

A New *Stygocaris* (Syncarida, Stygocarididae) from New Zealand¹⁾

By

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(Communicated by Yoshinori IMAIZUMI)

The genus *Stygocaris* was created by NOODT (1963 a, p. 157) for a minute interstitial crustacean from Central Chile, which was described at the same time under the name of *S. gomezmillasi*. It has so peculiar characteristics that NOODT (p. 164) proposed a family of its own, Stygocarididae. Later, the same author (1963 b, p. 577) added a second species of the genus and a new genus with two new species to the family. In 1965, NOODT (p. 96) recognized a new order, Stygocaridacea, for these crustaceans and placed it in a position between Anaspidacea and Bathynellacea.

Although all the species hitherto described were known from southern South America, SCHMINKE and NOODT (1968) noticed the occurrence of stygocaridids in New Zealand and Australia. SCHMINKE (1973, pp. 232-234) also gave a list of precise localities in these countries, where he collected stygocaridids. However, proper descriptions of his specimens do not appear to have been published.

At the beginning of 1975, the present author had an opportunity to visit New Zealand and to collect hypogean crustaceans. He was not very successful in the North Island, but could obtain stygocaridids at four places in the South Island. They were apparently classified into three different species of the genus *Stygocaris*, but owing to the poor condition of the materials obtained, the writer could not prepare satisfactory descriptions of two of them. In the present paper, he is going to describe the remaining one, which was found in two limestone caves lying at the northwestern corner of the island.

Before going into further details, the author wishes to express his sincere appreciation to Professor Taiji IMAMURA of Ibaraki University, who gave him the opportunity to make the collecting trip. He is also deeply indebted to Dr. Shun-Ichi UÉNO and Mr. J. I. TOWNSEND for their kind support at the field works. Dr. UÉNO kindly read the original manuscript and gave him valuable advice and suggestions.

Stygocaris townsendi sp. n.

(Figs. 1-21)

Body elongate; thorax about 1.3 times as long as abdomen; cuticle thin and trans-

1) Scientific Results of the Ibaraki University Zoological Expedition 1974-1975 to Oceania and Southeast Asia directed by Professor Taiji IMAMURA.

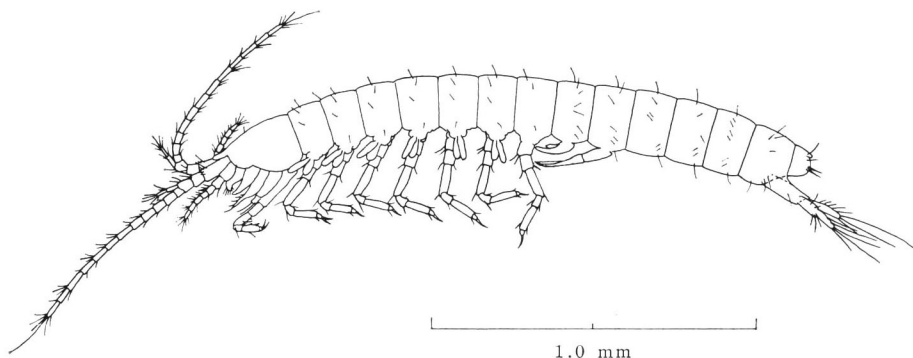
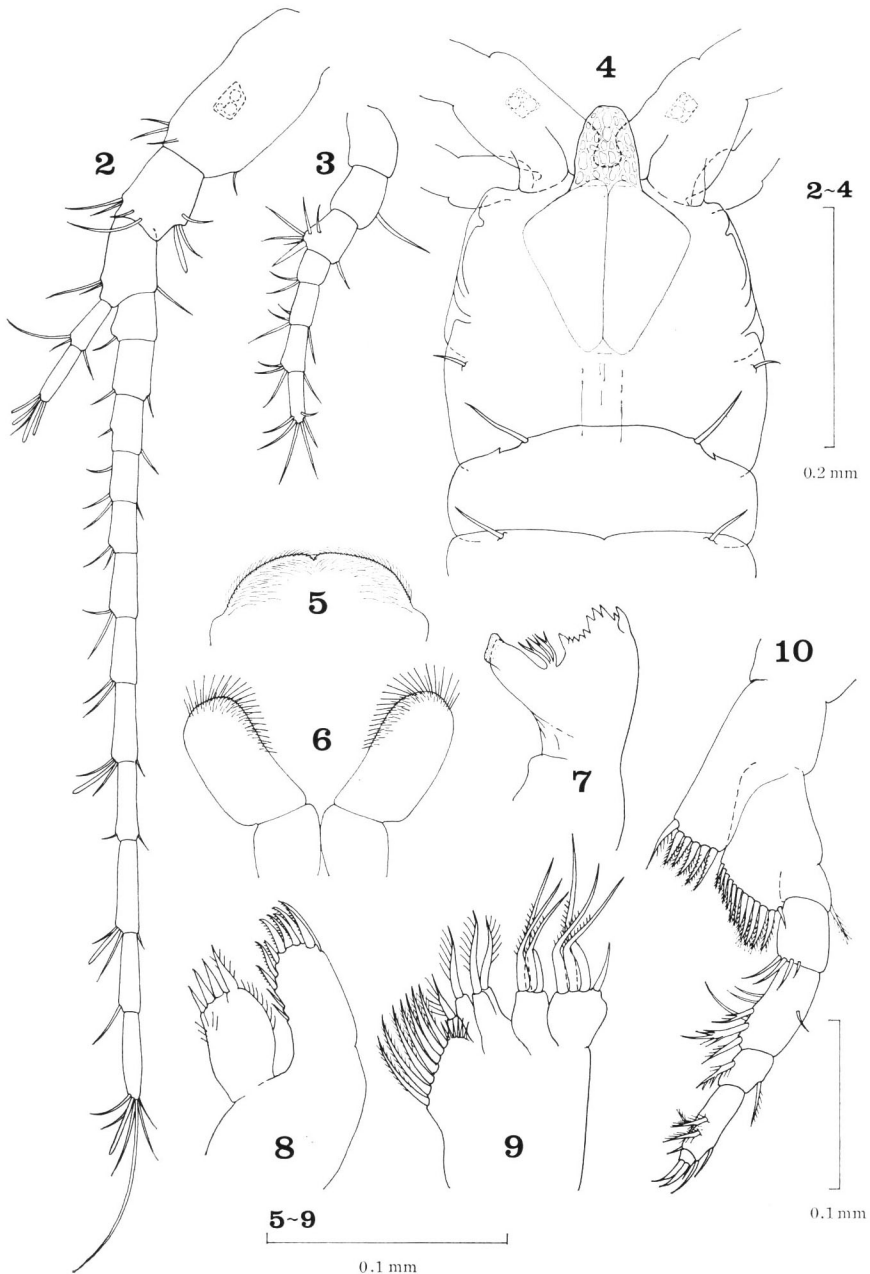


Fig. 1. *Stygocaris townsendi* sp. n., ♂, from Twin Forks Cave, South Island, New Zealand.

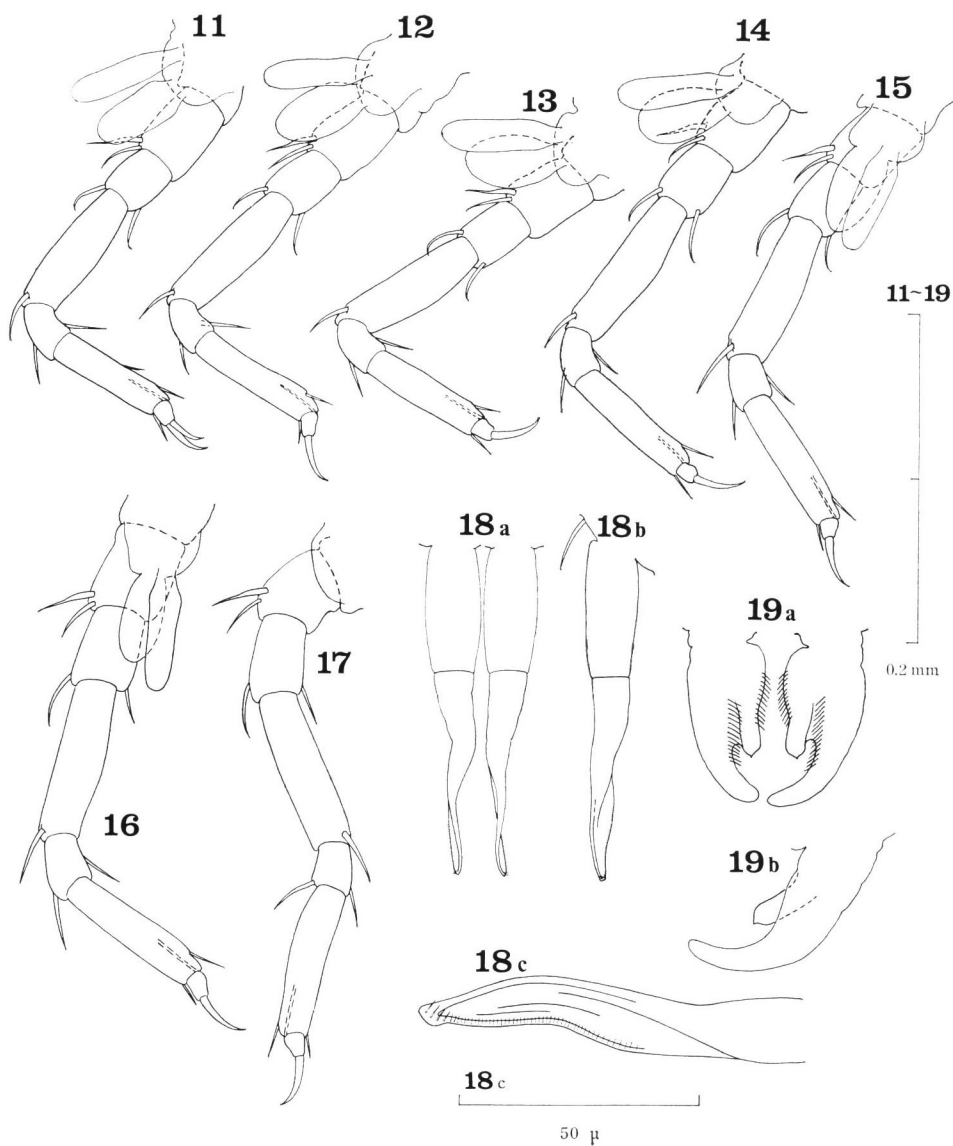
lucent when alive; each thoracic and abdominal somite with several setae on either side.

Cephalothorax nearly as long as the second and third thoracic somites together; dorso-frontal with depressed rostrum (Fig. 4). Antennules (Fig. 2) slender, about 3.5 times as long as antennae, consisting of 15 joints in the holotype, 17 joints in the allotype; statocyst containing 3 spheroid statoliths present in basal joint; endopodite 2-articulated at the inner tip of the third joint. Antennae (Fig. 3) composed of 7 joints, no exopodite. Labrum (Fig. 5) of the form of a cupola, stout and broad, being covered with incurvate pubescence around the frontal and front inner margin. Paragnathae (Fig. 6) of 2 joints, distal joint with long pubescence from apical margin to inner half. Mandibulae (Fig. 7): distal endite with 9 blunt teeth; molar process sclerotized; proximal part with 3 stout bifurcate setae. Maxillulae (Fig. 8) with two endites; proximal endite armed with 4 spines at apex, 6 short hairs on the inner apical side, and a row of 8 short hairs on the outer apical margin; distal endite with 9 ciliated spines on the apical inner margin, and 2 setae on the inner half. Maxillae (Fig. 9) with 4 endites; outermost endite with 4 apical setae, 3 of which are long and ciliated; second endite with 3 long ciliated apical setae; third endite somewhat divided at apex and with 2 apical ciliated setae; innermost endite tripartite, outer two portions each with a ciliated seta, innermost portion large, bearing on the apical margin a row of 6 short setae and on the inner margin a row of 7 ciliated ones.

Pereiopods 1 (=maxillipeds) (Fig. 10): coxopodite large and long, with 5 ciliated spines and 1 ciliated seta in distal endite; basipodite large and broad, with 11 ciliated spines and 1 seta on the apical inner margin and 1 ciliated seta on the apical outer margin; ischiopodite with 4 setae; meropodite obviously longer than ischiopodite, with 3 ciliated spines and 4 setae; carpopodite small, with 1 ciliated spine and 1 ciliated seta; propodite slender, with 2 ciliated spines, 1 ciliated seta and 4 simple setae; dactylopodite very small, with 2 terminal claws. Pereiopods 2–8 (Figs. 11–17): no exopodite; each coxopodite of pairs 2–7 with 2 epipodites; in pairs 2–8, basipodite, ischiopodite and carpopodite each with 2 setae, meropodite long and with only 1 seta; propodite elongate, usually slenderer than meropodite, with 3 setae in pair 2 but with only 2 setae



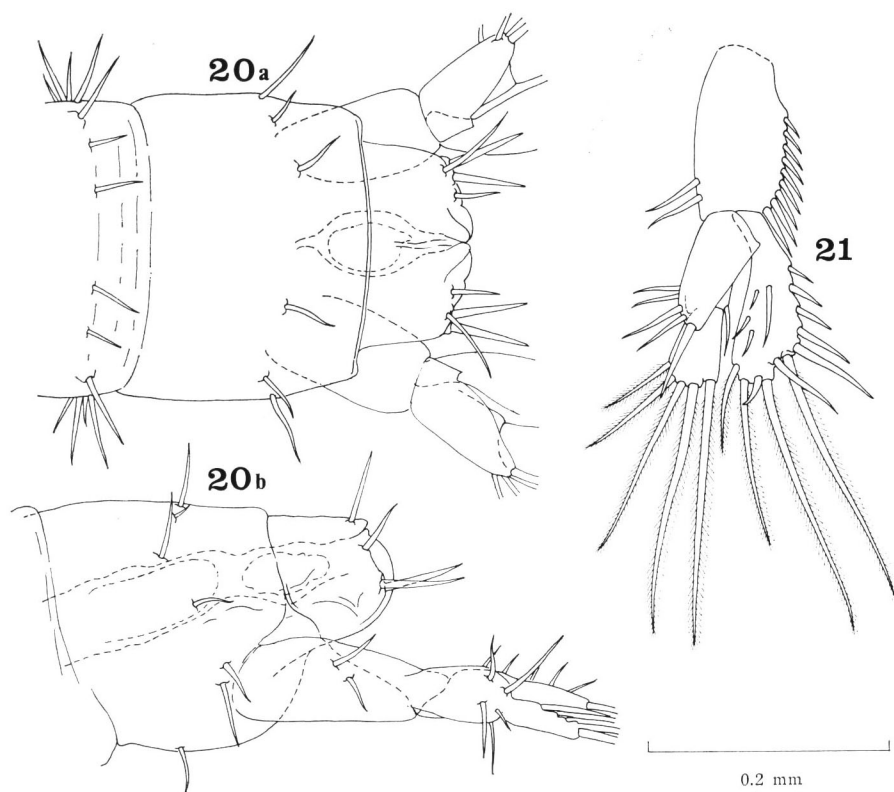
Figs. 2-10. *Stygocaris townsendi* sp. n., from Twin Forks Cave, South Island, New Zealand.
 — 2. Antennule. — 3. Antenna. — 4. Cephalothorax and rostrum, dorsal view.
 — 5. Labrum. — 6. Paragnatha. — 7. Left mandible. — 8. Left maxillula. —
 9. Left maxilla. — 10. Right pereopod 1 (=maxilliped).



Figs. 11-19. *Stygocaris townsendi* sp. n., from Twin Forks Cave, South Island, New Zealand.
 — 11. Pereiopod 2. — 12. Pereiopod 3. — 13. Pereiopod 4. — 14. Pereiopod 5. — 15. Pereiopod 6. — 16. Pereiopod 7. — 17. Pereiopod 8. — 18. Pleopod 2 (a, ventral view; b, lateral view; c, apical part). — 19. Pleopod 1 (a, ventral view; b, lateral view).

in pairs 3-8; dactylopodite very small though longer than wide, bearing 2 terminal claws in pair 2, only 1 terminal claw in other pairs.

In ♂, pleopods 1 and 2 both procurved, present on the first and second abdominal



Figs. 20–21. *Stygocaris townsendi* sp. n., from Twin Forks Cave, South Island, New Zealand.
 — 20. Distal abdominal somites and furcate processes of telson (a, dorsal view; b, lateral view). — 21. Left uropod.

somites. Pleopods 1 (Fig. 19) of biramous construction; outer branch long and incurved, with a row of numerous hairs on the inner basal margin; inner branch forming a small process, with a row of hairs on the inner margin. Pleopods 2 (Fig. 18) of 2 joints, distal joint becoming compressed and ventrally lamellar towards apex, and bearing a row of minute hairs along the ventro-external margin near apex. No pleopods in ♀.

Uropods (Fig. 21): peduncle armed with a row of 9 spines on the distal inner margin and 2 setae on the distal outer margin; endopodite broad, distally dilated, provided with 7 spine-like setae on the apical inner margin, 4 short setae on the dorsal surface, and 4 long plumose setae on the apical margin; exopodite of 2 joints, proximal joint with 1 apical spine and 5 setae, 4 of which are on the apical outer margin, distal joint articulated at the ventral side of the apex of proximal one and provided with 5 plumose setae on the apical margin.

Furcate processes of telson (Fig. 20) vestigial, each bearing 2 spines.

Length of body: 1.95 mm in ♂ (holotype), 2.44 mm in ♀ (allotype), 1.00–2.25 mm

Table 1. Variation of body length in *Stygocaris townsendi* sp. n.

		Minimum length (mm)	Maximum length (mm)	Average length (mm)
Specimens from the type-locality (Twin Forks Cave)	♂	1.44	2.03	1.70
	♀	1.56	2.44	1.93
	juv.			1.00
Specimens from Kennedy's Cave	♂	1.56	2.10	1.90
	♀	1.50	2.25	1.96
	juv.			1.23

in the paratypes. Individual variations are shown in Table 1.

Type-series. Holotype: ♂, allotype: ♀ (Twin Forks Cave; W. T. 11.5°C, pH 7.6; 15 Jan. 1975, collected by S. UÉNO, Y. MORIMOTO and J. I. TOWNSEND). Paratypes: 6 ♂♂, 9 ♀♀, 1 juv. (collecting data same as those of the holotype); 8 ♂♂, 5 ♀♀, 1 juv. (Kennedy's Cave; W. T. 14.5°C, pH 7.6; 15 Jan. 1975, collected by S. UÉNO, Y. MORIMOTO and J. I. TOWNSEND).

The holotype and a part of the paratypes are deposited in the Entomology Division, Mt. Albert Research Centre, D. S. I. R., Auckland. Other type materials are deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Type-locality. Twin Forks Cave, Twin Forks Creek, Paturau, northwestern corner of South Island, New Zealand.

Other locality. Kennedy's Cave, near Sharks Head, Te Hapu, about 7 km NE of the type-locality.

Notes. This new species can be readily recognized on its long antennulae having large number of segments and on the characteristic structure of the first and second pleopods in male. It is a cave-dwelling species, having been found so far in two different caves at the northwestern corner of the South Island of New Zealand. In both the locality caves, the type material was taken by filtering ground waters bailed out of shallow pits which were dug in sandy banks of underground streams.

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