

17870

Instituut voor Zeewetenschappelijk onderzoek

Institute for Marine Scientific Research

Prinses Elisabethlaan 69

8401 Bredene - Belgium - Tel. 059 / 80 37 15

*Norman*

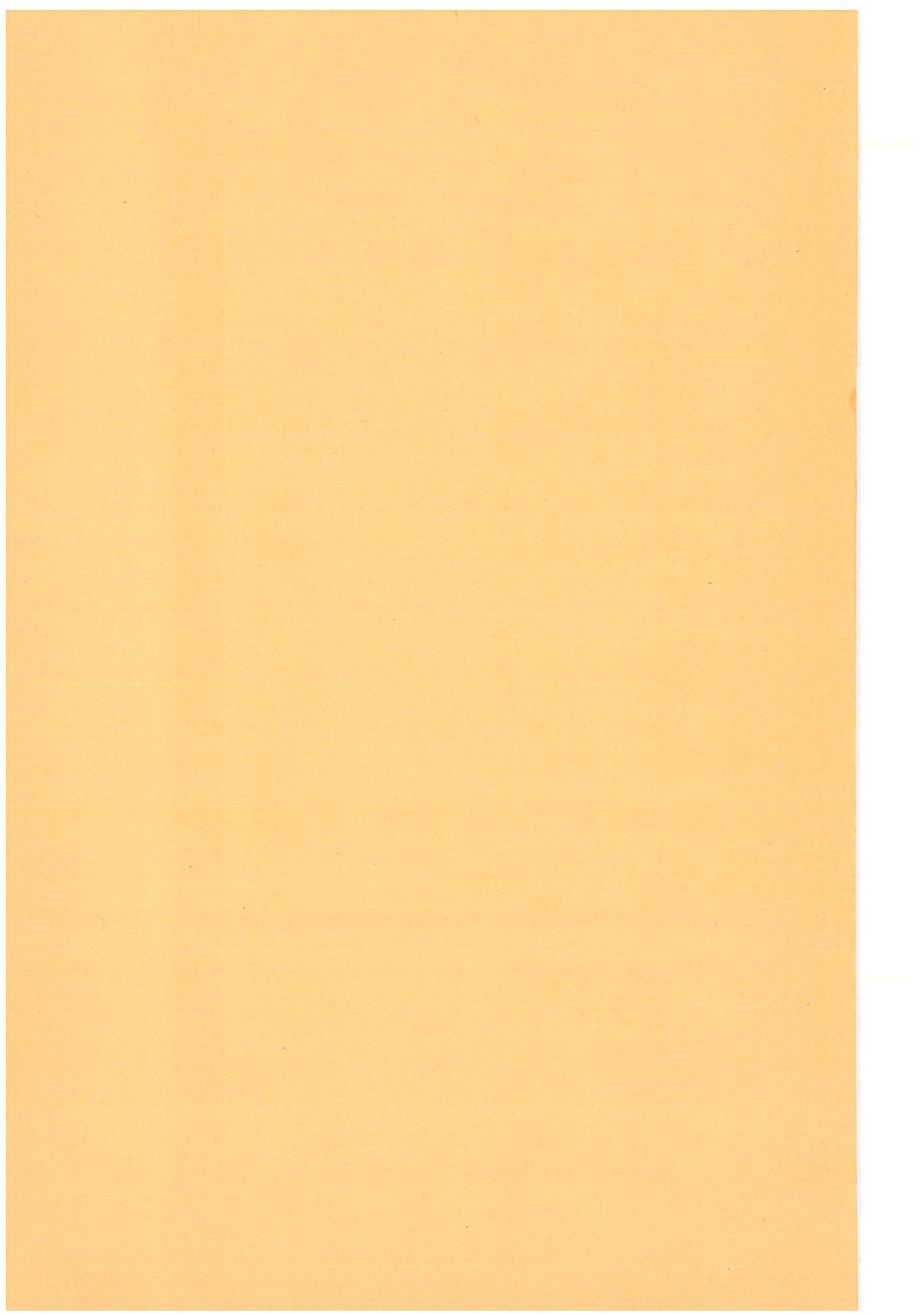
*A month on the  
Erondhjem fjord*

*(Cruiser)*

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A MONTH ON THE TRONDHJEM FIORD.

BY

THE REV. CANON NORMAN, M.A., D.C.L., F.R.S., ETC.

*A Month on the Trondhjem Fiord.*

By the Rev. Canon NORMAN, M.A., D.C.L., F.R.S., &c.

[Continued from vol. xiii. p. 283.]

I S O P O D A (continued).

61. *Jera albifrons*, Montagu.

Tide-marks, Trondhjem.

62. *Cyproniscus cypridinæ*, G. O. Sars.

1882. *Cryptothiria cypridinæ*, G. O. Sars, Oversigt af Norges Crustaceer, i. p. 73, pl. ii, figs. 17-21.

1884. *Cyproniscus cypridinæ*, Kossman, "Neueres über Cryptonisciden," Sitz. der k. preuss. Akad. d. Wissensch. p. 460 (translated Ann. & Mag. Nat. Hist. ser. 5, vol. xiv. p. 4).

Two or three specimens in *Cypridina norvegica* from off Rödberg; also taken by me in the Hardanger Fiord. Sars's type specimens were from the Lofoten Islands.

Kossman has instituted the genus *Cyproniscus* to receive this species.

## AMPHIPODA.

The beautiful new work on the Amphipoda of Norway by Prof. G. O. Sars\*, which is now almost completed, throws a flood of light upon this interesting group, and will henceforth make the study of the northern species comparatively easy. The descriptions and the figures in this monograph leave nothing to be desired. The great work of Della Valle lately published ('Fauna und Flora des Golfes von Neapel, Gammardini del Golfe di Napoli,' 1893) also adds much to our knowledge of the South European species; to this work I shall have occasion to, in some cases, refer †. I have followed Sars's arrangement.

In the opening sentences of these notes I mentioned that a chief reason of my going to the Trondhjem Fiord was a hope that by doing so I might meet with some of the new and rare Amphipoda which G. O. Sars had found there. I was not disappointed. The following list of 119 species is a good record for a month's work. Some of these species are not recorded from the Fiord by Sars; but he has given that locality for 70 species which were not obtained by me, and to these numbers must doubtless be added many of the commoner forms of West Norway, for which Sars in his work does not record special habitats. It will be evident how rich the Amphipodal fauna of this Fiord must be, when I mention that in Stebbing's great work on the 'Challenger' Amphipoda the number of described species is 294; but of these no less

\* 'An Account of the Crustacea of Norway,' vol. i. Amphipoda, pts. 1-30, pls. i.-ccxl. (1890-94).

† It is much to be regretted that Signor Della Valle has added to his work synonymy of Arctic species, with which he was not familiar. With respect to these much confusion has been introduced by the lumping together of widely distinct species under a single name. No naturalist who was practically acquainted with the species, or, at any rate, had studied them in life, could have thus treated them.

than 93 are oceanic species of the tribe Hyperidea; that the total number procured by the 'Vöringen' Expedition during three summers' work was 149\*; that the Amphipods of the 'Willem Barents' Expedition, 1878-84, were 73 †; those of the 'Dijmphna' Expedition 41 ‡. Moreover, the total known Amphipods of Greenland are 151 §; of Denmark 122 ||; of the British Isles about 236; of the Mediterranean 143 ¶.

Sars's admirable and complete work proves how extremely rich the Norwegian seas are in Amphipoda; and the fact that I only found one undescribed species testifies to the thoroughness of his examination of the fauna.

### 63. *Hyale Nilssoni*, Rathke.

Rödberg, 3-5 fathoms.

Surely this is *H. pontica* of Rathke. That author's figure in 'Beitrag zur Fauna der Krym' closely agrees with *H. Nilssoni* of the same author's 'Beiträge zur Fauna Norwegens,' with one important exception. The last uropods of *H. pontica* are figured and described as two-branched; but there would seem to have been some mistake here, since no allied form has such uropods. Della Valle unites the two species; but then his figure (pl. xvi. fig. 5) of the second gnathopod of male, which gives a pyriform hand, with very oblique palm, does not agree with that organ in *H. pontica* as figured by Rathke, which is indistinguishable from the same organ in *H. Nilssoni*, Rathke. Heller\*\* gave ten Adriatic species of this genus, the whole of which Della Valle includes under *H. Prevostii*, M.-Edwards (nec Rathke).

\* 'Norwegian North-Atlantic Expedition, 1876-78.' Zoology, Crustacea, G. O. Sars.

† "Die zoologischen Ergebnisse in 1878 und 1879 des 'Willem Barents'" (Niederl. Archiv für Zool. Supp. Band, 1881-2); 'Die Crustaceen,' Dr. P. C. Hoek; and the Amphipoda, "Voyages 'Willem Barents,' 1880-84," by Rev. T. R. R. Stebbing (Bijdr. Dierk. 1894).

‡ H. J. Hansen, 'Dijmphna-Togtets zoologisk-botaniske Udbytte, 1887: Krebsdyr.'

§ H. J. Hansen, "Oversigt over det vestlige Grønlands Fauna af malakostrake Havkrebssdyr" (Vidensk. Midd. fra den naturh. Foren. i Kjöbh. 1887).

|| Fr. Meinert, "Crust. Isop., Amphip., et Decap. Daniæ" (Naturhist. Tidssk. 3 R. xi. B., 1877, and xii. B., 1880); Fr. Meinert, Det Vidensk. Udbytte af 'Hauchs' Togter, Crustacea Malacostraca, 1890. I have previously in these notes (vol. xiii. p. 268) given the number of Danish Amphipods as 113, which is the number in the last of the three memoirs here quoted; I have here added some additional species mentioned in the two former.

¶ Della Valle and Mayer.

\*\* C. Heller, 'Beit. zur näheren Kenntniss der Amphipoden des Adriatischen Meeres,' 1866.

Under the last-mentioned name Della Valle also includes *H. Lubbockiana*, G. O. Sars, while *H. Lubbockiana* of British authors he retains as a distinct species; but *H. Lubbockiana*, G. O. Sars, is undoubtedly the same as that of British authors, while the species described as *H. Lubbockiana* by the Italian author would seem to be something different, inasmuch as he could not in the large figure he gives have omitted to draw the remarkable serrated spines of the propodus of the peræopods. These spines have been figured by Bate, Stebbing, and Sars.

64. *Acidostoma obesum*, Bate.

Rödberg, 20-40 fathoms.

65. *Ichnopus spinicornis*, Boeck.

Rödberg, 150 fathoms.

Della Valle makes this, as well as *I. affinis* and *I. calceolus* of Heller, synonyms of *I. taurus*, A. Costa. With regard to *I. calceolus* he is probably right, but specimens of Heller's *I. affinis*, kindly given me by that author, agree with *I. taurus*, and these forms are markedly distinct from *I. spinicornis* in the much more slender antennules and antennæ and in the absence in these of calceola in the female, as well as the character of the nail of the second gnathopod (see Heller, fig. 22, and Della Valle, fig. 12). Sars makes *I. calceolus* of Heller the male of *I. spinicornis*; and Heller's figure of the first gnathopod of *I. calceolus* does not agree with that limb in *I. taurus*, moreover the differences illustrated in Della Valle's figs. 12 and 13 look something more than varietal.

Sars has not noticed the peculiar modification of the second uropod in the male of *I. spinicornis*, which corresponds to that figured by Della Valle (pl. xxvii. fig. 2) as found in *I. taurus*, and which occurs also in some other species, for example in the male of the genus *Triphosites* (see Sars, pl. xxix. fig. 1, *up.*<sup>2</sup>).

66. *Ambasia Danielsseni*, Boeck.

Rödberg, 100-300 fathoms.

67. *Aristias neglectus*, Hansen.

1872. *Aristias tumidus*, Boeck (nec Krøyer), Skand. og Arkt. Amphip. p. 148, pl. iii. fig. 4.

1887. *Aristias neglectus*, Hansen, Oversigt Grønlands Amphip. Malakos. Hafskrebsdyr, p. 86, pl. ii. figs. 3-3b.

1890. *Aristias Audouinianus*, G. O. Sars, Crust. Norway, Amphipoda, p. 48, pl. xvii. fig. 2 (nec *Lysianassa Audouiniana*, Bate).

1893. *Aristias neglectus*, Della Valle, l. c. p. 844, pl. vi. fig. 9, pl. xxvi. figs. 16-31.

Rödberg, one specimen in 40 and a second in 250–300 fathoms; also at Trondhjem.

I have specimens of this species from Shetland and Sleat Sound, Skye, and procured it at Naples in 1887.

*Aristias tumidus*, Kröyer, seems to be confined to the Arctic regions; the specimens in my collection are from Greenland (*Hansen*) and Spitsbergen (*Lovén*).

68. *Perrierella Audouiniana*, Bate.

1855. *Lysianassa Audouiniana*, Bate, Brit. Assoc. Rep. p. 58; Bate and Westwood, Brit. Sessile-eyed Crust. vol. i. p. 79 (nec auct. plur.).  
 1890. *Aristias Audouinianus*, Meinert, Vidensk. Udbytte 'Hauchs' Togter, Crust. Malac. p. 152, pl. i. figs. 1–6.  
 1892. *Perrierella crassipes*, Chevreux and Bouvier, Bull. Soc. Zool. France, vol. xvii. p. 60.  
 1892. *Pararistias Audouinianus*, Robertson, "Amphip. and Isop. Firth of Clyde," Trans. Nat. Hist. Soc. Glasgow, vol. iii. p. 201.  
 1893. *Perrierella Audouiniana*, J. Bonnier, Amphip. der Boulonnais, Art. iii., Bull. sci. de France et Belgique, vol. xxiv. p. 175, pl. v. figs. 1–10.

A single specimen, agreeing on dissection in all points with Bonnier's excellent figures, *Laminarian zone*, Rödberg.

It will be seen that much has been written lately on the disputed *Lysianassa Audouiniana*, Bate; and it has now been satisfactorily shown that *Perrierella* is that species, a conclusion confirmed by the examination of the type specimen in the British Museum by Mr. A. O. Walker. But Bate, like others after him, confused his own species with allies. I have a specimen of this species from Polperro, Cornwall, in my collection which was determined by Bate as his *Lysianassa Audouiniana*. I have also taken *Perrierella* at Oban in Ascidians, a habitat which is well known as a favourite one of *Aristias neglectus*. I am also indebted to the Copenhagen Museum for a Danish example determined by Herr Meinert.

69. *Callisoma Hopei*, A. Costa.

1851. *Callisoma Hopei*, A. Costa, in Hope, Cat. Crust. Ital. p. 44, and plate, fig. 2; id. Fauna del Reg. di Nap. Crust. p. 5, pl. viii. his, fig. 1.  
 1857. *Scolecpecheirus crenatus*, Bate, Ann. & Mag. Nat. Hist. ser. 2, vol. xix. p. 138.  
 1890. *Callisoma crenata*, G. O. Sars, Crust. Norway Amphip. pl. xix. fig. 1.  
 1893. *Callisoma Hopei*, Della Valle, l. c. p. 839, pl. vi. fig. 11, pl. xvi. figs. 1–15.

Rödberg, 40–100 fathoms.

The North-European form is identical with the Mediterranean species described by A. Costa. I have examined

specimens from Naples: the carpus of first gnathopods is longer in proportion to the hand and the telson to the last uropods than figured by Della Valle, at least in the specimens which I have examined.

70. *Hippomedon denticulatus*, Bate.

Trondhjem, 20-40 fathoms.

71. *Orchomene serratus*, Boeck.

Rödberg, 40-300 fathoms.

72. *Orchomene crispatus*, Goës.

Rödberg, 150-300 fathoms.

73. *Orchomenella pinguis*, Boeck.

One specimen, Trondhjem, 20-40 fathoms.

74. *Triphosa Höringii*, Boeck.

Two specimens, off Trondhjem, 150 fathoms.

75. *Triphosa angulata*. G. O. Sars.

One, Rödberg, in about 150 fathoms.

76. *Triphosites longipes*, Bate.

= *Anonyx longipes*, Bate, ♀, = *Anonyx ampulla*, Bate, ♂.

Trondhjem and Rödberg, 20-150 fathoms.

77. *Anonyx nugax*, Phipps.

Common in the Laminarian zone, but the specimens all small.

78. *Haplonyx similis*, G. O. Sars.

Rödberg, in 150 fathoms.

79. *Haplonyx albidus*, G. O. Sars.

Rödberg, 250-300 fathoms.

80. *Haplonyx cæculus*, G. O. Sars.

This species is, as yet, only known from the Trondhjem Fiord; the two type specimens from which the species was described by Sars were taken in about 150 fathoms at Lexvigen (as Sars spells it, or Lensviken, as it is spelt in the

chart); and I dredged also two specimens off Rödberg, in 250–300 fathoms, the latter spot being only a few miles from Sars's locality. *H. caeculus* is distinguished by its want of eyes, the acutely produced lateral angles of the head, the produced lower hind margin of the third segment of the pleon, and the slender second gnathopods; but the peculiarity which at once attracted my notice as belonging to a species new to me consisted in the very slender nails of the peræopods, which recalled those of *Triplosites longipes*.

81. *Urothoë norvegica*, Boeck.

In various dredgings down to 150 fathoms. I employ this name as certainly correct when applied to this form without expressing any opinion as to the British species, with which it must be synonymized, because I have not again carefully examined the latter since the publication of Stebbing's memoir on the genus. Della Valle has united the whole of the northern forms, including *U. abbreviata*, G. O. Sars, together with *Egidia pulchella*, A. Costa, and *U. Poucheti*, Chevreux, under the name *Urothoë irrostrata*, Dana; and he maintains that marked differences occur in the third peræopod of the two sexes (*cf.* his pl. xxxvi. figs. 14, 15). Now specific characters have been drawn partially from the different structure of this limb. The point therefore is of consequence, for Sars shows that the form of this limb is not affected by sex in the case of *U. norvegica*. Stebbing's elaborate memoir on this genus in *Trans. Zool. Soc.* vol. xiii. p. 1, should be consulted.

82. *Argissa hamatipes*, Norman.

1869. *Syrrhoe hamatipes*, Norman, "Last Report Shetland Dredging," Brit. Assoc. Report, 1868, p. 279.

1870. *Argissa typica*, A. Boeck, *Crust. Amphip. bor. et arct.*, Vidensk. Selsk. Forhand. p. 45.

A glance at the very peculiar little hook-formed last joints of the peræopods at once suffices to distinguish this species from all others known to me. A single specimen, Trondhjem, between Monkholmen and the shore.

83. *Leptophoxus falcatus*, G. O. Sars.

Rödberg, among the mud at the bottom of the Fiord in 250–300 fathoms.

84. *Harpinia neglecta*, G. O. Sars.

= *Phoxus plumosus*, Bate (nec Krøyer), = *H. antennaria*, Meinert, ♂.

Trondhjem and Rödberg, 20–40 fathoms. This is our

common British species, and it reaches the Mediterranean, whence I have received specimens from Della Valle, who records it under this name.

85. *Harpinia pectinata*, G. O. Sars.

Rödberg, 250–300 fathoms.

86. *Harpinia truncata*, G. O. Sars.

Five specimens, Rödberg, 250–300 fathoms. Sars's description was drawn up from two specimens also taken in the Trondhjem Fiord, which is as yet the only recorded habitat.

87. *Harpinia crenulata*, Boeck.

Trondhjem and Rödberg, 20–300 fathoms.

88. *Harpinia lævis*, G. O. Sars.

Two examples, Trondhjem, in 20–40 fathoms.

89. *Ampelisca typica*, Bate.

= *A. Gaimardi*, B. & W. (nec Krøyer).

Trondhjem, between Monkholmen and the land. Della Valle's description and figures clearly show that the *Araneops brevicornis*, A. Costa, 1853, and *Ampelisca lævigata*, Lilljeborg, 1855, are the same species; and this I have confirmed by comparison of specimens, and the latter specific name must therefore give way to the former, of which another synonym is *A. Belliana*, Bate. But when Della Valle proceeds further to make *Tetromatus typicus*, Bate, and *A. gibba*, G. O. Sars, also synonyms of *A. brevicornis*, I am at a loss to understand on what grounds he has arrived at such a conclusion.

90. *Ampelisca assimilis*, Boeck.

Trondhjem, two or three specimens in shallow water.

91. *Ampelisca gibba*, G. O. Sars.

Rödberg, 150–300 fathoms, frequent.

92. *Ampelisca macrocephala*, Lilljeborg.

Trondhjem, 20–40 fathoms; also at Rödberg.

93. *Ampelisca odontoplax*, G. O. Sars.

Numerous specimens, Rödberg, 100–300 fathoms.

Della Valle unites this with *A. Eschrichti*, but I find not the slightest difficulty in distinguishing them. The pronounced character of the tooth of the anterior epimera is one well-marked distinction; and under the microscope it is seen that the propodos of the penultimate peræopod has not the lobe projecting beyond the base of the nail, which is so distinctive a mark in *A. Eschrichti* (see Sars, *l. c.* pl. lxi. fig. 1, p. 6); and the carpus of the last peræopod is quite different in form and spination. In *A. Eschrichti* the front side of this carpus is furnished with a little lobe bearing two spines, while in *A. odontoplax*, though there are two spines, there is no lobe. This may seem a trifle, but when familiar with species it is generally by some microscopic "trifle" on a part easily seen that I am in the habit of identifying them; and the structure of the carpus of the last peræopods in this species at once separates it from all known allies.

94. *Ampelisca æquicornis*, Bruzelius.

Rödberg, 10-150 fathoms.

95. *Ampelisca pusilla*, G. O. Sars.

Two specimens, Rödberg, one in 150, the other in 250-300 fathoms.

96. *Byblis Gaimardi*, Krøyer (nec *A. Gaimardi*, B. & W.).

Rödberg, 250-300 fathoms.

97. *Haploops setosa*, Boeck.

Rödberg, 100-300 fathoms.

98. *Stegocephalus inflatus*, Krøyer.

= *Stegocephalus inflatus*, Boeck &c. (nec Phipps).

Rödberg, among Corals and Alcyonarians on the precipices, in about 150 fathoms.

99. *Stegocephalus similis*, G. O. Sars.

Rare, with the last.

100. *Andania abyssii*, G. O. Sars.

Rödberg and Trondhjem, in 150-300 fathoms.

101. *Stegocephaloides christianiensis*, Boeck.

Trondhjem, 20-40 fathoms; Rödberg, 250-300 fathoms.

102. *Andaniella pectinata*, G. O. Sars.

One specimen only of this little species, taken at Rödberg in 3-10 fathoms. It is easily distinguished by the pectinated fingers of the gnathopods.

103. *Astyra abyssii*, Boeck.

Three specimens, Rödberg, 250-300 fathoms.

104. *Amphilocheus manudens*, Bate.

In 40 to about 200 fathoms, Rödberg.

105. *Gitana Sarsii*, Boeck.

A single specimen, taken in the tow-net at Trondhjem.

106. *Gitana rostrata*, Boeck.

Rödberg, 250-300 fathoms.

107. *Stenothoe megacheir*, G. O. Sars.

In 40-300 fathoms, Rödberg; chiefly, as G. O. Sars observed in the same locality, among the coral *Lophohelia prolifera*.

108. *Probolium calcaratum*, G. O. Sars.

One male, Rödberg, in 250-300 fathoms.

109. *Probolium gregarium*, G. O. Sars.

Two only, Rödberg.

110. *Leucothoe spinicarpa*, Abildgaard.

= *Leucothoe articulosa*, B. & W.

Common.

111. *Monoculodes borealis*, Boeck.

Only two specimens, in 40-100 fathoms. In Finmark I have taken it abundantly at Vadsö and in the Sydvaranger Fiords. Della Valle has united under the name *Ædiceros nubilatus*, Packard, no less than seven of the species described in Sars's work, and also *M. simplex*, Hansen. This genus seems to attain its maximum development in the Norwegian and Finmarkian fiords, the muddy still bottom and great range of depth being suitable for their delicate structure. I am not personally acquainted with *M. simplex*, Hansen; but of the distinctness of the several species in Sars's work I am fully satisfied.

by its different colouring without examination of its specific characters with a lens.

130. *Epimeria parasitica*, M. Sars.

A single specimen at Trondhjem, in deep water.

131. *Iphimedia obesa*, Rathke.

Abundant both at Trondhjem and Rödberg in shallow water.

132. *Laphystiopsis planifrons*, G. O. Sars.

I was not a little pleased to meet with three specimens, of which two were young, of this remarkable Amphipod, with its *Platypus*-like, broad, vertically depressed, and flattened rostrum, in 150 fathoms at Rödberg.

133. *Syrrhoë crenulata*, Goës.

Only one young specimen, taken at the bottom of the fiord, Rödberg.

134. *Bruzelia typica*, Boeck.

Rödberg, 125 fathoms; two examples.

135. *Pardalisca tenuipes*, G. O. Sars.

Two specimens, Rödberg, in 150–300 fathoms.

136. *Pardalisca abyssi*, Boeck.

Rödberg, 150–300 fathoms; a few specimens.

137. *Nicippe tumida*, Bruzelius.

Trondhjem, in 150 fathoms.

138. *Halice abyssi*, Boeck.

= *Halice grandicornis*, Boeck, ♂.

A single specimen, 250–300 fathoms, Rödberg.

139. *Eusirus propinquus*, G. O. Sars.

Rödberg, in greatest depths; two specimens.

140. *Eusirus leptocarpus*, G. O. Sars.

In the same locality as the last, though in a different dredging; one only.

141. *Rhachotropis macropus*, G. O. Sars.  
Rödberg, in 250-300 fathoms.
142. *Rhachotropis tumida*, G. O. Sars.  
Rödberg, four specimens.
143. *Rhachotropis leucophthalma*, G. O. Sars.  
Rödberg, 250-300 fathoms; more numerous than the two preceding.
144. *Halivages fulvocinctus*, M. Sars.  
= *Pherusa tricuspis*, Stimpson.  
Trondhjem and Rödberg, shallow water.
145. *Apherusa bispinosa*, Bate.  
= *Atylus bispinosus*, Bate.  
Trondhjem, 5-10 fathoms.
146. *Calliopijs Rathkei*, Zaddach.  
= *Calliope grandoculis*, Bate, ♂.  
Trondhjem, 3 fathoms.
147. *Laothoë Meinerti*, Boeck.  
Two specimens, Trondhjem, 150 fathoms. This species is remarkable on account of the immense size of the projecting buccal mass and the conspicuous character of the serrated edge of the great masticatory lobes of the maxillipeds.
148. *Amphithopsis longicaudata*, Boeck.  
Rare, Rödberg, 150 fathoms.
149. *Leptamphopus longimanus*, Boeck.  
A single specimen, Rödberg, 250-300 fathoms.
150. *Paratylus vedlomensis*, Bate.  
= *Dexamine vedlomensis*, Bate.  
Rödberg, 5 fathoms.
151. *Dexamine thea*, Boeck.  
= *Dexamine tenuicornis*, Bate.  
Rödberg, 5-10 fathoms.

152. *Melphidippa spinosa*, Goës.  
Two quite young specimens, Röddberg, 40–100 fathoms.
153. *Amathilla homari*, Fabricius.  
= *Amathilla Sabini*, B. & W.  
Röddberg, 3 fathoms.
154. *Gammarus locusta*, Linné.  
Laminarian zone.
155. *Melita dentata*, Kröyer.  
= *Gammarus purpuratus*, Stimpson.  
Röddberg, 5–10 fathoms.
156. *Eriopisa elongata*, Bruzelius.  
Not rare in the greatest depths.
157. *Cheirocratus Sundevalli*, Rathke.  
Trondhjem and Röddberg, 20–70 fathoms.
158. *Lilljeborgia pallida*, Bate.  
Trondhjem and Röddberg, 10–150 fathoms.
159. *Lilljeborgia fissicornis*, M. Sars.  
Röddberg, 100–150 fathoms.
160. *Autonoë megacheir*, G. O. Sars.  
1885. *Autonoë megacheir*, G. O. Sars, Den Norske Nordhavs-Exped.  
1878–1878, Crustacea, p. 203, pl. xvi. fig. 7.  
Röddberg, 250–300 fathoms.
161. *Autonoë longipes*, Lilljeborg.  
Trondhjem, in 150 fathoms.
162. *Protomedeia fasciata*, Kröyer.  
20–40 fathoms.
163. *Megamphopus cornutus*, Norman.  
1869. *Megamphopus cornutus*, Norman, "Last Report Dredging Shetland," Brit. Assoc. Rep. for 1868, p. 282.  
1870. *Protomedeia longimana*, Boeck, Crust. Amphip. bor. et arct. p. 160; Skand. og Arkt. Amphip. 1872, p. 278, pl. xxv. fig. 4, pl. xxix. fig. 5.

1878. *Podoceroopsis intermedia*, Stebbing, Ann. & Mag. Nat. Hist. ser. 5, vol. ii. p. 367, pl. xv. figs. 3 a-f.

Trondhjem, 5 fathoms.

I have specimens of this species from Shetland (the type, a full-grown male); off Cumbrae, 20-25 fathoms, taken in company with Mr. D. Robertson, who has recorded this species under two of the foregoing names; and from Lofoten Islands (*G. O. Sars*).

164. *Podoceroopsis Sophiae*, Boeck.

= *Næria tuberculosa*, Bate.

Trondhjem, 20-40 fathoms.

165. *Amphithoë rubricata*, Mont.

= *Amphithoë littorina*, Bate, = *A. podocerooides*, Rathke.

Tide-marks to 10 fathoms.

166. *Ischyrocerus anguipes*, Kröyer.

Specimens of this species occurred, including adult males, with the characteristic arched elongated hand of the second gnathopods.

167. *Ischyrocerus minutus* (Lilljeborg).

= *Podocerus isopus*, Walker.

This so-called species was more abundant than the last; but I am not satisfied of its distinctness. *I. anguipes* attains a much greater size in Spitsbergen than it does in Norway. In rock-pools and shallow water in Norway, I, like Sars, have found *I. minutus* to be abundant, and, though small, the individuals are sexually mature; but that is no proof that they have attained their full growth. In the British Isles, whence I have it from Shetland, Oban, Aberdeen coast, and Cullercoats, Northumberland, in which places I have myself found it, and also from Colwyn Bay, North Wales, received as *Podocerus isopus* from Mr. A. O. Walker, the examples are still smaller. The form of the second gnathopod of the fully mature male is not materially different in the two so-called species, the arched form being peculiar to that age, and the number of teeth-processes on the upperside of the last uropods I find in different specimens to range from two to five; and all the characteristics of the larger form appear to me to be reconcilable with considerations of growth and size. I should be satisfied of their distinctness had I been able to find the arched gnathopod of male in very young

specimens ; but the whole series appear to point to a process of gradual development of that organ with increasing size.

168. *Ischyrocerus megacheir*, G. O. Sars.

Rödberg, 40–150 fathoms ; several specimens.

May at once be recognized by examination of some very small and microscopic peculiarities: 1st by the uncinatè ramus of the last uropod having four (three to five, four more commonly) tooth-like serrations on the margin ; 2nd, by the dactyli of the hinder peræopods being very minutely serrulated on the anterior two thirds of their length.

169. *Corophium grossipes*, Linné.

= *Oniscus volulator*, O. F. Müll., = *Gammarus longicornis*, Fabr.

Between tide-marks at Trondhjem, near the mouth of the Nidd.

170. *Corophium affine*, Bruzelius.

1869. *Corophium tenuicorne*, Norman, "Last Report Shetland Dredging," Brit. Assoc. Rep. for 1868, p. 286.

30–40 fathoms.

In Britain I have found this species in St. Magnus Bay, Shetland, in Loch Fyne, and at Cumbrae in the Firth of Clyde.

171. *Corophium crassicorne*, Bruzelius.

= *Corophium spinicorne*, Bate, ♀.

Trondhjem, in 5–10 fathoms.

172. *Neohela monstrosa*, Boeck.

An imperfect specimen of this rare and remarkable Amphipod taken in 150 fathoms at Rödberg.

The species was described from an imperfect specimen taken in the Christiania Fiord ; a perfect specimen was taken by the Norwegian North-Atlantic Expedition in the Porsanger Fiord, Finmark, in 127 fathoms ; these are the only recorded occurrences of the species on the Norwegian coast. By the expedition just mentioned mutilated examples were dredged to the north of Finmark, to the north of Faroe, and to the west of Spitsbergen, down to a depth of 1215 fathoms ; a male and female have been recorded by Hansen from Greenland ; and it is probable that the *Neohela phasma*, S. I. Smith, of which the type was taken off the N.E. American coast in 372 fathoms, is the same species, since Smith's

observations on the gnathopods exactly apply to my own specimen. Although numerically so scarce, and from its very slender body and limbs so difficult to procure in a perfect condition, *Neohela monstrosa* is thus seen to have a wide geographical range.

The name given by Boeck to the genus *Hela* being pre-occupied, S. I. Smith changed it to *Neohela*; but Sars, by a *lapsus pennæ*, gave it in his 'Oversigt af Norges Crustaceer' as "*Helella*, Smith."

173. *Dulichia porrecta*, Bate.

Rödberg, in shallow water; females only.

174. *Dulichia falcata*, Bate.

Rödberg, Laminarian zone.

175. *Dulichia nordlandica*, Boeck.

Rödberg, females only.

176. *Dulichia Normani*, G. O. Sars, MS.

Rödberg, females only.

Finding difficulty in naming some of the females of *Dulichia*, I sent them to Professor G. O. Sars, who kindly determined them for me. One species was new to him, and will be described in the Supplement to his work, now being published, under the above name, which he has given me for use in this report.

177. *Lætmatophilus armatus*, Norman.

1869. *Cyrtophium armatum*, Norman, "Last Report Dredging Shetland," Brit. Assoc. Rep. for 1868, p. 285.

1870. *Lætmatophilus spinosissimus*, A. Boeck, Crust. Amphip. bor. et arct. p. 186.

1872. *Lætmatophilus spinosissimus*, De Skand. og Arkt. Amphipoder, p. 665.

Rödberg, 250-300 fathoms. The type and only British specimen yet known was a female, and was dredged off the Shetland Isles.

178. *Zenodice Frauenfeldti*, Boeck.

A male (quite perfect) and a female (perfect except antennæ), Rödberg. The entrance of the Trondhjem Fiord is the only habitat in which Sars has taken this rare and remarkable species.

179. *Phthisica marina*, Slabber.

=*Proto pedata*, Leach, ♀, =*Proto Goodseri*, Bate, ♂.

Trondhjem and Rödberg, 10-40 fathoms.

180. *Æginella spinosa*, Boeck.

Rödberg, 40-70 fathoms.

181. *Caprella linearis*, Linné.

Trondhjem, 20-40 fathoms.

[To be continued.]

