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NOTES ON THE SPIDERS FROM FORMOSA

BY

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(With one Plate)

In spite of the number of spiders which have been reported from Japan, including Honshu, Kyushu and Shikoku, the animal from the other regions of the country is almost unknown. Particularly so far as the writer is aware knowledge on the spider fauna of Formosa is extremely limited, except for a few scattered data which hardly admit any perspection with regard to the general features of the fauna.^{1,2)} Recently the writer has had the opportunity to study the specimens from Formosa containing 43 species, of which 17 species are supposed to be new and 15 species have been hitherto unknown to the island.

The majority of the materials have been handed to the author through the kindness of Dr. T. UCHIDA who has communication with Messrs. R. TAKAHASHI, K. SHIBATA, Y. MIWA, K. TOYODA and I. KAYASHIMA in Formosa. Some of them were collected by Mr. T. HAYASHI during his journey to that region on the occasion of the eighth Congress of the Japanese Zoological Society in 1932.

The author wishes to express his sincere gratitude to Dr. T. UCHIDA and Mr. T. HAYASHI for their kindness in permitting the examination of the specimens, and the most hearty thanks are also offered to Dr. T. INUKAI for his unceasing encouragement.

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- 1) A series of short works by Mr. T. NAKAJIMA in Transact. Nat. Hist. Society of Formosa, Vol. 9, 1920, Vol. 11, 1921 and Vol. 13, 1923. Among them there are found five species which were identified by Mr. K. KISHIDA as new species as *Neotetragnatha typica* (Jap. name, *Shin-Ashinagagumo*), *Theridion tuberculata* (Jap. name, *Gomigumo-modoki*), *Lycosa virgata* (Jap. name, *Shujifuto-Hashirigumo*), *Nagasaki typica* (Jap. name, *Nagasaki-Haetorigumo*) and *Theyne orientaris* (Jap. name, *Hina-Haetorigumo*). However it is regreted that the original descriptions are not available as they were published in Mr. KISHIDA's private journal *Arachnologia* Vol. 1, No. 1, 1912 which has been long out of print.
 - 2) TD. SATO, TK. SATO and I. KAYASHIMA :—Sylvia (in Japanese). Vol. 3. No. 1. 1932.
I. KAYASHIMA :—Ibid. Vol. 3. No. 4. 1932.

[Transact. Sapporo Nat. Hist. Soc., Vol. XIII, Pt. 1, 1933]

Family CTENIZIDAE

Genus *Bothriocyrtum* E. SIMON, 18911. *Bothriocyrtum tractabile* n. sp.Jap. name, *Yasagata-Totategumo*

Pl. III, fig. 2 a-d.

Adult female: cephalothorax, legs and palpi pale brown, legs and palpi clothed with strong black hairs; chelicerae dark brown; coxae of palpi, and labium yellow-brown with black bristles, sternum yellow with black hairs at its anterior part and abdomen blackish brown with greyish hairs. The ocular area very small and the posterior median eyes pearly white and the others black; the quadrangle of the four centrals broader than long, and the anterior side narrower than the posterior. The fore-laterals larger than the fore-centrals, and largest of the eight; the rest subequal, the hind-laterals perhaps smallest. The height of the clypeus is very slight, the fore-lateral eyes being almost close to the margin. The interval between the hind-centrals is considerably greater than that between each and the hindlateral eye. Legs moderately long and strong, not greatly different in length; tarsi not scopulate, set with numerous spines; tarsal claw of each leg furnished with two teeth. Coxae of palpi without large maxillary process and furnished with about twenty strong spines at its basal part. Chelicerae strong, its basal segment projecting forwards from the fore extremity of the cephalothorax, furnished with coarse black bristles in front; its articulation lying in the vertical plane. Sternum of a lengthened pentagonal form, ending behind in a blunt angle between the coxae of the fourth pair of legs, which are in contact with each other. Abdomen oval. Spinnerets four in number, compact, short, the anterior pair being close together at base. Epigynum of very simple structure, consisting of a hairless portion and two circular areas which are pale brown in colour and have a minute opening at the center. The measurements are as follows (in centimeters):—total length, 2.00; abdomen, 1.00; leg, I, 1.30, leg, II, 1.40, leg, III, 1.30, leg, IV, 1.50.

Locality: Taihoku (R. TAKAHASHI), July 27, 1928.

Remarks: No species of the Genus has yet been reported from Japan. The present species is almost identical with the type species of this genus, *Bothriocyrtum californicum* O. P. CAMBRIDGE. However, the anterior row of eyes in the present specimen makes a procurved row and the sternum is of quite different form.

Family *DIPLURIDAE*Genus *Ischnothele* AUSSERER, 18752. *Ischnothele simplicata* n. sp.Jap. name, *Hira-Jogogumo*

Pl. III, Fig. 3 a-d.

Adult female: cephalothorax of a rich blackish-chocolate colour, much longer than broad, of an oblong-oval form, roundly truncate in front, convex above, clypeus narrow and straightened. Ocular area small, the hind-central eyes white and the others brown; fore-laterals largest and the others subequal; in two transverse, almost straight rows, but somewhat recurved; central quadrangle broader than long, and the fore side shorter than the hind one; hind-central pair much more distant from each other than the hind-laterals, being separated by a space greater than three times the diameter; each lateral pair with the hind-centrals forming nearly an equilateral triangle; fore-central eyes separated by an interval which is about equal to the diameter of the eye and greater than to the fore-lateral eyes. Legs moderate in length and strength, similar to the cephalothorax in colour and furnished with long black hairs; tarsi without tufts and armed with three claws, the superior of which is furnished strongly with five teeth. Basal segments of chelicerae projecting forwards from the fore extremity of the cephalothorax, its articulation lying in a vertical plane, and furnished with a row of stout teeth at its inner side, besides a short one of smaller teeth at the base; fung closing backwards. Coxae of palpi without large maxillary process, yellowish brown in colour with black hairs. Labium slightly higher than broad and rounded at the apex. Colour similar to the coxae of palpi. Sternum short-oval broadly truncate in front, produced into a short rather fine point behind, between the coxae of the fourth pair of legs which are almost contiguous to each other; deep chocolate in colour. Abdomen oval, fore margin rounded, rather broadest a little past the middle; chocolate in colour on the upper- and under-side, thickly clothed with black hairs. Spinnerets four in number, anterior spinnerets widely separated by a distance equal to about two times the length of a single spinneret; the posterior pair very long and the terminal segment longer than the preceding two segments; the former yellowish brown with white hairs and the latter dark brown with long grey hairs. Anal papilla brown. The measurements are as follows (in centimeters):—total length, 1.90; abdomen, 0.90; leg, I, 1.70, leg, II, 1.40, leg, III, 1.40, leg, IV, 2.00; length of the posterior spinneret 0.65

Locality: Taihoku (K. SHIBATA), January 1, 1927.

Remarks: The specimen is closely allied in general appearance and size to *Ischnothele guianensis* WALCKENAER, but it differs chiefly in colour as we see in the description of *Ischnothele guianensis* "Carapace unicolorous mahogany-brown, the margins darker. Legs pale yellow beneath; coxae pale yellow; femora darker at the apex above; tibiae and protarsi pale yellow, each with a basal and apical annula of dark brown; tarsi yellow. Sternum pale yellow. Abdomen dark purplebrown, with a double central dorsal series of three minute oblique pale dots. Basal joint of the spinners pale yellow, its apex dusky beneath; second joint brown; terminal joint brown at the base, pale yellow towards the apex."

Genus ***Euagrus*** AUSSERER, 1875

3. ***Euagrus formosanus*** n. sp.

Jap. name, *Taiwan-Jogogumo*

Pl. III, Fig. 1 a-c.

Adult female: cephalothorax of a light grey colour, palest behind, with three pairs of radial furrows and hairless. Occular area very small and all eyes white, clypeus narrow; the four centrals forming a trapezoid, whose anterior side is shorter than the posteriors; the fore-central pair separated from each other by about two diameters, and from the fore-laterals by an eye's diameter; eyes of the lateral pairs are placed a little obliquely, and the interval of the laterals of the two rows the same as that between the fore-centrals and fore-laterals and greater than that between the hind-centrals and hind-laterals. Chelicera large and powerful, its basal segments furnished with a row of teeth at the inner side; grey in colour becoming darker at the apex. Legs moderately long and strong, furnished densely with long black hairs; colour paler than that of the cephalothorax. Maxillae, labium and sternum greyish yellow. Coxae of palpi without large maxillary process and furnished with black hairs and strong spines at the base. Sternum of nearly square form; the anterior margin ending bluntly and the posterior termination ending with a small process between the fourth pair of legs which are almost contiguous. Labium rounded at the apex, and broader than high and furnished with strong spines at the apex. Abdomen oval, projecting well over the base of the cephalothorax, grey in colour and the black hairs clothing it thickly. Spinnerets four in number: the posterior pair very long, three-jointed, and anterior pair short, one-jointed; the distance between the latter spinnerets equal to the length of a single spinneret. The measurements are as follows (in centimeters); total length, 1.20;

abdomen, 0.55; palpus, 1.10; leg, I, 1.70, leg, II, 1.50, leg, III, 1.40, leg, IV, 1.90; length of the posterior spinneret, 0.70.

Locality: Taihoku (R. TAKAHASHI), October 2, 1932.

Remarks: At first sight there is nothing to distinguish this interesting species from *Euagrus mexicanus* AUSSERER¹⁾, particularly the colouration being precisely the same, but the species differs greatly in the form of the sternum which is oval in *Euagrus mexicanus* with the longitudinal axis about one and a half times the length of the transversal axis. Moreover, the labium of the animal contacts with the anterior margin of the sternum, not inserting into the anterior marginal part of the sternum as the case of *Euagrus mexicanus*.

Family HETEROPODIDAE

Genus *Heteropoda* LATREILLE, 1803

4. *Heteropoda venatoria* (LINN.)

Jap. name, *Ashidakagumo*

Pl. III, Fig. 6 a, b.

Heteropoda venatoria, (1) G. MARX:—Proc. Nat. Mus. Vol. 12. 1889. p. 560; (2) T. THORELL:—Kongl. Vet. Akademiens Handlingar. Bd. 24. 1891. p. 78; (3) F. KARSCH:—Berliner Entomolog. Zeitschrift. Bd. 36. 1891. p. 291; (4) T. THORELL:—Ann. Mag. Nat. Hist. 6 ser. 1892. Vol. 9. p. 233; (5) ———:—Bihang Till K. Svenska Vet.-Akad. Handlingar. Bd. 20. 1894. p. 11; (6) ———:—Descriptive Catalogue of the Spiders of Burma. British Museum. London. 1895. p. 264; (7) R. I. POCKOCK:—The Fauna British India. London. 1900. p. 260; (8) O. P. CAMBRIDGE:—Biologia Centrali-Americana. Vol. 2. 1897-1905. p. 120. Tab. 5. figg. 22, 23; (9) N. BANKS:—Bull. Smithsonian Institution Unit. States Nat. Mus. 72. 1910. p. 52; (10) A. PETRUNKEVITCH:—Bull. Amer. Nat. Mus. Nat. Hist. 1911. Vol. 29. p. 488; (11) J. H. COMSTOCK:—The Spider Book. New York. 1913. p. 552. figg. 622-624; (12) S. YUHARA:—Study of Spider Tokyo. 1931. p. 193, 194, 197. figg. 106, 107, 109; (13) TD. SATO, TK. SATO and I. KAYASHIMA:—Sylvia. Vol. 3. No. 1. 1932. p. 5; (14) I. KAYASHIMA:—Ibid. No. 4. p. 5. pl. 2. fig. 7.

²⁾ *Heteropoda venatoria* (*H. Regia*); (15) W. BÖSENBERG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 273. Tab. 6. fig. 46. Tab. 16. fig. 453.

Heteropoda regia, (16) T. THORELL:—Bihang Till K. Svenska Vet.-Akad. Handlingar. Bd. 25. 1899. p. 71; (17) A. DOLLFUS:—Fauna Hawaiiensis. Cambridge. Vol. 2. Part 5. 1900. p. 504.

Heteropoda ocellata, (18) R. I. POCKOCK:—Ann. Mag. Nat. Hist. 7 ser. 1903. Vol. 11. p. 96.

Aranea regia, (19) J. FABRICIUS:—Entomologia Systematica. Tom. 2. p. 408.

1) *Euagrus mexicanus*, A. AUSSERER:—Verhandl. d.K. K. zool. bot. Ges. Bd. 25. 1875. p. 160. figg. 13-16.

2) E. STRAND (Zool. Anz. Bd. 31. 1907. p. 559) corrected as a variety, *Heteropoda venatoria* (L.) var. *japonica* on the Japanese and Chinese species, and he moreover, described two varieties *H. venatoria* (L.) var. *chinesica* and *H. venatoria* var. *maculipes* on the specimens from China. The characteristics of these three varieties according to his descriptions of the male are as follows:—

The species is very abundant in all tropical and subtropical countries, probably having been artificially distributed by trading vessels. The measurements of two females are as follows (in centimeters):—

Sex	total length	abdomen	leg, I	leg, II	leg, III	leg, IV
Female I	1.80	1.10	3.20	3.40	2.90	3.10
Female II	1.40	0.85	2.50	2.70	2.20	2.45

Locality: Kururu (R. TAKAHASHI), July, 1931 and Juzan (T. HAYASHI), November, 1932.

Distribution: China (2), India (2, 7), Ceylon (3, 7), Burma (6, 8), Nicaragua (2), Rio de Janeiro (2), Brazil (2, 8), Batavia (2), Hawaii (17), Sumatra (2), Andaman Islands (4), Java (5, 8), U. S. A. (1, 8, 9, 10, 11), Guiana (8), Mexico (8), Guatemala (8), Antilles (8), Tropical Africa (8), Jamaica (8), Cerebes (8), Amboina (8), Philippine Islands (8), Australia (8).

Family THOMISIDAE

Genus *Misumena* LATREILLE, 1804

5. *Misumena japonica* BÖS. et STRAND

Pl. III, Fig. 18.

Misumena japonica, W. BÖSENBERG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 256.

Tab. 10. fig. 172.

	<i>H. venatoria japonica</i>		<i>H. venatoria chinesica</i>	<i>H. venatoria maculipes</i>
Locality	Japan and China		China	Canton (China)
Measurements	Cephalo-thorax	11 mm.	5.8 × 5.4 mm.	10.5 × 10 mm.
	leg, I	65 mm.	38.7 mm.	65.2 mm.
	leg, II	70 mm.	42.6 mm.	74.2 mm.
	leg, III	54.5 mm.	31.6 mm.	54.0 mm.
	leg, IV	58.5 mm.	33.8 mm.	58.0 mm.
process of tibia of palpus	the terminal process is somewhat greater than the basal one		the terminal process is longer than the basal one	

The present specimens resemble *H. venatoria* var. *chinesica* in the measurements, but my two examples are female, and so, I avoid decision for the present until the examination of the terminal process of the pedipalpus.

An adult female and an immature male have been obtained. The measurements are as follows (in centimeters):—

Sex	total length	abdomen	leg, I	leg, II	leg, III	leg, IV
Female I	0.50	0.30	0.90	0.90	0.45	0.60
Male I (immature)	0.40	0.30	0.80	0.80	0.30	0.45

Locality: Taihoku (K. SHIBATA), April 17, 1928.

Distribution: Japan: Kyushu (Saga, Kompira).

Family ATTIDAE

Genus *Plexippus* C. L. KOCH, 1846

6. ? *Plexippus incognitus* DÖN. et STRAND

Plexippus incognitus, W. BÖSENBERG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 399. Tab. 8. fig. 120.

Only one immature female is identified with this species but with some doubt, as it is a subadult which is not in good condition. Though the present specimen is not fully grown its colouration and the body dimensions agree precisely with those of *Plexippus incognitus* DÖN. et STRAND. Cephalothorax brownish black with two black patches and a median longitudinal dull yellow zone. Chelicerae brown. Labium, maxilla, sternum, leg and palpus dull yellow, the end of all joints of leg and palpus being black. Abdomen above dull yellow with a black folium, and a brownish longitudinal yellow stripe in the median line of the folium and two light brown points at the posterior part; belly dull yellow with irregular black flecks. The measurements are as follows (in centimeters):—total length, 0.80; abdomen, 0.50; leg, I, 0.60, leg, II, 0.55, leg, III, 0.60, leg, IV, 0.70.

Locality: Kagi (K. TOYODA), 1927.

Distribution: Japan: Kyushu (Saga).

7. *Plexippus paykulli* (AUDOUIN)

Plexippus paykulli, T. THORELL:—Descriptive Catalogue of the Spiders of the Burma. British Museum. London. 1895. p. 360.; W. BÖSENBERG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 362. Tab. 9. fig. 142. Tab. 13. figg. 347, 354.; A. PETRUNKEVITCH:—Bull. Amer. Mus. Nat. Hist. Vol. 29. 1911. p. 695.

Hasarius paykulli, E. SIMON:—Arachnids de France. 1876. Vol. 3. p. 81.

Thotmes paykulli, O. P. CAMBRIDGE:—Biol. Centr. Amer. 1897-1905. Vol. 2. p. 240. Tab. 20. fig. 21.

The measurements are as follows (in centimeters):—

Sex	total length	abdomen	leg, I	leg, II	leg, III	leg, IV
Female I	0.85	0.55	1.15	0.80	1.00	1.10
Female II	0.80	0.50	1.15	0.90	1.10	1.10

Locality: Taihoku (K. SHIBATA), March 10, 1927 and March 1, 1928.

Distribution: Common to tropical and temperate regions, namely Guiana, Paraguay, Costa Rica, Colombia, West Indies, U. S. A., Mexico, Burma, Japan: Honshu, Kyushu.

Genus *Myrmarachne* MAC LEAY, 1839

8. *Myrmarachne innermichelis* BÖS. et STRAND

Jap. name, *Kuro-Arigumo*

Pl. III, Fig. 7 a, b.

Myrmarachne innermichelis, W. BÜSENBURG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 329. Tab. 9. fig. 128. Tab. 14. fig. 338.; K. KISHIDA:—Kagakusekai. 1914. Vol. 8. No. 3. p. 223.; S. YUHARA:—Study of Spider. Tokyo. 1931. p. 253. fig. 141.; I. KAYASHIMA:—Sylvia. Vol. 3. No. 4. p. 6.

The species has been long known occurring in Kyushu and southern part of Honshu. The measurements of the adult male are as follows (in centimeters):—total length, 0.85; abdomen, 0.40; chelicera, 0.30; leg, I, 0.50, leg, II, 0.40, leg, III, 0.30, leg, IV, 0.65.

Locality: Taihoku (K. SHIBATA), April, 1928.

Distribution: Japan: Honshu, Kyushu.

9. *Myrmarachne japonica* (KARSCH)

Jap. name, *Aka-Arigumo*

Pl. III, Fig. 17.

Myrmarachne japonica, W. BÜSENBURG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 328. Tab. 9. fig. 149. Tab. 14. fig. 372.; K. KISHIDA:—Kagakusekai. 1914. Vol. 8. No. 3. p. 223.; S. YUHARA:—Study of Spider. Tokyo. 1913. p. 251. fig. 140.; T. SATO, T. SATO and I. KAYASHIMA:—Sylvia. Vol. 3. No. 1. p. 6. 1932.

Salicisc japonicus, F. KARSCH:—Verhandl. d. naturhist. Vereins d. preuss. Rheinlande und Westfalen. Jahrg. 36. 1879. p. 82.

The spider was also recorded from the same localities as *M. innermichelis* BÖS. et STRAND. The measurements of an adult female are as follows (in centimeters):—total length, 0.70; abdomen, 0.40; leg, I, 0.50, leg, II, 0.45, leg, III, 0.45, leg, IV, 0.60.

Locality: Heito (R. TAKAHASHI), October 30, 1927.

Distribution: Japan: Honshu.

10. *Myrmarachne magnus* n. sp.

Jap. name, *Oo-arigumo*

Pl. III, Fig. 27 a-g.

Male: cephalothorax deep blackish brown, covered with fine, white hairs, and a few long, fine prominent ones at the caput; narrow and elongate in shape, divided into two well-marked parts by a deep transverse constriction. Eye space forms a quadrangle, whose length and breadth are equal; eyes differing greatly in size, arranged in three rows; four anterior eyes almost in contact with each other and the central eyes the largest of the eight with a diameter twice that of the laterals which is the same as that of the one in the third row; the eyes of the second row being smallest, situated closer to the anterior row than to the third row. Legs deep blackish brown; coxae, trochanters, patellae and the ends of tibiae of the first legs, the tibiae, metatarsi, tarsi of the second and third legs and the trochanters of the fourth legs dull brown; the first leg furnished with six strong spines. Palpus short, deep brown with thick, black hairs; its structure simple, possessing a process at the termination of tibia. Maxillae long, strong, narrowest just above the insertion of the palpi, much broader at the top, black in colour. Sternum dull brown. Chelicerae deep brown, strong, long and the inner-side furnished with eight teeth. Abdomen deep blackish brown, densely covered with fine white hairs. The measurements are as follows (in centimeters):—total length, 1.00; cephalothorax, 0.40; abdomen, 0.30; chelicera, 0.40; leg, I, 1.20, leg, II, 0.80, leg, III, 0.80, leg, IV, 1.10.

Locality: Taihoku (R. TAKAHASHI), October 24, 1927.

Remarks: This species differs from the other species of *Myrmarachne* in having six spines on the tibia of the first leg and especially in the great body length.

Genus *Simonella* C. L. KOCH, 1846

11. *Simonella formosana* n. sp.

Jap. name, *Taiwan-Simon-Arigumo*

Pl. III, Fig. 5 a-e.

Male: body dull grey but the posterior extremity of the abdomen blackish grey; a very strong transverse constriction between the caput and thorax; caput smaller than thorax. Eyes in four rows; eye space a little broader than long; the eyes of the first row are the largest in diameter, being about four times that

of the eyes in the second and the last rows; eyes of the third row smallest, situated nearer to the fourth row than to the second. Legs slender, not very long; femora of the third and fourth legs dull grey and the other joints light yellow; coxae and trochanters of leg IV stronger than those of the other legs. Sternum more than three times as long as broad, truncate in front, pointed behind. Labium and maxillae short; chelicerae small, brownish yellow in colour. Abdomen divided in the middle by a constriction, the fore part connected with the thoracic part by a rather long narrow neck, being smaller than the hind part. The animal looks very narrow and elongate in appearance. Palpus short; cubital rather shorter than the radial joint which has a short obtusely pointed apophysis at its extremity on the inner side, brownish yellow in colour. The measurements are as follows (in centimeters):—total length, 0.45; abdomen, 0.25.

Locality: Toihoku (R. TAKAHASHI), October 24, 1927.

Remarks: So far as the writer is aware the species of the genus *Simonella* were formerly reported as being confined to the tropical region of the New World. The present spider is closely allied to *Simonella decipiens* which was described by O. P. CAMBRIDGE from Central America¹⁾ as having the dull orange-yellow-brown coloured body, and in colouration chiefly, the present species is distinct.

Family PHOLCIDAE

Genus *Smeringopus* E. SIMON, 1893

12. *Smeringopus kishidai* n. sp.²⁾

Jap. name, *Kishida-Yureigumomodoki*

Pl. III, Fig. 8.

An adult female: cephalothorax circular, dull brown in colour becoming darker on the ocular area, with two black converging lines at the anterior part, a well-defined longitudinal deep brown band in the median line and an irregular stripe along the two sides. Eyes in the ordinary position; two anterior median eyes slightly smaller than the others, contiguous with each other; the other six eyes pearly white and forming a group of three seated on the black low process; three groups of eyes forming a triangle, of which the base is slightly longer than high. Clypeus very high, the colour as cephalothorax. Chelicerae

1) *Biologia Centrali-Americana*. Vol. 1. 1889-1902. p. 163.

2) The present spider is very like *Smeringopus todai* K. KISHIDA, (*Kagakusekai*. Tokyo. Vol. 7. 1913. p. 43. fig. 6.) but unfortunately the author could not find any detailed descriptions of this species given by K. KISHIDA except the figure which is referred to *Smeringopus todai*, and so, the author at present has treated it as a new species.

weak, dark yellow in colour. Legs exceedingly long and slender, furnished with hairs over the whole length of metatarsi and tarsi, the other joints being slightly covered; dull yellow in colour with black patellae and white ends of femora and tibiae. Sternum broadly truncate anteriorly, acuminate posteriorly, dull yellow in colour. Abdomen narrow oval; on the middle of the upper side a narrow, light black, longitudinal band, narrowing gradually backwards and on both sides of the band five pairs of diverging black spots on the hind half of the abdomen; the sides marked with five groups of irregular black spots; belly dull brown with a broad, deep brownish black, well-defined, median longitudinal band. The measurements are as follows (in centimeters):—total length, 0.55; abdomen, 0.40; leg, I, 3.90, leg, II, 2.50, leg, III, 2.00, leg, IV, 2.70.

Locality: Musha (T. HAYASHI), November, 1932.

Family *THERIDIIDAE*

Genus *Theridion* WALCKENAER, 1805

13. *Theridion tepidarium* C. L. KOCH

Jap. name, *Oo-Himegumo*

Pl. III, Fig. 9.

Theridion tepidarium, (1) J. BLACKWALL:—Hist. of Great Britain and Ireland. p. 180. pl. 13. fig. 114.; (2) ———:—Ann. Mag. Nat. Hist. 4ser. Vol. 8. 1871. p. 435.; (3) O. P. CAMBRIDGE:—Ann. Mag. Nat. Hist. 5ser. Vol. 1. 1878. p. 155.; (4) E. SIMON:—Arachnides de France. Paris. Vol. 5. 1881. p. 93.; (5) T. THORELL:—Descriptive Catalogue of Spiders of Burma. British Museum. London. 1895. p. 95.; (6) E. SIMON:—Fauna Hawaïensis. Cambridge. Vol. 2. Part 5. 1900. p. 449.; (7) J. A. ALLEN:—Bull. Amer. Mus. Nat. Hist. Vol. 29. 1911. p. 207.; (8) J. H. COMSTOCK:—Spider Book. New York. 1913. p. 210, 299, 330, 345, 421. figg. 321, 323, 340-343.; (9) R. V. CHAMBERLIN:—Proc. United States Nat. Mus. Washington. Vol. 63. 1924. p. 5.; (10) ———:—Proc. California Academy Science. 4ser. Vol. 12. 1924. p. 638.; (11) C. R. CROSBY and S. C. BISHOP:—Memoir Cornell Univ. Exper. Station. Vol. 101. 1926. p. 1042.; (12) R. BREMEN:—Die Tierwelt Mitteleuropas. Leipzig. Bd. 3. p. 59. p. 57. Tab. 9. fig. 647. Tab. 10. fig. 662.; (13) S. YUHARA:—Study of Spider. Tokyo. 1931. p. 96, 97. figg. 25, 26.

Theridion tepidarium, (14) T. THORELL:—Remarks on Synonyms of European Spiders. Upsala. 1870-1873. p. 80.; (15) ———:—Horae Societatis Entomologicae Rossicae. Vol. 11. 1875. p. 29.; (16) O. HERMAN:—Ungarns Spinnen-Fauna. Budapest. Bd. 3. 1879. p. 83.; (17) G. MARX:—Proc. Unit. States Nat. Mus. Vol. 10. 1890. p. 520.; (18) C. CHYZER and L. KULCZYNSKI:—Araneae Hungariae. Budapest. Tom. 2. Part 1. 1894. p. 35.; (19) T. THORELL:—Estratto dagli Annali del Musco Civico di Storia Naturale di Genova. 2ser. Vol. 19. 1898. p. 45.; (20) ———:—Bihang Till K. Svenska Vet.-Akad. Handlingar. Bd. 25. 1899. p. 25.; (21) T. P. VON BAYERN:—Zool. Anz. Bd. 23. 1900. p. 283.; (22) W. BÜSENBURG:—Zoologica. Die Spinnen Deutschlands. Bd. 1. 1901. p. 96. Tab. 8. fig. 115.; (23) J. H. EMERTON:—Common Spider. London. 1902. p. 111. figg. 255-260.; (24) W. BÜSENBURG und E. STRAND:—

Japanische Spinnen, Stuttgart. 1905. p. 148.; (25) E. STRAND;—Zool. Anz. Bd. 32. 1908. p. 219.; (26) N. BANKS;—BULL. Smithsonian Institution Unit. States Nat. Mus. Vol. 72. 1910. p. 20. *Steatoda tepidariorum*, (27) O. P. CAMBRIDGE;—Biologia Centrali-Americana. Vol. 2. 1897-1905. p. 382. Tab. 36. figg. 1, 2.

This species is cosmopolitan inhabiting any neglected room. It is often found in webs among rocks, but seldom on plants. The measurements are as follows (in centimeters):—

Sex	total length	abdomen	leg, I	leg, II	leg, III	leg, IV
Female I	0.80	0.60	1.50	1.10	0.70	1.10
Female II	0.80	0.60	1.70	1.20	0.85	1.45
Female III	0.70	0.50	1.60	1.00	0.80	1.20
Female IV	0.65	0.50	1.70	1.10	0.90	1.40
Female V	0.60	0.50	1.50	0.90	0.60	1.00

Locality: Taihoku (K. SHIBATA), April, 1928; Taihoku (R. TAKAHASHI), 1930; Nitsugetsutan and Musha (T. HAYASHI), November, 1932.

Distribution: England (1, 3), France (4), Burma (5, 19), Canada (1), Ceylon (27), Antilles Islands (27), Germany (22, 25), Guatemala (27), Hawaii (6), Hungary (16, 18), Mexico (27), U.S.A. (7-11, 17, 21, 23, 26, 27), U. S. S. R. (15), Japan: Honshu (13), Etorofu (24).

14. *Theridion elegans* n. sp.

Jap name, *Yasagata-himegumo*

Pl. III, Fig. 10 a-c.

Female: cephalothorax inversed heart-shape, ending before in an obtusely rounded form; the whole length not greatly exceeding the width of the widest part at the thoracic junction. Colour yellow-brown. Eyes in two transverse rows not greatly different in length, occupying the whole width of the caput; rather large in size, subequal but the posterior centrals larger slightly than the others; those of the posterior row in a transverse line almost equidistant only the centrals slightly further from each other than from the laterals. The anterior row does not extend so widely as the posterior row; eyes of the anterior row separated from each other by the same intervals which are greater than a diameter. Legs, chelicerae, palpi, labium similar to the cephalothorax in colour. Sternum longer than broad, hind extremity obtusely pointed; colour yellow-brown. Abdomen large, globular, deep grey, thickly covered with almost coalescing white irregular spots. Spinnerets placed on a black patch, short,

compact. A black band between spinnerets and epigynum.

The male resembles the female very nearly in colour and marking; palpi yellow in colour; palpal organ moderately complex with a circular lobe at the middle of the outer side. The measurements are as follows (in centimeters):—

Sex	total length	abdomen	leg, I	leg, II	leg, III	leg, IV
Female I	0.60	0.40	1.10	0.85	0.70	0.95
Male I	0.35	0.20	0.95	0.80	0.65	0.90

Locality: Nitsugetsutan (T. HAYASHI), November, 1932.

Remarks: The species is closely allied to *Theridion rotundum* O. P. CAMBRIDGE, but it is distinguished from the latter by the clearness of colouration and also by the form of epigynum.

Genus *Theridula* EMERTON, 1882

15. *Theridula caudata* n. sp.

Jap. name, *Onaga-Himegumomodoki*

Pl. III, Fig. 4 a-f.

Female: cephalothorax deep sepia, with a broken black marginal line. Eyes in two rows on a strong prominence of the fore part of the caput, equal in size and equidistant; the interval about twice an eye's diameter; the two rows, seen from front, nearly straight; the central quadrangle rather broader than long, lateral eyes of both rows contiguous with each other and the centrals of both rows separated by an eye's diameter; the eyes, seen from above, in the posterior row are in a straight line but in the anterior row strongly recurved. Legs short, yellow in colour, furnished with hairs, but not very thickly. Abdomen large, rather broader than long, with a long tail-like projection, the end of which is furnished with the spiral groove; the shoulder part also makes a round projection; colour dark yellow with two deep brown spots on the shoulder and a longitudinal light black band ending acutely anteriorly which is clear and well defined, but at the posterior part the margin is obscured. The measurements are as follows (in centimeters):—

Sex	total length	abdomen	leg, I	leg, II	leg, III	leg, IV
Female I	0.30	0.25	0.65	0.60	0.45	0.55
Female II	0.35	0.25	0.70	0.70	0.40	0.60

Locality: Shinten (R. TAKAHASHI), January 15, 1928.

Remarks: The animal is somewhat similar in general form to *Theridula tricornis* O. P. CAMBRIDGE, but the present specimen is distinct in the lateral projection of the abdomen which in the latter is pointed.

Genus *Argyroides* E. SIMON, 1864

16. *Argyroides bona dea* (KARSCH)

Pl. III, Fig. 20.

Argyroides bona dea, W. BÜSENBURG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 129. Tab. 5. fig. 52. Tab. 12. fig. 264.

Conopistha Bona Dea, F. KARSCH:—Berliner Entom. Zeitschr. Bd. 25. 1881. p. 29.

This spider is known to be found commonly in the webs of the other larger kind of spiders. In our country it often lives in the webs of *Nephila clavata* L. KOCH. The measurements of the adult female are given as follows (in centimeters):—total length, 0.25; height of abdomen, 0.20, length of abdomen, 0.15; leg. I, 0.35, leg. II, 0.20, leg. III, 0.15, leg. IV, 0.30.

Locality: Nitsugetsutan (T. HAYASHI), November, 1932.

Distribution: Japan: Kyushu (Saga, Korats, Yanagawa, Kurume).

17. *Argyroides longispinus* n. sp.

Jap. name, *Toge-Isorogumo*

Pl. III, Fig. 26 a-e.

Female: cephalothorax of a broad oval form, broadest and truncate behind, rounded in front; clypeus rather remarkable, rounded below; colour black. Eyes about equal in size, those of the posterior row arranged in a straight transverse line; two centrals separate less than an eye's diameter from each other, considerably apart from the laterals of the same row. The central eye space square, the anterior side longer than the posterior. The anterior row of eyes considerably recurved; the interval between the two centrals smaller than that between the centrals and laterals; the lateral eyes of both rows in contact with each other. Legs moderately long, slender; coxae and trochanters black; femora white; patellae brown; tibiae, metatarsi and tarsi yellow with brown end. Labium triangle, its basal part black and the termination dull yellow. Sternum somewhat triangular, broadest and truncate in front, ending obtusely behind; colour black with yellow patches at the inserting points of coxae. Abdomen very globular, with two conical prominences of equal length and strength, standing side by side on the back, the fore part of the prominences yellowish black. Epigynum consisting of a yellow chitinous plate.

The measurements are as follows (in centimeters):—

Sex	total length	abdomen	leg, I	leg, II	leg, III	leg, IV
Female I	0.50	0.40	0.50	0.50	0.35	0.50
Female II	0.50	0.35	0.50	0.50	0.35	0.50

Locality: Taihoku (K. SHIBATA), February 24, 1927 and April, 1928.; Taihoku (R. TAKAHASHI), April, 1930.

Remarks: This species bears a general resemblance to *Argyrodes jucundus* O. P. CAMBRIDGE in appearance, but the large conical prominences of the abdomen make it a distinct species.

Genus *Enoplognatha* PAVESI, 1880

18. *Enoplognatha crassipes* Bös. et STRAND

Pl. III, Fig. 14.

Enoplognatha crassipes, W. BÖSENBERG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 157. Tab. 12. fig. 271.

Though the examples including both sexes are large in body size in comparison with those described by W. BÖSENBERG and E. STRAND, the form of the epigynum as well as the colouration are exactly the same. The measurements are as follows (in centimeters):—

Sex	total length	abdomen	leg, I	leg, II	leg, III	leg, IV
Female I	0.50	0.40	1.10	0.80	0.55	0.70
Female II	0.50	0.35	1.00	0.85	0.60	0.65
Male I	0.50	0.35	1.40	1.00	0.70	0.75

Locality: Taihoku (R. TAKAHASHI), August, 1930.; Taihoku (K. SHIBATA), April 17, 1928.; Tainan (T. HAYASHI), November, 1932.

Distribution: Japan: Kyushu (Hiuga, Nishitake).

Family ARGYOPIDAE

Genus *Tetragnatha* LATREILLE, 1804

19. *Tetragnatha japonica* Bös. et STRAND

Jap. name, *Yasagata-Ashinagagumo*

Pl. III, Fig. 21.

Tetragnatha japonica, W. BÜSEBERG und E. STRAND;—Japanische Spinnen. Stuttgart. 1905. p. 177. Tab. 15. fig. 4c9.; S. YUHARA:—Study of Spider. Tokyo. 1931. p. 113. fig. 42.; TD. SATO, TK. SATO and I. KAYASHIMA:—Sylvia. Vol. 3. No. 1. 1932. p. 5.; Ibid. Vol. 3. No. 4. 1932. p. 2.

The measurements are as follows (in centimeters);—

Sex	total length	abdomen	leg, I	leg, II	leg, III	leg, IV
Female I	0.65	0.40	1.40	1.00	0.50	1.10
Male I	1.00	0.60	2.80	1.80	0.70	1.80

Locality: Suisha (R. TAKAHASHI), November 23, 1929.; Nitsugetsutan (Y. MIWA), March 25, 1929.

Distribution: Japan: Honshu, Kyushu.

20. *Tetragnatha praedonia* L. KOCH

Jap. name, *Ashinagagumo*

Pl. III, Fig. 22.

Tetragnatha praedonia, L. KOCH:—Verhand. d. K. K. zool. bot. Ges. Bd. 27. 1877. p. 744. Tab. 15. figg. 6-9.; W. BÜSEBERG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 177. Tab. 3. fig. 7. Tab. 15. fig. 404.; S. YUHARA:—Study of Spider. Tokyo. 1931. p. 111, 112. figg. 40, 41.; TD. SATO, TK. SATO and I. KAYASHIMA:—Sylvia. Vol. 3. No. 1. 1932. p. 5.; I. KAYASHIMA:—Ibid. Vol. 3. No. 4. 1932. p. 2.

A female example was obtained. The measurements are as follows (in centimeters):—total length, 1.05; abdomen, 0.70; leg, I, 2.30, leg, II, 1.50, leg, III, 0.65, leg, IV, 1.30.

Locality: Musha (T. HAYASHI), November, 1932.

Distribution: Japan: Honshu, Kyushu.

Genus *Eucta* E. SIMON, 1881

21. *Eucta javana* THORELL

Pl. III, Fig. 28 a-c.

Eucta javana, T. THORELL:—Descriptive Catalogue of the Spiders of Burma. British Museum. 1895. p. 146.

This spider is very rare, having been reported from Java and Burma. The measurements are as follows (in centimeters):—total length, 1.30; abdomen, 1.10; leg, I, 2.00, leg, II, 1.10, leg, III, 0.50, leg, IV, 1.00.

Locality: Taihoku (K. SHIBATA), February 23, 1927.

Distribution: Java. Burma.

Genus *Leucauge* WHITE, 181422. *Leucauge venusta* WALCKENAER.

Pl. III, Fig. 24.

Leucauge venusta, O. P. CAMBRIDGE:—Biologia Centrali-Americana. Vol. 2. 1897-1905. p. 441. Tab. 42. figg. 1, 2; J. A. ALLEN:—Bull. Amer. Mus. Nat. Hist. Vol. 29. 1911. p. 357; J. H. COMSTOCK:—Spider Book. New York. 1913. p. 442. figg. 434-436; C. R. CROSBY and S. C. BISHOP:—Memoir Cornell Univ. Agr. Exper. Station. 1926. p. 1055.

Leucauge hortorum, N. BANKS:—Bull. Smithsonian Institution United States Nat. Mus. 72. 1910. p. 35. *Argyropeira hortorum*, J. H. EMERTON:—Common Spider. London. 1902. p. 192. figg. 446, 447.

The animal distributes extensively in the tropical and subtropical countries, particularly abounding in the New World. The measurements are as follows (in centimeters):—

Sex	total length	abdomen	leg, I	leg, II	leg, III	leg, IV
Female I	0.90	0.70	1.40	1.20	0.50	0.90
Female II	0.75	0.60	1.85	1.50	0.80	1.20

Locality: Taihoku (K. SHIBATA), February 27, 1927 and April, 1928.

Distribution: Mexico, Guatemala, Costa Rica, Panama, Colombia, U.S.A., Philippines, Hawaii.

Genus *Meta* C. L. KOCH, 183623. *Meta yunohamaensis* BÖS. et STRANDJap. name, *Yunohama-Doyogumo*

Pl. III, Fig. 12.

Meta yunohamaensis, W. BÜSENBURG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 180. Tab. 11. figg. 225, 229; T. KAMBE:—Jour. Chosen Nat. Hist. Society. No. 15. 1933. p. 44.

The measurements are as follows (in centimeters):—

Sex	total length	abdomen	leg, I	leg, II	leg, III	leg, IV
Female I	1.30	1.00	2.70	2.00	0.90	1.70
Male I	0.60	0.45	1.40	1.25	0.70	1.00

Locality: Taihoku (K. SHIBATA), April 17, 1928 and Kanshirei (R. TAKAHASHI), April 19, 1928.

Distribution: Japan: Kyushu, Corea.

24. *Meta Doenitzi* BöS. et STRANDJap. name, *Doyogumo*

Pl. III, Fig. 15 a, b.

Meta Doenitzi, W. BÖSENBERG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 180. Tab. 11. figg. 238, 239.; S. YUHARA:—Study of Spider. Tokyo. 1931. p. 117, 118. figg. 45, 46.; T. KAMBE:—Jour. Chosen Nat. Hist. Society. No. 15. 1933. p. 44.

The measurements of a female are as follows (in centimeters):—total length, 0.80; abdomen, 0.45; leg, I, 1.25, leg, II, 1.15, leg, III, 0.75, leg, IV, 1.20.

Locality: Urae (I. KAYASHIMA), March 27, 1932.

Distribution: Japan: Honshu, Kyushu, Korea.

Genus *Poltys* C. KOCH, 1843

25. *Poltys nigrinus* n. sp.Jap. name, *Kuro-Tengugumo*

Pl. III, Fig. 29 a-e.

A female: cephalothorax much longer than broad. Caput projecting forward eminently; six eyes on the projection. Cervical groove tolerably strong. The cephalic part brownish yellow, covered rather thickly with brown hairs at its median longitudinal part; the thoracic part black. Eyes unequal in size; the central eyes of both rows white, the laterals black; the hind centrals placed postero-laterally on the cephalic part and the hind laterals at the base of the prominence of the caput, representing a triangle at the sides of the prominence with two eyes of the anterior row. Four anterior eyes larger than the hind, placed on the fore part of the prominence, the medians slightly larger than the laterals and the largest of eight. Legs moderately long and strong, those of the first pair the longest and strongest; colour brownish yellow, the femora and tibiae of the first and second pairs strongly marked with deep black. Sternum elongate, heart-shaped, yellowish brown in colour. Abdomen rather large, slightly longer than broad, the upper surface flattened-convex with several small processes arranged semi-circularly at the anterior part; upper side blackish brown with two great sepia patches at the posterior part, the sides are marked with blackish lines, the underside dull brown uniformly. The measurements are as follows (in centimeters):—total length, 1.40; abdomen, 1.20; leg, I, 2.10, leg, II, 1.80, leg, III, 1.30, leg, IV, 1.60.

Locality: Kagi (K. TOYODA), 1927.

Remarks: A single example was collected. The spider is closely allied to *Poltys stygius* THORELL from Burma, but it is easily distinguished from the

latter by the presence of the processes on the abdomen together with the different marking of the abdomen.

Genus *Nephila* LEACH, 1815

26. *Nephila clavata* L. KOCH

Jap. name, *Jorogumo*

Pl. III, Fig. 23.

Nephila clavata, L. KOCH:—Verhandl. d.K.K. zool. bot. Ges. Bd. 27. 1877. p. 741. Tab. 15. fig. 4.; R. J. POCK:—The Fauna British India. London. 1900. p. 218.; W. BÖSENBERG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 190. Tab. 3. fig. 11. Tab. 11. fig. 217.; R. V. CHAMBERLIN:—Proc. U. S. Nat. Mus. Vol. 63. 1924. p. 15.; S. YUHARA:—Study of Spider. Tokyo. 1930. p. 123, 124. figg. 51, 52.; T. SATO, T. SATO and I. KAYASHIMA:—Sylvia. Vol. 3. No. 1. 1932. p. 5.; I. KAYASHIMA:—Ibid. Vol. 3. No. 4. 1932. p. 2.
Nephila limbata, T. THORELL:—Estratto dagli annali del Museo Civico di Storia Naturale di Genova. 2ser. Vol. 19. 1898.

The measurements are as follows (in centimeters):—

Sex	total length	abdomen	leg, I	leg, II	leg, III	leg, IV
Female I	2.60	2.00	5.30	4.30	2.40	3.80
Female II	2.30	1.60	5.00	4.00	2.20	3.50
Female III	2.10	1.40	5.35	4.15	2.35	3.65
Female IV	2.30	1.50	5.60	4.60	2.70	4.20
Male I	1.00	0.70	2.70	2.30	1.40	2.20

Locality: Taihoku (R. TAKAHASHI), August, 1930.; Musha and Ari (T. HAYASHI), November, 1932.

Distribution: China, Burma, India, Japan: Honshu, Kyushu.

27. *Nephila maculata* (FABRICIUS)

Jap. name, *Oo-Jorogumo*

Pl. III, Fig. 25.

Nephila maculata, F. KARSCH:—Berliner Entomolog. Zeitschrift. Bd. 36. 1891. p. 284.; T. THORELL:—Descriptive Catalogue of the Spiders of Burma. British Museum. London. 1895. p. 159.; ———:—Estratto dagli Annali del Museo Civico di Storia Naturale di Genova. 2ser. Vol. 19. 1898. p. 337.; R. I. POCK:—The Fauna British India. London. 1900. p. 217. fig. 68.; J. A. ALLEN:—Bull. Amer. Mus. Nat. Hist. Vol. 29. 1911. p. 382.
Nephila chrysogaster, W. BÖSENBERG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 193. Tab. 11. fig. 208.
Nephila Lucasii, T. THORELL:—Bihang Till K. Sv. Vet.-Akad. Handl. Bd. 25. 1899. p. 35.

Aranea maculata, J. C. FABRICIUS:—Entomologia Systematica. Tom. 2. 1793. p. 425.

The measurements of a single female specimen are as follows (in centimeters):—total length, 4.80; abdomen, 3.20; leg, I, 9.00, leg, II, 7.80, leg, III, 4.90, leg, IV, 8.00.

Locality: Ari (T. HAYASHI), November, 1932.

Distribution^{b)}: Ceylon, Burma, India, China, Australia, U. S. A.^{a)}, Japan: Liu Kiu Islands.

Genus **Argyope** AUDOUIN, 1827

28. **Argyope minuta** KARSCH

Jap. name, *Kogata-Koganegumo*

Pl. III, Fig. 36 a-b.

Argyope minuta, F. KARSCH:—Verhandl. d. N. V. Jahrg. 36. 1879. p. 67.; W. BÖSENBERG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 194. Tab. I. fig. 16. Tab. II. figg. 218, 222.; S. YUHARA:—Study of Spider. Tokyo. 1930. p. 128. fig. 54.; TD. SATO, TK. SATO and I. KAYASHIMA:—Sylvia. Vol. 3. No. 1. 1932. p. 5.

The measurements of an adult female are as follows (in centimeters):—total length, 1.40; abdomen, 0.85; leg, I, 2.80, leg, II, 2.80, leg, III, 1.85, leg, IV, 2.75.

Locality: Musha (T. HAYASHI), November, 1932.

Distribution: Japan: Honshu, Kyushu.

Genus **Cyclosa** MENGE, 1866

29. **Cyclosa bicauda** n. sp.

Jap. name, *Futao-Gomigumo*

Pl. III, Fig. 31 a-d.

Female: cephalothorax much longer than broad; dull yellow or blackish brown with black markings on the sides of the caput and thoracic part; cervical groove moderate. Eyes in normal position, occupying the whole width of the fore extremity of the caput; the posterior row slightly procurved, the anterior row recurved; the hind central eyes are separated by less than a diameter of an eye, those of the fore centrals by a distance equal to a diameter. Four central eyes forming a trapezoid, the length being greater than the width, and the fore side longer than the hind. Clypeus low. Legs rather short, tolerably strong, furnished with hairs and a few slender spines; colour like that of the

1) E. STRAND (Zool. Anz. Bd. 31. 1907. p. 525.) reported a subspecies of this spider from Madagascar under the name of *Nephila maculata maculata*.

2) According to McCOOK the distribution of this same species in U. S. A. doubtful.

cephalothorax, but a little darker. Chelicerae brown, the lower margin of the furrow armed with three teeth. Sternum longer than broad, the anterior extremity broadly truncated; somewhat subtriangular the edge rugged, the insertion of leg corresponding to the convex; yellow or yellowish brown with the black parts between the inserting points of legs. Abdomen large, projecting over the thorax, prolonged remarkably posteriorly to be widely bifurcate at the termination; whitish yellow, with a black, weak mesh and four distinct black muscular points at the posterior part, the sides marked with irregular blackish lines, the underside blackish. The measurements are as follows (in centimeters):—

Sex	total length	abdomen	leg, I	leg, II	leg, III	leg, IV
Female I	1.25	0.90	1.25	1.15	0.70	1.15
Female II	0.90	0.70	1.00	1.00	0.70	0.95
Male I (immature)	1.00	0.80	1.00	0.95	0.60	0.85

Locality: Taihoku (R. TAKAHASHI), October 24, 1927 and (I. KAYASHIMA) 1931; Nitsugetsutan (T. HAYASHI), November, 1932.

Remarks: This species is allied to *Cyclosa bifurca* McCook, but differs in the absence of four conical warts on the abdomen.

30. *Cyclosa spinosa* n. sp.

Jap. name, *Togeo-Gomigumo*

Pl. III, Fig. 33 a-d.

Female: cephalothorax much longer than broad; caput somewhat rounded in front; colour yellow with a longitudinal, median, sepia line, ending anteriorly at the posterior median eyes, and a broad, marginal, dark sepia band on the thoracic part. Eyes occupying the whole width of the caput; the fore-centrals situated on a strong tuberculiform prominence; four centrals forming a trapezoid which is longer than broad, the posterior side being the shortest; the fore-centrals largest, and the others subequal in size; the lateral eyes of both rows situated obliquely on tubercles. The posterior row of eyes, looked at from above, is nearly straight, the anterior row strongly recurved. Legs moderately long, strong, furnished with hairs and numerous strong spines, yellow in colour. Chelicerae short, brown. Sternum yellow in colour, subtriangular. Abdomen slender, the hind part prolonged and ending in a spine-like projection; the anterior part divided into two and covering the thorax; silver in colour with

a median, longitudinal, light black band and black mesh at the anterior part; the sides deep yellow, the underside somewhat blackened. The measurements are as follows (in centimeters):—total length, 0.60; abdomen, 0.35; leg, I, 0.70, leg, II, 0.65, leg, III, 0.40, leg, IV, 0.50.

Locality: Takeyama (R. TAKAHASHI), April 17, 1927.

Remarks: The species is easily distinguishable from the other species of the genus by the form and the posterior projection of the abdomen.

31. *Cyclosa tricauda* n. sp.

Jap. name, *Mitsuo-Gomigumo*

Pl. III, Fig. 38 a, b.

Female: cephalothorax dull yellow with a marginal black band, furnished thinly with greyish hairs. Eyes small, in two ordinary transverse rows of nearly equal length, both slightly recurved; the quadrangle formed by four central eyes slightly broader than long, and the anterior side distinctly shorter than the posterior side; the eyes of the posterior row subequal in size and approximately equally separated by about an eye's diameter; the lateral eyes of both rows contiguous with each other. Legs moderately long and strong, covered with coarse hairs and spines, the latter not numerous nor very strong; yellow in colour with two black markings on each joint. Sternum oval, higher than wide, pointed behind; black in colour. Abdomen large, somewhat quadrate, with three hind projections, one in the median line and one on each side, extending tail-like over the spinnerets; upper part and the sides pale yellow, with scattered black markings and spots in the middle and a little behind the center, posteriorly diverging lines; underside, including the spinnerets, black with some irregular dull white spots at the anterior parts. The measurements are as follows (in centimeters):—total length 0.55; abdomen, 0.45; leg, I, 0.65, leg, II, 0.50, leg, III, 0.45, leg, IV, 0.60.

Locality: Musha (T. HAYASHI), November, 1932.

Remarks: The species is closely allied to the well-known Japanese form *Cyclosa laticauda* BÖS. et STRAND in general appearance, colours and markings. However, it is very small in size, being less than $\frac{1}{2}$ that of the latter.

Genus *Araneus* L., 1759

32. *Araneus Bertkani* L. KOCH

Pl. III, Fig. 13 a, b.

Epeira Bertkani, L. KOCH:—Arachniden Australiens. Nürnberg. 1886. p. 233. Tab. 21. fig. 1.

The measurements of an adult female are as follows (in centimeters):—
total length, 0.95; abdomen, 0.65; leg, I, 1.70, leg, II, 1.50, leg, III, 1.00,
leg, IV, 1.35.

Locality: Taihoku (R. TAKAHASHI), December 29, 1927.

Distribution: Australia.

33. *Araneus Dönitzella* STRAND

Pl. III, Fig. 16

Aranea Dönitzella, W. BÜSENBURG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 383.
Tab. 4. fig. 40.

The measurements are as follows (in centimeters):—

Sex	total length	abdomen	leg, I	leg, II	leg, III	leg, IV
Female I	0.35	0.25	—	—	—	—
Female II	0.30	0.25	—	—	—	—
Female III	0.30	0.20	—	—	—	—

Locality: Taihoku (K. SHIBATA), February 22, 1927 and April 17, 1928.

Distribution: Japan: Kyushu.

34. *Araneus ventricosus* L. KOCH

Jap. neme, *Onigumo*

Araneus ventricosus, S. SAITO:—Ann. Zool. Japan. Vol. 13. 1931. p. 143.; ———:—Ibid. Vol. 13. 1932. p. 378.; TD. SATO, TK. SATO and I. KAYASHIMA:—Sylvia. Vol. 3. No. 1. p. 5. 1932.; I. KAYASHIMA:—Ibid. Vol. 3. No. 4. 1932. p. 4.; T. KAMBE:—Jour. Chosen Nat. Hist. Society. No. 15. 1933. p. 44.

Aranea ventricosa, W. BÜSENBURG und E. STRAND:—Japanische spinnen. Stuttgart. 1905. p. 213.
Tab. 1. figg. 177, 198. Tab. 3. fig. 15. Textfig. 3.

Epeira ventricosa, L. KOCH:—Verhandl. d. zool.-botan. Ges. 1877. p. 739. Tab. 15. fig. 2.

Epeira senta, F. KARSCH:—Verhandl. d. Naturhist. Vereins d. preuss. Rheinlande u. Westfalen. 36. 1879. p. 70. Tab. 1. figg. 5, 5a.

The measurements of an adult female are as follows (in centimeters):—
total length, 2.30; abdomen, 1.70; leg, I, 3.80, leg, II, 3.50, leg, III, 2.40,
leg, IV, 3.40.

Locality: Juzan (T. HAYASHI), November, 1932.

Distribution: South Manchuria, China, Japan: Saghalien, Hokkaido, Honshu, Shikoku, Kyushu, Corea.

35. *Araneus Mellottéi* (SIMON)

Pl. III, Fig. 37 a, b.

Aranea Mellottéi, W. BÖSENBERG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 218.
Tab. II. fig. 223.

The measurements of an adult female are as follows (in centimeters):—total length, 1.00; abdomen, 0.60; leg, I, 1.65, leg, II, 1.45, leg, III, 1.00, leg, IV, 1.40.

Locality: Tainan (T. HAYASHI), November, 1932.

Distribution: Japan: Honshu, Kyushu.

36. *Araneus lacteus* n. sp.Jap. name, *Shiro-Onigumo*

Pl. III, Fig. 30 a-c.

Female: cephalothorax yellowish brown to brown without marking, covered with whitish hairs. Eyes in three groups as usual; those of the central group seates on a prominence, forming a square, whose posterior side is the shortest, the anterior pair apart from the lower margin of the clypeus by an eye's diameter. Legs moderately long and strong, furnished with grey hairs; colour yellowish brown to brown, irregularly annulated with dark brown. Maxillae and labium blackish brown tipped with white. Sternum similar in colour. Abdomen subtriangular, rounded in front, obtuse behind; the upperside dull brownish yellow and the larger portion of the back occupied by a broad black-brown band tapering posteriorly toward the spinnerets with very defined dentated black-brown margin; the sides marked with some irregular oblique black stripes; the underside black at the central portion and marked with four yellowish spots forming a square. Spinnerets normal, dark brown in colour. The genital process is characteristic and prominent; a broad genital process a little hanging over the genital pore. The measurements are as follows (in centimeters):—

Sex	total length	abdomen	leg, I	leg, II	leg, III	leg, IV
Female I	0.85	0.65	1.45	1.25	0.85	0.95
Female II	0.90	0.70	1.75	1.45	0.95	1.45
Female III	0.85	0.55	1.50	1.40	0.90	1.30
Female IV	1.10	0.75	1.90	1.70	1.15	1.65
Female V	1.00	0.75	1.50	1.45	1.00	1.40
Male I (immature)	0.65	0.50	0.90	0.85	0.50	0.80

Locality: Kannonzan (R. TAKAHASHI), January 22, 1928.; Taihoku (K. SHIBATA), April 17, 1928.; Taihoku (R. TAKAHASHI), August, 1930.; Shirin (R. TAKAHASHI), February 28, 1930.; Taihoku (I. KAYASHIMA), June 17, 1931, and June 24, 1931.

Remarks: The spider is much the same in general appearance with *Araneus aculiferus* O. P. CAMBRIDGE, but the form of the genital process is on the contrary closely allied to that of *Araneus gravabilis* O. P. CAMBRIDGE.

Genus ***Gasteracantha*** SUNDEVALL, 1833

37. ***Gasteracantha brevispina*** DOLESCHALL

Jap. name, *Futahoshi-Togegumo*

Gasteracantha brevispina, F. KARSCH:—Berliner Entomolog. Zeitschrift. Bd. 36. 1891. p. 278.; T. THORELL:—Bihang Till K. Svenska Vet.-Akad. Handlingar. Bd. 24. 1891, p. 58.; ———:—Ann. Mag. Nat. Hist. 1892. p. 233.; ———:—Descriptive Catalogue of the Spider of Burma. British Museum. London. 1895. p. 213.; ———:—Astratto dagli Annali del Museo Civico di Storia Naturale di Genova. 2ser. Vol. 19. 1898. p. 107.; ———:—Bihang Till K. Svenska. Vet.-Akad. Handlingar. Bd. 25. 1899. p. 64.; R. I. POCKOCK:—The Fauna of British India. London. 1900. p. 235.

Gasteracantha mammosa, S. YUHARA:—Study of Spider. Tokyo. 1930. p. 137. fig. 63.; TD. SATO, TK. SATO and I. KAYASHIMA:—Sylvia. Vol. 3. No. 1. 1932. p. 5.; I. KAYASHIMA:—Ibid. Vol. 3. No. 4. 1932. p. 4.

The measurements are as follows (in centimeters):—

Sex	total length	length of abdomen	breadth of abdomen
Female I	0.80	0.90	0.60
Female II	0.75	0.85	0.60

Locality: Taihoku (R. TAKAHASHI), August, 1930.

Distribution: India, Burma, Sumatra, Java, Borneo, New-Guinea, Malacca, Japan: Honshu.

38. ***Gasteracantha sola*** n. sp.

Jap. name, *Kuroobi-Togegumo*

Pl. III, Fig. 34 a, b.

Female: cephalothorax with the caput considerably raised; the sides gibbous, the cervical groove not recognizable; yellow marked with a black cross and a black marginal marking. Eyes in three groups, small; those of the central group forming a square, whose posterior side is the shortest, the eyes forming this side being separate by a diameter; the anterior pair of eyes of

this group somewhat larger than the others, separated from the lower margin of the clypeus by an eye's diameter; those of each lateral pair almost contiguous to each other. Legs short, strong, of yellow colour, distinctly annulated and marked with deep black, the markings of the third and fourth legs smaller than those of the first and second, furnished with hairs and spines. Maxillae, labium and sternum yellow, the first two black at the base, the last one with a black median longitudinal line. Abdomen large, convex and somewhat globular in form, leathery, the margin fringed with spinose processes; of deep brown colour with a broad longitudinal black band from the anterior margin to the spinnerets covering the two posterior spines; the side and underside uniformly black. The measurements of a female are as follows (in centimeters):—total length, 1.10; length of abdomen, 0.90, breadth of abdomen, 1.00, height of abdomen, 0.80; leg, I, 0.90, leg, II, 0.80, leg, III, 0.55, leg, IV, 0.80.

Locality: Taihoku (K. SHIBATA), February 22, 1927.

Remarks: The spider is allied to *Gasteracantha minax* THORELL. It differs from the latter in the patterns of the cephalothorax and abdomen, and also in the colour and markings of the legs.

39. *Gasteracantha sparsa* n. sp.

Jap. name, *Buchi-Togegumo*

Pl. III, Fig. 35 a, b.

Female: cephalothorax rounded in the sides, truncated in front; yellow in colour with a black, broad, median, longitudinal band and a marginal band on each side, covered with white hairs. Eyes in the usual three groups; the central group forming a rectangle, whose posterior side is the shortest; the anterior eyes larger than the posteriors, separated from the lower margin of the clypeus by much less than an eye's diameter; the laterals nearly contiguous to each other. Legs short, strong; dull yellow, annulated and marked with dark yellowish brown, and furnished with grey and white hairs and numerous spines. Maxillae and labium black, tipped with pale yellow. Sternum dark yellowish brown, with a black, median, longitudinal line. Abdomen leathery, the edge fringed with spinose processes; the upperside concave; the anterior margin truncated; dull brown in colour with a complex black pattern; a large pattern at the base of each spine, two lines anterior to the base of the anterior spines, two lines posterior to the median part of the abdomen, the irregular meshes connecting the above lines; the sides and underside black uniformly. The measurements are as follows (in centimeters):—total length, 0.70; length of abdomen, 0.55, breadth of abdomen, 0.80, height of abdomen, 0.50; leg,

I, 0.65, leg, II, 0.65, leg, III, 0.45, leg, IV, 0.70.

Locality: Taihoku (K. SHIBATA), February 22, 1927.

Remarks: The present spider appears like *Gasteracantha brevispina* DOLESCHALL, but it is readily distinguishable from the latter by the pattern of the abdomen, and by the form of the genital organ.

40. ***Gasteracantha formosana*** n. sp.

Jap. name, *Taiwan-Togegumo*

Pl. III, Fig. 32 a-c.

Female: cephalothorax as wide as long; truncated in front and rounded in sides: colour yellowish brown with a yellow hue at the caput, a black, longitudinal median line through the full length of the cephalothorax and a black band at each side. Eyes in the usual three groups moderate in size; four central eyes forming nearly a square, seated on a slight black prominence. Legs short, not very strong, yellow, distinctly annulated with blackish brown, covered with hairs and bristles. Maxillae and labium yellow, furnished with white hairs. Sternum lengthened oval, truncated in front and pointed behind; black in colour with two yellow, circular points at the anterior part and a yellow inversed V-shaped pattern at the posterior part. Abdomen leathery with a fringe of spinose processes, somewhat rounded in front; colour brownish black with a very complicated pattern; the sides and underside black uniformly. The measurements are as follows (in centimeters):—total length, 0.85; length of abdomen, 0.70, breadth of abdomen, 0.80, height of abdomen, 0.65; leg, I, 0.60, leg, II, 0.60, leg, III, 0.45, leg, IV, 0.70.

Locality: Taihoku (K. SHIBATA), February 22, 1927.

Remarks: The species closely resembles *Gasteracantha sola* SAITO in general form but it is distinct in the patterns of the abdomen. On the other hand it is like *Gasteracantha kochi* BUTLER in the patterns, but it is also easily distinguished from the latter in the form of the abdomen and also in the colour of sternum.

Family *AGELENIDAE*

Genus ***Tegenaria*** LATREILLE, 1804

41. ***Tegenaria*** sp.

The colouration of the present spider is much the same as that of *Tegenaria dea* DÖN. et STRAND in the original paper,¹⁾ of which only two figures of an adult and a subadult female are given without descriptions. So the author

1) W. BÜSENBERG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 388. Tab. 17. fig. 79.

avoids at present to treat this spider as a new species. The measurements are as follows (in centimeters):—total length, 0.50; abdomen, 0.30; leg, I, 0.60, leg, II, 0.60, leg, III, 0.50, leg, IV, 0.70.

Locality: Taihoku (K. SHIBATA), April 17, 1928.

Family *OXYOPIDAE*

Genus *Oxyopes* LATREILLE, 1804

42. *Oxyopes sertatus* L. KOCH

Pl. III, Fig. 19 a, b.

Oxyopes sertatus, L. KOCH:—Verhandl. d. K. K. zool. bot. Ges. Bd. 27. 1877. p. 779.; W. BÖSENBERG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 327. Tab. 8. fig. 117. Tab. 15. fig. 435.

The measurements are as follows (in centimeters):—

Sex	total length	abdomen	leg, I	leg, II	leg, III	leg, IV
Female I	0.65	0.40	0.95	0.95	0.75	0.80
Female II	0.65	0.40	0.95	0.95	0.75	0.80
Female III	0.60	0.35	0.80	0.80	0.60	0.70
Female IV	0.80	0.60	1.10	1.10	0.90	1.00
Female V	0.80	0.50	0.95	0.95	0.75	0.75
Male I (immature)	0.85	0.50	1.15	1.00	0.90	1.10
Male II (immature)	0.80	0.45	1.15	1.15	1.00	1.10

Locality: Nitsugetsutan (Y. MIWA), March 25, 1929, Urai (I. KAYASHIMA), March 27, 1932.

Distribution: Japan: Honshy, Kyushu.

Family *PISAUROIDAE*

Genus *Dolomedes* LATREILLE, 1804

43. *Dolomedes saganus* Bös. et STRAND

Pl. III, Fig. 11 a, b.

Dolomedes saganus, W. BÖSENBERG und E. STRAND:—Japanische Spinnen. Stuttgart. 1905. p. 312. Tab. 8. fig. 135. Tab. 13. fig. 328.

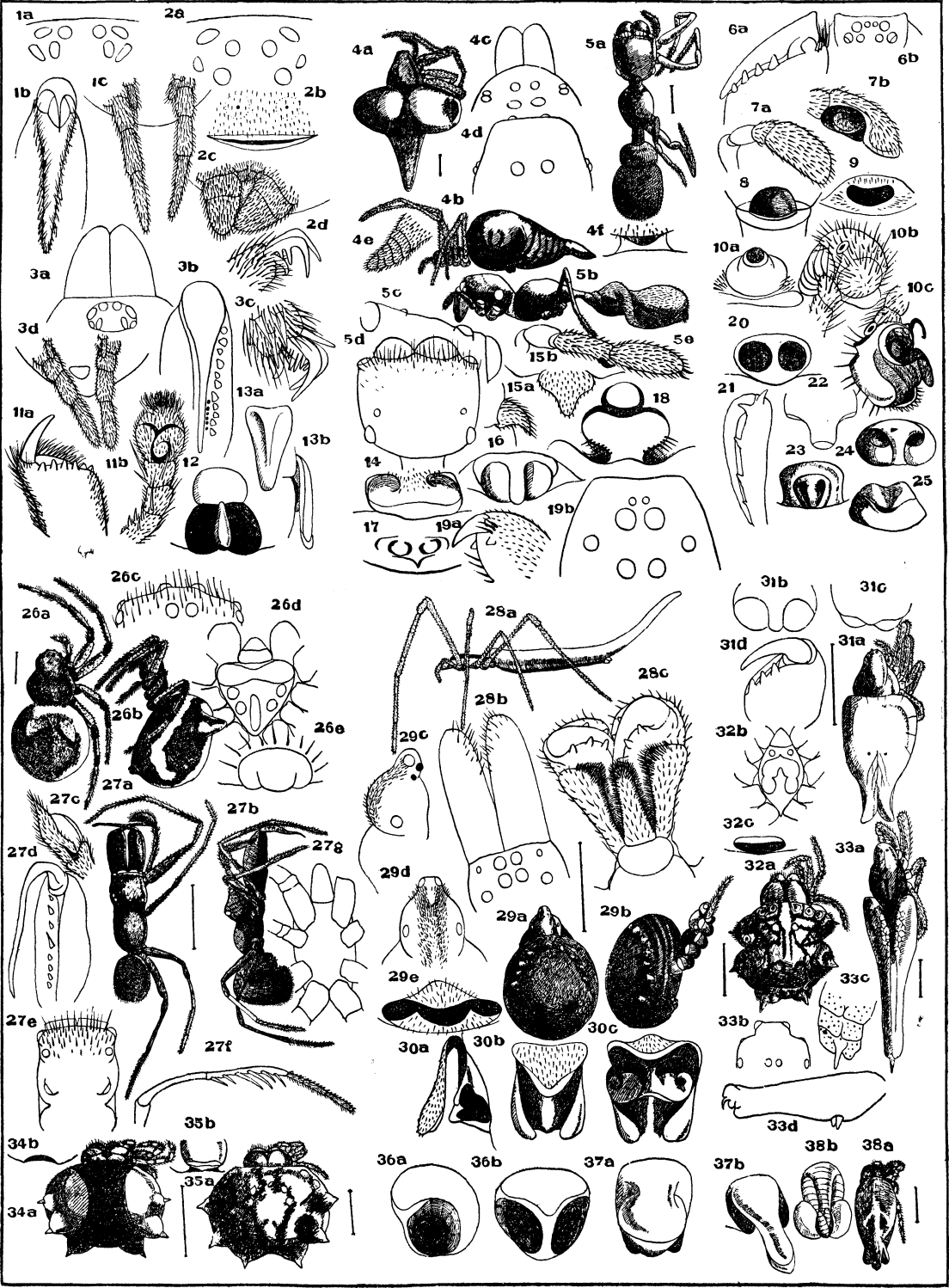
The measurements are as follows (in centimeters):—total length, 1.80; abdomen, 1.00; leg, I, 4.80, leg, II, 4.20, leg, III, 3.40, leg, IV, 4.20.

Locality: Taihoku (R. TAKAHASHI), July 27, 1928.

Distribution: Japan: Honshu, Kyushu.

Explanation of Plate

1. *Euagrus formosanus*, female: 1a, eyes from front, and a little above; 1b, left chelicera from beneath; 1c, spinnerets from beneath.
2. *Bothriocyrtum tractabile*, female: 2a, eyes from front; 2b, epigynum; 2c, spinnerets; 2d, tarsus of leg I.
3. *Ischnothele simplicata*, female: 3a, eyes from above; 3b, right chelicera; 3c, tarsus of leg I; 3d, spinnerets from beneath.
4. *Theridula caudata*, female: 4a, full figure from above; 4b, profile; 4c, eyes from front, a little below; 4d, eyes from above; 4e, posterior end of abdomen, from the side, showing spiral constriction; 4f, epigynum.
5. *Simonella formosana*, male: 5a, dorsal view; 5b, lateral view; 5c, eyes, side view; 5d, eyes from above; 5e, palpus from outer side.
6. *Heteropoda venatoria*, female: 6a, chelicera from outer side; 6b, eyes from above.
7. *Myrmarachne innermichelis*, male: 7a, palpus from outer side; 7b, palpus from inner side.
8. *Smeringopus kishidai*, female: 8, epigynum.
9. *Theridion tepidariorum*, female: 9, epigynum.
10. *Theridion elegans*, male and female: 10a, epigynum; 10b, palpus from the other side; 10c, palpus from inner side.
11. *Dolomedes saganus*, male: 11a, chelicera from beneath; 11b, right palpus from outer side.
12. *Meta yunohamaensis*, female: 12, epigynum.
13. *Araneus Bertkani*, female: 13a, scapus of epigynum from above; 13b, scapus of epigynum in profile.
14. *Enoplognatha crassipes*, female: 14, epigynum from above.
15. *Meta Doenitzi*, female: 15a, scapus of epigynum, profile view; 15b, same from above.
16. *Araneus Doenitzella*, female: 16, epigynum, anterior view.
17. *Myrmarachne japonica*, female: 17, epigynum.
18. *Misumena japonica*, female: 18, epigynum.
19. *Oxyopes sertatus*, female: 19a, chelicera from beneath; 19b, eyes from front.
20. *Argyrodes bona dea*, female: 20, epigynum.
21. *Tetragnatha japonica*, male: 21, chelicera from above.
22. *Tetragnatha praedonia*, female: 22, epigynum.
23. *Nephila clavata*, female: 23, epigynum.
24. *Leucauge venusta*, female: 24, epigynum.
25. *Nephila maculata*, female: 25, epigynum.
26. *Argyrodes longispinus*, female: 26a, from above; 26b, profile; 26c, epigynum; 26d, sternum, coxae of legs, maxillae and labium.
27. *Myrmarachne mignus*, male: 27a, from above; 27b, profile; 27c, palpus from outside; 27d, right chelicera from below; 27e, eyes from above; 27f, 1st leg; 27g, sternum.
28. *Eucta javana*, female: 28a, profile; 28b, chelicerae and eyes from above; 28c, chelicerae, maxillae and labium from beneath.
29. *Poltys nigrinus*, female: 29a, dorsal aspect, legs and palpi omitted; 29b, profile view, legs omitted; 29c, cephalic part, profile view; 29d, same from above; 29e, epigynum.
30. *Araneus racteus*, female: 30a, female organ, side view; 30b, same from above; 30c, same from a little beneath.
31. *Cyclosa bicauda*, female: 31a, dorsal view; 31b, epigynum from above; 31c, same, anterior view; 31d, left chelicera from beneath.
32. *Gasteracantha formosana*, female: 32a, dorsal view; 32b, sternum, coxae, maxillae and labium; 32c, epigynum.
33. *Cyclosa spinosa*, female: 33a, dorsal view; 33b, eyes from above; 33c, posterior end of abdomen, showing spine; 33d, abdomen, profile view.
34. *Gasteracantha sola*, female: 34a, dorsal view; 34b, epigynum.
35. *Gasteracantha sparsa*, female: 35a, dorsal view; 35b, epigynum.
36. *Argyope minuta*, female: 36a, epigynum, profile view; 36b, same from above.
37. *Araneus Mellottèi*, female: 37a, epigynum from above; 37b, same, lateral view.
38. *Cyclosa tricauda*, female: 38a, dorsal view; 38b, epigynum.



摘 要

臺灣産蜘蛛に就て

藤 三 郎

本文は臺灣産蜘蛛四十三種を報告するものにして、次の十七種を新種と認めて記載す。

<i>Bothriocyrtum tractabile</i> SAITO (n. sp.)	ヤサガタトタテグモ
<i>Ischnothele simplicata</i> SAITO (n. sp.)	ヒラジョウゴグモ
<i>Euagrus formosanus</i> SAITO (n. sp.)	タイソウジョウゴグモ
<i>Myrmarachne magnus</i> SAITO (n. sp.)	オウアリグモ
<i>Simonella formosana</i> SAITO (n. sp.)	タイソウシモンアリグモ
<i>Smeringopus kishidai</i> SAITO (n. sp.)	キシダユウレイグモモドキ
<i>Theridion elegans</i> SAITO (n. sp.)	ヤサガタヒメグモ
<i>Theridula caudata</i> SAITO (n. sp.)	オナガヒメグモモドキ
<i>Argyroides longispinus</i> SAITO (n. sp.)	トゲイソウロウグモ
<i>Poltys nigrinus</i> SAITO (n. sp.)	クロテンググモ
<i>Cyclosa bicauda</i> SAITO (n. sp.)	フタテゴミグモ
<i>Cyclosa spinosa</i> SAITO (n. sp.)	トゲテゴミグモ
<i>Cyclosa tricauda</i> SAITO (n. sp.)	ミツテゴミグモ
<i>Araneus lacteus</i> SAITO (n. sp.)	シロオニグモ
<i>Gasteracantha sola</i> SAITO (n. sp.)	クロオビトゲグモ
<i>Gasteracantha sparsa</i> SAITO (n. sp.)	ブチトゲグモ
<i>Gasteracantha formosana</i> SAITO (n. sp.)	タイソントゲグモ

本稿は内田亨博士の御厚意に依る高橋、柴田、三輪、豊田、萱島諸氏の採取せられし標本、及び林禎二郎氏が第八回日本動物學會に出席の折の採取標本に依るものなり。茲に更めて以上の諸氏に深甚の謝意を表す。並に多大の助言を賜りたる犬飼博士に深厚なる感謝の意を表す。

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