

Spiders from Some Pacific Islands, III The Kingdom of Tonga

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THE KINGDOM OF TONGA consists of some 200 islands occupying an area in the south-west Pacific bounded by latitudes 15°S. and 23°31'S., and by longitudes 173°W. and 177°W. The islands fall into three groups, Vava'u in the north, Ha'apai in the centre, and Tongatabu in the south, the overall length being about 175 miles. All the islands are small; Tongatabu Island, 25 by 10 miles, is much the largest, and the total area is about 385 square miles. Most of them are elevated coral reefs and so are very low and flat. The highest point of Tongatabu Island is only 60 feet above the sea. A few are volcanic islands, and one of these reaches a height of 3,380 feet. During the year the maximum temperature varies between about 75°F. and 85°F., and there is a rainfall of about 80 inches. Hurricanes occasionally occur. The principal adjacent island groups are Fiji to the west and Samoa to the north, each 200 or 300 miles from Tonga.

Spiders have been described previously from Tonga by Koch (1872), Berland (1934), and Marples (1955). Apparently, no spiders have been collected on the high islands. The present collection consists of 34 species, and brings the total now recorded from 31 to 49 species. Of the spider fauna of adjacent island groups that of Samoa with 128 species is the best known. Sixty-six are recorded from Fiji, and, though unpublished records bring the total to 92, there are very many more to be found. The present list for Tonga is also doubtless far from complete, but a few com-

parisons can be made.

No Uloboridae are known (not even *U. geniculatus*, which is commonly found in houses), as compared with three in Fiji and six in Samoa. There are five species of Thomisids, against one in Samoa and one in Fiji, *D. praetexta* occurring in all three. The three Epeirid genera *Gasteracantha*, *Argiope*, and *Nephila* occur in Fiji and the islands to the west. *Gasteracantha* is not known in Tonga, but one species of *Argiope* is recorded from Tongatabu; this is the most eastern record for the genus in the southwest Pacific. Five species of *Nephila* are present, and the genus occurs also in Niue, some 200 miles to the east of Tonga, and doubtfully in Samoa. Of the 49 species recorded from Tonga 32 occur also in Fiji, and 32, not all the same species, occur also in Samoa.

I am indebted to my wife and son for collections of 14 species from each of the islands, Tongatabu and Vava'u. The greater part of the collection was made on various islands by Dr. N. L. H. Krauss, and I am grateful to him for the opportunity of examining it. The specimens will be deposited in the Bernice P. Bishop Museum in Honolulu.

In the descriptions the measurements were made with an eyepiece micrometer and are given in millimetres. The leg indices are derived by dividing the length of each leg by the length of the carapace, and the tibial indices, which give a measure of the stoutness of the legs, by dividing the combined lengths of the patella and tibia by the proximal breadth of the patella. The eye measurements are given in direct scale readings, so they indicate proportions only.

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LIST OF THE SPECIES RECORDED
FROM TONGA

(T = Tongatabu, H = Ha'apai, V = Vava'u)

DICTYNIDAE

Dictyna bifasciata. V.

OONOPIDAE

Gamasomorpha loricata ? V.

SCYTODIDAE

Scytodes marmorata. T,V.*S. striatipes*. T,H,V.

PHOLCIDAE

Pholcus ancoralis. T,V.*Physocyclus globosus*. T.*Smeringopus elongatus*. T.

CLUBIONIDAE

Chiracanthium diversum. T,V.*C. furax*. T,H,V.*C. longimanum*. T.*Clubiona alveolata*. T,V.

SPARASSIDAE

Heteropoda venatoria. T,V.

THOMISIDAE

Diaea praetexta. T,H,V.*D. septempunctata*. T.*D. tongatabuensis*. T.*Hedana subtilis*. T.*H. pallida*. T.

SALTICIDAE

Ascyllus pterygodes. T,H,V.*Bavia aericeps*. T,V.*Erasmia nigrovittata*. T,V.*Hasarius insularis*. T.*H. albocircumdatatus* ? T.*Menemerus bivittatus*. T.*Mollicia microphthalmalma*. T,H,V.*Plexippus payculli*. V.*Thorellia ensifera*. T,V.*Trite longipalpis*. T.*Vitia albipalpis*. T.

LYCOSIDAE

Lycosa tongatabuensis. T.

THERIDIIDAE

Conopistha samoensis. T.*C. unimaculata*. T.*Rhomphaea cometes*. T,V.*Theridion adamsoni*. T.*T. albostriatum*. T,V.*T. aleipata*. T,V.

TETRAGNATHIDAE

Leucauge tuberculata. T,H,V.*Tetragnatha macilentata*. T,H,V.*T. panopea*. T.*T. keyserlingi*. T.

EPEIRIDAE

Cyclosa litoralis. V.*Cyrtophora moluccensis*. T,V.*Argiope plana*. T.*Epeira plebeja*. T,H.*E. theisi*. T,V.*Nephila flagellans*. T.*N. durvilla*. T.*N. prolixa*. T.*N. vitiana*. T.*N. tetragnathoides*. T.

DICTYNIDAE

Dictyna bifasciata L. Koch

4 Vava'u. New record, previously recorded from Samoa.

OONOPIDAE

Gamasomorpha loricata L. Koch

1 Female. Neiafu, Vava'u. The female is not specifically identifiable but those found throughout the Pacific are taken to be of this species. It is recorded from widespread localities, this being the first from Tonga.

SCYTODIDAE

Scytodes marmorata L. Koch

3 Female, 1 male. Neiafu, Vava'u. This has

been previously recorded from Tongatabu and is widespread in the Pacific.

Scytodes striatipes L. Koch

1 Female and 1 imm. Neiafu, Vava'u. 1 Female, 1 male. Ohonua, Eua Island, Ha'apai. Previously recorded from Tongatabu and widespread in the Pacific.

PHOLCIDAE

Pholcus ancoralis L. Koch

1 Female and 3 imm., 2 male and 1 imm. Nuku'alofa, Tongatabu. 1 Male. Neiafu, Vava'u. First records from Tonga, widespread in the Pacific.

Physocyclus globosus Taczanowski

1 Male. Nuku'alofa, Tongatabu. 2 imm. possibly this species. Vava'u. First records from Tonga, widespread in the Pacific.

Smeringopus elongatus Vinson

2 Female. Nuku'alofa, Tongatabu, whence it has been recorded. With the exception of a record from the Marquesas this species is known from the islands in the western and central regions of the south Pacific.

CLUBIONIDAE

Chiracanthium furax L. Koch

5 Female, 2 male. Nuku'alofa, Tongatabu. 1 Female, 2 male. Neiafu, Vava'u. 1 Female, 2 male. Ohonua, Eua Island, Ha'apai. Berland (1929), who described the male of *C. furax*, states that it differs from that of *C. longimanum* in having a hooked central apophysis on the palp, a condition found in all the present specimens. These two species are very similar and it seems highly likely that they are synonymous, in which case *C. longimanum* has page precedence. A difference mentioned by Koch (1872) is a dark streak on the carapace of *C. furax*, which is absent in the present specimens. *C. furax* is recorded

from Samoa and Fiji, *C. longimanum* from these islands and also from Tonga, New Hebrides, and Australia. Two males, one from Tongatabu and one from Vava'u, resemble the others in palps and chelicerae but are considerably smaller, having a carapace length about 4.5 mm. instead of 7.5 mm.

Chiracanthium diversum L. Koch

1 Female, 2 males. Nuku'alofa, Tongatabu. 1 Male. Neiafu, Vava'u. One male from Tongatabu is somewhat larger and has three teeth on the promargin of the groove, as has the female. The female has not previously been described.

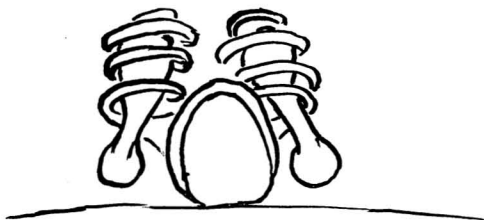


FIG. 1. *Chiracanthium diversum*. Epigynum.

FEMALE. Length 7.36 mm. Pale yellowish brown.

Carapace: Length 3.60 mm., breadth 2.40 mm. Low and smooth truncated in front.

Eyes: Eight. From above both rows slightly recurved, the anterior eyes project anteriorly beyond the carapace. Clypeus very low, about the diameter of AME. Breadth of eyegroup 1.60 mm. Ratio of eyes and of their distances apart: AM, 80; AL, 85; PM, 77; PL, 80; AM-AM, 160; AM-AL, 236; AM-PM, 115; PM-PM, 186; PM-PL, 268; L-L, 46.

Chelicerae: Large and projecting forwards, boss present, groove oblique. Three teeth on the promargin, the middle the largest. Three teeth on the retromargin, the most dorsal the largest. The dorsal promarginal tooth opposite to the ventral retromarginal one.

Maxillae: Much longer than the lip. Semi-circular anteriorly, concave laterally.

Lip: Free. Longer than broad, concave anteriorly.

Sternum: Length 1.73 mm., breadth 1.37 mm. Convex. Lateral margins notched for the bases of the last three legs, anterior margin slightly concave.

Palp: Long and slender. Minute claw.

<i>Legs:</i>	I	II	IV	III	Palp
	4.1	3.2	3.2	2.2	1.3

	FEMUR	PATELLA AND TIBIA	META- TARSUS	TARSUS	TOTAL
Palp.....	1.69	1.55	1.34	4.59
I.....	4.18	5.26	4.14	1.17	14.76
II.....	3.42	4.00	3.13	0.95	11.51
III.....	2.34	2.81	2.20	0.76	8.11
IV.....	3.38	4.00	3.31	0.95	11.64
Tibial Index I	10.2				
Tibial Index IV	8.2				

Claws: Two, pectinated about 12. Tenent hairs in dense tufts on the feet and extending along the ventral surface of each tarsus and metatarsus, and sparsely on tibiae I and II.

Spines: I. One pair at the proximal end of the tibia. II. None. III. One retrolateral-distal on the tibia; 2 median and 4 distal on the metatarsus. IV. One retrolateral-distal on the tibia; 1 ventral-proximal, 2 median and 4 distal on the metatarsus.

Abdomen: Length 4.33 mm., breadth 2.48 mm. Epigynum as in figure.

Clubiona alveolata L. Koch

1 Female. Nuku'alofa, Tongatabu. 1 Male. Neiafu, Vava'u. Several immature specimens which may belong to this species, which is widespread in the Pacific but not previously recorded from Tonga.

SPARASSIDAE

Heteropoda venatoria (Linn.)

1 Female. Tongatabu. 1 Female, 2 males. Vava'u.

THOMISIDAE

Diaea praetexta L. Koch

4 Females. Nuku'alofa, Tongatabu. 17 Fe-

males, 4 males. Vava'u. 1 Female. Ononua, Ha'apai. This species was described from Samoa, where it is very variable in colour, being frequently without the dark markings. The very similar *D. septempunctata* was described by Koch from Tonga. The present specimens are pale, or sometimes with three pairs of small spots, but their reproductive organs resemble those of specimens from Samoa and they seem to belong to this species.

SALTICIDAE

Ascyltus pterygodes (L. Koch)

3 Females, 3 males, 14 imm. Tongatabu. 1 Male, 2 imm. Eua Island, Ha'apai. 7 Females, 5 males, 24 imm. Vava'u. Widespread species, not previously recorded from Vava'u.

Bavia aericeps Simon

1 Male, 3 imm. Tongatabu. 1 imm. Vava'u. First records for the Tonga group. A widespread species.

Erasmia nigrovittata Keyserling

1 Female. Vava'u. This species was described from a single female from Tonga. Keyserling does not mention the cheliceral teeth, but Berland (1934) places the species amongst the Fissidentati. Petrunkevitch (1928) lists it as a synonym of *Iona* Peckham, one of the unidentate species. The present specimen agrees well with Keyserling's description, and has four distinct teeth on each of the margins of the cheliceral groove.

Menemerus bivittatus Dufour

1 Female. Nuku'alofa, Tongatabu.

Mollicia micropthalma L. Koch

1 Female, 2 imm. Tongatabu. 1 Female. Panga, Ha'apai. 1 Male. Holonga, Vava'u. A widespread species, first records for the Tonga group.

Plexippus payculli Auduin

1 Female. Vava'u. A widespread species, first record for Tonga.

Thorellia ensifera Thorell

9 Females, 3 males. Tongatabu. 2 Females, 1 male. Vava'u. Widespread in the central and eastern regions of the Pacific as far west as Fiji. First record for Tongatabu.

Vitia albipalpis Marples

1 Male. Nuku'alofa, Tongatabu. Described from Fiji, first record for Tonga.

THERIDIIDAE

Conopistha samoensis L. Koch

2 Females. Tongatabu. Widespread species.

Conopistha unimaculata Marples

1 Female. Tongatabu. Previously recorded from Samoa and Niue, as well as Tonga.

Rhomphaea cometes L. Koch

1 Male. Tongatabu. 1 Male. Falevau Island, Vava'u. New records for Tonga. Known also from Fiji, Samoa, and Tahiti.

Theridion adamsoni Berland

1 Male, imm. Tongatabu. Probably belonging to this species, previously known from Tahiti, Austral Islands, and Samoa.

Theridion albostriatum L. Koch

1 Male. Vava'u. Widespread species, previously recorded from Tongatabu.

Theridion aleipata Marples

2 Females. Tongatabu. 3 Females. Vava'u. New record for Tonga, previously known from Samoa and Aitutaki.

TETRAGNATHIDAE

Leucauge tuberculata Keyserling

2 Females. Tongatabu. 2 Females. Vava'u. 1 Female. Eua Island, Ha'apai. Widespread in the central and eastern parts of the Pacific. Previously recorded from Tongatabu.

Tetragnatha macilenta L. Koch

2 Females and 2 imm. Tongatabu. 1 Female, 1 male. Ohonua, Ha'apai. 3 Females and 2 imm. 2 Males. Vava'u. Widespread species not previously recorded from Tonga.

Tetragnatha panopea L. Koch

1 Male. Tongatabu. Widespread species, first record from Tonga.

EPEIRIDAE

Cyclosa litoralis (L. Koch)

1 Female. Vava'u. The specimen is smaller than ones from Samoa and the epigynum is slightly different, but it seems likely to be this species. It is widespread and occurs in both Fiji and Samoa. This is the first record of a *Cyclosa* from Tonga.

Cyrtophora moluccensis Doleschall

13 Females. Tongatabu. 6 Females. Vava'u. A very widespread species.

Epeira theisi Walckenaer

2 Females. Tongatabu. 7 Females, 2 males. Vava'u. Very widespread species, new record for Vava'u.

Epeira plebeja L. Koch

1 Female, 1 male imm. Eua Island, Ha'apai. 1 Male imm. Tongatabu. This female has a mottled brownish abdomen whose shape and pattern do not resemble those of *E. theisi*, though the epigynum is similar. According to the distinctions given by Berland (1935) it appears to be *E. plebeja*, a species already recorded from Tonga and from Fiji. The two immature males probably belong to the same species.

Nephila flagellans L. Koch

3 Females, 1 male. Tongatabu. Previously recorded.

SUMMARY

A collection of 34 species from various islands in the Tonga group includes 18 new records, bringing the total to 49. The female of the clubionid *Chiracanthium diversum* is described.

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