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XXXVII.—On the Cteniform spiders of Ceylon, Burmah, and the Indian Archipelago, West and North of Wallace's Line; with bibliography and list of those from Australasia, South and East of Wallace's Line

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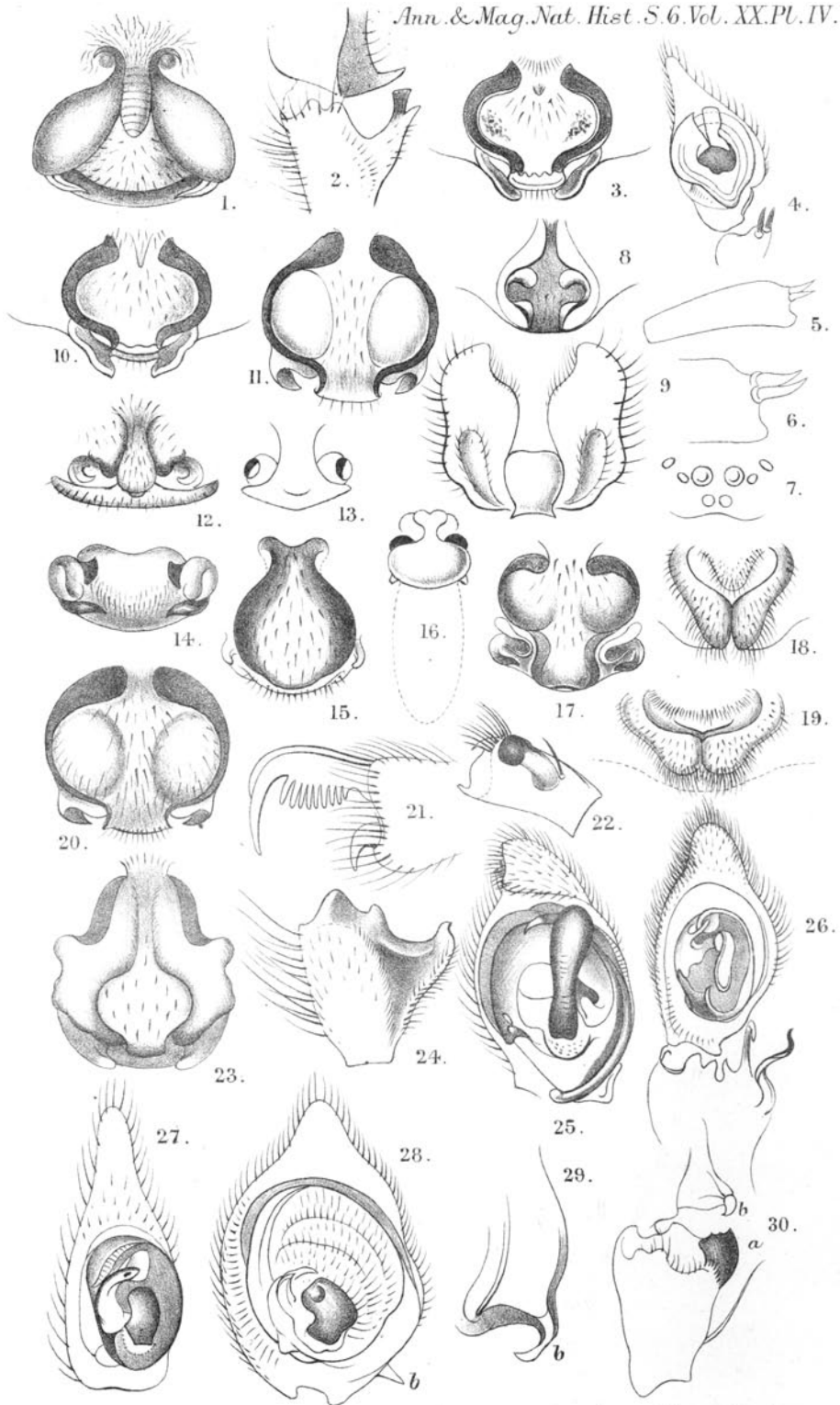
XXXVII.—*On the Cteniform Spiders of Ceylon, Burmah, and the Indian Archipelago, West and North of Wallace's Line; with Bibliography and List of those from Australasia, South and East of Wallace's Line.* By F. O. PICKARD
CAMBRIDGE, B.A.

[Plate IV.]

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Note.—On page 68 Ann. & Mag. Nat. Hist., Jan. 1897, I have, in the short diagnosis there given of the genus *Cupiennius*, Sim., based on this author's identification of a specimen as *C. oculatus*, Sim. (= *Ctenus Salèi*, Keys.), stated that the tarsal claws are *two*. This is not correct; there are three distinct tarsal claws, but the large claw-tuft on each side renders it very difficult to detect the inferior claw. *Cupiennius Salèi* apparently comes very close to my genus *Lycotenus*, from which it is distinct, however, amongst other characters by the absence of spines beneath the tarsi and by the presence of the large claw-tufts.



(i.) *Introduction.*

THE following paper includes spiders of the group *Cteninæ*, as well as others belonging to the 3-clawed forms of those which have the characteristic Ctenoid eye-formula. Of the new species, one was taken by Mr. S. S. Flower in Pinang, two were taken by Mr. C. W. Hose in Borneo, while a fourth was taken in Ceylon by Mr. W. Barnes. One new species occurred in the Keyserling collection and two more were found in the Museum collection. So far as the material at my disposal permits one to judge, there is no generic distinction between the 2-clawed forms found in these regions and those in Central, Equatorial, and Southern America.

Of the 3-clawed forms, however, those included in my last paper on the genus *Lycotenus* are quite distinct generically from those which Simon included under (*Titurius*) *Thalassius* and Thorell under *Dolopæus*. One cannot refrain from remarking on the infinite trouble which authors are laying up for those that come after by publishing meagre descriptions of new species without any figures. Even in cases where descriptions are elaborately minute, there has in many instances been no attempt at selecting the salient differential characters. Unless the descriptions of authors are *consciously comparative*, numbers of characters common to a whole genus will be constantly repeated, while, as likely as not, the one vital differential character will be overlooked, thus rendering the whole work useless and vexatious.

Mr. R. I. Pocock, of the Natural History Museum, has kindly allowed me to examine all the Eastern Cteniform spiders in the collection and describe the new forms.

(ii.) a. *List of Species noted in the Text.*

- 1887. *Ctenus trabifer*, Thor.—Burmah. P. 332, Pl. IV. fig. 14.
- 1887. *C. ramosus*, Thor.—Burmah. P. 333.
- 1887. *C. obscurus*, Thor.—Burmah. P. 334.
- 1890. *C. fungifer*, Thor.—Pinang. P. 334.
- 1890. *C. bicostatus*, Thor.—Borneo. P. 334.
- 1891. *C. trabifer*, Thor., Karsch.—Ceylon. P. 335, Pl. IV. fig. 13.
- 1892. *C. pulvinatus*, Thor.—Sarawak. P. 335.
- 1893. *C. Pollii*, van Hass.—Sumatra. P. 336.
- 1893. *C. argentipes*, van Hass.—Sumatra. P. 336.
- 1895. *C. barbatus*, Thor.—Burmah. P. 337.
- 1895. *C. denticulatus* (Sim.), Thor.—Burmah. P. 337, Pl. IV. figs. 4-9.
- 1882. *Leptoctenus valvularis*, van Hass.—Sumatra. P. 338, Pl. IV. fig. 16.
- 1884. *L. denticulatus*, Sim.—Burmah. P. 338.
- 1888. *L. tumidulus*, Sim.—Tavoy. P. 339.
- 1893. *L. agelenoides*, L. K., van Hass.—Sumatra. P. 340.

1879. *Anahita fauna*, Karsch.—Japan. P. 340.
 1890. *Acanthoctenus variatus*, Thor.—Isl. of Nias. P. 340.
 1891-2. *A. dimidiatus*, Thor.—Sumatra. P. 341.
 1891-2. *A. letus*, Thor.—Borneo. P. 341.
 1891-2. *Nydia punctata*, Thor.—Sumatra. P. 342.
 1885. *Thalassius marginellus*, Sim.—India. P. 352.
 1893. *T. spathularis* (van Hass.). P. 353.
 1895. *T. albocinctus* (Dol.), Thor.—Burmah. P. 353.
 1884. *Titurius marginellus*, Sim.—Bankok, &c. P. 353.
 1891. *Dolopæus cinctus*, Thor.—Nicobar Isles. P. 353.
 1858-59. *Dolomedes albocinctus*, Doles.—Java. P. 354.
 1882. *D. spathularis*, van Hass. P. 354.

New Species described and figured.

- Ctenus Thorellii*, sp. n., ♂ ♀.—Ceylon. P. 342, Pl. IV. figs. 2, 15, 27.
C. Hosei, sp. n., ♂ ♀.—Borneo. P. 345, Pl. IV. figs. 11, 17, 20, 28-30.
C. sarawakensis, sp. n., ♀.—Borneo. P. 346, Pl. IV. fig. 3.
C. ceylonensis, sp. n., ♂ ♀.—Ceylon. P. 346, Pl. IV. figs. 12, 26.
C. Floweri, sp. n., ♂ ♀.—Pinang. P. 348, Pl. IV. figs. 22-25.
C. philippinensis, sp. n., ♀.—Philippines. P. 349, Pl. IV. fig. 1.
Thalassius Simoni, sp. n., ♀.—Borneo. P. 351, Pl. IV. figs. 18, 21.
T. Doleschallii, sp. n., ♀.—Borneo. P. 352, Pl. IV. fig. 19.

(ii.) b. *Bibliography relating to the Cteniform Spiders of Ceylon, Burmah, Indo-Malaysia, China, and Japan, also of New Guinea and Australasia.*

- 1805.—C. A. WALCKENAE. 'Tableau d'Araignées,' p. 16. (Type of genus *Ctenus*.—French Guiana, S. America.)
 1833.—M. PERTY. 'Del. Anim. Bras.' iii. (Spix and Martius), p. 133. (Type of genus *Phoneutria*.—Rio Negro, Brazil.)
 1875.—L. KOCH. 'Arachniden Australiens,' ii. p. 994. (Type of genus *Leptoctenus*.—Gayndah, Australia.)
 1879.—KARSCH. Verhandlungen Rheinprovinz, iv. p. 103. Japan.
 1882.—A. R. VAN HASSELT. 'Naturlijke Historie, Midden Sumatra,' pt. 11 a, p. 45. (*Leptoctenus valvularis*.—Sumatra.)
 1884.—EUGÈNE SIMON. Ann. Mus. Genov. xx. pp. 328 & 355. (*Titurius* and *Leptoctenus dimidiatus* and *denticulatus*.—Burmah.)
 1885.—EUGÈNE SIMON. Bull. Soc. Zool. Fr. p. 13. (*Thalassius* for *Titurius*, nom. præocc.)
 1887.—T. THORELL. Ann. Mus. Genov. (2 a) vol. v. (xxv.) p. 288. "Ragni Birmani." (*Ctenus trabifer*, *ramosus*, and *obscurus*.—Burmah.)
 1888.—EUGÈNE SIMON. Journ. Asiatic Soc. Bengal, lvi. ii. p. 108. (*Leptoctenus tumidulus*.—Tavoy, Burmah.)
 1890.—T. THORELL. Ann. Mus. Genov. (2 a) vol. x. (xxx.) p. 34. "Arachnidi di Nias e di Sumatra." (Type of *Acantheis* [for *Acanthoctenus*, Keys., Thor.] *variatus*.)
 1890.—T. THORELL. Ann. Mus. Genov. vol. x. (xxx.) p. 133. (*Ctenus bicostatus*.—Borneo.)
 1890.—T. THORELL. Ann. Mus. Gen. (2 a) vol. x. (xxx.) p. 45, Nov. 17-Dec. 27. "Arachnidi di Pinang." (*Ctenus fungifer*.)
 1891-92. T. THORELL. Kongl. Svenska Vet.-Akad. Handl. xxiv. 2, p. 60. (Type of *Dolopæus cinctus*.—Nicobar Islands, Bay of Bengal. Also p. 61, *Acantheis* for *Acanthoctenus*, Keys., Thor.)

1891. KARSCH. Berlin. ent. Zeitschrift, xxxvi. 2, p. 295. (*Ctenus trabifer*, Thor., Karsch.—Tabrobane, Ceylon.)
- 1891-92.—T. THORELL. Ann. Mus. Genov. (2 a) vol. xi. (xxx.) p. 139. "Ragni Malesi e Papuani." (Type of *Nydia punctata*, Sumatra.—*Ctenus valvularis* (Van Hass.), Sumatra.—*Ctenus pulvinatus*, Borneo.—*Acanthoctenus dimidiatus*, Sumatra.—*A. letus*, Borneo.)
- 1893.—A. W. M. VAN HASSELT. Tijdschrift voor Entomologie, xxxvi. p. 146. (*Ctenus* [an *Phoneutria* ?] *Pollii*, Sumatra.—*Ctenus argentipes*, Sumatra.)
- 1895.—T. THORELL. 'Descriptive Catalogue of the Spiders of Burma.' Published by Brit. Mus. Nat. Hist.

(iii.) *Genera and Species of 2-clawed Forms, with Notes on Types and Descriptions of New Species.*

1805. *Ctenus*, Wlk. Tabl. Aran. p. 16. (Type *C. dubius*, Wlk., ♀.—Cayenne, French Guiana.)
1833. *Phoneutria*, Perty, Del. Anim. Bras. iii. p. 196. (Type *P. ferus*, Perty, ♀.—Rio Negro, Brazil.)
1875. *Leptoctenus*, L. Koch, Arach. Austr. ii. p. 994. (Type *L. agalenooides*, L. K., ♂.—Gayndah, Australia.)
1879. *Anahita*, Karsch, Verh. Rheinprovinz, iv. p. 103. (Type *A. fauna*, Karsch, ♀.—Japan.)
- 1891-92. *Acantheis*, Thor. Sven. Vet.-Ak. Handl. xxiv. 2, p. 61. (Note: Nom. for *Acanthoctenus*, Keys., Thor. Type *A. variatus*, Thor., ♀.—Sumatra.)

Species described under Ctenus.

1887. *Ctenus trabifer*, Thor. ♀ juv., 13½ mm. Ann. Mus. Genov. ser. 2 a, vol. v. May 31-Oct. 7, p. 288. Bhamò, Burmah (Fea). (Pl. IV. fig. 14.)
1895. *Ctenus trabifer*, Thor. ♀s ad., 17½ and 10½ mm. Spid. Burma. Tenasserim, Burmah (*Oates*).
Two examples in coll. Brit. Mus. Nat. Hist.

Of this species Thorell remarks, Ann. Mus. Genov. p. 291:—"Feminam unicam, quæ nondum adulta videtur, ad Bhamò cepit Fea.—*C. (Leptocteno) valvularis*, Van Hass. (Midden Sumatra cet. p. 45, pl. v. fig. 12), valde affinis est hæc species, colore ventris tamen plane alio facile dignoscenda."—It seems a pity to base a new species on a young female, confessedly so closely allied to another already described form, in a group in which the species run so closely together; for Thorell says of *pulvinatus* and *fungifer* that they also are both closely allied to *valvularis*. Although I have not been able to see the type, there are before me specimens identified by Thorell as *C. trabifer*, Thor., from Mr. E. W. Oates's collection from Burmah. These are distinctly different from *C. valvularis*, van Hass., judging by the figure of the vulva of the latter. They are also quite distinct from any of the other

forms now before me. The second example, the smaller, appears to be a dwarf form, in which the vulva is not so well developed. Should this form occur in any number and the males accompanying them offer any decided difference from males accompanying the larger form, it will probably have to be described as a new species.

The example of whose vulva I give a figure is not really closely allied to *valvularis*, *fungifer*, *javanus*, &c. The form of the vulva renders it very distinct from either, though of course in general characters all the forms described, except *denticulatus*, are very similar.

1887. *Ctenus ramosus*, Thor. ♂ ad., 13½ mm. Ann. Mus. Genov. ser. 2 a, vol. v. May 31–Oct. 7, p. 291. Bhamò, Burmah.

1895. *Ctenus ramosus*, Thor. Spid. Burma, p. xxvii.

♂. Tib. i. 5 pair spines beneath; antice 1, postice 1—1, supra 1—1—1. Tib. iii. and iv. supra 1—1—1. Protarsi i. and ii. beneath with 3 pair spines.

Measurements.—Tot. len. 13·5 mm., carap. 7·5, ant. marg. 2·5; legs i. 26·25, ii. 24·25, iii. 20, iv. 28·5; pat. + tib. iv. 9·5.

Tibia of pedipalp. “Ex apice hujus procursus, e basi communi latiore, exeunt alii procursus gracillimi cornei fuscii duo, quorum alter spinam levissime incurvam, ipso apice in triangulum minutum dilatam, anteriora versus directam format, alter paullo fortior, deorsum et paullo intus directa est, fere in medio subito intus fractus et hoc loco extus dente foras directo armatus.”—“Bulbus a latere visus partem longam crassam nitidam cylindratam a basi bulbi anteriora versus protensam ostendit, cujus apex subacuminatus deorsum curvatus est.”—“Venter niger.”—“Exemplum singulum adultum ad Bhamò invenit Fea. Marem præcedentis hanc araneam credere non possum, præsertim quum pedes plane alio modo aculeatos habeat.”

The fact that the legs in this male present a different spinulation to that of “*trabifer*, ♀,” need not, of itself, afford evidence of a specific distinction as Thorell suggests. In *C. ceylonensis*, sp. n., the difference in spinulation between the sexes is precisely as Thorell describes in *ramosus*, ♂, as contrasted with *trabifer*, ♀; while the males of all the *Cteninæ* of the New World, so far as I have had experience of them, present the same difference. A male in Mr. Hose’s collection from Borneo also presents similar differences from the females. From Thorell’s description the tibia of the pedipalp in *ramosus* would seem to bear a general resemblance to that of *ceylonensis*, but certainly is not identical with it.

1887. *Ctenus obscurus*, Thor. ♀ ad., 9 mm. Ann. Mus. Genov. ser. 2 a, vol. v. May 31–Oct. 7, 1887, p. 295. Rangoon, Burmah (Fea).

1895. *Ctenus obscurus*, Thor. Spid. Burma, p. xxvii.

♀. Tib. i. and ii. 5 pair spines beneath, ii. with 2 spines besides on inner side. Protarsi i. and ii. 3 pair spines beneath. Tib. iii. and iv. above 1—1—1.

Measurements.—Tot. len. 9 mm., carap. $4\frac{1}{8}$, ant. marg. 1·5; legs i. 13·5, ii. 12, iii. 10·75, iv. 16; pat. + tib. iv. $5\frac{1}{3}$.

“Vulva ex area sat parva subpentagona, nitida, pallide fusca, ad utrinque angulum lateralem macula nigra notata constat, quæ postice truncata est, lateribus rectis sensim angustato-acuminata: hæc area excavata est et septa cruciformi munita, ejus ramus posterior, reliquis longior, foveas duas oblongas separat. Pone hanc aream callum fortem transversum convexum nitidum pallide fuscum video.”

Thorell says of this species, the form of whose vulva is sufficiently difficult to grasp from the description, “pedibus longis et forma vulvæ notabili satis distincta est.”

1890. *Ctenus fungifer*, Thor. ♀ ad., $9\frac{1}{2}$ mm. Ann. Mus. Genov. ser. 2 a, vol. x. (xxx.) Nov. 17–Dec. 27, p. 45. Pinang (*Loria & Fea*).

♀. Tib. i. and ii. 5 pair spines. Protarsi i. and ii. 3 pair spines beneath; no lateral spines. Tib. iii. and iv. 2–3 spines above.

Measurements.—Tot. len. 9·5 mm., ant. marg. 2; legs i. 13, ii. 11·5, iii. 11, iv. 16·5; pat. + tib. iv. 4·75.

“Vulva figuræ fungi (*Agarici*) humilis sat similis est: ex callo maximo, alto, deplanato, transverso et triplo-quadruplo latiore quam longiore constat, qui postice ample rotundatus est, antice in medio quasi in petiolum basi angustum, tum dilatatum productus et utrinque, apud eum, paullo emarginatus: apices rotundati hujus calli (pallide fusi) nigri sunt.”

The general form of the vulva is clear from the description, and proves the species to be quite distinct from the females taken in Pinang by Mr. Flower, described below, though it must be closely allied to another form before me from Java, as well as to *valvularis*.

1890. *Ctenus bicostatus*, Thor. ♀ ad., 8·5 mm. Ann. Mus. Genov. Oct. 8, (2 a) vol. x. (xxx.) p. 134 (3). Borneo (*Doria & Beccari*).

♀. Tib. i. and ii. 5 pair spines. Protarsi i. and ii. 3 pair spines beneath.

"Vulva ex area subtrapezoidi pallide fusca constanti, quæ costas duas longitudinales parallelas nigras ostendit."

If this diagnosis fully describes the vulva, its form is quite simple, and certainly agrees with none of the species before me from Borneo.

1891. *Ctenustrabifer*, Thor., Karsch, Berl. ent. Zeitschr. xxxvi. 2, p. 295, Taf. xi. figs. 18 & 18 b. Tabrobane, Ceylon. (Pl. IV. fig. 13.)

Without actually seeing the types, one cannot pronounce on the identity of this species with certainty. That it is not identical with *trabifer*, Thor., as Dr. Thorell himself pointed out, admits of no doubt, since Thorell's own identifications of the latter are before me. At the same time, I have before me examples of two distinct species from Ceylon in the neighbourhood of Tabrobane (♂ and ♀). One of these presents a form of vulva similar in general outline to that of Karsch's figure; but either the drawing is not executed with sufficient minuteness of detail, or it depicts the vulva of a different species. In either case it would require a new name, and I am rather inclined to expect that it will prove identical with *C. ceylonensis*, sp. n., described below.

Karsch's figure and the vulva of *ceylonensis* belong to quite a different type from that to which *trabifer*, *Thorellii*, *Floweri*, *valvularis*, *pulvinatus*, &c. belong. The vulva reminds one rather of that of some species of European *Lycosa*.

1891-92. *Ctenus pulvinatus*, Thor. ♀ ad., 17 mm. Ann. Mus. Genov. ser. 2 a, vol. xi. (xxxi.) p. 139. Sarawak, Borneo (*Doria & Beccari*).

♀. Tib. i. and ii. 5 pair. Protarsi i. and ii. 3 pair spines beneath. Tib. iii. and iv. 1—1—1 above.

Measurements.—Tot. len. 17 mm., carap. $9\frac{1}{2}$, ant. marg. 4·25; legs i. 23, ii. 21·5, iii. 19, iv. 27·5; pat. + tib. iv. 8·75.

Vulva. "Non multum a vulva *C. valvularis* differt. E lamina magna subtransversa, fortiter elevata, pæne plana, nitida, secundum medium late et leviter impressa, etc."

I have little doubt that the forms described below as *C. sarawakensis* and *Hosei* are quite distinct from either *valvularis* (cf. Pl. IV. fig. 16) or *pulvinatus*, Thor.; though the indistinctly annulated femora and tibiæ of iii. and iv. are common to the four species, *Hosei*, *sarawakensis*, *pulvinatus* (sec. Thor.), and *valvularis* (sec. Thor.), and indeed to all the eastern forms which have come before me to a greater or less extent, except *denticulatus*.

1893. *Ctenus* (an *Phoneutria*?) *Pollii*, van Hass. ♂, 22 mm.

Type in coll. J. R. van de Poll, Byseburg, Utrecht. Tijdschr. voor Ent. xxxvi. p. 146. *Hab.* Sumatra (*J. L. Kannezieter*).

♂. Tot. len. 22, carap. 12, abd. 10 mm. Pedes 4, 1, 2, 3. Ocular quadrangle nearly square. Posterior centrals a little larger than anterior centrals; 2nd row a little procurved. "Clypeo minimo"—"ventre in medio nigro, cum duabus seriebus longitudinalibus punctorum parvorum luteorum."—"Tarsi longe biunguiculati."—"Pars tibialis extus cum forti processu transverso, parumper sursum curvato, obtuso, sed ut videtur apice bifido; bulbi laminâ oblongato-ovatâ, tam supra, ad basin, processui tibiali vicinam, quam subtus ipso bulbo, in medio, dente conico provisâ, hoc illo multo validiore."

No mention is made of the spinulation, but doubtless it is the same as that of other species closely allied, which possess the characteristic rows of white spots beneath the abdomen. Without seeing the type, one is of course unable to say anything worthy of confidence, but I have not yet met with any forms from the east in which the ocular quadrangle is square and the anterior eyes only a little smaller than the posterior; though these forms occur in the Neotropics and others characterized also by rows of white spots beneath the abdomen. Dr. van Hasselt has most kindly informed me of the whereabouts of the type of this species.

♂ ad. *Hab.* Sumatra.

1893. *Ctenus argentipes*, van Hass. ♂, 16 mm. Tijdschr. voor Ent. xxxvi. p. 148. Type in coll. J. R. van de Poll, Byseburg, Utrecht. *Hab.* Sumatra (*J. L. Kannezieter*).

♂. Tot. len. 16, carap. 8, abd. 8 mm. Pedes 4, 1, 2, 3.

In general appearance resembling *Pollii*; ocular quadrangle, however, broader than long; venter similarly decorated with rows of white spots, but *four* instead of *two*. Fem. iii. and iv. "late semiannulati vel maculati."—"Tibiis, præsertim supra, pulchre et dense sed non longe argenteo-albo pilosis (iii. excepto). Processus tibialis similis, sed magis dentiformis, et ut videtur, non bifidus."—"Processus ad bulbi laminam basalis multo longior et magis incurvatus, quasi calcaratus, calcare hoc postrorsum versus dentem tibialem inclinato."

This species is evidently very similar in general appearance to *C. Floweri*, sp. n., though I am entirely unable to reconcile the above description of the palpal organs with those of *Floweri* (cf. Pl. IV. fig. 25), and I have not the smallest doubt about the distinctness of the two species, short of actual

comparison of the types. I have to thank Dr. van Hasselt for information concerning the type and other important notes.

♂ ad. *Hab.* Sumatra.

1895. *Ctenus barbatus*, Thor. ♀ juv., $8\frac{1}{2}$ mm. Spid.

Burma, p. 214. Kyeikpadem (Pegu), Burmah (*Oates*).

Of this immature form Thorell remarks, "Femina nondum adulta et plane detrita, quam singulam vidi."—" *C. trabifero* ad formam simillima, præter penicillo oris colore multo pallidioræ præsertim agnoscenda."

Under the circumstances one could have wished this form had not been described as a new species, seeing that identification, from descriptions alone, is sufficiently difficult even in the case of adults. The type, which is before me, might well be the young of any of the forms of which the ventral area of the abdomen is marked with rows of spots.

1895. *Ctenus denticulatus* (Sim.), Thor. ♂ ♀ al., ♀ 7.5–10 mm. Spid. Burma, p. 216. Rangoon and Tharawaddy, Kyeikpadem (*Oates*). (Pl. IV. figs. 4–9.)

Specimen identified by Thorell in coll. Brit. Mus. Nat. Hist., originally described in 1884—*Leptoctenus denticulatus*, Sim. Ann. Mus. Genov. xx. p. 355.

Genus LEPTOCTENUS, L. K.

Whether *L. agalenoides* is or is not congeneric with the two-clawed ctenoid forms which are found in Sumatra and Borneo I cannot pretend to say. L. Koch himself says:—"Tibia i. and ii. 4 pair of spines" (whether he includes the apical pair or not, I cannot say); also "no scopula." The ctenoids from Borneo now before me have very distinct scopulæ on the anterior tarsi and protarsi, as well as the posterior tarsi; and 5 pairs of subtibial spines on i. and ii., one pair being apical. Otherwise, except that the anterior centrals are smaller in proportion in Koch's figure, one would conclude them to be congeneric. That the forms placed under *Ctenus* by Thorell (*C. pulvinatus*, *valvularis*, *trabifer*, &c.) are very closely allied to those of the New World, taking *albofasciatus*, ♀, as an example, there is no doubt—the only difference I can detect being in the constant presence of a minute fifth tooth on the lower margin of the fang-groove, which is missing in all examples of Bornean ctenoids which have come before me, though it may possibly appear in some species. Whether, as Thorell suggests, *Leptoctenus*, L. K., differs from *Ctenus*, Walck. (*C. dubius*), or from *Isoctenus*, Bertk., is not easy to say in the absence of types.

I have no doubt that *L. valvularis*, van Hass., is congeneric with *pulvinatus* and *trabifer*; an example of the latter, identified (not the type) by Dr. Thorell e coll. E. W. Oates, being now before me. So similar is *albofasciatus* to *pulvinatus* and *valvularis* (according to the descriptions) that even the four rows of ventral white spots are common to these forms.

Species described under Leptoctenus, L. K.

1882. *Leptoctenus valvularis*, van Hass. ♀, 13 mm. IV. 3de Afl. Nat. Historie, pt. 11 a, p. 45, pl. v. fig. 12 (Leiden). Sumatra (*Pick van Korintzi & Sir A. van Hasselt*). Type in coll. Bijks Nat. Hist. Mus. Leiden. ♀, Pl. IV. fig. 16 (*after van Hasselt*).

♀. Tot. len. 13, carap. 6, abd. 7 mm. Tibiæ 2.2.2.2 spines and 2 apical spines. "Abdominus nigro-fuscus, in ventris medio paullo lætior absque picturâ evidente, quamquam vestigia obscura serierum lateralium punctorum et striarum oblique transversarum (*Lycosiformium*) sub lente apparent."

The general character is evidently similar to that of *Thorellii* and to another form before me from Japan, but is quite distinct from the former, judging by van Hasselt's figure (see Pl. IV. fig. 16 for reproduction), and also, so far as one can judge without comparing the types, from the latter.

1884. *Leptoctenus denticulatus*, Sim. ♀, 8.5 mm. Ann. Mus. Genov. xx. p. 355. Burmah.

Leptoctenus denticulatus (Sim.), Thor. ♂ ♀. *Hab.* Burmah (*coll. W. Oates*). Examples in coll. Brit. Mus. Nat. Hist.

♂.—*Structure*. Carapace horizontal, not gibbous behind, but still slightly raised and convex; abruptly inclined to base. Eyes closely grouped; 2nd row straight by centres. Posterior centrals one third larger than anterior centrals, half a diameter apart, distant from anterior laterals one half a diameter of latter. Ocular quadrangle broader than long, much narrower in front. Posterior centrals one third larger (by diameters) than anterior centrals; the latter one quarter of a diameter apart, one half from anterior margin of clypeus. Tibiæ i. and ii. with 2—2—2—2—2 long spines beneath; no apical pair; 1 basal spine on inner side, 1—1 dorsal, 1—1 on outer side. Protarsi i. and ii. with 2.2.2 long spines beneath, 1—1 spines on inner side, and 1—1 on outer side; no dorsal spines. Patellæ i., ii., iii., iv. with 1 spine on each side. Pedipalp, see Pl. IV. figs. 4, 5, 6.

♀.—*Structure*. Similar to that of male, but carapace horizontal. Tibiæ i. and ii. with no lateral or dorsal spines,

except 1 towards base on outer side of tib. ii. Patellæ with spines as in male. Eyes not quite so closely grouped.

Sternum scarcely longer than broad, circular. *Maxillæ* broad at base (Pl. IV. fig. 9). *Labium* scarcely longer than broad, less than half the length of *maxilla*.

Tarsal claws two. Claw-tuft present; *scopula* present, but very slight.

The male and female described by Thorell, now before me, are most probably (sec. Simon's description) identical with *L. denticulatus*, Sim. As no figures of the species have been published, I take this opportunity of figuring it. I am, however, if those forms identified by Thorell as *denticulatus* are really so, not able to reconcile Simon's reference to the spinulation of patella iv. In comparing *denticulatus* with *Leptoctenus agalenoides*, L. K., Simon regards the former as differing in the number of tibial spines (5 instead of 4); also in the number of spines on patella iv., two instead of one on each side; also in the presence of the *scopula*.

The forms which Thorell has referred to *denticulatus*, Sim., certainly both male and female, have but *one* spine on each side of patellæ i., ii., iii., and iv.

1888. *Leptoctenus tumidulus*, Sim. ♂ "pullus," 15 mm. Journ. Asiatic Soc. Bengal, lvi. pt. ii. p. 108. Tenasserim, Tavoy, Burmah.

♂. 15 mm., young. "Cephalothorax posticus valde convexus."—"Oculi fere ut in *L. denticulato* sed area mediorum latius transversa et oculis lateralibus seriei 2^a a mediis latius remotis. Clypeus oculis anticis haud latior, retro obliquus. Chelæ margine inferiore sulci quadridentato, dentibus 1 et 2 reliquis paulo majoribus. Tib. anticæ infra 5—5 aculeatæ (iii. reliquis longioribus). Metatarsis aculeis similibus 3—3."—Tib. + pat. iv. almost equal to carapace.—"*L. denticulato*, E. Sim., affinis, differt imprimis cephalothorace postice convexiore, pedibus brevioribus, etc."

I extract the above from M. Simon's description of this species for the sake of forming some idea of its generic affinities, though one cannot consider a description drawn from an immature specimen to be of much value for purposes of identification. One is at a loss to understand how so able and experienced an arachnologist should allow himself to base new species on immature examples. There is quite sufficient labour already handed down to posterity in identifying adult forms, briefly described, unaccompanied by a single figure, without thus increasing the confusion by mere descriptions of immature forms.

1893. *Leptoctenus agalenoides*, L. K. ♀ (var.?). Van Hass. Tijdschr. voor Ent. xxxvi. p. 145. *Hab.* Sumatra. Van Hasselt gives this as doubtfully the female of L. Koch's species.

1893. *Ctenus trabifer*, Thor. ♀ (juv.). Van Hass. Tijds. voor Ent. xxxvi. p. 146. *Hab.* Ceylon?? Doubtfully referred to *C. trabifer*, Thorell.

1893. *Ctenus* —. ♀. Van Hass. Tijds. voor Ent. xxxvi. p. 146. *Hab.* Ceylon?? "*C. valvularis* (mihi) sub-similis, genitalis valvula quantoque variante."

Dr. van Hasselt has considerably refrained from describing the immature female from Ceylon as a new species.

Species described under Anahita, Karsch.

1879. *Anahita fauna*, Karsch. ♀. Verh. Rheinprovinz, Bd. iv. p. 103. Japan.

In the description of this form, the type of *Anahita*, which Karsch considers near *Zora* and *Apostenus*, though Keyserling refers it to *Ctenus*, there is no mention of the spinulation of the legs. The eyes are in three parallel lines and the tarsal claws two. One cannot, without seeing the type, risk a guess as to its systematic position.

ACANTHEIS, Thor.

Diagnosis.—♂. Tarsal claws 2. Sternum circular. Eyes *ctenoid*, 2nd row procurved. Lower margin of fang-groove with 5 teeth. Carapace gibbous behind. Tibiæ i. and ii. with 9 pairs of long spines beneath; protarsi i. and ii. with 5 pairs of long spines beneath.

This diagnosis is drawn from an example, evidently congeneric with Thorell's forms, from Borneo.

Species described under Acanthoctenus, Thor.

1890. *Acanthoctenus variatus*, Thor. ♀ juv., 9¾ mm. Type of genus. Ann. Mus. Genov. ser. 2 a, vol. x. (xxx.) Sept. 4, 1890, p. 34. Bawo Lowalani, Nias (*Modigliani*).

"Tibiis anterioribus modo subter aculeatis, 9 paribus aculeorum ibi armatis, metatarsis anterioribus subter 5 paribus aculeorum munitis."

Measurements (sec. Thor.).—Tot. len. 9.75 mm., carap. 4¾, ant. marg. 1.5; legs i. 21.5, ii. 19.5, iii. 16.75, iv. 26.5; pat. + tib. iv. 8; prot. + tars. iv. 10.5.—("Cribello et

calamistro carent hæc aliæque species Indo-Malajanæ generis *Acanthocteni*, mihi, notæ.”)

One would scarcely hope to determine the identity of this species from a description taken from an immature female.

1891-92. *Acanthoctenus dimidiatus*, Thor. ♂ ad., $9\frac{3}{4}$ mm.

Ann. Mus. Genov. ser. 2 a, xi. (xxxi.) p. 142. Mt. Singalang, Sumatra (*Beccari*).

Measurements (sec. Thor.).—Tot. len. 9·75 mm., carap. $5\frac{1}{6}$, ant. marg. 1·75; legs i. 27·75, ii. 25, iii. 22·5, iv. $30\frac{3}{8}$; pat. + tib. iv. 9·75.

“Palpi longi, graciles, clava patellas anticas latitudine circiter æquanti. Pars patellaris $2\frac{1}{2}$ -3-plo longior est quam latior, pars tibialis eâ non parum longior et saltem basi paullo angustior, pæne cylindrata, a basi ad apicem sensim modo levissime incrassata; latus ejus exterius prope apicem in dentem conicum acuminatum anteriora versus et foras directum excurrit, cujus longitudo $\frac{1}{3}$ diametri partis tibialis vix superat.

“Pars tarsalis — circa triplo longior est quam latior. Bulbus parum plus dimidium basale partis tarsalis occupat. Breviter subellipticus est, modice altus et complicatus, in medio lateris exterioris, subter, elevationem nitidam sub-ovatam sat magnam ostendit, et prope eam, in medio subter, partem quandam ferrugineam, quæ, quam a latere exteriori inspicitur bulbus, postice dentem deorsum directum procurvum ibidem formare videtur, præterea vero in procursum gracilem porrectum apice profundo bifidum sive furcatum excurrit.

“Ceph. et abd. subfuscis, fascia media angusta alba ab oculis ad anum ducta ornatis, abdominis dorso præterea saltem posterius ordinibus duobus longitudinalibus macularum magnarum nigrarum notato.”

An adult male, obviously belonging to this genus, but specifically distinct from Thorell's species, is now before me from Borneo. One can well understand Thorell's supposition as to its being congeneric with *Acanthoctenus*, Keys., of which the type is before me.

1891-92. *Acanthoctenus letus*, Thor. ♂ ad., $10\frac{2}{3}$ mm.

Ann. Mus. Genov. ser. 2 a, xi. (xxxi.) p. 146. Sarawak, Borneo (*Doria e Beccari*).

Measurements.—Tot. len. $10\frac{2}{3}$ mm., carap. 5·5, ant. marg. 1·75; legs i. 32, ii. 28·25, iii. 24·5, iv. 36; pat. + tib. iv. 10·5.

“Palporum clava—pars eorum patellaris duplo et dimidio longior est quam latior; pars tibialis eâ saltem $\frac{1}{4}$ longior est,

a basi ad apicem sensim pallulo incrassata, pæne 4-plo longior quam latior; prope apicem lateris exterioris, supra, dente sat parvo sed forti, paullo deorsum curvato, anteriora versus et paullo foras directo armata est, cujus apex in duos dentes acuminatos est fissus.

"Pars tarsalis—pæne triplo longior quam latior, ad formam ut in *A. dimidiato*, modo apice paullo brevior. Bulbus a latere exteriori visus paullo ante medium subter rotundato excisus videtur, ita ut dentem deorsum et anteriora versus directum hic formet pars excisa, quæ supra, antice, in procursum sat brevem et latum, apice dilatatum, porrectum (non ut in priore specie profunde bifurcatum) producta est.

"Ceph. in fundo luteo-ferrugineo, pube densa flava et rubro tecto, itaque flavo, pictura rubra.

"Abdomine in fundo subtestaceo, secundum medium dorsi late flavo, pube flava, intermixta rubra, quæ maculas saltem ad partem in ordines duos longitudinales dispositos format, vestito." *

Species described under Nydia, Thor.

1891-92. *Nydia punctata*, Thor. ♀ juv., $6\frac{1}{2}$ mm. Ann. Mus. Genov. ser. 2 a, xi. (xxx.) p. 131. Sumatra (*Forbes*): e coll. O. P. C.

Dr. Thorell says of this, the type of a new genus, "unicam feminam nondum adultam, detritam et valde mutilatam (pedibus plerisque carentem) hujus aranæ vidi."

It is much to be deplored that an experienced arachnologist like Dr. Thorell should take a much mutilated specimen, an immature female, and one which has lost several legs, as the type of a new genus.

New Species of Ctenus.

I hesitate to attempt to draw up a synoptic table of species without more material to substantiate my conclusions as to specific differences. The form of the vulva is, however, the only really reliable character, and of this portion of structure a figure has been given.

Ctenus Thorellii, sp. n., ♂ ♀. (Pl. IV. figs. 2, 15, 27.)

Hab. Ceylon.

Type in coll. Brit. Mus. Nat. Hist. e coll. Keyserling.

♀. 22 mm.

♂.—*Colour.* Carapace mahogany-brown, with broad

* *Acantheis tridens*, F. Ch., Abhandl. d. Senckenb. naturf. Gesellsch. Bd. xxiii, 1897. Baram River, Borneo (*W. Kükenhal*).

central and marginal band of grey pubescence, the former constricted behind caput, attenuate behind central stria, extending from ocular area to posterior margin. Shoulders of posterior portion of carapace with triangular dark blotch on each side. Sternum, legs, and mandibles dark mahogany-brown. Legs clothed with grey pubescence. Abdomen grey, with shoulders, two fine dorsal basal lines, and double series of 3-4 spots sooty brown. Ventral surface sooty black, with two short central pale lines immediately behind the genital foramen, and two long pale lines, closer to the margins of the black area, extending from the genital foramen to the spinners.

Femora and tibiae of iii. and iv. with scarcely any indication of dusky annulations. Tibiae i. and ii., iii. and iv. uniformly grey, with conspicuous white bands.

♀.—*Colour*. The same as that of the male, except that the central band on carapace consists of rufous-grey pubescence.

♂.—*Structure*. Carapace distinctly gibbous behind and abruptly inclined to posterior margin. Sternum longer than broad. Labial plate more than half the length of maxilla, longer than broad. Maxillae attenuate at base, outer margin nearly straight or concave; apex broad, rounded on outside, obliquely truncate on inner side. Fang-groove with 4 and 3 denticles on inferior and superior margin respectively. Legs iv. longer than legs i. Carapace longer than patella + tibia iii. Pat. + tib. i. = iv. *Eyes*. Second row straight; straight line touching posterior margins of laterals passes through centre of centrals. Ocular quadrangle broader than long, narrower in front; anteriors much ($\frac{1}{3}$) smaller; posteriors less than 1 diameter apart; anteriors less than 1 diameter apart. Anterior laterals oval, nearly one diameter from posterior centrals (in female quite one diameter). Posterior laterals scarcely larger than anterior centrals. Clypeus less than one diameter of anterior centrals.

Legs. Femora i., ii., iii., iv. with 10-11 spines above. Patellae i., ii., iii., iv. with one spine on each side. Tibiae i. and ii. with 5 pairs of spines beneath (including apical pair); 1-1 lateral, basal, spines on each side; 1-1-1 dorsal spines. Protarsi i. and ii. with 3 pairs of spines beneath, 1-1 lateral basal spines on each side. Tibiae iii. and iv. with 3 pairs of spines beneath, 1-1 lateral, on each side, and 1-1-1 dorsal spines. Protarsus iii. with 3 pair spines beneath, 1-1-1 lateral, 1-1 dorsal spines; iv. with numerous spines irregularly arranged. Tarsi and protarsi i. and ii. slightly scopulate, iii. and iv. not scopulate. Tarsal claws 2.

Pedipalp. *Tibia* three times as long as broad (excluding width of process). On outer side at apex is a stout bifid spur, its outer limb shorter and sharply conical, the inner branch a little longer, dilate, and squarely truncate at apex. *Tarsus* two and a half times as long as broad, produced on outer side at base into a short, straight, compressed conical spur, its apex directed outwards. Area of palpal organs small, oval. Central lobe simple, curved, twice as long as broad, not produced at base. *Unca* stout, curving over the apex of central lobe, its apex grooved on outer surface. Beneath apex of *unca* lies a small pale membranous sheath, which is present in some form or other in numerous species.

♀.—*Structure.* Similar to that of the male, except that the carapace is less gibbous at base, the lateral anterior eyes are rather more removed from the central posteriors, and the spinulation of the legs is different. *Tibiæ* i. and ii. 5 pairs beneath; no laterals and none above. *Protarsi* i. and ii. with 3 pairs beneath; no laterals and none above. *Patellæ* i. and ii. without spines, iii. and iv. with one lateral spine on each side. *Tarsi* of all four pairs distinctly and thickly scopulate; *protarsi* i. and ii. only scopulate.

Tarsal claws 2.

Vulva a little longer than broad, globular ovate, convex and plane above (without central depression or furrow), with black coriaceous margins; on each side of lateral margins, just behind the centre, lies a small, stout, conical spur, curving upwards and backwards, its apex well separated from margin of vulva.

The species *Hosei*, *sarawakensis*, *borneensis*, and *ceylonensis* are all approximately similar to this form in general characters, so that there is no need for a tedious repetition of them. *Floweri* and *trabifer*, however, present characters in common which are somewhat different; while those of *denticulatus* are different in some respects from either of these two forms.

I strongly suspect that it was on a male of either *Floweri* or *trabifer* that L. Koch based his genus *Leptoctenus*, but am not yet in a position to give a reliable opinion. The presence of the scopula might easily be overlooked, and it seems by the figure that in Koch's *Leptoctenus* there are five pairs of subtibial spines. The form of the labium and maxillæ, of which Koch gives figures, precludes the idea that Simon's *L. denticulatus* is congeneric with it.

A male and female of this species, recorded from Ceylon, were found in the Keyserling collection in the Natural History Museum, South Kensington.

Ctenus Hosei, sp. n.

(Pl. IV. figs. 11, 17, 20, 28-30.)

Measurements.—♂. Tot. len. 17 mm., carap. 9.5; legs i. 34, ii. 30, iii. 25, iv. absent; ant. marg. of carap. 3.75; pat. + tib. i. 12, iii. 8.

♀. Tot. len. 22 mm., carap. 10; legs i. 29, ii. 27, iii. 23.5, iv. 33.5; ant. marg. of carap. 5; pat. + tib. i. 10, iii. 8, iv. 9.75.

♂.—*Colour*. Carapace mahogany-brown, with broad central band of silvery-grey pubescence, with a pair of obscure dark spots behind eyes and attenuate at base of carapace. Marginal grey band broad. Abdomen with double dorsal series of obscure dark spots, or with broad pale dentated band, the marginal interstices picked out with black. Dark brown beneath, with two more or less distinct white lines and two shorter ones immediately behind vulva. Legspaler mahogany-brown, very indistinctly annulated beneath femora. Apical half of tibiæ of all four pairs of legs (iv. absent?) clothed with silvery pubescence. Coxæ of legs clothed with silvery-grey pubescence above.

♀.—*Colour* similar to that of the male, but no silvery-white pubescence on tibiæ or carapace. Pubescence rufous grey.

♂.—*Structure*. Carapace gibbous behind, abruptly inclined to base. In other respects similar to that of *C. Thorellii*.

♀.—*Structure*. Carapace horizontal above, abruptly inclined to base. Otherwise similar to that of *C. Thorellii*.

Pedipalp. Tibia one third longer than broad, with a short, broad, curved, dark apophysis on outer side, squarely but irregularly truncate at apex. Tarsus short and very broad, produced at base above into a stout pointed cone, terminating in a thin aculeate spur, strongly curved, directed outwards.

Palpal organs broad, simple. Central lobe small, produced on inner side at base; beyond its apex are two short spurs, lying close together, their points directed outwards.

Vulva as broad as long, convex; a black corneous margin encloses a transverse oval paler space, including a low convex tubercle on each side, and converges behind, forming a narrow transverse plate curving downwards. On each side of this plate is a corneous dentiform process, its point directed inwards.

Two females and a male of this large and handsome *Ctenus* were taken at Sarawak by Mr. C. H. Hose, while a male was also taken in Borneo by Dr. Kükenthal. This species, though larger, closely resembles in general appear-

ance several other species from the same regions. The figure of the vulva and pedipalp should, however, render the identification of either sex comparatively easy.

Ctenus sarawakensis, sp. n., ♀.
(Pl. IV. fig. 3.)

Hab. Sarawak, Borneo.

Types in coll. Brit. Mus. Nat. Hist. (e coll. Hose).

♀. Tot. len. 15.5 mm., carap. 7; legs i. 21, ii. 19, iii. 17, iv. 24; ant. marg. of carap. 3; pat. + tib. i. 7.5, iii. 5, iv. 7.

Colour similar to that of *Hosei*. Pubescence of abdomen copper-coloured, with traces of dorsal and ventral blotches as in the other species.

Structure. Spines and general characters similar to those of *Thorellii*. Carapace slightly gibbous behind and abruptly inclined to base.

Vulva longer than broad, disk broadly transverse and uniformly convex, narrowed before and behind, with a wedge-shaped raised carina anteriorly. Margins of disk black and coriaceous. On each side of the posterior margin lies a long sinuous dentate process, their apex extending distinctly beyond the posterior margin of disk and slightly converging.

Though scarcely distinguishable in general characters, except for their smaller size, from *Hosei*, *Thorellii*, and others, the form of the vulva furnishes evidence that they are distinct from these other forms.

Three females, taken by Mr. Hose at Sarawak, Borneo.

Ctenus ceylonensis, sp. n., ♂ ♀.
(Pl. IV. figs. 12, 26.)

Hab. Ceylon.

Type in coll. Brit. Mus. Nat. Hist. (e coll. Barnes).

♂. Tot. len. 13 mm., carap. 6.5; legs i. 26, ii. 24, iii. 20, iv. 28; ant. marg. of carap. 3; pat. + tib. i. 9, iii. 6.25, iv. 8.5.

♀. Tot. len. 18 mm., carap. 7.25; ant. marg. of carap. 3.5; legs i. 21.5, ii. 20, iii. 18, iv. 24; pat. + tib. i. 7, iii. 5.5, iv. 7.

♂.—*Structure.* Spines and general characters as in *Thorellii*. Carapace gibbous behind, abruptly inclined to base. Eyes: second row *straight by centres*; ocular quadrangle broader than long, narrower in front; post. centrals one half larger than ant. centrals, two thirds a diameter apart, distant from lat. ant. half a diameter of the latter; ant. centrals half a diameter apart, one diameter from anterior margin of clypeus.

Pedipalp. *Tibia* four times longer than wide, furnished on outside at apex with a pair of excentrically curving spines or slender spurs; the lower compressed, sinuous, bordered, spirali-form, its apex aculeate, directed upwards; the upper spur very slender, but broadly dilate at base, its inner basal margin irregularly denticulate or serrate, curving upwards, semi-circular, attenuate towards apex, slightly sinuous immediately before apex, which is dilate beneath and curved strongly downwards. *Tarsus* one half longer than broad, bulb small, central lobe four times longer than broad, recurved beneath at anterior margin; a short curved spur represents the unca.

Colour similar to that of female.

♀.—*Structure.* Spines and general characters similar to those of *Thorellii*. *Eyes* similar to those in the male.

Colour. Carapace dark olive-brown, with broad paler central band, irregularly dilate on caput and before central stria, narrowed to basal margin. Legs i., ii., and iii. olive-brown, freckled with spots of grey pubescence; iv. olive-brown, with pale narrow dorsal line on tib. and prot. iv. (In the male all four pairs of legs are clothed with pale grey pubescence.)

Abdomen pale olive-brown, with central series of four (or five) paler chevron-like marks, each interstice picked out with black. Sides marked with oblique lines of pale spots. Ventral surface covered with four conspicuous rows of white spots and a pair of short central lines, becoming obsolete before spinners.

Vulva consisting of an elongate convex process, emarginate on each side and clothed with hairs, presenting posteriorly a cross piece whose ends curve slightly forwards. In front of each arm, in the angle formed by the junction of the two limbs of this J-shaped structure, lies a stout curved denticle, its point directed upwards. The right side in the female before me is malformed, so that the vulva is not bilaterally symmetrical.

This species differs from the Bornean forms and from *Thorellii* by the closer proximity of the lateral anterior eyes to the posterior centrals and the fact that the second row of eyes is straight by their centres. Otherwise there is little to choose between them in general character.

That this form is closely allied to *C. trabifer* of Karsch (which has nothing to do with *trabifer*, Thorell, judging by examples of the latter identified by Thorell) is beyond doubt. I fully expect them to be identical; but without seeing Karsch's type, and in the face of Karsch's figure of the vulva,

I dare not pronounce them to be so. Both forms occur in the island of Tabrobane. The vulva differs in form from those of all other *Ctenidæ* which I have yet met with.

A male and a female of this interesting species were taken by Mr. Barnes in Ceylon*.

Ctenus Floweri, sp. n., ♂ ♀.
(Pl. IV. figs. 22-25.)

Hab. Pinang.

Type in coll. Brit. Mus. Nat. Hist. (coll. S. S. Flower).

♂. Tot. len. 15.5 mm., carap. 8, ant. marg. of carap. 3; legs i. 24.5, ii. 22.5, iii. 20, iv. 28; pat. + tib. i. 8, iii. 6, iv. 8.

♀. Tot. len. 17 mm., carap. 8.5, ant. marg. of carap. 4.5; legs i. 21, ii. 20, iii. 19, iv. 26; pat. + tib. i. 7.5, iii. 5.75, iv. 7.5.

♂.—*Colour.* Mahogany-brown. Carapace with broad central band of silver-white pubescence, slightly dilate behind caput and at central stria. Marginal line of white pubescence very fine. Abdomen with broad central dorsal band of white pubescence, deeply dentate on each side behind the middle, narrowing to spinners. Ventral surface unicolorous dark brown. Lateral area with a few scattered minute white spots.

Legs paler brown, indistinctly annulate with grey. Coxæ clothed with white pubescence above. Tibiæ i. and ii. clothed above on apical two thirds with very conspicuous white pubescence, less conspicuous on iii. and iv.

♂.—*Structure.* General characters similar to those of *Thorellii* and the female (see below). Carapace convex-horizontal above, not gibbous behind.

Pedipalp. *Tibia* short, twice as long as broad (excluding process), bearing on outer side a broad process whose base extends the whole length of the segment, concave beneath, narrowed and curving forwards at apex, terminating in a broad point having a minute notch on the outer side. Seen from the outside the apex appears rounded and convex.

Tarsus scarcely twice as long as broad. Palpal organs large, occupying total width and three fourths the length of tarsus. Central lobe very long, nearly four times as long as broad, straight, compressed-cylindrical, attenuate in middle, broader and broadly rounded at apex, slightly inclining outwards. *Unca* small, crossing beneath apex of central lobe.

* Half a dozen males and the same number of females of this species have just come before me from Ceylon. They were kindly submitted to me by the Rev. O. P. Cambridge, and were taken many years ago by Mr. Thwaites.

♀.—*Colour*. Similar to that of male, but pubescence rufous grey, not silvery white. Legs annulated and freckled with grey spots; tibiae without conspicuous silver-grey bands. Ventral area unicolorous.

Structure. General characters similar to those of *Thorellii* ♀. Eyes: second row straight by anterior margins. Central posteriors $\frac{1}{3}$ of a diameter apart, the same distance from lateral anteriors. Ocular quadrangle broader behind, broader than long; anterior centrals $\frac{1}{3}$ smaller than posterior centrals, $\frac{1}{2}$ diameter apart, $\frac{1}{2}$ diameter from anterior margin of clypeus.

Carapace uniformly convex-horizontal in profile.

Vulva longer than broad, with narrow longitudinal central area, broadly dilate posteriorly, again narrowed and broadly truncate, curving below, clothed with short hairs. Margins coriaceous, black, dilate just before middle, emarginate and slightly dilate again, attenuate and disappearing beneath posterior portion of central area. On each side of posterior margin lies a stout denticle, its apex extending slightly beyond posterior margin of central area.

A male and female of this fine species were taken by S. S. Flower, Esq., in the island of Pinang. It resembles *Hosei* in the male sex by the conspicuous white bands on tibiae i. and ii., but the anterior legs are shorter and protarsus i. is scarcely shorter than tibia i.; in *Hosei* it is much shorter.

Ctenus philippinensis, sp. n., ♀. (Pl. IV. fig. 1.)

Type in coll. Brit. Mus. Nat. Hist., London.

Hab. Manila, Luzon, Philippine Islands (coll. Cuming).

♀. Tot. len. 20 mm., carap. 9, ant. marg. 4; pat.+tib. i. 9, iii. 6.75, iv. 8.5.

Structure. Ocular quadrangle broader than long, broader behind; posterior eyes slightly larger than anterior, $\frac{2}{3}$ of a diameter apart; second row procurved; straight line touching anterior margin of posterior centrals cuts centres of lateral anteriors, the latter one transverse diameter from posterior centrals. Carapace convex-horizontal, not gibbous behind, obliquely inclined to base. Spinulation similar to that of others of the genus. Pat. i. and ii. without lateral spines.

Colour. Carapace mahogany-brown, clothed uniformly with golden-red pubescence; no distinct central or marginal bands. Abdomen unicolorous ferruginous.

Vulva consists of a long, transversely rugulose, narrow central prominence at base, having on each side extending posteriorly a long, oval, convex tubercle, united behind by a broad triangular plane piece. On each side of this posterior

marginal portion lies a short, rather slender tooth, its apex directed inwards (Pl. IV. fig. 1).

A single female from the Museum collection, taken by Dr. Cuming at Manila, Philippines.

(iv.) *Genera and Species of 3-clawed Forms, with Notes on Types and Descriptions of New Species.*

1858-59. *Dolomedes*, Walck., Dolesch. Verhand. nat. Ver. Ned. Ind. v. p. 9.

1884. *Titurius*, Sim. Ann. Mus. Genov. xx. p. 328. (Type *T. fimbriatus* (Walck.), ♀.—Cape of Good Hope, S. Africa.)

1885. *Thalassius*, Sim. Bull. Soc. Zool. Fr. p. 13. (For *Titurius*, nom. præocc.)

1891. *Dolopæus*, Thor. Kongl. Sv. Vet.-Akad. Handl. xxiv. (2) p. 60. (Type *D. cinctus*, Thor., ♀.—Isl. Kamorta, Nicobar, Bay of Bengal.)

Of the type of *Thalassius*, Sim., I know nothing, but I have been able to examine a specimen from South Africa (Umfali River) which undoubtedly belongs to this genus. The type of a species named *Thalassius unicolor* by Simon himself, from Sheik Husein, is also before me, so that one can speak without hesitation on the characters of *Thalassius*, Sim.

The species described below as *Doleschallii* and *Simoni* from Borneo are undoubtedly congeneric with *Thalassius unicolor*, Sim. Three immature forms from Tenasserim and Tharrawaddy, Burmah (c coll. Oates), referred by Thorell to *Thalassius albocinctus* (Doles.), are identical with the form to which I have given the name *Doleschallii*. I cannot regard it at present as possible to tell what form Doleschall's *albocinctus* may have been. It is not at all likely that there is only one form with broad yellow-white bands found in Java, Borneo, and Burmah. I should fully expect four or five closely allied forms to be found on a more extended search. Then it might be possible to identify *albocinctus* as that form which is found in Java exclusively, though even then there might be in this island itself two or three forms similar in general characters, differing only in the form of the vulva; and in this case the identity of *albocinctus* would be next to impossible to settle. I am confident that the absence of figures of these important structural points will in future render a great deal of descriptive work almost useless.

In the form described as *T. Simoni* the anterior central eyes are distinctly larger than the posterior centrals, and the clypeus is lower in proportion; but none the less I am

satisfied that one cannot restore Thorell's genus *Dolopæus* for the Eastern Asiatic forms, as I had at first hoped. Thorell himself regards *Dolopæus* as a synonym of *Thalassius*.

Genus THALASSIUS, E. Sim., 1885.

Diagnosis.—Legs 4, 2, 1, 3, or 4 (2, 1) 3. Tarsal claws 3. Superiors long, armed beneath with 9 long denticles, inferior claw with one or two minute teeth. Sternum as broad as long, circular, emarginate opposite coxæ and pointed behind. Labium longer than broad, more than half the length of maxillæ. Maxillæ attenuate at base, enlarged at apex. Lower margin of fang-groove with 3 stout teeth, superior margin with 2. A single small tooth lies on the floor of the fang-groove near lower margin nearly opposite the third tooth. Eyes in three rows (or four if one separates those of the posterior row)—2, 2, 4. Ocular quadrangle as broad as long or slightly longer than broad, broader in front, narrower behind. Anterior centrals larger (one fourth) than posterior centrals or subequal, half a diameter apart; posterior centrals $\frac{3}{4}$ diameter apart. Lateral anteriors smaller (half) than anterior centrals, $\frac{2}{3}$ a diameter from the latter, rather more from posterior centrals, 1 diameter from posterior laterals. Eyes of posterior row subequal; centrals nearer together, forming a slightly recurving line. Lateral posteriors 1 diameter from central posteriors. Clypeus equal to length of ocular quadrangle, sometimes more. Femora with numerous spines. Patellæ i., ii., iii., iv. with two lateral basal and one central apical spine. Tibiæ i. and ii. with 2—2—2—2 spines beneath, last pair apical; 1—1 lateral spines on each side in apical half, 1—1 dorsal spines basal and apical. Protarsi i. and ii. 2—2—2—2 ventral and 1 central apical spine, 2—2 lateral spines in basal half. Tibiæ and protarsi iii. and iv. somewhat similarly but more irregularly spinulate.

No true scopula beneath protarsi or tarsi, but a band of setæ and fine short hairs mingled.

A single palpal claw with 3—4 short blunt denticles.

Thalassius Simoni, sp. n., ♀ ad.
(Pl. IV. figs. 18, 21.)

Type in coll. Brit. Mus. Nat. Hist.

Hab. Borneo.

♀ ad.—Tot. len. 23 mm., carap. 10.5×8.75 ; legs i. 56, ii. 58.5, iii. 53, iv. 60; pat. + tib. i. and ii. equal 19.5, iii. 17, iv. 19.5; prot. i. and ii. 12.5, iii. 12.5, iv. 15.5.

♀.—*Colour*. Carapace dull mahogany-brown, with broad lateral marginal pale band, their inner margins subparallel, extending from exterior angles of clypeus to the base. Abdomen dark olive-brown above, with broad marginal pale yellow band extending from anterior shoulders to spinners. Unicolorous beneath. Mandibles unicolorous brown. Legs and palpi pale ochreous. Tibiæ, protarsi, and tarsi clothed with fine lateral barbules (curving hairs, such as are found on the feathers of young birds). Protarsi and tarsi clothed with dull yellow-white pubescence above, more conspicuous than on other segments.

Structure as in generic diagnosis.

Vulva broader than long (Pl. IV. fig. 18).

A single female in the Natural History Museum from Borneo.

Thalassius Doleschallii, sp. n., ♀ ad.
(Pl. IV. fig. 19.)

Type in coll. Brit. Mus. Nat. Hist.

Hab. Borneo.

♀ ad.—Tot. len. 20·5 mm., carap. 7·5×6·5; legs i. 40, ii. 40, iii. 36·5, iv. 41·5; pat.+tib. i. and ii. 13, iii. 11·5, iv. 13·5; prot. i. and ii. 8·5, iii. 8, iv. 9·75.

♀.—*Colour* precisely the same as in the last species, but the colour of the dorsal area between the white lateral bands is rich chocolate-brown and the legs are shorter in proportion to the trunk.

Structure as in generic diagnosis.

Vulva longer than broad (Pl. IV. fig. 19).

A single female in the Natural History Museum from Borneo.

The two species may be determined by the following table:—

- | | |
|---|---------------------------------|
| A. Size larger, 23 mm., carapace 10·5, leg iv. 60.
Central anterior eyes distinctly larger than central posteriors. Vulva broader than long.
Basal disk oval-oblong, with transverse fold near posterior margin | <i>T. Simoni</i> , sp. n. |
| B. Size smaller, 20·5 mm., carapace 7·5, leg iv. 41·5.
Central anterior eyes equal to central posteriors. Vulva longer than broad. Basal disk triangular, without any transverse fold | <i>T. Doleschallii</i> , sp. n. |

Species assigned to Thalassius, Sim.

1885. *Thalassius marginellus*, Sim. Spec. juv. Bull. Soc. Zool. Fr. x. p. 13.

M. Simon notes an immature example of the genus *Thalas-*

sius, probably different from *T. marginellus*, Sim., found at Wagra-Karoor, Bellary, India.

1893. *Thalassius spathularis* (van Hass.), Sim. Ann. Mus. Gen. 1893, p. 327.

Of this genus Simon says (*loc. cit.*):—"Il est remplacé dans l'Amérique du sud par le genre *Ancylometes*, Bertk." (Type *vulpes*, Bertk.)

1895. *Thalassius albocinctus* (Dol.), Thor. ♀ s juv. Tenasserim ('Spiders of Burma,' p. 227) and Tharrawaddy (*Oates*).

Legs i. 42 mm., ii. 44, iii. 38, iv. 43; pat. + tib. iv. 15.

"Gen. *Dolopæus*, Thor., non a *Thalassio* differt" (Spid. Burm. p. 228).

Thorell regards *Titurius marginellus*, Sim., as a synonym of this species.

Species described under Titurius, Sim.

1884. *Titurius marginellus*, Sim. ♂ juv., ♀ juv., 16 mm. Ann. Mus. Genov. xx. p. 328. Bangkok, Indo-China, ♀; Burmah, ♂.

"Cephalothorax—vittis duabus albo argenteis angustis rectis a margine sat longe remotis ornatus. Abdomen—vittis albis duabus longitudinaliter marginatum."

There can be no real certainty as to the identity of this form, seeing that the species is based on an immature female.

Species described under Dolopæus, Thor.

1891. *Dolopæus cinctus*, Thor. ♀ ad., 16½ mm. Kongl. Sv. Vet.-Akad. Handl. xxiv. (2) p. 60. Kamorta, Nicobar Islands, Bay of Bengal.

"Ceph. ferrugineo-fusco, fascia lata alba in lateribus cincto; pedibus pallide testaceo-fuscis; abdomine secundum medium dorsi latissime cinereo-fusco vel ferrugineo, lateribus etiam dorsi albis."

Tot. len. 16.5 mm., carap. 7.75 × 6.75, ant. marg. 3.25; abd. 9 × 5; legs i. 36, ii. 36.25, iii. 32, iv. 37.25; pat. + tib. iv. 12.5.

"Area vulvæ sat magna, ex callis duobus nitidis fuscis, postice crassis et hic parallelis et inter se contingentibus, dein sensim angustioribus et humilioribus constat, qui paullo ante basin cito foras fracti et divaricantes sunt, præterea vero incurvi et foveam magnam sat profundam, rotundatam et transversam includentes.

"Tib. i. 2.2.2 aculei longi et præterea apice 2, breves absunt

antice et postice 1.1 aculei, supra aculeus 1. Met. ant. 2.2.2.2 (apicales duos breves) et utrinque 1.1 aculeos ostendunt. Unguiculi superiores dentibus (7-8) sat longis pectinati, &c.

"Oculi medii pæne in quadratum vel in rectangulum parum longiorem quam latiore dispositi sunt; spatia inter medios anticos, ut inter medios posticos, eorum diametrum paullo superant. Spatia inter medios anticos et posticos horum diametrum pæne æquant, etc.

"Mandibularum sulcus unguicularis in margine inferiore serie dentium fortium 3 armatus."

Legs iv., ii., i., iii.

"Arca oculorum pæne lunata [both series recurved]. Oculi laterales antici reliquis oculis magnis multo minores sed, ut ii, rotundi, non multo longius ab oculis mediis posticis quam a mediis anticis distant. Oculi medii fere in quadratum dispositi sunt.

"Sternum non longius quam latius.

"Spatium inter marginem clypei et oculos medios anticos horum oculorum diametro plus duplo, pæne triplo majus est.

"Oculi laterales postici magni, mediis posticis (qui mediis anticis paululo minores sunt) non parum majores."

This form is undoubtedly congeneric with *Thalassius unicolor*, Sim., and, so far as one can gather from the description of the vulva, it is distinct from *T. Doleschallii*, sp. n.

Species described under Dolomedes, Latr., 1804.

1858-59. *Dolomedes albocinctus*, Doles. ♀, 11'''. Verhandlungen der nat. Ver. Ned. Indie, v. p. 9, pl. xv. fig. 4. Java.

"Fuscus, thorace abdomineque late albo marginatis, hoc ovato-elongato; pedibus pallide testaceis, nigro setosis. Long. 11'''."

1882. *Dolomedes spatularis*, van Hass. Midden Sumatra, Arach. p. 44.

Having no species of these groups from any countries south and east of Wallace's Line, I regret that I am unable to give more than a list of forms already described from those regions.

(v.) *Bibliography relating to Uteniform Spiders from New Guinea, Australia, New Zealand, &c., South and East of Wallace's Line.*

1847.—WALCKENAER. Insectes: Aptères, t. iv. p. 402, Suppl.

1875.—L. KOCH. Arach. Austr. ii. p. 990, &c.

1878.—KARSCH. Gieb. Zeitschrift Natur. iii. p. 825.

- 1880.—EUGÈNE SIMON. Bull. Soc. Ent. Belg. p. clxiv.
 1881.—EUGÈNE SIMON. Bull. Soc. Zool. Fr. p. 13, &c.
 1881.—T. THORELL. Ann. Mus. Genov. xviii. p. 386, &c.
 1889.—A. R. URQUHART. Trans. New Zealand Inst. xxii. p. 237, &c.
 1889.—ZOZEN. Trans. New Zealand Inst. xxii. p. 267.
 1890.—T. THORELL. Ann. Mus. Genov. p. 133, &c.
 1890.—A. R. URQUHART. Trans. New Zealand Inst. xxiii. p. 183.
 1891-92.—T. THORELL. Ann. Mus. Genov. xxxi.

List of Cteniform Spiders from Australia, South and East of Wallace's Line.

i. *Two-clawed Forms :*

1847. *Ctenus marginatus*, Wlk. ♀, 9 lines. Ins. Apt. iv. p. 402, Suppl.
 —Solomon Islands.
 1875. *Leptoctenus agalenooides*, L. K. ♂. Arach. Austr. ii. p. 994, t. lxxxvi.
 1, 1 a.—Gayndah, Australia.
 1881. *Leptoctenus agræcooides*, Thor. ♀ ad., 7 mm. Ann. Mus. Genov.
 xviii. p. 386.—Cape York, Australia.
 1875. *Argoctenus igneus*, L. K. ♀. Arach. Austr. ii. p. 990, t. lxxxvi.
 4, 4 a.—King George's Sound, Australia.
 1875. *Argoctenus pictus*, L. K. Arach. Austr. ii. p. 992, t. lxxxvi. 5, 5 a,
 5 b, 5 c.—Sydney, Australia.
 1878. *Enygma australiana*, Karsch, Zeit. ges. Natur. iii. (3) p. 825.—
 N. S. Wales.
 1880. *Ctenophthalmus lineatus*, Sim. Ann. Soc. Ent. Belg. Bull. p. clxiv.
 —Noumea, New Caledonia.
 1891. *Ctenomma*, Thor. Ann. Mus. Genov. vol. xi. p. 131.

ii. *Three-clawed Forms :*

- 1878? *Cycloctenus flaviceps*, L. K. ♀. Arach. Austr. ii. p. 938, t. lxxxvi.
 3.—New Holland.
 1889. *Cycloctenus abyssinus*, Urq. Trans. New Zealand Inst. xxii. p. 237,
 pl. xvi. 1.—Janola Caves, N. S. Wales.
 1889. *Cycloctenus lepidus*, Urq. Trans. New Zealand Inst. xxii. p. 261,
 pl. xvi.—Wellington, New Zealand.
 1889. *Cycloctenus fujax*, Zozen, Trans. New Zealand Inst. xxii. p. 267.—
 New Zealand.
 1890. *Cycloctenus pulcher*, Urq. Trans. New Zealand Inst. xxiii. p. 183.—
 New Zealand.
 1875. *Pycnoctenus robustus*, L. K. ♀. Arach. Austr. ii. p. 996, t. lxxxvii.
 2.—Sydney.

EXPLANATION OF PLATE IV.

- Fig. 1. *Ctenus philippinensis*, sp. n. ♀. Vulva.
 Fig. 2. — *Thorellii*, sp. n. ♂. Left palpus from beneath
 Fig. 3. — *sarawakensis*, sp. n. ♀. Vulva.
 Fig. 4. — *denticulatus*, Sim. ♂. Palpal bulb from below.
 Fig. 5. — —. ♂. Tibia of right pedipalp from outside.
 Fig. 6. — —. ♂. Apex of tibia enlarged.
 Fig. 7. — —. ♂. Eyes from in front.
 Fig. 8. — —. ♀. Vulva.
 Fig. 9. — —. ♀. Maxillæ and labium.
 Fig. 10. — *sarawakensis*, var. ♀. Vulva.

- Fig. 11. *Ctenus Hosei*, sp. n. Vulva.
 Fig. 12. — *ceylonensis*, sp. n. ♀. Vulva.
 Fig. 13. — *trabifer*, Thor. (Karsch). ♀. Vulva, after Karsch.
 Fig. 14. — —, Thor. ♀. Vulva, from type.
 Fig. 15. — *Thorellii*, sp. n. ♀. Vulva.
 Fig. 16. — *valvularis*, van Hass. ♀. Vulva, after van Hasselt.
 Fig. 17. — *Hosei*, sp. n. ♀. Vulva, var.
 Fig. 18. *Thalassius Simoni*, sp. n. ♀. Vulva.
 Fig. 19. — *Doleschallii*, sp. n. ♀. Vulva.
 Fig. 20. *Ctenus Hosei*, sp. n. ♀. Vulva, var.
 Fig. 21. *Thalassius Simoni*, sp. n. ♀. Tarsal claws.
 Fig. 22. *Ctenus Floweri*, sp. n. ♂. Tibia of left palpus from outside.
 Fig. 23. — —, ♀. Vulva.
 Fig. 24. — —, ♂. Tibia of left palpus from beneath.
 Fig. 25. — —, ♂. Palpal bulb and organs from beneath.
 Fig. 26. — *ceylonensis*, sp. n. ♂. Palpal bulb and apex of tibia of left palpus from beneath.
 Fig. 27. — *Thorellii*, sp. n. ♂. Left palpal bulb from beneath.
 Fig. 28. — *Hosei*, sp. n. ♂. Left palpal bulb from below. *b.* Apex of basal dorsal spur.
 Fig. 29. — —. Left palpus from outside, showing base of tarsus and dorsal basal spur.
 Fig. 30. — —. Tibia of pedipalp from beneath and base of tarsus, with dorsal basal spur.

XXXVIII.—*On new Species of Histeridæ, and Notices of others.* By G. LEWIS, F.L.S.

List of Species.

<i>Apobletes servulus.</i>	<i>Anaglymma impar</i> , Mars.
<i>Platysoma extrarium.</i>	<i>Trypeticus planisternus.</i>
<i>Pachycærus morulus.</i>	— <i>incilis.</i>
<i>Hister Colensoi.</i>	— <i>mustelinus.</i>
— <i>planiformis.</i>	<i>Pygocælis africanus</i> , Lew.
<i>Stictostix mormoni.</i>	<i>Trypobius</i> , spp.
<i>Phelister hilarulus.</i>	

Apobletes servulus, sp. n.

Oblongus, leviter convexus, rufo-brunneus, nitidus; fronte dense punctata, stria integra, antice impressa; elytris striis 1-4 integris, 5 basi abbreviata, suturali apicali dimidiata, humerali interna integris, interstitiis punctulatis; pygidio punctato, margine extus elevato.

L. 3 mill.

Oblong, slightly convex, reddish brown, shining; the head anteriorly impressed and angularly projecting before the eyes, densely punctured, punctures irregular, some (especially on the vertex) large and ocellate, but mixed with small