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Two New Sphaerotrichopids from Tonga  
(Diplopoda, Proterospermophora)

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Abstract

Two new genera are erected in the family Sphaerotrichopidae to contain new millipede species from Tonga: Zoogeographical importance is discussed. Distribution of the family is restricted to the southern part of austral continents.

INTRODUCTION

A collection of Myriapoda sent to me by Dr E. W. Dawson, now of New Zealand Oceanographic Institute, D.S.I.R., Wellington, contained two small polydesmoids taken in Tonga by Mr J. C. Yaldwin. Both specimens represent new genera and species. Tonga or Friendly Islands, in S.W. Pacific, east of Fiji, is an archipelago extending about 200 miles and comprising about 150 islands and islets.

Genus TONGODESMUS n. gen.

♂ with 19 segments, ♀ probably with 20. Head densely set with short bristles. Collum and all tergites set with five series of large tubercles, each surmounted by a bristle and over-lapping lateral borders of the keels. Repugnatorial pores distributed normally on segments 5, 7, 9, 10, 12, 13, 15, 16 and 17, located on a styliform, laterally directed tubercle, midway along lateral margins. Posterior keels produced caudad.

Gonopods with coxae united; prefemora indented; femora contiguous or closely set. Solenomerite long, but overtaken by tibiotarsal branch, both projected sub-apically.

TYPE SPECIES. *Tongodesmus stilifer* n. sp.

DISTRIBUTION. Tonga.

REMARKS. Sphaerotrichopid genera with 19 segments and partly coalescent gonopods are characterised by the presence of peg-like bristles, with the single exception of *Oligodesmus* from Chile, in which these bristles are absent. In

\* Editor's Note.—Advice has been received that Dr Schubart died on November 8, 1962, while this paper was in the press.

possessing this character, *Tongodesmus* agrees with the neotropical forms, but there are good morphological differences, particularly in the gonopods. The systematic position of the new genus will be shown in a paper on the Sphaerotrachopidae of New Zealand and the Australian region.

***Tongodesmus stilifer* n. sp. Figs. 1-3.**

♂—Length, 11mm. Breadth, prozonite 1.2mm; metazonite, 2.1mm; measured midway along body.

*Colour.* Yellowish brown; antennae and legs lighter.

Head clothed with short bristles on vertex, longer ones on clypeus; vertex with well developed sulcus. Antennae small, expanded distally. Collum oval, densely set with small, mammiliform tubercles, usually arranged in five series; each tubercle with a distal bristle and a covering of fine, short bristles. Tergites and lateral keels similarly tuberculate. Prozonites finely shagreened. Tergites slightly arched with lateral keels (Fig. 1) short, shouldered anteriorly and with lateral borders rounded, overlapped by 5 or 6 tubercles. On posterior segments, particularly 16 and 17, the keels produced caudad. Repugnatorial pores in laterally directed, styliiform tubercles, situated medianly on lateral borders. Telson produced into a short tail with lobed border and 4 distal, ventral setae. Pleural keels formed by an arched row of small tubercles, present only on anterior segments. Sternites bearing 2 pairs of weak protuberances set with short bristles and separated by a shallow median furrow.

First 2 pairs of ambulatory legs small, remainder inflated, principally on prefemora and femora. Anterior legs with tarsi slightly swollen interiorly, bearing 2 rows of spherical bristles forming a kind of comb.

Gonopods (Figs. 2, 3) with coxae united; prefemora indented, sparsely setose; femora contiguous, more densely setose and with one median, aboral macrochaeta, a paramedian row of 6 or 7 setae and some setae near exterior border; solenomerite with the seminal duct projected subapically from femora as a narrow branch with small, pointed apical lobe; tibiotarsal branch anterior to, and larger than, the solenomerite, slightly arcuate, with small, pointed apical lobes.

**HOLOTYPE.** ♂ taken in December, 1950, by J. C. Yaldwin. Preserved in slides 2138-40, in collection of Plant Diseases Division, D.S.I.R., Auckland.

**LOCALITY.** Tonga.

**REMARKS.** The species is named for the peculiar position of the repugnatorial pore openings in the styliiform tubercles, an arrangement which occurs similarly in *Stylodesmidae*.

**Genus PACIFICOSOMA n. gen.**

♂ with 19 segments, ♀ probably with 20. ♂ head with cheeks enlarged. Collum smaller than head. Tergites weakly arched with short but well developed, elevated lateral keels; surface feebly reticulate. Poriferous segments with gland orifice set in a distal callosity on lateral border. Repugnatorial pores distributed normally. ♂ sternites clothed with bristles.

Ambulatory legs inflated, with spherical bristles on tibiae and tarsi.

Gonopods with coxae united; prefemora indented; femora contiguous, covered distally with short bristles and with a small, acute process, possibly the

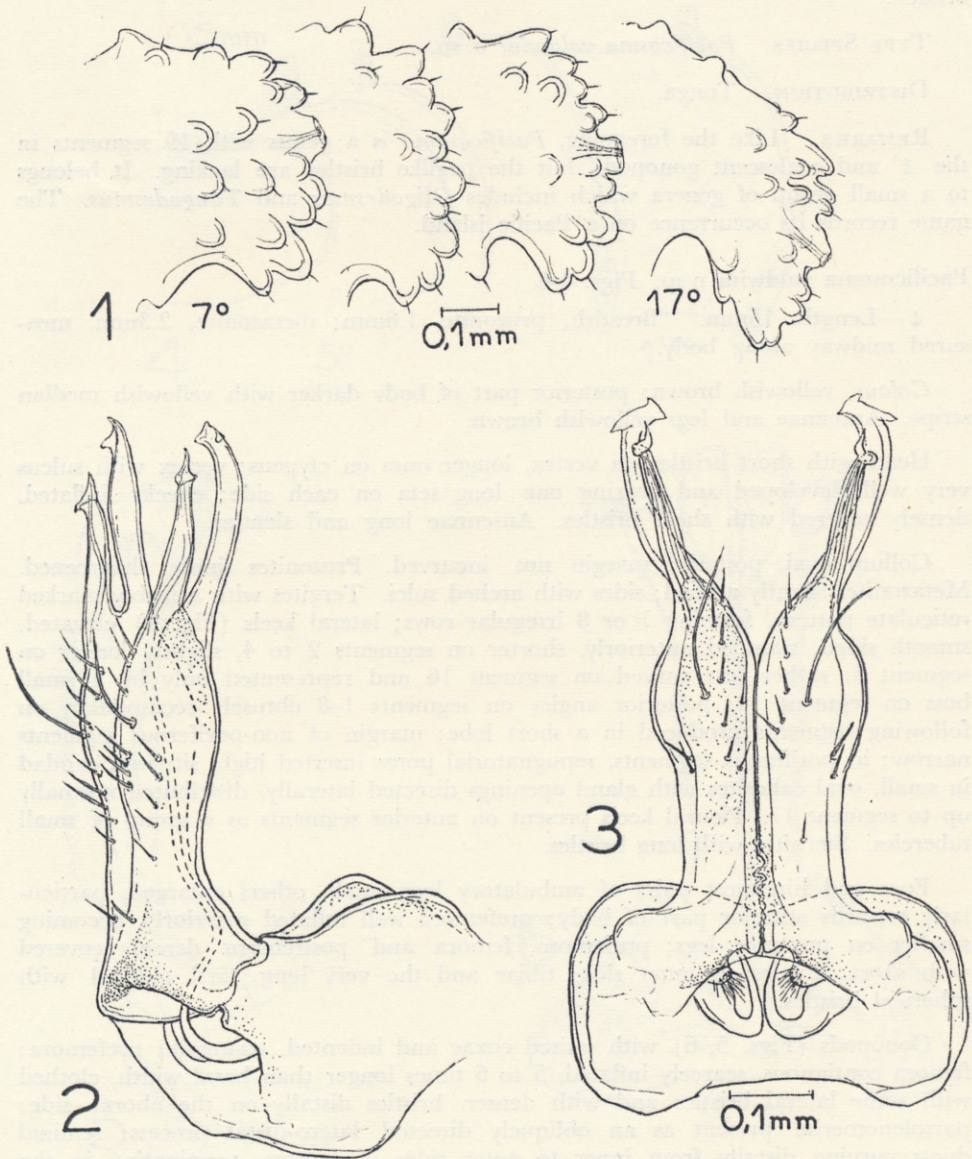


FIG. 1.—*Tongodesmus stilifer* sp. n. ♂. Holotype. Lateral keels of segments 7, 14, 15 and 17, dorsal view. FIG. 2.—*Tongodesmus stilifer* sp. n. ♂. Holotype. Gonopods, lateral view. FIG. 3.—*Tongodesmus stilifer* sp. n. ♂. Holotype. Gonopods, aboral view.

parsolenomerite, on exterior side. Solenomerite small, projected laterally. Tibiotarsus represented by the bare, terminal portion of telopodite, behind the seminal branch.

TYPE SPECIES. *Pacificosma yaldwini* n. sp.

DISTRIBUTION. Tonga.

REMARKS. Like the foregoing, *Pacificosoma* is a genus with 19 segments in the ♂ and coalescent gonopods, but the peglike bristles are lacking. It belongs to a small group of genera which includes *Oligodesmus* and *Tongodesmus*. The name records its occurrence on a Pacific island.

*Pacificosoma yaldwini* n. sp. Figs. 4-6.

♂—Length, 15mm. Breadth, prozonite. 1.6mm; metazonite, 2.3mm, measured midway along body.

Colour, yellowish brown; posterior part of body darker with yellowish median stripe. Antennae and legs yellowish brown.

Head with short bristles on vertex, longer ones on clypeus; vertex with sulcus very well developed and bearing one long seta on each side; cheeks inflated, densely covered with short bristles. Antennae long and slender.

Collum oval, posterior margin not incurved. Prozonites finely shagreened. Metazonites slightly arched; sides with arched sulci. Tergites with a feebly marked reticulate pattern, forming 7 or 8 irregular rows; lateral keels (Fig. 4) elevated, smooth sided, rounded anteriorly, shorter on segments 2 to 4, slightly longer on segment 5, rather less curved on segment 16 and represented only by a small boss on segment 18; posterior angles on segments 1-8 obtusely rectangular, on following segments produced in a short lobe; margin of non-poriferous segments narrow; in poriferous segments, repugnatorial pores inserted high, situated caudad in small, oval callosities with gland openings directed laterally, distributed normally up to segment 17. Pleural keels present on anterior segments as a group of small tubercles. Sternites with long bristles.

Fore and hindmost pairs of ambulatory legs small, others enlarged, particularly towards anterior part of body; prefemora well inflated exteriorly, becoming smaller on posterior legs; prefemora, femora and postfemora densely covered with short bristles on inner side; tibiae and the very long tarsi clothed with spherical bristles.

Gonopods (Figs. 5, 6) with united coxae and indented, triangular prefemora; femora contiguous, scarcely inflated, 5 to 6 times longer than basal width, clothed with some lateral bristles and with denser bristles distally on the aboral side; parsolenomerite present as an obliquely directed latero-distal process; seminal ducts curving distally from inner to outer sides of femora, terminating in the horizontal, apically hamulate solenomerites; tibiotarsal lobe quadrangular in aboral view, acutely lamellate viewed laterally.

HOLOTYPE. ♂ taken in December, 1950, by J. C. Yaldwin. Preserved in alcohol, gonopods and representative legs on slide 2141 in collection of Plant Diseases Division, D.S.I.R., Auckland.

LOCALITY. Tonga.

REMARKS. The species is named in honour of the collector.

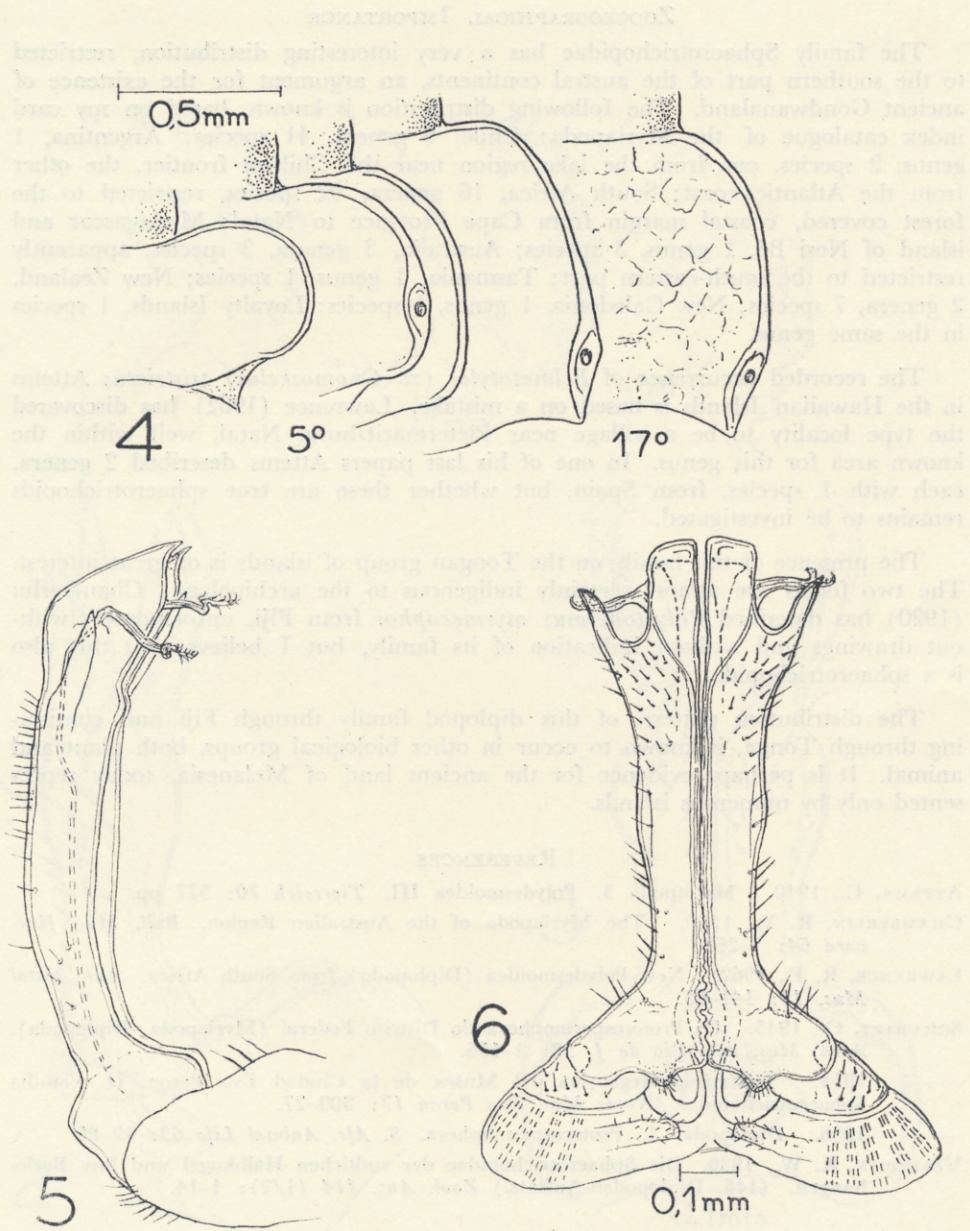


FIG. 4.—*Pacificosoma yaldwini* sp. n. ♂. Holotype. Lateral keels of segments 4, 5, 6, 15 and 17, dorsal view. FIG. 5.—*Pacificosoma yaldwini* sp. n. ♂. Holotype. Gonopods, lateral view. FIG. 6.—*Pacificosoma yaldwini* sp. n. ♂. Holotype. Gonopods, aboral view.

## ZOOGEOGRAPHICAL IMPORTANCE

The family Sphaerotrachopidae has a very interesting distribution, restricted to the southern part of the austral continents, an argument for the existence of ancient Gondwanaland. The following distribution is known, based on my card index catalogue of the Myriapoda: Chile, 9 genera, 41 species; Argentina, 1 genus, 2 species, one from the lake region near the Chilean frontier, the other from the Atlantic coast; South Africa, 16 genera, 92 species, restricted to the forest covered, coastal margin from Cape Province to Natal; Madagascar and island of Nosí Bé, 1 genus, 3 species; Australia, 3 genera, 3 species, apparently restricted to the south-eastern part; Tasmania, 1 genus, 1 species; New Zealand, 2 genera, 7 species; New Caledonia, 1 genus, 5 species; Loyalty Islands, 1 species in the same genus.

The recorded occurrence of *Pelmatotyles* (= *Gnomoskelus*) *tristriatus* Attems in the Hawaiian Islands is based on a mistake. Lawrence (1962) has discovered the type locality to be a village near Pietermaritzburg, Natal, well within the known area for this genus. In one of his last papers Attems described 2 genera, each with 1 species, from Spain, but whether these are true sphaerotrachopids remains to be investigated.

The presence of this family on the Tongan group of islands is of great interest. The two forms are almost certainly indigenous to the archipelago. Chamberlin (1920) has described *Phlyctodesmus myrmecophor* from Fiji, unfortunately without drawings and without indication of its family, but I believe that this also is a sphaerotrachopid.

The distribution pattern of this diplopod family through Fiji and continuing through Tonga, is known to occur in other biological groups, both plant and animal. It is perhaps evidence for the ancient land of Melanesia, today represented only by numerous islands.

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