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A PRELIMINARY REVISION
OF THE GENUS *STREBLOCERA* WESTWOOD,
WITH DESCRIPTION OF
A NEW SPECIES FROM MANCHOUKUO*
(HYMENOPTERA : BRACONIDAE)

By

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(With 2 Textfigures)

As in the course of the present study there has been found a new species of the genus *Streblocera* WESTWOOD, an aberrant and interesting group of *Braconidae*, from Manchoukuo. On this occasion there will be presented a revision of this genus, in which a certain amount of confusion has existed.

Here I am much indebted to Professor TOICHI UCHIDA for his kind advice and to Mr. ICHIJ I OKADA for his kindness in sending the material.

Subfamily *Helconinae*
Tribe *Euphorini*
Genus *Streblocera* WESTWOOD

Streblocera WESTWOOD, Philos. Mag., III, p. 342 (1833); *ibid.*, Tidschr. Ent., XXV, p. 44 (1882); REINHARD, Berlin. Ent. Zeitschr., VI, p. 327 (1861); MARSHALL, Trans. Ent. Soc. London, p. 68 (1887); *ibid.*, Spec. Hymén. Europe, V, p. 25 (1891); THOMSON, Opusc. ent., p. 2142 (1895); DALLA TORRE, Cat. Hymén., IV, p. 122 (1898); SZÉPLIGETI, Gen. Insect., 22-24, p. 169 (1904); LYLE, Entomologist, Vol. 56, p. 258 (1926); MUESEBECK, Misc. Pub. U. S. Dep. Agr., No. 241, p. 13 (1936); WATANABE, Jour. Facul. Agr., Hokkaido Imp. Univ., XLII, p. 128 (1937).

Eutanycerus FÖRSTER, Verh. Natur. Ver. Preuss. Rheinl., XIX, p. 251 (1861); MARSHALL, Spec. Hymén. Europe, V bis, p. 208 (1897); SZÉPLIGETI, Gen. Insect., 22-24, p. 169 (1904).

Lecythodella ENDERLEIN, Arch. Naturgesch., 78 A, Heft 2, p. 41 (1912).

Genotype: *Streblocera fulviceps* WESTWOOD

In structure this genus is most closely related to the genus *Microctonus*

*WATANABE, C.: Contributions to the Knowledge of the Braconid Fauna of Manchoukuo, IV.

WESMAEL, but it is easily distinguished from the latter by the abnormal antennae. It differs also from *Eustalocerus* FÖRSTER, of which the antennae are abnormal, in having the 1st cubital and the 1st discoidal cells confluent. Based on the descriptions of various authors and the present material this genus is characterized as follows:—

Head transverse. Occiput usually margined, the carina frequently interrupted medially. Antennae of the female geniculate, the 1st joint elongate and incrassate, while those of the male long and slender, not geniculate, the 1st joint a little longer than the following two joints united. Thorax not depressed; parapsidal furrows distinct. Wings with two cubital cells, the 1st confluent with the 1st discoidal cell; radial cell ending much before the apex of wing, not longer than the stigma; nervulus interstitial or just postfurcal; medial nervure well developed. First abdominal segment petiolate, the tubercles situated beyond the middle; ovipositor prominently exerted. Length, 2–5 mm.

In finishing this investigation, much help has been derived from MUESEBECK's revision (1936) of the *Euphorinae*, in which this genus is mentioned; he treated the two genera, *Eutanycerus* FÖRSTER and *Lecythodella* ENDERLEIN, as synonyms of *Streblocera*. Indeed, *Eutanycerus* FÖRSTER, like many of FÖRSTER's genera without any valid species in the original description, is a doubtful genus. Although MARSHALL (1887) and SZÉPLIGETI (1904) recognized it as a distinct genus, I am much inclined to the opinion that it may be synonymized with *Streblocera* as THOMSON (1895) and MUESEBECK (1936) pointed out. Furthermore, judging from the original description it seems certain that *Lecythodella* ENDERLEIN, which is known only from a single male specimen from Peru, must be reduced to the rank of a synonym of this genus.

So far as I am aware, three species have been described from Europe, and yet there has been a certain amount of confusion as to correct association of the sexes. In 1926 LYLE made an excellent contribution to clear up this point, but I can not entirely agree to his opinions as will be discussed below. In 1937 I described another species from Japan and in this paper a new species from Manchoukuo will be added to this genus.

The differences in the antennae of the females will readily distinguish these species as in the following key. It is, however, impossible to distinguish them by their males only in the present state of knowledge, since the males have been neither so exhaustively investigated nor so strictly characterized as the females. Moreover, insofar as their habits are known, the species of the tribe *Euphorini* appear to be internal parasites of adults of *Coleoptera*, or of nymphs or adults of *Heteroptera*, and yet nothing is known concerning the habits and hosts of the present species. Accordingly there exists a considerable

difficulty in revising these species completely. Further morphological and biological investigations are necessary before a complete revision can be satisfactorily given.

Key to the Species

♀ ♀

- 1. Antennae 15- or 16-jointed; 2nd and 4th joints obliquely articulated, forming two geniculations; 3rd joint incrassate 2
- Antennae more than 18-jointed; 2nd and 10th joints obliquely articulated, forming two geniculations, or 2nd joint only obliquely articulated, forming one geniculation; 3rd joint short, not incrassate. 3
- 2. First joint of the antennae with a curved tooth undersurface near the base; 3rd joint much shorter than the 1st, obliquely truncated at the apex (Fig. 1, B). Length, 2 mm. Europe. ...
 I. *S. fulviceps* WESTWOOD
- First joint of the antennae with a round tubercle undersurface near the base; 3rd joint a little shorter than the 1st, produced beneath into a deflected spine at the apex (Fig. 1, D). Length, 3 mm. Europe. 3. *S. longiscapha* WESTWOOD
- 3. Antennae 18-jointed, forming only one geniculation; 2nd joint obliquely articulated; 1st joint as long as the following 10 joints united, without tooth undersurface near the base (Fig. 1, C). Length, 3 mm. Europe. 2. *S. macroscapus* (RUTHE)
- Antennae more than 19-jointed, forming two geniculations; 2nd and 10th joints obliquely articulated. 4
- 4. Antennae 29- or 30-jointed; 1st joint much longer than the following 8 joints united, without tooth undersurface near the base (Fig. 2, A); thorax and propodeum black; abdomen dark brown; 1st tergite slender, 3.5 times as long as broad at the apex. Length, 5 mm. Japan. ...
 4. *S. nigrithoracia* WATANABE
- Antennae 19- or 20-jointed; 1st joint a little longer than the following 8 joints united, with a pointed straight tooth undersurface near the base (Fig. 2, B); thorax, propodeum and abdomen rufo-testaceous; 1st tergite fuscous, comparatively stout, 2.5 times as long as broad at the apex. Length, 3-3.5 mm. Manchoukuo. 5. *S. okadai* sp. nov.

I. *Streblocera fulviceps* WESTWOOD

Streblocera fulviceps WESTWOOD, Philos. Mag., III, p. 342, ♀ (1833).

Streblocera fulviceps NEES, Hymen. Ichneum. affin. Monogr., I, p. 319, ♀ & II, p. 411, ♀ (1834).

Streblocera fulviceps WESTWOOD, Tidschr. Ent., XXV, p. 45, ♂ (really ♀), Pl. 8. fig. 6 & 7 (explained as *S. fulviceps*, antenna of ♂) (1882).

Streblocera fulviceps WESTWOOD, l. c., XXV, p. 45, ♀ (really ♂), Pl. 8, fig. 9 (explained as *S. longiscapha*, antenna of ♂) (1882).

Streblocera fulviceps MARSHALL, Trans. Ent. Soc. London, p. 69, ♀, Pl. V, fig. 2 (♀) (1887);
 [Ibid., Spec. Hymén. Europe, V, p. 26, ♀, Pl. I, fig. 8 (♀) (1891).

Streblocera fulviceps LYLE, Entomologist, Vol. 59, p. 259, ♀, fig. 1 (antenna of ♀) (1926).

♀. In 1833 this species was originally described by WESTWOOD from a single female specimen collected by himself in Coombe Wood, Surrey, England. Although I have not seen the original description itself, according to NEES and LYLE it reads as follows:—

“Caput antice bituberculatum. Antennae fere longitudine corporis, 16-articulatae, articulo primo longo (capite longiori) subtus dente valido armato, secundo brevi, apici prioris oblique inserto, tertio paulo majori, quarto etiam oblique inserto, hoc et reliquis filiformibus. Collare angustum. Abdomen sub-rhomboideum, pedunculo brevi. Alae anticae stigmatè magno, areola marginali una brevi, areola submarginali prima cum discoidali effusa. *Streblocera fulviceps* WESTWOOD. Piceo-nigra nitida, capite fulvo, oculis ocellisque nigris, antennis fuscis articulis tribus basalibus fulvis, pedibus fuscis, femoribus fulvescentibus, alarum stigmatè nervisque pallide fuscis. Long. corp. lin 1.”

The female of this species is strictly recognizable by having the antenna (Fig. 1, B) 16-jointed, with two geniculations, the 1st joint being long, incrassate, armed with a curved tooth undersurface near the base, the 2nd short, obliquely articulated with the 1st, forming an acute angle, the 3rd shorter than the 1st, incrassate and curved, the 4th obliquely inserted before the apex of the 3rd, forming another angle, and the 4th to 16th joints submoniliform.

In 1882 WESTWOOD redescribed this insect, but his male is really the female of this species as MARSHALL and LYLE point out.

MARSHALL possessed two female examples taken from Britain and he made a redescription of the female. LYLE also examined a female example, captured at Weston Peat Pits, Weston-on-the-Green, near Oxford, in 1833. Consequently in total there are 4 female examples, all of which have been discovered in Britain.

♂. Judging from the description of WESTWOOD (1882), the specimen described by him as the female of *S. fulviceps* may very possibly be the true male of this species. His description is as follows:—

“Differt faemina* antennis gracilibus rectis 19-articulatis, articulo primo crassiori longitudine articularum 3, 4 et 5 aequali, articulis tertio ad apicem filiformibus; oviductu** haud excerto.”

As above, the description clearly indicates that the antenna (Fig. 1, A) is slender, 19-jointed, without geniculation; 1st joint being grossly equal in

*This is really the male.

**This I consider the genital organ of the male.

length to the 3rd, 4th and 5th joints united, and the antenna is figured by him in his plate 8 (fig. 9) as being that of the male of *S. longiscapha*. This fact has never been recognized by later authors. At any rate the representative described by WESTWOOD is the only one which may be recognizable as the male of this species.

Distribution: Europe (Britain, after WESTWOOD, MARSHALL and LYLE).

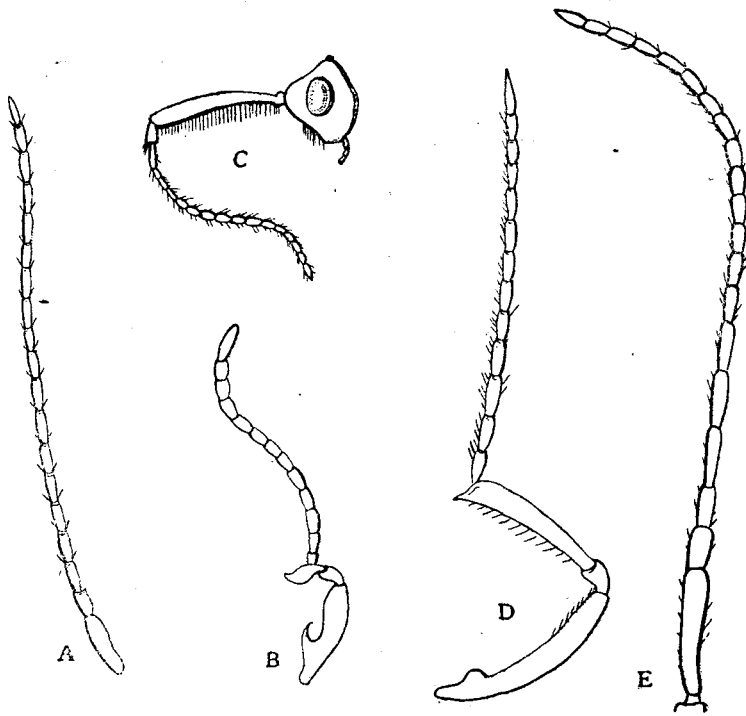


Fig. 1

- Antenna of: A. *Streblocera fulviceps* WESTWOOD (♂) (after WESTWOOD).
 B. *Streblocera fulviceps* WESTWOOD (♀) (after WESTWOOD).
 C. *Streblocera macroscapus* (RUTHE) (♀) (after REINHARD).
 D. *Streblocera longiscapha* WESTWOOD (♀) (after WESTWOOD).
 E. *Streblocera longiscapha* WESTWOOD (♂) (after LYLE).

2. *Streblocera macroscapus* (RUTHE)

Microctonus macroscapus RUTHE, Stettin. Ent. Zeitg., XVII, p. 291, ♂ (1856).

Streblocera macroscapa REINHARD, Berlin. Ent. Zeitschr., VI, p. 327, ♀ ♂, Taf. I, fig. 11, a (♀)

& b (antenna of ♀) (1861).

Eutanycerus Halidayanus FÖRSTER, Verh. Naturh. Ver. Preuss. Rheinl., XIX, p. 251 (1862) (non description).

Streblocera macroscapa MARSHALL, Trans. Ent. Soc. London, p. 70, ♀, Pl. V, fig. 2b (antenna of ♀) (1887); *ibid.*, Spec. Hymén. Europe, V, p. 27, ♀, Pl. I, fig. 9 (antenna of ♀) (1891).

Streblocera macroscapa THOMSON, Opusc. ent., p. 2143, ♀ ♂ (1895).

Eutanycerus halidayanus MARSHALL, Spec. Hymén. Europe, V bis, p. 210, ♂, Pl. XI, fig. 2 (♂) (1897).

♂. This species was originally described by RUTHE (1856) from two males captured near Berlin, under the name *Microctonus macroscapus* RUTHE. The original description reads as follows:—

“Rufescenti-testaceus, gracilis, scapa antennarum filiformi longissimo facie, ore pedibusque testaceis; flagello, metathorace, abdominis que postico nigro-fuscis: oculis minoribus subglobosis, alis subhyalinis, nervis cum stigmatate pallidis, radio valde arcuato, nervo brachiali secundo distincto. Long. $3\frac{1}{4}$ (lin).”

Furthermore, in 1895 THOMSON synonymized *Eutanycerus halidayanus* FÖRSTER with *S. macroscapus* (RUTHE), while in 1898 MARSHALL treated it as a distinct species. Recently MUESEBECK (1936) examined the types of both species and recognized this synonymy as correct. At any rate *E. halidayanus* FÖRSTER described and figured by MARSHALL may, I suppose, be identified with the male of *S. macroscapus* (RUTHE).

♀. Certain authorities have taken divergent views about the identification of the female. In 1861 REINHARD coupled a female, having the antenna (Fig. 1, C) 18-jointed with one geniculation, and the 1st joint very long, equal in length to the following ten joints united, with the male of *S. macroscapus* (RUTHE). MARSHALL (1887 & 1891) and THOMSON (1895) followed him. On the other hand, in 1926 LYLE identified seven examples (4 ♂ ♂ and 3 ♀ ♀) of the Dale Collection and one example (1 ♀) of the Matthews Collection with *S. macroscapus* (RUTHE). The female examples, having the antenna 15- or 16-jointed, the 1st and 3rd joints very long, and the 2nd and 4th joints obliquely articulated, forming two geniculations, agree exactly with the original description of *S. longiscapha* WESTWOOD. Consequently LYLE synonymized *S. longiscapha* under *S. macroscapus* and asserted that the female described by REINHARD must be a distinct species.

After a careful study of the descriptions of the above authors, I have concluded that REINHARD's female should be the true female of this species. Because, examining the type-specimens of *Microctonus macroscapus* RUTHE, REINHARD coupled his female taken from Germany with that male, and transferred this species to *Streblocera*, while LYLE identified his examples taken from

Britain with this species without examining its type-specimens. Indeed, RUTHE's description is too short and incomplete to allow one to come to a definite determination. It is proper, I believe, to accept REINHARD's identification in the present state of knowledge.

REINHARD's description reads as follows:—

“RUTHE beschreibt das ♂. Ein damit übereinstimmendes ♀ ist Taf. I. Fig. 11, a und b abgebildet. Es unterscheidet sich vom ♂ ausser durch den Bohrer, besonders durch den weit längeren Fühlerschaft. Derselbe ist nach RUTHE beim ♂ länger als die zwei ersten, beim ♀ so lang, als die zehn ersten Geisselglieder. Die Fühler haben beim ♀ ebenfalls 18 Glieder. Der Stiel des ersten Segments ist kaum länger als breit, von da aus verbreitert es sich stark conisch und ist ebenso, wie die Hinterleibsspitze schwärzlich-braun. Der schwarze Bohrer erreicht kaum die halbe Länge des Hinterleibs.”

This female is the only example which has ever been discovered.

Distribution: Europe (Germany, after RUTHE and REINHARD).

3. *Streblocera longiscapha* WESTWOOD

Streblocera longiscapha WESTWOOD, Tidschr. Ent., XXV, p. 45, ♂ (really ♀), Pl. 8, fig. 8 (explained as *S. fulviceps*, antenna of ♀) (1882).

Streblocera fulviceps MARSHALL, Trans. Ent. Soc. London, p. 69, ♂ (really ♀), Pl. V, fig. 2a (explained as *S. fulviceps*, antenna of ♂) (1887); *ibid.*, Spec. Hymén. Europe, V, p. 26, ♂ (really ♀), Pl. I, fig. 8a (explained as *S. fulviceps*, antenna of ♂) (1891).

Streblocera macroscapa LYLE, Entomologist, Vol. 59, p. 260, ♀ ♂, fig. 2 (antenna of ♀), fig. 3 (antenna of ♂) (1926).

♀. In the original description the two examples examined by WESTWOOD are really the female, not the male as he states.

The original description is as follows:—

“Præcedenti* multo major, antennis masculinis** aliter formatis, sc. articulo primo longo, paullo curvato, subtus prope basin tuberculo parvo rotundo instructo, secundo brevi, tertio elongato fere primi longitudine æquante, apice subtus in spinam seu unguem deflexum producto; reliquis 13 gracilibus, articulis tribus basalibus laete fulvis, reliquis nigris; capite piceo nitido, vertice castaneo. Thorace nitido nigro-piceo; mesonoti medio castaneo; abdomine castaneo, segmento basali nigro, segmentis apicalibus piceis.

“Long. corp. 3 mm.; expans. alar. antic. $6\frac{3}{4}$ mm.

“Habitat Glanvilles Wootton (coll. Dale), etian in com. Oxoniae (coll. Matthews).”

*This indicates *S. fulviceps* WESTWOOD.

**This is really “femininis”.

Furthermore, the antenna is figured in WESTWOOD's Plate 8 (fig. 8), as being that of the female of *S. fulviceps*.

This female has 15- or 16-jointed antennae (Fig. 1, D), with two geniculations, the 1st joint elongate, incrassate, with a round tubercle undersurface near the base; 2nd and 4th joints obliquely articulated, the 3rd elongate, incrassate and slightly shorter than the 1st, produced beneath into a deflected spine at the apex, and the 4th to 16th (or 15th) joints submoniliform.

As above pointed, MARSHALL considered this female to be the male of *S. fulviceps* and LYLE treated it as the female of *S. macroscapus*.

As far as I am aware, there are two female examples described by WESTWOOD and 4 female examples recorded by LYLE, all of which have been taken from Britain.

♂. The male of this species has not been described clearly, and yet judging from the description of LYLE, the 4 male examples in the Dale Collection described by him under the name *S. macroscapa* RUTHE (♂) may possibly be the male of this species.

The following is LYLE's description:—

"The antennae are rather longer than the body, 18-jointed, the first joint being longer than the second and third together, third much more slender than second and rather shorter than fourth; the first and second joints are testaceous, the rest fuscous. The nervures and stigma vary in colour from pale testaceous to fuscous. Legs testaceous, with all the tarsi more or less infuscated. Head testaceous, with the vertex fuscous. Prothorax testaceous, mesothorax, metathorax, and abdomen fuscous above, the last usually centrally testaceous, as is the entire body beneath. Length 2-3 mm."

Furthermore, to this LYLE adds that four male examples are found in the Dale Collection, three of which have the antennae 20-jointed and the fourth 18-jointed.

Distribution: Europe (Britain, after WESTWOOD and LYLE).

4. *Streblocera nigrithoracica* WATANABE

Streblocera nigrithoracica WATANABE, Jour. Facul. Agr., Hokkaido Imp. Univ., XLII, p. 129, ♀, Pl. III, fig. 5 (♀) (1937).

This species is originally described by WATANABE from two female examples collected in Hokkaido, Japan. It is probably the largest species, having the following distinct characters, though the male is still undiscovered.

♀. Head rufo-testaceous; vertex broadly fuscous. Thorax (except the prothorax) and propodeum black. Abdomen dark brown, the 2nd tergite somewhat pale in colour. Antennae (Fig. 2, A) 29- or 30-jointed; 1st joint elongate,

incrassate and much longer than the following 8 joints united, without tooth undersurface near the base; 2nd obliquely inserted in the preceding, forming a geniculation; 3rd to 9th joints filiform; 9th produced beneath into a deflected spine at the apex; 10th obliquely articulated at the apex of the 9th, forming another angle; 10th to 20th (or 19th) joints submoniliform. Relative length of the 3 parts of the antennae as follows:—I (1st joint) : II (2nd to 8th) : III (10th to apical joint)=3 : 2.3 : 3.5. Propodeum reticulate-rugose, with a smooth area on both sides of the base. First tergite petiolate, slender, 3.5 times as long as broad at the apex (not at the base as in the original description), almost smooth and shining, weakly striate on the apical half, with two deep fossae anterior to the tubercles which are situated beyond the middle. Ovipositor exerted, the sheath slightly curved, as long as the 2nd and 3rd joints of the hind tarsus' united. Length, 5 mm.

Distribution: Japan (Moiwa near Sapporo and Sounkyo, Hokkaido after WATANABE).

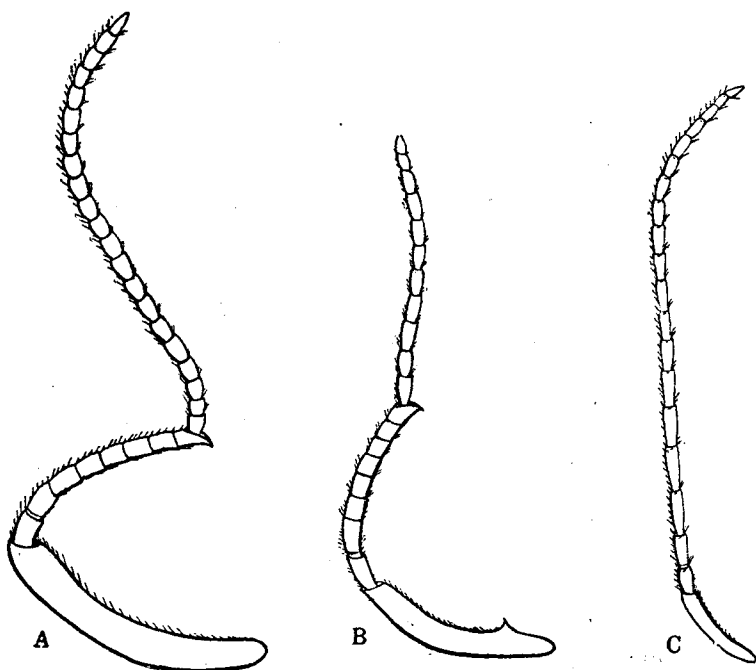


Fig. 2. Antenna of: **A.** *Streblocera nigrithoracica* WATANABE (♀) (original).
B. *Streblocera okadai* sp. nov. (♀) (original).
C. *Streblocera okadai* sp. nov. (♂) (original).

5. *Streblocera okadai* sp. nov.

♀. Rufo-testaceous; tips of the mandibles and stemmaticum blackish; two basal joints of the antennae testaceous, the rest fuscous; legs testaceous; 1st tergite fuscous; wings hyaline; stigma and veins brownish yellow; ovipositor sheath blackish.

Head transverse as seen from above, more or less triangular in profile; face densely pubescent; frons slightly striate-rugose; maxillary palpi 5-jointed and labial palpi 3-jointed; eyes comparatively large, prominent, the distance from the posterior ocelli to the eyes nearly two-fifths as great as the diameter of the eye; occiput margined, narrowly interrupted medially. Antennae (Fig. 2, B) 20-jointed, rarely 19-jointed; 1st joint elongate, incrassate and armed with a pointed straight tooth undersurface near the base; 2nd joint obliquely articulated with the preceding, forming a geniculation; 3rd to 9th joints so weakly segmented that they look like only a single joint as in the 3rd joint of *S. longiscapula*; 3rd a little longer than the 4th, and the 9th produced beneath into a deflected spine at the apex; 10th joint obliquely inserted at the apex of the 9th, forming another angle; 10th to 20th (or 19th) joints submoniliform. Relative length of the 3 parts of the antennae as follows:—I (1st joint) : II (2nd to 9th) : III (10th to apical joint) = 4 : 3.5 : 4.5. Prothorax coarsely striate-rugose; mesonotum smooth and shining parapsidal furrows strongly crenulate; scutellum anteriorly marked with two foveae which are separated by a carina; mesopleura more or less rugose, with a crenulate discal furrow. Propodeum reticulate-rugulose, with irregular transverse carinae. Legs long and slender; hind coxae smooth and shining. Stigma a little less than 3 times as long as broad; radius originating slightly beyond the middle of the stigma; 1st abscissa of the radius more than one-third the breadth of the stigma; 2nd abscissa of the radius curved; radial cell about half as long as the stigma; nervulus slightly postfurcal, a little shorter than the 1st abscissa of the radius. Nervulus of the hind wing interstitial with the basal nervure, which is a little longer than the former. Abdomen as long as the thorax; 1st tergite petiolate, 2 times as long as broad at the apex, longitudinally striate, with two deep fossae anterior to the tubercles which are situated beyond the middle; 2nd and following tergites smooth and shining; ovipositor exerted, the sheath slightly curved, as long as the 1st joint of the hind tarsus.

Length, 3–3.5 mm.

♂. Closely resembles the female in general structure and colour, but differs from the latter in the following respects:—

Antennae (Fig. 2, C) long and slender, rather longer than the body, 20-jointed, without geniculation; 1st joint more or less elongate, a little longer than the 2nd and 3rd joints united; 3rd more slender than the 2nd, rather shorter than

the 4th. Eyes smaller than those of the female, the distance between the posterior ocelli and the eyes as great as the diameter of the eye. Abdomen more slender than that of the female, more or less fuscous at the apex.

Length, 3-3.5 mm.

Holotype (♀) and **Allotype** (♂): Kaigen, 12. VIII, 1936, I. OKADA leg.

Paratypes: 1 ♀, 2 ♂♂, Kaigen, 7. VIII, 1936, 2 ♀♀, 2 ♂♂, Kaigen, 12. VIII, 1936, 5 ♀♀, 2 ♂♂, Kaigen, 25. VIII, 1936, I. OKADA leg.

All the type-specimens are preserved in the Entomological Institute, Hokkaido Imperial University, Sapporo.

Distribution: Manchoukuo (Kaigen).

Remarks: This species is named in honour of Mr. ICHIJI OKADA who collected the specimens. It is easily distinguished from the congeneric species by the structure of the antennae of the female as given in the present key.

Species of which the female is unknown

Streblocera garleppi (ENDERLEIN)

Lecythodella Garleppi ENDERLEIN, Arch. Naturgesch., 78 A, Heft 2, p. 41, ♂ (1912).

Although this species is known to me only from the original description which is represented by a single male specimen from Peru, there can be no doubt that it is a distinct species falling in this genus. I have, however, some hesitation in including this species in the present key, since the female has not yet been discovered.

Distribution: Peru (Cajon, after ENDERLEIN).

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