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NEW WHIPSCORPIONS FROM NEW GUINEA AND THE SOLOMON ISLANDS (THELYPHONIDA, ARACHNIDA).

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The majority of the Thelyphonida in the collection of the American Museum of Natural History, New York, originate from Neotropical and Nearctic localities. There are also specimens from the Papuan Subregion and islands of the Pacific, most of which had been tentatively identified as *Abaliella willeyi* (Pocock, 1898). Among the latter I have found two new species of *Abaliella* Strand, and one new species of *Thelyphonus* Latreille. The two new species of *Abaliella* are from the New Guinea mainland and an adjacent island, the new species of *Thelyphonus* is from Guadalcanal, Solomon Islands. All measurements are in millimeters.

Thelyphonus lawrencei, new species

Holotype.—An adult female, taken on Guadalcanal, Solomon Islands, in July 1945 by Frank Cilley, and deposited in the American Museum of Natural History, New York City.

Allotype.—An adult male, taken on Guadalcanal, on 10 July 1927 by an unknown collector, but bearing the acquisition number 27590 and also deposited in the American Museum of Natural History.

Paratypes.—One damaged, apparently mature female, two immature males, and three immature females taken on Guadalcanal in 1944 by Frank Cilley, and two immature females taken on Guadalcanal in July 1945 by Frank Cilley, all deposited in the American Museum of Natural History.

Description.—The following, except for the last paragraph under this heading, describes the females.

Cephalothorax. Carapace finely granular, half again as long as wide, nearly flat anterodorsally, sides lateral to keel nearly vertical, slightly emarginate posteriorly, anterior lip with about 20 horizontal setae projecting forward; keel between median and lateral eyes well developed; median eyes divided by one and one-third times their diameter; anterior sternum narrow medially, expanding posteriorly; pentasternum oval; metasternum with several lateral, longitudinal divisions.

Abdomen. Terga and sterna finely granular; terga I-IX divided by median suture, wider on I-III than on IV-IX; medial margin of sternum II produced distally, bearing a pair of narrow, distally converging depressions anterior to a median depression, margin of sternum III gently curved, bearing a pair of distally converging, broad depressions, sternum IV narrow, V-IX similar; segment XI slightly narrower than X, segment XII with small ommatidia separated by 10 times their diameter; flagellum with 22 segments.

Pedipalps. Coxae densely punctured, apophysis with single, apical tooth; trochanter densely punctured, with two ventral, five dorsal teeth; femur densely punctured, with a large ventral, and small dorsal tooth; tibia, hand and finger sparsely punctured.

Legs. Tarsal-basitarsal segments 7, 8, and 9 of leg I modified, segments 3-6 similar, moniliform, segment 2 twice as long as 3, segment 7 shorter than 8, segment 8 bearing a large and a small distal spur; lengths of leg segments given in Table 1.

Males differ from females in the following respects: Abdominal tergum II somewhat longer than in female; sternum II gently curved posteriorly, with a median furrow; sternum III with a submarginal spine directed posteriorly. Pedipalpal tibial apophysis slightly longer than in female. Leg I without modified tarsal-basitarsal segments; segment 2 only slightly longer than 3; segments 3-8 similar, not moniliform; trochanter of leg IV with a large median spine directed medially; lengths of segments given in Table 1.

Comparisons.—*Thelyphonus lawrencei* is most similar to *T. asperatus* Thorell, 1888, and *T. leucurus* Pocock, 1898, but can be distinguished easily from them by the morphology of the tarsal-basitarsal segments of the female's first leg. Segment 9 is bent laterally at a 45° angle from its base in *T. leucurus*, whereas it is very nearly straight in *T. asperatus* and *T. lawrencei*. In *T. asperatus* segment 8 bears a distal spur that is nearly half as long as segment 9. The distal spurs on segment 8 of *T. lawrencei* are much smaller.

Measurements.—The total length (from anterior tip of carapace to end of abdominal segment XII) of the holotype and allotype is 20.8

TABLE 1.—*Selected measurements of the holotype (female) followed by allotype (male) of T. lawrencei.*

Variate	Legs			
	I	II	III	IV
Coxa	1.5-1.6	2.1-2.8	2.5-2.7	2.5-2.7
Trochanter	1.0-1.0	1.5-1.2	1.4-1.5	2.1-2.5
Femur	4.5-4.9	3.6-3.8	4.0-4.1	5.4-5.2
Patella	6.7-7.1	2.3-2.1	2.2-2.1	2.6-2.3
Tibia	5.5-6.0	3.3-3.0	2.6-2.6	5.0-4.2
Basitarsus		0.5-0.8	0.6-0.8	0.8-0.9
Tarsus	3.7-3.8	1.8-2.0	1.9-1.6	2.5-2.4

and 22.8, respectively. Their respective carapacial length is 8.7 and 8.8. See also Table 1.

Distribution.—*T. lawrencei* is known only from Guadalcanal, Solomon Islands.

Etymology.—This species is named for Dr. R. F. Lawrence, Albany Museum, Grahamstown, Cape, South Africa.

Abaliella gertschi, new species

Holotype.—An adult female, taken at Kokoda, 1200 ft., Territory of Papua, New Guinea, between 25 and 30 July 1964 by R. Zweifel and G. Sluder, and deposited in the American Museum of Natural History.

Paratype.—An immature female, taken at the same locality between the same dates by the same collectors as the holotype, and also deposited in the American Museum of Natural History.

Description.—Cephalothorax. Carapace finely granular, half again as long as wide, nearly flat anterodorsally, sides lateral to keel nearly vertical, slightly emarginate posteriorly, anterior lip with about 12 horizontal setae projecting forward; keel between median and lateral eyes well developed; median eyes divided by one and one-third times their diameter; anterior sternum narrow medially, expanding posteriorly; pentasternum oval; metasternum with several lateral, longitudinal divisions.

Abdomen. Terga and sterna finely granular; terga I-IX divided by a median suture, wider on I and III than on II and IV-IX, width gradually diminishing from IV to IX; medial margin of sternum II bluntly

TABLE 2.—Selected measurements of the holotypes (both females) of *Abaliella gertschi* and *A. dicranotarsalis*.

Variate	Legs			
	I	II	III	IV
<i>Abaliella gertschi</i>				
Coxa	1.6	2.5	2.5	2.7
Trochanter	1.0	1.5	1.9	2.1
Femur	5.8	4.1	4.2	6.3
Patella	7.5	2.5	2.5	3.0
Tibia	6.4	4.3	3.9	5.7
Basitarsus		0.6	0.7	0.8
Tarsus	3.6	1.9	2.1	2.2
<i>Abaliella dicranotarsalis</i>				
Coxa	1.5	2.2	2.4	2.5
Trochanter	0.9	1.4	1.7	2.2
Femur	4.9	4.1	4.0	5.6
Patella	6.9	2.0	2.2	2.5
Tibia	6.0	3.5	3.0	5.0
Basitarsus		0.6	0.6	0.7
Tarsus	4.2	1.5	1.6	2.4

produced distally, bearing a pair of narrow, parallel depressions flanking a long median depression, margin of sternum III gently curved, bearing a pair of distally converging, broad depressions, sternum IV narrow, V-IX similar; segment XI slightly narrower than X, segment XII without ommatidia; flagellum broken off.

Pedipalps. Coxae densely punctured, apophysis with an apical and basal tooth; trochanter densely punctured, with two ventral and five dorsal teeth; femur densely punctured, with a large ventral and a small dorsal tooth; tibia, hand and finger sparsely punctured.

Legs. Tarsal-basitarsal segments 7, 8, and 9 of leg I modified, segments 3 to 5 similar, parallel sided, segment 6 shorter than 5, segment 2 one-third longer than 3, segment 7 shorter than 8, segment 8 with one large and one small distal spur; length of leg segments given in Table 2.

Comparisons.—*Abaliella gertschi* is most similar to *A. samoana* (Kraepelin, 1897) and *A. willeyi*, but differs in the morphology of the tarsal-basitarsal segments of the female's first leg. In *A. samoana* segment 8 is shorter than 7, whereas in *A. willeyi* and *A. gertschi*, segment 8 is longer than 7. Segment 7 in *A. willeyi* is greatly expanded

distally, but is normally rounded in *A. gertschi*. *A. manilana* (Kraepelin, 1900) is distinguished from *A. gertschi* by having segment 6 modified.

Measurements.—Total length, 24.0; carapacial length, 9.3. See also Table 2.

Distribution.—*A. gertschi* is known only from Kokoda, 1200 ft., Territory of Papua, New Guinea.

Etymology.—This species is named for Dr. W. J. Gertsch, Portal, Arizona.

***Abaliella dicranotarsalis*, new species**

Holotype.—An adult female, taken on Fergusson Island, Territory of Papua, New Guinea, on 29 June 1956 by members of the Fifth Archbold Expedition to New Guinea, and deposited in the American Museum of Natural History.

Description.—Cephalothorax. Carapace finely granular, half again as long as wide, nearly flat anterodorsally, sides lateral to keel nearly vertical, slightly emarginate posteriorly, anterior lip with about 30 horizontal setae projecting forward; keel between median and lateral eyes well developed; median eyes divided by more than one and one-half times their diameter; anterior sternum narrow medially, expanding posteriorly; pentasternum oval; and metasternum with several lateral longitudinal divisions.

Abdomen. Terga and sterna finely granular; terga I-IX divided by a median suture, wider on I-IV than on V-IX; medial margin of sternum II produced distally, bearing a pair of narrow, parallel depressions flanking a long median depression, margin of sternum III gently curved, bearing a pair of distally converging, broad depressions, sternum IV narrow, V-IX similar; segment XI slightly narrower than X, segment XII without ommatidia; flagellum with 23 segments.

Pedipalps. Coxae punctured, apophysis with a single, apical tooth; trochanter punctured, with two ventral and five to seven dorsal teeth; femur densely punctured, with a large ventral, and small dorsal tooth; and tibia, hand, and finger sparsely punctured.

Legs. Tarsal-basitarsal segments 8 and 9 of leg I modified, segments 3, 5, 6, and 7 similar, parallel sided, segment 4 slightly longer than 3, segment 2 twice as long as 3, segment 7 shorter than 8, segment 8 with two nearly equal distal spurs; length of leg segments given in Table 2.

Comparisons.—*A. dicranotarsalis* is closely allied to *A. samoana*, *A. willeyi*, and *A. gertschi*, but differs in the morphology of the tarsal-

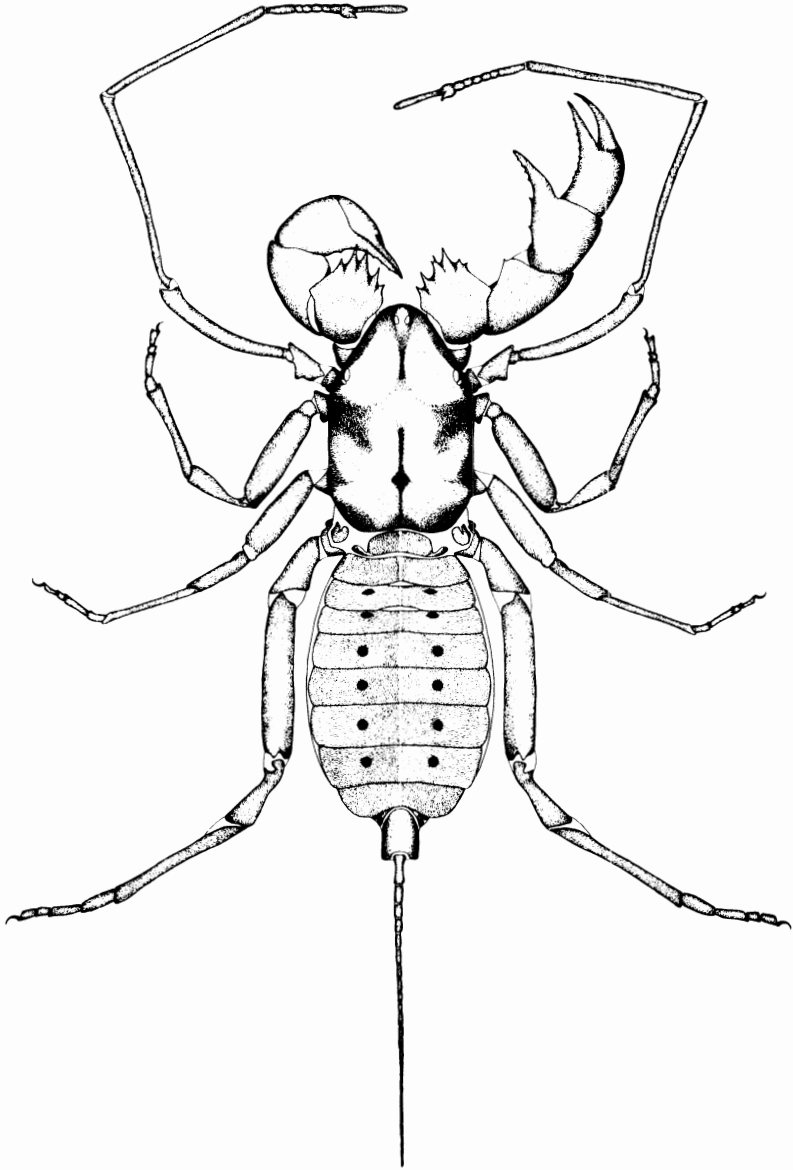
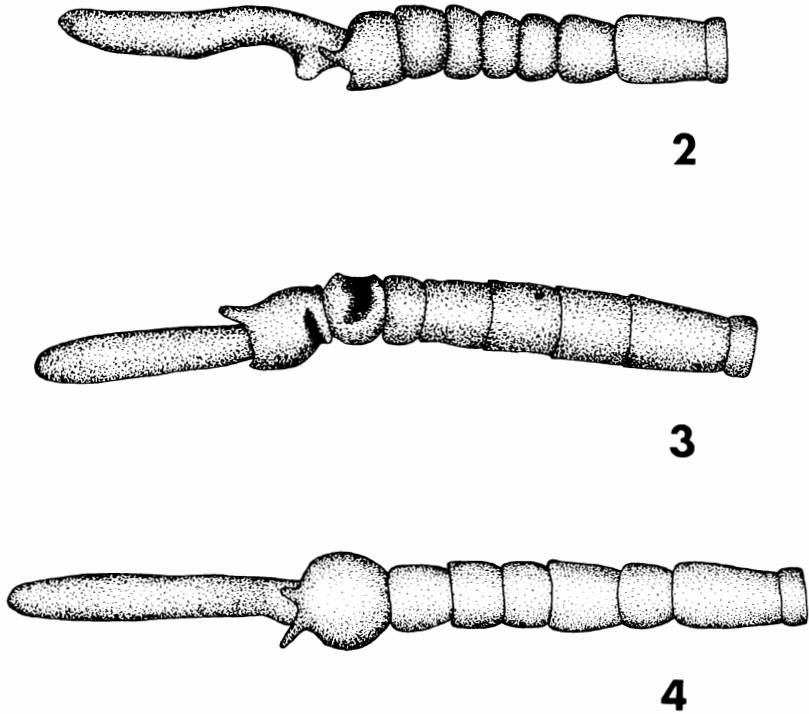


FIG. 1.—Dorsal view of female *A. dicranotarsalis*.

basitarsal segments of the female's first leg. In the latter three species there is a distinct modification of segments 7, 8, and 9, whereas in *A. dicranotarsalis* only segments 8 and 9 are modified. *A. rohdei*



FIGS. 2-4.—Dorsal view of female's tarsal-basitarsal segments of right leg I: 2, *T. lawrencei*; 3, *A. gertschi*; 4, *A. dicranotarsalis*.

(Kraepelin, 1897) is the only other species of this genus in which segment 7 is unmodified, but, unlike *A. dicranotarsalis*, segment 8 and 9 are also unmodified.

Measurements.—Total length, 20.1; carapacal length, 8.3. See also Table 2.

Distribution.—*A. dicranotarsalis* is known only from Fergusson Island, Territory of Papua, New Guinea.

Etymology.—Specific name from Greek *dicranotarsalis*, two-pointed tarsus.

Remarks.—*Thelyphonus* and *Abaliella* are in great need of revision. The species described herein appear closely related, but are placed in different genera on the basis of the presence or absence of ommatidia. Further study will probably show that generic distinction solely on the basis of this character is unjustified. A revision of these genera is, however, beyond the scope of this paper.

Key.—Males and immatures of most species of *Abaliella* are usually indistinguishable, but females can be separated by the following key (see Figs. 2-4):

1. Tarsal-basitarsal segments of leg I unmodified *A. rohdei*
Tarsal-basitarsal segments of leg I modified 2
2. Segment 7 unmodified *A. dicranotarsalis*
Segment 7 modified 3
3. Segment 6 modified *A. manilana*
Segment 6 unmodified 4
4. Segment 7 not expanded distally *A. gertschi*
Segment 7 expanded distally 5
5. Segment 8 longer than wide *A. willeyi*
Segment 8 shorter than wide *A. samoana*

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