belong both to the boreal southern and northern arctic ocean deeps off the coast of Greenland. I have myself, in a zoogeographical survey of the Malacostraca and Pycnogonida of Greenland (Meddel. om Grønland, vol. 45, 1912, p. 615) mentioned some Crustaceans, the distribution of which I was then unable to explain. The question has also been subsequently treated in my Conspectus Crust. et Pycnog. Groenlandiæ (Medd. om Grønland, vol. 22, 1913) p. 257—60, from the point of view that the geographically doubtful species were taken as plankton; I have also (l. c. 1913, p. 259) mentioned 5 Tanaidacea as to which I have succeeded in finding reliable records of pelagic occurrence in extant works. (I need hardly say that it is not my intention to assert that such species always are planktonic, but merely that they may occur as plankton). Dr. H. J. Hansen however, maintains that all Tanaidacea belong to the bottom fauna, despite the fact that the occurrence of the "doubtful" species is very easily explained if they are taken pelagically*. We are not justified in supposing that an animal must necessarily have been taken on the bottom because it happens to be found in a dredge; it might very well have been caught while the implement was being hauled in. I have myself, in Greenland, frequently found both medusæ and Sagitta in the dredge.

* It should be noted that the specimens taken pelagically by the "Thor" were caught at night (10^{10} p.m.) It is moreover a phenomenon of by no means infrequent occurrence, that deep sea creatures rise higher in the water during this part of the 24 hours.

As already mentioned, I have, in Meddel. om Grønland, vol. 22, 1913, p. 259, made reference to 5 Tanaidacea which had, according to published statements, been taken pelagically: I have since succeeded in finding the following three instances recorded, besides those from the "Thor".

Apseudes latreillei Southern part of North Sea, exact locality not stated (Bull. Rés. courses periodiques, Année 1904—05, No. 2, Novbr. 1904, p. 87, [cover dated erroneously 1905]; Conseil permanent internat. pour l'exploration de la mer). Also referred to in the Public. de Circonstance of the same institution, (No. 33, 1906, p. 103).

Apseudes spinosus 51°48' N, 2°09' E, 47, 32 m, horizontal net 44 mm (l. c. 1904, p. 87; l. c. 1906, p. 103).

Heterotanais crassicornis Siboga Exp. St. 43, Pulu-Sarassa, Postillon Island, vertical net 36—0 m, 2 spec. (Nierstrasz; Siboga-Isop. pt. 1, 1913, p. 40).

In addition, the following two species at least are passively pelagic (living on turtles).

Tanais robustus Moore, (taken by the "Thor" *vide infra*).

Tanais Dulongi Savigny (Audouin). Van Beneden, Notice sur la tortue franche (Chelonia midas) dans la mer du Nord, ses commensaux et ses parasites; Bull. Acad. Royale de Belgique, ser. 2, vol. 6, No. 1, p. 6, Pl. 1, fig. 1—8. (This important work appears to have been overlooked by all subsequent writers; I find no mention of it in any of the later works on Tanaidacea) Nierstrasz, Siboga-Isop. pt. 1, 1913, p. 24, 25 (*ubi lit.*).

I may here point out that Nierstrasz, in his work above quoted on the Isopoda of the Siboga-Expedition (pl. 1, Isopoda chelifera) gives a complete list of all the Tanaidacea hitherto known, with full bibliographical references. Stebbing has since described a species (*Tanais Ohlini*) in Proc. Zool. Soc. London, 1914, p. 349, Pl. 1.

Fam. APSEUDIDÆ.

Genus APSEUDES.

APSEUDES GRACILOIDES n. sp. (Fig. 15).

St. 126. *42°43' N, 9°50' E*, 10-7-1910, 600—620 m. 10^{10}pm. 25 m. w. 3 spec.

St. 132. *38°57' N, 9°47' E*, 10-7-1910, 1227 m. Sifted bottom material, parts of 2 spec.

St. 140. *37°29' N, 12°34' E*, 20-7-1910, 112 m. Dredge. 1½ spec.

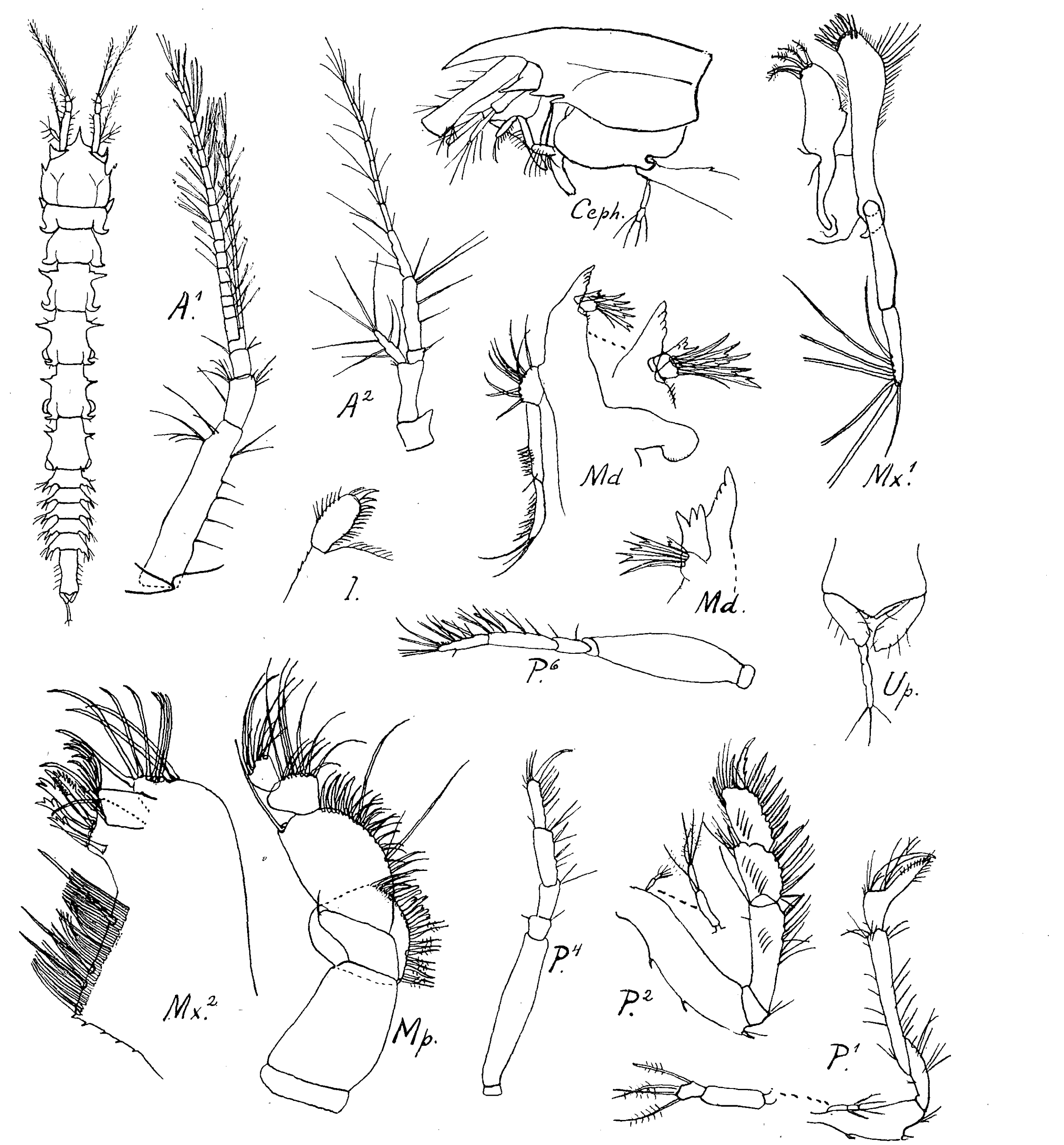

Fig. 15. Apseudes graciloides.

At the stations mentioned, some more or less defective specimens were taken, belonging to a species of *Apseudes* very closely related to *A. gracilis* Norman and Stebbing (Transact. Zool. Soc. London, vol. 12, pl. 4, 1886, p. 95—97, Pl. 20; — H. J. Hansen, Malacostraca 2, Tanaid.; Danish Ingolf Expedition, vol. 3, pt. 3, 1913, p. 13—15, Pl. 1, fig. 3). None of these specimens is complete, but as all appear to be ♂, the parts missing in one could be supplied by the others.

Seen dorsally, the species is of comparatively slender build, strongly resembling in outline the figure of *A. gracilis* given by Norman and Stebbing; the anterior lateral processes, however, are lacking on the second free segment of the body. (What looks like the anterior lateral process on 1. segment of the body is in reality 1. joint of p. 2). The posterior lateral processes, however, on all free segments of the body, are distinctly curvated, and all segments have a long spiniform process on the ventral side. The five first caudal segments have a spine on the ventral side, as in *A. gracilis*. Ant. 1 is somewhat shorter in proportion than that of *A. gracilis*; the long flagellum is only as long as the em, and contains about 18 joints. The short flagel- m, on the other hand, is long in proportion, being ɔout 3/4 the length of the long one, and containing ɔout 9 joints. Ant. 2 is somewhat longer than the em of ant. 1.; the flagellum has 9 joints. The oral ırts resemble in essentials the figures of these appen- ıges as shown by Sars in his Account (vol. 2, Pl. 1) ır *A. spinosus*. There is a large spine on the labrum: have not, however, been able to find, in the specimen issected, the curvated spines which link the two ıaxillipeds together. As will be seen from my drawings, . 1 — p. 2 exhibit a striking similarity to the cor- ɛsponding appendages in *A. gracilis*; the only essential ifference appears to be that in these two pairs of ppendages, the lower side of the second joint is smooth ı *A. gracilis*, whereas in the case of *A. graciloides*, it furnished with 2 (p. 1) or 3 (p. 2) small but strong rticulated spines. P. 3 — p. 6 differ from the cor- ɛsponding appendages of *A. gracilis* only, as far as ɛgards essentials, in the shorter outermost joint; this 'ould seem, however, to be due the defective condi- on of my specimens. Pleopoda are entirely lacking ı all my present specimens. The uropoda have a omparatively short, thick stem; in the specimen rawn, one uropod has a small exopodite, which appears ɔ consist of two joints, the outermost being twice the ɛngth of the proximal. Possibly there may in reality e 3 joints; the articulation however, is very indistinct. 'he exopodite is lacking in all the specimens.

All the specimens appear to be ♂♂. Those in the est state of preservation are 10 mm long; some of he fragments must, however, have belonged to in- ividuals measuring at least 12 mm. The colour (in lcohol) is white.

Remarks. As will be seen from the foregoing, in onjunction with my figures, this species is thus very losely related to *A. gracilis*, but is easily distinguished rom this by means of the curvated posterior lateral ɪrocesses on the free segments of the body, and by the pines on the lower edge of the second joint in p. 1—). 2.

APSEUDES ECHINATUS G. O. Sars.

Apseudes echinatus G. O. Sars, Revision of Gruppen Isopoda chelifera; Archiv f. Math. og Naturvid., vol. 7, 1880 (1881), p. 13.

— — G. O. Sars, Middelhavets Saxiso- poder; *ibid.* 1886, p. 286, Pl. 4.

— *lunarifrons* Norman & Stebbing, Isop. "Light- ning" etc.; Transact. Zool. Soc. London, vol. 12, pt. 4, 1886, p. 89, p. 134, Pl. 17, fig. 2.

Apseudes echinatus Nierstrasz, Siboga-Isop., pt. 1, 1913, p. 11.

St. 140. *37°29′ N, 12°34′ E*, 20-7-1910. 112 m. Dredge. 1 ♂.
St. 213. *40°14′ N, 0°54′ E*. 31-8-1910. 75 m. Dredge. 2 ♂♂.

Sars' and Norman & Stebbing's species are syno- nyms. Norman and Stebbing (l. c. p. 89) quote Sars' species with a? as a synonym; in a note p. 134, however, after conclusion of the work, they write that they have "this day" received Sars' publication above referred to on the Tanaidacea of the Mediterranean, that there is only one species, and that the species named by them should thus be cancelled.

Also found: Gulf of Spezia, off Porto Venere, in 20—30 fath. (Sars l. c. 1886) Mediterranean, off the coast of Algeria, 51—510 fathoms (Norm. & Stebb.)

APSEUDES GROSSIMANUS Norm. & Stebbing.

**Apseudes grossimanus* Norman & Stebbing, Isop. "Lightning"; Transact. Zool. Soc. London, vol. 12, pt. 4, 1886, p. 93, Pl. 19.

— — Nierstrasz, Isop. Siboga, pt. 1, 1913, p. 10, 11, 12 (*ubi lit.*)

St. 126. *42°43′ N, 9°50′ E*. 600—620 m. 10-7-1910. 10[10] pm. 25 m. w. 8 spec. (young ♂?).
St. 139. *37°57′ N, 11°54′ E*. 680 m. 20-7-1910. Dredge. 3 ♂.

Of the specimens from St. 126, 7 are 5 mm, the 8th, however 10 mm long. All, including the largest, have chelae of exactly the same shape as shown by Norm. & Stebb. for ♀; all the spines on the carapace are slightly longer than indicated in Norm. & Steb- bing's figures. The 3 specimens from St. 139 are of about the same size as the largest one from St. 126, and exactly resemble this. All the specimens appear to be ♂.

Also found: Portugal 240 fath. *30°39′ N, 9°39′ W; 52°25′ N, 11°40′ W* (S. W. of Ireland) 90 fath.; Mediterranean; Sidi-Teni, N.Africa; S.Africa 225—448 m. (Nierstrasz l. c.).

APSEUDES RETUSIFRONS Richardson.

**Apseudes obtusifrons* Norman & Stebbing, Isop. "Lightning" etc.; Transact. Zool. Soc. London, vol. 12, pt. 4, 1886, p. 88, Pl. 18, fig. II.

— *retusifrons* Richardson, Proc. U. S. Nat. Mus. vol. 42, 1912, p. 584 note.

St. 126. *42°43′ N, 9°50′ E*. 600—620 m. 10-7-1910. 10[10] pm. 25 m. w. 4 ♀♀, 1 ♂.

Chela, strange to say, equally strong in ♂ and ♀.

Also found: W. of Gibraltar *35°50′ N, 5°26′ W*, 128 fath., 540 fath. (Norm. & Stebb.) — This species has thus not previously been taken in the Mediterranean.

Fam. TANAIDÆ.

Genus TANAIS.

TANAIS ROBUSTUS Moore.

**Tanais robustus* Moore, Proc. Acad. Nat. Sci. Philadelphia 1894, p. 90—94, Pl. 5.

— — Richardson, Bull. U. S. Nat. Mus., vol. 54, 1905, p. 11, fig. 15 (copy of Moore's description).

— *testudinicola* Dollfus, Mém. Soc. Zool. France, vol. 11, 1897, p. 37, with figs.

St. 132. *38°57′ N, 9°47′ E*. 14-7-1910.

Found between filiform green algæ on the back of two sea turtles taken at the surface. Abt. 10 spec. The specimens are 1—4 mm long, and agree entirely with the description given by Moore. The colour (in spirits) is a violet brown (Moore: pale yellow) with very pale chelæ.

This species has hitherto only been found on turtles (*Thalassochelys caretta*); the occurrence of the speci- mens from the "Thor" however, does not quite agree with Moore's statement to the effect that they inhabit "minute tubes in the crevices between the scales of the turtle's (*Thalassochelys caretta's*) carapace".

Also found: New Jersey (Moore). Mediterranean, between the Balearic Islands and Algiers: *37°55′ N, 0°40′ E* and *37°26′ N, 0°50′ E* (Dollfus).

CUMACEA.

Fam. VAUNTHOMPSONIIDÆ.

Genus BATHYCUMA.

? BATHYCUMA LONGICAUDATUM Calman.

**Bathycuma* (?) *longicaudata* Calman, Proc. U. S. Nat. Mus. vol. 41, 1912, p. 604, p. 614, fig. 10—13.

— *longicaudatum* Stebbing, Cumac.; Das Tierreich 1913, p. 12.

St. 132. *38°57′ N, 9°41′ E*. 1227 m. 10-7-1910. Sifted bottom material; 1 ♀, abt. 9 mm.

The determination is not absolutely certain, as the specimen was somewhat defective, and could not well be dissected. As far as can be seen, however, it agrees well with Calman's description, save for the fact that the teeth on the dorsal side of the carapace reach almost to its posterior edge.

Also found: "Albatross" St. 4382, off San Diego, California 642—666 fathoms (Calman l. c.).

Fam. BODOTRIIDÆ.

Genus CYCLASPIS.

CYCLASPIS LONGICAUDATA G. O. Sars.

Cyclaspis longicaudata G. O. Sars, Vid. Selsk. Forh. Christiania, 1864 (1865), p.207.

* — — G. O. Sars, Account vol. 3, 1900, p. 16, Pl. 7—8.

— — Stebbing, Cumac.; Das Tierreich, 1913, p. 30 (*ubi lit.*).

St. 132. *38°57′ N, 9°47′ E*. 10-7-1910. 1227 m. Sifted bottom material, 6 spec.

Also found: From N. W. and N. E. Atlantic (N. Norway) to Mediterranean; 120—3285 m. (Stebbing l. c.).

Fam. PLATYSYMPODIDÆ.

Genus PLATYSYMPUS Stebbing = PLATYASPIS G. O. Sars.

PLATYSYMPUS TYPICUS G. O. Sars.

Platyaspis typica G. O. Sars, Vid. Selsk. Forh. Christiania 1869 (1870), p. 158.

* — — G. O. Sars, Account vol. 3, 1900, p. 27, Pl. 19—20.

Platysympus typicus Stebbing, Cumac.; Das Tierreich 1913, p. 61 (*ubi lit. et syn.*).

St. 132. *38°57′ N, 9°47′ E*. 10-7-1910. 1227 m. Sifted bottom material, 1 spec.

Also found: Norway, northward as far as Lofoten, 226—753 m.; W. of Ireland, 364—728 m.; Capri 750—110 m. (Stebbing l. c.).

Fam. DIASTYLIDÆ.

Genus DIASTYLIS.

DIASTYLIS PROCESSIFERA n. sp. (Fig. 16).

St. 139. *37°57′ N, 11°54′ E*. Abt. 600 m. (?). Dredge. 1 spec.

At this station, a specimen (immature ♀) was taken by the "Thor" of a Cumacean, the determination of which has proved a matter of considerable difficulty. Despite the fact that it differs in certain respects, which will be referred to later on, there can be no doubt that it belongs to the genus *Diastylis*, taken in

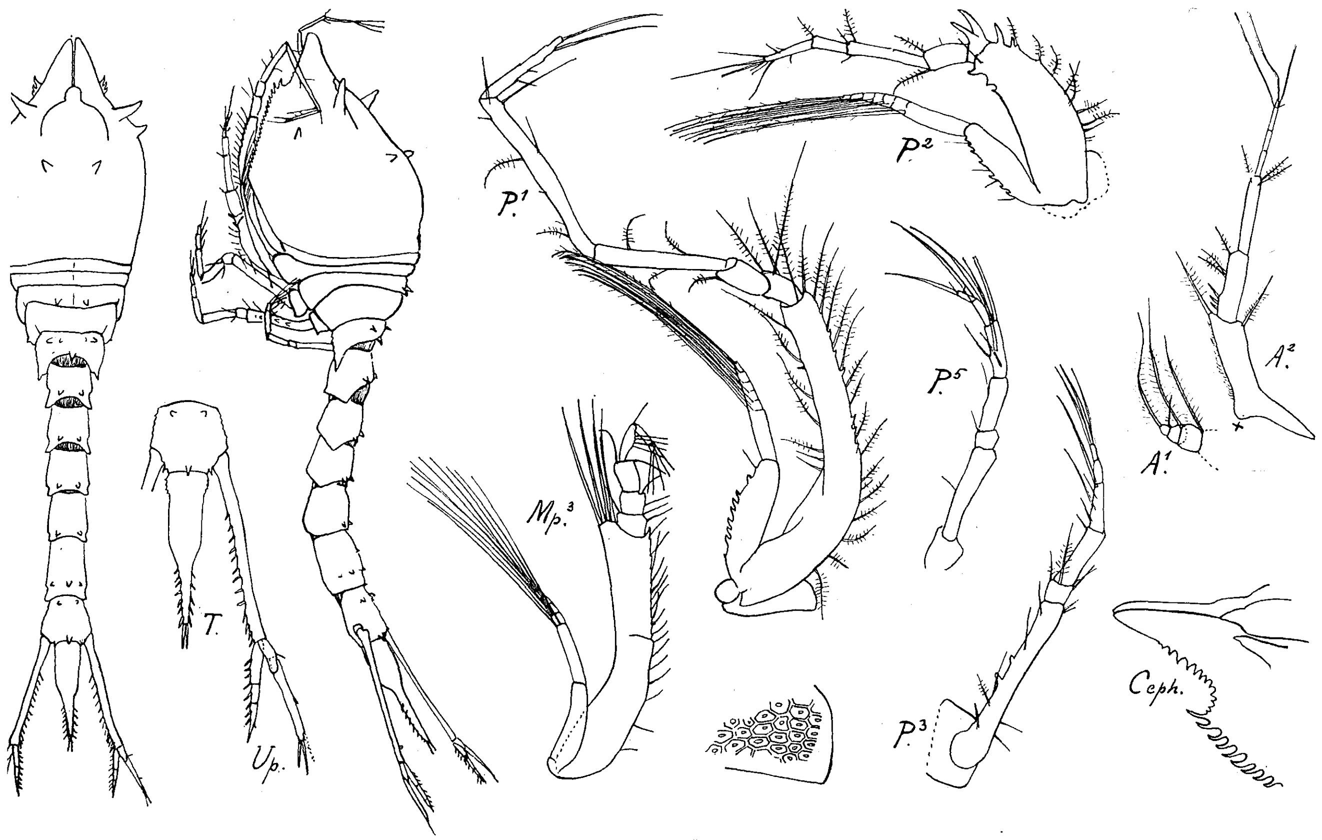

Fig. 16. Diastylis processifera ♀.
The figure below P. 1. presents the sculpture of the surface. Ant. 1 is by a misprint called Ant. 2, and vice versa.

ɜ extent assigned by Stebbing, in Cumac. ("Das ɜrreich") to this genus.

Unfortunately the specimen is not fully grown, and moreover, not in a very good state of preservation. have therefore only been able to dissect to a slight tent; the figures given however, indicate all that I ve been able to observe in the course of such dissecɪn as it was possible to make.

In point of habit, the animal greatly resembles *cornuta* Boeck (Sars, Account, vol. 3, p. 45, Pl. 35— ; Stebbing, Cumac. Tierreich p. 96 [*ubi lit.*]) differing, ɪwever in various ways.

The whole of the surface exhibits a very finely ticulated sculpture, with a small bud-like protubence in the centre of each mesh; an idea of this may ː obtained from the detail as shown. The carapace armed with but 3 pairs of spines, lacking all those ɪaller ones which are found in *G. cornuta*. The 3. ɜdigerous segment has two spines dorsally, the 5. segent 3. This last named segment (5) is drawn out ı a point on either side. I am unable to say whether ɹes are present or no. The telson is about the same ngth as the two adjacent caudal segments together; ith apical spines included, it corresponds in length to the stem of the uropoda and has, in addition to the apical spines, also five spines on the right and seven on the left. The broad part and the narrower portion are as nearly as possible of equal length. Ant. 1 lacks the accessory flagellum; this feature, however, should scarcely be considered as of especial importance, having in mind the fact that the specimen is not very well preserved (the distal half of one of the antennæ is wanting entirely); a far more important feature of ant. 1. is, in my opinion, the fact that the proximal portion of 1. joint extends in a long process on the outer side (× in the figure denotes the point at which the antenna was fixed). The pereiopoda resemble those of *D. cornuta*; the slight dissimilarities may be seen from the figure. The stem of the uropoda is about the same length as the telson + apical spines; the endopodite is, with its terminal spine, about equal in length to the exopodite without terminal spines, and about half as long as the stem.

Length 9 mm. Colour white. Shell hard, calcareous, brittle.

The specimen is a ♀, but is not fully grown, lacking the marsupion.

Remarks. As will be seen from the foregoing,

the species is closely related to *D. cornuta*, differing, however, at the first glance by its less pronounced spinous armour, and longer telson. (In *D. cornuta*, the telson is somewhat shorter than the stem of the uropoda). These characters may however, possibly be regarded as peculiar to the younger forms. Far more important is the large process on the first joint of ant. 1, and I cannot but consider this as ample evidence of the fact that we have here to deal with a new species. I therefore suggest that in view of the feature in question the specific name *processifera* be adopted.

DIASTYLIS STEBBINGI n. sp.
(Fig. 17).

St. 228. *36°02′ N, 5°06′ W.* > 800 m. 1600 m. w. 7-9-1910. 1 spec.

At this station, an immature ♂ of the genus *Diastylis* was taken by the "Thor". As will be seen from the figures, the arrangement of spines on the carapace greatly resembles that of *D. capreensis* Calman. (Mitt. Zool. Stat. Neapel, vol. 7, 1906, p. 429, Pl. 28, fig. 44—45; this species has, strangely enough, been overlooked by Stebbing in his Cumacea in Das Tierreich). The present species is not, however, identical with Calman's; as will be seen from the following, the two forms differ in certain respects (e. g. the telson) where dissimilarity cannot be attributed merely to the difference in sex (my specimen is ♂, Calman's ♀) or size (12.5 and 5.2 mm respectively).

The spines of the carapace will be seen from fig. 17. The ocular lobe is somewhat longer than it is broad, and apparently furnished with two colourless eyes. The free segments of the body are glabrous dorsally, save for two quite small spines on segm. 2, and three slightly smaller on segm. 5. The groove between 3. and 4. segments is not so deep as those between the others; these two segments are possibly fused, but I have not been able to satisfy myself with certainty as to this. The epimeral portion of the 5. segment tapers to a point. The four anterior caudal segments have each a couple of spines dorsally; segm. 1 has in addition a thick spine on either side above the pleopod, and a larger spine centrally situate on the ventral side. The telson is approximately equal in length to the two adjacent caudal segments together; the præ- and postanal portions are of nearly equal length. There are

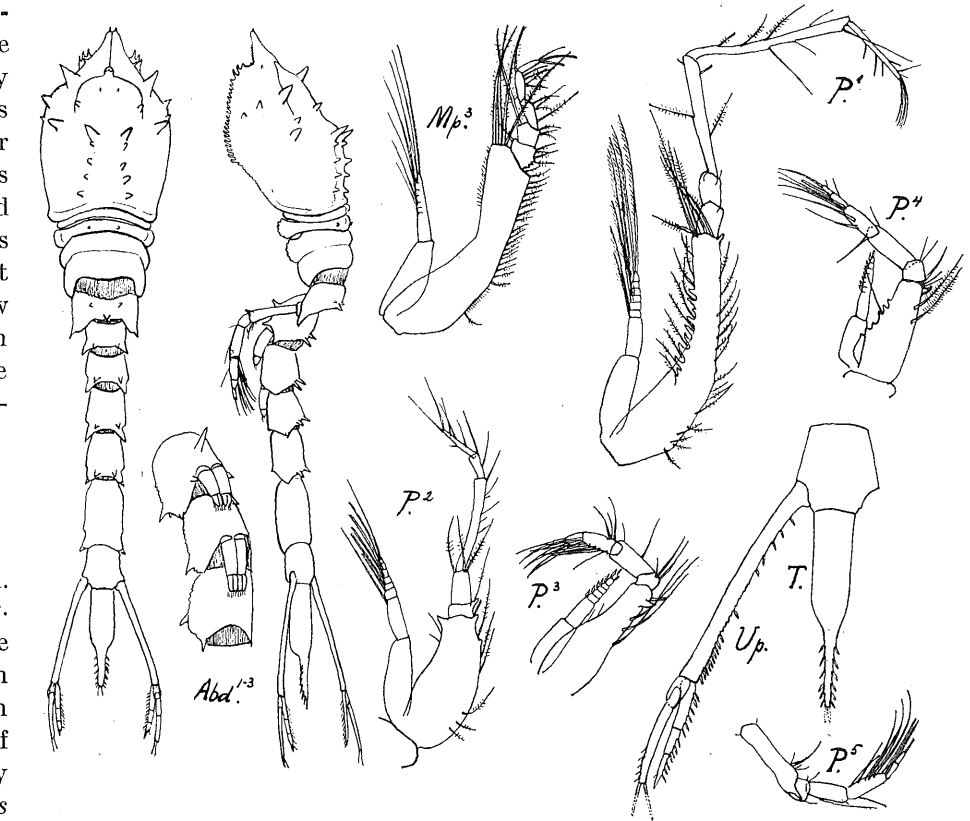

Fig. 17. Diastylis Stebbingi.

6 spines on either side; the apical spines have been entirely broken off.

1. pair of antennæ is of the usual shape; 2. pair lie curved up like a hook under the carapace, in the manner shown by Sars (Account, vol. 3, Pl. 42) for the young ♂ of *D. spinulosa*. With regard to 3. pair of maxillipeds and the 5 pairs of pereiopoda there is nothing particular to be said, save that p. 3 — p. 5 on the 2. joint in the distal end have a spine on the anterior side: the same feature is noticeable on p. 3 in Calman's figure of *D. capreensis*. On the exopodite of p. 3 — p. 4, the natatory setæ are not yet developed, but resemble small, soft spines. The two pairs of pleopoda are of the customary young-stage form. The stem of the uropoda is exactly the same length as the telson without apical spines; the branches are half as long as the stem. The arrangement of spines will be seen from my figures.

Length 12.5 mm.

Remarks. Despite the fact that the individual is not mature, it would seem impossible to refer it to any of the known species: I have named it after the Rev. T. R. R. Stebbing, to whom I am greatly in-

.ed for having procured for me works which I .ld otherwise have been unable to obtain.

Genus ADIASTYLIS.

ADIASTYLIS LONGIPES G. O. Sars.

astylis longipes G. O. Sars, Öfvers. Kgl. Svenska Vet. Akad. Förhandl., vol. 28, pt. 1, 1871, p. 74.
— — G. O. Sars, Sv. Vet. Akad. Handl., n. ser., vol. 9, No. 13, 1871, p. 32, Pl. 13, fig. 65—69.
— — Bonnier, Ann. Univ. Lyon, vol. 26, 1896, p. 550, Pl. 29, fig. 4.
liastylis — Stebbing, Cumac.; Das Tierreich 1913, p. 116 (*ubi lit. et syn.*).

132. *38°57′ N, 9°47′ E.* 10-7-1910. 1227 m. Sifted bottom material. 1 spec.

Also found: *60°45′ N, 4°49′ W*, 933 m.; *53°41′ N, ı′ W*, 838 m; *38°7′ N, 9°18′ W*, 1036 m; *44°17′ N, 4°38′ W*, m. (Stebbing l. c.). The species is thus new for the literranean.

Genus MAKROKYLINDRUS.

MAKROKYLINDRUS JOSEPHINÆ G. O. Sars.

ıstylis Josephinæ G. O. Sars, Öfvers. Kgl. Svenska Vet. Akad. Förhandl., vol. 28, pt. 1, 1871, p. 77.
— — G. O. Sars, Svenska Vet. Akad. Handl., n. ser., vol. 9, No. 13, 1871, p. 36, Pl. 15, fig. 72—74.
ıkrokylindrus Josephinæ Stebbing, Cumac.; Tierreich 1913, p. 120 (*ubi lit. et syn.*)

93. *49°25′ N, 12°20′ W.* 1270—1180 m. 25-6-1905. 2 spec.

Also found: Off Portugal, *38°10′ 30″N, 9°25′ W*, 1425 m. of Færø Islands, *48°50′—67°07′ N, 3°6′—11°9′ W*, 629—26 m; off W. of Ireland, 364—699 m. (Stebbing l. c.).

·am. PROCAMPYLASPIDIDÆ.

Genus PROCAMPYLASPIS.

PROCAMPYLASPIS ARMATA Bonnier.

·rocampylaspis armata + *P. echinata* Bonnier, Edriophthalmes du "Caudan"; Ann. Univ. Lyon, vol. 26, 1896, p. 541, p. 544, Pl. 29, fig. 1—2.
— *armata* Calman, Mitt. Zool. Stat. Neapel, vol. 17, 1906, p. 419, Pl. 27, fig. 13—20.
— — Stebbing, Cumac.; Tierreich 1913 p. 186 (*ubi lit.*).

.. 132. *38°57′ N, 9°41′ E.* 1227 m. 10-7-1910. Sifted bottom material. 1 spec., immature ♀.

Also found: *44°17′ N, 4°38′ W*, 950 m (Bonnier); Irish Sea, 50 miles W. N. W. of Cleggan Head, 212 m, and 77 miles W. N. W. of Achill Head, county Mayo, 699 m (Calman, Cumac. Ireland 1905); Capri 200—1100 m (Calman l. c. 1906).

Fam. CAMPYLASPIDIDÆ.

Genus CAMPYLASPIS.

CAMPYLASPIS VITREA Calman. (Fig. 18).

**Campylaspis vitrea* Calman, Mitt. Zool. Stat. Neapel, vol. 17, 1906, p. 425, Pl. 28, fig. 28—34.
— — Calman, Proc. U. S. Nat. Mus., vol. 41, 1912, p. 628.
— — Stebbing, Cumac.; Tierreich 1913, p. 193.

St. 132. *38°57′ N, 9°47′ E.* 1227 m. 10-7-1910. Sifted bottom material. 1 spec. immature ♀. 4.5 mm.

There can be no doubt as to the fact that this specimen really belongs to Calman's species. It agrees entirely with Calman's description and figures (l. c. 1906), save that the median posterior connecting ridge between the transverse ridges crossing the posterodorsal part of the carapace is not less distinct than the other ridges, as pointed out by Calman in a note (3) l. c. 1912. The same writer's remarks (l. c. 1912) as to difference between specimens from the Mediterranean and those from eastern America do not, however, appear to fit in with the features as found in the specimen from the "Thor". Still, the value of such relative characters, as quoted by Calman l. c. 1912 in notes 1—4 and 6 cannot of course be properly estimated unless by actual comparison with his specimens.

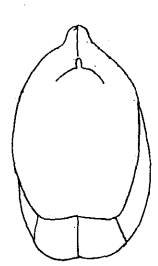

Fig. 18. Campylaspis vitrea.

Also found: Puritan Exp. St. 18, 26, 39 (Capri), 950—1100 m (Calman 1906), *40°02′ N, 68°50′30″ W*, 547 fath., 29° F. (Calman 1912).

CAMPYLASPIS HORRIDOIDES n. sp. (Fig. 19).

St. 132. *38°57′ N, 9°47′ E.* 1227 m. 10-7-1910. Sifted bottom material.

At this station, 8 specimens were taken by the "Thor" (4 ♂, 4 ♀) belonging to a *Campylaspis* species closely related to *C. horrida* G. O. Sars (Sars, Account vol. 3, 1900, p. 89, Pl. 62; Stebbing, Cumacea, Tierreich 1913, p. 196).

♂ General form of the body similar to that of *C. horrida*; the carapace here, however, in contrast to what is generally found to be the case with the genus *Campylaspis*, being equally broad in the anterior and posterior portions. The ocular lobe is small, with no

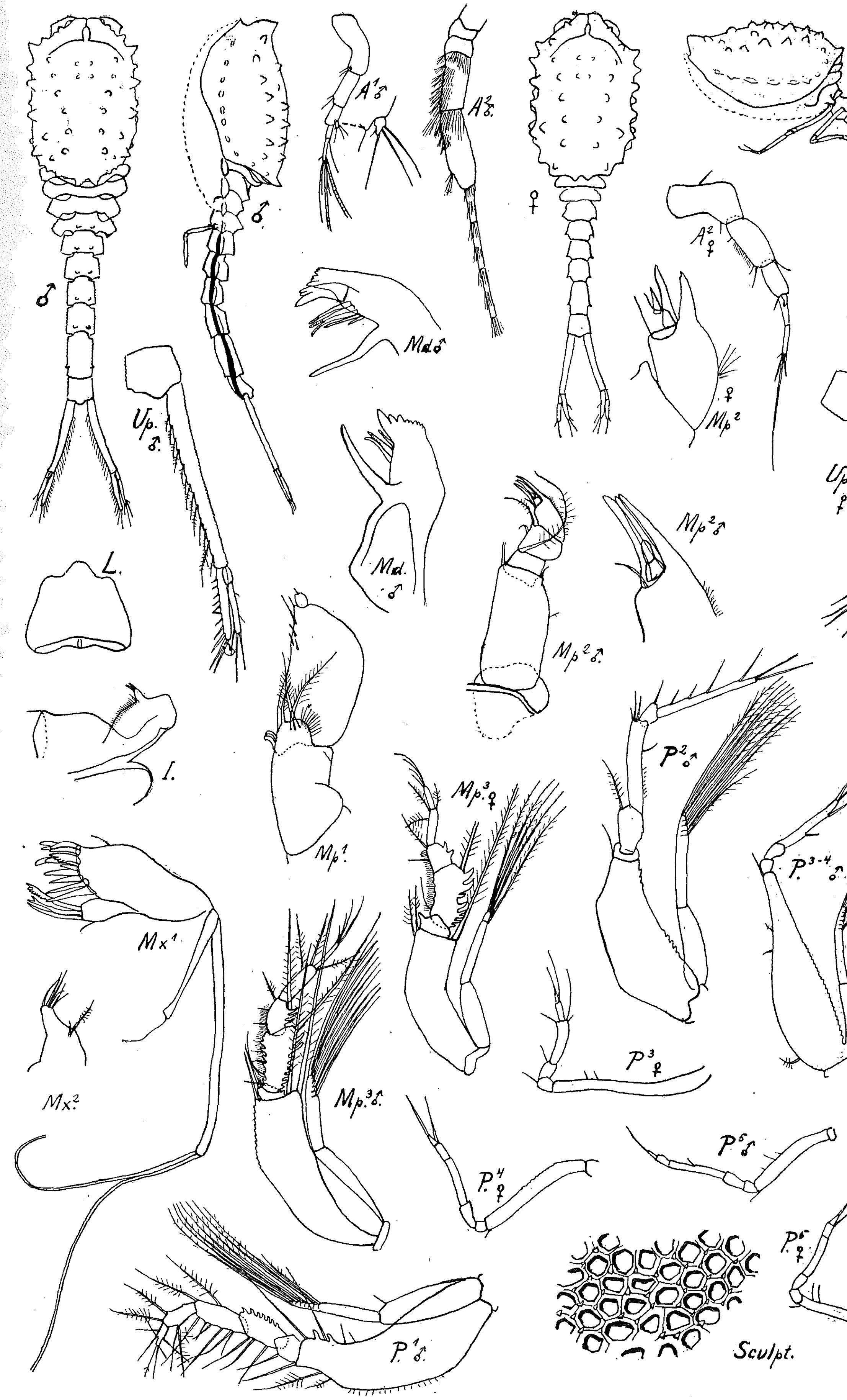

Fig. 19. Campylaspis horridoides.

parent trace of eyes. The carapace is armed with nical spines or protuberances arranged roughly in ι longitudinal rows: two down the back, one on ther side, where the back, which is more or less flat, rves down towards the sides of the animal, and one ain on either side slightly above and nearly parallel ith the under side of the carapace. Medially situate ı the posterior edge of the carapace are two fairly rge protuberances. The whole surface exhibits, more-ver, a raised, reticulated pattern with more or less gular hexagonal or octagonal mesh. At every corner, here two meshes meet, there is a small spine. The vo anterior pedigerous segments are, as usual, eleva-d to thin lamellæ; the lateral portion of all free gments of the body, especially the anterior ones, xtends far out to the side, and is hatchet-shaped at he point. The 5. (and possibly also 3.—4.) segment f the body has two small protuberances dorsally, as ave also 1—4 caudal segments: in the 5. caudal seg-nent they are placed far down on the side. The uro-oda are somewhat longer than the 4 last caudal seg-nents; the stem is about 2½ times as long as the bran-hes, and, as usual, furnished on the inner side with iliated setæ. The endopodite is as usual, slightly onger than the exopodite, and armed with about 11 spines.

I have figures of all appendices, and everything can thus be seen from these; in the following remarks I mention only such points as appear to me of especial importance. In the ♂ dissected, mp. 2 exhibits, in the outermost joint, a slight deviation from what according to Sars' figures in the Account appears to be the rule. We find, for instance, in the fig. of mp. 2 in *C. rubicunda* (Sars, Account vol. 3, Pl. 57) that the small outermost joint has 4 spines, while the penultimate has at the point a single large articulated spine. In the ♂ which I have dissected, however, the outermost joint has only a single small spine, the penultimate having at the point two large articulated and one large inarticulate spine. Having had but 4 specimens of either sex at my disposal, I have only dissected one of each, and am therefore unable to say whether the feature inquestion is or is not an accidental peculiarity in the dissected specimen. In the ♀ dissected, these characters are, as my figures show, but little different from what was found in the ♂. Mp. 3 differs from that of *C. horrida* mainly by the strong spines on the edges of 4. joint. The pereiopoda agree on the whole with Sars' figures of *C. horrida*. The exopodites have abt. 10 natatory setæ (in the ♀ only 6).

Length 6 mm. Colour (in alcohol) white.

♀ (immature) differs on the whole from ♂ only in such features as mark the usual sexual difference common to the genus. I have not been able to completely dissect ant. 2, and cannot therefore give any illustration of this. The caudal segments have no dorsal protuberances, but some small ones on the sides. The spines on the edge of 4. joint of mp. 3 differ a little from those of the ♂. The four ♀ are immature, lacking the incubatory plates.

Length 5 mm.

Remarks. The specimens here dealt with strongly resemble *C. horrida*, differing, however, in the following points: 1) the carapace is equally broad in the anterior and posterior portions 2) two spines on the posterior margin of the carapace 3) 4. joint of mp. 3. I therefore take it for granted that this is really a new species, which I have named, on account of its great resemblance to the species referred to, *C. horridoides*.

Calman mentions (Proc. U. S. Nat. Mus., vol. 41, 1912, p. 627) a Japanese specimen, which he somewhat doubtfully refers to *C. horrida*. It differs from Sars' figures in the following points: "tubercles on the carapace are slightly smaller and more acutely conical, and they show less tendency to run together in continuous ridges. The distal segments of the third maxillipeds and first and second legs are noticeably more slender than in Sars' figures". The peculiarity which Calman notes in the spines on the carapace may with some justification be taken as similarly applying to the specimens from the "Thor": the second distinguishing feature is less applicable, but the distal segment of p. 2 is, as a matter of fact, somewhat more slender in the specimen from the "Thor" than in Sars' figure af *C. horrida*. It is therefore not impossible that Calman's specimen belongs to *C. horridoides*.

AMPHIPODA

1. Gammaridea.

Fam. LYSIANASSIDÆ.

Genus TRICHIZOSTOMA.

TRISCHIZOSTOMA NICÆENSE A. Costa

Trischizostoma nicæense Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 13 (*partim*).

* — — E. W. Sexton, On the Amphipod genus Trisch.; Proc. Zool. Soc. London, 1908, p. 375 (*ubi lit.*), Pl. 14—16, Pl. 17 fig. 1—12, Pl. 19, fig. 1, Pl. 21, fig. 14.

— — Stebbing, Ann. South African Mus., vol. 6, 1908, p. 60.

St. 36. *44°21′ N, 2°37′ W.* 10-5-1906. 1125—1050 m. 1250 m. w. 1 spec.

St. 30. *59°17′ N, 7°29′ W.* 30-5-1905. 895 m. 1000 m. w. 1 spec.

St. 46. *44°37′ N, 2°17′ W.* 17-5-1906. 1360 m. 300 m. w. 1 spec.

St. 76. *47°08′ N, 5°48′ W.* 10-3-1909. 1800 m. 1600 m. w. 2^{40} pm. 5 spec.

St. 90. *47°47′ N, 8°00′ W.* 21 (22)—6-1905. 740—1600 m. 300 m. w. 2 spec.

All specimens belong to the species *T. nicæense*, and not to *T. Raschii* Boeck, which has previously been considered as identical with the former.

Also found: Mediterranean, near Naples (Della Valle; Gamm. Golf. Neapel 1893). *46°15′ N, 7°09′ W.* 0—3000 m. (Chevreux, Bull. Mus. Océanogr. Monaco No. 35, 1905, p. 7). W. and S. W. of Ireland (Sexton, l. c. 1908).

Genus LYSIANASSA.

LYSIANASSA CERATINA Walker

Lysianassa ceratinus Walker, Proc. Liverpool Biol. Soc., vol. 3, 1889, p. 200, Pl. 10, fig. 1—8.

— *longicornis* Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 39 (*partim*).

* — *ceratina* Walker, Transact. Linn. Soc. London, ser. 2, Zool., vol. 12, 1909, p. 327 (*ubi lit.*).

* — — Chevreux, Mém. Soc. Zool. France, vol. 23, 1910 (1911), p. 158, Pl. 6, fig. 10.

St. 17. *37°49′ N, 23°27′ E.* 30-12-1908. 55 m. 3 spec.
St. 41. *39°10′ N, 9°35′ E.* 2-2-1909. Ca. 1 m. 2 spec.
St. 105. *37°49′ N, 2°08′ W.* 24-6-1910. 20 m. 2 spec.

With regard to the former confusion of this species with *L. longicornis* Lucas, special reference may be made to Walker (l. c. 1909) who gives the following characters as most important.

	L. longicornis	*L. ceratina*
eyes	red	dark brown or black
flagella of antennæ	red	colourless
telson	apically rounded (Chevreux l. c. 1910, Pl. 6, fig. 9).	truncate with the angles more or less rounded (Chevreux l. c. 1910 Pl. 6, fig. 10).

Also found: Coasts of Europe from Great Britain and up in the Mediterranean; Canaria, Senegal, Suakim Harbour (Red Sea), Wasin (Brit. E. Africa) Ceylon (Walker l. c. 1909; Chevreux l. c. 1910).

Genus ARISTIAS.

ARISTIAS NEGLECTUS H. J. Hansen

Aristias neglectus H. J. Hansen, Vid. Meddel. Naturh. Foren. Kbhvn. 1887 (1888), p. 67.

* — *audouinianus* G. O. Sars, Account vol. 1, 1895, p. 48, Pl. 17, fig. 2.

— *neglectus* Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 50 (*ubi lit. et syn.*).

St. 142. *35°44′ N, 15°07′ E.* 22-7-1910. 98 m. 1 spec.

Distribution. Arctic Ocean, North Atlantic, North Sea, Skagerak and Kattegat (S.- and W. Scandinavia, Shetland Islands); Mediterranean (Stebbing, Tierreich).

Genus ICHNOPUS.

ICHNOPUS SPINICORNIS Boeck

Ichnopus spinicornis Boeck, Forh. 8de Skandinav. Naturforsker-Møde 1861, p.645

* — — G. O. Sars, Account vol. 1, 1895, p. 40, Pl. 15.

— — Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 52 (*ubi lit. et syn.*).

St. 14. *41°24′ N, 17°45′ E.* 21-12-1908. 1125 m. 5^{20} am. 65 m. w. 1 spec.

St. 18. *37°51′ N, 23°14′ E.* 30-12-1908. 220 m. At the bottom. 2 spec. 300 m. w. 4 spec.

62. *35°45′ N, 5°59′ W.* 22-2-1909. 58 m. 9^{10} pm. 25 m. w. 12 spec.
8^{25} pm. 100 m. w. 4 spec.
63. *35°50′ N, 6°03′ W.* 22-2-1909. 490 m. 0^{05} am. 25 m. w. 1 spec.
135. *37°17′ N, 10°28′ E.* 16-7-1910. 200 m. 0^{55} am. 25 m. w. 1 spec.
Distribution. Arctic Ocean, North Atlantic and North- (West-Norway); Mediterranean; Java Sea (3° S, 107° E) bbing l. c.).

Genus HIPPOMEDON.

HIPPOMEDON TUNISIACUS n. sp. (Fig. 20).

137. *37°17′ N, 10°56′ E.* 17-7-1910. 190 m. At the bottom. 1 ♀.

♀. Body glabrous, compressed; the back evenly ılted. Cephalon a little shorter than the two first ments of the mesosome combined; lateral corners ıte. No traces of eyes. Ant. 1 has the same form in *H. Holboellii*, but the accessory flagellum has but oints, of which the first one is twice as long as the next combined. In the flagellum the 1st joint is f as long as the remaining 11 joints combined and s a long spine. Ant. 2 is about 3½ times longer ın ant. 1; flagellum has 40 joints. The oral parts ve the same form as in *H. denticulatus.*

The same thing may be said of the coxal plates d p. 1—7; but the 6th joint in p. 2 is a little longer and narrower; the 7th joint seems to end with 2 small teeth. The distal fore corner in the 4th joint in p. 3—4 and the distal hind corner in p. 5 — p. 7 is not prolonged.

The epimeral plates of metasome 1—3 have about the same form as in *H. robustus* (Sars, Account vol. 1, Suppl. Pl. III), but ep. 3 is anteriorly more prolonged than in all the other known species. The form of up. 1—3 may be seen in my figures; in up. 1 the exopodite is a little longer than the endopodite; in up. 2—3 exop. and endop. have about the same length. Telson has the same form as in *H. propinquus* (Sars, Account vol. 1, Pl. 21, fig. 1), but has only 1 pair of dorsal spines; in the left apical corner there are 2 spines, in the right only 1.

Remarks. Sars says (Account vol. 1, p. 56) that in this genus the eyes disappear as a rule completely in alcohol.

Even supposing, however, that the specimen in question had eyes, it is none the less certain that it represents a new species. I have in the foregoing touched upon its relation to the four species described in Sars' Account; all these have eyes. Two other species also have eyes, viz. *H. bidentatus* Chevreux (Bull. Soc. Zool. France, vol. 28, 1903, p. 87, fig. 4) and *H. serratus* Holmes (Bull. U. S. Bureau Fisheries, vol. 24, 1905, p. 473, text fig., Pl. 4, fig. 2); the present species, however is distinctly and specifically different from these. It differs also from the two known blind species, not only in ep. 3 and telson but also in particular by the following characters: from *H. Geelongi* Stebbing (Challenger Amphip. p. 635, Pl. 11) by the 6th joint in p. 1 (Challenger gn. 1) which in *H. Geel.* is broadest at the distal end, in *H. tun.* broadest in the centre; from *H. (Potamon) longimanus* Stebbing (Challenger Amphip. p. 643, Pl. 13) by the 6th joint of p. 2 (Challenger gn. 2) which in *H. long.* is as broad as it is long.

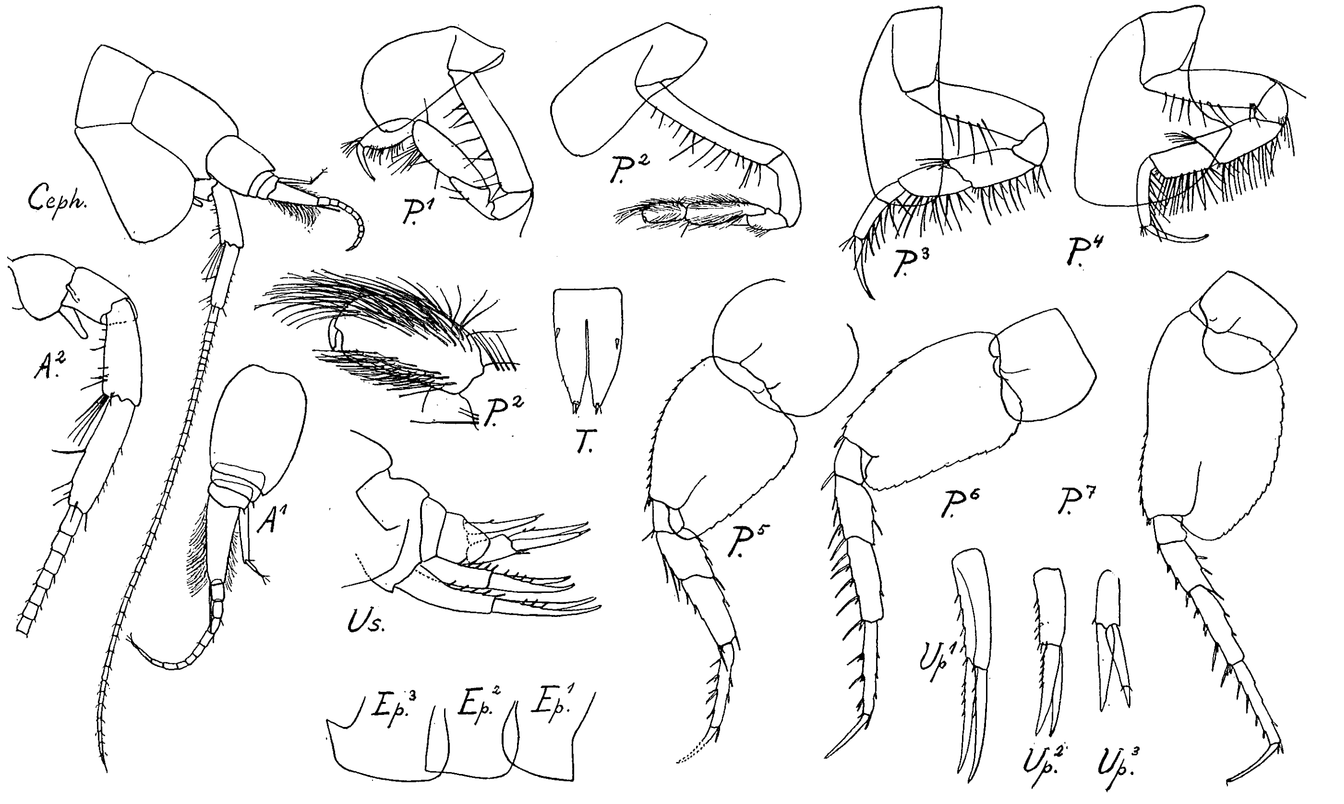

Fig. 20. Hippomedon tunisiacus ♀.

The specific designation *tunisiacus* refers to the fact that the species was found off the coast of Tunis.

Genus KATIUS.

KATIUS OBESUS Chevreux

**Katius obesus* Chevreux, Descript. d'un Amphip.; Bull. Mus. Océanogr. Monaco, No. 35, 1905, with figs.
— — K. Stephensen, Conspectus Crust. et Pycnog. Groenlandiæ; Meddel. om Grønland vol. 22, 1913, p. 123 (*lit., distrib.*).

St. 180. *61°34′ N, 19°05′ W.* 10-7-1904. 2160 m. 1800 m. w. 3 spec.
St. 183. *61°30′ N, 17°08′ W.* 11-7-1904. 1800 m. w. 7 spec.
St. 285. *62°49′ N, 18°46′ W.* 1-9-1904. 1 spec.
St. 76. *49°27′ N, 13°33′ W.* 11-6-1906. >2600 m. 2800 m. w. 1 spec.
St. 90. *47°47′ N, 8°00′ W.* 21 (22)-6-1905. 740—1600 m. 300 m. w. 1 spec.

This species is thus, according to the occurrences hitherto recorded (*vide* my publication cited above, where all finds are noted) known from W. Greenland (*64°14′ N*) via W. and S. of Ireland to *36°17′ N, 28°53′ W*, and belongs to the deep Atlantic. The specimen from St. 76 is interesting from the fact of its having bored its way into the remains of a *Salpa*(?), not quite so deeply bored, however, as *Phronima* is found (cf. Remarks on *Chevreuxiella metopoides*, p. 43).

Genus CYPHOCARIS.

CYPHOCARIS ANONYX Boeck

Cyphocaris anonyx Boeck, Amphip. bor. et arct.; Forh. Vid. Selsk. Christiania 1870, p. 104
— — Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 29 (*ubi lit. et syn.*).
— — Chilton, Edinburgh Transact. Royal Soc., vol. 48, pt. 2, 1912, p. 464, figs.
— — K. Stephensen, Conspectus Crust. et Pycnog. Groenlandiæ; Meddel. om Grønland, vol. 22, 1913, p. 111 (distribution).

St. 36. *44°21′ N, 2°37′ W.* 10-5-1906. 1125—1050 m. 1250 m. w. 2 spec.
St. 88. *48°09′ N, 8°30′ W.* 20-6-1905. 600—995 m. 300 m. w. 4 spec.?
St. 179. *47°20′ N, 12°23′ W.* 3-9-1906. 4000 m. 300 m. w. 14 spec.
St. 75. *45°37′ N, 7°03′ W.* 9-3-1909. >4000 m. 1^{45} pm. 4300 m. w. 1 spec.

Distribution. A synopsis of the distribution of this species will be found in my publication quoted above; some additions should, however be made to this. Chevreux, in Bull. Mus. Océanogr. Monaco, No. 35, 1905, p. 7, records some finds in addition to those mentioned by Richard (ibid. No. 41, 1905); these do not, however, represent any extension of the area of distribution. A point of more importance is the fact that Chilton, l. c. 1912, p. 464, records it from "*70°50′ S, 20°30′ W.* vertical net from surface to 1000 fathoms, 1 spec., 20 mm." Not only is the specimen here concerned comparatively large, but the area of distribution is thereby so extended as to embrace the Atlantic Ocean from W. Greenland about *64½° N* to nearly *71° S.* The "Challenger" Expedition also records it from the southern Pacific.

CYPHOCARIS ALICEI Chevreux

**Cyphocaris Alicei* Chevreux, Bull. Mus. Océanogr. Monaco, No. 27, 1905.
— — Walker, Transact. Linn. Soc. London, ser. 2, Zool., vol. 12, 1909, p. 327.

St. 91. *35°53′ N, 7°26′ W.* 18-6-1910. 1225 m. 5^{25} pm. 1600 m. w. 5 spec.

Distribution. *31°06′ N, 24°06′ W,* 0—5000 m; *31°46′ N, 25° W,* 0—3000 m, 5425 m; *32°18′ N, 25°58′ W,* 0—2000 m, 5422 m (Chevreux l. c.). N. W. of Desroches Atoll (Indian Ocean), plankton, 200—300 fms. (Walker l. c.).

CYPHOCARIS RICHARDI Chevreux (Fig. 21—22).

Cyphocaris Richardi Chevreux, Bull. Mus. Océanogr. Monaco, No. 24, 1905.

St. 75. *45°37′ N, 7°03′ W.* 9-3-1909. 4000 m. 1^{45} pm. 4300 m. w. 2 spec. (♂).

Two specimens of this species were taken by the "Thor" at the above station. Both are ♂♂, and of a size remarkable in a *Cyphocaris, viz.* 43 and 26 mm. Chevreux' original specimen measures only 12 mm, and the largest *Cyphocaris* hitherto known is the *Cyph. anonyx* mentioned by Chilton (20 mm).

Despite the fact that the two specimens from the "Thor" are so much larger than Chevreux' (12 mm), there is not the slightest doubt as to their belonging to the same species, the dissimilarities being very slight, and only such as would seem attributable to the difference in age. Chevreux' description is very complete, and I will therefore only refer to such fea-

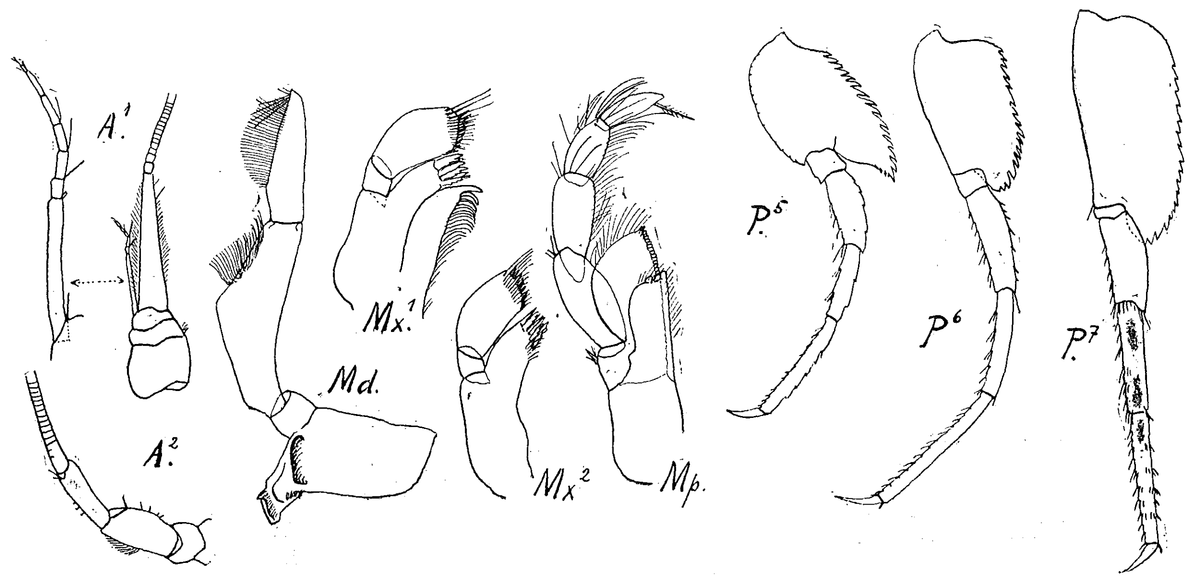

Fig. 21. Cyphocaris Richardi (the little specimen).

s in which any differences exist. I have also drawn e appendages which are either not given by Chevr. are not entirely in accordance with his figures. finer structure of the spines etc. about the oral

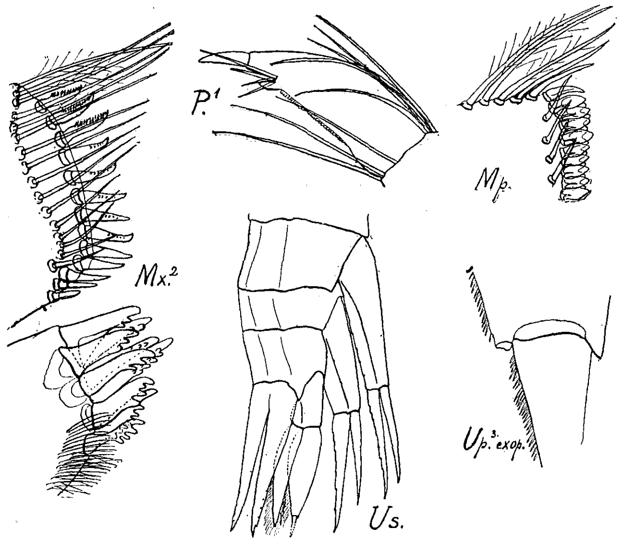

Fig. 22. Cyphocaris Richardi.

rts agrees on the whole with the figures given by ebbing for these appendages in *C. micronyx* (= *C. onyx*) in the Challenger Exp. Pl. 16; I have there-e considered it superfluous to go further into this int in the text.

Ant. 1. lacks its point; the same applies to the cond pair. The accessory flagellum has 7 joints h. gives 4) and is only half of the length of 1. joint the flagellum; the distal segment is very small and in. Despite the fact that 2. pair of antennæ lack eir points, they are nevertheless almost as long as e whole animal. The oral parts agree almost entirely with those of *C. anonyx*. P. 1—4 resemble completely the figures given by Ch. P. 5—7 however, I have drawn. The second joint of p. 5 differs slightly from Ch.'s figure. The second joint of p. 6—7 is remarkable as having large and small teeth indiscriminately alternating on the posterior edge, this being particularly noticeable in p. 6. The proximal part of the ultimate joint in p. 7 (not, however, in the other legs) is furnished with a number of quite small teeth, so small indeed, that they do not appear in the figure. The uropoda correspond to Ch.'s description; the peduncle of urop. 2, however, projects so far out as to give a length between that of up. 1 and up. 3. (In Fig. 1, Ch. shows this as shorter in up. 2 than up. 1). Up. 3 has also setæ on the distal outer side of the endopodite, the large terminal spine of which, as well as the distal portion of its inner side, is armed with a row of secondary spines (*vide* fig.). The two halves of the telson are connected by a thinner part, so that they can open wide, as in my figure, or fold in close together, as shown in Ch.'s figure.

Distribution. Chevreux records it from St. 1849, *36°17′ N, 28°53′ W* (Azores), 0—3000 m, depth 3410 m.

Genus METACYPHOCARIS.

METACYPHOCARIS HELGÆ Tattersall

**Metacyphocaris Helgæ* Tattersall, Pelagic Amphip. of the Irish Atlantic Slope; Fisheries, Ireland, Sci. Invest., 1905, pt. 4 (1906), p. 29, Pl. 3 fig. 1, Pl. 4.

— — K. Stephensen, Malacostraca .. "Tjalfe"-Exped.; Vid. Meddel. Naturh. Foren. Kbhv. vol. 64, 1912 (1913), p. 88.

St. 180. *61°34′ N, 19°35′ W*. 10-7-1904. 2160 m. 1800 m. w. 1 spec.
St. 183. *61°30′ N, 17°08′ W*. 11-7-1904. 1800 m. w. 13 spec.
St. 76. *49°27′ N, 13°33′ W*. >2600 m. 11-6-1906. 2800 m. w. 1 spec.
St. 179. *47°20′ N, 13°20′ W*. 4000 m. 3-9-1906. 1800 m. w. 1 spec.

Distribution. All finds hitherto recorded will be found in the two works quoted above. Tattersall mentions it as having been taken at four localities off W. coast of Ireland; in my Report of the "Tjalfe"Expedition it is mentioned from 3 places near W. Greenland, *60°—64° N*.

Genus CRYBELOCEPHALUS.

CRYBELOCEPHALUS MEGALURUS Tattersall

Crybelocephalus megalurus Tattersall, Pelagic Amphip. of the Irish Atlantic Slope; Fisheries, Ireland, Sci. Invest. 1905, pt. 4 (1906), p. 33, Pl. 3, fig. 2, Pl. 5.

St. 76. *49°27′ N,*[1] *13°33′ W*. >2600 m. 11-6-1906. 2800 m. w. 1 spec.

Also found: 50 miles N. by W. of Eagle Island, Co. Mayo, 1000(?) fath., Petersen trawl at 1150 fath. (Tattersall l. c.). It is perhaps worth while to note that at this place, the only find which I have been able to discover in extant works, the species was found together with *Metacyphocaris Helgæ*, which also applies to the specimen from the "Thor".

Genus THORIELLA (n. gen.).

(see Remarks after *Th. islandica*).

THORIELLA ISLANDICA n. sp. (Fig. 23).

St. 173. *61°30′ N, 17°08′ W*. 1800 m. w. 11-7-1904. 1 spec.

This species must, despite some few dissimilarites (further referred to later on) nevertheless be taken as belonging to *fam. Lysianassidæ*. It is included here on account of its great resemblance to *Chevreuxiella metopoides* (*vide infra*) and though not found in those regions of the sea otherwise dealt with in the present work, presents such features of interest that I have thought best to describe it in this connection.

The specimen is 19 mm long; colour (in alcohol) yellowish.

Cephalon is somewhat shorter than 1. segment of the body, but much deeper. There is no trace of any rostrum. The eyes are comparatively small, but of a deep black, with a small accessory eye beneath each. Despite clarification in xylol, I have been unable to bring out the lower contour of the cephalon distinctly; it is therefore not certain that this is correctly drawn.

The two pairs of antennæ are of equal length, somewhat longer than cephalon + the two first segments of the body. In ant. 1, the first joint of the peduncle differs considerably from the form typical for *Lysianassidæ*; instead of being thickest about the middle, there is a pronounced lateral compression on the upper side; the two next joints are of equal length,

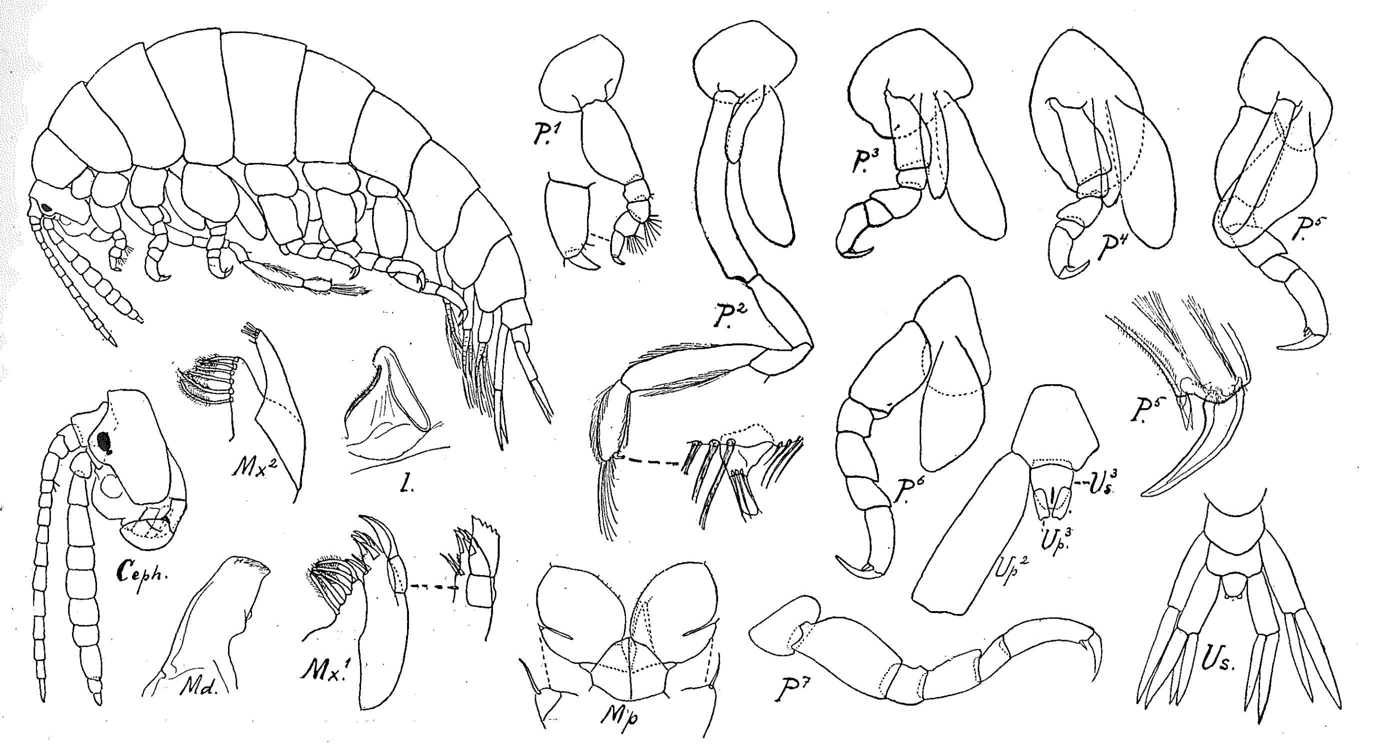

Fig. 23. Thoriella islandica.

ıd together somewhat shorter than the first. There no accessory flagellum. The flagellum has 12 joints almost equal length, the first are, however, slightly orter than the remainder. Ant. 2 has 12 joints in l, and is of very characteristic form, being spindle ıaped, the median joints being almost spherical, but ith truncated ends. The epistome, with the anterior), is large and prominent, the maxillipeds form a nd of helmet beneath the mouth. The md. has a ery faint cutting edge and no palps. Mx. 1. has a bi-ticulate palp with 6 teeth at the point: it is fairly road, the outer joint somewhat longer than the inner. ı its natural position, as shown in the drawing of the hole mx. 1., the palp forms an angle of 90° with the ırface exhibited by the remainder of the mx. and from ıe position of mx. in the oral cavity, the teeth at the oint of the palp make a cutting edge in continuation f that of the md. The exop. is somewhat broader ıan the endop., and has five strong spines. The ndop. has five heavy, partly curved pennate setæ. 'he exop. of mx. 2 is somewhat narrower than the ndop., with 3 spines, (these are unfortunately broken); he endop. has 6 setæ of exactly the same form as those n the endop. of mx. 1. The shape of the posterior p may be seen from fig. 23.

The maxillipeds are of very peculiar shape, forming, s already mentioned, a kind of helmet about the ıouth. The inner plate is large and obtusely triangu-ır, the outer plate acute; the two large plates which orm the greater portion of the "helmet" are the palp. 'his has a deep incision in the outer edge. The section hus divided off by this incision is not connected by ırticulation with the remainder, so that the palp is ingle-jointed; on the dexter side however, the very ıutermost point is articulated, whereas on the sinister his is strangely enough not the case (*vide* fig.).

The pereion consists of the usual 7 segments, the wo first somewhat shorter than the remainder. The ıack is evenly vaulted and fairly broad; in most of he segments, the posterior portion rises somewhat ıbove the adjacent segment. The epimeral plates on he pereiopoda are comparatively small; the posterior orner of the foremost is covered by No. 2; otherwise ıone of the epimeral plates touch each other, being 'ar smaller than is generally the case with fam. *Lysia-ıassidæ*. The 2. joint of p. 1 curves out on the front side, the leg ending in a simple claw. P. 2 is of the customary form for *Lysianassidæ*, the dactylus is flat, and ends in a broad mucronate spine (*vide* fig. 23) P. 3—7 are almost alike in shape, the hinder ones, however, being longest. They terminate in a strong claw, at the foot of which, and turned inward towards it, 2—3 sharp, knife-shaped spines are placed. The under side of 5—6 joints of p. 5—6 is armed with small, fine spines. Besides the gills on p. 2—6 there is on p. 2—5 a somewhat shorter appendage, shaped like a sausage, which appears to be a marsupial plate. If this be so, then the animal must be a ♀, in which case it must be immature, as the plates are quite undeveloped, and exhibit, in their present state of preservation, exactly the same appearance as the gills.

The shape of the 3 joints of the metasome, and the pleopoda, may be seen from fig.

The urosome consists of the usual 3 segments. The two anterior pairs of uropoda are as nearly as possible of equal length, with long, pointed branches, of which the exop. is somewhat longer and heavier than the endop. Urop. 3, however, consists of but one joint, quite short, and without any branches at all. The telson is entirely lacking.

The specimen in question is a ♀, if the "marsupial plates" have been rightly interpreted.

Remarks on *gen. Thoriella*. This genus, of which the foregoing species is the type, I have named after the ship of the expedition, the "Thor". It belongs indubitably to the fam. *Lysianassidæ*, from the shape of p. 2, differing, however, in the lack of accessory flagellum on ant. 1*), and of mandibular palps; in the shape of the maxillipeds; in the small epimeral plates; the lack of telson, and the rudimentary 3. pair of uropoda. The mucronate spines on sixth joint of p. 3 — p. 7 seem to suggest that the fam. is semi-parasitic.

See also remarks on *Chevreuxiella metopoides* (next species).

Genus CHEVREUXIELLA n. gen.

CHEVREUXIELLA METOPOIDES n. sp. (Fig. 24—25).

St. 75. *45°37' N, 7°03' W.* 9-3-1909. 4000 m. 1[45] pm. 4300 m. w. 1 spec. ♂. 24 mm.

The only specimen taken is in many respects so remarkable as to render it very doubtful whether the species can rightfully be considered to belong to the fam. *Lysianassidæ* (*vide infra*: Remarks).

♂. The cephalon is unusually short, scarcely half as long as the first segment of the mesosome, and has

* The accessory flagellum in 1. pair of antennæ is also lacking in *Lepidepecreum longicorne* Bate & Westwood (Stebbing. Amphip. Gamm., Das Tierreich, 1906, p. 80) and in *Crybelocephalus megalurus* Tattersall (Fisheries, Ireland. Sci. Inv. 1905, pl. 4 (1906) p. 33, Pl. 3, fig. 2, Pl. 5). In the following two species it is quite diminutive, consisting only of a single joint: *Metacyphocaris Helgæ*, Tattersall, (l. c. 1906, p. 29, Pl. 3, fig. 1., Pl. 4) and *Paracyphocaris prædator* Chevreux (Bull. Mus. Océanogr. Monaco, No. 32, 1905, p. 2, fig. 2 A).

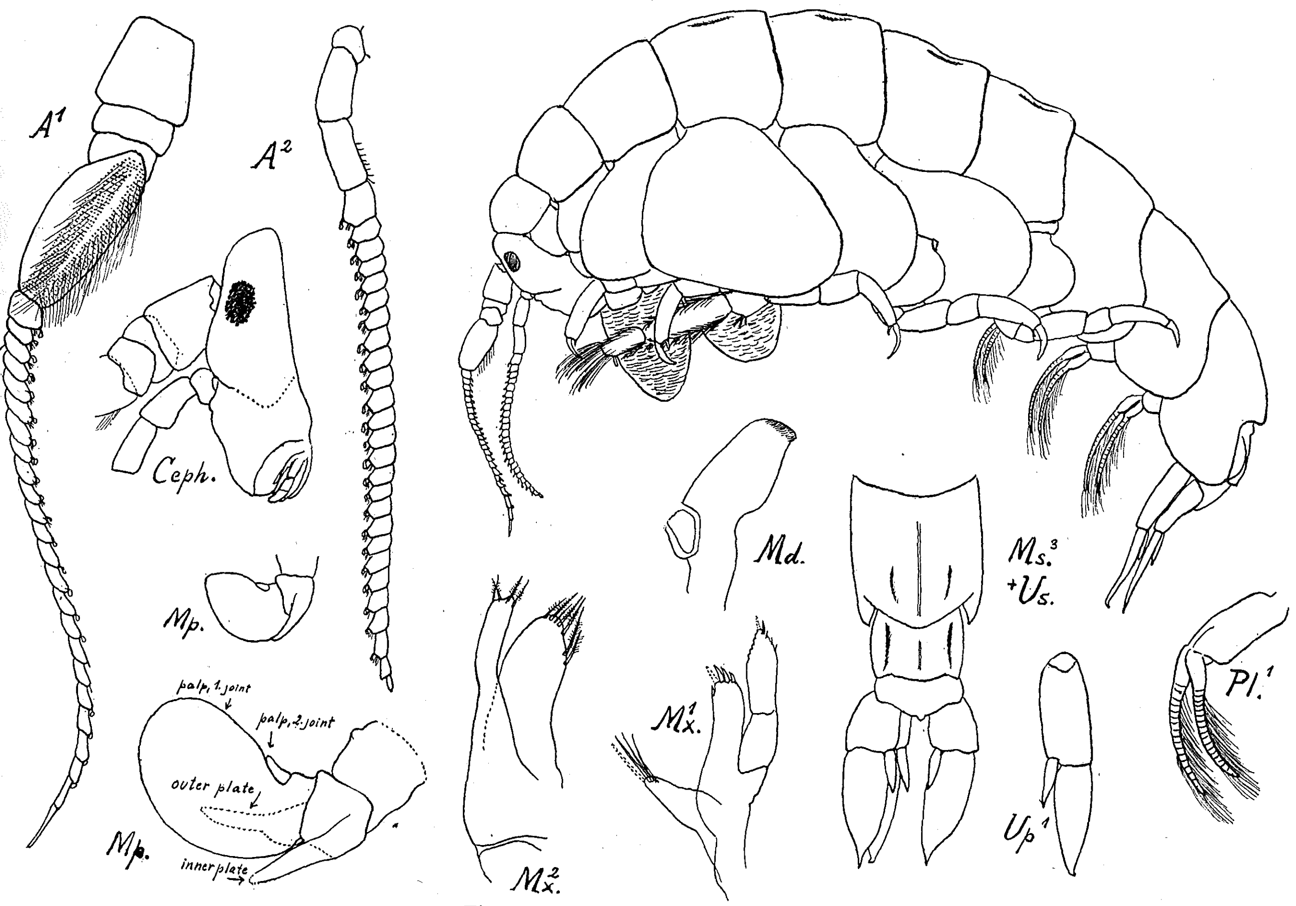

Fig. 24. Chevreuxiella metopoides.

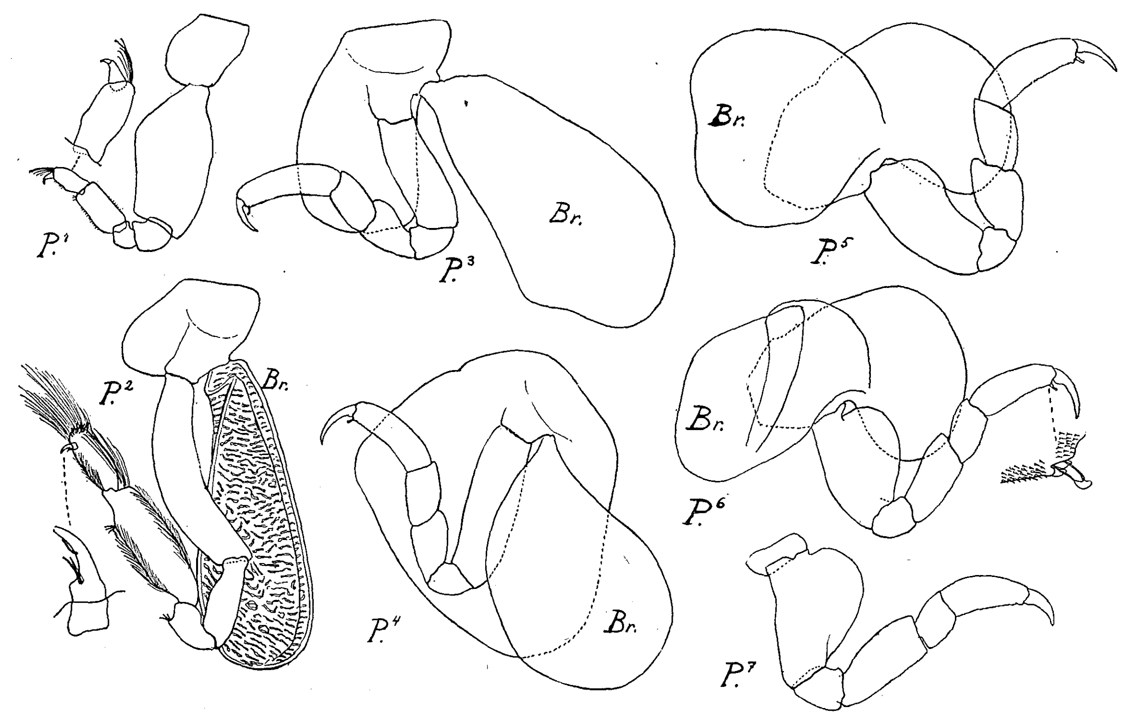

Fig. 25. Chevreuxiella metopoides. The pereiopoda. *Br.*: the branchial vesicle.

race of any rostrum. It is very deep, however, despite most careful examination, and clarification xylol, I have not been able to discover any con-ing seam between it and the epistoma. The eyes oval, and of a deep black. The two pairs of an-æ are almost of equal length, despite the fact that spec. is a ♂ (in the fam. *Lysianassidæ*, ant. 2 is ıys longer than ant. 1 in ♂) their length being ıt that of the cephalon and the 3 first segments of mesosome together. Ant. 1 is a trifle longer than 2. Of the three joints of the stem, the first omewhat thicker and a little longer than the two ers together. The first joint of the flagellum is an ong oval, with bristles on the median side and of ut the same length as the stem; then follow 24 ner joints, of which the last is considerably longer n the remainder. All the thin joints of the ellum with the exception of the two last bear eoli. There is no accessory flagellum. In ant. 2, first segment is quite short, the 2. and 3. joints ut three times as long. The flagellum has 26 joints, reasing in thickness towards the point; with the eption of the two last, all have calceoli. The epi-ma with the anterior lip is very large, as deep as front of the cephalon; it is helmet-shaped, with a dian sinus running longitudinally. The mandibles remarkably weak, with very poorly developed d only faintly coloured masticatory parts, with no lp whatever. Mx. 1 has a bi-articulate palp, the termost joint armed with a few spines at the point; arks remain to show that there have been at least more spines. The inner branch is shorter and rrower than the exopodite, and has four long spines the point; only 3 of these, however, are preserved. e exopodite has terminated in 5 short, heavy spines. e two branches of max. 2 are of equal length, the dopodite however, being about 3 times as broad as e exopodite; both have the usual setæ at the point. he lower lip I have been unable to draw, this having parently been lost during dissection; in any case, I ave not been able to find it.

The maxillipeds form, as in the case of *Thoriella landica* (*vide* previous species) a helmet-like covering bout the remaining oral parts, and have thus a form which I have been unable to find anything corres-onding in any Amphipod hitherto described. The ng projection is evidently the inner plate; it is more ifficult however, to explain the other parts. The arge plate with the small appendage must be the alp, which is thus bi-articulate; the inarticulate pro-ection which is visible just inside must then be the uter plate (Fig. 24 naturally shows only the one naxilliped; both outer plate and inner plate are of ourse paired, as in all Gammaridea).

Nearly all the free segments of body and tail are of equal length measured along the dorsal line: 1. and 2. segments of the body, however, are considerably shorter. The last caudal segments will be referred to later on. The back is evenly vaulted. All segments save the first one have a very faintly marked carina, with a slight longitudinal groove on either side. This is most distinctly seen in 4—7 segments. The first joint of p. 4 is so large as to project both in front and behind; the size of this joint decreases greatly from p. 4 to p. 1. P. 1 is short, its 7. joint terminating in an articulated spine; 2. joint is large and broad. P. 2 has a large foliate gill, as have also the succeeding legs (except p. 7) and are of the usual shape for *Lysianassidæ*. The dactylus is as shown in the fig., armed with 3 spines. P. 3 — p. 4 are alike save for 1. joint, which in p. 4 is not, as is generally the case with *Lysianassidæ*, provided with an incision in the posterior edge so as to accommodate 1. joint of p. 5; instead of this, it projects both forward and backward in a manner similar to that found in the *Stenothoidæ*. In p. 3 — p. 7, the under side of 4.—6. joints is covered with very fine, pointed spines, as shown in the detail figure; the point of the 6. joint in the same pereiopoda (except p. 7) is armed with a pair of sharp, mobile spines, which can be turned inward towards the dactylus. The first joint of p. 5 — p. 6 is very large, nearly as deep as the corresponding joint of p. 4; the second is jointed in to a notch in the fore side. The second joint of p. 6 — p. 7 has a highly convex posterior edge; on p. 7, however, the first joint is greatly reduced. On the ventral side of the animal, between the two pereiopoda of 7. pair, we find a couple of quite small appendages (not shown in the fig.) which appear to be copulatory organs.

The 3. joints of the metasome are of almost equal length, and have, as already mentioned, a very slight carina down the central dorsal line. The epimeral parts are rounded at the posterior end; slightly more oblong, however, on the 3. joint, but without teeth or similar processes on the edge. The pleopoda are of the usual structure.

The urosome consists of only 2 segments, with no telson whatever. The first segment is very slightly carinated along the central dorsal line; the lateral portions, however, rise to a height equal to that of the middle of the dorsum. The second segment is more evenly vaulted, and only half as long. The third segment, with its corresponding pair of uropoda, and telson, are entirely lacking, and as the second segment exhibits a natural posterior termination, the anus also being of perfectly normal form, this cannot be due to accidental mutilation after death. If it be due to accident at all — which does not appear to be the case, — then the damage must have occurred during life, and the resultant wound entirely healed. Urop. 1—2 are almost alike, projecting almost equally far back, the stem being longer in the first pair than in the second. They are broad and strong, but without any setose covering. The endopodite is scarcely half the length of the exop., and far narrower. The exopodite of urop. 1 terminates in a small hook, turning up towards the back and outwards.

Colour (in alcohol) yellow.

I have named the species *melopoides*, on account of its resemblance to gen. *Melopa*, as regards the large plate on p. 4.

Remarks on gen. *Chevreuxiella*. This new genus I have named after M. Ed.Chevreux, who has published so many valuable works on the Amphipoda from the collections made by the Prince of Monaco in the waters where the "Thor's" material was taken.

The systematic position is doubtful. The most remarkable feature is the lack of posterior segment in the urosome and telson. From the shape of p. 2, it would seem natural to refer the genus to fam. *Lysianassidæ*; it differs, however, from these in the lack of accessory flagellum on ant. 1 (*vide* note to previous species), in the lack of mandibular palp, in the maxillipeds, the shape of the epimeral plates, and of p. 5 — p. 6. In these pereiopoda, among the *Lysianassidæ*, it is always the second joint which is most extended, whereas in the present genus, this character falls to the first. P. 7, also, generally exhibits the most distinct plate formation, whereas in this case, the plate on the second joint is far smaller than on the preceding pereiopoda.

Despite the fact that the genus thus appears to differ from the *Lysianassidæ* in essential features which can hardly be attributed to biological causes alone, I prefer, at any rate as long as only this single specimen is extant, to refer the genus to the mentioned fam. on account of the shape of p. 2. Possibly it may later be found more correct to take it as the type of an entirely new family.

Like the previous species, *Thoriella islandica*, this seems, on account of the mucronate spines on the distal end of 6. joint in p. 3 — p. 6, which can turn inward towards the dactylus, to be of semi-parasitic habits. This theory is further supported by the shape of the oral parts. The mandibles are of approximately the same shape in both genera, with no palp whatever, and hardly well adapted to biting. The maxillæ are not very peculiar; the maxillipeds, however, exhibit a very remarkable uniformity in the two genera, though certain differences in detail may be observed. They are by no means adapted to biting, but appear, from the pointed outer plates, to be well suited for purposes of suction. As the two genera otherwise differ so highly in various respects, I am not inclined to consider the more or less similar structure of the maxillipeds as really indicative, of any close relationship, but merely as a biological character denoting allied habits of life.

A similar structure with a strong seventh joint and spines on the sixth of in any case some of the pereiopoda is also found in the following bathypelagic *Lysianassidæ*, all of which (with the exception of a single species) are represented in the collection made by the "Thor": *Katius obesus* Chevreux, *Paracyphocaris prædator* Chevreux, *Metacyphocaris Helgæ* Tattersall, and *Crybelocephalus megalurus* Tattersall. Chevreux has, in his description of *Paracyphocaris prædator* (Bull. Mus. Océanogr. Monaco, No. 32, 1905) advanced the theory that this species should live semi-parasitically, while Tattersall is of the same opinion regarding the two species described by himself. The material from the "Thor" has satisfactorily demonstrated that this applies to *Katius obesus*. I can therefore only conclude that all 6 species live more or less in the same manner; probably resembling the habits of *Phromina*. We have here, however, an interesting problem to be solved by future investigation.

Fam. AMPELISCIDÆ.

Genus AMPELISCA.

AMPELISCA BREVICORNIS Costa =

A. LÆVIGATA Lillj.

Araneops brevicornis Costa, Rend. Soc. Bourbon, n. ser., vol. 2, 1853, p. 171.

Ampelisca lævigata Lilljeborg, Öfvers. Vet. Akad. Förh., vol. 12, 1855, p. 123.

* — — G. O. Sars, Account vol. 1, 1895, p. 169, Pl. 59, fig. 1.

— *brevicornis* Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 100 (*ubi lit. et syn.*).

— — Stebbing, Ann. South Afric. Mus., vol. 6, pt. 1, 1908, p. 70.

St. 62. *35°45′ N, 5°59′ W.* 21-2-1909. 58 m. 8^{20} pm. 100 m. w. 1 spec.

St. 140. *37°29′ N, 12°34′ E.* 20-7-1910. 112 m. At the bottom. 1 spec.

Distribution. Arctic Ocean, North-Atlantic, North-Sea and Skagerak (S.- and W.-Norway, northwards to Lofoten Isles, British Isles, France); Kattegat, Mediterranean (Stebbing l. c. 1906). South Africa: Fresh Bay, Roman Rock, N. W. ³/₄ W. ³/₄ mile, 18 fath., and Table Montain, E. 41 miles, depth 245 fath. (Stebbing l. c. 1908). Ceylon (Walker, Ceylon Pearl Oyster Report, pt. 2, 1904, p. 253).

AMPELISCA SPINIPES Boeck

pelisca spinipes Boeck, Forhandl. 8. Skand. Naturforsker-Møde, 1861, p. 653.
— — G. O. Sars, Account vol. 1, 1895, p. 173, Pl. 60, fig. 2.
— — Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 106 (*ubi lit.*).

2. *35°45′ N, 5°59′ W.* 21-2-1909. 58 m. 8^{20} pm. 100 m. w., 6 spec.
8. *51°08′ N, 1°35′ E.* 13-3-1909. 49 m. 3^{35} pm. 65 m. w. 1 spec.

Distribution. North-Sea, Skagerak, North-Atlantic Arctic Ocean (S.- and W.-Norway, northwards to Lofoten ıds) (Stebbing l. c.).

PELISCA DIADEMA Costa = A. ASSIMILIS Boeck

aneops diadema Costa, Rend. Soc. Bourbon, n. ser., vol. 2, 1853, p. 171.
npelisca assimilis Boeck, Forh. Vid. Selsk. Christiania, 1870, p. 222.
— — G. O. Sars, Account vol. 1, 1895, p. 168, Pl. 58, fig. 2.
— *diadema* Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 107 (*ubi lit. et syn.*).

St. 62. *35°45′ N, 5°59′ W.* 21-2-1909. 58 m. 8^{20} pm. 100 m. w. 3 spec.
?St. 140. *37°29′ N, 12°34′ E.* 20-7-1910. 112 m. At the bottom. 6 spec.

The determination of the specimens from St. 140 is not quite certain. True, they agree as regards essentials (dactylus of p. 3 — p. 4, telson) with the fig. given by Sars; the shape of the rostero-lateral angles of the 7. pleon segment, however, and the fact that the carina on pleon segment 4 is almost entirely lacking, gives a resemblance to *A. tenuicornis.*

Distribution. From W. Norway to Mediterranean (Stebbing (l. c.).

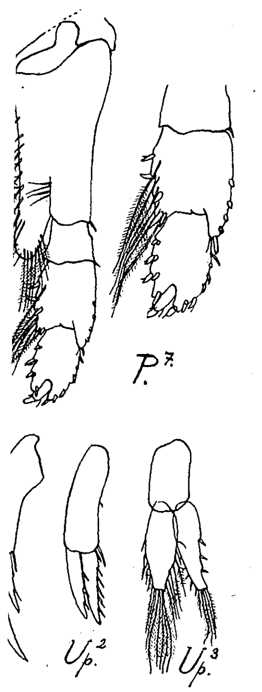

Fig. 26.
Iaploops dellavallei ?

Genus HAPLOOPS.

HAPLOOPS DELLAVALLEI Chevreux (Fig. 26).

Iaploops tubicola Della Valle, Fauna Flora Golf. v. Neapel, vol. 20, 1893, p. 486, Pl. 3, fig. 2, Pl. 37, fig. 1—18.
Haploops Dellavallei Chevreux, Rés. Camp. Monaco, vol. 16, 1900, p. 47.
— — Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 116, 722.

St. 137. 190 m. *37°17′ N, 10°56′ E.* 19-7-1910. 1 spec. (♀), 9 mm.

The determination is not altogether certain, the endopodite of urop. 1 especially being a little too long, and the telson (not shown in the fig.) more rounded than in Della Valle's illustration (Pl. 37, fig. 8). On the whole, however, it agrees well enough with D. V.'s figures, as far as can be seen without dissection. (I have only dissected the appendages shown). In p. 7 in particular the similarity is altogether very close, and joint 5 exhibits the characteristic form as shown by my fig. here given. The 6. joint, however, is in my specimen twice as long as 7. whereas in D. V.'s figs., these two joints are of equal length. Both exop. and endop. in urop. 3 have a slightly different shape in the specimen from the "Thor", being in particular more abruptly cut off at the point.

Distribution. Gulf of Naples, 20—40 m (Della Valle).

Fam. HAUSTORIIDÆ.

Genus UROTHOE.

UROTHOE PULCHELLA Costa

Egidia pulchella Costa, Rend. Soc. Bourbon n. ser., vol. 2, 1853, p. 172.
**Urothoe* — Stebbing, Transact. Zool. Soc. London, vol. 13, 1891, p. 11, Pl. 4, fig. A.
— — Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 130 (*ubi lit. et syn.*).

St. 135. *37°17′ N, 10°28′ E.* 16-7-1910. 200 m. 12^{55} am. 25 m. w. 1 spec.

Distributions. Gulf of Naples, West France (Stebbing l. c. 1906).

Fam. COLOMASTIGIDÆ.

Genus COLOMASTIX.

COLOMASTIX PUSILLUS Grube

Colomastix pusillus Grube, Ausfl. Triest, 1861, p. 137.
* — — Della Valle, Fauna Flora Golf. Neapel, vol. 20, 1893, p. 854, Pl. 6, fig. 2, Pl. 61, fig. 23—37.
— — Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 207 (*ubi lit.*).
— — Pearse, Proc. U. S. Nat. Mus., vol. 43, 1913, p. 370, fig. 2.

St. 142. *35°44′ N, 15°07′ E.* 22-7-1910. 98 m. 2 spec.

Distribution. North Atlantic (France, Great Britain), Mediterranean (Stebbing l. c.). E. America between Delta

of Missisippi and Cedar Keys, 25—27 fathoms (Pearse l. c.). Ceylon (Walker, Ceylon Pearl Oyster Report, pt. 2, 1904, p. 299).

Fam. OEDICERATIDÆ.

Genus MONOCULODES.

MONOCULODES CARINATUS Bate

Westwoodea carinata Bate, Report Brit. Assoc. Meet. 25, 1856, p. 58.
**Monoculodes carinatus* G. O. Sars, Account vol. 1, 1895, p. 295, Pl. 105.
— — Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 261 (*ubi lit. et syn.*).

St. 153. *32°45′ N, 22°41′ E.* 28-7-1910. 13 m. 1 spec.

Distribution. From Norway to Gulf of Naples (Stebbing l. c.).

Fam. CALLIOPIIDÆ.

Genus STENOPLEURA.

STENOPLEURA ATLANTICA Stebbing (Fig. 27).

**Stenopleura atlantica* Stebbing, Challenger-Amphip., 1888, p. 950, Pl. 84.
Acanthozone — Della Valle, Fauna Flora Golf. Neapel vol. 20, 1893, p. 601, Pl. 59, fig. 10 (not fig. 11, as cited in Das Tierreich).
Stenopleura atlantica Stebbing, Amphip. Gamm., Das Tierreich, 1906, p. 302.

St. 69. *36°13′ N, 9°48′ W.* 28-2-1909. >3500 m. 3^{05} pm. 300 m. w. 1 ♀, 8 mm.
St. 89. *36°28′ N, 8°22′ W.* 18-6-1910. 1310 m. 3^{25} am. 300 m. w. 1 ♂, 6 mm.

In spite of some slight deviations from Stebbing's description, as will be seen from the following, there can be no doubt as to the correctness of the determination. As the specimen which Stebbing has dissected and described in the Challenger-Expedition was somewhat defective, I have myself dissected one of the two specimens from the "Thor" (a ♂) and give the drawings here by way of supplement to the description furnished by Stebbing.

♂, 6 mm. The contours of the cephalosome somewhat different from those given by Stebbing. The rostrum is too large to be properly called "inconspicuous", and the postantennal corners are fairly large (Stebbing says "not produced"). Eyes fairly large, ocelli dark brown. In ant. 1, the flagellum has 37 joints, in ant. 2 likewise 37 (Stebbing gives 33 and 35 respectively); in the first pair, the length corresponds to Stebbing's habitus fig., but the second pair are slightly longer, not shorter, as Stebbing's figure shows. The shape of the anterior and inferior lips will be seen from my fig.; the inferior lip has, as far as I have been able to see from my dissected specimen, very great inner lobes. A fig. of the maxillipeds is also given here, in order

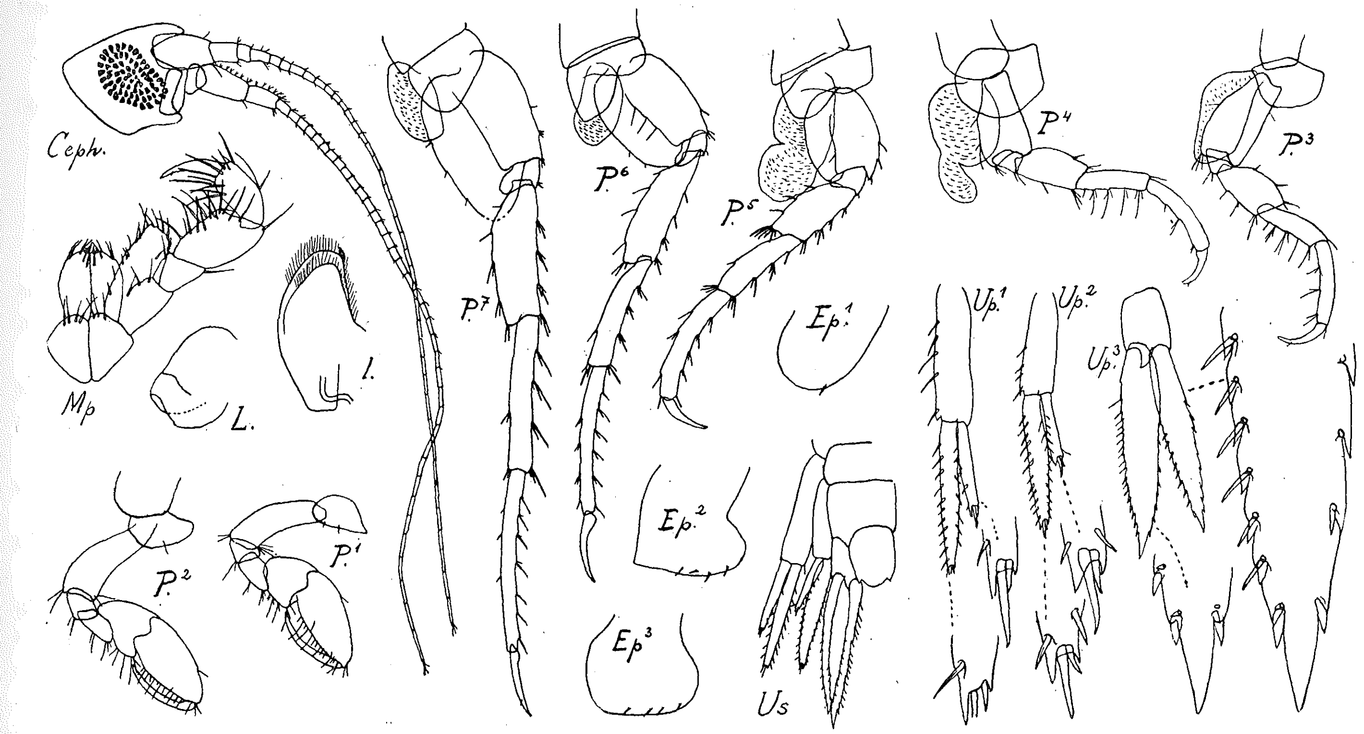

Fig. 27. Stenopleura atlantica ♂.

show certain details not apparent from Stebbing's ʒure.

As all my figs. of p. 1 — p. 7 are drawn to the same :ale, the comparative lengths can be seen from these. . 5 is only slightly longer than p. 4; p. 6 still longer; . 7 extends out to the very point of the telson. The ıape of the epimeral plates on the metasome will be ›en from my fig. here given. The median posterior ortion of the telson is not triangularly pointed, but venly rounded.

♀, 8 mm. Closely resembles ♂, the eyes however, eing somewhat smaller, and the antennæ slightly horter than in ♂. More remarkable is the fact that ı. 5 — p. 7 especially are long and slender, p. 7 even xtending out to the point of urop. 3.

As regards colour, both sexes are (in alcohol) semi-ransparent and colourless.

Distribution. *35°41′ S, 20°55′ W* (off Tristan da Cunha) ınd *1°47′ N, 24°26′ W*, 1850 fath. globigerina ooze, bt. *36°6 F.* Challenger). In Das Tierreich, the distribution is given as :o lat. *2°—3° N*, long. *8°24′ W*; I have not, however, been ıble to discover from what source. In addition, Chevreux records it in Bull. Mus. Océanogr. Monaco, No. 35, 1905, p. 7, from St. 1781: *31°06′ N, 24°08′45″ W*, 0—5000 m.; St. 1794: *31°46′ N, 25°W*, 0—3000 m, 5425 m, and from Funchal, Madeira.

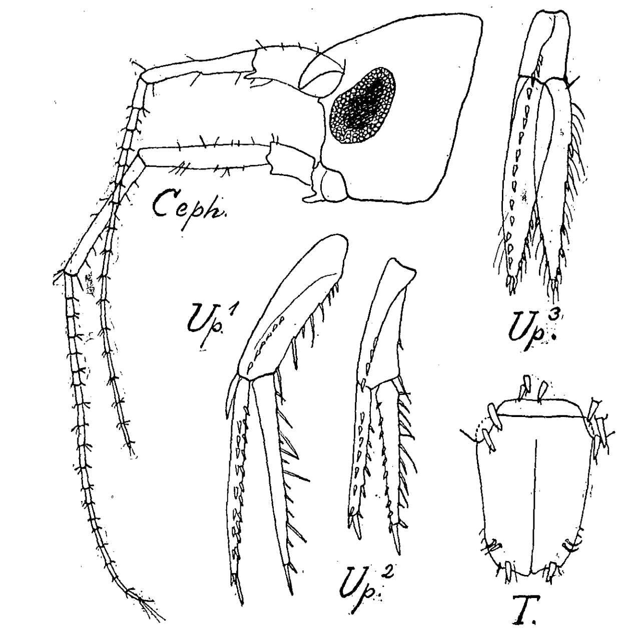

Fig. 28. Nototropis vedlomensis ♀ from Norway.

Genus APHERUSA.

APHERUSA BISPINOSA Bate

Dexamine bispinosa Bate, Ann. Nat. Hist., ser. 2, vol. 19, 1857, p. 142.

**Apherusa* — G. O. Sars, Account vol. 1, 1895, p. 439, Pl. 155, fig. 1.

Apherusa bispinosa Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 305 (*ubi lit. et syn.*).

— — Sexton, Journ. Mar. Biol. Assoc. Plymouth, vol. 9, No. 2, 1911, p. 208, Pl. 3, fig. 9.

St. 94. *36°06′ N, 6°02′ W*. 23-6-1910. 65 m. 0[35] am. 65 m. w. 1 spec.

St. 281. *38°15′ N, 15°36′5 E*. 1-3-1911 (200 m.). 3[45]—4[45] pm. 10 m. w., 10 spec.; 30 m. w., 6 spec.

Distribution. Recorded by Sars (l. c.) from Norway to Algiers. Has also been taken off E. coast of Greenland, abt. *77° N* (K. Stephensen, Danmark-Exped.; Meddel. om Grønland, vol. 45, 1912, p. 538).

Fam. ATYLIDÆ.

Genus NOTOTROPIS.

NOTOTROPIS (PARATYLUS) VEDLOMENSIS Bate & Westwood (Fig. 28)

Dexamine vedlomensis Bate et Westwood, Brit. sessile-eyed Crust., vol. 1, 1862, p. 242, figs.

**Paratylus* — G. O. Sars, Account vol. 1, 1895, p. 466, Pl. 164, fig. 2.

Nototropis — Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 331 (*ubi lit. et syn.*).

Atylus — Boeck, Skand. og Arkt. Amphipoder 1876, p. 330 (*partim*), Pl. 9, fig. 9, Pl. 11, fig. 6 (*non* fig. 6 l, 6 m [and fig. 6 n?] = *Nototropis guttatus* Costa).

St. 62. *35°45′ N, 5°59′ W*. 21-2-1909. 58 m. 8[25] pm. 100 m. w. 2 spec. (♀), 8 mm, one with eggs.

Further see the next species.

NOTOTROPIS GUTTATUS Costa (Fig. 29—31).

**Nototropis guttatus* Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 331 (*ubi lit. et syn.*).

Atylus vedlomensis Boeck, Skand. og Arkt. Amphipoder 1876, p. 330 (*partim*), Pl. 11, fig. 6 l, 6 m (and fig. 6 n?).

St. 62. *35°45′ N, 5°59′ W*. 21-2-1909. 58 m. 8[25] pm. 100 m. w. 4 spec. (♂).

St. 78. *51°08′ N, 1°35′ E*. 13-3-1909. 49 m. 3[35] pm. 65 m. w. 1 spec. (♂).

Of all the illustrated works quoted by Stebbing, the only one I have been able to obtain is Sowinski's paper in Mém. Soc. Kiew, vol. 4, 1895 (in Russian); I have therefore been obliged to trust almost exclusively to Stebbing's own description. There can be

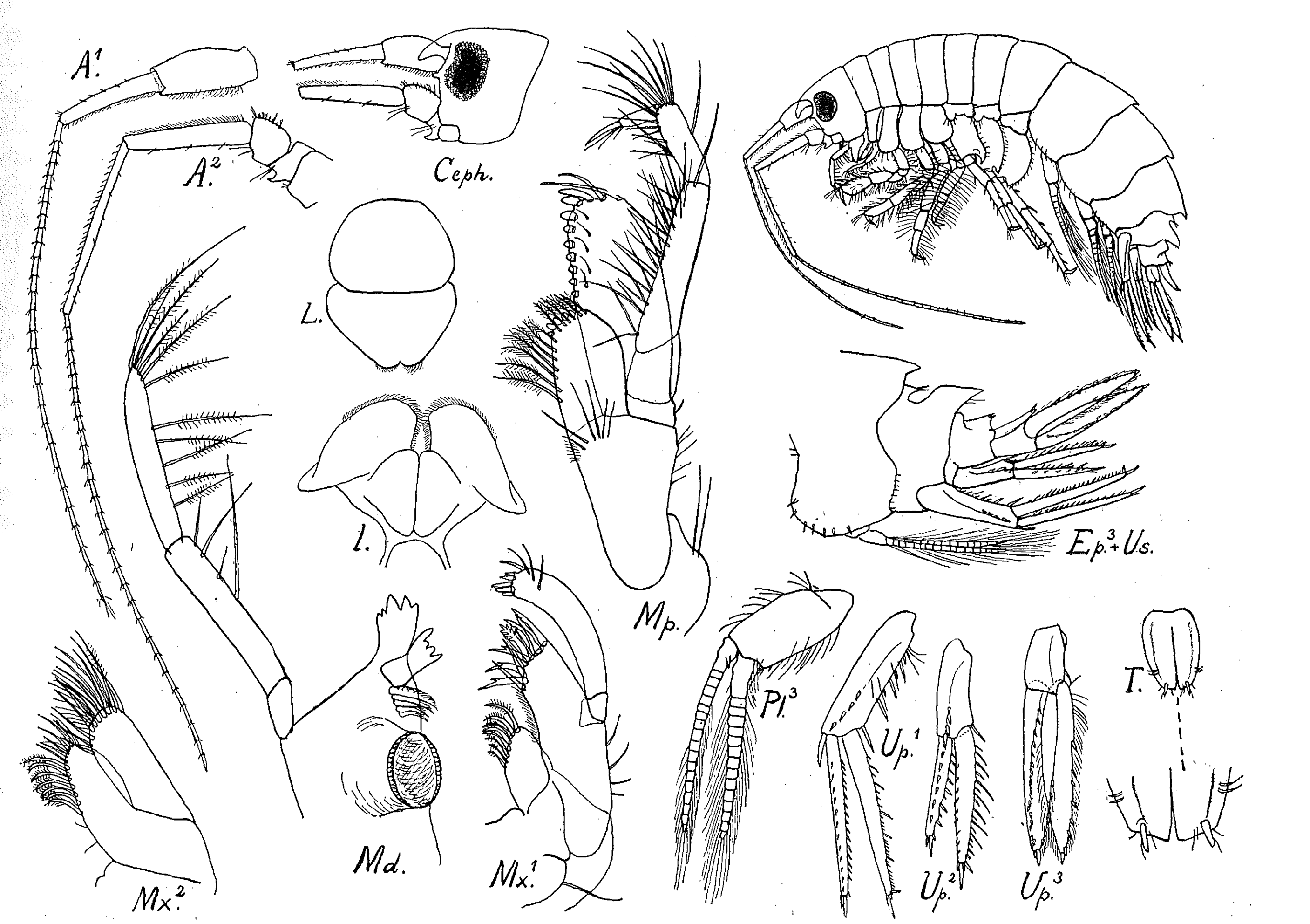

Fig. 29. Nototropis guttatus ♂.

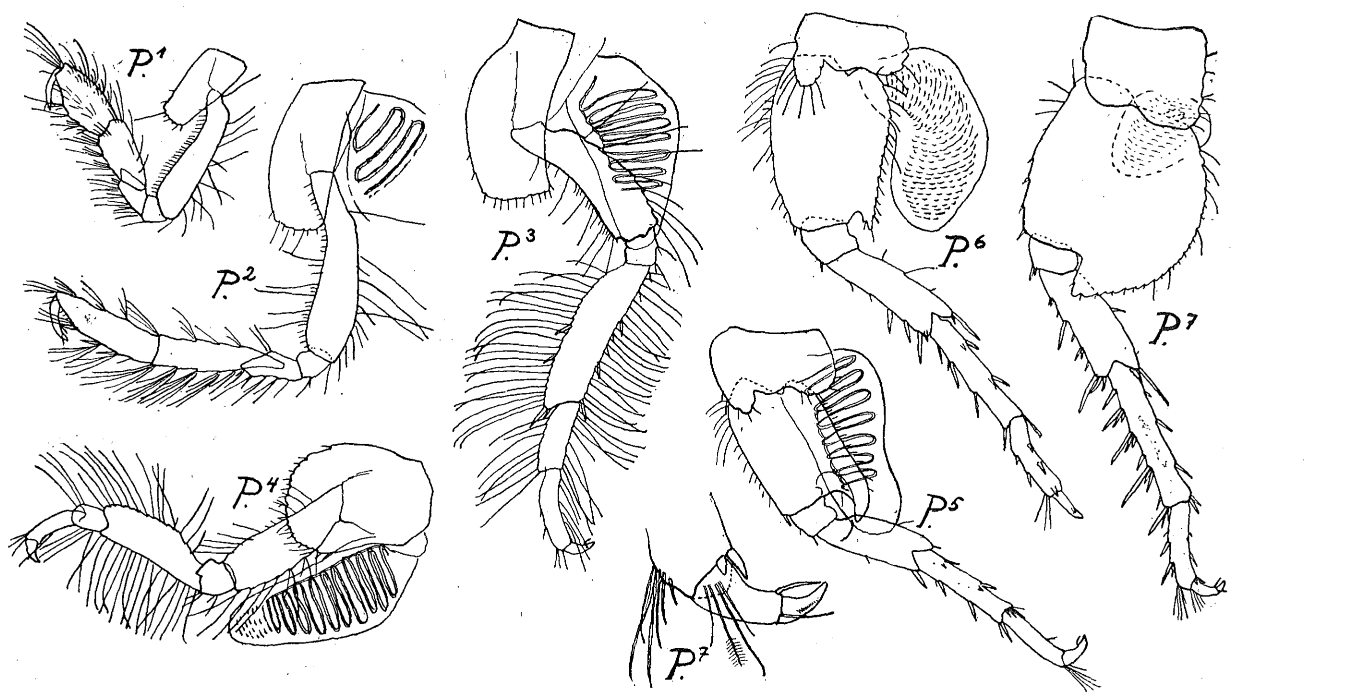

Fig. 30. Nototropis guttatus ♂. The pereiopoda.

ɔubt of the fact that my specimens really belong ·. *guttatus*; they differ, however, in some respects Stebbing's description. As moreover almost all illustrations mentioned by Stebbing are of far recent date, I have thought it best to dissect a

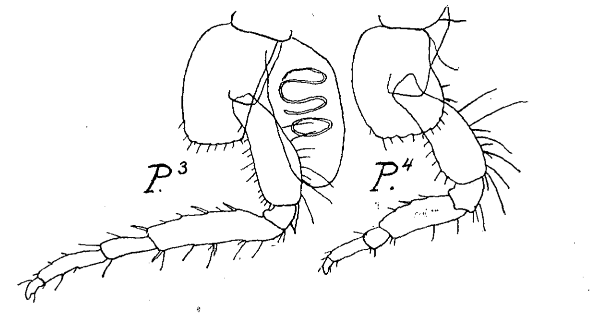

Fig. 31. Nototropis guttatus juv. (♂?), 7 mm, Norway.

cimen and draw new figures. The species is very sely related to *N. vedlomensis*, with which it has ɔ frequently been confused; I have therefore also sected a specimen of this and give here some figures ich may serve to supplement those given by Sars his Account.

The rostrum is rounded at the point, and evenly inted. The upper lobe of the lateral margin of the phalon is sharply defined, but rounded at the point; the specimens of *N. vedlom.* preserved at our Zool. useum, it is of exactly the same shape, and not angularly pointed, as shown by Sars in the Account. ; a matter of fact, it is impossible to find any real fference in the cephalon of the two species except ıe form of the eyes. The first joint of the peduncle . ant. 1 of *N. vedl.* has the inferior portion of its istal end produced out into a not altogether insignicant tooth, which in *N. gutt.* is either not present at ll or in any case entirely negligible.

The 4 and 5. joints of p. 3 — p. 4 are marginally eset with long setæ and some few spines (*N. vedl.* has hort spines only); this character is, with the gills, the ıest distinguishing mark of species which I have been ıble to find in the specimens to which I have had ıccess. (In a young spec. of *N. gutt.* from Norway, — ;?, 6 mm — these long setæ were not present [*vide* ig. 31]). The hook at the back of 2. joint in p. 5 .s, in my specimens, of exactly the same shape as in *N. vedl.* (Stebbing says: "the lower hind corner much less distinctly uncinate than in *N. vedl.*"): this is, as a matter of fact, the only point which occasioned me any hesitation with regard to my determination. The second joint of p. 7 is somewhat longer in proportion than that of *N. vedl.* I append figs. of urop. 1—3 and telson of *N. vedl.*; these parts, however, are entirely similar to those of *N. gutt.*

On going through the material of *N. vedl.* at the Museum (where, by the way, there was nothing noted as *N. gutt.*) I found two specimens of *N. gutt.* together with *N. vedl.* in a glass marked "*Paratylus vedlomensis* Sp. Bate; Norveg. occidend. G. O. Sars ded.". In addition, there were 3 specimens from Denmark, taken by the "Hauch", St. 29, 72 and ? (northern Kattegat, mentioned by Meinert in "Det videnskabelige Udbytte af Kanonbaaden "Hauch's" Togter, 1890, p. 165).

It is evident that Boeck, (l. c. 1876) has confused these two species both in his descriptions and his drawings. In Pl. 11, figs. 6 l (p. 3 or p. 4) and 6 m (p. 5) at least belong to *N. guttatus*; possibly also fig. 6 n (p. 7), the 2. joint being apparently too broad to belong to *N. vedlomensis*.

It would in any case seem certain that the distribution given by Stebbing for *N. gutt.* may be extended to embrace the Kattegat and W. Norway.

Fam. EUSIRIDÆ.

Genus EUSIRUS.

EUSIRUS LONGIPES Boeck

Eusirus longipes Boeck, Forhandl. 8. Skandinav. Naturforsker Møde 1861, p. 656.

* — — G. O. Sars, Account vol. 1, 1895, p. 420, pl. 148, fig. 1.

— — Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 341 (*ubi lit.*).

St. 63. *35°50′ N, 6°03′ W.* 23-2-1909. 490 m. 1⁴⁵ am. 600 m. w. 5 spec.

St. 140. *37°29′ N, 12°34′ W.* 20-7-1910. 112 m. At the bottom. 1 spec.

Distribution. Arctic Ocean, North Atlantic, North Sea and Skagerrak (Norway, depth 56—188 m; Shetland Isles; Firth of Clyde; France); Adriatic (Stebbing l. c.). E. W. Sexton gives in Proc. Zool. Soc. London, 1909, p. 864 a very detailed synopsis of the distribution and quotes the sources.

Fam. GAMMARIDÆ.

Genus MÆRA.

MÆRA SCHMIDTII n. sp. (Fig. 32)

St. 126. *42°43′ N, 9°50′ E.* 10-7-1910. 600—620 m. 10¹⁰ pm. ½ spec. (12 mm?).

St. 139. *37°57′ N, 11°54′ E.* 27-7-1910. 680 m. At the bottom. 3 spec. each 10 mm, 1 spec., 12 mm.

St. 140. *37°29′ N, 12°34′ E.* 27-7-1910. 112 m. At the bottom. 1 spec., 10 mm.

In addition to the 23 species of genus *Mæra* mentioned by Stebbing in Das Tierreich, Amphip. Gamm. 1906, p. 433 og 732 the following species are known:

M. spinicauda Holmes, Proc. U. S. Nat. Mus., vol. 35, 1908, p. 539, fig. 45.

M. Rathbunæ Pearse, *ibid.* vol. 34, 1908, p. 29.

M. tinkerensis Kunkel, New Haven Transact. Connecticut Acad., vol. 16, 1910, p. 49, figs.

M. prionochira v. d. Brüggen, St. Petersbourg Ann. Mus. Zool., vol. 11, 1906 (1907), p. 230.

The present species is not, however, identical with any previously described.

The following description is based on a dissected specimen (♂) 10 mm long. True, we have in the material parts of one or two larger individuals, (abt. 12 mm) but these are not complete, and therefore unsuitable for purposes of description. Moreover, the differences are, at any rate, as far as it was possible to see without dissection, so slight as to render smaller specimens equally adapted for the purpose.

The species in question is a typical *Mæra*, so there can be no doubt of the fact that it does not belong to any of the related species. It is not particularly slender, resembling in this respect *N. othonis*. The cephalosome is about the length of the two first segments of the body together. Lateral lobes rounded, the lower corner almost rectangular. The eyes light, of medium size, slightly broader in the lower part than in the upper. The whole of the dorsum is entirely glabrous; with regard to the segments of the body, metasome, and urosome there is nothing particular to note save that the first segment of the urosome bears a hump, and that the epimeral parts of the 3. segment in the metasome have their posterior portion without the slightest indication of marginal dentition; there are two spines, however, close to the anterior portion of the lower edge.

The antennæ are comparatively short. In ant. 1, the flagellum has 16 joints, of which the last is very small. The accessory flagellum is about the length of the first joint of the antenna, and consists of four joints, of which No. 3 in the longest. In ant. 2, the flagellum has only 7 short joints, these making up together about ¹/₃rd of the length of the antenna.

The oral parts correspond on the whole to Sars' fig. of those in *M. othonis* (Account, vol. 1, Pl. 182). The labrum I have not drawn, as it entirely resembles Sars' fig. (Pl. 182, 1 L.). In the mandibles, the palps are only very slightly beset with setæ, the molar expansion is extraordinarily broad, (across the longitudinal axis of the mandibles) and has its proximal margin furnished with a long, downward pointing, pennate spine. With regard to the maxillæ, there is nothing particular to remark, save that the outer plate appears to have but 6 spines, not 10, as Stebbing says (Tierreich, p. 433). On the inner plate of the maxillipeds I have only been able to find two spine teeth (on the median and lateral corners) not three (Stebbing l. c. p. 433). The inner lobe of the labrum appears to be slightly smaller than shown by Sars in *N. othonis* (Account, vol. 1, Pl. 182).

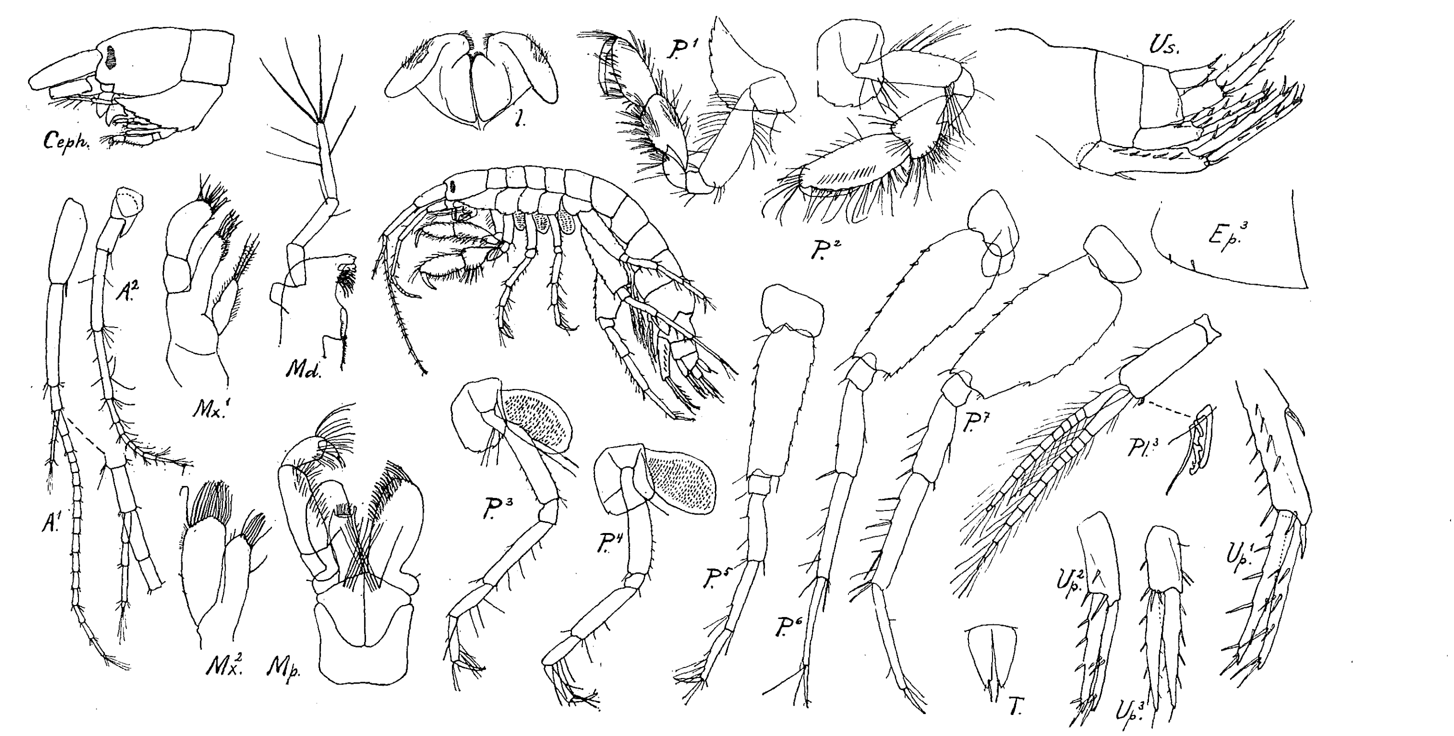

Fig. 32. Mæra Schmidti.

The pereiopoda resemble those of *M. othonis*, differ-
; however in several distinct features. The first nt of p. 1 is pointed at the anterior end and has teeth the more or less regularly distributed over e whole of the lower edge. On p. 2, the first joint s 3 teeth below, (that in the anterior corner not cluded); the 5. joint is somewhat longer in propor-
n than in ♂ of *M. othonis*, and the dactylus is only ry slightly curved. With regard to p. 3 and p. 4, ere is nothing particular to remark; the arrangement the teeth on the lower edge of 1. joint will be seen om fig. 32. P. 5 — p. 7 also resemble the corresponding pendages in *M. othonis*; the second joint in p. 5, owever, is far more slender. These three pairs of ereiopoda have strong spines on the anterior, and eth on the posterior edge of the second joint. The eopoda are slender, the endop. however somewhat nger than the exop. The two feet of each pair are nnected together by means of peculiar dentate spines *vide* Fig.). The uropoda are very characteristic. Urop. 1 is almost as long as urop. 3, and has, on the uter side of the stem, a little in front of the centre, strong spine, which feature, as far as I can see from xtant works, distinguishes this species from all others. Urop. 2 and urop. 3 are of about equal length, but o not, of course project equally far back, being at-
ached in different places. In urop. 3, the branches re slender and pointed, with only a single thin spine t the point, fixed in a small notch. The outer margins f the telson are convex; there are two comparatively ong and thick spines at the point.

In accordance with the above, this species can, in contrast to the others, be characterised by a combina-
tion of the following features: the light eyes, the 4 joints in the accessory flagellum, the shape of the coxal plates especially in p. 1 and p. 2, the epimeral part of the 3rd segment in the metasome, the large spine on the outer side of the peduncle in urop. 1, the shape of urop. 3, and the heavy spines at the point of the telson.

I have taken the liberty of naming this species after the leader of the expedition, Dr. Johs. Schmidt.

MÆRA GROSSIMANA Mont.

Cancer (Gammarus) grossimanus Montagu, Transact. Linn. Soc. London, vol. 9, 1808, p. 97, Pl. 4, fig. 5.

**Mæra grossimanus (partim)* Della Valle, Flora u. Fauna Golf. Neapel, vol. 20, 1893, p. 727, Pl. 2, fig. 10, Pl. 21, fig. 1—16, Pl. 41, fig. 37.

Mæra grossimana Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 435 (*ubi lit. et syn.*).

St. 105. *37°43′ N, 2°08′ W.* 24-6-1910. 20 m. 8[15] pm. At the bottom. 1 spec.
St. 140. *37°29′ N, 12°34′ E.* 27-7-1910. 112 m. At the bottom. 1 spec.
St. 207. *40°18′ N, 3°20′ E.* 28-8-1910. > 1600 m. At the bottom. 1 spec.

Distribution. From S.-England and W.-France to Azores and Mediterranean (Stebbing l. c.).

Genus GAMMARUS.

GAMMARUS LOCUSTA L.

Cancer locusta Linné, Systema naturæ, edit. 10, 1758, p. 634.

**Gammarus* — G. O. Sars, Account vol. 1, 1895, p. 499, Pl. 1, Pl. 176, fig. 1.

— — Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 476 (*ubi lit. et syn.*).

St. 58. Valentia Harbour, on the shore. 28-5-1906. 2 spec.
St. 78. *51°08′ N, 1°35′ E.* 49 m. 65 m. w. 1 spec.
? Piræus, the harbour, between algæ. 0.12 m. 2-1-1909. 1 spec. (defective).
? Cadiz, between algæ. 6 m. 24-2-1909. 1 spec. (defective).

Distribution. Almost cosmopolitan; see K. Stephensen, Conspectus Crust. et Pycnog. Groenlandiæ; Meddel. om Grønland, vol. 22, 1913, p. 192—94.

Fam. DEXAMINIDÆ.

Genus DEXAMINE.

DEXAMINE SPINOSA Mont.

Cancer (Gammarus) spinosus Montagu, Transact. Linn. Soc. London, vol. 11, 1813, p. 3, Pl. 2, fig. 1.

**Dexamine spinosa* G. O. Sars, Account vol. 1, 1895, p. 475, Pl. 166, fig. 2, Pl. 167.

— — Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 515 (*ubi lit. et syn.*).

St. 135. *37°17′ N, 10°28′ E.* 16-7-1910. 200 m. 0[55] am. 25 m. w. 1 spec.
St. 281. Between Faro and St. Agata, 1-3-1911. 3[45]—4[45] pm. 30 m. w. 1 spec.

In the specimen from St. 135 1. joint in ant. 1 is produced to an acute, not obtuse tooth. In the specimen from St. 281 this tooth is not very acute, but not as obtuse as in Sars' figure (Account Pl. 167).

Distribution. From Arctic Ocean to Azores and Black Sea (Stebbing l. c.).

Fam. TALITRIDÆ.

Genus HYALE.

HYALE GRIMALDII Chevreux

**Hyale Grimaldii* Chevreux, Bull. Soc. Zool. France, vol. 16, 1891, p. 257, fig. 1—5.

— — Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 567.

St. 132. *38°37′ N, 9°47′ E.* 14-7-1910. Ca. 10 small spec. Found between green filiform algæ on the back of a couple of sea turtles (*Thalassochelys corticata*) taken at the surface.

Distribution. *42° N, 24° W; 38° N, 64° W;* West Mediterranean. On floating objects and *Thalassochelys* (Stebbing l. c.).

HYALE PONTICA Rathke

Hyale pontica Rathke, Mém. prés. Ac. St.-Péterbourg, vol. 3, 1837, p. 378, Pl. 5, fig. 20—28.

* — *lubbockiana* G. O. Sars, Account vol. 1, 1895, p. 27, Pl. 11, fig. 2.

— *pontica* Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 568 (*ubi lit. et syn.*).

Mentone, between algæ at the shore. 26-1-1909. 1 spec.

Distribution. From West Norway to Algeria (Stebbing l. c.). Ceylon (Walker, Ceylon Pearl Oyster Report, pt. 2, 1904, p. 258).

HYALE SCHMIDTII Heller

Nicæa schmidtii Heller, Denkschr. Akad. Wien, vol. 26, pt. 2, 1866, p. 11, Pl. 1, fig. 31, 32.

Hyale — Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 571 (*ubi lit. et syn.*).

* — *camptonyx* Chevreux, Rés. Camp. Sci. Monaco, vol. 16, 1900, p. 12, Pl. 2, fig. 3 (*teste* Chevreux l. c. 1910 [1911]).

* — *schmidtii* Chevreux, Mém. Soc. Zool. France, vol. 23, No. 3—4, 1910 [1911], p. 237, Pl. 16, fig. 9—12.

Taormina, on the shore. 7-1-1909. 1 ♂.

Distribution. Mediterranean; Adriatic; North-Atlantic (Portugal) (Stebbing l. c.).

? HYALE CAMPTONYX Heller

Nicæa camptonyx Heller, Denkschr. Akad. Wien, vol. 26, pt. 2, 1866, p. 10, Pl. 1, fig. 25—30.

Hyale — Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 570 (*ubi lit. et syn.*).

* — — Chevreux, Mém. Soc. Zool. France, vol. 23, No. 3—4, 1910 (1911), p. 236, Pl. 16, fig. 3—8.

non — — Chevreux, Rés. Camp. Sci. Monaco, vol. 16, 1900, p. 12, Pl. 2, fig. 3 (= *H. Schmidtii* Heller).

St. 10. *37°21′ N, 16°45′ E.* 15-12-1908. 1200 m. w. 1 ♀ with eggs, 4 mm.

Determination not quite certain; the eyes for instance, are very large.

Distribution. Mediterranean; Adriatic; Portugal; Azores. In seaweed and on a floating log (Stebbing l. c.).

Fam. PHOTIDÆ.

A defective individual, indeterminable even as to genus, was taken at St. 132, *38°57′ N, 9°47′ E.* 14-7-1910, and is only mentioned owing to the fact of its having been found together with various other crustaceans among green filiform algæ on the back of a couple of *Thalassochelys corticata*.

Genus PHOTIS.

PHOTIS LONGICAUDATA Bate

Eiscladus longicaudatus Bate and Westwood, British sessile-eyed Crust., vol. 1, 1862, p. 412, with figs.

**Photis* — G. O. Sars, Account vol. 1, 1895, p. 571, Pl. 203, fig. 1.

— — Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 608 (*ubi lit. et syn.*).

St. 140. *37°29′ N, 12°34′ E.* 20-7-1910. 112 m. 1 spec.

Distribution. From Norway and Denmark to Mediterranean (Naples) (Stebbing l. c.). Ceylon (Walker, Ceylon Pearl Oyster Report, pt. 2, 1904, p. 286, Pl. 6, fig. 43).

Genus EURYSTHEUS.

EURYSTHEUS sp.

St. 41. *39°10′ N, 9°35′ E.* 2-2-1909. On the shore. 1 spec. (defective).

Fam. AMPITHOIDÆ (= AMPHITOIDÆ).

Genus AMPITHOE (= AMPHITHOE).

AMPITHOE VAILLANTII Lucas

Amphithoe vaillantii Lucas, Explor. Algérie, Anim. artic. vol. 1, 1846, p. 54, Crust. (vol. 4), Pl. 5, fig. 3.

Ampithoe — Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 639 (*ubi lit. et syn.*).

**Amphithoe* — Chevreux, Mém. Soc. Zool. France, vol. 23, No. 3—4, 1910 (1911), p. 260, Pl. 20, fig. 1—4.

t. 41. *39°10′ N, 9°35′ E.* 2-2-1909. On the shore. 1 spec.
t. 105. *37°43′ N, 2°08′ W.* 24-6-1910. 20 m. 2 spec.

Distribution. From N. W. France to Black Sea and Red Sea (Chevreux l. c.). Ceylon (Walker, Ceylon Pearl)yster Report, pt. 2, 1904, p. 291).

Fam. COROPHIIDÆ.

Genus ERICTHONIUS.

? ERICTHONIUS DIFFORMIS M.-Edw.

Ericthonius difformis Milne-Edwards, Ann. Sci. Naturelle, vol. 20, 1830, p. 382.
**Erichthonius* — G. O. Sars, Account vol. 1, 1895, p. 604, Pl. 216, fig. 1.
Ericthonius — Stebbing, Amphip. Gamm., Das Tierreich 1906, p. 672 (*ubi lit. et syn.*).

St. 140. *37°29′ N, 12°34′ E.* 20-7-1910. 112 m. 2 spec. Determination not certain.

Distribution. From Trondhjemsfjord to Black Sea and Azores; United States of America (Stebbing l. c.).

Genus COROPHIUM.

COROPHIUM ROTUNDIROSTRE n. sp. (Fig. 33)

St. 140. *37°29′ N, 12°34′ E.* 20-7-1910. 112 m. Clay. 2 spec.

Both specimens (♀ 5.5 mm and ♂ 4 mm) are unfortunately somewhat defective. The illustrations and description apply to the larger of the two, a ♀, which has been dissected. As far as could be determined without dissection, there appears to be entire uniformity between the sexes in all visible features, both specimens here lacking the most important features for determination of sex (with the exception of the marsupial plate) there being nothing left of the second

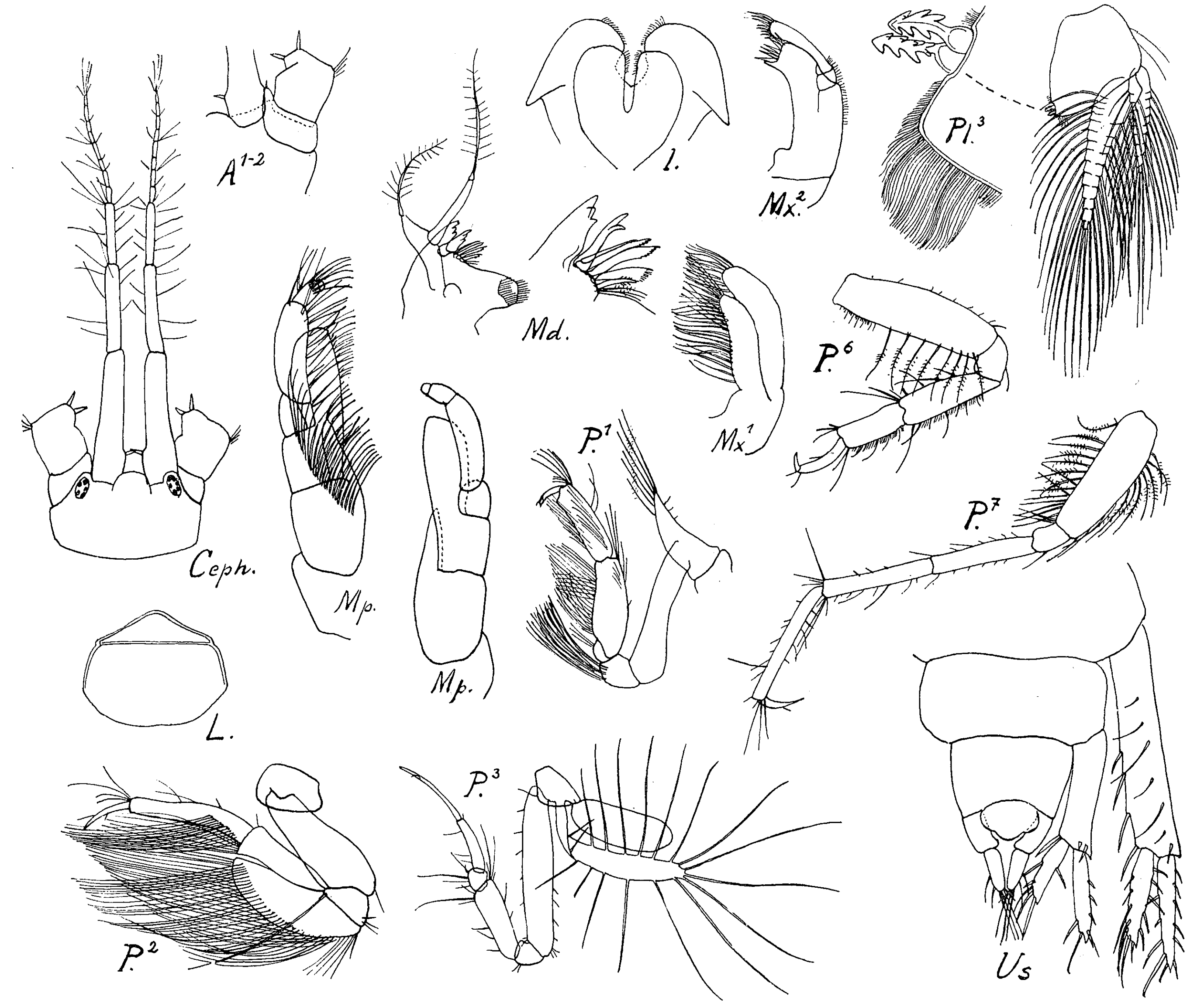

Fig. 33. Corophium rotundirostre.

pair of antennæ beyond the two innermost segments of the stem.

Bradley gives, in University of California publications in Zool., Berkeley, vol. 4, No. 4, 1908, p. 229—30, a list and key of all the known species of genus *Corophium*; according to this, the present species should be *C. volutator* Pallas = *C. grossipes* L., which however, is quite out of the question. Since then, Chevreux has, in Bull. Soc. Zool. France, vol. 33, No. 3—4, 1908, p. 69—73, described 3 species from the Mediterranean, (*C. aculeatum*, *C. annulatum* and *C. acutum*) Vanhøffen has also described a brackish-water species (*C. lacustre*) in Sitzungsber. Gesellsch. naturforsch. Freunde, Berlin, 1911, p. 400, and Wundsch a fresh-water species (*C. devium*) in Zool. Anzeiger vol. 39, 1912, p. 732.

This is all that we have in the way of description and illustration of the *Corophium* species since Stebbing's Amphip. Gamm. in Das Tierreich; the present species, however, does not correspond to any of those hitherto described.

Its general appearance is typical of the genus, and I therefore give no drawing of the whole animal. The species belongs to that group in which the three segments of the urosome are not fused together. The rostrum is rounded, almost semicircular, the ocular lobes are oval, projecting forward about as far as the rostrum. Each eye has 5—6 black ocelli. Ant. 1 is of the usual form; the first stem-joint, however, has on its median side a spine close to the base. The flagellum consists of 8 joints. Of ant. 2, only the two first segments are preserved, the first one has a pointed process on the median, downturned side. Unfortunately, all the remaining parts of ant. 2 are missing, both in ♂ and ♀. With regard to the oral parts there is nothing particular to remark save that the first segment of the mandibular palp is produced in a long process, and the maxillipeds far more thickly beset with setæ than in *C. grossipes* (G. O. Sars, Account, vol. 1, Pl. 219).

In the pereiopoda, the epimeral parts are of the usual form. The 2. joint of p. 1 has a convexity on the posterior side of the distal end, and the dactylus is somewhat longer than the terminal surface of the preceding segment. In p. 2, the 5th joint is of peculiar shape, being constricted towards the end and thereafter widening out again. The dactylus is comparatively long and thin, without teeth. In p. 3 — p. 4 the dactylus is longer than the two preceeding joints together, and the 5. joint is drawn out in the distal end. P. 5 and p. 6 are almost alike, p. 6 however, being slightly longer and with more setæ than p. 5. With regard to p. 7, nothing particular to remark save that here also the dactylus is comparatively long.

The pleopoda are of the usual form; on the inner side of the stem there are two peculiar spines (*vide* detail fig.). Sars appears (Account, Pl. 218) to have drawn something similar in *Siphonoecetes Colletti*, not, however, in any of the *Corophium* species. The shape of the somewhat long and slender urop. will be seen from fig.; urop. 3 is linear, with a very slight projection on the median side of the stem. The telson is trilobate, and rounded, about the same shape as that of *C. grossipes*.

On account of the round rostrum I suggest the specific name *C. rotundirostre*.

2. Caprellidea.

Fam. CAPRELLIDÆ.

Genus CAPRELLA.

CAPRELLA ACUTIFRONS Latr. forma ANDRÉÆ P. Mayer.

Caprella acutifrons forma *Andreæ* P. Mayer, Caprell. Golf. Neapel, Nachtrag; Fauna u. Flora Golf. Neapel, vol. 17, 1890, p. 52, 55, Pl. 2, fig. 38, Pl. 4, fig. 56, 70, 71.
— — — — P. Mayer, Caprell.; Siboga-Exped., Livr. 12 (Monogr. 34), 1903, p. 80 etc.

St. 132. *38°57′ N, 9°47′ E.* 14-7-1910.

From green filiform algæ on the back of a couple of sea turtles (*Thalassochelys corticata*) taken at the surface. A considerable number of specimens, ♂ and ♀, (3—)13 mm; the determination of the smaller individuals is somewhat uncertain, owing to their insignificant size.

Distribution. P. Mayer records this variety in the two works quoted with a very wide distribution from the warmer parts of both Atlantic and Pacific. He also mentions it from Naples, driven in to the bay on corks and on the trunk of a tree. The variety is pelagic, or more correctly, passively pelagic on floating objects of all kinds, also turtles. It has occasionally been taken with a number of other animals (P. Mayer l. c. 1890, p. 55). Van Beneden has, in Notice sur la tortue franche (*Chelonia midas*) dans la mer du Nord, ses commensaux et ses parasites (Bull. Acad. Royale de Belgique, ser. 2, vol. 6, No. 1, p. 10—13, Pl. 1, fig. 9—11), a work, which appears to have been overlooked by nearly all subsequent writers, mentioned *C. acutifrons* as found together with *Tanais Dulongii* Sav. The specimens from the "Thor" were found together with *Tanais robustus*, *Hyale Grimaldi*, *H. camptonyx* (?), and *Photidæ* fam. (?).