Art. XXXV.—*Additions to the Terrestrial* Isopoda *of New Zealand.*

By Charles Chilton, M.A., D.Sc., F.L.S.

[*Read before the Philosophical Institute of Canterbury*, 1st *December*, 1909.]

In the year 1901 I published in the "Transactions of the Linnean Society" an account of the terrestrial *Isopoda* of New Zealand. Since then numerous additional facts have become known, and some additional species have been found; moreover, during the interval several important works dealing with certain sections of the group have appeared. It seems desirable, therefore, to collect this additional information together for the advantage of future workers. In some of the genera a thorough revision of the species is necessary; but this would entail more time than can be devoted to the matter at present, and I must content myself with merely indicating some of the questions that require solution. For the same reason descriptions of some new species are held over.

The list published in 1901 contained twenty-seven species in thirteen genera, only three or four being uncertain species. Included in the list, however, were three species which are now known to have been accidentally introduced by man, and which must therefore be omitted from the list of New Zealand species. These are *Porcellio scaber*, Latr., *Metoponorthus pruinosus*, Brandt, and *Armadillidium vulgare*, Latr. *Porcellio scaber* is extremely common all over New Zealand, and has spread far from inhabited places, though it has not often been found actually in the native bush. Of *Metoponorthus pruinosus* I (1905, p. 431, and 1906A, p. 64) have had specimens only from Rissington, in Hawke's Bay, though a specimen had apparently been gathered in New Zealand before 1847, for it was included in White's list published in that year, and was afterwards described by Miers under the name *Porcellio zealandicus*; *Armadillidium vulgare* is common in the town of Nelson, and I have one specimen from Mount Egmont, and more recently specimens from a garden at Sumner, Canterbury: but neither of the last two species appears to have spread in New Zealand in the same way as *Porcellio scaber* has done.

A few additional species have been added to the list of those found in the New Zealand region, from specimens gathered in the subantarctic islands to the south of New Zealand—viz., *Scyphoniscus magnus*, Chilton, *Haplophthalmus australis*, Chilton, *Trichoniscus magellanicus* (Dana); while *Oniscus novæ-zealandiæ*, Filhol, proves to be a separate species of *Deto*, and not identical with *Deto aucklandiæ*, as I previously thought it might be.

In a paper published at Copenhagen in 1904 Budde-Lund has given a revision of the *Spherilloninæ*, and in the genus *Spherillo* he includes a large number of species from New Zealand, Polynesia, and elsewhere which were previously included under *Armadillo*, while he also describes some new species from New Zealand under different genera of the subfamily. I do not fully understand the characters by which Budde-Lund separates *Spherillo* from *Armadillo*, and, as there is some doubt whether the name *Spherillo* is available for the use Budde-Lund makes of it, I give the species under *Cubaris*, a name that has priority, and has already been used by Stebbing (1900, p. 649) for species which apparently would be placed under *Spherillo* by Budde-Lund. In his paper Budde-Lund describes

several new species from New Zealand based on specimens collected by Mr. Suter and others and sent to various European museums. I am by no means certain that all of these new species can be upheld as distinct; but, pending further investigation, I give them in the list below.

In his report on the terrestrial *Isopoda* collected by the German Antarctic Expedition, Budde-Lund (1906) has given an account of the genus *Trichoniscus*, taking it, however, to include *Titanethes*, *Haplophthalmus*, &c., which perhaps should be considered as separate genera. He divides this large genus into several subgenera, of which *Trichoniscus* is one, and this subgenus is further divided into groups according to the character of the eyes. The European species of *Trichoniscus* that are found habitually or occasionally in caves have more recently been investigated and very fully described by Racovitza (1907 and 1908), who also divides the genus into subgenera, though his divisions do not agree in all points with those suggested by Budde-Lund. It is evident that a thorough revision of the New Zealand species of this group is desirable, for until this is done I cannot arrange them in the subgenera suggested by Racovitza. In the present volume (p. 190) I describe a new species of *Trichoniscus* that is found in ants' nests, though some of the specimens probably live independently of the ants.

When the necessary changes and additions have been made, it is seen that the list of terrestrial species now numbers forty, included in twelve genera.

I give below a list of all the species now known from New Zealand, with additional information where this is necessary. Budde-Lund in 1904 has given a reclassification of the *Oniscidæ*, but at present I merely give the species in order, without attempting to arrange them in accordance with Budde-Lund's suggestions.

REVISED LIST OF THE TERRESTRIAL ISOPODA OF NEW ZEALAND, WITH NOTES ON NEW LOCALITIES, ETC.

(Only the more recent references have been given.)

Ligia novæ-zealandiæ, Dana.

Chilton, 1901, p. 107.

One specimen was taken in 1907 at Port Pegasus, in Stewart Island, the most southerly locality yet recorded for this species.

Trichoniscus phormianus, Chilton.

Chilton, 1901, p. 115; Budde-Lund, 1906, p. 83.

Trichoniscus otakensis, Chilton.

Chilton, 1901, p. 117; Budde-Lund, 1906, p. 83.

Trichoniscus thomsoni, Chilton.

Chilton, 1901, p. 118, and 1909, p. 661; Budde-Lund, 1906, pp. 83, 84.

Occurs on Auckland Islands, as well as on mainland of New Zealand.

Trichoniscus magellanicus (Dana).

Budde-Lund, 1906, pp. 83, 84; Chilton, 1909, p. 661.

Occurs on Auckland and Campbell Islands; also Tierra del Fuego and Falkland Islands. Perhaps identical with *T. verrucosus*, Budde-Lund, from the Crozets.

Trichoniscus commensalis, Chilton.

Described in the present volume, p. 190. A species found in ants' nests.

Haplophthalmus helmsii, Chilton.
Chilton, 1901, p. 119; Budde-Lund, 1906, p. 82.

Haplophthalmus australis, Chilton.
Chilton, 1909, p. 662.
Common on Campbell Island. The two species here placed under *Haplophthalmus* differ in one or two small points from the characters of the genus as given by Sars.

Tylos neozelanicus, Chilton.
Chilton, 1901, p. 120; Budde-Lund, 1906, p. 78.
Budde-Lund has recently reviewed the species of *Tylos*, but unfortunately is unable to add anything to our knowledge of *T. spinulosus*, Dana, from Tierra del Fuego, a species which is probably allied to *T. neozelanicus*.

Scyphax ornatus, Dana.
Chilton, 1901, p. 123.

Deto aucklandiæ (G. M. Thomson).
Scyphax (?) *aucklandiæ*, Chilton, 1901, p. 126 (in part); *Deto magnifica*, *D. robusta*, and *D. aucklandiæ*, Budde-Lund, 1906, pp. 86, 87; *Deto aucklandiæ*, Chilton, 1909, p. 666.
Known from the Auckland Island group only.

Deto novæ-zealandiæ, Filhol.
Chilton, 1906B, p. 273, 1909, p. 667; Budde-Lund, 1906, p. 87.
Chatham Islands (Miss Shand); Port Pegasus, Stewart Island (W. B. Benham). Recorded also from Wellington by Filhol.
The forms recorded from Chili under the names *Oniscus bucculentus*, Nicolet, and *O. tuberculatus*, Nicolet, are male and female either of this species or of one closely allied.

Scyphoniscus waitatensis, Chilton.
Chilton, 1901, p. 128.
The type specimens were obtained on the shores of the tidal lagoon at Waitati. I have since taken it on the shores of the Heathcote Estuary, and at Anita Bay, Milford Sound.

Scyphoniscus magnus, Chilton.
Chilton, 1909, p. 665.
On shores of Auckland and Campbell Islands.

Actæcia euchroa, Dana.
Chilton, 1901, p. 130.

Actæcia opihensis, Chilton.
Chilton, 1901, p. 132.
Originally taken on Timaru beach; since found on Quail Island, Lyttelton Harbour.

Oniscus punctatus, G. M. Thomson.
Chilton, 1901, p. 133, 1909, p. 668, and 1906B, p. 273.
Occurs on Chatham Islands and Auckland Islands, as well as on the mainland of New Zealand.

Oniscus kenepurensis, Chilton.
Chilton, 1901, p. 135.

Oniscus cooki, Filhol.
Chilton, 1901, p. 135.
I do not know this species.

Philoscia pubescens (Dana).

Chilton, 1901, p. 136 (in part).

According to Budde-Lund (1904, p. 43), two species were included by me in 1901 under this name—viz., *P. pubescens* (Dana), and *Pseudophiloscia fragilis*, Budde-Lund (see below). *Philoscia pubescens* (Dana) seems to be very near to *P. mina*, Budde-Lund, and to *P. hirsuta*, Budde-Lund, both from Cape Town (see Budde-Lund, 1906, p. 89). *P. mina* has been recorded by Dollfus from the Seychelles. A comparison of specimens from the different localities is much needed.

Philoscia novæ-zealandiæ, Filhol.

Chilton, 1901, p. 138.

I do not know this species.

Pseudophiloscia fragilis, Budde-Lund.

Budde-Lund, 1904, p. 43, pl. vi, figs. 5, 6.

Budde-Lund includes in this species the specimens from Howick, Auckland, which I had referred to *Philoscia pubescens* (Dana). He places *Pseudophiloscia* under the *Spherilloninæ*, and *Philoscia*, Latr., under the *Oniscinæ*.

Cubaris spinosus (Dana).

Armadillo spinosus, Chilton, 1901, p. 150; *Spherillo spinosus*, Budde-Lund, 1904, p. 54.

I have not seen this species.

Cubaris hamiltoni (Chilton).

Armadillo hamiltoni, Chilton, 1901, p. 148; *Spherillo hamiltoni*, Budde-Lund, 1904, p. 54.

Cubaris macmahoni (Chilton).

Armadillo macmahoni, Chilton, 1901, p. 149; *Spherillo macmahoni*, Budde-Lund, 1904, p. 56.

The type specimens were from Marlborough. Mr. W. W. Smith has since sent me specimens from New Plymouth.

Cubaris squamatus (Budde-Lund).

Spherillo squamatus, Budde-Lund, 1904, p. 61.

"One female specimen from Lyttelton, near Christchurch (Mus. Hamburg)."

Cubaris bipunctatus (Budde-Lund).

Spherillo bipunctatus, Budde-Lund, 1904, p. 62.

"One male specimen from Lyttelton (Mus. Hamburg)."

Cubaris ambitiosus (Budde-Lund).

Armadillo ambitiosus, Chilton, 1901, p. 144; *Spherillo ambitiosus*, Budde-Lund, 1904, p. 63.

This species is common all over the North Island, and in the South Island extends down the west coast as far as Daggs Sound.

Cubaris rufomarginatus (Budde-Lund).

Spherillo rufomarginatus, Budde-Lund, 1904, p. 64, pl. vii, figs. 34–36.

"One female specimen was taken at Taranga [? Tauranga] by Dr. Thilenius (Mus. Berlin)."

Cubaris marginatus (Budde-Lund).

Spherillo marginatus, Budde-Lund, 1904, p. 65.

"One female specimen taken from Auckland (Mus. Kjobenhavn)."

Cubaris rugulosus, Miers.

Armadillo rugulosus, Chilton, 1901, p. 147; *Spherillo rugulosus*, Budde-Lund, 1904, p. 65.

Occurs on the Auckland and Campbell Islands, as well as on the mainland of New Zealand.

Cubaris tarangensis (Budde-Lund).

Spherillo tarangensis, Budde-Lund, 1904, p. 67, pl. viii, fig. 9.

"At Taranga [? Tauranga] (Dr. Thilenius, in Mus. Berlin), at Lyttelton (Mr. Suter, in Mus. Hamburg)."

Cubaris monolinus (Dana).

Armadillo monolinus, Chilton, 1901, p. 148; *Spherillo aucklandicus*, Budde-Lund, 1904, p. 69.

Budde-Lund thinks this species is allied to *C. tarangensis*.

Cubaris speciosus (Dana).

Armadillo speciosus, Dana, 1853, p. 718, pl. 47, fig. 2, *a–d* (*not* Chilton, 1901, p. 146).

This species has not been re-identified with certainty.

Cubaris canaliculatus (Budde-Lund).

Spherillo canaliculatus, Budde-Lund, 1904, p. 74.

"Chatham Islands (Prof. Schauinsland, in Mus. Bremen)."

Cubaris chathamensis (Budde-Lund).

Armadillo speciosus, Chilton, 1901, p. 146; *Spherillo speciosus*, Budde-Lund, 1904, p. 75.

Budde-Lund establishes this species for the specimens from Chatham Islands that I had with hesitation referred to *Armadillo speciosus*, Dana. It appears to be a common species in the Chatham Islands, and is probably identical with the preceding species.

Cubaris setaceus (Budde-Lund).

Spherillo setaceus, Budde-Lund.

"Auckland, one specimen (Dr. B. Friedländer, in Mus. Berlin)."

Cubaris brevis (Budde-Lund).

Spherillo brevis, Budde-Lund, 1904, p. 93.

"Auckland (Mus. Dresden)."

With regard to the two species last mentioned, Budde-Lund says, "I have seen only one specimen of each of the two last species, many years ago, and the condition of them was not good, I therefore could not pay regard to the more essential characters, and their place here is not sure."

Cubaris dancæ (Heller).

Armadillo dancæ, Chilton, 1901, p. 145; *Spherillo dancæ*, Budde-Lund, 1904, p. 94.

I have specimens from New Plymouth and from Kapiti Island in addition to the localities previously given.

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ART. XXXVI.—*On the* Coleoptera *of the Kermadec Islands.*

By Major T. BROUN, F.E.S.

[*Read before the Auckland Institute, 22nd November,* 1909.]

THE beetles collected by the recent scientific expedition were received from Mr. W. L. Wallace, of Timaru, on the 3rd February, 1909.

Before proceeding with the result of my examination of the various species, it seems but right that some of the difficulties encountered by the members of the expedition should be recorded.

Denham Bay, with about 200 acres of level land, was selected as the most suitable site for the main camp. When starting on a collecting tour, an almost perpendicular wall, ranging from 800 ft. to 1,500 ft. in height, had to be ascended, each man having 30 lb. or 40 lb. weight of food, water, and other necessary articles strapped on his back.

When the crater was to be explored, there was a dangerous climb of 800 ft. along a winding track up the face of loose pumice formation, which was constantly slipping away from under their feet, the descent, on returning to the main camp, being even more hazardous. The huge crater, which now consists of undulating forest land and three lakes, was descended with the help of tree-roots.