New Armored Spiders of the Family Tetrablemmidae from New Ireland and Northern India (Araneae)

by

J. D. Bourne

With 44 figures and 2 plates

ABSTRACT

Two new Tetrablemmid spiders of the subfamily Brignoliellinae, *Brignoliella leletina* n. sp. and *Brignoliella dankobienisis* n. sp. are described from New Ireland (Papua New Guinea). From Northern India the following new species are described: *Tetrablemma loebli* n. sp. and *Brignoliella besuchetiana* n. sp. Furthermore two new genera have been erected to include three new species from Northern India: *Indicoblemma* n. gen., *Indicoblemma sheari* n. sp. (type species of new genus); *Choiroblemma* n. gen. *Choiroblemma bengalense* n. sp. (type species for new genus) and *Choiroblemma rhinoxunum* n. sp.

INTRODUCTION

In recent years more and more attention is being paid by arachnologists to the smaller species of spiders associated with soil and litter. Such soil extraction methods as those of Berlese, Tullgren and Macfadyen under laboratory conditions and the very productive Winkler method in the field have been most useful in this sense. Among the different soil dwelling spiders it would appear that the Tetrablemmidae and Pacullidae offer a wide field of research, particularly in the Oriental and Australian regions.

Up to now of the 43 known species (Shear 1978, 1979) 29 are from the area between Nepal and Australia including Micronesia. It is precisely this part of the World where very little soil sampling has been accomplished and where the possibilities of new taxa are most promising. The need for more research in this region would be primarily to extend our knowledge of the two above mentioned families whence a better understanding of the phylogenetic relationships between the genera.
This paper, the first in a series, on the families Tetrablemmidae and Pacullidae is purely taxonomical and concerns two new species from New Ireland (Papua New Guinea), two new genera and 5 new species from Northern India of the family Tetrablemmidae. The New Ireland species were collected by the author using the Winkler soil extraction method and the Indian species, using the same method, were kindly provided by Dr. I. Löbl and Dr. C. Besuchet of the Geneva Natural History Museum.

The systematic and anatomical terminology used in this paper is that proposed by SHEAR (1978) in his excellent treatment of these two families.

NEW IRELAND SPECIES
TETRABLEMMIDAE O. Pickard-Cambridge, 1873.
Subfamily BRIGNOLIELLINAe, Shear, 1978.


Brignoliella leletina n. sp.


Etymology. The species is named after the region of Central New Ireland where the spider was collected.

Description. Male Holotype: total length = 1.29 mm.; length of carapace = 0.62 mm. width of carapace = 0.48 mm.; maximum height of carapace = 0.30 mm. Cephalic region strongly sclerotized with small “warts”. Orange-brown. Two small and strongly sclerotized knobs situated half-way between the median pair of eyes and edge of clypeus (Fig. 1). Sternum with large punctuations (Fig. 2). Chelicerae with a small blunt black apophysis on anterior surface (Fig. 3) and a typical transparent intero-lateral blade. Abdomen covered with a strongly sclerotized dorsal scutum which is evenly covered with large round punctuations. Ventrally with four sclerotized plates and laterally with three strap-like plates, all covered with round punctuations. Leg measurements in mm.:

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Male palp: Fig. 4.

Remarks. For the moment I have included this species in Shear’s genus Brignoliella (SHEAR 1978) for the following reasons: existence of large round punctuations of the sternum and abdominal plates, marginal teeth of the carapace, the position of the eyes and the flattened subspherical male bulbus. However the extremely long embolus divided into two (a conductor sclerite) and the elongated palpal patella made need the erection of a new genus. For this it would be necessary to see the female who is, as yet, unknown.
NEW ARMORED SPIDERS FROM ASIA

Figs. 1-4: Brignoliella leletina n. sp. 1. Male carapace, dorsal view. 2. Male sternum, ventral view. 3. Male chelicera, lateral view. 4. Male palp, lateral view. (Scale = 0.2 mm.).

Figs. 5-8: Brignoliella dankobiensis n. sp. 5. Male carapace, dorsal view. 6. Male sternum, ventral view. 7. Male chelicera, lateral view. 8. Male palp, lateral view. (Scale = 0.2 mm.).
Brignoliella dankobiensis n. sp.

Male holotype from New Ireland (Papua New Guinea), collected by the author from a soil sample taken at the entrance to Dankobe sinkhole on the Lelet Plateau. Extracted by the Winkler method. Alt. 1150 m. July 1979. Deposited in MHNG.

Etymology. This species is named after the cave in the entrance of which this spider was found.

Description. Male holotype: total length = 1,36 mm.; length of carapace = 0,68 mm.; width of carapace = 0,52 mm.; maximum height of carapace = 0,34 mm. Cephalic region strongly elevated and covered with small granulations. Chestnut brown. A prominent bifid horn is situated on the clypeus (Fig. 5). Sternum with large round punctuations (Fig. 6), smaller than in the preceding species. Chelicerae with a large apophysis (Fig. 7) covered with fine ridges on the anterior surface. Abdomen with similar series of sclerotized plates as in the preceding species but with smaller punctuations. Leg measurements in mm.:

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Male palp: Fig. 8.

Remarks. From the description and remarks of Simon (1892: 569-571) this new species appears to be closely allied to Brignoliella (Paculla) bicornis (Simon) from the Philippines. The stout embolus among other characters would also tend to place it near to Brignoliella beattyi Shear, 1978 from the Caroline Islands.

Female: unknown.

INDIAN SPECIES.

Subfamily Tetrablemmidae O. Pickard-Cambridge, 1873.

Genus Tetrablemma O. P.-Cambridge, 1873.

Tetrablemma loebli n. sp.

Male holotype, 8 male and 8 female paratypes from Uttar Pradesh, North India. Locality: Kumaon (Bhim Tal), 4.X.79; env. 1500 m.; lisière d’une forêt secondaire, versant est, assez sec; tamisage. Extraction by the Winkler method. Leg. I. Löbl., deposited in MHNG.

2♂, Kumaon (Bhim Tal), 5.X.79; 1450—1550 m. sous des pierres au bord d’un ruisseau. Leg. I. Löbl. deposited MHNG.

1♀, Kumaon (entre Bhim Tal et Sat Tal), 7.X.79; env. 1500 m.; forêt secondaire, versant nord, tamisage de feuilles mortes. Extraction by the Winkler method. Leg. I. Löbl. deposited MHNG.
1♀, Kumaon (Chaubattia près Ranikhet), 12 et 13.X.79; env. 1800 m.; tamisage dans la forêt, fougères et mousses. Extraction by Winkler method. Leg. I. Löbl, deposited MHNG.

(Scale = 0.2 mm.).
1♀, Garhwal (au-dessus Pauri), 28.X.79; 1900 m.; versant nord; forêt de chênes, assez sèche, tamisage de feuilles mortes et de mousses. Extraction by the Winkler method. Leg. I. Löbl., deposited MHNG.

2♀, Garhwal (entre Devaprayag et Rishikesh, à 30 km. au nord de Rishikesh), 30.X.79; 450 m.; au bord d’une rivière; tamisage sous les roseaux. Extraction by the Winkler method. Leg. I. Löbl. deposited MHNG.

Etymology. This species is dedicated to the collector, my colleague, Dr. Ivan Löbl.

Description. Male holotype: total length = 0,88 mm.; length of carapace = 0,38 mm.; width of carapace = 0,32 mm.; maximum height of carapace = 0,23 mm. Cephalic region strongly elevated (Fig. 9), pale yellow-brown and covered with very fine granulations. Eyes in compact group of four (Fig. 10). Sternum with finely granulated surface and same color as carapace. Chelicerae (Fig. 11), anteriorly with robust dorsally projecting apophysis (Fig. 12) and intero-lateral blade (Fig. 11). Abdomen covered dorsally with sclerotized scutum, ventral and lateral plates typical for genus (Shear 1978). Leg measurements in mm.:

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Metatarsus of Leg I with a distally placed protuberance (Fig. 13). Male palp Fig. 14.

Female paratype. Similar to the male but lacking the following features: no cheliceral apophysis and without the protuberance on metatarsus I. Epigyne (Fig. 15) with no clear structure. The relatively complicated vulva is illustrated in Fig. 16.

Remarks. This very small spider appears to be closely related to the other known *Tetrablemma* from India (T. deccanensis (Tikader, 1975)). From the description given by Tikader (1975) the main features which distinguish the two species are: the position of the eyes on the carapace, the form of the cheliceral apophysis, the embolus of the male bulbus, the lack of a protuberance on metatarsus 1 for *T. deccanensis* and the structure of the female vulva.


Brignoliella besuchetiana n. sp.

Male holotype, 1 male and 3 female paratypes from Meghalaya, Garo Hills, North India. 400 m. 3.XI.78; tamisage en forêt, principalement sous des bambous. Extraction by the Winkler method. Leg. C. Besuchet and I. Löbl. Deposited in MHNG.
Etymology. This new species is dedicated to the collector, my colleague, Dr. Claude Besuchet.

Description. Male holotype: total length = 1,45 mm.; length of carapace = 0,70 mm.; width of carapace = 0,54 mm.; maximum height of carapace = 0,36 mm. Carapace smoothly raised in cephalic region, reddish-brown with a very granular surface. Marginal teeth (Fig. 18). A bifid horn is situated about midway between median pair of eyes and edge of clypeus (Fig. 18). Eyes (Fig. 18) in three distinct pairs and very unequal in size. Sternum with large round punctuations (Fig. 19 and Pl. 1 A), sternal hairs arising from the middle of punctuations (Pl. 1 A). Chelicerae with lateral apophysis (Fig. 20) which appears to be ridged. Abdomen covered with typical sclerotized plates all covered with punctuations smaller than those of the sternum. Leg measurements in mm.:

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First leg claws as shown in Pl. 2 B. Male palp, Fig. 21 and Pl. 2 A. Female para-type 1. Slightly bigger than the male: total length = 1,64 mm., otherwise very similar in appearance to the male. Carapace lacks the clypeal horn (Fig. 22) and cheliceral apophysis. Female genitalia as shown in Fig. 23 and clearly open on to the pulmonary plate near to the posterior border. Lateral pockets are clearly visible on the preanal plate (Fig. 23). The internal structures of the vulva are difficult to see in this highly sclerotized species and what could be seen without dissecting are shown in Fig. 24.

Remarks. This species can be included within the group *accuminata-sarawak-martensi* particularly with reference to the general form of the male carapace and the lateral depressions on the preanal plate of the female.

**Indicoblemma** n. gen.

Diagnosis. With six eyes arranged in a recurved transverse row. Sternum and all ventral plates of abdomen without large round punctuations. Sternum with small abrupt-sided and rimmed pits (Pl. 1 B). Sternal hairs arising from small depression situated among the pits. Male chelicerae with lateral apophysis. Male bulbus pyriform with short embolus: tibia of palp very much swollen almost as large as long. Female genitalia opening near to the posterior edge of pulmonary plate. Preanal plate of female with small lateral depressions.

Type species for new genus: **Indicoblemma sheari** n. sp.

**Indicoblemma sheari** n. sp.

Male holotype, 16 males and 50 female paratypes. India, West Bengal, Darjeeling District, entre Ghoom et Lopchu, 14.X.78, à 13 km. de Ghoom, versant nord, 2000 m. tamisage en forêt.

1 female, India, West Bengal, Darjeeling District, Mahanadi près de Kurseong, versant sud, 1200 m. 6.X.78. Tamisage en forêt.
1 female, India, West Bengal, Darjeeling District, Algarah, 1800 m. 9.X.78. Tamisage en forêt.

2 females, India, West Bengal, Darjeeling District, 13 km. nord de Ghoom (route pour Bijanbari), 1500 m. 15.X.78. Tamisage dans une forêt dégradée.

1 female, India, West Bengal, Darjeeling District, Tonglu, près du sommet, 3100 m. 16.X.78. Sous des pierres.

**Figs. 25-30:** *Indicoblemma sheari* n. sp. 25. Male, lateral view. Surface sculpture of carapace shown only in part. 26. Male carapace, dorsal view. 27. Male chelicera, lateral view. 28. Male bulbus. 29. Female genital region and preanal plate. 30. Female vulva.

(Scale = 0,2 mm.).
1 female, India, West Bengal, Darjeeling District, Tiger Hill, 2500-2600 m. 18.X.78. Tamisage dans la forêt près du sommet.

All material except from Tonglu extracted by the Winkler method, Leg. C. Besuchet and I. Löbl. Deposited in MHNG.

Etymology. This new species is dedicated to Professor W. Shear in respect for his work of putting some order in to this family of spiders.

Description. Male holotype: total length = 0.84 mm.; length of carapace = 0.40 mm.; width of carapace = 0.34 mm.; maximum height of carapace = 0.29 mm. Cephalic region moderately raised and covered with a fine mosaic-like sculpture. With peripheral teeth. Orange brown. No clypeal apophysis (Fig. 26). Eyes in procurred transversal row (Fig. 26). Sternum (Pl. 1 B) covered with small abrupt sided rimmed depressions and sternal hairs arising between these depressions. Chelicerae with small sclerotized lateral apophysis (Fig. 27). Abdominal sclerotized plates as in Fig. 25. Leg measurements in mm.:

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First leg claws shown in Pl. 1 E. Claws very long and needle-like.

Male palp. Fig. 28 and Pl. 2 B. The bulb is pyriform with a very short straight embolus, the palpal tibia is very much swollen.

Female paratype 1. Very similar to the male but lacking the cheliceral apophysis. Preanal plate of the abdomen with small lateral depressions (Fig. 29). The internal structures of the female genitalia are given in Fig. 30. The opening is clearly situated near to the border of the pulmonary plate. The circular orifice leads to a small vestibule which immediately divides into two ducts leading to the seminal receptacles. Behind the vestibule and leading in to it is a small sac. The hairs on the posterior border of the pulmonary plate are feather-like whereas the remaining surface is sparsely covered with simple hairs.

Remarks. While retaining several characters of typical Brignoliellines (particularly sexual ones) this species is distinguishable by the complete absence of large round punctuations on the sternum and ventral abdominal plates. The form of the male bulb and swollen palpal tibia have certain resemblances with some species of Monoblemma (Brignoli 1974). In the cladogram built by Shear (1978) I would place Indicoblemma in the group Singaporemma and Ablemma.

Choiroblemma n. gen.

Diagnosis. Six eyes in three distinct pairs. Sternum covered with small irregularly rounded pits without the rim shown for Indicoblemma (Pl. 1 C). Sternal hairs arising in small pits, often at the point of fusion of two or three sternal pits (Pl. 1 C). Male bulb with fine embolus and robust conductor sclerite, both femur and tibia of male palp very much swollen. Female genitalia opening through a pore on a posteriorly protruding lip situated on the posterior border of the pulmonary plate. Two sclerotized lateral ridges on preanal plate.
Etymology. The generic name is taken from the Greek word for pig (Choiros) and is descriptive of the type species carapace seen in profile: it should be considered as neutral.

Type species for the genus: *Choiroblemma bengalense* n. sp.

**Figs. 31-36: Choiroblemma bengalense* n. sp. 31. Male carapace, lateral view. 32. Male carapace, dorsal view. 33. Male chelicera, lateral view. 34. Male chelicera, lateral view. 35. Male palp. 36. Female, genital region, vulva and modified preanal plate. (Scale = 0.1 mm.).**
Choirelemma bengalense n. sp.

Male holotype, 1 male and 3 female paratypes from India, West Bengal, Darjeeling District, Mahanadi près de Kurseong, versant sud, alt. 1200 m. 6.X.78, tamisage en forêt. Extraction by Winkler method. Leg. Dr. Cl. Besuchet and I. Löbl. Deposited in MHNG.

Etymology. The specific name is a geographical indicator.

Description. Male holotype: total length = 1,21 mm.; length of carapace = 0,58 mm.; width of carapace = 0,48 mm.; maximum height of carapace = 0,30 mm. Cephalic clearly raised (Fig. 31) and prolonged anteriorly to form a blunt “snout” (Figs. 31 and 32). Carapace covered with a fine mosaic-like sculpture, peripheral spines. Reddish-brown. Eyes in three distinct pairs (Fig. 32), the medians being the smallest. Sternum (Pl. 1 C) with small pits, sternal hairs arising from smaller pits dispersed among them. Chelicerae with small sclerotized apophysis and lateral transparent blade (Figs. 33 and 34). Abdominal plates finely pitted. Leg measurements in mm.:

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First leg claws (Pl. 1 F).

Male palp, Fig. 35. This is very different from all known Tetrablemmides. The embolus is sub-apical, extremely thin and needle-like (Pl. 2 C). The embolus is associated with a very robust conductor sclerite.

Female paratype: general appearance as of the male but without the “snout-like” protuberance of the carapace and without cheliceral apophysis. Genitalia: opens on to the extreme posterior border of the pulmonary plate in a highly sclerotized lip (Fig. 36). A very thin duct runs anteriorly within the lip and opens in to a small vestibule which immediately divides in to two ducts leading to the seminal receptacles. The long thin entrance duct of the vulva would necessitate an equally long and fine embolus as that found in the male. There are two longitudinal sclerotized ridges on the preanal plate (Fig. 36).

Choirelemma rhinoxunum n. sp.

Male holotype, 1 male and 2 female paratypes from India, West Bengal, Darjeeling District, Singla; 300 m. 17.X.79. Tamisage dans une forêt secondaire de Tecks. Extraction by Winkler method. Leg. Dr. Cl. Besuchet and Dr. I. Löbl. Deposited in MHNG.

Etymology. The specific name refers to the pointed nose-like carapace.

Description. Male holotype: total length = 1,24 mm.; length of carapace = 0,52 mm.; width of carapace = 0,42 mm.; maximum height of carapace = 0,32 mm. Cephalic region clearly raised (Fig. 37) and prolonged anteriorly into a pointed “snout” (Figs. 37 and 38). As in previous species carapace covered with mosaic-like surface sculpture, partially depicted in Fig. 37, and with peripheral teeth. Reddish-brown. Eyes

(Scale = 0.2 mm.)
Plate 1.

Plate 2.
Male bulb. A: Brignoliella besuchetiana n. sp. B: Indicoblemma sheari n. sp. C: Choiroblemma bengalense n. sp. D: Choiroblemma rhinoxunum n. sp.
in three fairly distinct pairs, of similar size and without peri-ocular pigmentation (Fig. 38). Sternum with small pits conform to generic character. Chelicerae (Figs. 39 and 40) with a blunt protuberance Leg measurements in mm.:

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Male palp (Fig. 41) with a short thin and curved embolus and strong conductor sclerite, relative position of the two shown in Pl. 2 D.

Female paratype. General appearance as the male except the carapace (Fig. 42) is without the snout-like protuberance and chelicerae without apophysis. Slightly bigger than the male. As in the previous species the genital opening is on a strongly sclerotized lip, the entrance duct being much shorter and wider. Seminal receptacles (Fig. 43) with definite structure. Preanal plate with two short longitudinal ridges and appear as in Fig. 44 under low magnification: a more detailed drawing is given in Fig. 43.
Remarks. Although the structure of the female genitalia of the new genus have some similarities with that of Singaporemma Shear, 1978 it is difficult to insert this genus in Shear’s cladogram (SHEAR 1978).

POST SCRIPTUM

Following an interesting correspondence with Professor Brignoli concerning my paper on Tetrablemmidae he kindly informed me that Dr. Lehtinen was preparing a publication on this family. So I also submitted a copy of my manuscript and illustrations to Dr. Lehtinen, hoping that in this way synonymous species could be avoided. It was however too late to make important changes to my manuscript (at the printers). Dr. Lehtinen made some interesting remarks but as I have not been able to check my new species against his descriptions or figures I can only give the following perfunctory comments.

Concerning Tetrablemma loebli Bourne it would appear that Dr. Lehtinen has erected a new genus (Kumaonia) within which he places a single species (K. simplex) that he considers to be identical to T. loebli. Although I am not aware of the criteria used by him in creating this genus it would appear to me as an unnecessary complication of the family. My new genus, Indicoblemma is considered by Dr. Lehtinen to be identical to his new genus Chavia. Again I cannot judge the validity of this similarity and it may well be that Indicoblemma sheari Bourne is very close to Lehtinen’s Chavia himalayensis — LEHTINEN, P. T. (in press) “Spiders of the Oriental-Australian region III. Tetrablemmidae”. Acta Zool. Fenn.

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REFERENCES


NEW ARMORED SPIDERS FROM ASIA


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