

DESCRIPTIONS OF SOME NEW SPECIES OF SPIDERS FROM BRITISH INDIA.

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THE descriptions contained in the following pages are based to a large extent upon materials kindly forwarded to me through Messrs. H. M. Phipson and R. C. Wroughton, by various members of the Indian Forest Service and of the Bombay Natural History Society. The descriptions were drawn up for publication in a volume upon the *Arachnida* of India, forming part of the Fauna of India Series. But, unfortunately, exigencies of space compelled me to omit them from the volume, together with the diagnoses of many previously established species.

I hope at some future time to be allowed to publish in this Journal illustrations of the essential characters of the species here described.

Family ARGIOPIDÆ.

Tetragnatha cœlestis, sp. n.

Colour of carapace and limbs yellowish-brown, sternum infusate; abdomen with the dorsal area ashy yellow above, bordered with black; a broad sinuous superior lateral white band on each side; median ventral line black with a pale band at the sides.

Head much shorter than in *T. mandibulata*; *eyes* of posterior line slightly recurved, subequal, subequally spaced; of anterior line strongly recurved, the laterals separated from the posterior lateral by about the diameter of the latter; median quadrangle about as wide as long, a little narrowed in front. Basal segment of *mandible* about as long as carapace, lower border of fang-groove armed with 9 teeth, one close to the fang-socket, one some little distance behind it, and a row of 6 close set; there is in addition 1 largish tooth projecting downwards and inwards beneath the base of the fang; upper edge of groove armed with a row of 7 close set teeth and 1 larger tooth close to the fang-socket, also 1 small tooth above close to the joint of the fang; fang bent at right angles in its basal portion, armed externally on the angle with a single forwardly directed tooth, the rest of the fang unarmed but slightly sinuous. *Abdomen* abruptly narrowed behind the middle, the posterior half cylindrical, genital aperture only a short distance behind the pulmonary opercula.

Measurements in millimetres.—Total length 11 ; length of carapace 3·3, width 2 ; length of abdomen 8, width 3 ; length of basal segment of mandible 3.

Loc. Shillong in Assam (*Heaven*).

Tetragnatha paradisea, sp. n.

♀. *Carapace* with a broad median fuscous band covering the cephalic area and the median dorsal area of the thoracic portion ; yellow at the sides but with a narrow black rim, legs obscurely banded ; abdomen covered above with a wide dark and black-bordered but mesially paler band, sides with broad white upper stripe and a corresponding black stripe below, lower surface black along the middle line, pale at the sides.

Carapace with cephalic region shorter than in *T. mandibulata* ; eyes almost as in that species. *Mandibles* about as long as carapace, their armature almost as in *T. gracilis*, except that there is a small tooth projecting beneath the base of the fang ; fang strongly sinuous as in *T. mandibulata*, when viewed from the outer side, armed basally beneath with a strong tooth.

Abdomen not so long, a little more than twice as long as broad, broadest in the middle and narrowing forwards and behind, genital aperture about one-third of the distance from the anterior end.

Measurements in millimetres.—Total length 9 ; carapace 4 ; length of abdomen 7, width 2·5 ; basal segment of mandible about 3.

Loc. Shillong in Assam (*Heaven*).

Genus ORSINOME, Thorell.

Orsinome marmorea, sp. n.

♀. *Colour* of sides of thoracic and cephalic portion of carapace yellow, middle line and margin as well as the entire upper surface of the head black or deep brown ; mandibles yellowish-brown ; sternum and mouth parts black, palpi yellow, apically black ; coxæ of legs yellow ; femora pale at base, infuscate distally with subapical yellow ring ; basal half of patella yellow ; tibiæ coloured like femora ; upper surface of abdomen grey with small white spots, the grey area divided by a median lanceolate dark line and bordered with a broad black band which extends on to the sides and is broken up by pale stripes and spots ; ventral surface black with a pair of narrow white bands extending from the pulmonary opercula to the spinning mammillæ.

Carapace about half the length of the anterior tibia and about equal to that of the fourth leg; *eyes* of posterior line nearly straight, medians about a diameter apart and at least a diameter and a half from the laterals; ocular quadrangle square; eyes of anterior line straight when viewed from the front, the medians about a diameter from the laterals, less than that from each other. *Legs* strongly spiny; the first about eight times as long as the carapace. *Abdomen* about twice as long as wide, convex above, rounded in front; obtusely angular above the spinners. *Vulva* consisting of a smooth shining heart-shaped sclerite, the apex of which is directed posteriorly.

♂. About as large as the ♀ which it resembles in colour. *Mandibles* longer, divergent, upper margin of fang-groove armed with a distal and a basal tooth with some smaller granuliform teeth between them; lower margin armed with 5 subequally spaced teeth, of which the basal is large and quadrate: fang strong, sinuous but not toothed. *Palpi* with short patella, this segment only about twice as long as broad and about one-third shorter than the tibia; the two together scarcely as long as the tarsus and palpal organ, the spiniform process of the tarsus short, curved; tip of organ ending in a short slender black spine.

Measurements in millimetres.—♀. Total length 10.5; length of carapace 4; of first leg 31. ♂. Total length 10; length of carapace 4.5, of first leg 39.

Loc. S. India: Ootacamund (G. F. Hampson), and Ponmudi in Travancore (H. Ferguson).

The genus *Orsinome* is allied to *Argyroëpeira*, but has no serially arranged bristles on the femora of the posterior legs. It ranges as far to the east as Celebes, but has not been previously recorded from India.

Orsinome armata, sp. n.

♂. *Colour* like that of *O. marmorea*, but legs yellower with black spots at the bases of the spines, upper side of abdomen blackish with a median posteriorly lanceolate white mark which gives off a pair of short branches on each side, sides of upper surface and upper portion of lateral surface with a chalky yellow stripe ornamental with red spots. *Eyes* very much as in *O. marmorea*, but the anterior medians not larger than posterior medians and about two diameters from the laterals. *Mandibles* with external prominence above the base of the fang; fang-groove armed above in front with 3 teeth and below (behind) with 4, fang shorter than in *O. marmorea*, bent nearly at right-angles

in its basal half, sinuous, with its lower edge finely serrulate. *Palpi* with trochanter shorter than in *O. marmorea* and armed inferiorly at the apex with a strong spike, femur long, nearly straight, patella very short, scarcely longer than wide; tibia long, slender, straight, about two-thirds the length of the femur, lightly incrassate, nearly or quite four times as long as patella, palpus a little shorter than tibia, much less inflated than in *O. marmorea*, and with its upper spiniform process reduced to a more pointed tubercle.

Measurements in millimetres.—Total length 7; length of carapace 3, of first leg 24.

Loc. Shillong in Assam (*Heaven*).

The males of the two Indian species of this genus may be recognised as follows:—

a. Tip of trochanter of palp unarmed beneath; tibia a little longer than patella, shorter than tarsus and only about one quarter the length of the femur, etc. *marmorea*.

b. Tip of trochanter of palp armed beneath with a spike; tibia at least four times as long as the patella, longer than tarsus and more than half the length of the femur, etc. *armata*.

Genus ARGYROËPEIRA, Emerton.

Argyroëpeira beata, sp. n.

With a close general resemblance to *A. celebesiana*, but easily distinguishable by the following features:—The sternum and labium are black; the dorsal side of the abdomen is adorned with a pair of silvery bands converging in front and behind and separated by a narrow olive-green stripe narrowed anteriorly and posteriorly; externally the silvery bands are limited by a black line which expands posteriorly and unites upon the extremity of the abdomen; lateral surface reddish-yellow above, sometimes showing a yellow band on a darker field, black below; ventral surface black, with a pair of parallel yellow bands passing from the external ends of the epigastric fold to a point on each side of the spinners.

The abdomen further differs from that of *A. celebesiana* in being more rounded and without shoulder prominences in front, and widely rounded, without caudal process posteriorly.

Measurements in millimetres.—Total length 9; length of carapace 3, of abdomen 6.5, of first leg 21.

Loc. Shillong in Assam (*Heaven*).

Family OXYOPIDÆ.

Genus OXYOPES, Latr.

Oxyopes hindostanicus, sp. n.

Closely allied to *O. birmanicus* in colour and structural features; but quite different in the form of the generative organs. In the ♀ the *vulva* somewhat approaches that of *O. javanus*, the excavation being divided into two by a distinct partition, but the partition is shorter, and the posterior border of the excavation is not mesially produced into a smooth black rounded tubercle but in transversely truncate; behind this black border there is a subpellucid transversely arched horny plate, which is more conspicuous than in the majority of species. In the ♂ the patella of the palp is armed externally with two horny teeth, the distal longer, sharp, and directed forwards, the basal blunt, cylindrical and directed outwards; tibia furnished below with a great downwardly directed subquadrate process, the posterior angle of which projects below the anterior; marked with two black crests.

Measurements in millimetres.—♀. Total length 9; carapace 3, first leg 14·5, second 13, third 11, fourth 13; patella and tibia of fourth 4. ♂. Total length 8; carapace 3; first leg 13·5, fourth 12·5, patella and tibia of fourth 4.

Loc. Widely distributed throughout India and Ceylon, and possibly identical with *O. similaris* of Stoliczka.

Oxyopes ryvesii, sp. n.

♀. Closely allied to all the species of the genus; colour of abdomen slightly different, this region of the body being mostly of a yellowish-white hue clothed with silvery white hairs, but ornamented with a median dorsal brownish band clothed with red hairs, a median ventral black band, and the lateral surface ornamented in front with two short longitudinal reddish lines, in the middle with a pair of short black lines, united in front and just before the apex with a similar pair of narrowly separated black lines—these dark lines might perhaps be described as corresponding to the two lateral black stripes seen in *O. lagarus*, broken up into three pairs.

Legs very long, first nearly $5\frac{1}{2}$ times as long as carapace, patella of fourth a little longer than carapace.

The *abdomen* differs also in shape from that of the other species, its anterior half being broader and parallel-sided, its posterior half from a point just behind the fused median lateral black lines abruptly narrowed and cylindrical. The *vulva* impressed with a nearly circular excavation, the border of which is evenly thick and high throughout, except in the middle of the sides where there is an apparent infolding emphasised by a double thickening.

Measurements in millimetres.—Total length 11 ; carapace 3·5, first leg 19, second 18, third 15, fourth 18 ; patella and tibia of fourth 5·8.

Loc. Allahabad (*A. E. Ryves*).

Oxyopes rufisternis, sp. n.

Colour : carapace deep mahogany brown, clothed with white hairs at least at the sides and in part above; sternum and coxæ yellowish-red, clothed with rusty-red hairs, legs nearly black, varied with white hairs ; abdomen olive-yellow above varied with white and reddish hairs, a broad ventral black band bordered with white ; sides blackish varied with white streaks, or blotches and patches of red.

Carapace about as long as patella and tibia of fourth leg ; clypeus about twice the height of the anterior portion of ocular quadrangle ; clypeus more than half the length of the mandibles ; anterior median eyes about a diameter apart. *Legs* 1, 2, 4, 3, in length, the fourth and third subequal and much shorter than the first, the first a little more than four times as long as the carapace. Tibia of *palp* armed below at its distal end with a pair of subequal parallel processes projecting downwards and forwards, the posterior of these hairy, pale coloured, the anterior black, smooth and clavate at the apex.

Measurements in millimetres.—Total length 9 ; carapace 3·5, first leg 15, second 14, third 11, fourth 11·5.

Loc. Ceylon : Trincomali (*Col. Yerbury*.)

Oxyopes wroughtoni, sp. n.

Colour and other characters as in *O. birmanicus*, etc., but distinguishable by the form of the generative organs. The plate of the *vulva* is transverse, its posterior border truncate, the depression divided into two by a median partition which is much broader than in *O. javanus*, the two resulting pits being oval. In the ♂ the tibia of the *palpus* is furnished below with a large subconical process somewhat resembling that of *O. birmanicus* but much blacker and more

corneous, its posterior border lightly convex, directed downwards, not obliquely downwards and forwards as in *O. birmanicus*; the process is deeply excavated, the posterior borders of the excavation being strongly raised and bidentate, the anterior border being armed with one tooth, and the superior with two teeth close to the base of the tarsus.

Measurements in millimetres.— ♀. Total length 11; carapace 3.7, first leg 15, second 14, third 12, fourth 14; patella and tibia of fourth 4.5. ♂. Total length 10; carapace 3.7, first leg 17, second 15, third 13, fourth 15; patella and tibia of fourth 4.5.

Loc. Bulsar in S. Guzerat (*R. C. Wroughton*).

Family LYCOSIDÆ.

Genus LYCOSA, Latr.

Lycosa goliathus, sp. n.

♀. Allied to *L. phipsoni*, Poc., but much larger, the median band of the carapace covered with golden yellow hairs; mandibles with a patch of fiery red hairs in the upper half; sternum, coxæ and lower side of abdomen jet black; legs black, clothed with golden-grey hairs above, grey hairs below, with some white hairs on the under-side of the patellæ and of the middle of the tibia of the fourth leg. *Eyes* of the anterior line slightly procurved, their lower edges in a straight line, the medians a little larger than the laterals. *Vulva* with pit much longer than broad, narrowed in front, the median crest thick, expanded in the middle, with short posterior transverse bar.

Measurements in millimetres.—Total length 30; carapace 15, first leg 39, fourth leg 44.

Loc. Helvak in Satara (*R. C. Wroughton*).

Lycosa masteri, sp. n.

♀. About the same size as *L. phipsoni*, but with the carapace and abdomen more conspicuously banded with greyish-white; coxæ and sternum not black, clear yellowish-brown, clouded with fuscous, the sternum with a broad median fuscous band, anterior legs infuscate below, the femora darker than the coxæ, the tibiæ scarcely distinctly banded, posterior legs redder below, tibia of fourth distinctly, of third less distinctly, banded; lower side of abdomen yellowish-brown, paler than the lateral surface: mandibles clothed externally and above with yellow hairs. *Eyes* of anterior line slightly procurved, less so than in *L. phipsoni* and subequal in size. Pit of *vulva* larger

than in that species, with thinner, more elevated edges, inversely cordate, the median crest angularly expanded in the middle.

Measurements in millimetres.—Total length 22 ; carapace 11, first leg 31, fourth leg 35.

Loc. Jaoli in Satara (*Master*).

Lycosa iranii, sp. n.

♀. Coloured much as in *L. phipsoni*, but the posterior tibiæ not banded, and the hairy clothing on the front of the mandible scanty and grey in tint, not yellow. Posterior median eyes very large, about half a diameter apart and about their own diameter above the edge of the clypeus ; eyes of anterior line slightly procurved, the medians much larger than the laterals. Pit of vulva transversely elliptical, wider than long, the median crest distinct in front, expanding into a broad irregularly quadrate plate, which posteriorly intervenes between the extremities of the right and left edges of the pit.

Measurements in millimetres.—Total length 15 ; carapace 8·5, first leg 20, fourth leg 24.

Loc. Eastern District of Poona (*Irani*).

Lycosa prolifica, sp. n.

♀. Smaller than *L. phipsoni*, but much resembling that species in colour, except that the sternum is noticeably redder than the coxæ. Posterior median eyes very large, less than their diameter above the edge of the clypeus ; eyes of anterior line strongly procurved, the medians larger, their inferior edges above the level of the centres of the laterals. Vulva with its pit wider than that of *L. phipsoni*, with its edges thinner, the cross-bar of the median crest longer.

Measurements in millimetres.—Total length 15 ; carapace 7·5, first leg 18·5, fourth leg 22.

Loc. Eastern District of Poona, very abundant (*Irani*).

Lycosa fuscana, sp. n.

♀. Allied to *L. prolifica*, but less distinctly banded above ; the integument of the legs dark, the femora scarcely paler beneath than the coxæ, sides of abdomen not whitish inferiorly, the tint blending with that of the inferior surface. Vulva with pit narrowly oval, much narrower than in *L. prolifica*.

Measurements in millimetres.—Total length 14 ; carapace 8, first leg 20, fourth leg 25.

Loc. Eastern District of Poona (*Irani*).

Lycosa pictula, sp. n.

♀. Much smaller than the preceding species, ventral surface pale, legs yellowish, banded with black, upper side of abdomen blackish with pale spots. Posterior median *eyes* very large, less than a diameter above the clypeus; eyes of anterior line strongly procurved, medians much larger, their inferior edges about as high as the centres of the laterals. Pit of *vulva* longer than wide, rounded in front, the median crest longer than the cross-bar, lightly incrassate in front.

Measurements in millimetres.—Total length 11; carapace 5, first leg 13, fourth leg 18.

Loc. Chopda in Eastern Khandesh (*Madan*).

Lycosa madani, sp. n.

♀. A little larger than *L. pictula* and more robust, ventral surface pale, legs pale, not banded, dorsal surface normally coloured, mandibles without yellow or red hairs in front. Posterior median *eyes* of medium size, more than their diameter above the edge of the clypeus; eyes of anterior line straight, medians larger, the four as wide as the posterior medians. Pit of *vulva* nearly parallel-sided, concavely truncate in front, the median keel longer than the cross-bar.

Measurements in millimetres.—Total length 13; carapace 5.5, first leg 12.5, fourth leg 16.

Loc. Chopda in Eastern Khandesh (*Madan*).

Lycosa yerburyi, sp. n.

♀. *Colour* very like that of *L. phipsoni*; tibiae of third and fourth legs distinctly banded below, patella and tibia of palpus clothed in front with yellow hairs like the upper half of the mandible. *Eyes* of anterior line slightly procurved, medians larger than laterals, posterior medians about their diameter above the edge of the clypeus. *Vulva* very different from that of the previously-described species, the cross-bar of the median crest curving forwards on each side to form a distinct horseshoe-shaped sclerite.

Measurements in millimetres.—Total length 15; carapace 9, first leg 2, fourth leg 22.5.

Loc. Ceylon: Trincomali (*Col. Yerbury*).

The females of the foregoing species of *Lycosa* from Western India may be tabulated as follows:—

- A. Ventral surface of abdomen yellowish-brown, paler than the sides.

- a*¹. Small, carapace 5·6 mm., integument of legs yellowish.
- a*². Eyes of anterior line strongly procurved, much narrower than the posterior medians *pictula*.
- b*². Eyes of anterior line straight, as wide as the posterior medians..... *madani*.
- b*¹. Large, carapace 1·11 mm., integument deep reddish-brown *masteri*.
- B. Ventral surface of abdomen black, darker than the sides.
- a*¹. Eyes of anterior line strongly procurved, the lower edge of the medians standing as high as the centres of the laterals or higher.
- a*². Black of ventral surface sharply defined from the pale of the femora and of the sides of the abdomen *prolifera*.
- b*². Black of ventral surface not sharply defined, femora and sides of abdomen dark *fuscana*.
- b*¹. Eyes of anterior line very slightly procurved.
- a*². Integument of legs black above and below... *goliathus*.
- b*². Integument of legs yellowish-brown.
- a*³. Mandibles clothed with yellow hair in front..... *phipsoni*.
- b*³. Mandibles clothed with grey hair in front..... *irani*.

Family HETEROPODIDÆ.

Genus THELCTICOPIS.

Thelcticopis hercules, sp. n.

Colour black; carapace, legs and abdomen clothed with bright yellowish-green hairs, lower side of abdomen black. *Eyes* widely separated, distance between anterior median and anterior lateral about three times as great as that between the two anterior medians, distance between posterior median and posterior lateral only a little less than twice as great as distance between the posterior medians. Tibiæ of anterior two pairs of legs armed with 5 anterior and 4 posterior short and overlapping spines. Fang-groove of mandible armed below with 5 teeth. Cleft between lobes of vulva about half as wide behind as in the middle and in front, tips of the lobes compressed and pointed behind, the posterior end of the median skeletal piece bilobed.

Measurements in millimetres.—Total length 24 ; carapace 10.

Loc. Ceylon : Peradenia in the botanical garden (*Freeman*).

Theleticopis ajax, sp. n.

Colour of carapace and legs deep blackish-brown ; clothed like the abdomen with greyish-brown hairs. Anterior median *eyes* about half as far from each other as from the laterals ; posterior eyes unequally spaced, the medians nearer each other than to the laterals. Fang-groove of *mandible* armed with 7 or 8 teeth behind. Tibiæ of anterior *legs* furnished with 5 pairs of long spines, with sometimes an additional spine at the apex in front. *Vulva* consisting of a convex black horny plate of which only the posterior third is cleft ; the space is broader in front than behind, is bounded laterally by a pair of smooth posteriorly converging lobes, is divided throughout its length by a median longitudinal crest at the base of which on each side there is a rounded prominence.

Measurements in millimetres.—Total length 23 ; carapace 10.

Loc. Ootacamund, S. India (*Hampson*).

Theleticopis virescens, sp. n.

♂. *Colour* of integument deep brownish-red, clothed with yellowish-green pubescence, abdomen covered above with greenish-grey pubescence, median area of lower surface black, pulmonary opercula yellow. *Carapace* as long as patella and tibia of third leg ; *eyes* of posterior line slightly procurved, medians four diameters apart and six diameters from the laterals ; anterior medians less than a diameter apart and more than twice as far from the laterals. Fang-groove armed behind with 5 teeth. Tibiæ of first and second *legs* with 5 pairs of short inferior spines. Apophysis of tibia of *palp* short, divided distally into three short subequal processes.

Measurements in millimetres.—Total length 17 ; carapace 8, first leg 29, second 28, third 22, fourth 27.

Loc. Trivandrum in Travancore, S. India (*Ferguson*).

Theleticopis rufulus, sp. n.

♂. *Colour* of carapace and mandibles castaneous ; legs, sternum and coxæ ochre-yellow, the hairs covering these parts apparently yellowish or greyish-white ; abdomen dirty yellowish-grey, variegated at the sides with black spots, and with a median dorsal band consisting of a series of black spots.

Carapace about as long as *patella* and *tibia* of third leg ; posterior median *eyes* nearer to each other than either is to the lateral ; eyes of anterior line subequally spaced. Fang-groove of *mandible* armed behind with 5 teeth. *Tibia* of first and second *legs* with 6 pairs of inferior spines ; of third and fourth with 3 pairs. *Tibia* of *palp* armed externally with a double process, the upper branch short, thinner and pointed, the lower much larger, stouter and bent downwards ; tarsus of *palp* large, oval, with a conspicuous external basal angular prominence which fits into the space between the two branches of the tibial process.

Measurements in millimetres.—Total length 12 ; length of *carapace* 6, width 5 ; of second leg 19, of third leg 15, of fourth leg 19.

Loc. Nilgiri Hills (*E. W. Oates*).

Thelcticopis bicornutus, sp. n.

♂. *Colour* nearly black, clothed with yellowish-grey hairs ; abdomen ornamented above—especially behind—with narrow transverse darker stripes ; its ventral surface not noticeably darker in the middle.

Structurally nearly allied to *T. virescens*, but with the anterior line of eyes straighter, the superior edge of the laterals on a level with the centres of the medians, the medians less than a diameter apart, and a little more than a diameter from the laterals. *Mandibles* armed below with 4 irregularly-spaced teeth ; spine-armature of *tibiæ* as in *T. virescens*. Tibial apophysis of *palp* very large, rising from the whole of the external side of the segment and ending distally in two branches, the upper broad at the base, striate and running out into a tolerably straight almost thread-like termination, the lower short, blunt, and forming a nearly semi-circularly incurved hook.

Measurements in millimetres.—Total length 17 ; length of *carapace* 9 ; length of first leg 27, of second 28, of third 23, of fourth 28.

Loc. Assam : Naga Hills.

Genus SPARASSUS, Latr.

Sparassus xerxes, sp. n.

♀. Allied to *S. walckenaerii*. *Colour* of *carapace* and legs mahogany brown above and below, clothed with whitish-yellow hairs, *mandibles* black, clothed with white hair at base ; under side of *tibiæ* with a subapical fuscous band in the distal half ; abdomen olive-yellow above, whitish at the sides, black in the middle line below, or at all events with

a transverse black stripe behind the epigastric fold, a large clear yellow spot on each side of the epigastric area. *Carapace* longer than wide, head region narrow, its width about one-half the length of the carapace; the eyes compact, those of anterior line sub-equal, the anterior medians almost touching the anterior laterals, about a radius from each other and a diameter above the edge of the clypeus. *Legs* not very unequal, 2, 4, 1, 3 in length. Lateral lobes of *vulva* in contact throughout their length, a pellucid heart-shaped area in front of them.

♂. Like ♀ in colouring. *Palpus* with its tibia and patella armed externally with spines; tibial spur long and broad at base, apically sub-filiform; directed downwards so that its axis forms an obtuse angle of about 100° with the axis of the tibia; tarsus evenly oval, about twice as long as wide.

Measurements in millimetres.—♀. Total length 30, carapace 11.5, of first leg 45, of second 47, of third 41, of fourth 46. ♂. Total length 24, carapace 11, of first leg 53, of second leg 56, of third leg 44, of fourth 48.

Loc. Omara on the Mekran coast, 130 miles west of Karachi (*F. W. Townsend*); also Bushire on the Persian Gulf.

Sparassus maynardi, sp. n.

♀. Nearly allied to the ♀ of *S. xerxes* but smaller and of a tolerably uniform flavous or ochreous colour above and below, tibiae of legs not banded. *Eyes* of anterior line slightly recurved, the medians a little larger than the laterals. *Vulva* with its two plates longer and meeting in a longer suture than in *S. xerxes*.

♂. Resembling the ♀ in colour. Tibial spine of *palpus* and palpal organ much like those of *S. xerxes*.

Measurements in millimetres.—♀. Total length 21; length of carapace 9, of first leg 37, of second 40, of third 35, of fourth 38. ♂. Length of carapace 7; second leg 39, of fourth 38.

Loc. Jacobabad (*H. M. Phipson*), Northern Baluchistan (*Maynard* and *Macmahon*).

Sparassus pyrozonis, sp. n.

♀. Colour of carapace, sternum, coxæ, and upper and under sides of abdomen as in *S. senilis*, *S. punctipes*, var. *sordidatus*, and apparently *S. hirtus*; but differing in the colouring of the legs. The basal black band on the femora extends over nearly one-third of the segment, there is also a black band at the tip, but the hairs on the rest of the

segment below and in front are not white but a beautiful orange-red, becoming greyer above and spotted with black; the tibiae are white with a basal black band extending on to the patella, a distal narrow black band and a black spot at the base of each spine, the dorsal side being irregularly spotted.

Carapace longer than wide; a little shorter than tibia of second leg and patella and tibia of third; its width about equal to first tibia; *eyes* of posterior line slightly procurved; of anterior line sub-equal and sub-equally spaced, about a diameter apart.

Legs much the same on as in *S. lamarckii*.

Cleft of *vulva* sub-elliptical, narrower in front, not so triangular as in *S. lamarckii*.

Measurements in millimetres.—Total length 25; length of carapace 11, width 10; length of first leg 44, of second 48.5, of third 35, of fourth 39.

Loc. Sylhet in Assam.

Sparassus hampsoni, sp. n.

♀. *Colour* mostly resembling that of *S. lamarckii*, but with the femora of the legs uniformly yellowish-white below, not spotted; a narrow mesial black band on the tibiae, the coxae black like the sternum, the black of the lower side of the abdomen extending all over the epigastric area, and the whole of the upper side of the abdomen beautifully variegated with symmetrically arranged yellow spots and black stripes. *Carapace* about equal to tibia of second leg and to patella and tibia of third. *Legs* of first and second pair nearly equal in length.

Vulva larger than in *S. lamarckii*; its lateral lobes widely separated, diverging, not converging anteriorly, the intervening space occupied by a smooth amber-coloured median sclerite.

Measurements in millimetres.—Total length 16; length of carapace 7.5, width 7; length of first leg 28, of second 29, of third 22, of fourth 24.

Loc. Nilgiri Hills (*G. F. Hampson*).

Sparassus fuliginus, sp. n.

♀. Nearly allied to *S. lamarckii* and *S. hampsoni*, and especially to the latter in the form of the *vulva*, but at once recognisable from both by having the legs a uniform olive-black above and below and no distinct pattern on the abdomen, which like the carapace and limbs is covered with olive-black hairs. The median ventral surface of the abdomen is black as in *S. lamarckii* and *S. hampsoni*, the black area

defined by a narrow pale line. *Vulva* practically identical with being that of *S. hampsoni*. Total length 20 millimetres.

Loc. Jaoli in Satara (*Master*).

Sparassus admiratus, sp. n.

♀. *Colour* of carapace yellowish-red, darker on the head, covered with greyish-yellow hairs, the facial area, mandibles, palpi, mouth parts, sternum and coxæ jet black, legs bright yellowish-red, covered with golden yellow hairs, a black band at the extremity of the femora and the base of the tibiæ; protarsi and tarsus black; abdomen olive-yellow, covered with golden hair, the middle ventral line marked with a narrow lanceolate longitudinal black band; dorsal surface with a pair of black patches in front and a Y-shaped median black stripe behind; the elliptical area between the forks of the Y and the two black patches pale yellow. *Carapace* as wide as long; *eyes* like those of *S. lamarchii* but smaller, and hence appearing to be further apart. Lateral lobes of *vulva* diverging behind, the area between them occupied by a pellucid anteriorly-bilobed sclerite. Total length 20 millimetres; carapace 10.

Loc. Bombay (*H. M. Phipson*).

Sparassus iranii, sp. n.

♀. *Colour* of carapace reddish, blackish on the head, thickly clothed like the legs, abdomen, mouth parts and sternum with a coating of tolerably uniformly greyish hairs, face and mandibles black, labium and maxilla deep brown; legs uniformly pale, with base of tibia and adjacent area of patella black; abdomen without distinct pattern, no black on its median ventral area. *Carapace* longer than wide, head broad, its width much greater than half the length of carapace; eyes as in *S. lamarchii*, but further apart and smaller. *Vulva* very large, its lateral lobes united in front, separated throughout their length behind, the two together forming a somewhat horseshoe-shaped curve, the area between them occupied by an anteriorly clavate sclerite. Total length 22; carapace 12, its width 10.5.

Loc. Khost in Baluchistan (*Smith*); Poona District (*Irani* type); Nagpur.

Sparassus pearsoni, sp. n.

♀. *Colour* of head reddish-brown, legs, coxæ and sternum yellowish-brown, abdomen greyish-olive, mandible black, the whole (except the lower end of the mandibles) covered with a coating of tolerably uniform

greyish-white or greyish-yellow hairs; no black markings on body or limbs. *Carapace* longer than wide; anterior median *eyes* longer than anterior laterals, about a radius from each other and rather less than a radius from the laterals, clypeus equal to the diameter of the anterior median eyes. *Legs* short and not very unequal in length, 2, 4, 1, 3, the third reaching almost to the tip of the protarsus of the second when extended. Lobes of *vulva* in contact posteriorly and forming a long median suture, anteriorly their edges diverge and circumscribe a space which is occupied by a heart-shaped skeletal jet black piece. Total length 21; carapace 9.5, first leg 31, second 34, third 30, fourth 33.

Loc. Poona Ghats; Eastern Khandesh (*Madan*); Pimpalner in W. Khandesh (*Pearson*).

Sparassus obesulus, sp. n.

♀. *Colour* of carapace yellowish-red marked with radiating patches and clothed with silky golden hairs; face and mandibles black, legs and palpi deep reddish-brown, femora paler, sternum yellow, labium and maxillae infuscate; abdomen clothed with silky yellow hairs, mottled with dark spots above, and marked with a median fuscous laterally dentate stripe. *Carapace* short, as wide as long; eyes of anterior line straight by their centres, medians much larger, nearly a diameter apart, and about a radius from the laterals and from the edge of the clypeus, laterals about a diameter above the edge of the clypeus. *Legs* 2, 1, 4, 3, first longer than fourth by its tarsus; third not reaching middle of protarsus of second. *Vulva* with its lateral lobes smooth, shining, in contact throughout, broader behind than in front, piriform, passing anteriorly into a black horny rugose area.

Measurements in millimetres.—Total length 13.5; length of carapace 5.5, first leg 21, second leg 24, third leg 18, fourth leg 20.

Loc. E. Poona (*Wroughton and Irani*).

Sparassus rotundiceps, sp. n.

♀. *Colour* of integument pale castaneous, covered with yellow hairs; clypeus, sternum and mandibles dark brown; protarsus and tarsi infuscate. *Carapace* about as broad as long, as long as tibia of first leg; eyes of anterior line straight by their centres, medians larger, about a diameter apart, and less than that from the laterals, which are about their own diameter above the clypeus. *Legs* 2, 1, 4, 3, third only a little surpassing tibia of second. *Vulva* with its right and left halves divided by

a median transverse slit into an anterior semi-circular striate portion which along its convex edge is nearly in contact with its fellow of the opposite side and of a posterior piece which meets its fellow behind, but is in front separated by a wide heart-shaped space.

♂. Like the ♀ in colour; *legs* longer. Tibia of *palpus* armed with two apophysis, a basal and an apical, the latter is pointed, lightly sinuous, directed downwards and outwards from the base, with its upper edge serrate in its basal half; the basal is directed forwards and slightly upwards, and gradually tapers to a simple bluntly-rounded tip.

Measurements in millimetres.—♀. Total length 11, carapace 4.5, of first leg 18.5, of second 21, of third 15, of fourth 16. ♂. Total length 10, carapace 4.5, of first leg 24, of second 27, of third 19, of fourth 20.

Loc. Ootacamund, S. India (*Hampson*).

Sparassus milleti, sp. n.

♂. *Colour* uniformly pale, above, below, and on the appendages; clothed with yellowish hair. *Carapace* longer than broad, its cephalic region narrowed, less than half the length of the whole carapace, ocular quadrangle square; eyes of posterior line straight, subequal, the medians about three diameters apart and two diameters from the laterals; eyes of anterior line almost straight by their centres, medians much larger than laterals, a diameter apart and barely half a diameter from the laterals. *Palpus* with patella and tibia not spined; tibial apophysis small, hooked, its basal portion directed outwards almost at right-angles to the axis of the tibia, its apical third pointed, curving straight forwards. *Legs* very long and slender (see measurements).

Measurements in millimetres.—Total length 8; carapace 4.5, first leg 29, second 36, third 21, fourth 24.

Loc. Nasik (*Millet*).

Sparassus greeni, sp. n.

Allied to *S. impudicus*. *Colour* of carapace, mandibles, sternum, coxæ and legs uniformly yellowish-brown, carapace covered with silky yellow hairs, protarsi and tarsi infuscate; abdomen pale above and below and covered with yellow hairs, its sides and posterior extremity above spinners ornamented with a broad blackish-green band. *Carapace* as wide as long, shorter than tibia of second leg. *Legs* of third pair very short, not overlapping apex of tibia of second. *Vulva* with median skeletal

piece horny, blackish, and completely filling up the space between the lobes; near the middle of its area there is a large wide depression, which is furnished anteriorly with a pair of horny ridges.

Measurements in millimetres.—Total length 15; carapace 8, first leg 28, second 32, third 21, fourth 24.

Loc. Ceylon; Punduloya (*Green*).

Genus *HETEROPODA*, Latr.

Heteropoda hampsoni, sp. n.

♀. *Colour*: Darker and more variegated than in *H. venatoria*; the yellow band on clypeus extending on to the sides of the head, and with fine radiating pale lines on the upper side of the carapace; upper side of legs banded, especially on the femora, tibiae with two bands below, abdomen mottled with black above and at the sides, the upper side with a pair of pale median sigilla spots, and three indistinct pale patches forming a transverse band in the posterior half, lower side of abdomen uniformly blackish-brown, the pulmonary opercula yellow, and two fine pale lines running backwards from the genital fold and defining the dark median area. *Carapace* longer in proportion to its width than in *H. venatoria*, considerably longer than wide; the length exceeding that of tibia of third leg; equal to that of first and to protarsus of second leg; width almost equal to length of tibia of third leg; *eyes* practically the same as in *H. venatoria*.

Mandibles and *palpi* armed as in *H. venatoria*. *Legs* shorter and relatively stouter than in *H. venatoria*, with the same spine armature; third leg as long as the fourth, and surpassing the middle of the protarsus of the second.

Vulva larger than in *H. venatoria*, the lateral lobes separated by a narrow median sclerite.

Measurements in millimetres.—Total length 29; length of carapace 13, width 10.5; width of head 6.5; length of first leg 49, of second 53, of third 44, of fourth 44, tibia of third 11.

Loc. Ootacamund (*G. F. Hampson*).

Heteropoda nilgirina, sp. n.

Colour: Much resembling that of *H. venatoria*, but the sternum darker; the white clypeal band much less distinct, the mandibles deep-shining black; abdomen mottled above and at the sides with rusty-brown spots.

Carapace of about the same form as in *H. venatoria*, but with the head a little narrower, the width a little less than the total length of the carapace; *eyes* of anterior line closer together, more procurved, the quadrangle narrower in front; the anterior medians only about half the diameter of the anterior laterals, the lower edges about on a level with the centre of the laterals.

Legs with spine armature as in *H. venatoria*, but with a spine on the distal half of the upper side of the third tibia; third leg relatively longer than in *H. venatoria*, surpassing the middle of the protarsus of the second, the fourth not surpassing it by the length of its tarsus.

Vulva larger than in *H. venatoria*; the lobes widely separated by a broad median sclerite, which is posteriorly marked by a median elliptical excavation.

Measurements in millimetres.—♀. Total length 27; length of carapace 11.5, width 10.5; width of head 5.5; length of first leg 49, of second 54, of third 44.5, of fourth 46.5, tibia of third leg 12.

♂. Much resembling the ♂ of *H. venatoria* in colour and structural characters, but with the anterior median eyes only about half the diameter of the laterals, a much less noticeable white band upon the clypeus, and the legs considerably longer, the first being about $5\frac{1}{2}$ times the length of the carapace; carapace about three-quarters the length of the tibia of third leg. Tibia of first, second and third with two superior spines, of fourth with one distal superior spine; patella of fourth unspined. Tibial apophysis of *palpus* longer, clavate and truncate apically, with the lower border concave, and the inferior distal angle subacute; tarsus of *palpus* more voluminous, externally angular at base.

Measurements in millimetres.—♂. Total length 16; length of carapace 8, width 7; length of first leg 45, of second 51, of third 39, of fourth 40.5; tibia of third 10.5.

Loc. Nilgiri Hills (*E. W. Oates*); Coonoor (*W. Davison*); Ootacamund (*G. F. Hampson*); Kotagiri (*J. R. Henderson*).

Heteropoda lentula, sp. n.

♀. Much resembling *H. nilgirina* in the form of the vulva, but smaller, with the carapace higher, the mandibles not black but pale, with two fuscous bands, and the legs considerably shorter; the carapace being longer than the tibia of the second leg, while the latter is only about three and-a-half times the length of the carapace.

♂. Differing from that of *H. nilgirina* in being smaller, in having pale and striped mandibles, and in the form of the tibial apophysis, the lower edge of which is more abruptly emarginate, with the inferior distal angle produced into a distinct tooth-like prominence.

Measurements in millimetres.—Total length 15; carapace 6·5; first leg 21, second 24, third 19, fourth 21. ♂. Total length 11; carapace 5·5; first leg 27, second 31, third 25, fourth 26·5.

Loc. S. India : Ponmudi in Travancore (*Ferguson*), Tinnevely (*Barber*).

Family THOMISIDÆ.

Genus ANGÆUS, Thorell.

Angæus pentagonalis, sp. n.

Colour of carapace reddish-brown with two darker bands, clothed with a thick coating of yellowish-grey hairs, clypeus and mandibles nearly black, much more scantily clothed with pale hairs, anterior legs deep reddish-brown, posterior paler, banded with brown, clothed with pale hairs, dark at the base of the spines; abdomen testaceous, marbled with black, clothed with silky-yellow hairs above and below. *Carapace* a little longer than broad, moderately high, flat above longitudinally behind the posterior eyes; *eyes* of posterior line subequally spaced, medians smaller than laterals and about four diameters apart; crest above anterior eyes prominent and furnished with a tuft of hair at the angles; eyes of anterior line subequally spaced, laterals standing much higher, so that a line touching their inferior edges would just cut the upper half of the laterals; height of clypeus in middle about equal to distance between anterior median eyes, height at sides about equal to twice the diameter of the lateral eye. Fang-groove of *mandible* armed with 3 strong teeth behind and 3 in front. *Legs* 1, 2, 4, 3, first and second sub-equal, first leg nearly four times as long as carapace; tibia of first and second armed beneath with 4 pairs, protarsi with 2 pairs of long spines, tibiæ and protarsi with 2 anterior and 2 posterior spines as well, tibiæ and protarsi of third and fourth armed with a few spines in front and behind: legs, especially the femora, more or less tubercular and tufted above. *Abdomen* pentagonal, widest behind the middle, as wide as long, furnished above with two rows of tufts in its posterior half and others at the sides. *Vulva* consisting of a pair

of lobes or ridges, inclined posteriorly at an angle and enclosing a small sclerite shaped like an arrow-head.

Measurements in millimetres.—Total length 9 ; length of carapace 3·5 ; length and width of abdomen 5 ; length of first leg 13.

Loc. S. India, Nilgiri Hills (*G. F. Hampson*).

Family CRYPTOTHELIDÆ.

Cryptothele collina, sp. n.

Colour of a uniform yellowish or muddy-brown above and below. *Carapace* high, much higher behind than in front, abruptly sloped away behind and at the sides, ocular region distinctly elevated, a deep depression behind the posterior eyes ; *eyes* of anterior pair the largest, considerably more than a diameter apart, the median quadrangle more than twice as long as wide, parallel-sided. *Abdomen* as wide as long. *Vulva* wider than long, consisting posteriorly of a pair of horny lobes meeting in the middle line and enclosing a space occupied by a small median heart-shaped sclerite. *Legs* short. subequal.

Measurements in millimetres.—Total length 10 ; length of carapace 4·5.

Loc. S. India : Ootacamund (*G. F. Hampson*).

According to the description *Cryptothele ceylonica*, O. P. Cambridge (Proc. Zool. Soc. Lond., 1877, p. 563, pl. LVI, fig. 4) differs from the preceding in the following particulars :—Size very much smaller, carapace not noticeably elevated behind ; ocular tubercle low, no depression behind it : eyes of anterior pair a diameter apart, median ocular quadrangle not twice as wide as long. Total length 4 mm.



Pocock, R. I. 1901. "Descriptions of some new species of spiders from British India." *The journal of the Bombay Natural History Society* 13, 478–498.

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