$\quad$ Quarter [Mac Murdo Sound], a very large number, down
to 45 m ).
3. N. werthei $\quad$ Vanhöffen, 1914, p. 471, figs. (Kerguelen).
4. N. magellanicus Monod, Bull. Mus. Paris 1925, p. 296 .
$-\quad-\quad$ Monod, 1926, p. 10, fig. (Magellan Strait.

* 71. Nototanais sp.

Occurrence. Auckland Isl.: North Branch of Carnley Harbour, 55 fath., clay, dredge, 30.11.1914. 3 \& (1 ovig.).

There is no $\delta^{x}$, and I am not able to determine the species. The genus is new to the area.

## Fam. Apseudidx.

A list of all genera (and species) up to 1913 is given by H . F. Nierstrasz: Die Isopoden der Siboga-Exped. I, Isopoda Chelifera (Siboga-Exped., vol. XXXII a, 1913), pp. 3--20.

Later on only the following genus is etablished:
Trichapseudes (tridens) Barnard, Ann. South African Mus, vol. 17, 1920, p. 325, Pl. 15 figs. 3-8.

## * Genus Metapseudes n. gen.

The body sausage-shaped (almost cylindrical), without spines or other processes, almost as thick as broad. Cephalosome not broader than mesosome, but posteriorly much deeper. Metasome very short, not much narrower than mesosome. Ocular lobes well defined. Antennæ short and heavy, ant. 1 with extremely short flagella. Oral parts not very different from those in Apseudes (Sars, Account of the Crust. of Norway, vol. 2, Isop. 1899, p. 6, Pl. 1). P. 1-2 without exopods, (all other genera of the fam. have exopods, except Typhlapseudes, and in Pagurapseudes they are only to be found in $\delta$ (not f), and only in p.2). P. 1 extremely heavy, p. 2-p. 7 much shorter. Plp. short, with uni-articulate rami. Urop. short, the rami with a few joints.

The genus is well characterised by the sausage-shaped body, the very short flagella of ant. 1, the deep cephalosome, the lack of exopods of p.1-p.2, the short metasome and the short uropoda.

* 72. Metapseudes Aucklandix n. sp. (Figs. 30-31).

Occurrence. Auckland Isl.: Masked Isl., Carnley Harbour, rocky coast. 3.12.1914. Abt. 30 ㅇ, $4 \delta^{\pi}$. - Ibid., on the shore under stones at low-tide, abt. 35 $q, 6 \delta^{x}$.


ㅇovig., 3 mm . Cephalosome as long as abt. $2^{1 / 2}$ mesosome segments, very indistinctly areolated above; rostral plate truncate. Ocular lobes ovate, with distinct black eyes. Mesosome segments defined by not very deep constrictions, very slightly areolated; the
last two segments shorter than the others. The 5 free metasome segments combined only a trifle longer than the last mesosome segment; terminal segment as long as the free segments combined, posteriorly rounded and with a little apical bud a little above the under edge.

Ant. 1 very short and heavy, incl. the flagella shorter than cephalosome along the dorsal line. 1. joint of peduncle longer than the rest of the ant., broad, with granulate margins. Flagella not longer than 3. peduncular joint; inner flagellum with 3 , outer fla-


Fig. 31. Metapseudes Aucklandire, $\sigma^{7}$, chela. gellum with 4 joints. Ant. 2 very short, as long as 1. peduncular joint of ant. 1. Oral parts almost as those in Apseudes, and the anterior lip has an acute spine. P. 1 very robust, basal joint almost globulate; hand oblong ovate, with small teeth. P. 2 a little longer and heavier than the next pereiopoda. 2. joint of p. 2 broad, with denticles on the fore margin; 5.-6. joints broad, with the anterior corner protruded and with heavy denticles on the under and hind margin. P. 3-4 as p. 2, but narrower. P. 5-6 more slender than p.3-4 and with shorter denticles; p. 5 (but not p.6) has a tuft of serrate spines on the distal end of 6. joint. P. 7 rather slender, with very few denticles and a tuft of short spines on the distal end of 6 . joint. Plp. have uni-articulate rami: inner ramus with 1 short and 1 long seta, outer ramus with 3 long setæ. Urop. have the two rami very short; outer ramus has 2, inner ramus 4-5 joints. -
$\sigma^{x}$ ad., 2.5 mm (Fig. 31) differs from $\circ$ only in the following characters. Body somewhat more slender. Ant. 1 more slender; 1. peduncular joint 3 times as long as broad. P. 1 much more robust than in $q$, especially the hand; the non-articulate finger curvate and has no teeth; only the movable dactylus has 1 strong tooth close to the base.

## Nebaliacea.

## Fam. Nebaliidæ.

Genus Nebalia Leach. 73. Nebalia longicornis G. M. Thomson.

Nebalia longicornis G. M. Thomson, Ann. Mag. Nat. Hist, ser. 5, vol. 4, 1879, p. 418, Pl. 19 figs. 7-9.
$\begin{array}{lll}- & - & \text { Sayce, Victorian Naturalist, vol. 18, 1902, p. 151. } \\ \text { - } & - & \text { Thiele, Report "Valdivia", vol. 8, 1904, Crust., p. } \\ & & 9, \text { pl. 4 figs. } 66-69 .\end{array}$ 1910, Zool. vol. 3, no. 5, 1917, p. 156.
Occurrence. Auckland Isl.: Port Ross, 19 m ., sand, algæ, 25.11.1914. 1 spec .

Chilton records the species from Musgrave Harbour(Auckland Isl.). Distribution. The species is widely distributed in southern seas. The typical $N$. longicornis is known from New Zealand (probably rather common), Port Philip (Victoria), Friendly Islands and New Britain (Chilton 1909); a variety, N. longicornis var. magellanica, is known from Mc. Murdo Strait, Gaussberg and Magellan Strait (Chilton 1909).

The species is not found in South African waters where it is replaced by another species, N. capensis (K. H. Barnard, Ann. South African Mus., vol. 10, 1914, p. 444, figs.).

## Entomostraca.

Copepoda.

## Fam. Cancerillidx.

Genus Cancerilla Dalyell.

* 74. Cancerilla neozelanica n. sp. (Fig. 32).

Occurrence. Auckland Isl.: Carnley Harbour, abt. 85 m , sandy clay. 6.12 .1914 .1 spec . ( $~(~$ ovig., length 0.70 mm ; type) on Amphipholis squamata.

Description. The genus Cancerilla comprised hitherto only one species, P. tubulata Dalyell (on Amphipholis squamata D. Ch.), distributed from W. Norway (the Trondhjemfjord) to the Mediterranean. At the Auckland Isl. (and at New Zealand) Dr. Th. Mortensen has secured a second species, infesting the said cosmopolitan species of brittle-star.

At the first glance the new species can be distinguished from C. tubulata (G. O. Sars, Crust. of Norway, vol. 6, 1918, p. 139, PI. 80) in that the cephalic segment has the greatest breadth at


Fig. 32. Cancerilla neozelanica.
the fore end, not at abt. the middle; and in that the genital segment is extremely broad, almost half as broad as the cephalic segment and abt. 4 times as broad as it is long, somewhat oblong 6 -angulate (in C. tubulata only abt. $1 / 3$ as broad as the cephalic segment and with the lateral edges almost parallel).

The width of the cephalic segment greatly exceeds the length; the front very slightly produced. The next segment totally as in $C$. tubulata; the remaining trunk segments very imperfectly developed. and it is quite impossible to trace the limits between the segments. Tail (fig. 32,4) very short.

Eyes could not be found.
Ant. 1, ant. 2, md., max. and mxp. 1-2 very nearly as in
C. tubulata, but ant. 1 and mxp. 2 have no spines (except one on mxp. 2), and I have not been able to trace the articulation between the two distal joints of mxp. 2. Also p. 1-p. 2 (fig. 32,3) do not differ much from C. tubulata, but p. 3-p. 5 could not be found. The two ovisacs globular, each of them containing abt. 20 ova. -

The find of this species is very interesting; for it is specifically different from the European species, and yet it infests the same (cosmopolitan) host.

Distribution. Plimmerton, New Zealand, on the shore. 15.1. 1915, Dr. Th. Mortensen leg. 1 of ovig., 0.80 mm .

Fam. Notodelphyidæ.

* 75. Doropygus trisetosus Schellenberg 1922. (Fig. 33).

Doropygus trisetosus Schellenberg, Mitt. Berliner Zool. Museum 1922, p. 249.
The determination, the description and the accompanying figures of this species were kindly worked out by Prof. Dr. A. Schellenberg of the Zool. Museum, Berlin; I beg Prof. Schellenberg to accept my most sincere thanks for this very valuable help.

Occurrence. Auckland Isl.: 3 specimens: a) $2 \neq 3.5$ mm , with the incubatory pouch filled with eggs, 29.11 .1914 ; b) 1 i 2 mm , without eggs in the incubatory pouch; no date. - All the specimens were found in Styela $\mathbf{s p}$.

Description: On account of the large mass of eggs in the oviduct and in the incubatory pouch the free thoracal segments in spec. a (fig. 33,1) only indistinctly recognisable. Thorax together with incubatory pouch ovate. The incubatory pouch is rounded behind and has ventrally a little bend on account of the prominent margin. In spec. $b$ the borders of the segments of the free thorax are distinct; in this specimen the incubatory pouch is more acute in the hind part. The lengths of the abdominal segments decrease steadily from the second to the fourth segment. The fifth segment is cleft into two bulbous half parts. Each of the two half parts has a somewhat curvate furcal ramus, the proportion of the length of this latter to the length of the fifth segment is as $3: 2$. The apex of the furca ends in a feeble spine, at the base of which there are some very small teeth.

The 9 -articulate first antenna is somewhat compressed. The apical joints are almost rectangularly curvate toward the first joint. None of the setæ of the antenna much longer than the others; only the two largest setæ of the first joint are feebly feathered. The compressed, 3 -articulate second antenna is unarmed, except a few setæ near the base of the heavy apical claw (fig. 33, 2).


Fig. 33. Doropggus trisetosus. 1: $q$; 2: second antenna; 3: first maxilla; 4: fifth leg.

On the mandible the second and third teeth are almost equal-sized, the third and fourth teeth coalesced with the masticatory part and free only at their apex. The distal seta of the first joint of the exopodite is much stronger and longer than the others. The second joint has 9 setæ. The four setæ on the somewhat slender exopodite are only very little different as to strength and length.

On the first maxilla (fig. 33, 3) there are three setæ on the inner margin of the second joint; these setæ have the same length as those of the exopodite. Only the first seta is somewhat shorter. The oval endopodite tapers to a seta. On the inner side of its base and about at the centre of the inner margin of the endopodite is a seta; all the three setæ are almost equal in length. The exopodite is somewhat longer and almost twice as broad as the endopodite.

The second maxilla and the maxillipede are shaped as those of D. pulex.

First to fourth legs have the inner seta of the basal joint well developed: the rami strongly dentate on the joints; the endopodite
is bi-articulate. Of the spines with sharp edges of the exopodite of the first leg the first marginal spine is the largest and strongest; then come the apical spine, the fifth, the second or the fourth, and the third spine. The outer setæ of the exopodite of the second to the fourth legs are medium sized. The third outer seta is the shortest, and in all the three pairs it is distinctly shorter than the apical joint. Otherwise the natatory legs are of the same shape as in D. pulex.

The fifth spatula-shaped leg (fig. 33,4) is slender, and becomes narrower toward the apex. Its base is abt. $1 / 4$ as broad as its length. Apically is a seta abt. half as long as the ramus, and a somewhat curvate spine, as long as the breadth of the apex of the ramus. The inner margin has near the apex two incavations formed like steps. Near the base there are two small incavations, essentially formed by two small marginal teeth. -

The species is very nearly allied to D. pulex, from which it disagrees mainly as regards the apical spines of the furca, the slender fifth leg, and especially in the number of setæ (three) of the endopodite of the first maxilla.

Distribution. Stewart Isl., New Zealand (Schellenberg 1922).

## Zoogeographical remarks on the Malacostracan fauna of the subantarctic islands of New Zealand.

21 terrestrial species (including the sand-hoppers on the shores), 3 fresh water species, and 79 marine species from the littoral zone, totally 103 species, are known from the islands, and for no less than 27 species the islands are the type locality (see the tables pp. 382-85).

Fresh-water species. Only three are known from the islands, viz. Atyloides aucklandicus Walker (non Chilton), Chiltonia mihiwaka and Idotea lacustris. Of these the first species is endemic (only found on the Auckland Isl.), but somewhat doubtful; Chiltonia mihiwaka is known also from New Zealand and Australia, Idotea lacustris from New Zealand and possibly from Terra del Fuego.

Terrestrial species (including the sand-hoppers of the shores). Totally 21 species, viz. 13 Amphipoda (fam. Talitrido) and 8 Isopoda (all being Oniscoida). 8 of these seem to be endemic, 5 (6?)
Fresh-water and terrestrial species
of Malacostraca (including the sand-hoppers
found on the shores)
$\left.{ }^{1}\right)$ t. 1. = type locality. $\left.\quad{ }^{2}\right)\left[=\text { species not taken by Dr. Th. Mortensen. }{ }^{3}\right)^{*}=$ species new to the islands.
${ }^{*}$ ) H. grandicornis (= $=$ nover-zealandice), teste Barnard, Ann. South Africa Museum, vol. 15, 1916, p. 230.




[^0]Vidensk. Medd. fra Dansk naturh. Foren. Bd. 83.
are known also from New Zealand (and Stewart Island), 3 (4?) from New Zealand and Australia ( + Tasmania), 1 from Australia, and only 2 (4?) have been found also in other regions (2, viz. Hyale hirtipalma and $H$. nova-zealandice very widely distributed in the southern hemisphere, but none of the other species have with certainty ever been found in the Magellan region).

Marine species. Totally 79 species are known from the littoral zone of the islands.

13 (15?) species are endemic, at all events not yet found at New Zealand or anywhere else, viz. 3 Decapoda (Marestia Mawsoni, Eupagurus Campbelli, and Pontophilus pilosoides n. sp.), 6 (8?) Amphipoda (Parambasia Rossi n. sp., Pseudambasia bipartita n. sp., Metopella nasica n. sp., Stenothoë aucklandicus n. sp., Pontogeneia bidentata n. sp., ? Atyloides Chevreuxi n. sp., ? Paramoera magellanica (Walker), and Elasmopus Carnleyi n. sp.), 2 Isopoda (Pseudosphceroma campbellensis, Ciliccea hamata n. sp.), 1 Tanaid (Metapseudes Aucklandice $\mathrm{n} . \mathrm{sp}$.), and 1 Mysid (Tenagomysis tenuipes).

13 (14?) species are known from the islands and New Zealand, viz. 8 Decapoda (Leptomithrax australis, Prionorhynchus edwardsii, Cancer nova-zelandio, Nectocarcinus antarcticus, Hemiplax hirtipes, Hymenosoma depressum, Porcellanopagurus Edwardsii, Tozeuma novazealandixe), 2 (3?) Amphipoda (Iphinotus typicus, Panoploea spinosa, ? Paramoera fasciculata), 2 Isopoda (Ianira neglecta, Haliacris neozelanica), and 1 Tanaid (Tanais nover-zealandice).

5 (7?) species (only Amphipoda) are known from the islands, (New Zealand) and Australia ( + Tasmania) (Lilljeborgia dubia, ? Paramoera fasciculata, P. (austrina var.) megalophthalma, Parapherusa crassipes, Elasmopus viridis, P Paradexamine pacifica, Wyvillea longimana).

Only 2 (4??) species have been found at the islands ( + New Zealand or Australia) and in the Magellan region, viz. 1 Decapod (Munida subrugosa) and 1 (3?) Isopod (Idotea elongata, ? Livoneca novec-zealandice, and ?Isocladus magellanicus). At least 1 species, Nebalia longicornis, is in the Magellan region represented by a special variety, var. magellanica.

1 (3?) species is known from South Africa, but not from S. America, viz. ? Phoxocephalus kergueleni (also Kerguelen), ? Melita ineequistylis (also Ceylon, India), and Dynamenella huttoni.

4 (8?) species are possibly circumpolar subantarctic (?), but not found in the antarctic seas proper (incl. Kerguelen) viz., 2 (3?) Decapoda (Halicarcinus planatus, Palæmon affinis, ? Nauticaris marionis), 1 Stomatopod? (? Squilla armata), 1 Amphipod (Caprellinopsis longicollis), and 1 (3?) Isopod (Iais pubescens, 之Livoneca novcezealandice, ? Exospharoma gigas).

5 are so widely distributed that they are almost cosmopolitan outside the arctic and antarctic seas, viz. 1 Euphausid (Thysanoëssa gregaria, 3 Amphipoda (Aora typica, Jassa pulchella, Caprella aquilibra) and 1 Isopod (Paridotea ungulata).

To thi group possibly belong 3 (4?) species, widely distributed in the southern hemisphere outside the antarctic area, viz. 1 Stomatopod (Lysiosquilla spinosa [Auckland Isl., New Zealand, Andamans]), 2 Amphipoda (Bovallia monoculoides (widely distributed, also antarctic, see the table p. 384) and Melita incequistylis (Auckland Isl., New Zealand, Magellan region, South Africa, Ceylon, India]) and 1 Isopod (Limnoria pfefferi [Auckland Isl.?, Laccadive Archipelagol).

4 (6?) species are known from Kerguelen (but not found elsewhere in the antarctic seas) and are not cosmopolitic, viz 4 (5) Amphipoda (Parawaldeckia kidderi, Phoxocephalus kergueleni, Carolobatea nova-zealandia, Haplocheira barbimana, and ?Lembos kergueleni), and 1 ?Isopod: ?Antias hispidus from St. Paul, not from Kerguelen.

12 (13?) species from the islands are also known from the antarctic area (some of them also from Kerguelen), and have in most cases a much wider distribution, viz. 9 Amphipoda (Parawaldeckia kidderi, Tryphosa kergueleni, Tmetonyx stebbingi, Harpinia obtusifrons, Amphilochus squamosus, Metopella ovata, Pontogeneia antarctica, Paramoera capensis (incl. P. austrina) and P. serraticauda) and 3 (4?) Isopoda (? Paramunna serrata, Cirolana rossi, Serolis latifrons, and Cymodocella tubicauda).

Chilton (1909, p. 602-03) is of opinion that the "terrestrial species, like the fresh-water ones, . . . show connection with those of South America, Falkland Islands, and other subantarctic localities", and that "the marine forms very considerably strengthen the evidence as to the large antarctic element in the crustacean fauna of these islands and to the close similarity of their Crustacea to those of other subantarctic regions". -

The material collected by Dr. Th. Mortensen has not augmented the evidence of these theories, al all events not of the first of them.

As it appears from the accompanying lists 22 (24?) species are endemic ( 9 from fresh-water and terrestrial, 13 (15?) marine), 18 (20?) species are found also at New Zealand, and this figure will be increased with 10 (13?), if we take also Australia ( + Tasmania); thus no less than 50 ( 57 ?) species or the half part of the whole Malacostracan fauna are not known outside these islands $\dagger$ New Zealand + Australia.

Only two species (Munida subrugosa and Idotea elongata, both marine) are with certainty known both from the islands and from the Magellan region; they are not found in S. Africa or in the Antarctic (incl. Kerguelen) and are not cosmopolitan. It is clear that these two species do not prove a connection between the faunas of the two areas.

Dr. Th. Mortensen has given a zoogeographical summary of the Echinoderm fauna of (New Zealand and) the AucklandCampbell Islands (Vid. Medd., vol. 79, 1925, pp. 393-412), and it may possibly be elucidating to give a comparison of the figures relating to the Echinoderm fauna (of the Auckland-Campbell Isl.) and the Malacostracan fauna (of all the subantarctic islands of New Zealand).

|  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Echinoderma | 19 | 8 | 9 | - | 1 | - | - | 1 | - | - |
| $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \end{aligned}$ | Fresh-water and terrestrial species Marine species... | 24 79 | 9 <br> $13(15)$ |  | $\begin{aligned} & 5(6 \text { ? } \\ & 5(7 ?) \end{aligned}$ | $\begin{aligned} & 1 ?(4 ?) \\ & 2(4 ?) \end{aligned}$ | $\overline{1(3 ?)}$ | 4(8?) | $\begin{aligned} & 2 \\ & \left.8_{i}^{\prime} 9 ?\right) \end{aligned}$ | 4(6?) | $12(13 ?$ |
| $\stackrel{\text { m }}{\text { m }}$ | Total no. of species | 103 | 21(23?) | 18(20?) | 10(13?) | 2 (8?) | 1(3?) | 4(8?) | 10(11?) | 4(6?) | 12(13?) |

From this table it may be seen that there is a fairly good accordance between the Echinoderms and the fresh-water and
terrestrial Malacostraca, if we take New Zealand and Australia together.

The most important difference between the two faunas is that while none of the Echinoderms are known from the Antarctic + Kerguelen, no less than 16 (19?) Crustacea (13 (14?) Amphipoda, 3 (5?) Isopoda) have been recorded from these areas; 4 ( 8 ?) species are possibly circumpolar subantarctic, and 1 (3?) species is known from S. Africa (but not in S. America). I am not able to give any satisfactory explanation of this fact; but it must be remembered that almost all the species are small and that they may possibly be transported by floating sea-weed.

At all events the Malacostracan fauna (like the Echinoderm fauna) does not prove any former connection between the subantarctic islands of New Zealand and the Magellanic region.

## Abbreviations of literature.

Chevreux 1006 (1907): Amphipodes Expédition Antarctique Française (1903-1905), commandée par le Dr. Jean Charcot. Sciences Naturelles: Documents Scientifiques. Crustacés. Paris 1906 (1907).

- 1912 (1913): Amphipodes. Deuxième Expédition Antarctique Française (1908-1910), commandée par le Dr. Jean Charcot. Sciences Naturelles. Documents Scientifiques. Paris 1913.
Chilton 1909: The Subantarctic Islands of New Zealand, vols. 1-2, Wellington, N. Z. 1909.
- Endeavour 1921: Report on the Amphipoda obtained by the F. I. S. "Endeavour" in Australian Seas. - Biol. Results F. I. S. "Endeavour" 1909-14, Sydney, vol. 5, pt. 2, 1921, pp. 33-92.
Monod 1926: Tanaidacés, Isopodes et Amphipodes. - Expédition Antarctique Belge. Resultats du Voyage de la Belgica en 1897-99, Zool, Anvers 1926.
Richardson 1906 (1907): Isopodes. Expédition Antarctique Française (1903-1905), commandée par le Dr. Jean Charcot. Sciences Naturelles. Documents Scientifiques. Crustacés. Paris 1906 (1907).
- 1908: Isopodes (2e mémoire). - Ibid., Paris 1908.
- 1913: Crustacés Isopodes. - Deuxième Expédition Antarctique

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Schellenberg 1926: Die Gammariden der Deutschen Südpolar-Expedition 1901-1903. - Deutsche Südpolar-Expedition, vol. 18, Zoologie 10, 1926.
Stebbing 1888: Amphipoda. Report on the Scientific Results of the Voyage of H. M. S. Challenger during the years 1873-76. Zoology, vol. 29, 1888.

- 1906: Amphipoda. I. Gammaridea. Tierreich, Lief. 21, 1906.

Vanhöffen 1914: Die Isopoden der Deutschen Südpolar-Expedition 19011903. - Deutsche Südpolar-Expedition, vol. 15, Zoologie 7, 1914.


[^0]:    ${ }^{\text {1 }}$ ) if identic with $L$. Reynaudi M.-Edw. (W'hitelegge, teste Chilton 1909, p. 652). 8) E. gigas + E. lanceolatum.
    8) $N$ longicornis var, magellanica.

