

Spiders from Some Pacific Islands, Part IV The Cook Islands and Niue

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THE COOK ISLANDS are a group of small islands in the region of the central South Pacific bounded by 8°–23° S. and 156°–167° W. They are divisible into two groups, the northern Cooks which are small atolls, and the southern Cooks which, with one exception, are volcanic islands. The southern Cooks are surrounded by coral formations and in some cases have been raised so that the islands have a coral rim up to 300 ft. high. The largest island is Rarotonga, with an area of some 26 sq. mi. and rising to a height of 2,140 ft. The Society Islands, the next group to the east, lie some 600 mi. from Rarotonga.

The island of Niue will be considered together with the Cook Islands. This isolated island does not belong to any group. It lies at 19° 10' S. and 169° 46' W., and consists of a flat coral formation raised to a height of some 220 ft. above the sea, with an area of about 100 sq. mi. It is situated some 580 mi. west of Rarotonga, 300 mi. east of Tonga, and 350 mi. southeast of Samoa.

The spider fauna of these islands is not well known. The number of species recorded (Berland, 1934a; Marples, 1955a, 1957) are as follows: Rarotonga, 13 species; Pukapuka, 8 species; Aitutaki, 5 species; and Niue, 5 species. In the present paper some of these numbers are raised to: Aitutaki, 24 species; Niue, 30 species; while from islands with no previous records there are: Mangaia, 10 species; Rakahanga, 4 species; Manihiki, 3 species; and Penrhyn, 1 species. I am indebted to my wife and to my son Richard for the collections from Niue and Aitutaki, and to Dr. D. D. McCarthy for those from the other islands. The collections were made during expeditions under the auspices of the Medical Research Council of New Zealand.

Niue is situated closer to the Samoa and Tonga groups and should be considered sep-

arately. Of the 30 species, 27 are recorded also from Samoa, 15 from the Cook Islands, and 11 from the Society Islands. Samoa is the largest land mass in this region and the one whose spider fauna is best known. Fiji, to the west, has not yet been adequately explored. Of the three species recorded from Niue but not from Samoa, *Nephila proluxa* represents the most easterly extension of the genus in the Pacific. It occurs in Fiji and Tonga and was recorded by Koch (1871) some 90 years ago in Samoa, but it has not been recorded there since. *Drasodes ciusi*, a new record, was previously described from New Caledonia and the Loyalty Islands far to the west. The third species, *Mollicia microphthalmia*, has a wide distribution from the New Hebrides, New Caledonia, and Loyalty Islands in the west, and to the Marquesas and Rapa in the east. It is also known from Tonga, the southern Cooks, and the Society and Austral islands, but not from Fiji, Samoa, or the small islands to the north. This southern distribution is unusual in such a widespread species.

Thirty species are recorded from the southern Cooks, and 26 of them occur also in Samoa. Of the 4 which do not, one is *Mollicia microphthalmia* already discussed, and 2 have not been recorded elsewhere. The fourth, *Sandalodes calvus*, is interesting, as it occurs to the east in the Society, Marquesas, and Tuamotu islands. Curiously enough, it is said to occur also in Australia. The genus *Sandalodes* has a distribution unlike that of any other group in the Pacific. There are, in addition to *S. calvus*, 8 species in Hawaii and 5 in the Marquesas. Another possible link with the east is an immature salticid from Aitutaki which may be *Labarulla insulana*, recorded from Tahiti, but unfortunately it cannot be identified with certainty. The southern Cooks have 14 species in common with the Society Islands (Berland, 1934b) but the remainder of these occur also in islands to the west. It is highly desirable that adequate collecting be carried out in Rarotonga, which,

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TABLE 1
SPECIES OF SPIDERS RECORDED FROM THE COOK ISLANDS AND NIUE, AND
THEIR OCCURRENCE IN THE ADJACENT ISLAND GROUPS

SPECIES	TONGA	SAMOA	NIUE	SOUTHERN COOKS	NORTHERN COOKS	TAHITI	SPECIES	TONGA	SAMOA	NIUE	SOUTHERN COOKS	NORTHERN COOKS	TAHITI
Total number of species recorded.....	49	128	29	30	8	40	SPARASSIDAE						
ULOBORIDAE							<i>H. venatoria</i>	×	×	×	×	×	×
<i>U. geniculatus</i>	—	×	×	—	—	—	SALTICIDAE						
DICTYNIDAE							<i>A. whitmei</i>	—	×	×	×	×	×
<i>S. mumfordi</i>	—	×	—	×	—	—	<i>A. pterygodes</i>	×	×	×	—	—	×
OONOPIDAE							<i>A. satchelli</i>	—	—	—	×	—	—
<i>G. loricata</i>	×	×	×	—	—	—	<i>B. aericeps</i>	×	×	—	×	×	×
<i>I. lanutoo</i>	—	×	×	—	—	—	<i>C. piscula</i>	—	×	×	—	—	—
<i>O. oceanicus</i>	—	×	—	×	—	—	<i>F. minuta</i>	—	×	×	×	—	—
SCYTODIDAE							<i>T. ensifera</i>	×	×	×	×	×	×
<i>S. marmorata</i>	×	×	—	×	—	×	<i>M. bivittata</i>	×	×	—	×	—	×
<i>S. striatipes</i>	×	×	×	×	—	×	<i>M. microphthalmia</i>	×	—	×	×	—	×
OCHYROCERATIDAE							<i>S. calvus</i>	—	—	—	×	—	×
<i>A. minuta</i>	—	×	×	—	—	—	THERIDIIDAE						
PHOLCIDAE							<i>C. samoensis</i>	×	×	×	—	—	×
<i>P. ancoralis</i>	×	×	×	×	—	×	<i>C. unimaculata</i>	×	×	×	—	—	—
<i>A. mauriciana</i>	—	×	—	—	×	—	<i>P. soloa</i>	—	×	×	—	—	—
<i>P. globosus</i>	×	×	—	×	×	—	<i>T. albostriatum</i>	×	×	×	×	—	—
<i>S. elongatus</i>	×	×	—	×	×	—	<i>T. aleipata</i>	×	×	×	×	—	—
CLUBIONIDAE							<i>M. phyllicola</i>	—	×	×	—	—	—
<i>C. furax</i>	×	×	?	—	—	—	LINYPHIIDAE						
<i>C. alveolata</i>	×	×	×	×	—	—	<i>L. tuasivia</i>	—	×	—	×	—	—
<i>C. samoensis</i>	—	×	—	×	—	×	<i>A. armata</i>	—	—	—	×	—	—
GNAPHOSIDAE							TETRAGNATHIDAE						
<i>D. ciusi</i>	—	—	×	—	—	—	<i>D. oceanica</i>	—	×	—	×	—	—
LYCOSIDAE							<i>D. upoluensis</i>	—	×	×	×	—	—
<i>L. tongatabuensis</i>	×	×	—	×	—	×	<i>L. tuberculata</i>	×	×	×	×	—	×
ZODARIIDAE							<i>T. panopea</i>	×	×	×	×	—	—
<i>C. verrucosa</i>	—	×	—	×	—	—	<i>T. macilentata</i>	×	×	×	×	—	—
							EPEIRIDAE						
							<i>C. moluccensis</i>	×	×	×	—	—	×
							<i>E. theisi</i>	×	×	×	×	×	×
							<i>N. proluxa</i>	×	?	×	—	—	—

as a high and relatively large island, will yield far more than the 13 species recorded from it and may show some interesting resemblances to the islands to the east.

The northern Cooks are all small coral islands. Only 8 species are recorded; all of these occur also in Samoa and 5 of them occur in the Society Islands. For comparison the Tokelau Islands may be mentioned. These are small coral islands lying west of the northern Cooks and north of Samoa. Thirteen species are recorded from them, all of which occur also in Samoa. Six of the 8 species from the northern Cooks occur also in the Tokelau.

ULOBORIDAE

Uloborus geniculatus Olivier

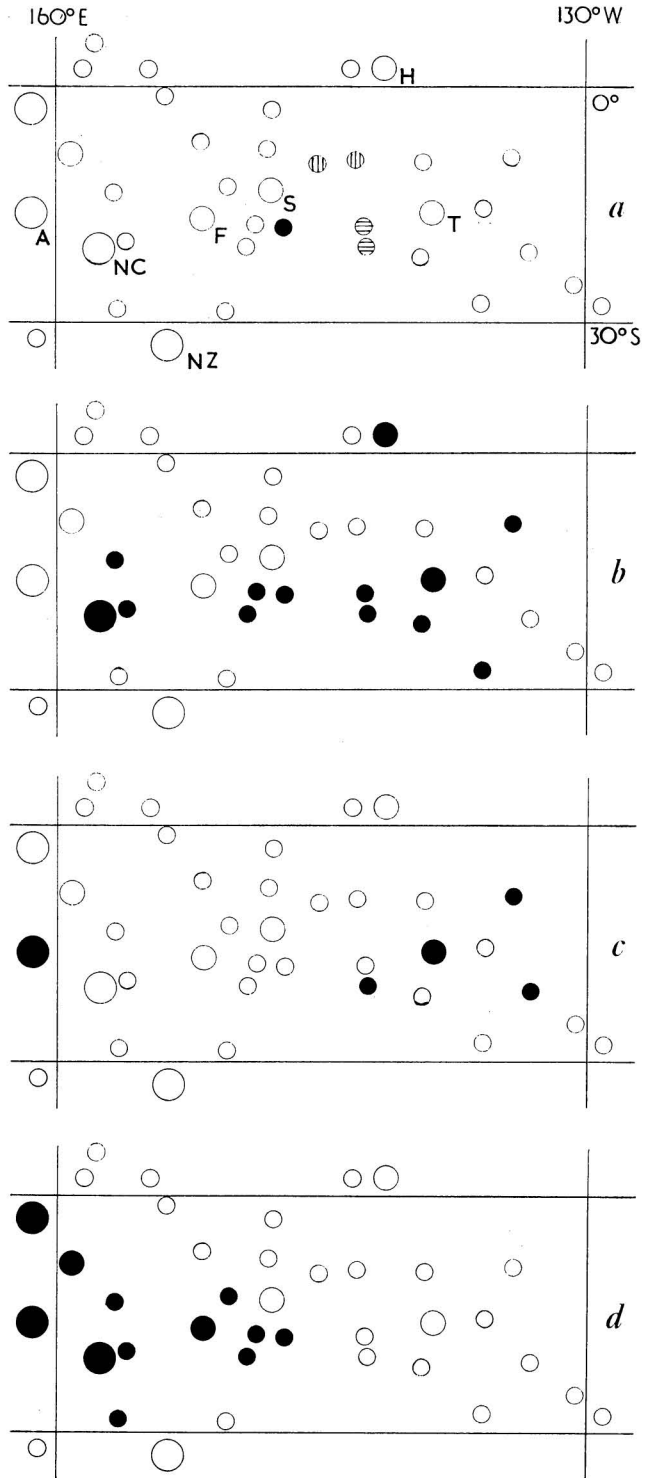
NIUE: 3 Female and 4 imm., 1 male imm. From buildings and a cave, Mutulau.

DICTYNIDAE

Syroris mumfordi Berland

AITUTAKI: 6 Females and 12 imm., 2 males.

Some collected under bark and others below coral pebbles about 2 in. in diameter on open ground. The webs were spun between the pebbles and the spider was just below. Two cocoons of thin white silk, one contained 36, the other 23 eggs.



OONOPIDAE

- Gamasomorpha loricata* L. Koch
 NIUE: 3 Females. In dead leaves. Assumed to be this species.
- Ischnothyreus lanutoo* Marples
 NIUE: 1 Female imm. From litter in a plantation.
- Oonopinus oceanicus* Marples
 AITUTAKI: 1 Female imm.

SCYTODIDAE

- Scytodes marmorata* L. Koch
 AITUTAKI: 2 Females. In buildings.
- Scytodes striatipes* L. Koch
 NIUE: 7 Females and 4 imm., 1 male. In house.
 AITUTAKI: 5 Females. In house and under logs.

OCHYRO CERATIDAE

- Apiacera minuta* Marples
 NIUE: 1 Female imm. Collected under an old fallen cocoanut. There are 5 instead of 6 promarginal teeth on the cheliceral groove.

PHOLCIDAE

- Pholcus ancoralis* L. Koch
 NIUE: 3 Females and 3 imm., 1 male. On buildings and cliffs and in the bush.
- Artema mauriciana* Walckenaer
 RAKAHANGA: 1 Female, 1 male.
- Physocyclus globosus* Taczanowski
 AITUTAKI: 24 Females, 5 males. The details of the palp are not exactly as figured by Petrunkevitch (1929) for a specimen from Porto Rico.
 RAKAHANGA: 1 Female.
 MANIHIKI: 1 Female and 7 imm., 1 male.
- Smeringopus elongatus* Vinson
 MANGAIA: 1 Female, 1 male.
 RAKAHANGA: 1 Female.

CLUBIONIDAE

- Chiracanthium furax* L. Koch
 NIUE: 1 Male imm. Probably this species.
 AITUTAKI: 3 imm. Probably a *Chiracanthium* sp.
- Clubiona alveolata* L. Koch
 NIUE: 10 imm. In bush.
 AITUTAKI: 2 Females, 1 male, and 1 imm. Under bark and stones.

GNAPHOSIDAE

- Drassodes ciusi* Berland
 NIUE: 1 Female. In open plantation. This species was described by Berland (1924) from a male from New Caledonia. Later (1929) he described a female from the Loyalty Islands which he attributed to the same species. The present specimen appears to correspond to this female.
- Poecilochroa rollini* Berland
 AITUTAKI: 1 imm. Under bark. This may belong to this species but one cannot be certain.

LYCOSIDAE

- Lycosa tongatabuensis* Strand
 AITUTAKI: 5 imm. Possibly this species, the cheliceral teeth agree.

SPARASSIDAE

- Heteropoda venatoria* (Linn.)
 NIUE: 2 Females, 2 males, several imm. Cocoon with 292 eggs.
 AITUTAKI: 3 Females, 3 males, several imm. 3 cocoons.
 MANGAIA: 1 imm.
 MANIHIKI: 2 imm.
 PENRHYN: 1 Female, 1 male, 1 imm.

FIG. 1. *a.* A stylised map of the South Pacific. The rectangle is bounded by the equator and 30° S., and by 130° W. and 160° E. The main island groups within the rectangle are indicated by circles in their relative positions, while the land masses without are conveniently assembled round the margin. *A*, Australia; *F*, Fiji; *H*, Hawaii; *NC*, New Caledonia; *NZ*, New Zealand; *S*, Samoa; *T*, Society Islands. The northern Cook Islands are marked with vertical lines, the southern Cook Islands with horizontal lines, and Niue is black.

b. Distribution of *Mollicia microphthalma*.

c. Distribution of *Sandalodes calvus*.

d. Distribution of the genus *Nephila*. Eleven species are included, but the doubtful record from Samoa is not shown.

SALTICIDAE

Athamas whitmei Cambridge

NIUE: 2 Females, 3 males, 3 imm. In house and swept in herbage.

AITUTAKI: 4 Males, 1 imm. Swept.

Bavia aericeps E. Simon

AITUTAKI: 1 Female, 1 imm.

Cytaea piscula L. Koch

NIUE: 2 imm. In bush.

Flacilla minuta Berland

NIUE: 2 Females imm., 1 male. In house.

AITUTAKI: 1 Female. Swept. There is one spine on metatarsus I, instead of none.

Thorellia ensifera (Thorell)

NIUE: 5 Females and 2 imm., 7 males and 3 imm. In house and litter in the bush.

AITUTAKI: 3 Females, 3 males, 5 imm. Swept.

MANGAIA: 2 Females imm.

Menemerus bivittatus Dufour

AITUTAKI: 1 Male. Under bark.

MANGAIA: 1 Female.

Mollicia microphthalmia (L. Koch)

NIUE: 2 Females and 1 imm. In bush.

AITUTAKI: 1 Male.

? sp.

AITUTAKI: 1 Female imm. Unfortunately it is not possible to identify this specimen, but it seems to be most like *Lauharulla insulana* Simon, described from Tahiti.

THERIDIIDAE

Conopistha samoensis (Cambridge)

NIUE: 3 Females and 9 imm., 1 male imm. The sides of the abdomen of all these specimens are silver, the ventral side is dark, and there is also a well-marked streak running longitudinally along the whole of the dorsal surface. This is better marked posteriorly to the apex than in Samoan specimens; there is no vertical lateral dark band which some of these have.

Conopistha unimaculata Marples

NIUE: 4 Females and 21 imm., 2 males and 4 imm. Collected in the bush.

Pholcomma soloa (Marples)

NIUE: 1 Female. In bush. This species was described as *Theridion soloa* from a single individual from Samoa. Additions to the de-

scription already published (1955b) are a row of three minute teeth on the retromargin of the cheliceral groove, and extensions of the broad posterior end of the sternum passing posterior to the last pair of legs. These are present in the type as well.

Theridion albostriatum L. Koch

NIUE: 1 Male. In house.

AITUTAKI: 20 Females and 16 imm., 5 males and 4 imm. In buildings.

MANGAIA: 2 Females, 1 male imm. The common domestic theridiid throughout the Pacific is taken to be this species.

Theridion aleipata Marples

NIUE: 1 Female and 9 eggs in a thin silk cocoon.

AITUTAKI: 2 Females, 1 male imm. Under pebbles on bare ground and swept.

Mysmena phyllicola (Marples)

NIUE: 2 Females, 1 male imm., 1 cocoon with 6 spiderlings. In bush.

LINYPHIIDAE

Linyphia tuasivia Marples

AITUTAKI: 1 Female. Under logs and leaves. The epigynum is slightly different from Samoan specimens, but it seems to belong to this species.

Aitutakia armata gen. et sp. nov.

AITUTAKI: 1 Male. In house. Male. Length 2.28 mm. Pale brown, sternum and mouth parts darker. Abdomen greyer with faint posterior dorsal chevrons.

Carapace: Length, 1.07 mm., breadth, 0.83 mm. Lateral margins convex. Thoracic groove conspicuous and longitudinal.

Eyes: 8, all light. From above, anterior row strongly recurved, posterior row straight. Ratios of the diameters of the eyes and of their distances apart: AM, 91; AL, 117; PM, 97; PL, 110; AM-AM, 53; AM-AL, 41; AM-PM, 76; PM-PM, 76; PM-PL, 80; laterals touching; clypeus, 220. Breadth of eyegroup, 0.39 mm.

Chelicerae: Main part rounded, groove very oblique so that the chelicera tapers towards the base of the fang. Large sharp prolateral distal apophysis, and a row of 5 smaller ones, increasing in size distally, along the prolateral dorsal

margin. Dorsal surface near the base of the fang with a stridulating organ of 7 ridges. Strigil at the proximal end of the tarsal tibia. Five pro-marginal teeth, the next but one to the ventral end being the largest; 3 somewhat larger retro-marginal teeth.

Maxilla: Large and rounded, converging, truncated anteriorly with only a slight anteromedian scopula. Posterolaterally adjacent to coxa I is a rounded dark elevation.

Lip: Small, rounded, broader than long.

Sternum: Length, 0.56 mm., breadth, 0.59 mm. Convex. Hollows for the bases of the maxillae and legs. Extending between the hind legs.

Palp: Tibia drawn out into a sharp dark dorsal process extending distally beside the base of the tarsus, below it a lateral convexity. Three dorsal trichobothria. Details as in figure.

<i>Legs</i> : IV	I	II	III	Palp
2.99	2.86	2.74	2.25	1.27

	PATELLA				TOTAL
	FEMUR	TIBIA	META-TARSUS	TARSUS	
Palp.....	0.56	0.41	—	0.39	1.36
I.....	0.62	1.14	0.78	0.50	3.05
II.....	0.79	0.97	0.71	0.25	2.73
III.....	0.71	0.74	0.58	0.38	2.41
IV.....	0.91	1.06	0.81	0.41	3.19

Tibial Index I 9.0

Tibial Index IV 9.0

Three claws, paired ones with 6 pectinations in a single row, median claw with 1. Spines few and inconspicuous. Tibiae with 2 dorsal spines except IV which has one. One on each patella. The femora have a double row of stout hairs or fine spines.

Trichobothria: 6 in 2 rows on the tibiae and 1 on the metatarsi, including metatarsus IV.

Abdomen: Length, 1.11 mm., breadth, 0.73 mm. Oval, slightly overhanging the waist. Spinnerets posteroventral, 6, the anterior much the largest. Anal tubercle and colulus small. Genital fold conspicuous. Posterior spiracles appear paired and close to the spinnerets.

This species, on the evidence of the converging maxillae, the single spine on tibia IV, and

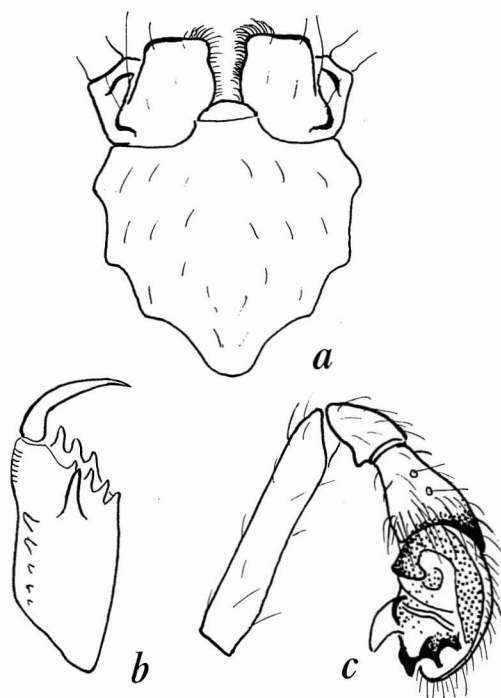


FIG. 2. *Aitutakia armata*, male. *a*, Sternum and maxillae; *b*, prolateral view of left chelicera; *c*, retro-lateral view of right palp.

the single trichobothrium on metatarsus IV, would seem to belong to the micryphantid assemblage. It is remarkable for the apophyses on the chelicerae and the swelling on the maxillae which distinguish it from the other species in the region. As its true generic position can only be determined by a specialist on the Linyphiidae, it is provisionally placed in a new genus.

TETRAGNATHIDAE

Dyschiriognatha oceanica Berland
AITUTAKI: 5 Females.

Dyschiriognatha upoluensis Marples
NIUE: 1 Male. Swept in shrubs at night. Smaller than Samoan specimen.
AITUTAKI: 4 Males.

Leucauge tuberculata Keyserling
NIUE: 15 Females, 5 males, 43 imm.
AITUTAKI: 2 Females and 2 imm., 2 males imm.

Tetragnatha panopea L. Koch

NIUE: 1 Female, 1 male.

AITUTAKI: 3 Males.

Tetragnatha macilenta L. Koch

NIUE: 2 Females.

AITUTAKI: 1 Male. The identification of species of *Tetragnatha* is only tentative.

EPEIRIDAE

Epeira theisi Walckenaer

NIUE: 9 Females, 1 male.

AITUTAKI: 10 Females, 5 males.

MANGAIA: 3 Females.

RAKAHANGA: 16 Females.

MANIHIKI: 1 imm. One immature epeirid apparently belonging to another species was collected on Niue.

Nephila proluxa L. Koch

NIUE: 1 Female and many imm., 4 males imm.

Cyrtophora moluccensis Doleschall

NIUE: 6 Females, 5 males and many imm.

SUMMARY

New collections of spiders are described from the Cook Islands and Niue which bring the total numbers recorded to 31 and 29, respectively. These faunas are compared with those of the Society Islands to the east and with those of Tonga and Samoa to the west, and the greater resemblance seems to be with those of the west. One new genus and species is proposed: *Aitutakia armata*, of the Linyphiidae.

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