

MISCELLANEOUS PUBLICATION
OCCASIONAL PAPER NO. 30

Records of the Zoological Survey of India

SPIDER FAUNA OF CALCUTTA
AND VICINITY
PART-I

by
B. K. TIKADER
and
BIJAN BISWAS

Issued by The Director
Zoological Survey of India, Calcutta

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CALCUTTA.



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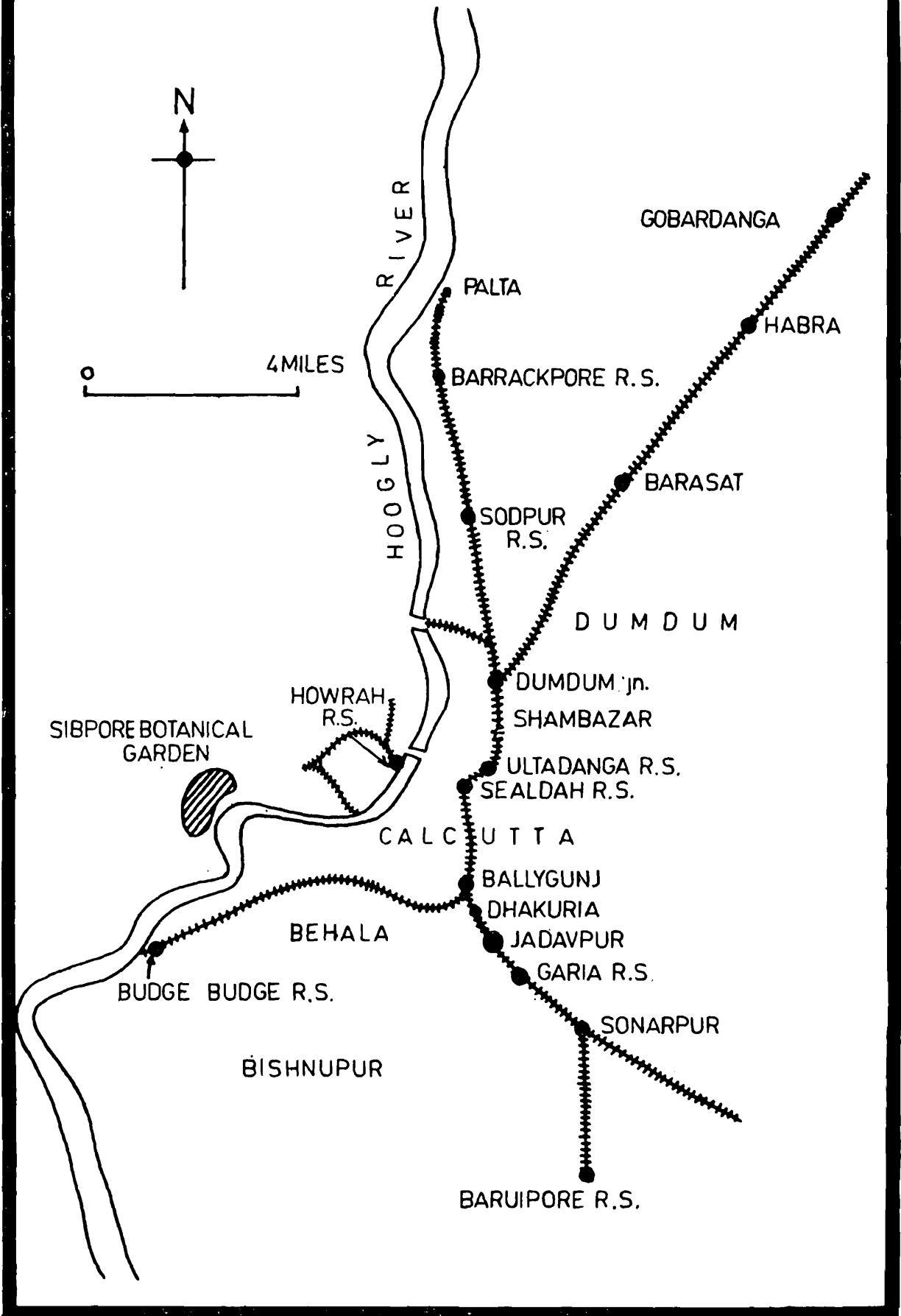
Calcutta.

INTRODUCTION

The Department of Zoological Survey of India was established in the year 1916 at Calcutta, and more than sixty years have passed but unfortunately so far no separate fauna of Calcutta in any group of animal has been prepared. Therefore, we have taken this project to work out the spider fauna of Calcutta and vicinity. Although spiders are extremely abundant throughout the city and its vicinity, our knowledge is extremely fragmentary. We have started to undertake trips for spiders collection in the city of Calcutta and the neighbouring places within a radius of 40 kilometres and crossing the Hooghly River, mainly Botanical garden areas, Sibpore, Dist. Howrah, West Bengal. The collection of spiders was made by using a sweep net or inverting an umbrella underneath flowering shoots or bushes and thoroughly shaking the shoots or bushes. Collected spiders are preserved in the 75% alcohol.

The locality under consideration is situated between 88°10' and 88°40' East longitude and between 22°20' and 22°45' North latitude in the district of 24 Parganas in West Bengal. It includes the entire city of Calcutta with its suburban areas extending as far as Barrackpore and Palta in the North, Baraipore in the South and Habra and Gobardanga in the East, Sibpore, Botanical garden in the West. The Hooghly river flows along the western side of the city and suburbs (Map-1).

MAP OF CALCUTTA AND VICINITY



The normal maximum and minimum temperature, relative humidity and rainfall according to the Meteorological Observatory of the city at Alipore, are appended in Table-I.

TABLE-1 STATION CALCUTTA (ALIPORE)

Month	Maximum Temperature (°C)	Minimum Temperature (°C)	Relative humidity at		Total Rainfall (mm)
			8.30 hrs.	17.30 hrs.	
January	26.6	13.4	69	52	12.5
February	31.5	18.7	66	44	11.7
March	34.6	22.1	66	43	16.8
April	36.9	25.2	68	53	47.2
May	35.7	26.4	71	65	120.7
June	34.0	26.8	79	76	221.8
July	32.2	26.3	83	80	339.2
August	32.2	26.4	83	82	249.0
September	32.2	26.0	81	82	315.0
October	31.4	24.2	73	74	183.6
November	29.5	18.3	65	60	6.3
December	26.9	14.1	68	56	0.3

During our investigation, we have examined the extensive collections of named and unnamed materials in the Zoological Survey of India, Calcutta. We have had numerous opportunities of comparing most of the specimens identified by us with the type specimens of several species in the collection of the Zoological Survey of India.

In this part we have dealt with 99 species, contained in 47 genera belonging to 15 families. Of these, one species is new to science. We believe that there are still a number of spider species from these areas which have not yet been collected and described.

In addition to description, we have added as far as possible, keys, notes on affinities, synonymies, distribution and field ecology of some of the species.

We have also outlined the more important characters of spiders used in taxonomic descriptions and broad classification of spiders. A key to the families of spiders studied by us is also included for guidance of future workers in this field.

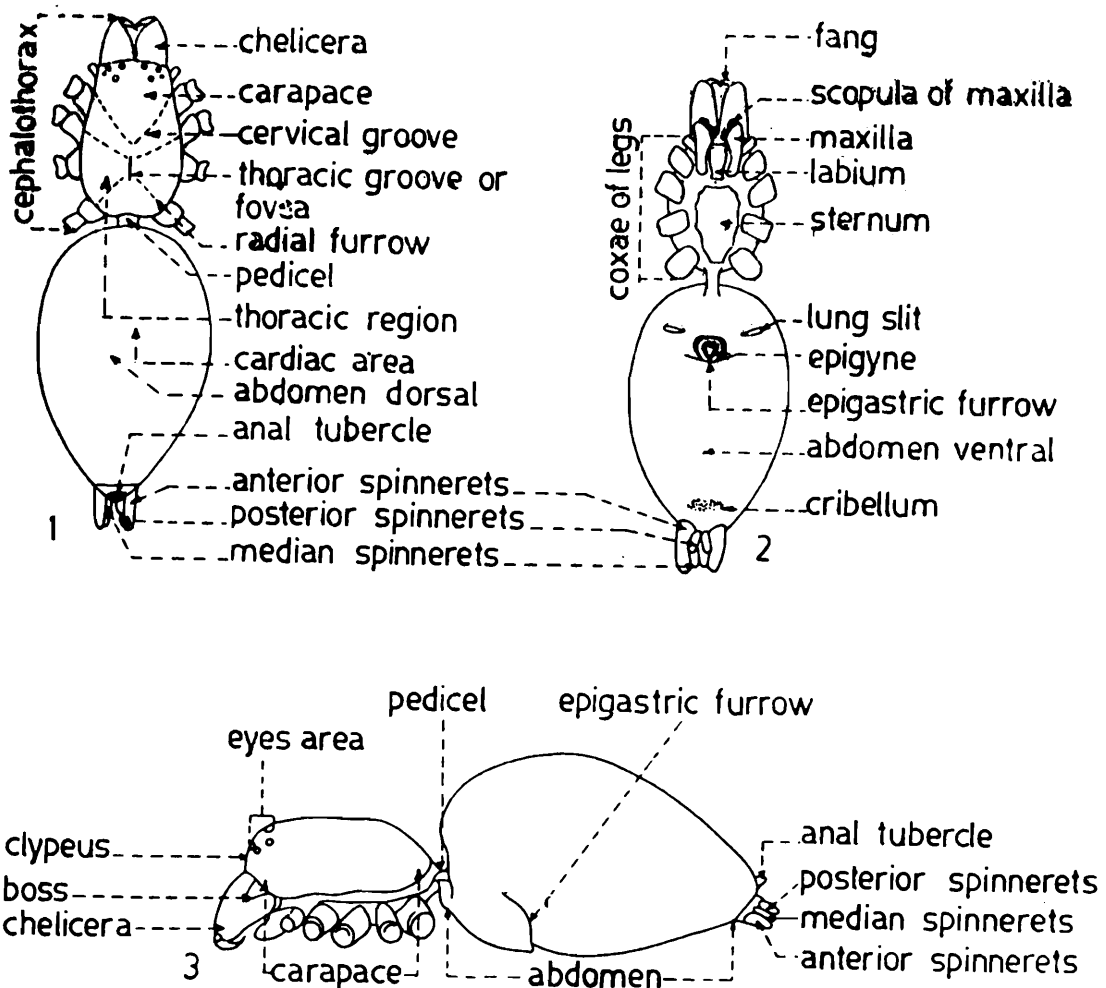
We have deposited studied materials as well as types in the National Collection, Zoological Survey of India, Calcutta.

GENERAL TAXONOMIC CHARACTERS OF SPIDERS
(Figs. 1-10)

The body of the spider is divisible into a distinctive *cephalothorax* and *abdomen*, joined together by a narrow *pedicel*. The *cephalothorax* is covered dorsally by a hard sclerotic shield, the *carapace*, and ventrally by the *sternum* as in text-fig. 1 & 2. The anterior margin of *sternum* articulates movably with *labium*. With few exceptions there is a deep transverse groove, forming a kind of hinge, between the sternum and the labium. The legs are articulated in the pleural membrane between the lateral edges of the *carapace* and *sternum*. On the cephalic region are usually present six to eight simple eyes. The eyes are generally of two kinds, *viz.*, black or *diurnal* and white or *nocturnal* eyes. When only, one type is present, the condition is described as *homogeneous*, in contrast to *heterogeneous*, when both the types are present. The eyes are usually arranged in a double row, *viz.*, the *anterior row* and the *posterior row*. Each row usually contains four eyes. The eye row is described as *recurved*, when the concavity of the curve is directed backward, and as *procurved* when the concavity is turned forward as in text-fig. 9. According to their position, the eyes are described as the *anterior medians*, the *posterior medians*, the *anterior laterals* and the *posterior laterals*. The cephalic area, occupied by the eyes, is known as *ocular area*. The area margined by the four median eyes is termed *ocular quad*. The area between the anterior row of eyes and the base of chelicerae is the *clypeus*. The space between the anterior median eyes and the margin of clypeus represents the *width of clypeus*. There is often a depression in the middle of the thorax, called *thoracic groove* or *fovea* as in text-fig. 1.

The *chelicerae* are the first pair of appendages of the cephalothorax. Each chelicera bears a curved *fang* at its apex. The inner surface of chelicera may be finely denticulate and may also have a groove into which the fang can be closed when not in use. This groove may also be armed with tooth on each side; the outer row of teeth is described as *promargin* and the inner row as *retromargin*. There are sometimes long stout hairs on the promargin to constitute the so called *fang-scopulae*, as in text-fig. 5.

The pedipalps are the second pair of appendages. The palp proper is composed of six segments, *viz.*, *coxa*, *trochanter*, *femur*, *patella*, *tibia* and *tarsus* as in text-fig. 4. In females the tarsus is simple and may or may not have a single claw. In mature males the tarsus of palp is modified to carry a more or less complicated copulatory organ. Generally the tibia, sometimes also the patella bear *apophyses* (which may be of different shapes in different species) which are of important taxonomic value. In many spiders the tarsus has a bowl-shaped cavity on its ventral



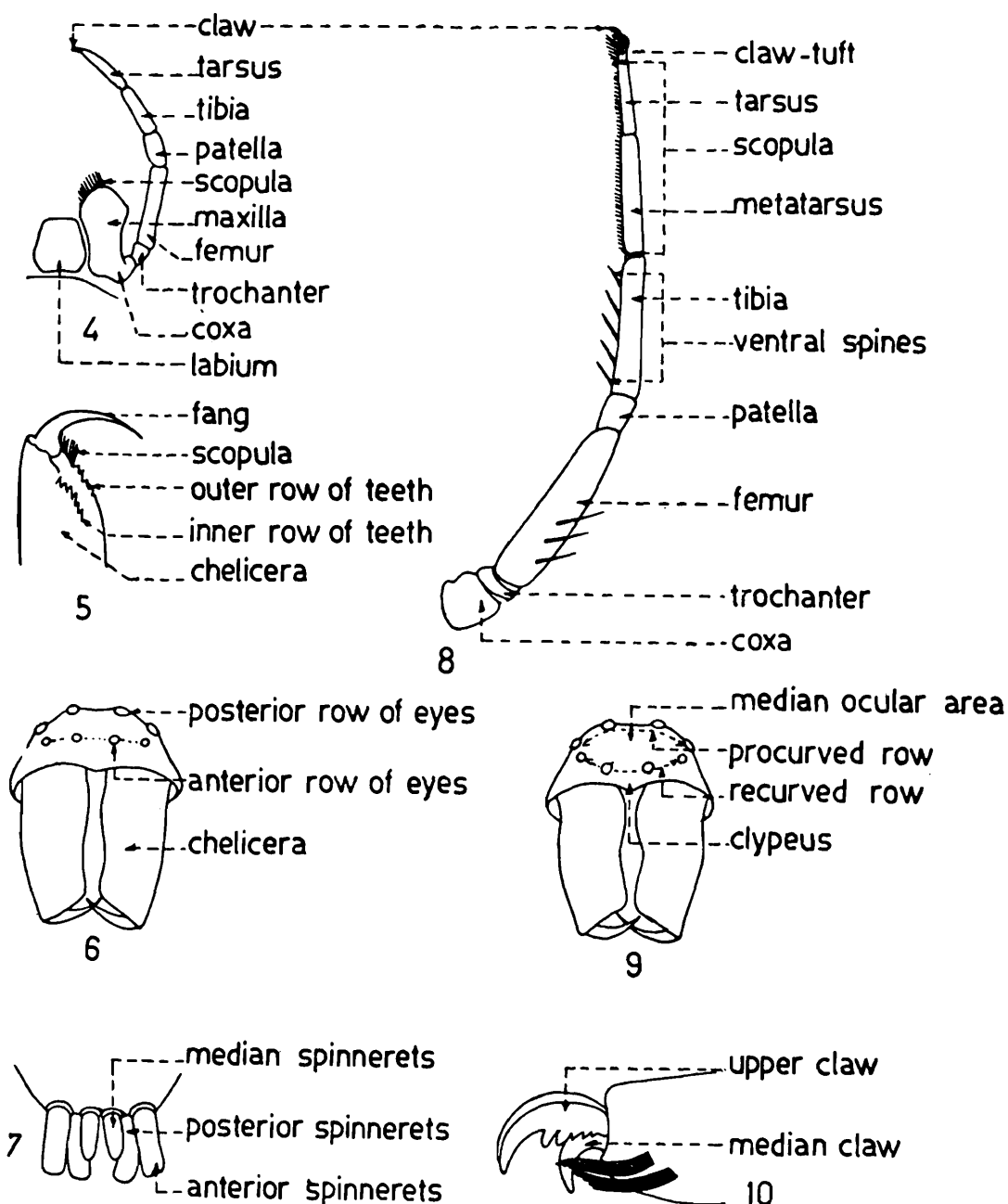
FIGS. 1-3. Three views of spider, without legs, showing parts labelled.
 1. Dorsal.
 2. Ventral.
 3. Lateral.

surface which is called the *cymbium*. In many groups mature males are provided with an appendage, the *paracymbium*. The structure of the mature male palp is very important for generic or specific identification of spiders. The complicated palpal organ has many parts, but that is a matter beyond the scope of this fauna. There are four pairs of legs designated I, II, III and IV respectively. Each leg is composed of seven segments, viz., *coxa*, *trochanter*, *femur*, *patella*, *tibia*, *metatarsus* and *tarsus* as in text-fig. 8. The legs are variously clothed with spines, spinules, bristles and hairs of various types. The tarsus ends are provided with two or three claws. A characteristic tuft of hairs called *claw-tuft* is sometimes found just above the claw. In the Gphosidae there are dense rows of hairs called *leg-scopulae* below the metatarsi and tarsi as in text-fig. 8. Spines on the dorsal sides of legs are distinguished as *dorsal spines* and those on the ventral side as *ventral spines*, as in text-fig. 8.

The abdomen is produced posteriorly into a conical *anal tubercle* and bears three pairs of spinnerets ventrally, viz., the first or the *anterior*

pair, the second or the *median* and third or the *posterior pair* of spinnerets as in text-fig. 7. In a number of families there is present in front of the anterior (ventral) spinnerets a seive-like plate, called the *cribellum*. The special type of silk emitted from this organ is combed by the *calamistrum* borne on metatarsus IV. In many families of spiders which do not possess the *cribellum* a conical appendage called the *colulus*, lies between the bases of the anterior spinnerets.

The ventral surface of abdomen is provided with one or two pairs of lung-books, followed by one or two paired spiracles. The female



FIGS. 4-10. Showing different parts of spider.

4. Pedipalp of female.
5. Fang.
6. & 9. Face and chelicerae from the front.
7. Spinnerets.
8. Leg.
10. Claw.

genital opening is the *vulva* or *epigyne*, with a transverse fold, known as *epigastric* furrow as in text-fig. 2.

The tarsi of spider are often armed with hairs of the type known as *tenent hairs*, i.e., hairs dilated at their tips. Araneidae (=Argiopidae) and Gnaphosidae have very fine hairs called as *pubescence*. Sometimes the hairs are modified as *spiny-hairs* or *mousy hairs*.

KEY FOR IDENTIFYING THE COMMON INDIAN SPIDERS UPTO FAMILY

1. Chelicerae paraxial, i.e., projecting forward and fang articulated with chelicerae in a vertical plane and movable in a plane more or less parallel to the median plane of the body; fang closing backward. With two pairs of book lungs *Suborder* ORTHOGNATHA-2.

Chelicerae diaxial, i.e., projecting downward and fang articulated with chelicerae in a horizontal plane and movable in a more or less transverse plane. Commonly with one pair of book lungs.....*Suborder* LABIDOGNATHA-7.
2. Abdomen with one to nine sclerotized tergites. Furrow of cheliceral fang indistinct. Anal tubercle not immediately behind spinnerets, but separated from the spinnerets by considerable distance.*The atypical tarantulas*-3.

Abdomen without sclerotized tergites. Anal tubercle immediately behind the four spinnerets. Furrow of cheliceral fang distinct.*The typical tarantulas*-4.
3. Abdomen furnished with nine distinct tergites. Maxillae normal. Eight spinnerets situated in the lower middle of abdomen.LIPHISTIIDAE.**

Abdomen not furnished with distinct tergites. Maxillae strongly developed and labium fused with sternum. Six spinnerets, situated in the lower end of abdomenATYPIDAE.
4. Tarsi with a small median claw and two large lateral claws, and without claw tufts.5.

Tarsi with only two claws and with claw tufts.THERAPHOSIDAE.
5. Chelicerae with a rastellum. Posterior spinnerets short or moderately long, anterior spinnerets close together at base.6.

Chelicerae without rastellum. Posterior spinnerets very long, anterior spinnerets separated by at least their length DIPLURIDAE.
6. Head region much higher than the thoracic region. Tarsi without unguis tufts. CTENIZIDAE.

Head region not much higher than the thoracic region. Tarsi with distinct unguis tufts. BARYCHELIDAE.

7. With a cribellum in front of spinnerets and a calamistrum on metatarsus IV, varying from just a few bristles to a row along the entire length of the metatarsus.....Section CRIBELLATAE-8.
Without a cribellum and calamistrum.Section ECRIBELLATAE-15.
8. With two pairs of lungs.HYPOCHILIDAE**
With only one pair of lungs.9.
9. Anal tubercle large and prominent, two-segmented with a fringe of long hairs. Posterior median eyes triangular or irregular in shape. Small spiders 2 to 2.50 mm. long with carapace sub-circular.OECOBIIDAE.*
Anal tubercle of the usual type, without a conspicuous fringe of hairs. Posterior median eyes circular.....10.
10. Head region large, rounded, high, posterior lateral eyes remote from the rest.ERESIDAE.*
Head low, narrowed, posterior lateral eyes very rarely remote from the others.11.
11. Tarsi furnished with unguis tufts and an inferior claw.PSECHRIDAE.
Tarsi without unguis tufts and inferior claw.12.
12. Chelicerae fused together at the base. Labium fused to the sternum. Tracheal spiracle considerably in advance of the spinnerets. Calamistrum short.FILISTATIDAE.
Chelicerae not fused at base. Labium free. Tracheal spiracle in the usual position close to the spinnerets. Calamistrum much longer.13
13. Tarsi with a dorsal row of trichobothria. Eight eyes, all light in Colour, homogeneous.AMAUROBIIDAE.
Tarsi without trichobothria. Eight eyes, either all dark or heterogeneous.14.
14. Eyes eight, homogeneous, dark, both rows recurved. Metatarsus IV compressed and concave above.ULOBORIDAE.*
Eyes eight, heterogeneous, the anterior medians alone dark. Metatarsus IV of the usual shape.DICTYNIDAE.
15. Tibia and metatarsus I and II with a prolateral row of long spines, at the intervals between which is a row of much shorter spines, curved near their ends and increasing in length distally.MIMETIDAE.
Tibia and metatarsus I and II without prolateral row of spines.16.
16. Sternum much wider than long, the posterior coxae widely separated.PLATORIDAE
Sternum not wider than long, posterior coxae not widely separated.17

17. Posterior spinnerets absent or much shorter than the anterior.ZODARIIDAE.
 Posterior spinnerets present, not shorter than anterior.....18.
18. Posterior spinnerets enormously long, usually longer than the abdomen.HERSILIIDAE.*
 Posterior spinnerets shorter and thick.19.
19. Anal tubercle very large, fringed with long hairs, ocular group compact.UROCTEIDAE.
 Anal tubercle small, not fringed, ocular group not compact.20.
20. Tarsi long and flexible. Labium broader than long, legs very long and slender.PHOLCIDAE.*
 Tarsi of the usual type. Labium longer than wide, legs not very long.21
21. With less than eight eyes.22.
 With eight eyes.....25.
22. Eyes six in three groups.23.
 Eyes six in one group.24.
23. Carapace round, high behind. Sternum round behind.SCYTODIDAE.*
 Carapace flat and depressed. Sternum pointed behindLOXOSCELIDAE.
24. Very small spiders, to 13 mm. long. Eyes six, median eyes larger than the laterals. Labium not joined with sternum. Epigastric furrow at the normal region.OONOPIDAE.
 Small but larger than oonopids. Eyes two, four, six or eight, almost equal in size. Labium joined with sternum. Epigastric furrow far behind the normal region.....COPONIIDAE.**
25. Anterior row with six eyes.SELENOPIDAE.
 Anterior row with four or two eyes.26.
26. Tarsi with two claws, with caw tufts.27.
 Tarsi with three claws, without claws tuts.37.
27. Tarsal claws without teeth.HOMALONYCHIDAE.**
 Tarsal claws with usual teeth.28.
28. Eyes in three or four rows.29.
 Eyes in the more common arrangement of two rows.32.
29. Eyes in four rows, the front eyes very large.LYSSOMANIDAE.*
 Eyes in three rows.30.
30. Front row of eyes more or less vertical face; median eyes enormously large, second row of two eyes very small, often minute, third row of two eyes of medium size.....SALTICIDAE.*

- Front row of eyes not vertical, and eyes of this row smaller than those of the second, eyes of third row as large as second row.31.
31. First row of two eyes, second row with four and third row with two. Anterior laterals much closer to the posterior laterals than to the anterior medians. Retromargin of cheliceral fang furrow with at least three teeth.CTENIDAE.
- First row with four eyes, second and third row each with two. Anterior laterals much closer to anterior medians than to the posterior laterals. Retromargin of cheliceral fang furrow with two teeth.ZORIDAE,**
32. Tracheal spiracle in advance of the spinnerets at least one-third of the distance between the latter and epigastric furrow.ANYPHAENIDAE.
- Tracheal spiracle in the usual place just in front of spinnerets.33.
33. Legs, at least I and II laterigrade, crab-like.34.
- Legs usually prograde type.36.
34. Colulus absent. Retromargin of cheliceral fang furrow armed with teeth.35.
- Colulus present. Retromargin of cheliceral fang furrow smooth.THOMISIDAE.*
35. Cephalothorax as long as wide. Posterior row of eyes recurved, anterior row straight or procurved, lateral eyes larger. Apex of metatarsus without a soft trilobate membrane.HETEROPODIDAE.
- Cephalothorax as long as wide or slightly longer than wide. Posterior row of eyes straight or slightly procurved, anterior row usually straight and subequal, lateral not larger than medians. Apex of metatarsus with a soft trilobate membrane.....SPARASSIDAE.
36. Anterior spinnerets conical, contiguous. Maxillae without a transverse or oblique depression. Eyes homogeneous or almost so (with few exceptions).....CLUBIONIDAE.*
- Anterior spinnerets cylindrical, and separated by a distance about equal to the diameter of one. Maxillae with an oblique depression. Eyes distinctly heterogeneous, the anterior medians dark; the posterior medians often oblique, oval, or triangular.....GNAPHOSIDAE.*
37. The six spinnerets in a more or less transverse row. Tracheal spiracle removed from the spinnerets at least one third of the distance to epigastric furrow.HAHANIIDAE.
- The six spinnerets not in a transverse row, but of the usual arrangement. Tracheal spiracle in the usual place in front of the spinnerets.....38.

38. Eyes group hexagonal, the posterior row procurved, and anterior row recurved, with clypeus high. Abdomen pointed behind the legs with very conspicuous spines.OXYOPIDAE.*
- Eyes group not forming a hexagon, and clypeus much lower. Abdomen not pointed and legs without conspicuous spines.39.
39. Tarsus IV, usually, provided with a ventral row of 6 to 10 serrated bristles, forming a comb, for at least one sixth its length from the distal end; this may be poorly developed in males.THERIDIIDAE.
- Tarsus IV not provided with comb of serrated bristles.40.
40. Tarsi with trichobothria.41.
- Tarsi without trichobothria.43.
41. Tarsi with single row of trichobothria. Trochanters not notched (most species living in sheet webs with a funnel, over which they run rapidly in an upright position).AGELENIDAE.
- Tarsi with numerous trichobothria, but irregularly distributed. All trochanters with a curved notch.42.
42. Posterior row of eyes so strongly recurved that it may be considered to form two rows. Median claw smooth or with a single tooth. Anterior piece of lorum rounded behind and fitting into a notch of the posterior piece. Egg sac carried attached to spinnerets and young carried on mother's back.LYCOSIDAE.*
- Posterior row of eyes not forming two distinct rows, but only slightly recurved. Anterior piece of lorum with a notch into which the posterior piece fits. Egg sac held under cephalothorax. Young not carried by mother.PISAURIDAE.
43. Clypeus, in most, lower than the height of the median ocular area. Eyes homogenous (most are orb-weavers).....44.
- Clypeus usually as high as or more commonly higher than, height of the median ocular area. Eyes heterogeneous (the majority are not orb-weavers).45.
44. Epigastric furrow between lung slits procurved. No boss on chelicerae. In most cases the chelicerae are large and powerful.TETRAGNATHIDAE.*
- Epigastric furrow nearly straight. Boss present on chelicerae though rudimentary in some cases. (True orb-weavers). Chelicerae not very large.....ARANEIDAE.* or (=ARGIOPIDAE)
45. Tibia of male pedipalp without apophyses (though the tibia may be dilated distally). Palp of female in most species with a claw at the end of the tarsus. Tibia IV in most species with two dorsal spines, or if only one spine is present then there is one short spine on metatarsi I and II.LINYPHIIDAE.

Tibia of male pedipalp in most species with at least one apophysis. Palp of female without a claw at end of tarsus. Tibia IV with a single dorsal spine or bristle, and with the metatarsi spinelessERIGONIDAE.

Note : Those families names marked by a single asterisk are dealt with in this paper and marked by double asterisk are so far not recorded from India. They are included in the key just to satisfy the couplet characters.

FAMILY I. OECOBIIDAE

Characters : The members of this small family have three tarsal claws, both the carapace and sternum wider than long. The spiders live under stones, but are often found in houses, especially in corner angles of walls.

There is a striking similarity between the Oecobiidae and the cribellate family Urocteidae of the old world. Some American workers prefer to consider both as subfamilies within the same family. In this case, the name Oecobiidae, having priority, should be used. Beside the presence or absence of calamistrum and cribellum, only minor external differences can be found.

The most common genus is *Oecobius* with two species so far known from India.

Genus 1. *Oecobius* Lucas

- Oecobius* Lucas, 1845. *Expl. Alg. Ar.*, : 101.
Oecobius : Thorell, 1870. *Eur. Spid.*, : 113.
Oecobius : Simon, 1892. *Hist. Nat. Araign.*, 1 : 247.
Oecobius : Tikader, 1962. *J. Bombay nat. Hist. Soc.*, 59(2): 683.

Characters : This is the best known genus of the family. The cephalothorax is convex and moderately elevated. The legs are proportionately long, the metatarsus and tarsus together of each of the legs far exceeding the carapace in length. Median ocular quadrangle as long as, or longer than broad.

This spider makes small flat web on window sills, and over cracks on the walls of buildings.

Type-species : *Oecobius domesticus* Lucas

Distribution : America, Arabia, Japan, and India.

1. *Oecobius putus* Cambridge

(Plate I. Figs. 1-4)

- Oecobius putus* Cambridge, 1876. *Proc. zool. Soc.*, : 544.
Oecobius putus : Simon, 1892. *Hist. Nat. Araign.*, 1 : 247.
Oecobius putus : Tikader, 1962. *J. Bombay nat. Hist. Soc.*, 59(2) : 683.

Specimens examined : 10 ♀ ♀, 3 ♂ ♂, Calcutta, 12.6.1956.
Coll. B. K. Tikader.

General : Cephalothorax and abdomen light to deep brown, legs pale green. Total length 2.60 mm. Carapace 0.09 mm. long, 1.10 mm. wide; abdomen 1.80 mm. long, 1.10 mm. wide.

Cephalothorax : Wider than long, depressed on the centre but cephalic region slightly high and eyes groups situated on the top, margin encircled by a deep brown line. Eyes unequal in size and dissimilar in form. The anterior medians and posterior lateral eyes dark in colour and others pearly white; posterior medians triangular in size, both rows procurved but anterior row more procurved than posterior. Legs long, clothed with fine long hair and all legs transversely banded with dark brown bands but in male no such bands.

Abdomen : Long, slightly pointed behind, clothed with long hair, dorsum ornamented by dark and chalk-white irregular patches, mid-dorsally with a spear-shaped black area extending from base to behind the middle. The hind spinnerets long and two joined; the second segment longer than the first and furnished with a comb of long spinning tubes on the inner side.

Distribution: Egypt, Tripoli, Yemen, Tanganyika; India: Madras, Poona, Calcutta. Lahore, Mansahra (5000 ft.),

FAMILY II. ERESIDAE

Characters : Cephalothorax very wide in front (resembling at first sight that of Salticidae); cephalic region high; the clypeus low; the four median eyes forming a small quadrangle narrower in front than behind, the anterior lateral eyes on the side of the head, the posterior lateral far removed from the rest of the eyes and situated high up on the posterior portion of the head. Abdomen very heavy, over hanging cephalothorax; cribellum thick, transversely divided.

Genus 2. *Stegodyphus* Simon

Stegodyphus Simon, 1873, *Ann. Soc. Ent. Fr.*, (5) 3 : 336.

Stegodyphus : Simon, 1892, *Hist. Nat. Araign.*, 1 : 253.

Stegodyphus : Pocock, 1900, *Fauna Brit. India Arach.*, : 208.

Stegodyphus : Dyal, 1935, *Bull. Zool. Punjab Univ.*, 1 : 129.

Characters : Cephalic region large, rounded, high, posterior lateral eyes remote from other eyes; anterior lateral eyes situated at the edge of clypeus; clypeus low, mandibles flat in front, fang groove scarcely toothed; legs strong and stout, spiny. Abdomen oval; anterior spinnerets thick.

The species of the genus occur on bushes or branches of trees, where they spin either large sheet-like webs, accompanied by a tubular retreat, or a large saccular nest, in which many individuals live, gregariously habits among spiders.

Type-species : *Stegodyphus lineatus* Latreille.

Distribution : Asia, Arabia, Africa, and India.

2. *Stegodyphus sarasinorum* Karsch

(Plate I. Figs. 5-7)

Stegodyphus sarasinorum Karsch, 1892, *Ent. Z. Berlin*, 36 : 275.

Stegodyphus sarasinorum : Pocock, 1900, *Fauna Brit. India Arach.*, : 209.

Stegodyphus sarasinorum : Dyal, 1935, *Bull. Zool. Punjab Univ.*, 1 : 129.

Specimens examined : 5 ♀♀ and 10 ♂♂, Dhakuria (Calcutta) 30.3.1958; 25 ♀♀ and 5 ♂♂, Botanical Garden, Sibpore, Dist. Howrah, 11.11.1956. *Coll. B. K. Tikader.*

Measurements : Total length 11.00 mm. Carapace 5.00 mm. long, 3.00 mm. wide; abdomen 7.00 mm. long, 5.00 mm. wide.

This spider is gregarious in its habits. It spins a labyrinthine tube, which ends blindly at one end and the other end expands into a broad sheet, which however is smaller than that spun by the genus *Hippasa*.

This species does not sting the prey to death, but feeds on the captive alive, all members of the colony sharing the same victim. Spiderlings hatch in the month of October and November and feed on their parents, hibernating in web tubes in winter.

Distribution : India : Travancore, Bangalore, Chingleput, Bilaspur, Poona, Uran, Calcutta, Berkuda Islands and Punjab.

FAMILY III. ULOBORIDAE

Characters : These spiders spin geometric orb-webs or sectors of webs, similar to those of the Araneidae and related families. They are unique among spiders in lacking poison glands. Eyes dark in colour, the lateral eyes on each side further apart from the median eyes and the posterior median eyes moderate in size. Chelicerae moderately robust, nearly parallel-sided. Anterior legs longest. Metatarsus IV, bearing calamistrum, somewhat curved, at least along its dorsal edge. Femora with dorsal trichobothria; tarsi with three foot-claws. Anal tubercle well developed in *Uloborus* but less conspicuous in *Hyptiotes* and close to posterior spinnerets.

Genus 3. *Uloborus* Latreille

- Uloborus* Latreille, 1806, *Gen. Crust. Ins., etc.*, 1 : 109.
Phyllyra : Hentz, 1850, *Bost. J. H. H.*, 6 : 25.
Uloborus : Simon, 1874, *Ar. Fr.*, : 244.
Uloborus : Simon, 1895, *His. Nat. Araig.*, 1 : 214.
Uloborus : Comstock, 1940, *The Spider Book*, New York, : 262.
Uloborus : Tikader, 1970, *Rec. zool. Surv. India*, 64 (1-4) : 4.
Uloborus : Tikader, 1977, *Rec. zool. Surv. India*, 72 : 162.

Characters : Anal tubercle prominent in the female, diminished in male. Legs I pair much longer and stronger than the rest. Male tibiae of I with six to seven dorsal spines, almost in the form of teeth.

Type-species : *Uloborus walckenaerius* Latreille

Distribution : Europe, Africa, Madagascar, Asia, Malaysia, America and India.

3. *Uloborus danolius* Tikader
 (Plate I. Figs. 8-11)

Uloborus danolius Tikader, 1969, *Proc. Indian Acad. Sci.*, 70 : 128.

Specimens examined: 5, ♀ ♀ Calcutta, 10.1.1956. *Coll. B. K. Tikader.*

General: Cephalothorax and legs greenish-brown, abdomen dirty white. Total length 4.30 mm. Carapace 1.40 mm long, 1.40 mm. wide ; abdomen 3.00 mm. long, 2.00 mm. wide.

Cephalothorax: Nearly as long as wide, two conspicuous longitudinal deep brown broad patches on the cephalothorax. Eyes black, two rows, posterior row slightly recurved or straight and anterior row straight. Posterior row of eyes almost equal in size and equal spaced, anterior median nearer to each other than adjacent laterals. Sternum longer than wide, narrowing behind, deep brown colour and clothed with hair. Legs clothed with hair and conspicuously banded with transverse black patches. I and IV longer than II and III.

Abdomen: Longer than wide, high and broad in front, clothed with fine hair and decorated with fine net-like structures. Anterior dorsal side of abdomen provided with a hump. Mid-ventral side with two longitudinal deep brown bands or lines extending from epigastric fold.

Distribution: India: Danoli (type locality) Maharashtra; Calcutta.

FAMILY IV SCYTODIDAE

Characters: Cephalothorax very high usually high behind. Eyes six in number. Labium fused with sternum. Legs very long and slender.

Genus 4. *Scytodes* Latreille

- Scytodes* Latreille, 1804, *Nouv. Dict. etc.*, 24 : 134.
Scytodes : Koch, 1873, *Ar. Austr.*, : 292.
Scytodes : Simon, 1892, *Hist. Nat. Araign.*, 1 : 276.
Scytodes : Stoliczka, 1869, *J. Asiat. Soc. Bengal*, 38 : 231.
Scytodes : Comstock, 1940, *Spiders Book*, New York, : 316.
Scytodes : Locket and Millidge, 1951, *British spiders*, Ray Society, 1 : 89.

Characters: Cephalothorax high and subglobose behind and slopes forward. Eyes six, small and light-coloured, arranged in three widely-separated pairs. Anterior row of eyes strongly recurved.

Type-species: *Scytodes thoracica* Latreille.

Distribution: Europe, Africa, America, and India.

4. *Scytodes propinqua* Stoliczka

- Scytodes propinqua* Stoliczka, 1869, *J. Asiat. Soc. Bengal*, 38 : 232.
Scytodes propinqua : Dyal, 1935, *Bull. zool. Punjab Univ.*, 1 : 154.
Scytodes propinqua : Tikader, 1963, *J. Poona Univ.*, 24 : 31.

Specimens examined: 20 ♀♀ Dhakuria (Calcutta), 10.10.1958; 10 ♀♀ Habra ca. 48 kilometres North-east of Calcutta, 9.10.1959. Coll. B. K. Tikader.

General: Cephalothorax, legs, clypeus and abdomen light yellow. Total length 3.80 mm. Carapace 1.80 mm. long, 1.30 mm. wide; abdomen 2.00 mm. long, 1.80 mm. wide.

Cephalothorax: Very high posteriorly, with five blackish longitudinal lines, the middle line extending from the base of anterior median eyes to nearly the base of cephalothorax. The lateral most line joint posteriorly each other and formed a semicircle. Legs long, slender, with numerous small spines, patella and tip of tibiae blackish, two longitudinal black lines on the dorsal side of tibiae and metatarsi of legs. Eyes small, pale colour, arranged in three widely separated pairs. Sternum oval, pale yellow, with a short black lateral bar, opposite each leg. Labium fused to the sternum, slightly darker in colour.

Abdomen: Short, covered with fine hairs, with four narrow transverse black bands on the dorsal side but posterior most incomplete in the middle.

This species occurs in the bushes and low plants.

Distribution: Punjab, Calcutta, West Bengal.

5. *Scytodes thoracica* (Latreille)

- Aranea thoracica* Latreille, 1804, *Hist. Nat. Insc. Paris*, 7 : 249.
Scytodes thoracica : Blackwall, 1864, *History of British Spiders*, : 380.
Scytodes thoracica : Rainbow, 1902, *Rec. Aust. Sydney*, 7 : 312.
Scytodes thoracica : Simon, 1910, *Ann. Soc. Ent. Fr.*, : 305.
Scytodes thoracica : Dyal, 1935, *Bull. zool. Punjab Univ.*, 1 : 154.
Scytodes thoracica : Tikader, 1963, *J. Poona Univ.*, 24 : 31.

Specimens examined: 5 ♀ ♀ , Calcutta, 12.6.1960. *Coll. B. K. Tikader.*

This species differs from *S. propinqua* being deep brown in colour. Cephalothorax has only a few black longitudinal streaks. Legs are transverse bands. Abdomen is dotted with black.

According to Rainbow (1902), this as an European species which made its way to Australia by the agency of commerce. If so, it is quite possible that the species migrated into India also.

This spider is not web-spinning, but hides itself in dark corners of old houses and inside packing boxes.

Distribution: India, Australia, Europe, America and Africa.

FAMILY V PHOLCIDAE

Characters: Cephalothorax short, almost rounded; cephalic region elevated on the sides; thoracic region with deep median longitudinal groove; clypeus high. The anterior median eyes small, the rest large and forming a group on each side. Legs extremely long, thin and slender furnished with three claws.

These spiders are sedentary in habit. They occur in trees and rocks, under stones and in common dark places in houses. The females always carry the cocoon in their chelicerae.

Genus 5. *Artema* Walckenaer

- Artema* Walckenaer, 1837, *Ins. Apteres*, 1 : 656.
Artema : Simon, 1893, *Hist. Nat. Araign.*, 1 : 465.
Artema : Pocock, 1900, *Fauna Brit. India Arach.*, : 238.
Artema : Dyal, 1935, *Bull. zool. Punjab Univ.*, 1 : 170.

Characters: Cephalothorax broader than long, cephalic part prominent, anterior medians not much smaller than the other eyes, ocular quad not longer than wide; each chelicera with an additional tooth; sternum broader than long; legs long; abdomen very high, sub-globular.

Type-species: *Artema mauricia* Walck.

Distribution: Africa, Asia, America, Arabia, India, and Malaysia.

6. *Artema atlenta* Walckenaer

(Plate I. Fig. 12)

Artema atlenta Walckenaer, 1837, *Ins. Apteres.*, 1 : 656.*Artema atlenta* : Pocock, 1900, *Fauna Brit. India Arach.*, : 238.*Artema atlenta* : Tikader, 1961 *Rec. Indian Mus.*, 59 : 437.

Specimen examined: 5 ♀♀ and 2 ♂♂, Dhakuria, Calcutta, 10.10.1958. Coll. B. K. Tikader.

Measurements: Total length 6.10 mm. Carapace 2.60 mm. long, 2.50 mm. wide, abdomen 3.50 mm. long, 2.50 mm. wide.

Distribution: India: Calcutta, Travancore, Meerut, Poona, Punjab; Burma: Tharrawaddy.

Genus 6. *Crossopriza* Simon*Crossopriza* Simon, 1893, *Hist. Nat. Araign.*, 1 : 476.*Crossopriza* : Pocock, 1900, *Fauna Brit. India Arach.*, : 240.*Crossopriza* : Dyal, 1935, *Bull. Zool. Punjab Univ.*, 1 : 168.

Characters: Anterior eyes recurved, narrowly spaced; chelicerae depressed at the inner margin and each provided with an oblique apical tooth. Sternum broadly truncate posteriorly. Abdomen slightly ovate, abruptly declined posteriorly raised much above the spinnerets.

Type-species: *Crossopriza pristina* Simon

Distribution: Egypt, Arabia, and India.

7. *Crossopriza lyoni* (Blackwall)

(Plate I. Figs. 13-15)

Pholcus lyoni Blackwall, 1867, *Ann. Mag. Nat. Hist.*, 19(3) : 302.*Crossopriza lyoni* : Pocock, 1900, *Fauna Brit. India Arach.*, : 240.*Crossopriza lyoni* : Dyal, 1935, *Bull. Zool. Punjab Univ.*, 1 : 168.*Crossopriza lyoni* : Tikader, 1961, *Rec. Indian Mus.*, 59 : 437.

Specimens examined: 5 ♀♀ and 2 ♂♂, Baliaghata, Calcutta, 5.10.1958. Coll. B. K. Tikader.

Measurements: Total length 4.60 mm. Carapace 1.60 mm. long, 2.00 mm. wide; abdomen 3.00 mm. long, 2.50 mm. wide.

Field notes: *Crossopriza lyoni* is a common house spider. It spins an extremely fine irregular cob-web, from which it hangs upside down. It prefers old dark and abandoned houses. No cocoon is made but the eggs are glued together and carried by the chelicerae of the mother till

hatching; *Artema attenta* often occurs in the same situations and has similar habits. *A. attenta* is larger and stronger than *C. lyoni*, so that the former often kills the later and occupies its web. Both the species are nocturnal.

Distribution: India: Calcutta, Madras, Meerut, Allahabad, Punjab, Rajasthan; Burma.

FAMILY VI. ARANEIDAE (=ARGIOPIDAE)

Characters: Cephalothorax usually flat, thoracic region oval or nearly circular, separated from head by an oblique depression. Eyes not very different in size. Medians may form either a square or a trapezium; laterals close to one another and often projecting. Clypeus narrower than the ocular area. Sternum heart-shaped or triangular, coxa IV being nearly contiguous. Legs furnished with numerous spines, with three tarsal claws. This is the only family of spiders that spins true orb-webs.

Genus 7. *Araneus* Clerck

- Araneus* Clerck, 1757, *Svenska Spindlar*, : 15.
- Aranea* : Linnaeus, 1758, *Systema Naturae*, 10th ed., : 619.
- Epeira* : Walckenaer, 1805, *Tableau des Araneides*, : 53.
- Atea* : Koch, 1837, *Ubersicht des Arachniden Systems*, 1 : 3.
- Neopora* : Simon, 1864, *Hist. Nat. Araign.*, : 261.
- Araneus* : Simon, 1892, *Hist. Nat. Araign.*, 1 : 829.
- Araneus* : Pocock, 1900, *Fauna Brit. India Arachn.*, : 227.
- Araneus* : Dyal, 1935, *Bull. zool. Punjab Univ.*, 1 : 177.
- Araneus* : Tikader, 1970, *Rec. zool. Surv. India*, 64(1-4) : 30.
- Araneus* : Levi, 1971, *Bull. Mus. Comp. Zool.*, 12(4) : 133.

Characters: Carapace moderately arched with no horny out growth; thoracic groove of female transverse, straight or recurved, and prolonged at each end by a striae which extends backward and outward, in a few cases it is a circular pit; ocular quad not much longer than wide, lateral eyes close and situated on tubercles, anterior and posterior median eyes slightly unequal in size, both rows of eyes recurved; shape of the abdomen variable, in some species, provided with prominent humps, generally longer than wide, epigyne with large basal lamellae and a prominent scape which may be long, wrinkled and winding or straight and short; epigynal openings into the grooves at the base. Metatarsus and tarsus of the first leg together not longer than the patella and tibia. Males with a hook on coxa I and a groove on femur II and tibia II armed with macrosetae on the prolateral side and often bent. Male palp with a large terminal apophysis, patella of palp provided with two strong curved spines.

Type-species: *Araneus angulatus* Clerck.

Distribution: Asia, Africa, Australia, America and Europe.

8. *Araneus excelsus* (Simon)

(Plate II. Figs. 16-18)

- Glytogona excelsus* Simon, 1889, *J. Asiat. Soc. Bengal.*, 58 : 337.
Epeira excelsa : Bank, 1896, *J. N. Y. Ent. Soc.*, 4 ; 90.
Araneus excelsus : Simon, 1906, *Ann. Soc. ent. Fr.*, : 283.
Araneus excelsus : Dyal, 1936, *Bull. zool. Punjab Univ.*, 1 : 179.

Specimens examine : 4 ♀ ♀, Habra, Dist. 24 Parganas West Bengal, 7.9.1958. Coll. B. K. Tikader.

General : Cephalothorax and legs brownish, abdomen blackish brown. Total length 4.70 mm. Carapace 1.70 mm. long, 1.50 mm. wide; abdomen 3.50 mm. long, 3.70 mm. wide.

Cephalothorax : Slightly longer than wide, narrowing in front, clothed with white pubescence. Cephalic region distinctly elevated and light brown in colour. Thoracic region provided with an inconspicuous transverse groove. Ocular quad slightly longer than wide forming a rectangular and situated on an elevation. Anterior median eye slightly smaller than the posterior median eyes. Posterior median eyes encircled by black ring. Lateral eyes close and each situated on a tubercle. Both rows of eyes strongly recurved. Sternum heart-shaped brownish in colour, pointed behind, clothed with white pubescence and hair. Labium wider than long, crescent shaped, brown in colour with pale distal border. Maxillae strong and nearly square shaped, brown with pale outer margin, provided with distinct scopulae. Chelicerae moderately strong and yellowish brown, provided with moderate boss. Legs moderately long and thin, clothed with pubescence, hair and spines, femora of all legs dark with pubescence, hair and spines, patellae and tibiae yellowish on the dorsal side.

Abdomen : Slightly wider than long, globular, clothed with white pubescence. Abdomen provided with a tail like hump with black tip at the posterior end. Dorsum provided with a chalk white patch forming a folium. Four pairs of sigilla arranged mid-longitudinally on the dorsal side. Ventral side blackish brown, provided with a pair of large conspicuous chalk-white spot in between the epigastric furrow and the spinnerets. Epigyne provided with a short and broad scape.

Distribution : India: Poona, Mahableshwar, Maharashtra; Rajkot, Gujarat; Berkuda Islands, Orissa; Chhota Nagpur, Bihar; Eastern Himalaya, Kalimpong. West Bengal; Pakistan : Rawalpindi.

9. *Araneus dehaanii* (Doleschall)

(Plate II. Figs. 19—21)

Epeira dehaanii Doleschall, 1859, *Verh. Nat. Vereen Nederland, Indie*, 5(5) : 33.*Epeira dehaanii* : Thorell, 1895, *Spiders of Burma* : 170.*Araneus dehaanii* : Pocock, 1900, *Fauna Brit. India Arachn.*, : 225.*Araneus dehaanii* : Sinha, 1951, *Rec. Indian Mus.*, 49(1) : 84.*Araneus dehaanii* : Chrysanthus, 1960, *Nova Guinea (Zool.)*, 10(3) : 31.*Araneus dehaanii* : Tikader, 1970, *Rec. zool. Surv. India*, 64(1-4) : 30.*Specimens examined* : 1 ♀, Basihnab-ghata, Calcutta, 11.12.1976. Coll. Bijan Biswas. 1 ♀, Palta, Dist. 24 Parganas, West Bengal,

10.11.1977. Coll. Bijan Biswas. 2 ♀♀, Palta, Dist. 24 Parganas, West Bengal, 31.8.1977. Coll. Bijan Biswas.

General : Cephalothorax and legs reddish brown, abdomen dark brown. Total length 20.50 mm. Carapace 8.80 mm. long, 7.40 mm. wide; abdomen 13.70 mm. long, 12.50 mm. wide.*Cephalothorax* : Longer than wide, narrowing in front, clothed with white pubescence, hair and spines with granular base. Cephalic region much elevated in the middle thus forming a ridge just behind the ocular area. Thoracic region provided with transverse groove. Ocular quad situated on an elevation, slightly wider in front than behind. Anterior median eyes larger than the posterior medians. Lateral eyes of both the rows nearly same in size, close and situated on the base of horn-like projection. Anterior row of eyes procurved as seen from in front and posterior row of eyes recurved as seen from above. Sternum heart-shaped, pointed behind, reddish brown in colour, clothed with pubescence and hair with granular base. Labium slightly wider than long, dark brown with pale distal border. Maxillae strong, reddish brown with pale outer margin, provided with distinct scopulae. Chelicerae strong, reddish brown, provided with moderate boss. Legs long and strong, clothed with pubescence; hair and spines, having no bands, tarsi darker than other segments.*Abdomen* : Triangular, longer than wide, clothed with pubescence and hair, provided with two conspicuously pointed shoulder humps directed outward and one pointed tail hump at the posterior end. Five pairs of sigilla on the dorsum arranged mid-longitudinally. Sometimes chalk-white transverse band extending in between the two shoulder humps. Ventral side greyish brown with indistinct dark brown patches. Epigyne provided with a stout beak like scape bent at right angle to the base.

Distribution : India : Karnataka; Sikkim; Calcutta, West Bengal; Burma : Tharrawaddy; Bhamo; Tenasserim. Indo and Austro-Malaysia, Java, Sumatra, Japan.

Genus 8. *Neoscona* Simon

Neoscona Simon, 1864, *Hist. Nat. Araign.*, 1 : 216.

Chinestela : Chamberlin, 1924, *Proc. U. S. Natl. Mus.*, 63 : 20.

Neoscona : Comstock, 1940, *Spider Book*, : 509.

Neosconopsis : Archer, 1951, *Natur. Hist. Misc. Chicago Acad. Sci.*, 84 : 3.

Neoscona : Levi, 1971, *Bull. Mus. Comp. Zool.*, 141(8) : 500.

Characters : Presence of longitudinal thoracic groove of female separates *Neoscona* from all members of the genus *Araneus*. Anterior median eyes larger or subequal to the posterior medians; lateral eyes smaller and each situated on a tubercle; ocular quad longer than wide and wider in front than behind; the space between anterior median eyes usually slightly more than one diameter of an anterior median eyes and space between the posterior medians usually slightly less than their diameter. Abdomen generally oval, suboval, triangular or sub-triangular in shape; the epigyne usually provided with one or two pairs of lateral lobes, base of the scape completely fused to the epigyne; epigynal opening on the underneath of scape; male provided with a hook on the distal rim of the coxa I and macrosetae on the prolateral surface of tibia II.

Type-species : *Neoscona arabesca* (Walckenaer).

Distribution : This genus is distributed all over the world, but many species of the genus *Neoscona* have been erroneously placed under the genus *Araneus*.

10. *Neoscona poonaensis* Tikader & Bal

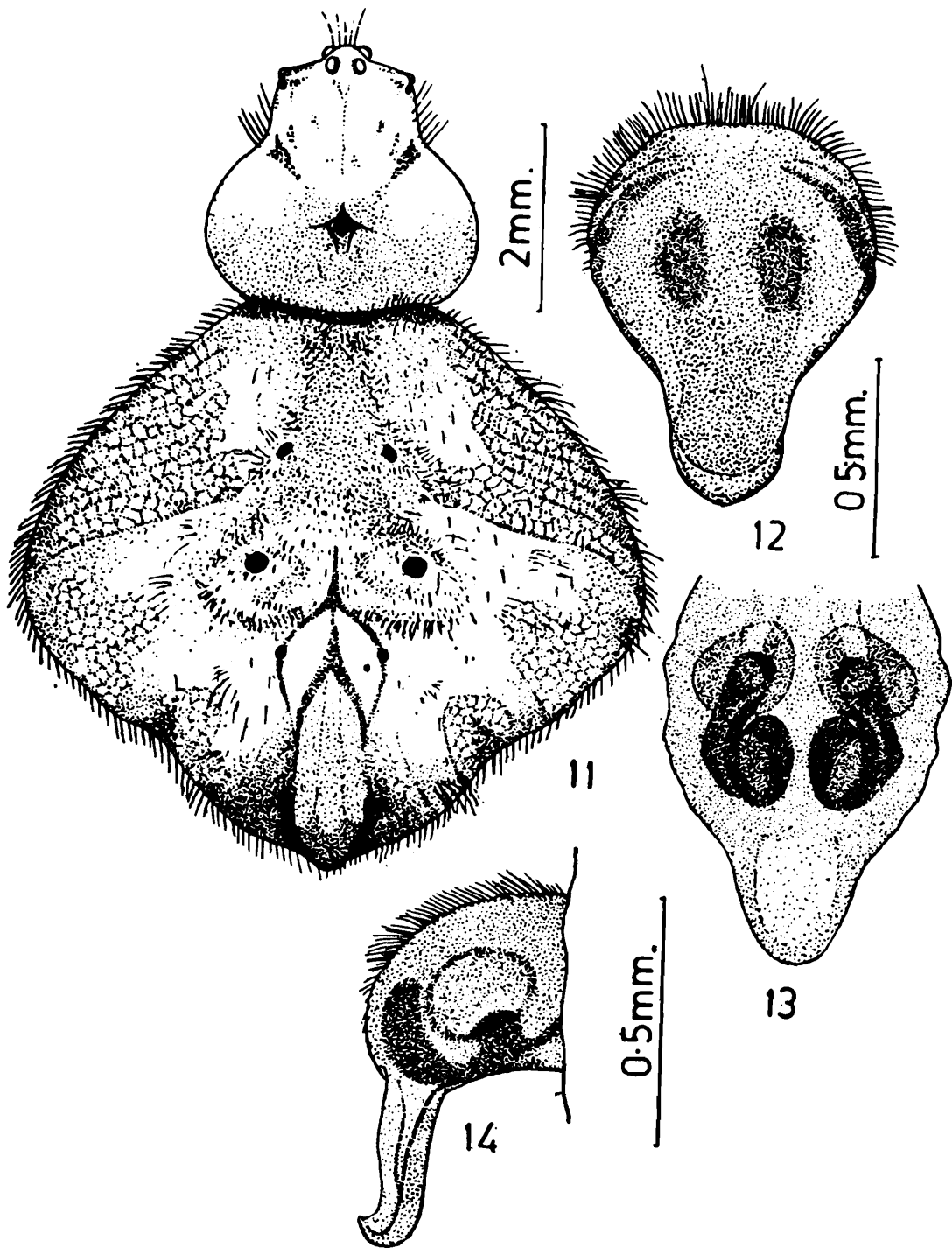
(Text-figs. 11-14. Plate II figs. 22-24)

Neoscona poonaensis Tikader & Bal, 1981. *Rec. zool. Surv. India*, Occ. No. 24 : 28

Specimen examined : 5 ♀ ♀, 3 ♂ ♂, Univesity Compound, Poona 12-10-1975 Coll. B. K. Tikader.

General : Cephalothorax and legs yellowish, abdomen yellowish grey. Total length 8.70 mm. Carapace 3.00 mm. long, 2.80 mm. wide; abdomen 6.00 mm. long, 6.60 mm. wide.

Cephalothorax : Slightly longer than wide, narrowing in front, yellowish with brown patches, clothed with pubescence and hairs. Thoracic region provided with an indistinct transverse groove. Ocular quad as long as wide and situated on an elevation. Both the median



FIGS. 11-14. *Neoscona poonaensis* Tikader & Bal
 11. Dorsal view of female, legs omitted.
 12. Epigyne.
 13. Internal genitalia.
 14. Lateral view epigyne.

eyes nearly same in size. Lateral eyes close and each situated on a tubercle. Both rows of eyes recurved. Sternum heart-shaped, pointed behind, dark brown in colour, clothed with hairs. Labium wider than long, crescent shaped, dark brown with pale distal border. Maxillae almost square, strong, dark brown with pale outer margin, provided with distinct scopulae. Chelicerae moderately strong, yellowish and provided with medium boss. Legs long and moderately strong, covered with pubescence and hairs, distal ends of femora with distinct dark brown

transverse bands, tibiae with indistinct dark brown patches on the ventral side.

Abdomen : Nearly pentangular in shape, yellowish grey with chalk white patches and dark brown lines, clothed with pubescence and irregular tufts of hairs present on the dorsum of abdomen. Dorsum of abdomen provided with a distinct elongated tail like hump at the posterior end and three pairs of sigilla arranged mid-longitudinally. Ventral side provided with a large star shaped black patch, and one pair of chalk white dumble shaped patches in between the epigastric furrow and the spinnerets.

Distribution : Poona, Maharashtra, India.

11. *Neoscona bengalensis* Tikader and Bal

(Plate III. Figs. 25-27)

Neoscona bengalensis Tikader and Bal, 1981, *Rec. zool. Surv. India, Occ.*, 24 : 15

Specimens examined : 1 ♀ near Jadavpur Railway Station, Calcutta, West Bengal, 12.12.1976 *Coll. Bijan Biswas*. 1 ♀, Palta, Dist. 24, Parganas, West Bengal, 10.11 1977. *Coll. Bijan Biswas*.

General : Cephalotorax reddish brown, legs light brown, abdomen dirty brown. Total length 12.70 mm. Carapace 5.00 mm long, 4.40 mm. wide; abdomen 8.00 mm. long, 7.90 mm. wide.

Cephalothorax : Longer than wide, narrowed in front, clothed with hairs and spines, cephalic region slightly high; thoracic region provided with longitudinal groove. Both rows of eyes recurved; anterior median eyes considerably larger than the posterior medians; posterior medians encircled by black ring; lateral eyes close and situated on a black tubercle; ocular quad longer than wide and wider in front than behind. Sternum heart-shaped, pointed behind, brown, clothed with hairs and spines; middle provided with an inconspicuous pale longitudinal bar; labium nearly as long as wide, brown, clothed with spine like hair, distal end pale in colour and provided with prominent scopulae; chelicerae very strong, brown provided with prominent boss. Legs long and strong, clothed with thick hairs and spines.

Abdomen : Sub-triangular, longer than wide, much wider in front than behind, clothed with hairs; mid-dorsally provided with five pairs of sigilla arranged mid-longitudinally; and beautifully decorated with minute chalk-white granules admixture of deep brown short line arranged in different directions. Ventral side of abdomen brown, but midventral with a dark brown broad longitudinal patch extending from epigastric furrow to the spinnerets; posterior end of this patch

provided with a pair of conspicuous chalk-white markings. Epigynal scape thin, long and narrow, and right angle to the base, one pair of inconspicuous lateral lobes.

Distribution : India : Jadavpur, Calcutta (Type locality), Palta, near Barrackpur, Dist. 24 Parganas, West Bengal.

12. *Neoscona rumpfi* (Thorell)

(Plate III. Figs. 28-30)

Araneus rumpfi Thorell, 1878, *Ann. Mus. Genova*, 13 : 296.

Araneus rumpfi : Pocock, 1900, *Fauna Brit. India Arachn.*, : 228.

Neoscona rumpfi : Tikader & Bal, 1981, *Rec. zool. Surv. India, Occ.*, 24 : 18.

Specimen examined : 1 ♀, Habra, Dist. 24 Parganas, West Bengal, 7.9.1958 Coll. B. K. Tikader, 1 ♀, 1 ♂, Baranagar Railway Station, Calcutta, 22.1.78 Coll. Bijan Biswas. 5 ♀♀ juvenile, Dhakuria lake, Calcutta, 5.2.1978. Coll. Bijan Biswas.

General : Cephalothorax dark brown, legs yellowish, abdomen greyish brown. Total length 17.00 mm. Carapace 6.30 mm. long, 5.80 mm. wide; abdomen 11.90 mm. long, 11.00 mm. wide.

Cephalothorax : Longer than wide, narrowed in front, clothed with fine pubescence and hair; cephalic region slightly high and light brown in colour; thoracic region dark brown and provided with a deep longitudinal groove. Ocular quad longer than wide and wider in front; anterior median eyes larger than the posterior medians; lateral eyes close and each situated on a tubercle. Sternum heart-shaped, pointed behind, light brown in colour with mid-longitudinal white broad band, clothed with pale distal end; maxillae broad provided with distinct scopulae; chelicerae strong, yellowish brown, provided with prominent boss. Legs long and strong, yellowish in colour distal ends of segments with distinct transverse bands; femora I, II reddish brown in colour.

Abdomen : Sub-triangular, longer than wide, clothed with pubescence and some conspicuous grey hairs and overlapping the cephalothorax anteriorly, dorsum of abdomen provided with an indistinct pattern, marked with white and greyish brown patches and oblique black marks; dorsum provided with six pairs of sigilla arranged mid-longitudinally, ventertral dirty brown in colour with a broad longitudinal black patch; anterior and lateral sides provided with black patch encircled by conspicuous chalk-white marks; epigyne with constriction at the bending point and provided with a pair of conspicuous horn like lateral lobes; and lower side of the scape provided with median bulge.

Distribution: India : Chingleput, Ootacamund, Tamil Nadu; Bangalore, Karnataka; Wagra Koroor, Andhra Pradesh; Poona, Maharashtra; Orissa; West Bengal; Sri Lanka : Punduloya, Trincomali. Burma : Rangoon, Tharrawaddy, Bhamo. Pakistan: Karachi, Indo and Austro-Malaysia,

13. *Neoscona theis* (Walckenaer)

(Plate III. Figs. 31-33)

Epeira theis Walckenaer, 1841, *Hist. Nat. Ins. Apt.*, 1 : 55.

Araneus theisi : Chrysanthus, 1960, *Nova Guinea (Zool.)*, 10 : 39.

Araneus theisi : Patel, 1975, "Vidya", *J. Gujarat Univ.*, 18 B(1) : 158.

Neoscona theis : Tikader & Bal, 1981, *Rec. zool. Surv. India, Occ.*, 24:32.

Specimens examined: 5 ♀♀, 1♂, Habra, Dist. 24 Parganas, West Bengal, 7.9.1958. Coll. B. K. Tikader.

General: Cephalothorax and legs yellowish brown, abdomen brownish white. Total length 9.80 mm. Carapace 3.90 mm long, 3.20 mm. wide; abdomen 6.80 mm. long, 5.70 mm. wide.

Cephalothorax: Longer than wide, narrowed in front, clothed with pubescence and hair, provided with two laterals and one median longitudinal dark brown bands, thoracic region provided with distinct longitudinal groove; both rows of eyes slightly recurved; anterior medians larger than posterior medians; laterals eyes close, each situated on a tubercle; ocular quad longer than wide and wider than in front than behind. Sternum heart-shaped, pointed behind, clothed with pubescence and hair, dark brown, provided with a conspicuous longitudinal bar; labium wider than long, deep brown; maxillae longer than wide, deep brown in colour but anterior border pale, distal end provided with scopulae; chelicerae strong, light brown with prominent boss; legs long and strong clothed with hair and spines, provided with transverse black bands.

Abdomen: Sub-oval, longer than wide, anterior end more wider than posterior clothed with pubescence and hair, overlapping the cephalothorax anteriorly; mid-dorsally provided with a conspicuous longitudinal chalk-white bar provided with four pairs of lateral projections; lateral sides of this bar guarded by deep brown or black patches; four pairs of sigilla on the dorsum arranged longitudinally; ventral side light brown, mid-ventrally provided with a deep brown bar extending from epigastric fold to the spinnerets and lateral sides of this bar guarded by conspicuous chalk white patches; scape of the epigyne with prominent rim and a constriction at the middle lateral provided with a pair of lobes.

Distribution: Calcutta, West Bengal; Poona, Maharashtra; Orissa; Gujarat; Type locality Guam, Mariana Island; South New Guinea.

14. *Neoscona nautica* (L. Koch)

(Plate IV Figs. 34-36)

Epeira nautica Koch, 1875, *Aegypt. Abyssin. Arachniden*, : 17.*Epeira nautica* : Thorell, 1877, *Ann. Mus. Genova*, 10 : 385.*Araneus nauticus* : Pocock, 1900, *Fauna Brit. India Arachn.*, : 228.*Neoscona nautica* : Levi, 1971, *Bull. Mus. Comp. Zool.*, 142(8) : 498.*Neoscone nautica* : Tikader & Bal, 1981. *Rec. zool. Surv, India, Occ.*, 24 : 11.

Specimens examined: 2 ♀ ♀, Palta, Dist. 24 Parganas, West Bengal, 10.11 1977. *Coll. Bijan Biswas.*

General: Cephalothorax and legs yellowish brown, abdomen greenish brown. Total length 11.00 mm. Carapace 4.50 mm. long, 3.80 mm. wide; abdomen 7.60 mm. long, 7.00 mm. wide.

Cephalothorax: Longer than wide, narrowed in front, clothed with grey pubescence and hairs; middle of cephalothorax provided with broad longitudinal light band extending from base to the ocular area and lateral sides of cephalic region provided with a row of fringe hairs: throacic region provided with a distinct longitudinal groove. Ocular quad longer than wide and wider in front than behind; anterior medians longer than posterior medians and posterior medians encircled by black rings; laterals close and each situated on a tubercle; both row of eyes recurved but anterior row more recurved than the posterior row. Sternum heart-shaped, pointed behind, dark brown in colour, clothed with fine pubescence and provided with a median longitudinal conspicuous chalk-white band; labium wider than long, dark brown in colour with pale distal margin; maxillae broad, roundish, dark brown with pale outer margin provided with distinct scopulae. Chelicerae strong dark brown provided with pale transverse bands clothed with pubescence and spines.

Abdomen : Nearly triangular, narrowed posteriorly; clothed with fine pubescence and hair overlapping the cephalothorax anteriorly, dorsum greenish brown in colour, provided with many scattered black dots and chalk-white spots which form an indistinct pattern; dorsum provided with six pairs of sigillae, arranged mid-longitudinally; ventral side with a broad longitudinal greenish brown patch guarded with a broad longitudinal greenish brown patch guarded laterally by a pair of conspicuous dumble shaped chalk-white bars; epigyne with a short, broad and triangular scape; the scape provided with a pair of less distinct lateral lobes and without constriction on the scape.

Distribution : India : Eastern Districts of East Khandesh, Poona, Maharashtra; Darjeeling, Calcutta, West Bengal; Rajkot, Gujarat; Rilbong, Shillong, Meghalaya; Burma: Rangoon, Tharrawdey, Bhamo; Pakistan : Karachi; North America.

Genus 9. *Cyrtarachne* Thorell

- Cyrtarachne* Thorell, 1868, *Eug. Resa. Zool. Arach.*, : 10.
Cyrtarachne : Simon, 1895, *Hist. Nat. Araign.*, 1 : 880.
Cyrtarachne : Thorell, 1895, *Spiders of Burma*, : 201.
Cyrtarachne : Pocock, 1900, *Fauna Brit. India Arachn.*, : 228.
Cyrtarachne : Tikader, 1960, *J. Bombay nat. Hist. Soc.*, 57(3) : 547.
Cyrtarachne : Tikader, 1963, *J. Bombay nat. Hist. Soc.*, 60 (1) : 269.

The genus was erected by Thorell to include *Cyrtogaster grubei* Keyserling, 1864. The name *Cyrtogaster* being preoccupied in Keyserling, Thorell proposed *Cyrtarachne* in the year 1968. He has given a detailed diagnosis in his book *Spiders of Burma*.

Characters : Carapace unarmed, convex, median eyes not very prominent, the ocular quadrangle generally slightly wider than long, laterals contiguous. Abdomen large, wider than long, integument leathery, strongly overlapping the posterior region of cephalothorax in front. Chelicerae sub-apically with outer row of large teeth, which differ in size and inner row of variable number of smaller teeth.

Type-species : *Cyrtarachne grubei* Keyserling.

Distribution : Mediterranean, Ethiopian, Oriental and Australian Regions.

15. *Cyrtarachne bengalensis* Tikader

(Plate IV Figs. 37-38)

Cyrtarachne bengalensis Tikader, 1960, *J. Bombay nat. Hist. Soc.*, 57(3) : 550.

Specimens examined : 2 ♀ ♀, Botanical Garden, Sibpur, Dist. Howrah, West Bengal, 11 11 1956. Coll, B. K. Tikader.

General : Cephalothorax and legs chocolate in colour, abdomen slightly paler than cephalothorax. Total length 7.20 mm. Carapace 2.00 mm. long, 1.20 mm. wide; abdomen 6.00 mm. long, 8.00 mm. wide.

Cephalothorax : Relatively broader in front, slightly longer than wide. Ocular quad square, lateral eyes slightly smaller than medians. Clypeus narrow. Chelicerae subapically with outer row of three large teeth and inner row of three small teeth. Sternum heart-shaped, pointed behind. Legs short, clothed with hairs.

Abdomen : Moderately rounded posteriorly, strongly overlapping the posterior region of cephalothorax in front wider than long, anterior lateral surface slightly bulging out into a smooth prominence and furnished with a white patch. Epigyne broad elongated at the base but apically kidney-shaped.

Distribution : So far known from type locality only at Botanical Garden, Sibpur, Dist. Howrah, West Bengal, India.

16. *Cyrtarachne inaequalis* Thorell

(Plate IV Figs. 39-40)

Cyrtarachne inaequalis Thorell, 1895, *Spiders of Burma* : 201.

Cyrtarachne inaequalis : Pocock, 1900, *Fauna Brit. India Arachn.*, : 229.

Cyrtarachne inaequalis : Tikader, 1960, *J. Bombay nat. Hist. Soc.*, 57(3) : 549.

Specimens examined : 2 ♀ ♀, from Botanical Garden, Sibpur, Dist. Howrah, West Bengal, 11 11 1956. *Coll. B. K. Tikader*. 1, ♀, Baikunthapur, Baraipur, Dist. 24 Parganas, West Bengal, 30.10.1977. *Coll. Bijan Biswas*.

General : Cephalothorax ochre-yellow, abdomen yellowish, legs brownish. Total length 10.50 mm. Carapace 3.50 mm. long; 3.20 mm. wide; abdomen 9.10 mm. long, 11.00 mm. wide.

Cephalothorax : Relatively broader in front, slightly longer than wide. The area of four median eyes slightly elevated. Clypeus narrow. Chelicerae subapically with outer row of 3 large teeth and inner row first and third teeth large and rest smaller. Sternum heart-shaped. Legs stout, clothed with hair.

Abdomen: Triangular, strongly overlapping the posterior region of cephalothorax in front; wider than long, anterior lateral surface bulging out into a smooth conical prominence and furnished with a dark brown patch. Ventral surface of the abdomen black behind the epigastric fold. Epigyne triangular at the base but apically pointed.

Distribution: India: West Bengal, M. P., Maharashtra; Burma: Teunghoo and Tharrwaddy.

17. *Cyrtarachne raniceps* Pocock

(Plate IV. Figs. 41-42)

Cyrtarachne raniceps Pocock, 1900, *Fauna Brit. India., Arachn.*, : 229.

Cyrtarachne raniceps : Tikader, 1960, *J. Bombay nat. Hist. Soc.*, 57(3) : 550.

Specimens examined: 1 ♀, with cocoon from Habra ca. 48 kilometres north-east of Calcutta, West Bengal, 7.9.1958. *Coll. B. K. Tikader*.

General: Cephalothorax and abdomen ochre-yellowish brown, legs greenish. Total length 9.30 mm. Carapace 2.50 mm. long, 2.00 mm. wide; abdomen 9.00 mm. long, 11.70 mm. wide.

Cephalothorax: Relatively broader in front, slightly longer than wide. Median eyes more or less equal in size and laterals slightly smaller than medians. Ocular quad as long as wide. Clypeus narrow, chelicerae

subapically with outer row of 3 large teeth and inner row first tooth large and rest smaller. Sternum heart-shaped, legs stout, clothed with hairs.

Abdomen: Wider than long, triangular, strongly overlapping the posterior region of cephalothorax in front, broadest in its anterior half, where it bulges out laterally into a large smooth conical prominence, the lateral prominence provided with deep brown at the tip, partially surrounded at the base by dark brown and pale lines. Ventral side of abdomen more yellowish than dorsal. Epigyne with scape in the form of short narrow tubercles.

Distribution: India: West Bengal, Calcutta; Sri Lanka.

Genus 10. *Cyrtophora* Simon

Cyrtophora Simon, 1864, *Hist. Nat. Araign.*, 1 : 261.

Cyrtophora : McCook, 1895, *Amer. Spiders*, 3 : 235.

Cyrtophora : Simon, 1895, *Hist. Nat. Araign.*, 1 : 775.

Araneus : Pocock, 1900, *Fauna Brit. India Arach.*, : 226.

Characters: Cephalothorax short, cephalic region long and high; eyes in three groups, the laterals widely separated. Ocular quad a little longer than wide. Legs I, II, IV, III and stout, scantily armed. Abdomen conical, tuberculated, nearly perpendicular to plane of cephalothorax.

The spiders of this genus remain hanging downwards from the apex of the inverted bowl-shaped web. The genus is remarkable for its architectural mechanism of orb-webing.

Type-species: *Cyrtophora citricola* Forsk.

Distribution: Tropical countries of the world.

18. *Cyrtophora feae* (Thorell)

Euetria feae Thorell, 1887, *Ann. Mus. Genova*, 25 : 173.

Araneus feae : Pocock, 1900, *Fauna Brit. India Arach.*, : 226.

Specimens examined: 5 ♀♀ and 1 ♂, Sodepur, Dist. 24 Parganas, West Bengal, 17.7.1958. *Coll. B. K. Tikader.*

General: Cephalothorax and legs ochre, abdomen whitish. Total length 15.00 mm. Carapace 6.00 mm. long, 4.00 mm. wide; abdomen 10.00 mm. long, 4.50 mm. wide.

Cephalothorax: Longer than wide, with prominent cephalic groove, a deep fossa on the centre of cephalothorax; cephalic region high and narrowing in front. Eyes of posterior row distinctly procurved,

anterior median eyes slightly larger than the posterior medians; lateral eyes contiguous. Clypeus moderate. Sternum triangular, pointed behind, deep-brown with a median longitudinal white line. Legs long, slender, armed with a long spines; femora banded with longitudinal deep brown line.

Abdomen: Long, narrowing posteriorly, with two small shoulder prominences; a median longitudinal black band on the dorsum interrupted by pale markings; lateral sides ornamented by white long bands. Ventral surface black, spotted with white dots.

Distribution: India: West Bengal; Burma: Tharrwaddy, Rangoon and Bhamo.

19. *Cyrtophora citricola* (Forsk.)

(Plate IV Figs. 43-44)

Aranea citricola Forskal, 1775, *Descript. Anima.*, : 86.

Cyrtophora sculptilis : Koch, 1872, *Arach. Austr.*, 1 : 128.

Cyrtophora opuntiae : Simon, 1874, *Arach. France*, 1 : 34.

Cyrtophora citricola : Workman, 1896, *Malaysian Spiders* : 32.

Araneus citricola : Pocock, 1900, *Fauna Brit. India Arach.*, : 226

Cyrtophora citricola : Dyal, 1935, *Bull. Zool. Punjab Univ.*, 1 : 174.

Specimens examined: 8 ♀♀, Botanical Garden, Sibpore, Dist. Howrah, West Bengal, 11.11.1956. *Coll. B. K. Tikader.*

General: Cephalothorax variable from uniform flavour to blackish; abdomen also variable from white, greybrown, yellowish-brown, reddish-brown to even black. Legs light brown. Total length 6.50 mm. Carapace 3.00 mm. long, 2.50 mm. wide; abdomen 4.20 mm. long, 3.00 mm. wide.

Cephalothorax: Longer than wide, with a median deep longitudinal fossa; clothed with fine grey pubescence; cephalic region slightly high and narrowing in front. Eyes of posterior line strongly recurved, the space between two anterior median eyes more than the space of posterior median eyes. Clypeus moderate. Sternum triangular, longer than wide, pointed behind. Legs long, stout, banded by dark-brown or black.

Abdomen: Oval, with a pair of large shoulder prominences and a lateral tubercles on each side just in front of the middle, the posterior extremity of abdomen deeply bifid.

Distribution: India: Bangalore, Chingelput, Kanara, Punjab, Madhya Pradesh, Assam, West Bengal, Rajasthan; Burma; Sri Lanka; Australia Medasgascar; Africa; Europe and Egypt.

20. *Cyrtophora cicatrosa* (Stoliczka)

(Plate IV Figs. 45-46)

Epeira (Nephila) cicatrosa Stoliczka, 1869, *J. Asiat. Soc. Bengal*, 38 : 242*Araneus cicatrosa* : Pocock, 1900, *Fauna Brit. India Arach.*, : 226.*Cyrtophora cicatrosa* : Gravely, 1921, *Rec Indian Mus.*, 22 : 413.*Cyrtophora cicatrosa* : Dyal, 1935, *Bull. Zool. Punjab. Univ.*, 1 : 175.

Specimens examined: 20 ♀ ♀, Dhakuria, Calcutta, 20.7.1959; 40 ♀ ♀, Khardah, Dist. 24 Parganas, 12 ♀ ♀, Habra, Dist. 24 Parganas, 12.12.1956; 20 ♀ ♀, Botanical Garden, Sibpore, Dist. Howrah, 11.11.1956. *Coll. B. K. Tikader.* 4 ♀ ♀, Palta, Dist. 24 Parganas, West Bengal, 10.11.1977. *Coll. Bijan Biswas.* 3, ♀ ♀ Choona Vhati near Botanical. Garden, Dist. Howrah, West Bengal, 25.8.77. *Coll. Bijan Biswas.* 2 ♀ ♀, Ghoshpara, Jadavpur, Calcutta, 12.12.1976. *Coll. Bijan Biswas.*

General: Cephalothorax and legs ochre-coloured, abdomen whitish Total length 7.00 mm. Carapace 2.50 mm. long, 2.00 mm. wide; abdomen 5.00 mm. long, 2.50 mm. wide.

Cephalothorax: Longer than wide, clothed with fine grey pubescence; cephalic region high and narrowing in front, with three longitudinal black bands from head to the base of thorax, the cephalic region with also a pair of lateral black bands. Eyes of posterior row slightly recurved and laterals very distinctly separated from each other, anterior median eyes slightly larger than posterior median eyes. Clypeus narrow. Sternum triangular, black with a medially longitudinal white line. Legs long, slender and spined, with a pair of black longitudinal stripes on the dorsal side of the femora of I and II, remaining segments of the legs spotted with black.

Abdomen: Oblong, rounded at the base, clothed with fine grey pubescence, the anterior half with two pairs of black pointed tubercles situated laterally. Anterior portion of abdomen ornamented by irregular white and black pigmented, a conspicuous black spot between the two posterior tubercles. Posterior to this spot there is reddish-brown square with black sides, which are bounded anteriorly and laterally by white lines. Ventral side with a pair of longitudinal white dotted lines extending from epigynal region to the base of spinnerets.

Distribution: India: Chingelput, Allahabad, Calcutta (Type locality) Nasik, Poona, Punjab; Burma.

Genus 11. *Gasteracantha* Sundevall

Gasteracantha Sundevall, 1833, *Consp. Arachn.*, : 14.

Gasteracantha : Pocock, 1900, *Fauna Brit. India Arach.*, : 231.

Gasteracantha : Tikader, 1970, *Rec. zool. Surv. India*, 64 (1-4) : 38.

Characters: Body hard. Cephalothorax with thoracic region low and cephalic region elevated, ocular quad narrow in front. Abdomen large subquadrate, impressed, with large sigilla and armed on each side with two anterior, two median and two posterior spines, spinnerets encircled by a horny ring.

Type-species: *Gasteracantha cancriformis* Linn.

Distribution: Tropical countries of the world.

21. *Gasteracantha hasseltii* C. L. Koch

(Plate IV Figs. 47-49)

Gasteracantha hasseltii Koch, 1938, *Arachnida*, 4 : 29.

Gasteracantha hasseltii : Pocock, 1900, *Fauna Brit. India Arch.*, : 233.

Gasteracantha hasseltii : Gravely, 1921, *Rec. Indian Mus.*, 22 : 416.

Gasteracantha hasseltii : Sinha, 1951, *Rec. Indian Mus.*, 49(1) : 82.

Gasteracantha hasseltii : Tikader, 1970, *Rec. zool. Surv. India*, 64(1-4) : 41.

Specimen examined: 1 ♀, Botanical Garden, Sibpur, Dist. Howrah, West Bengal, 26.1.1966. *Coll. S. S. Saha.*

General: Cephalothorax black, legs yellowish-green, abdomen whitish-yellow. Total length 6.00 mm. Carapace 2.00 mm. long, 1.50 mm. wide; abdomen 5.00 mm. long, 10.00 mm. wide.

Cephalothorax: Slightly longer than wide, broad in front, clothed with black hairs. Cephalic region flat but thoracic region abruptly down behind. Sternum heart-shaped, yellow. Legs clothed with brown hair and provided with brown spots.

Abdomen: Nearly twice as long as wide (including spines). All spines black and pointed; median spines typically attenuate, not very long, their length hardly exceeding half the width of the abdomen.

Distribution: India: Calcutta, Sibpore Botanical Garden, Kalimpong, Darjeeling, West Bengal; Assam; Sikkim.

22. *Gasteracantha kuhlii* C. L. Koch

(Plate IV Figs. 50-52)

Gasteracantha kuhlii Koch, 1838. *Die Arachnider*, 4 : 20.*Plectana leucomelaena* : Doleschall, 1859, *Verh. Nat. Ver. Naderland. Indie*, 5 : 41.*Gasteracantha leucomelaena* : Thorell, 1887, *Ann. Mus. Civ. Genova*, 25 : 23.*Gasteracantha leucomelaena* : Pocock, 1900, *Fauna Brit. India Arach.*, : 235.*Gasteracantha leucomelaena* : Tikader, 1972, *Rec. zool. Surv. India*, 64 (1-4) : 40.

Specimens examined: 5 ♀ ♀, Raharh, Dist. 24 Parganas, West Bengal, 10.7.1957. *Coll. B. K. Tikader*. 1 ♀, Palta, near Calcutta, Dist. 24 Parganas, West Bengal 10.11.1977. *Coll. Bijan Biswas*. 1 ♀, Dum Dum Air Port area, Calcutta, 7.12.1977. *Coll. Bijan Biswas*.

General: Cephalothorax black, legs yellowish, abdomen whitish. Total length 7.00 mm. Carapace 1.50 mm. long, 2.60 mm. wide; abdomen 7.30 mm. long, 9.30 mm. wide.

Cephalothorax: Wider than long, ocular quad longer than wide. Clypeus very narrow. Sternum white, triangular, pointed behind. Legs short and stout, with black transverse bands.

Abdomen: About one-third wider than long, with six spines, but posterior two spines longer than others, strongly overlapping the posterior region of cephalothorax in front. Abdomen ornamented by black patches, on the anterior median a Y-shaped black mark and large black patches at the bases of spines. Ventral surface black spotted with white.

Distribution: India: West Bengal; Andaman and Nicobar Islands; Burma.

23. *Gasteracantha mammosa* C. L. Koch

(Plate V Figs. 53-55)

Gasteracantha mammosa Koch, 1845. *Die Arachniden*, 11 : 57.*Plectana brevispina* : Doleschall, 1897. *Nat. Tij. Nederland, Indie*, 13 : 423.*Gasteracantha brevispina* : Thorell, 1878, *Ann. Mus. Civ. Genova*, 13 : 17.*Gasteracantha brevispina* : Pocock, 1900, *Fauna Brit. India Arach.*, : 235.*Gasteracantha brevispina* : Gravely, 1921, *Rec. Indian Mus.*, 22 : 416.*Gasteracantha brevispina* : Sinha, 1951, *Rec. Indian Mus.*, 49(1) : 83.*Gasteracantha brevispina* : Tikader, 1970, *Rec. zool. Surv. India*, 64 (1-4) : 38.

Specimen examined: 1 ♀, Botanical Garden, Sibpore, Dist. Howrah, West Bengal, 12.6.1958. *Coll. B. K. Tikader*.

General: Cephalothorax, legs and abdomen reddish brown. Total length 9.00 mm. Carapace 2.00 mm. long, 1.50 mm. wide; addomen 8.00 mm. long, 10.00 mm. wide.

Cephalothorax: Slightly longer than wide, broad in front, clothed with grey hair. Cephalic region flat but thoracic region abruptly down behind. Sternum heart-shaped, deep brown but middle with a reddish patch. Legs clothed with grey hairs.

Abdomen : A little wider than long, very variable in colour sometimes black, sometimes yellow predominating; usually with a large triangular black patch on each side and a pair of large yellow colliform spots near the middle; anterior and lateral spines very short but posterior spines very stout at the base and abruptly narrowed at the apex. Ventral side light to deep brown.

Distribution: India: Madras, Dehra Dun, Poona, Bombay, Andaman and Nicobar Islands, Darjeeling, Calcutta; Bihar; Shillong; Orissa; Sikkim; East Pakistan; Burma; Sri Lanka; Austro-Malaysia; Japan.

Genus 12. *Argiope* Savigny

Argiope Savigny, 1825, *In. Aud. and Sav. Egypte, Hist. Nat.*, 12 : 121.

Argiope : Simon, 1892, *Hist. Nat. Araign.* 1 : 768.

Argyope : Pocock, 1900, *Fauna Brit. India Arach.*, : 220.

Argiope : Dyal, 1935, *Bull. Zool. Punjab Univ.*, 1 : 189.

Characters: Cephalothorax flat, clothed with metallic white pubescence; ocular quadrangle much longer than wide. Eyes of posterior row very strongly procurved, laterals contiguous. Abdomen usually longer than wide, varying in shape, posterior half wider than anterior. Legs stout, armed with hair and spines. Males relatively very small.

These species of the genus frequently decorate their orb with white silken ribbons arranged symmetrically.

Type-species: *Argiope lobata* Pallas.

Distribution: All temperate countries of the world.

24. *Argiope catenulata* (Doleschall)

(Plate V Figs. 56-58)

Epeira catenulata Doleschall, 1859, *Verh. Nat. Vercen. Nederland Indie*, 5(5) : 30.

Argyope catenulata : Pocock, 1900, *Fauna Brit. India, Arach.*, : 223.

Specimens examined: 8 ♀ ♀, Kalikapur near Dhapa (Calcutta), 19.12.1958. Coll. B. K. Tikader.

General: Cephalothorax deep-brown, legs blackish, abdomen yellow. Total length 13.00 mm. Carapace 4.20 mm. long, 4.00 mm. wide; abdomen 10.00 mm. long, 6.00 mm. wide.

Cephalothorax: Nearly as long as wide, clothed with fine white pubescence; cephalic region narrow and high but base of cephalic region with conspicuous white spot. Ocular quad longer than wide, narrowed in front; anterior median eyes black. Sternum heart-shaped, with a longitudinal chalk-white line. Legs long, stout clothed with hairs and spines, provided with transverse yellow bands.

Abdomen: Nearly elliptical, ornamented with transverse yellow stripes, frequently interrupted in the middle, the spaces between the bands occupied by transverse rows, each consisting of four subspherical pale spots, of which the median fuse together at the posterior end of the abdomen; the area occupied by the median spots covered with a contiguous coating of silky-hair forming a band, broad in front and narrowed behind.

Distribution: India: Sunderbans, West Bengal; Nicobar Island; Burma: Tharrawaddy, Moulmein; Sri Lanka; Austro-Malaysia.

25. *Argiope shillongensis* Sinha

(Plate V. Figs. 59-61)

Argiope shillongensis Sinha, 1951. *Rec. Indian Mus.*, 49 : 75.

Specimen examined: 1 ♀, Palta, Dist. 24 Parganas, West Bengal, 10.11.1977. *Coll. Bijan Biswas*.

General: Cephalothorax, legs and abdomen brownish-yellow. Total length 12.00 mm. Carapace 6.00 mm. long, 5.00 mm. wide; abdomen 9.00 mm. long, 7.50 mm. wide.

Cephalothorax: Longer than wide narrowing in front, flat, clothed with grey hair. Cephalic portion narrow, lateral eyes contiguous and situated on a elevated tubercles. Anterior row slightly procurved (seen as in front). Posterior row strongly procurved. Ocular quad longer than wide, slightly wider behind. Sternum heart-shaped, clothed with hair and conspicuous chalk-white colour. Maxillae also chalk-white like sternum. Labium wide, front pale in colour. Legs long and strong, clothed with hairs and spines.

Abdomen: Nearly oval, longer than wide, widest behind the middle. Dorsum provided with six transverse bands with brown and chalk-white, alternately starting with chalk-white and ending with brown but posterior bands wider than others. Dorsum also provided with three pairs of sigilla arranged longitudinally. Ventral side black or deep brown interrupted by chalk-white dots and patches.

Distribution: India: Shillong, Meghalaya; Calcutta, West Bengal.

26. *Argiope pulchella* Thorell

(Plate V Figs. 62-64)

Argiope pulchella Thorell, 1881, *Ann. Mus. Stor. Nat. Geneva*, 17 : 74.

Argyope pulchella : Pocock, 1900, *Fauna Brit. India, Arach.*, 221.

Argiope pulchella : Dyal, 1935, *Bull. Zool. Punjab. Univ.*, 1 : 190.

Specimens examined: 5 ♀♀, Botanical Garden, Dist. Howrah, West Bengal, 11.10.1956; 4 ♀♀, Dhakuria, Calcutta, 30.8.1958. *Coll. B. K. Tikader*. 3 ♀♀, Baikunthapur, Baraipur, 24 Parganas, West Bengal, 30.10.1977. *Coll. Bijan Biswas*.

General: Cephalothorax and abdomen yellow, legs brownish. Average length 15.00 mm. to 18.00 mm. Total length 15.00 mm. Carapace 5.00 mm. long, 4.10 mm. wide; abdomen 11.00 mm. long, 10.00 mm. wide.

Cephalothorax : Nearly as long as wide, clothed with fine white pubescence; ocular quad longer than wide, narrowed in front; anterior and posterior median eyes more or less similar in size but base of the posterior median eyes encircled by black. Clypeus narrow. Sternum heart-shaped, chalk-white. Legs long, stout, clothed with hair and spines, the femora thickly covered with silky-white hair.

Abdomen: Pentagonal, truncate in front, broadest behind the middle and abruptly narrowed; ground colour yellow, with pale or dark-brown transverse bands.

Distribution: India: Andaman Islands, Calcutta, West Bengal; Madhya Pradesh; Assam; Sikkim; Burma: Tharrawaddy, Moulmein.

Genus 13. *Nephila* Leach

Nephila Leach, 1815, *Zool. Misc.*, 2 : 133.

Nephila : Pocock, 1900, *Fauna Brit. India, Arach.*, 217.

Nephila : Sinha, 1951, *Rec. Indian Mus.*, 49 (1) : 68.

Nephila : Tikader, 1962, *J. Linn. Soc. London*, 44 (300) 566.

Characters : Cephalic region convex and moderately high, generally armed posteriorly with two tubercles; ocular quad nearly square. Legs very long, clothed with spines, metatarsi longer than tibiae and patella. Vulva not well developed. Male very small, with simple palpus.

Type-species: *Nephila maculata* Fabr.

Distribution: Tropical countries of the world.

27. *Nephila maculata* (Fabricius)

Aranea maculata Fabricius, 1793, *Ent. Syst.*, 2 : 425.

Nephila maculata : Pocock, 1900, *Fauna Brit. India, Arach.*, : 217.

Nephila maculata : Gravely, 1923, *J. Bombay nat. Hist. Soc.*, 28 : 1047.

Nephila maculata : Tikader, 1962, *J. Linn. Soc.*, 44 (300) : 567.

Specimens examined: 5 ♀♀, Botanical Garden, Sibpore, Dist. Howrah, 11.11.1956; 10 ♀♀ and 3 ♂♂, Gobardanga, Dist. 24 Parganas, 30.9.1956. *Coll. B. K. Tikader.*

General: Cephalothorax and legs black, abdomen olive-brown. Total length 30.00 mm. Carapace 10.50 mm. long, 8.00 mm. wide; abdomen 22.00 mm. long, 6.50 mm. wide.

Cephalothorax: Longer than wide, clothed with silky, greyish-yellow pubescence, relatively broad in front; a deep groove in the middle, with a pair of sharp tubercles in front. Ocular quad square and slightly high. Clypeus narrow. Sternum dark, triangular, pointed behind. Legs very long, clothed with hairs and spines; coxae of legs and first half of palpus yellow.

Abdomen: Very long, clothed with hairs; slightly overlapping the posterior region of cephalothorax in front; ornamented below with many yellow spots and dorsal surface with a pair of longitudinal yellow lines from base to tip of the abdomen.

Distribution: India: Tinnelvely, Trivandrum, Ootacamund, Kanara, Dehra Dun, Darjeeling, Madhya Pradesh, Sikkim, Assam, West Bengal, Nicobar Island; Burma: Tharrawaddy, Tounghoo, Rangoon; Sri Lanka; China and Australia.

28. *Nephila robusta* Tikader

Nephila robusta Tikader, 1962, *J. Linn. Soc.*, 44(300) : 566.

Specimen examined: 1 ♀, Gobardanga ca. 50 km. north-east of Calcutta, 3.9.1956. *Coll. B. K. Tikader.*

General: Cephalothorax, legs and abdomen deep black. Total length 40.00 mm. Carapace 14.00 mm. long, 10.00 mm. wide; abdomen 26.00 mm. long, 7.50 mm. wide.

Cephalothorax: Longer than wide, relatively broader in front, posterior half clothed with silky-grey pubescence, a longitudinal row of spines from the centre of ocular quad to middle of cephalic region, slightly deep groove on the centre of cephalothorax, with a pair of sharp tubercles in front. The four median eyes situated on the elevated region

of head; ocular quad slightly narrow in front; Clypeus narrow. Sternum black, triangular, pointed behind. Legs very long, clothed with hairs and spines; coxae of III and IV reddish in colour.

Abdomen: Very long, clothed with black velvet-like pubescence, a broad longitudinal very light yellowish line on the mid-dorsal surface of abdomen.

Distribution: So far only type locality, i.e. Gobardanga near Calcutta, West Bengal.

29. *Nephila kuhlii* Doleschall

Nephila kuhlii Doleschall, 1859, *Acta. Soc Ind. Neerl.*, 5(5) : 27.

Nephila kuhlii : Pocock, 1900, *Fauna Brit. India, Arach.*, 218.

Nephila kuhlii : Tikader, 1962, *J. Linn. Soc.*, 44 (300) : 567.

Specimens examined: 10 ♀♀, Gobardanga, Dist. 24 Parganas, West Bengal, 30.9.1956. *Coll. B. K. Tikader.*

General: Cephalothorax and abdomen black, legs reddish. Total length 35.00 mm. Carapace 12.00 mm. long, 10.00 mm. wide; abdomen 25.00 mm. long, 8.00 mm. wide.

Cephalothorax: Longer than wide, clothed with black pubescence, relatively broader in front, a deep groove in the middle, with pair of sharp tubercles in front. Ocular quad square. Clypeus narrow. Sternum black, triangular, pointed behind. Legs very long, clothed with hairs and spines, patella, metatarsi, tarsi and extremities of the femora and tibiae black.

Abdomen: Very long, clothed with black pubescence, slightly overlapping the posterior region of cephalothorax in front; a broad longitudinal faint greyish-yellow line on the mid-dorsal side of the abdomen.

Distribution: India: North India, Darjeeling, West Bengal; Burma.

Genus 14. *Leucauge* White

Leucauge White, 1841, *Ann. Mag. Nat. Hist.*, 7 : 473.

Argyropeira : Emerton, 1884, *Trans. Conn. Acad. Art. Sci.*, 6 : 331.

Argyropeira : Pocock, 1900, *Fauna Brit. India, Arach.*, : 215.

Leucauge : Gravely, 1921, *Rec. Indian Mus.*, 22 : 450.

Leucauge : Dyal, 1935, *Bull. Zool. Punjab Univ.*, 1 : 187.

Leucauge : Tikader, 1962, *J. Linn. Soc. London*, 44(300) : 563.

Characters: Cephalothorax truncate in front, legs long and slender, especially the first two pairs; the femora of IV legs with fringe

of long hairs. Abdomen twice as long as wide, blunt at both ends and ornamented with bands or spots of silvery pigment.

Type-species: *Leucauge hortorum* (Hentz.)

Distribution: Asia, Africa, America and Europe.

30. *Leucauge bengalensis* Gravely

(Plate VI. Figs. 65-66)

Leucauge bengalensis Gravely, 1921, *Rec. Indian Mus.*, 22 : 455.

Leucauge bengalensis : Tikader, 1962, *J. Linn. Soc.*, 44 (300) : 565.

Specimens examined: 10 ♀♀, Gobardanga, ca. 58 kilometres north-east of Calcutta, 25.11.1956; 5 ♀♀, Raharah ca. 25 kilometres north of Calcutta, 18.11.1956. *Coll. B. K. Tikader.*

General: Cephalothorax and legs brownish-green, abdomen brown. Total length 5.60 mm. Carapace 2.00 mm. long, 1.30 mm. wide; abdomen 4.60 mm. long, 2.80 mm. wide.

Cephalothorax: Longer than wide, cephalic region high, with groove. Lateral eyes contiguous, ocular quad longer than wide, the anterior, median eyes larger than the others. Clypeus narrow. Sternum triangular pointed behind. Legs clothed with fine hairs and spiny-hairs.

Abdomen: Long, strongly overlapping the posterior region of cephalothorax in front; anterior half of abdomen marked by three transverse muscular elevation, mid-dorsum with a long black line from base to tip but the posterior half broader and anterior half transversely cut by two incomplete black lines; the remaining portion ornamented by silvery white; lateral sides decorated by longitudinal black and silvery lines. Ventral surface deep-brown, spotted with silvery white.

Distribution: India: Calcutta, Dist. Hoogly and Dist. 24 Parganas, West Bengal.

31. *Leucauge ventralis* (Thorell)

Meta ventralis Thorell, 1877, *Ann. Mus. Stor. Nat. Genova*, 10 : 423.

Argyropeira ventralis : Pocock, 1900, *Fauna Brit. India, Arach.*, 216.

Leucauge ventralis : Gravely, 1921, *Rec. Indian Mus.*, 22 : 452.

Leucauge ventralis : Dyal, 1935, *Bull. Zool. Punjab Univ.*, 1 : 188.

Leucauge ventralis : Tikader, 1962, *J. Linn. Soc.*, 44(300) : 566.

Specimens examined : 5 ♀♀, Dhakuria (Calcutta), 25.11.1956, *Coll. B. K. Tikader*, 2 ♂♂, Tollygunj (Calcutta) 10.11.1916. *Coll. F. H. Gravely.*

General: Cephalothorax brownish-green, legs green, abdomen greyish. Total length 6.40 mm. Carapace 2.50 mm. long, 1.80 mm. wide; abdomen 4.00 mm. long 2.30 mm. wide.

Cephalothorax: Long, cephalic region not high, a deep groove on the centre of cephalothorax, lateral margin only broader portion with deep-brown. Lateral eyes contiguous, ocular quad longer than wide, eyes more or less similar in size. Clypeus deep brown, triangular, pointed behind. Legs clothed with hair and scanty spines.

Abdomen: Long, clothed with grey pubescence, clouded with black marking; ventral surface with a longitudinal broad black line from epigynal fold to base of spinnerets.

Distribution: India: Cochin, Calcutta, West Bengal; Sri Lanka.

32. *Leucauge decorata* (Blackwall)

(Plate VI. Figs. 67-69)

Tetragnatha decorata Blackwall, 1864, *Ann. Nat. Hist.*, 14 : 36.

Nephila angustata : Stoliczka, 1869, *J. Asia. Soc. Bengal*, 28 : 241.

Argyropeira celebesiana : Pocock, 1900, *Fauna Brit. India Arach.* : 216.

Leucauge decorata : Gravely, 1921, *Rec. Indian Mus.*, 22 : 454.

Leucauge decorata : Tikader, 1962, *J. Linn. Soc.*, 44(300) : 564.

Specimens examined: 5 ♀♀, Dhakuria, Calcutta, 10.12.1978
 Coll. B. K. Tikader, 1 ♂, Baishnabghata Road, Calcutta, 5.2.1978
 Coll. Bijan Biswas.

General: Cephalothorax brown, legs brownish green, abdomen silvery-white. Total length 8.30 mm. Carapace 2.20 mm. long, 7.80 mm. wide; abdomen 6.10 mm. long, 2.80 mm. wide.

Cephalothorax: Longer than wide, flat, a deep groove in the middle; ocular quad longer than wide, lateral eyes contiguous. Clypeus narrow. Sternum deep brown, triangular, pointed behind. Legs clothed with long hairs and scanty spines; anterior half of tibiae-deep brown.

Abdomen: Nearly oval in shape, but narrowing behind, strongly overlapping the posterior region of cephalothorax in front. Anterior extremity of abdomen low but furnished with two shoulder prominences, posterior end of abdomen produced into a conical caudal process; dorsal surface decorated like *L. celebesiana* (Walck.) but has some yellow tint on the silvery colour.

Distribution: India: Bangalore, Mysore, Coonoor, Nilgiri Hills, Madras, Barkul, Dehra Dun, Katihar, Sirpur, Darjeeling, Calcutta; Sikkim; Sri Lanka.

Genus 15. *Cyclosa* Menge

- Cyclosa* Menge, 1866, *Prcusa Spinn.*, 1 : 73.
Cyclosa : Gravely, 1921, *Rec. Indian Mus.*, 22 : 413.
Cyclosa : Dyal, 1935, *Bull. Zool. Punjab Univ.*, 1 : 191.
Cyclosa : Sinha, 1951, *Rec. Indian Mus.*, 49 : 86.
Cyclosa : Tikader, 1963, *J. Univ. Poona. Sci.*, 24 : 45.

Characters: This is a small spider. Eyes subequal, the posterior median almost in contact, the median ocular area wider in front than behind; both rows of eyes recurved, the head and thorax separated by a deep cervical groove.

Type-species: *Cyclosa conica* Pallas.

Distribution: Temperate Regions of the world.

33. *Cyclosa insulana* (Costa)

- Epeira insulana* Costa, 1834, *Cenni. Zool. etc.*, : 65.
Epeira insulana : Workman, 1894, *Malaysian Spiders, Belfast*, : 36,
Cyclosa insulana : Gravely, 1921, *Rec. Indian Mus.*, 22 : 413.
Cyclosa insulana : Sinha, 1951, *Rec. Indian Mus.*, 49 : 86.
Cyclosa insulana : Tikader, 1963, *J. Univ. Poona Sci.*, 24 : 45.

Specimens examined: 5 ♀♀, 1 ♂, Sibpore Botanical Garden, Dist. Howrah, West Bengal, 20.1.1978. *Coll. Bijan Biswas.*

General: Cephalothorax and legs yellowish green, abdomen dorsal surface beautifully coloured with admixture of silvery-white, brown and yellow. Total length 7.00 mm. Carapace 2.00 mm. long, 1.50 mm. wide; abdomen 5.50 mm. long, 3.00 mm. wide.

Cephalothorax: Longer than wide, depressed but cephalic region high, lateral sides provided with deep brown band. Eyes white, posterior medians and lateral two eyes contiguous. Legs banded with dark or deep brown bands. Sternum heart-shaped with light colour.

Abdomen: Longer than wide, anterior end pointed with a short horn like projection, two pairs of lateral tubercles or projection on the posterior half of the abdomen and extreme posterior end produced like a short tail and bend downward. Ventral side with numerous deep brown spots.

They prepare their web in the vertical position and in the centre of the web they place vertical a rod-like band, in the centre of which there is a small gap of dimensions depending on the size of the spider. When the spider rests in the gap, the band seems like a continuous straight line.

Distribution: India: Sikkim, Maharashtra, West Bengal, Nepal; Sri Lanka and Burma.

Genus 16. *Singa* Koch

Singa Koch, 1836, *Ar.*, 3 : 42.

Singa : Koch, 1837, *Uebers. Arachn. Syst.*, : 1.

Singa : Comstock, 1940, *The Spider Book*, New York, : 475.

Singa : Tikader, 1970, *Rec. zool. Surv. India*, 64(1-4) : 35.

Characters: The spiders of this genus differ from those in the genus *Araneus* Clerck, in having a shiny surface, on the abdomen and clothed with few hair, always oval in shape. Legs relatively short without ventral femoral spines, almost always present in *Araneus*. The males have no protuberences on coxae I and II. The male palpal organs are all rather similar.

Type-species: *Singa hamata* Koch.

Distribution: Europe, Asia and America.

34. *Singa chota* Tikader

(Plate VI. Figs. 70-71)

Singa chota Tikader, 1970, *Rec. zool. Surv. India*, 64(1-4) : 35.

Specimens examined: 4 ♀ ♀ , 1 ♂ , Palta, Dist. 24 Parganas, West Bengal, 10.11.1977, *Coll. Bijan Biswas*.

General: Cephalothorax and legs light green, abdomen shiny-white. Total length 3.90 mm. Carapace 1.60 mm. long, 1.20 mm. wide; abdomen 2.40 mm. long, 1.50 mm. wide.

Cephalothorax: Longer than wide, cephalic region slightly narrow and high, provided with conspicuous reddish brown colour. Eyes pearly white, posterior row straight, anterior row recurved, posterior median eyes close to each other than to the posterior lateral eyes, lateral eyes almost contiguous. Ocular quad longer than wide and narrowing behind. Sternum heart-shaped, pointed behind, deep brown colour. Legs long and strong, clothed with hairs and few spines.

Abdomen: Elliptical in outline. Dorsal side with shiny white, provided with a longitudinal brown cracked line or lines. Ventral side brown.

Distribution: India: Sikkim, Poona, Maharashtra, Calcutta.

Genus 17. *Larinia* Simon

Larinia Simon, 1874, *Ar. Fr.*, 1 : 115.

Epeira : Koch, 1871, *Ar. Austr.*, : 130.

Larinia : Patel, 1975, *Oriental Insects*, 9(1) : 111.

Characters: Carapace narrow anteriorly, cephalic region but sharply differentiated from thoracic region by deep groove; ocular quad twice wider in front than behind, second row of eyes nearly straight. Abdomen elongated without shoulder point and projects over the carapace in a blunt point and also extends a short distance behind the spinnerets.

Type-species: *Larinia lineata* (Lucas)

Distribution: Asia and America.

35. *Larinia phtisica* (L. Koch)

(Plate VI. Figs. 72-73)

Epeira phtisica Koch, 1871, *Die arachniden Australiens*, : 103.

Larinia phtisica : Simon, 1887, *Ann. Soc. ent. Fr.*, 7(6) : 186.

Larinia chhagani : Patel, 1975, *Oriental Insects*, 9(11) : 113.

Specimens examined: 17 ♀ ♀, 5 ♂ ♂, Calcutta, Maidan, Indian Museum, 16.10.1914. *Coll. F. H. Gravely.*

General: Cephalothorax and legs light brown, abdomen dirty white. Total length 10.68 mm. Carapace 3.63 mm. long, 2.42 mm. wide; abdomen 7.05 mm. long, 3.42 mm. wide.

Cephalothorax: Longer than wide, narrowing anteriorly, clothed with fine hairs. Cephalic region slightly higher than thoracic region. Thoracic region having longitudinal groove. Eyes pearly white, anterior medians larger than the posterior medians. Anterior row of eyes strongly recurved but posterior row slightly recurved. Ocular quad wider in front than behind. Sternum heart-shaped, pointed behind, yellowish colour, clothed with hair. Labium as long as wide, brownish colour with pale distal margin. Maxillae broad light yellowish brown with distinct scopulae. Chelicerae yellowish provided with three small teeth on inner margin and four small teeth on the outer margin. Legs long yellowish clothed with long hairs and spines. Leg formula 1243.

Abdomen: Elongated, dirty-white, clothed with fine hairs. Four pairs of sigilla on the dorsum. Some median longitudinal lines running from the middle to the posterior end. Posterior extremity of abdomen darker with irregular greyish shades. Ventral side with greyish band from epigastric fold to spinnerets. Posteriorly two oblique grey patches present lateral to the spinnerets.

Distribution: India: Gujarat, West Bengal.

FAMILY VII. TETRAGNATHIDAE

Characters: Cephalothorax long eyes two rows, lateral eyes nearly contiguous, chelicerae long with strong teeth, specially developed in males for locking those of the female in copulation. Legs greatly elongated. Palp in male simple.

Genus 18. *Tetragnatha* Latreille

Tetragnatha Latreille, 1804, *Nouv. Dict. d'Hist. Nat.*, 24 : 135.

Tetragnatha : Pocock, 1900, *Fauna Brit. India Arach.*, : 214.

Tetragnatha : Comstock, 1940, *The Spider Book*, New York, : 423.

Tetragnatha : Locket & Millidge, 1953, *British Spiders*, Ray Society, 2:94.

Characters: Cephalothorax longer than wide, eyes two rows, lateral eyes nearly contiguous; chelicerae very long, especially in the male. Abdomen long and narrow and bears the spinnerets near its end.

These are orb-weaving spiders; they are common on grass and on low plants. The spiders rest by day with their legs stretched before and behind and are only active at night. They spin large orb-webs at sun-down among grasses and other foliage usually in the vicinity of water.

Type-species: *Tetragnatha extensa* Linn.

Distribution: Tropical countries of the world.

36. *Tetragnatha mandibulata* Walcknear

Tetragnatha mandibulata Walcknear, 1837, *Ins. Apt.*, 2 : 211.

Tetragnatha mandibulata : Pocock, 1900, *Fauna Brit. India Arach.*, : 215.

Tetragnatha mandibulata : Gravely, 1921, *Rec. Indian Mus.*, 22: 429.

Specimens examined: 2 ♀ ♀ and 1 ♂, Dhakuria (Calcutta), 4.7.1958, Coll. B. K. Tikader.

General: Cephalothorax yellowish-brown, chelicerae and legs greenish-brown. Abdomen silvery-yellow. Total length 12.00 mm. Carapace 2.60 mm. long, 2.00 mm. wide; abdomen 9.50 mm. long, 2.90 mm. wide.

Cephalothorax: Longer than wide, flat, mid-dorsally depressed. Eyes anterior row slightly recurved, anterior lateral smaller than the other; posterior row straight. Clypeus moderate. Chelicerae very long, with three large spines close together at the commencement of the ventral row, of which the first is strong stout and directed forwards beside the base of the fang; three teeth followed by about nine others. The dorsal

row commencing with two moderately smaller than the second; these two teeth followed by about eight others. Fang slightly geniculata, armed with a smooth tooth like on the outer side of the basal bend and another below, a little further on.

Abdomen: Long, narrowing posteriorly, tip of the posterior end directed upward.

Distribution: India: Calcutta, Rajasthan, Cochin, Bangalore, Mysore, Ootacamund, Nilgiri Hills, Chilka Lake, Chota Nagpur, Kalimpong, Darjeeling, Tezpur, Sibsagar; Sri Lanka; Burma: Rangoon, Shwegoo and Myo.

Genus 19. *Eucta* Simon

Eucta Simon, 1881, *Ar. Fr.*, 5 : 5.

Eucta : Thorell, 1895, *Spiders of Burma* : 146.

Eucta : Gravely, 1921, *Rec. Indian Mus.*, 22 : 446.

Eucta : Tikader, 1972, *Rec. Zool. Surv. India*, 64(1-4) : 37.

Characters: The genus *Eucta* is abundant at near water, differs from *Tetragnatha* only in having the abdomen produced beyond the spinnerets into a pointed tail.

Type-species: *Eucta gallica* Simon.

Distribution: Europe, Japan, India and Malaysia.

37. *Eucta javana* Thorell

Eucta javana Thorell, 1895, *Spiders of Burma*, : 146.

Eucta javana : Gravely, 1921, *Rec. Indian Mus.*, 22 : 447.

Specimens examined: 20 ♀♀ and 3 ♂♂, Sodepur, Dist. 24 Parganas, 18.11.1956. Coll. B. K. Tikader. 1 ♀, Dhakuria lake, Calcutta 5.2.1978. Coll. Bijan Biswas.

General: Cephalothorax and legs greenish, abdomen silvery-white. Total length 11.50 mm. Carapace 2.20 mm. long, 1.20 mm. wide; abdomen 9.50 mm. long, 1.20 mm. wide.

Cephalothorax: Long and flat, cephalic region slightly high, with prominent cephalic groove. Anterior row of eyes straight, posterior row strongly recurved. Clypeus narrow. In female the first tooth on either side of the fang-groove situated at the base of the fang; in the ventral row second tooth situated far from the first tooth; second dorsal tooth opposite the third ventral, third opposite the fourth ventral and so on. Each row consists of about six to eight teeth, but usually one or

two lesser in the dorsal row than ventral. In the well developed specimen in addition to these teeth a conical denticle at about the middle of the dorsal surface on the inner side. Legs long slender, clothed with hairs and scanty spines, I pair of legs very long and stout.

Abdomen: Very long, pointed behind, slightly over-lapping the posterior region of cephalothorax in front, anterior extremity slightly depressed. Abdomen produced beyond the spinnerets into a pointed tail.

Distribution: India: Western Ghats, Travancore, Bangalore, Mysore, Ootacamund, Nilgiri Hills, Chilka Lake, Madras, Orissa, Chota Nagpur, Bihar, Birbhum, Calcutta, Darjeeling, Sikkim.

FAMILY VIII. HERSILIDAE

Characters: Cephalothorax as long as wide, with cephalic region elevated, narrow and defined by a deep semicircular sulcus; both rows of eyes strongly recurved. Legs except III pair, very long and slender; armed with three claws. Abdomen short, subpentagonal, posterior spinnerets very long usually longer than the abdomen

Genus 20. *Hersilia* Audouin

Hersilia Audouin, 1826, *Descr. Egypte Arachn.*, : 114.

Hersilia : Simon, 1892, *Hist. Nat. Araign.*, 1 : 446.

Hersilia : Pocock, 1900, *Fauna Brit. India Arach.*, : 241.

Hersilia : Tikader, 1977, *Rec. zool. Surv. India*, 72(1-4) : 184.

Characters: Ocular quadrangle parallel sided; head flat, angular laterally; clypeus usually very high, prominent, Protarsi of 1st, 2nd and 4th legs bi-segmented.

Type-species: *Hersilia caudata* Aud.

Distribution: Africa, Madagascar, Oriental Region.

38. *Hersilia savignyi* Lucas

(Plate VI. Figs. 74-76)

Hersilia savignyi Lucas, 1836, *Mag. Zool.*, 8 : 10.

Hersilia calcuttensis : Stoliczka, 1869, *J. Asia Soc. Bengal*, 38 : 216.

Hersilia savignyi : Pocock, 1900, *Fauna Brit. India Arach.*, : 241.

Hersilia savignyi : Sinha, 1950, *Rec. Indian Mus.*, 48 : 122.

Specimens examined: 1 ♀, Baikunthapur, Baraipur, Dist. 24 Parganas, West Bengal, 30.10.1977. *Coll. Bijan Biswas*. 1 ♀, Dhakuria Calcutta, 9.8.1958. *Coll. B. K. Tikader*. 1 ♀, Palta, Dist. 24 Parganas,

West Bengal, 10.11.1977. *Coll. Bijan Biswas*. 1 ♀, Tollygunj, Calcutta, 31.10.1949. *Coll. T. B. Sinha*. 1 ♀, Indian Museum Compound, Calcutta, 22.10.1949. *Coll. T. B. Sinha*. 2 ♀ ♀, 3 ♂ ♂, Ballygunge lake and Jodhpur club area, Calcutta, 20.11.1949. *Coll. T. B. Sinha*. 1 ♀, Jadavpur, Calcutta, 16.10.1949. *Coll. T. B. Sinha*.

This species is active hunting spiders, living on tree-trunks and wall of old houses. The body colour varies according to the colour of the substratum and spinning a scanty web of irregular threads.

Distribution: India: Nilgiri Hills, Travancore, Poona, Allahabad, Calcutta, Assam; Sri Lanka; Burma.

FAMILY IX. LYCOSIDAE

This family was erected by Sundevall (1833). The Lycosidae are hunting spiders, which chase their prey like an wolf. For this reason the typical genus was named *Lycosa*, which is derived from the Greek word for wolf. Due to their habit of chasing the prey, they got the common name "Wolf-spiders". The wolf-spiders are very common; they run through grass or lurk under stones, especially in damp situations. Many species dig tunnels in the ground, and some of these build snare which expands into a sheet-like structure on the ground.

Lycosid spider has eight eyes unequal in size, homogenous, all dark in colour, with posterior row so strongly recurved as to form two rows of two eyes each. The anterior lateral eyes are smallest and the posterior median (i.e. the second row) the largest. Chelicerae are relatively strong, with boss, scopulae and toothed margins. Labium is free, the endites are more or less parallel and provided with scopulae. The palp of the female has a claw. The palp of male is essentially of the same type as that of the Pisauridae, except that the tibiae is not furnished with an external apophysis. Tibiae of the male palp is unarmed and the embolus is short and rarely extended. Tarsi have three claws, the superior claws are similar, pectinate with few teeth in a single row; the third claw is either smooth or with a single tooth. Legs are usually scopulate and spinose and trochanters of the legs are notched.

Genus 21. *Hippasa* Simon

Hippasa Simon, 1885, *Bull. Soc. Zool.Fr.*, 10 : 31.

Hippasa : Pocock, 1900, *Fauna Brit. India Arach.*, : 249.

Hippasa : Gravely, 1924, *Rec. Indian Mus.*, 26 : 588.

Hippasa : Sinha, 1951, *Rec. Indian Mus.*, 48(2) : 11.

Hippasa : Tikader & Malhotra, 1980. *Fauna of India, Spiders* 1(2) : 272.

Characters : This genus is allied to *Lycosa* but differs from it in having posterior spinnerets considerably longer than the anterior spinnerets and the apical piece of the posterior spinnerets is as long as the basal piece. Anterior row of eyes little wider than the second row and the space enclosed between the posterior eyes is much wider behind than in front. In almost all species, a black mid-longitudinal band is present on the sternum. In habits these spiders are atypical for the family. They build sheet-like webs with a funnel retreat over which they run like members of the family Agelenidae, hence the name *Hippasa agelenoides* is given by Simon to the type species of the genus.

Type-species : *Hippasa agelenoides* Simon

Distribution : Madagascar; Africa; Arabia; Malaysia; India.

39. *Hippasa holmerae* Thorell

(Plate VII. Figs. 77-79)

Hippasa holmerae Thorell, 1895, *Spiders of Burma*, : 218.

Hippasa holmerae : Pocock, 1900, *Fauna Brit. India, Arach.*, : 251.

Hippasa holmerae : Gravely, 1924, *Rec. Indian Mus.*, 26 : 595.

Hippasa holmerae : Sinha, 1951, *Rec. Indian Mus.*, 48(2) : 17.

Hippasa holmerae : Tikader & Malhotra, 1980. *Fauna of India, Spiders*, 1(2) : 295.

Specimen examined : 1 ♀, Jadavpur, Calcutta, 16.10.1949.
Coll: T. B, Sinha.

General : Cephalothorax, legs and abdomen light brown. Total length 7.00 mm. Carapace 3.50 mm. long, 2.50 mm. wide; abdomen 4.00 mm. long, 2.00 mm. wide.

Cephalothorax : Longer than wide, convex, clothed with pubescence. Cephalic region abruptly narrowing in front. Middle of thoracic region provided with a distinct fovea from which thin brown bands radiate towards the lateral sides. Anterior row of eyes slightly procurved and wider than the second row. Eyes of anterior row nearly equal in size and bases of anterior laterals provided with conspicuous black patches. Eyes of the posterior rows almost equal in size and space between them, much wider behind than in front. Bases of posterior eyes provided with conspicuous and contiguous black patches. Ocular quad wider than long. Sternum heart-shaped, pointed behind, clothed with spine-like hair, mid-longitudinally provided with a dark band. Labium wider than long, maxillae slightly wider at the distal end. Chelicerae moderately strong and inner margin of fang provided with three teeth. Legs long and thin, clothed with spines and hairs and uniform light brown in colour. IV pair of legs exceptionally longer.

Abdomen : Longer than wide, dorsally provided with spine-like hair and pubescence, light brown and decorated with greenish brown and white spots and patches. Posterior spinnerets much longer than the anterior and the apical piece of posterior spinnerets as long as the basal piece and clothed with hairs. Ventral side pale, mid-longitudinally provided with chalk-white spots. Epigyne with posteriorly directed tongue-like process.

Distribution : India : Kalimpong, Darjeeling, Jadavpur, Calcutta. West Bengal; Manipur; Eastern India; Dehra Dun, Uttar Pradesh; Burma: Tharrawaddy; W. China: Between Tengueh and Nan Tien, Yanan; Singapore.

Genus 22. *Lycosa* Latreille

Lycosa Latreille, 1804, *Nouv. Dist.d'Hist. Nat.*, 24 : 135.

Lycosa : Simon, 1897, *Hist. Nat. des Araignees*, 2 : 345.

Lycosa : Pocock, 1900, *Fauna Brit. India, Arach.*, : 252.

Lycosa : Gravely, 1924, *Rec. Indian Mus.*, 26 : 588.

Lycosa : Sinha, 1951, *Rec. Indian Mus.*, 48(2) : 19.

Lycosa : Tikader, 1964, *Rec. zool. Surv. India*, 64(1-4) : 63.

Characters : This is a very large genus including majority of species of wolf-spiders. Carapace long, facial area vertical and sides of the face slanting, four posterior eyes large and arranged in a quadrangle which is slightly wider behind than in front. The labium is always longer than wide and the basal excavation is prominent, usually one-third or more of the length of the labium. Clypeus is not vertical. Tibiae I and II are armed with three pairs of ventral spines. IV metatarsi never longer than tibia plus patella together. The species of this genus spin no web. The larger forms live in silk-lined burrows, and under stones The females carry the cocoon attached to their spinnerets, and the young, after hatching swarm on the mother's back.

Type-species : *Lycosa tarantula* Rossi.

Distribution : All over the world.

40. *Lycosa kempi* Gravely

(Plate XV Figs. 204-206)

Lycosa kempi Gravely, 1924, *Rec. Indian Mus.*, 26 : 602.

Lycosa kempi : Sinha, 1951, *Rec. Indian Mus.*, 48(2) : 28.

Lycosa kempi : Tikader, 1970, *Rec. zool. Surv. India*, 64 : 65.

Specimen examined : 1 ♀, Jadavpur, Calcutta, West Bengal; 16.10.1949. Coll. T B. Sinha.

General : Cephalothorax and legs reddish brown and abdomen light greyish brown. Total length 18.00 mm. Carapace 8.50 mm. long, 7.00 mm. wide; abdomen 9.50 mm long, 6.00 mm. wide.

Cephalothorax : Longer than wide, convex clothed with fine hair, mid-dorsally with a conspicuous longitudinal broad pale band, extending from the base of second row of eyes to the base of cephalothorax; centre provided with distinct fovea. Anterior row of eyes short and straight, anterior medians larger than anterior laterals. Eyes of the second row fairly larger than others. Space enclosed between posterior eyes as long as wide and slightly wider behind than in front. Base of posterior eyes provided with conspicuous black patches. Sternum oval, pale, pointed behind, clothed with hair. Legs long and strong, clothed with hairs and spines; femora of legs with light green patches.

Abdomen : Longer than wide, nearly oval, clothed with fine hair; broadest behind the middle. Ventral side pale.

Distribution : India : Darjeeling, Calcutta; Jadavpur, West Bengal; Bhutan; Frontier; Sikkim; Assam; Pakistan.

41. *Lycosa mackenziei* Gravely
(Plate VII. Figs, 80-81)

Lycosa mackenziei Gravely, 1924, *Rec. Indian Mus.*, 26 : 606.

Lycosa mackenziei : Sinha, 1951, *Rec. Indian Mus.*, 48(2) : 37.

Specimen examined : 1 ♀, Dhakuria, Calcutta, 5.9. 1958
Coll. B. K. Tikader.

General : Cephalothorax and legs yellowish brown, abdomen pale with brown patches. Total length 8.50 mm. Carapace 4.00 mm. long, 2.80 mm. wide; abdomen 5.00 mm. long, 3.00 mm. wide.

Cephalothorax : Longer than wide, convex, clothed with fine hair, cephalic region slightly high and narrowing in front and middle of cephalothorax provided with conspicuous fovea. Cephalothorax provided with brown broad longitudinal bands extending from base of posterior eyes to the base of cephalothorax. Lateral edges of thoracic region also with small brown patches here and there. Anterior row of eyes slightly recurved and shorter than the middle row of eyes and anterior medians larger than anterior laterals. Eyes of the second row larger than the others and bases of posterior eyes provided with conspicuous black patches. Ocular quad wider than long. Space enclosed between posterior eyes wider than long. Sternum heart-shaped, pointed behind, pale and clothed with spine-like hair. Labium yellowish brown. Maxillae broader in front, anterior end provided with scopulae. Cheli-

cerae moderately strong, inner margin provided with three teeth. Legs moderately strong, clothed with spines and hair.

Abdomen : Longer than wide, nearly oval, broadest behind the middle, clothed with hair and spine-like hair. Dorsally ornamented with beautiful pattern of dark brown patches which extend from bases to end of abdomen, a conspicuous V-shaped marking followed by pale cheverons. Ventral side pale.

Distribution : India : Bangalore, Karnataka; Dalhousi, Punjab; Siripur, Saran, Dinapore, Ramgarh, Bihar; Calcutta, West Bengal; Lahore (Now in Pakistan).

Genus 23. *Pardosa* Koch

Pardosa Koch, 1848, *Dic. Arachnide*, 14(3) : 100.

Pardosa : Simon, 1897, *Hist. Nat. Araignees*, 2 : 361.

Pardosa : Gravely, 1924, *Rec. Indian Mus.*, 26 : 609.

Pardosa : Dyal, 1935, *Bull. Zool. Punjab Univ.*, 1 : 144.

Pardosa : Sinha, 1951, *Rec. Indian Mus.*, 48(2) : 45.

Characters : Cephalic region elevated and clypeus vertical and chelicerae are much smaller than in most other lycosids so that their height is less than the height of the head. Cephalic region almost entirely occupied by posterior two rows of eyes. The anterior row of eyes shorter than the second row. Labium usually wider than long with the basal articular notches. Legs relatively long and thin and provided with long spines. Metatarsus IV usually longer than or at least as long as patella plus tibia together. Tibiae I provided with three pairs of ventral spines. These spiders are generally found in dry open woods, as well as on wet ground and along the edges of ponds and streams. The egg-sac is lenticular, usually greenish when fresh, changing to dirty grey when older.

Type-species : *Pardosa striatipes* Koch.

Distribution : Europe, America, Asia.

42. *Pardosa birmanica* Simon

(Plate VII. Figs. 82-83)

Pardosa birmanica Simon, 1884, *Ann. Mus. Stor. nat.* 20 : 333.

Pardosa ipnochoera : Thorell 1890, *Ann. Mus. Civ. Stor. nat.*, 10(2) : 138.

Lycosa birmanica : Thorell, 1895, *Spiders of Burma*: 242.

Lycosa birmanica : Gravely, 1924, *Rec. Indian Mus.*, 26 : 607.

Lycosa birmanica : Dyal, 1935, *Bull. Zool. Punjab Univ.* 1 : 136.

Lycosa birmanica : Sinha, 1951, *Rec. Indian Mus.*, 48(2) : 40.

Lycosa bhatnagari : Sadana, 1972, *Ent. Monthly Mag.*, 107 : 226.

Specimens examined : 1 ♀, Dhakuria Calcutta, 10.10.1958. *Coll.* B. K. Tikader. 1 ♀, Jadavpur, Calcutta, 16.10.1249. *Coll.* T B. Sinha. 2 ♂ ♂, 1 ♂, Thakurpukur, Calcutta, 4.3.1965. *Coll.* S. Ghosh. 1 ♀, Tala tank area, Calcutta, 7.12.1977. *Coll.* Bijan Biswas.

General : Cephalothorax and legs dark brown, abdomen with black and pale patches. Total length 6.20 mm. Carapace 3.00 mm. long, 2.10 mm, wide; abdomen 3.20 mm. long, 2.20 mm. wide.

Cephalothorax : Longer than wide, convex, clothed with pubescence, cephalic region narrowing in front and slightly high. Centre of thoracic region light brown and middle provided with a sharp fovea. Ocular area black. Anterior row of eyes slightly procurved, less wider than the second row, medians larger than laterals and bases of laterals provided with black patches. Eyes of the second row larger than the others. Ocular quad wider behind and narrowing in front. Bases of posterior eyes provided with conspicuous black patches. Space enclosed between posterior eyes black and very slightly wider behind than in front. Sternum heart-shaped, pointed behind, clothed with pubescence and hair and uniform dark brown in colour. Labium nearly as long as wide, dark brown in colour. Distal end of maxillae broader and provided with distinct scopulae. Chelicerae moderately strong and inner margin of fang furrow provided with three unequal teeth. Legs thin and long, clothed with spines and hair, all segments (except tarsi) of all legs provided with conspicuous transverse greenish dark brown patches. Male of same colour and size as female.

Abdomen : Longer than wide, oval, pointed behind, broades behind the middle, clothed with pubescence and some hair. Ventral side pale.

Distribution : India : Panchgani, Poona, Bombay, Ahmednagar, Maharashtra; Ludhiana, Knewra, Salt range, Punjab; Berhampore, Burdwan, Gurdanga, Gmatia, Birbhum, Calcutta, Dum Dum, Singla, Darjeeling, West Bengal; Barkuda Island, Chilka Lake, Brial Sagar, Orissa; Mowai, Bara Banki, Mirzapur, Dehra Dun, Uttar Pradesh; Udaipur, Jodhpur, Rajasthan; Rajkot, Jamnagar, Mehsana, Gujarat, Poonta, Kangra, Solan, Sirmour, Kot Khal, Chamba, Himachal Pradesh; Mandla, Jabalpur, Broach, Buranpur, Rowa State, Madhya Pradesh; Garo Hills, Shillong, Meghalaya; Manbhum, Siripur, Saran, Chalbassa, Chakradharapur, Bihar; Ootacamund, Nilgiris, Madras City, Tamil Nadu; Horsleykonda, Eunnur, Chinglput, Andhra Pradesh; Andaman and Nicobar Islands; Burma : Minhla, Tavory, Tharrawaddy and Rangoon; Java; Alexandria; Pakistan : Lahore.

43. *Pardosa leucopalpis* Gravely

(Plate VII. Figs. 84-85)

Pardosa leucopalpis Gravely, 1924, *Rec. Indian Mus.*, 26 : 610.*Pardosa leucopalpis* : Sinha, 1951, *Rec. Indian Mus.*, 48(2) : 47.*Specimens examined* : 13 ♀♀, 1 ♂, Beliaghata lake, Calcutta, 20.1 1959. Coll. P. C. Dhar.*General* : Cephalothorax and legs yellowish brown, abdomen pale. Total length 7.50 mm. Carapace 3.00 mm. long, 2.50 mm. wide; abdomen 3.75 mm. long, 2.50 mm. wide.*Cephalothorax* : Longer than wide, clothed with fine hair. Cephalic region high and almost entirely occupied by posterior two rows of eyes. Clypeus vertical. Anterior row of eyes almost straight and shorter than the second row, anterior medians larger than the anterior laterals. Eyes of the second row larger than the others. Space enclosed between posterior eyes nearly as long as wide and slightly narrow in front. Bases of posterior eyes provided with conspicuous black patches. Middle of cephalothorax provided with a sharp fovea. A broad brown longitudinal patch extend from base of posterior eyes to the base of cephalothorax on each side. Sternum heart-shaped, pointed behind, pale and clothed with hair and spine-like hair. Labium as long as wide. Maxillae wider in front and inner margin provided with three teeth. Legs moderately strong., clothed with spines and hair without any patches. Male and female nearly of same size and colour.*Abdomen* : Longer than wide, pointed behind, pale clothed with pubescence, anterior mid-dorsally provided with an inconspicuous light lens-shaped marking and posterior half with few small brown dots. Ventral side pale.*Distribution* : India : Calcutta, West Bengal; Madras city, Ennur, Tamil Nadu; Dist. Cingleput, Vizagapatam, Andhra Pradesh; Chappanam Island, Cochin, Kerala; Barkuda Island, Chilka Lake, Orissa; Pakistan : Lahore; Sri Lanka : Galle.44. *Pardosa annandalei* (Gravely)

(Plate VII. Figs. 86-87)

Lycosa annandalei Gravely, 1924, *Rec. Indian Mus.*, 26 : 606.*Lycosa basiri* : Dyal, 1935, *Bull. Zool. Punjab Univ.*, 1 : 137.*Lycosa annandalei* : Sinha, 1951, *Rec. Indian Mus.*, 48 (2) : 38.*Pardosa annandalei* : Tikader & Malhotra, 1980, *Fauna of India. Splders* I(2); 351.

Specimens examined : 1 ♀, Dhakuria, Calcutta, 10.10.1958.
Coll. B. K. Tikader. 2 ♀♀, 1 ♂, Tala tank, Calcutta, 7.12.1977.
Coll. Bijan Biswas.

General : Cephalothorax and abdomen deep brown, legs brownish green. Total length 8.00 mm. Carapace 5.00 mm. long, 4.00 mm. wide; abdomen 4.00 mm. long, 3.00 mm. wide.

Cephalothorax : Longer than wide, convex, clothed with fine hairs. Cephalic region slightly high and narrowing in front, middle portion provided with conspicuous broad longitudinal deep brown patches. Centre of cephalothorax provided with a short fovea surrounded by a light mid-longitudinal band, lateral margins also provided with deep brown longitudinal borders. Ocular area black and hairy. Anterior row of eyes straight and slightly larger than the anterior laterals. Eyes of the second row larger than the others. Ocular quad wider than long. Space enclosed between posterior eyes wider than long and narrowing in front. Sternum nearly oval, pointed behind, pale and clothed with spine-like hair. Labium as long as wide and the basal excavation prominent. Maxillae broader in front, anterior end provided with inconspicuous scopulae. Chelicerae moderately strong, inner margin of furrow provided with three teeth and outer margin with two teeth. Legs moderately strong, clothed with spines and hairs, provided with inconspicuous transverse greenish brown patches. Tibiae I provided with three pairs of ventral spines.

Abdomen : Longer than wide, clothed with fine hair and decorated with minute light spots all over the dorsal side. Ventral side pale.

Distribution : India : Trivandrum, Travancore, Kerala; Poona, Maharashtra; Bangalore, Karnataka; Horsley-konda, Dist. Chittor, Andhra Pradesh; Ootacamund, Tamil Nadu; Rewa state, Madhya Pradesh; Sirpur, Saran, Dist Manbhum, Bihar; Darjeeling, Birbhaum, Durgapur, Dum Dum, Calcutta, Sehrampur Court, Siliguri, West Bengal; Cachar, Manipur, Assam; Chittagong, Bangladesh; Burma; Pakistan: Multan.

45. *Pardosa burasantiensis* Tikader & Malhotra

(Plate VII. Figs. 88-89)

Pardosa burasantiensis Tikader & Malhotra, 1976, *Proc. Indian Acad. Sci.*, 83(3) : 130-131.

Specimens examined : 7 ♀♀, 1 ♂, Tollygunj, Calcutta, 31.10.1949. *Coll T B. Sinha.*

General : Cephalothorax yellowish brown, abdomen greenish brown. Legs pale with greenish brown transverse bands. Total length 6.00 mm. Carapace 2.60 mm. long. 2.00 mm. wide; abdomen 3.00 mm. long, 2.00 wide.

Cephalothorax : Longer than wide, convex, clothed with pubescence. Cephalic region slightly high. Clypeus vertical. Anterior row of eyes slightly recurved and anterior medians larger than the anterior laterals. Eyes of the second row largest. Ocular quad slightly wider than long and narrow black patches. Middle of cephalothorax provided with a conspicuous short fovea. Two longitudinal brown patches extend from the base of third row of eyes upto the base of cephalothorax. Sternum heart-shaped, pointed behind, pale and provided with few spines. Labium wider than long. Distal end of maxillae provided with scopulae. Chelicerae moderately strong and retromargin of chelicerae provided with three teeth. Legs long and thin, provided with conspicuous light greenish brown transverse patches. Male slightly smaller than female but of same colour.

Abdomen : Longer than wide, oval, pointed behind, dorsally provided with irregular greenish brown patches. Ventral side pale.

Distribution : India: Singur, Tollygunj, Calcutta, West Bengal.

46. *Pardosa sumatrana* (Thorell)

(Plate VII. Figs. 90-91)

Lycosa sumatrana Thorell, 1890, *Ann. Mus. Stor. nat. Genova*, 30: 136.

Lycosa sumatrana : Gravely, 1924, *Rec. Indian Mus.*, 26 : 604.

Lycosa arorai : Dyal, 1935, *Bull. Zool. Punjab Univ.*, 1 : 140.

Lycosa sumatrana : Sinha, 1951, *Rec. Indian Mus.*, 48(2) : 33.

Pardosa sumatrana : Tikader & Malhotra, 1980, *Fauna of India, Spiders*, 1(2):353.

Specimens examined : 4 ♀ ♀, Dhakuria, Calcutta, 5.3.1959. Coll. B. K. Tikader. 2 ♀ ♀, Tala tank area, Calcutta, 7 12.1977. Coll. Bijan Biswas.

General : Cephalothorax and legs brown, abdomen dark brown. Total length 8.50 mm. Carapace 4.50 mm. long, 3.50 mm. wide; abdomen 4.70 mm. long, 3.00 mm. wide.

Cephalothorax : Longer than wide, convex, cephalic region slightly high and narrowing in front, clothed with pubescence and some hair and some spine-like hair on the clypeus. Centre of thoracic region with a distinct fovea. A median broad longitudinal pale band extend from the bases of posterior eyes to the base of cephalothorax. Ocular area black. Anterior row of eyes straight, less wider than the second

row, medians slightly larger than the laterals and bases of laterals provided with conspicuous black patches. Eyes of the second row larger than the others. Ocular quad wider behind and narrowing in front. Bases of posterior eyes also provided with conspicuous black patches. Space enclosed between posterior eyes wider posteriorly and narrowing anteriorly. Sternum heart-shaped, pointed posteriorly, pale and clothed with pubescence and hair. Labium nearly as long as wide and brown in colour. Distal end of maxillae broader and provided with conspicuous scopulae. Chelicerae moderately strong, inner margin of fang furrow with three teeth. Legs thin and long, clothed with spines and hair and provided dorsally with irregular greenish brown patches. Male of same colour and size.

Abdomen : Longer than wide, oval, pointed behind, clothed with pubescence and some hair. Anterior mid-dorsally with a lens shaped longitudinal marking. Rest of the abdomen provided with dark brown and pale patches and black spots. Ventral side pale.

Distribution : India : Parambikulam, Chalakudi, Cochin, Connor, Kerala; Bangalore, Bandipur, Karnataka; Madras, Nilgris, Gudalur, Ootacamund, Keti, Yercaud, Shevaroy, Tamil Nadu; Chingleput, Horslaykonda, Chittoor dist., Andhra Pradesh; Bandra, Bombay, Poona, Ahmednagar, Maharashtra; Siripur, Saran, Kierpur, Purnea, Gmatic, Birbhum dist., Bihar; Simla, Solan, Himachal Pradesh; Sukna, Singla, Ghumti, Tindharia, Pashok, Kalimpong, Suriel, Darjeeling, Dum Dum, Calcutta, West Bengal; Khasi Hills, Upper Shillong, Meghalaya; Tripura; Kailana, Jodhpur, Rajasthan; Bhuj, Gujarat; Mandia, Jabalpur, Saugar, Madhya Pradesh; Nepal valley; Eastern Himalayas; Rangamati hill tracts, Chittagong. Bangladesh; Camorta, Nicobar; Islands; Mt. Singalang, Sungei Bula, Ajer and Mancior, Sumatra. Sri Lanka : Anuradhapur.

47. *Pardosa oakleyi* Gravely

(Plate VII. Figs. 92-93)

Pardosa oakleyi Gravely, 1924, *Rec. Indian Mus.*, 26 : 610.

Pardosa lahorensis : Dyal, 1935, *Bull. Zool. Punjab. Univ.*, 1 : 145.

Pardosa oakleyi : Sinha, 1951, *Rec. Indian Mus.*, 48(2) : 47.

Pardosa oakleyi : Tikader & Malhotra, 1980. *Fauna of India, Spiders*, 1(2) : 337,

Specimen examined : 1 ♀, Bagmari area, Calcutta, 18.4.1963.
Coll. Soil Zoology Unit.

General : Cephalothorax and legs yellowish brown, abdomen pale with brownish black patches. Total length 5.00 mm. Carapace 2.60 mm. long, 2.00 mm. wide; abdomen 3.00 mm. long, 2.00 mm. wide.

Cephalothorax : Longer than wide, convex, clothed with pubescence, cephalic region high and almost entirely occupied by posterior two rows of eyes. Clypeus vertical. Anterior row of eyes straight and shorter than the second row, anterior medians larger than the others. Space enclosed between posterior eyes nearly as long as wide and slightly narrowing in front. Bases of posterior eyes provided with conspicuous black patches. Middle of cephalothorax provided with a sharp fovea. A broad brown longitudinal patch extend from base of posterior eyes to the base of cephalothorax on each side. Sternum heart-shaped, pointed behind, pale and provided with some spine-like hair. Labium slightly wider than long. Maxillae wider in front. Chelicerae moderately strong. Legs moderately strong and clothed with hair and spines. Male and female almost of same size and colour.

Abdomen : Longer than wide, nearly oval, and anterior mid dorsally with a lens shaped marking followed behind by a pale band, sides with two broad longitudinal rows of brownish black patches from base to end. Ventral side pale.

Distribution : India : Calcutta; Ooctacamund, Nilgiris, Tamil Nadu; Agumbi ghat, Dist. Shimoga, Karnataka; Simipur, Saren, Nugma, Inanpur, Barakar, Manbhum, Bihar; Khewra, Salt Range, Punjab; Pakistan.

Genus 24. *Arctosa* Koch

Arctosa Koch, 1847, *Die. Arachniden*, 14(3) : 94.

Arctosa : Locket & Millidge, 1951, *British Spiders*, 1 : 283.

Arctosa : Kaston, 1972, *How to know the spiders* : 198.

Arctosa : Tikader & Malhotra, 1980, *Fauna of India, Spiders*, 1 (2) : 368.

Characters : Moderately large spiders. The general colouration greyish brown to black. Carapace with no properly defined longitudinal light band and is glabrous or nearly so. Legs more slender. Tarsi I provided with a dorso basal bristal which is drawn out thin and fine at the end, and is much longer than the hair and trichobothria. Tibiae IV dorsally with the proximal spine usually thinner or more drawn out than the distal one, sometimes reduced to a bristle.

Type-species : *Aractosa cinerea* (Fabricius).

Distribution : India, America, New England, Italy, Europe.

48. *Arctosa indicus* Tikader & Malhotra (Plate VIII. Figs. 94-95)

Arctosa indicus Tikader & Malhotra, 1980, *Fauna of India, Spiders*, 1 (2) : 371.

Specimens examined : 3 ♀ ♀, Dhakuria, Calcutta, 5.3.1959. *Coll. B. K. Tikader*. 1 ♀, Tala Park, Calcutta, 24.7 1964. *Coll. Soil Zoology Unit*. 1 ♀, Tala tank, Calcutta, 7 12.1977. *Coll. Bijan Biswas*. 4 ♀ ♀, Palta, Dist. 24 Parganas, West Bengal, 10.11.1977. *Coll. Bijan Biswas*.

General : Cephalothorax dark brown, legs brown and abdomen brownish black. Total length 8.10 mm. Carapace 4.50 mm. long, 3.00 mm. wide; abdomen 3.90 mm. long, 2.70 mm. wide.

Cephalothorax : Longer than wide, cephalic region glabrous and slightly elevated from the thoracic region, clothed with pubescence and some spine like hair. Centre of thoracic region provided with a conspicuous fovea. Eyes occupy a smaller region on the cephalic region. Anterior row of eyes very slightly recurved, as long as the second row, medians larger than the laterals and bases of laterals provided with black patches. Eyes of the second and third row almost equal in size and base of these eyes provided with conspicuous black patches. Ocular quad wider behind and narrowing in front. Posterior quadrangle slightly wider behind. Thin brown bands radiate towards the lateral sides from the fovea. Sternum brown, heart-shaped, pointed behind. clothed with pubescence and hair. Labium slightly longer than wide. Distal end of maxillae broader and provided with scopulae. Chelicerae moderately strong. inner margin of fang furrow provided with three small teeth. Legs strong and stout. femora of all legs conspicuously banded and provided with patches with greenish brown colour. Male similar in colour as female but slightly smaller.

Abdomen : Oval, clothed with pubescence and some hair. Anterior-mid-dorsal area pale. Rest of the dorsal side provided with greenish black and pale patches. Ventral side light brown.

Distribution : India, Poona (type locality), Calcutta.

49. *Arctosa himalayensis* Tikader & Malhotra
(Plate VIII. Figs. 96-97)

Arctosa himalayensis Tikader & Malhotra, 1980. *Fauna of India, Spiders* 1(2) : 369.

Specimens examined : 2 ♀ ♀, 1 ♂, Tala water tank, area, Calcutta, 7 12.1977. *Coll. Bijan Biswas*.

General : Cephalothorax and legs brown, abdomen greenish brown with pale spots. Total length 9.50 mm. Carapace 4.50 mm. long, 3.20 mm. wide; abdomen 5.00 mm. long, 3.00 mm. wide.

Cephalothorax : Longer than wide, cephalic region very convex, clothed with pubescence; centre of thoracic region provided with sharp fovea. Posterior eyes occupy the small portion of the cephalic region. Anterior rows of eyes straight and as long as the second row; medians and laterals of same size and bases of lateral eyes provided with black patches. Eyes of the second row larger than the others. Ocular quad wider behind and narrowing in front and bases of posterior eyes provided with conspicuous black patches. Sternum brown, heart-shaped, pointed behind and clothed with hair and pubescence. Labium longer than wide, brown and clothed with hair. Distal end of maxillae broad and provided with conspicuous scopulae. Inner margin of fang furrow of chelicerae provided with three small teeth. Legs moderately strong, clothed with spines and hair. Males of similar colour as female, but slightly smaller in size.

Abdomen : Longer than wide, oval, pointed behind; Anterior mid-dorsally provided with a longitudinal lens shaped pale marking, otherwise abdomen greenish brown. Ventral side pale.

Distribution : India : Dehra Dun, (type locality,) U. P.; Calcutta, West Bengal.

FAMILY X. OXYOPIDAE

Characters : Cephalothorax oval, high; cephalic region narrow, subacuminate; eyes forming compact subcircular group, those of the posterior line being typically strongly procurved and those of the anterior recurved, the anterior minute; clypeus very high, vertical. Mandibles long and acuminate; fang short; fang-groove unarmed or weakly armed; maxillae and labium very long. Legs slender, armed with long black, conspicuous spines, not scopulate; three claws. Abdomen generally long or oval, narrowed behind.

Hunting spiders, spinning no web, living amongst grass and other plants and fastening their cocoons to the leaves or stalks.

Genus 25. *Oxyopes* Latreille

Oxyopes Latreille, 1804, *Hist. Nat. Arach. France*, 14 (7) : 144.

Oxyopes : Pocock, 1900, *Fauna Brit. India, Arach.*, : 225.

Oxyopes : Tikader, 1970, *Rec. zool. Surv. India*, 64(1-4) : 70.

Characters : Posterior row of eyes strongly procurved and equidistant from each other. Ocular quadrangle longer than wide and limited by the posterior median eyes and the anterior lateral eyes.

Type-species : *Oxyopes heterophthalmus* Latreille.

Distribution : Europe, Africa, Asia, Australia, and America.

50. **Oxyopes shweta** Tikader

(Plate VIII. Figs. 105-107)

Oxyopes shweta Tikader, 1970, *Rec. zool. Surv. India*, 64 (1-4) : 78.

Specimens examined : 1 ♂, Dhakuria, Calcutta, 7.4.1957
Coll. Bani Das. 1 ♂, Palta, Dist. 24 Parganas, West Bengal, 10.11 1977.
Coll. Bijan Biswas. 1 ♀, Zoological Survey of India, Calcutta, Rain
 time, 1912. *Coll. F. H. Gravely.* 1 ♀, Dhakuria, Calcutta, 9.8.1958.
Coll. B. K. Tikader.

General : Cephalothorax and legs light brownish green, abdomen
 chalk-white. Total length 12.00 mm. Carapace 4.90 mm. long, 3.50
 mm. wide; abdomen 8.50 mm. long, 2.50 mm. wide.

Cephalothorax : Longer than wide; convex, cephalic region
 high, clothed with fine hair, posterior lateral side of thorax provided
 with patches of deep brown, short and blunt hair; two longitudinal
 black lines of either side of cephalic region; centre of thorax with a
 prominent fovea. Eyes posterior row procurved and situated at equal
 distance, base of each eye encircled with a black patch. Anterior row
 strongly recurved, anterior lateral eyes larger and median smaller.
 Clypeus long, and provided with two black lines extending from anterior
 median eyes to near the base of fang of chelicerae. Sternum oval,
 pointed behind, clothed with fine hair. Legs long and strong, clothed
 with fine hair and conspicuous long spines, ventral side of femora
 of all legs provided with a longitudinal black line.

Abdomen: Long, narrowing behind, anterior mid-dorsally, with a
 lance-shaped brown patch; lateral sides with longitudinal blackish line
 extending from base to end of abdomen; dorsum with minute net like
 chalk-white patches. Ventral side similar chalk-white nets but middle
 provided with a longitudinal broad brown line extending from epigas-
 tric fold to spinnerets. Male almost similar like female, but smaller
 in size.

Distribution: India: Manjithar, West Sikkim; Calcutta, West Bengal.

51. **Oxyopes birmanicus** Thorell

(Plate VIII. Figs. 98-99)

Oxyopes birmanicus Thorell, 1887, *Premo. Sang. Sui. Rag. Birl.*, : 325.

Oxyopes birmanicus : Sherriffs, 1951, *Proc. Zool. Soc. Lond.*, 12. : 654.

Specimens examined: 1 ♀, 1 ♂, Calcutta, 1912. *Coll. F. H. Gravely.*
 1 ♀, Eden Gardens, Calcutta, 18.10.1975. *Coll. Bijan Biswas.*

General: Cephalothorax and legs brownish green, abdomen pale brownish. Total length 14.00 mm. Carapace 4.00 mm. long, 3.00 mm. wide; abdomen 10.00 mm. long, 4.00 mm. wide.

Cephalothorax: Longer than wide, cephalic region slightly high, provided with conspicuous fovea; front almost half thoracic part in wide fawn, marked into darker and lighter striae, as in *O. javanus*, radiating outwards from the brownish fovea even to the outer border of mandibles; ocular area fawn; eyes two fine black lines from anterior median down clypeus into mandibles; clypeus deep fawn, at the outer angles a dark-brown spots on each side; chelicerae deep fawn, fangs and ends white and hairy, little longer than patella of legs I and at base same width as femora I, labium fawn with darker upper edge; maxillary lobes fawn with distinct pad of hair at top of each. Sternum fawn darker at sides, few scattered long blackish hair. Legs long and strong, clothed with conspicuous spines fawn with double deep black lines on under sides of femora, tips of tibiae IV markedly black, coxae edged in back in order of length I, II, IV, III, pair I over four times length of cephalothorax.

Abdomen: Longer than wide narrowing behind, clothed with hair, dorsal pattern of abdomen as in *O. javanus*. Ventral side provided with longitudinal broad brown lines extending from epigastric fold to base of spinnerets and two sides of these brown lines provided with longitudinal patch of chalk-white dots.

Distribution: India: Calcutta, West Bengal; Burma.

52. *Oxyopes javanus* Thorell

(Plate VIII. Figs. 100-101)

Oxyopes javanus Thorell, 1891, *Rag. Indo. Malesi.*, : 195-198.

Oxyopes javanus : Sherriffs, 1951, *Proc. Zool. Soc. Lond.*, 12. : 651.

Specimens examined: 2 ♀♀, 1 ♂, Calcutta, 26.6.1949. *Coll. A. P. Kapur.* 1 ♂ Zoological Survey of India, Calcutta, Rain time 1912. *Coll. F. H. Gravely.* 3 ♀♀, 1 ♂, Museum Compound, Zoological Survey of India, Calcutta, 30.4.1910. *Coll. S.W. Kemp.* 1 ♂, Dhakuria, Calcutta, 9.8.1958. *Coll. B. K. Tikader.* 3 ♀♀, 1 ♂, Habra, ca. 25 miles North-east of Calcutta, 7.9.1958. *Coll. B. K. Tikader.* 1 ♀, 1 ♂, Dhakuria, Calcutta, 6.7.1958. *Coll. B. K. Tikader.*

General: Cephalothorax, legs brownish green, abdomen greenish pale. Total length 9.00 mm. Carapace 4.00 mm. long, 3.00 mm. wide; abdomen 5.00 mm. long, 3.00 mm. wide.

Cephalothorax: Vaguely blotched with alternate light and dark olive patches rayed out fovea; ocular area with white hair between the eyes; clypeus fawn, dark lines from anterior median down into mandibles, outer angular corners dark-brown; chelicerae fawn, dark-bordered at tip, fangs short and dark; labium fawn; maxillary lobes fawn, edged with darkish hair. Sternum light-fawn, with scattered darker longish hair. Legs long and strong clothed with hair and long conspicuous spines.

Abdomen: Longer than wide narrowing behind clothed with hair. Dorsally provided with pale fawn centrally down whole length with sides dark grey and fawn enclosing one each side. Four white irregular marks outlined in black, ventral side, one median and two lateral longitudinal black lines separated by a greyish goldenish fawn band from epigastric fold and uniting above spinnerets, sides with fine longitudinal brown and light fawn lines, clear white area above each side of epigastric fold.

Distribution: India: Nicobar Islands, Calcutta; Java: Sumatra; Burma: Singapore, Malay, Peninsula.

53. *Oxyopes ratnae* Tikader

(Plate VIII. Figs. 102-104)

Oxyopes ratnae Tikader, 1970, *Rec. zool. Surv. India*, 64 : 70.

Specimens examined : 3 ♀ ♀ , juv. Dhakuria Calcutta 5.3.1959.
Coll. B. K. Tikader, 1 ♀ , Salt lake near Durgapur Calcutta 13.3.1915.
Coll. F. H. Gravely, 1 ♀ , 1 ♂ , Habra, 24, Parganas, West Bengal, 2.8.1959.
Coll. B. K. Tikader.

General : Cephalothorax and legs brownish-green, abdomen dirty white. Total length 10.00 mm. Carapace 3.50 mm. long, 3.00 mm wide; abdomen 7.00 mm. long, 4.00 mm. wide.

Cephalothorax: Longer than wide, convex, cephalic region slightly high, clothed with short spatulate deep brown hair; centre of thorax provided with fine fovea. Eyes of posterior row procurved and situated in equal distance, base of each eye encircled with a black patch. Clypeus long and provided with two black lines extending from anterior median eyes to near the base of fang of chelicerae. Sternum heart-shaped, pointed behind clothed with hair and spines. Legs long and strong, clothed with hair and conspicuous long spines, upper side of femora of all legs provided with a longitudinal deep brown line.

Abdomen: Longer than wide, narrowing behind, clothed with fine and some spatulate hair. Lateral sides with deep brown patch and mid-dorsally with a dirty-white chevrons. Ventral side uniform dirty white

but middle provided with conspicuous longitudinal broad black line extending from epigastric fold to base of spinnerets.

Distribution: India: Sikkim; Calcutta, West Bengal.

54. *Oxyopes sikkimensis* Tikader

(Plate VIII. Figs. 108-109)

Oxyopes sikkimensis Tikader, 1970, *Rec. zool. Surv. India*, 64 : 76.

Specimen examined: 1 ♀ Indian Museum ground, Calcutta, Rainy season, 1912. *Coll. F. H. Gravely.*

General: Cephalothorax and legs brownish-green, abdomen blackish. Total length 14.50 mm. Carapace 6.00 mm. long, 5.00 mm. wide; abdomen 9.50 mm. long, 1.90 mm. wide.

Cephalothorax: Slightly longer than wide, convex, cephalic region high clothed with short and blunt deep brown hair. Eyes posterior row procurved and situated at equal distance, anterior row strongly recurved, middle eyes small, ocular area with conspicuous black patch. Clypeus long clothed with similar hair like cephalothorax, lateral end of margin with a black spot. Sternum heart shaped, pointed behind, clothed with hair and small spines. Legs long and strong, clothed with hair and conspicuous long spines; front side of each femora provided with a longitudinal deep-brown line.

Abdomen: Long, narrowing behind, clothed with fine grey and brown hair; dorsum provided with irregular dirty-white and deep-brown bars. Ventral side uniform light-brown colour, but middle provided with two conspicuous blackish lines, extending from epigastric fold to base of spinnerets and end of similar but smaller than female.

Distribution: India: Sikkim; Calcutta, West Bengal.

Genus 26. *Peucetia* Thorell

Peucetia Thorell, 1869, *On European Spider*, Uppsala, 7 : 196.

Peucetia : Comstock, 1940, *The Spider Book*, New York, : 666,

Peucetia : Brady, 1964, *Bull. Mus. Comp. Zool.*, 131(13) : 505-518,

Peucetia : Tikader, 1970, *Rec. zool. Surv. India*, 64 : 80.

Characters: Anterior median eyes smallest; posterior lateral eyes forming a slightly procurved row, not so procurved as in *Oxyopes*. Cephalothorax not so high or convex as that of *Oxyopes*. Male palp with characteristic paracymbial process in each species, sometimes partly broken off during mating.

Type-species: *Peucetia viridis* Blackwall.

Distribution: Europe, Africa, Asia and America.

55. *Peucetia viridana* Stoliczka

(Plate VIII. Figs. 110-111)

Peucetia viridana Stoliczka, 1869, *J. Asia. Soc. Bengal.* 38 : 220.*Peucetia viridana* : Pocock, 1900, *Fauna Brit. India, Arach.*, : 255.

Specimens examined: 3 ♀ ♀, Tollyganj, Calcutta, 15.4.1917. *Coll. F. H. Gravely.* 1 ♀, Eden Garden, Calcutta, 18.10.1975. *Coll. Bijan Biswas.* 1 ♀, Zoological Survey of India, Calcutta. 2 ♀ ♀ Zoological Survey of India, Calcutta, Rain time 1912. *Coll. F. H. Gravely.*

General: Cephalothorax and legs greenish brown, abdomen pale greenish. Total length 12.00 mm. Carapace 5.50 mm. long, 4.50 mm. wide; abdomen 8.00 mm. long, 4.50 mm. wide.

Cephalothorax: Longer than wide, moderately high provided with brown spots and cephalic region high and broad clothed with few spines, centre provided with deep fovea. Eyes posterior row slightly procurved and situated in equal distance. Anterior row strongly recurved and middle eyes smallest and lateral eyes largest. Clypeus long and provided with two black lines extending from base of anterior middle eyes. Sternum heart-shaped, pointed behind, clothed with spines and hair. Legs long and strong clothed with conspicuous black spots and black long spines.

Abdomen: Long, narrowing behind, clothed with fine hair; mid-dorsally with a longitudinal deep brown lines with lateral branches. Ventral side provided with a broad conspicuous longitudinal chalk-white band extending from epigastric fold to base of the spinnerets.

Distribution: India: Madras, Pondichery, Chingleput, Travancore, Ootacamund, Calcutta; Sri Lanka.

FAMILY XI. GNAPHOSIDAE

Characters: Cephalothorax broad in front, marked with a fovea, not markedly convex. Eyes in two rows, anterior medians generally distinctly darker than the rest, posterior medians often irregular in shape. Abdomen usually long and narrow, without very clear markings, spinnerets projecting from posterior end of abdomen. Chelicerae usually vertical and toothed, inner margin with one or more teeth. Maxillae variable in genus to genus.

Genus 27. *Drassodes* Westring*Drassodes* Westring, 1861, *Goteb. Kongl. Vet. Handl.*, 2 : 25-62.*Drassodes* : Tikader, 1962, *Proc. First Cong. Zool.*, 2 : 570.*Drassodes* : Tikader, 1964, *Rec. Indian Mus.*, 59 (3) : 257.*Drassodes* : Tikader & Gajbe, 1975, *Oriental Insects*, 9 (3) : 273-281.*Drassodes* : Tikader & Gajbe, 1977, *Rec. zool. Surv. India*, 73 : 64-67.

Characters: Cephalothorax flat, broad in front with a fovea and covered with pubescence. Eyes anterior row slightly procurved (as seen from in front); medians slightly larger than laterals and a little closer to the laterals than to each other. Posterior row longer, procurved; median oval, slightly larger than laterals and much closer to each other than to adjacent laterals. Chelicerae strong, inner margin normally with two teeth and two on the outer margin. Sternum oval and pointed behind. Maxillae and labium longer than wide. Legs long and strong, tibiae I and II sometimes bear one ventral spine on the apical half. Scopulae consist of closely set, short blunt little spines. Abdomen longer than wide, narrowing behind, covered with pubescence and with a mousy appearance.

Type-species: *Drassodes lapidosus* (Walck.)

Distribution: Oriental, Sub-tropical and temperate regions of the world.

56. *Drassodes malodes* Tikader

(Plate IX. Figs. 112-114)

Drassodes malodes Tikader, 1959, *Proc. First All India Cong. Zoology*, (2) : 572.

Specimen examined: 1 ♀, Dhakuria, Calcutta, 7.8.1958. *Coll.* B. K. Tikader.

General: Cephalothorax and legs light brown, abdomen light brown to grey. Total length 6.30 mm. Carapace 2.60 mm. long, 1.90 mm. wide; abdomen 3.40 mm. long, 2.10 mm. wide.

Cephalothorax: Relatively broader in front, clothed with very small hair, with faint streaks radiating from fovea. Anterior row of eyes slightly procurved (as seen from in front), medians slightly smaller and darker than to each others; posterior row of eyes longer, slightly procurved, median oval, slightly larger than laterals; all eyes white except the anterior medians. Sternum oval and pointed behind. Legs clothed with hair, scopulae extend nearly to the base of metatarsi in legs I and II and to the base of tarsi in legs III and IV. Male unknown.

Abdomen: Light brown to grey, nearly oval, antero-lateral corner slightly angular, clothed with thick and long hair.

Distribution: India: Dhakuria (type locality), Calcutta, West Bengal.

Genus 28. *Scotophaeus* Simon

Scotophaeus Simon, 1893, *Hist. Nat. Araign.*, 1 : 371.

Scotophaeus : Locket & Millidge, 1951, *British Spiders*, 1 : 104.

Scotophaeus : Tikader, 1962, *Proc. First All India Cong. Zoology*, (2) : 571.

Scotophaeus : Tikader, 1966. *Rec. Indian Mus.*, 59 (4) : 440.

Scotophaues : Tikader & Gajbe, 1977, *Rec. zool. Surv. India*, 73 : 78.

Characters: General appearance very similar with *Drassodes* Westring. Carapace narrower in front than in *Drassodes*, with a fovea. Eyes of the anterior medians larger than the laterals, the medians are circular and anterior lateral elliptical. Posterior row slightly longer than anterior, very slightly procurved, eyes equidistant and nearly equal, posterior medians elliptical in shape.

Type-species: *Scotophaeus quadripunctatus* Latreille.

Distribution: Oriental and Temperatre regions of the world.

57. *Scotophaeus domesticus* Tikader

(Plate IX. Figs. 115-117)

Scotophaeus domesticus Tikader, 1959, *Proc. Ftrst All India Cong. Zoology.* (2) : 570.

Specimens examined: 2 ♀ ♀, Dhakuria, Calcutta, 25.7.1958. *Coll. B. K. Tikader.*

General: Cephalothorax, legs, clypeus and abdomen light brown. Total length 8.00 mm. Carapace 3.50 mm. long, 2.70 mm. wide; abdomen 4.30 mm. long, 3.10 mm. wide.

Cephalothorax: Narrowing in front, clothed with hairs, a fovea on the thorax. Eyes unequal, and not equidistant; anterior row slightly procurved (as seen from in front), anterior medians larger than the laterals and dark in colour, posterior row longer and strongly procurved, posterior medians irregular in shape and silvery white in colour. Legs clothed with hair and a few black stiff spines on tibiae and femora; tibiae I and II with three unpaired ventral spines; metatarsi I and II with one pair of ventral spines near the base. Scopulae profusely hairy, reaching nearly upto the base of the metatarsi in I and II legs and upto tarsi in III and IV Labium triangular and not contiguous with maxillae, sternum oval. Male unknown.

Abdomen: Light brown to grey, nearly oval, densely clothed with fine pubescence.

Distribution: India: Dhakuria, (type locality), Calcutta, West Bengal.

FAMILY XII. CLUBIONIDAE

Characters: This is a large family of two clawed hunting spiders commonly encountered on foliage or on the ground, where they may make tubular retreats in rolled up leaves or under stones, in litter. There is little difference between the sexes though the males are slightly smaller often with the chelicerae longer and narrower and the legs somewhat longer, strongly spined, with tarsi and metatarsi scopulae; tarsi furnished with unguis tufts; anterior spinnerets in contact; colulus absent.

Genus 29. *Clubiona* Latreille

Clubiona Latreille, 1894, *Nouv. Dict. Hist. Nat.*, 24 : 134.

Elaver : Cambridge, 1898, *Bio. Centr. Amer. Ar.*, 1 : 238.

Clubiona : Locket & Millidge, 1951, *British Spiders*, 1 : 125.

Clubiona : Tikader, 1976, *J. Bombay nat. Hist. Soc.*, 73(1) : 176.

Characters: Carapace rather long, somewhat narrowed in front and slightly convex; covered with fine, sometimes silky hair, with a few large hair on anterior part. Fovea usually short; faint radiating striae sometimes originate from it and occasionally form a pattern of darker veining. Eyes two parallel rows, nearly straight or very slightly procurved; posterior row markedly the longest. Anterior medians closer together than posterior medians. Sternum attenuated in front and behind, and pointed behind. Chelicerae robust and convex and usually nearly vertical; more cylindrical sometimes in males and narrower, occasionally projecting forwards. Two rows of teeth; inner margin in females with two to six teeth (of which two are usually longer than the others), often reduced in size and number in males. Legs formula 4123; unicolourous and bearing scopulae.

Type-specien: *Clubiona pallidula* Clerck.

Distribution: All tropical countries of the world.

58. *Clubiona analis* Thorell

(Plate IX. Figs. 118-119)

Clubiona analis Thorell, 1895, *Spiders of Burma*, : 42.

Clubiona analis : Gravely, 1931, *Rec. Indian Mus.*, 33(3) : 261.

Specimen examined: 1 ♀, Dhakuria, Calcutta, 26.7.1959. *Coll.* B. K. Tikader.

General: Cephalothorax, legs light brown, abdomen greyish in colour. Total length 5.00 mm. Carapace 2.00 mm. long, 1.50 mm. wide; abdomen 3.00 mm. long, 2.00 mm. wide.

Cephalothorax: Longer than wide, narrowing anteriorly, clothed with pubescence, posterior middle provided with a conspicuous short fovea. Pattern of radiating streaks diverge from a short fovea to the sides. Eyes more or less same size, silvery white except anterior medians.

Anterior row of eyes slightly recurved (as seen from in front), medians slightly smaller than laterals and pearly white in colour. Posterior row of eyes slightly procurved, medians not so close to each other. Chelicerae moderately strong, inner margin provided with two teeth and outer margin provided with two dissimilar teeth. Sternum oval, clothed with

fine hair, pointed behind. Legs long and slender, clothed with hairs and spines. Legs formula 2413. Tibiae and metatarsi of I and II provided with two and one pairs of ventral spines respectively.

Abdomen: Longer than wide, pointed behind, clothed with fine hair. Dorsum provided with few deep brown dots. Ventral side more lighter than dorsal side.

Distribution: India: Dhakuria, Calcutta, West Bengal; Burma.

59. *Clubiona filicata* Cambridge

(Plate IX. Figs. 120-121)

Clubiona filicate Cambridge, 1874, *Proc. Zool. Soc. Lond.*, : 413.

Clubiona filicata : Gravely, 1931, *Rec. Indian Mus.*, 33(3) : 261.

Specimens examined: 1 ♀, 1 ♂, Dattabad, Calcutta, 14.9.1962. *Coll. B. D. Basu.* 2 ♀♀ 1 ♂, Dhakuria, Calcutta, 19.7.1959. *Coll. B. K. Tikader.* 7 Juvenile, Dhakuria, Calcutta, 26.7.1959. *Coll. B. K. Tikader.* 3 ♀♀, Dhakuria, Calcutta, 26.7.1959, *Coll. B. K. Tikader.*

General: Cephalothorax, legs deep-brown, abdomen greyish in colour. Total length 7.00 mm. Carapace 3.00 mm. long, 2.00 mm. wide; abdomen 4.00 mm. long 2,50 mm. wide.

Cephalothorax: Longer than wide, narrowing anteriorly, clothed with fine hair and few spine-like hair, posterior middle provided with a conspicuous short fovea to the sides. Eyes more or less same size, silvery white except anterior medians. Anterior row of eyes slightly recurved (as seen from in front), medians slightly smaller than laterals and pearly white in colour. Posterior row of eyes slightly procurved medians not so close to each other. Chelicerae moderately strong, inner margin provided with two teeth and outer margin provided with two dissimilar teeth. Sternum oval, clothed with fine hairs, pointed behind. Legs long and strong, clothed with hair and spines. Legs formula 4231. Tibiae and metatarsi of I and II provided with two and one pairs of ventral spines respectively.

Abdomen: Longer than wide, pointed behind, clothed with fine hair. Dorsum provided with few deep-brown dots. Ventral side lighter than dorsal side.

Distribution: India: Madras, Tamil Nadu; Maniktola, Calcutta, West Bengal.

Genus 30. *Chiracanthium* Koch

Chiracanthium Koch, 1839, *Ar.*, 6 : 9.

Chiracanthium : Locket & Millidge, 1951, *British Spider*, 1 : 143.

Chiracanthium : Tikader, 1962, *J. Linn. Soc.*, 44(300) : 568.

Characters: The spiders of this genus resemble those of *Clubiona* in general appearance but differ from them in the following particulars. Eyes smaller, relative to the distances between them. Posterior row scarcely longer than anterior. Trapezium formed by four median eyes, relatively narrow in front as in *Clubiona*. Eyes of lateral pairs very close. Sternum broader, not attenuated in front. Chelicerae somewhat attenuated apically, markedly so in males. Inner row with two teeth far removed from the fang. Legs longer relatively, and more slender, I being longer than IV. No dorsal spines on femora I and II; no ventral spine on tibia III. Male palp of tibia noticeably longer and more slender. Bulb with sexual organs not reaching the end of the tarsus, at the basal end of which is a long spur extending back over the tibia.

Type-species: *Chiracanthium punctorium* Villers.

Distribution: All tropical parts of the world.

60. *Chiracanthium insigne* Cambridge

(Plate IX. Fig. 122)

Chiracanthium insigne Cambridge, 1874, *Proc. Zool. Soc.*, : 408.

Eutittha gracilipes : Thorell, 1895, *Spiders of Burma*, : 47.

Chiracanthium insigne : Gravely, 1931, *Rec. Indian Mus.*, 33(3) : 266.

Specimens examined: 1 ♂, Dhakuria, Calcutta, 28.7.1959. Coll. B. K. Tikader. 1 ♂, Nagtola, Calcutta, 11.12.1976. Coll. Bijan Biswas.

General: Cephalothorax, legs and abdomen light brown in colour. Total length 6.50 mm. Carapace 3.00 mm. long, 2.50 mm. wide; abdomen 4.00 mm. long, 2.00 mm. wide.

Cephalothorax: Longer than wide, clothed with fine hair and few spine-like hair, centre of cephalothorax provided with fine fovea. Cephalic region slightly high and narrowing in front. Eyes silvery white except anterior medians. Anterior row of eyes slightly recurved, anterior median slightly larger than the laterals. Posterior row of eyes slightly procurved. Both row of laterals very close to each other. Ocular quad slightly longer than wide, narrowing in front. Chelicerae strong and stout, inner margin provided with three teeth and outer margin provided with two teeth respectively. Maxillae and labium longer than wide, both provided with scopulae. Sternum heart shaped, clothed with fine hair and pointed behind. Legs long and slender, clothed with fine hair and spines. Legs formula 1423. Tibiae and metatarsi of I and II provided with four and two pairs of ventral spines.

Abdomen: Longer than wide, tapering behind, clothed with fine hair. Ventral side pale and with fine hair.

Distribution: India: Madras; Bihar; Assam; Calcutta, West Bengal; Burma; Sri Lanka.

61. *Chiracanthium melanostoma* (Thorell)

(Plate IX. Figs. 123-124)

Eutittha melanostoma Thorell, 1895, *Spiders of Burma*, : 44.

Chiracanthium melanostoma : Gravely, 1931, *Rec. Indian Mus.*, 33(3) : 264.

Specimens examined: 1 ♀, Eden Gardens, Calcutta, 18.10.1975. *Coll. Bijan Biswas*. 1 ♂, Dhakuria, Calcutta, 7.6.1958. *Coll. B. K. Tikader*, 1 ♂, Zoological Survey of India, Calcutta, Rainy time, 1912. *Coll. F. H. Gravely*.

General: Cephalothorax, legs and abdomen light brown in colour. Total length 7.00 mm. Carapace 3.00 mm. long, 2.50 mm. wide; abdomen 4.20 mm. long, 3.00 mm. wide.

Cephalothorax: Longer than wide, clothed with fine hair and few spine-like hair, centre of cephalothorax provided with fine fovea posteriorly. Cephalic region slightly high. Eyes silvery white except anterior medians. Anterior row of eyes slightly recurved, medians slightly larger than laterals. Posterior row of eyes slightly procurved. Both laterals very close to each other. Chelicerae strong and stout, inner margin provided with one small tooth and outer margin provided with scopulae. Sternum heart-shaped, clothed with fine hair, pointed behind. Legs long and slender, clothed with fine hair and spines. Legs formula 1432. Tibiae and metatarsi of I and II provided with one pair of ventral spines.

Abdomen: Oval, tapering in both ends. Dorsum provided with few black dots, clothed with fine hairs. Ventral side lighter than dorsum.

Distribution: India: Kalimpong, Darjeeling, Calcutta, West Bengal; Burma; Sri Lanka.

62. *Chiracanthium trivialis* (Thorell)

(Plate IX. Figs. 125-126)

Eutittha trivialis Thorell, 1895, *Spiders of Burma*, : 49.

Chiracanthium trivialis : Gravely, 1931, *Rec. Indian Mus.*, 33(3) : 265.

Specimen examined : 1 ♀, Habra, Calcutta, 9.5.1959. *Coll. B. K. Tikader*.

General: Cephalothorax, legs and abdomen light brown in colour. Total length 7.00 mm. Carapace 3.50 mm. long, 2.00 mm. wide; abdomen 5.00 long, 3.50 mm. wide.

Cephalothorax: Longer than wide, clothed with fine hair, centre of cephalothorax provided with fine fovea posteriorly. Cephalic region slightly high. Eyes silvery white except anterior medians. Anterior row

of eyes slightly recurved, medians slightly larger than laterals. Posterior row of eyes nearly straight. Both laterals very close to each other. Chelicerae strong and stout, inner and outer margin provided with two teeth. Maxillae and labium longer than wide, both provided with scopulae. Sternum heart-shaped, clothed with fine hair and spines. Legs formula 1423. Tibiae and metatarsi of I and II provided with one and two pairs of ventral spines.

Abdomen: Oval, tapering in both ends. Dorsum provided with large number of chalk-white dots. Ventral side lighter than dorsum and ventrolaterally provided with few chalk-white dots.

Distribution: India: Madras; Birbhum, Kalimpong, Darjeeling, Calcutta, West Bengal; Burma.

Genus 31. *Castianeira* Keyserling

Castianeira Keyserling, 1879, *Verh. Zool. Bot. Ges. Wien*, 29 : 335.

Castaneira : Simon, 1894, *Hist. Nat. Araign.*, 2 : 142.

Castaneira : Gravely, 1931, *Rec. Indian Mus.*, 33(3) : 272.

Characters: These spiders are of medium size, brown or black in colour, with the abdomen ringed or otherwise marked with white or some other bright colour. Cephalothorax oval, convex and provided with a well marked median furrow. Lower margin of the chelicerae with two small teeth, the tibiae I and II have two or three pairs of ventral spines, the labium wider than long. These spiders run over the ground and may resemble large ants or mutillid wasps.

Type-species: *Castianeira rubicunda* Keyserling.

Distribution: Africa, Asia, Malaysia, America.

63. *Castianeira himalayensis* (Gravely)

(Plate X. Figs. 127-128)

Castaneira himalayensis Gravely, 1931, *Rec. Indian Mus.*, 33(3) : 275.

Castianeira himalayensis: Roewer, 1954. *Katalog der Araneae*, 2: 609.

Specimens examined: 2 ♀ ♀, 1 ♂, Eden Garden, Calcutta, 18.10.1975.
Coll. Bijan Biswas.

General: Cephalothorax deep brownish red and abdomen deep brown, legs yellowish pale in colour. Total length 9.50 mm. Carapace 4.50 mm. long, 2.50 mm. wide, abdomen 5.00 mm. long, 3.00 mm. wide.

Cephalothorax: Nearly oval, longer than wide and wider in front; cephalic region slightly high, clothed with fine pubescence. Middle of cephalothorax provided with a fovea. Eyes round and silvery white.

Anterior row slightly recurved and medians larger than laterals and pearly white. Posterior row procurved and all eyes nearly same size. Both the median eyes near to adjacent laterals than to each other. Ocular quad slightly longer than wide and wider behind. Chelicerae strong, inner margin with two teeth and outer margin with three teeth. Maxillae and labium longer than wide, anterior end of maxillae provided with scopulae. Sternum heart-shaped, pointed behind, deep brown and clothed with hair. Legs long, and slender, clothed with hair and spines. Tibiae and metatarsi of I and II provided with three and two pairs of ventral spines respectively.

Abdomen: Longer than wide, narrowing in front, clothed with pubescence. Dorsum provided with two pairs of small sigilla. Ventral side, brownish red, two longitudinal dotted lines extending from epigastric fold to near the base of spinnerets.

Distribution: India: Darjeeling, Calcutta, West Bengal.

64. *Castianeira zetes* (Simon)

(Plate X. Figs. 129-130)

Castaneira zetes Simon, 1880, *Act. Linn. Soc. Bordeaux*, : 294.

Castaneira zetes : Gravely, 1931, *Rec. Indian Mus.*, 33(3) : 273.

Castianeira zetes : Roewer, 1954, *Katalog der Araneae*, 2: 609.

Specimens examined: 3 ♀ ♀, 2 ♂ ♂, Dum Dum, Calcutta, 8.5.1969.
Coll. D. Sinha.

General: Cephalothorax deep brownish red and abdomen deep brown, legs yellowish pale in colour. Total length 5.50 mm. Carapace 2.50 mm. long, 2.00 mm. wide; abdomen 3.00 mm. long, 2.00 mm. wide.

Cephalothorax: Nearly oval, longer than wide and narrowing in front, cephalic region slightly high, clothed with fine pubescence. Middle of cephalothorax provided with a fovea. Eyes round and silvery white. Anterior row of eyes slightly recurved and medians larger than laterals and pearly white. Posterior row of eyes procurved and all eyes nearly same size. Both the median eyes near to adjacent laterals than to each other. Ocular quad slightly wider than long, and wider behind. Chelicerae strong, inner margin provided with two teeth and outer margin with one tooth respectively. Maxillae and labium longer than wide, anterior end of maxillae provided with scopulae. Sternum heart-shaped, pointed behind, clothed with fine hairs. Legs long and slender, clothed with hair and spines. Tibiae and metatarsi of I and II provided with two and one pair of ventral spines respectively.

Abdomen: Longer than wide, narrowing in front, clothed with pubescence. Dorsum provided with two pairs of small sigilla and

scattered whitish patches. Ventral side, brownish red, two longitudinal dotted lines extending from epigastric fold to near the base of spinnerets,

Distribution: India: Madras; Bangalore; Chilka lake, Orissa; Calcutta, Kalimpong, West Bengal; Bhutan; Assam.

FAMILY XIII. THOMISIDAE

Characters: The typical members of this family have a peculiarly crab-like appearance. Carapace and abdomen usually short and broad but some what elongate in *Tibellus* and *Thanatus*. Eyes small, particularly the posteriors, usually circled with black, both rows being recurved. First two pairs of legs long and stout and frequently move sideways like a crab; the legs are less obviously laterigrade in the genera *Philodromus* and *Thanatus*, and not at all in *Tibellus*. The members of the genus *Oxyptila* have the integument furnished with some characteristic clavate setae, but in the other genera the hairs are normal.

Genus 32. *Thomisus* Walckenaer

- Thomisus* Walckenaer, 1805, *Tabl. Aron.*, : 28.
Thomisus : Stoliczka, 1869, *J. Asiat. Soc. Bengal*, 38 : 225.
Thomisus : Thorell, 1870, *On European spiders*, : 170.
Thomisus : Simon, 1892, *Hist. Nat. Araign.*, 1 : 1023.
Thomisus : Dyal, 1935, *Bull. Zool. Punjab Univ.*, 1 : 200.
Thomisus : Tikader, 1962, *J. Linn. Soc.*, 44(300) : 569.
Thomisus : Tikader, 1965, *Proc. Indian Acad. Sci.*, 61(5) : 283.
Thomisus : Tikader, 1971, *Mem. zool. Surv. India*, 15(3) : 13.

Characters: Cephalothorax truncated in front, with the upper fore-corners strongly and conically protuberant and divergent, bearing the lateral eyes. Eyes very small. Abdomen narrow and truncated in front, enlarging to a considerable width behind, where at either corner of the dorsal side is a short blunt conical protuberance. Legs long, I and II much longer than III and IV. Typical crab-like appearance.

Type-species: *Thomisus albus* Gmelin.

Distribution: Europe, Africa, Asia, Australia, and America.

65. *Thomisus katrajghatus* Tikader

(Plate X. Figs. 131-132)

- Thomisus katrajghatus* Tikader, 1963, *Proc. Indian Acad. Sci.*, 58(5) : 259.
Thomisus katrajghatus : Tikader, 1971, *Mem. zool. Surv. India*, 15(3) : 17.

Specimen examined: 1 ♀, Palta, Dist. 24 Parganas, West Bengal, 10.11.1977. Coll. Bijan Biswas.

General: Cephalothorax and legs greenish, abdomen white. Total length 5.00 mm. Carapace 2.50 mm. long, 2.50 mm. wide, abdomen 3.00 mm. long, 3.40 mm. wide.

Cephalothorax: High, as long as wide; Eyes round, black, anterior row strongly recurved, anterior medians slightly larger than posterior medians; ocular area chalk-white. Clypeus moderately high and sub-rectangular, with white as in the ocular area. Legs long and stout, I and II longer than III and IV; legs I with conspicuous black spot on the middle of femur and near the end of the tibiae, and with three spines arising from black pigmented spots on each femur prolaterally; metatarsi I and II with five pairs of ventral spines. Legs III and IV without spine.

Abdomen: Roughly hexagonal, overlapping the posterior region of cephalothorax in front, broadest just behind the middle; dorsum basally with a conspicuous triangular black marking and a similarly coloured, incomplete, transverse band on the broadest region, posterior end with conspicuous transverse muscular corrugation.

Distribution: India: Poona (type-locality), Calcutta, West Bengal.

66. *Thomisus projectus* Tikader

(Plate X. Fig. 133)

Thomisus projectus Tikader, 1960, *J. Bombay nat. Hist. Soc.*, 57 : 182.

Thomisus projectus : Tikader, 1971, *Mem. zool. Surv. India*, 15(3) : 18.

Specimen examined: 1 ♀, Habra, Dist. 24 Parganas, West Bengal, 7.9.1958. Coll. B. K. Tikader.

General: Cephalothorax greenish, clypeus and abdomen chalk-white. Total length 6.80 mm. Carapace 3.80 mm. long, 3.40 mm. wide; abdomen 4.00 mm. long, 4.10 mm. wide.

Cephalothorax: Pentagonal in shape with a transverse yellow band on the ocular area; narrowing slightly in front, maximum width slightly less than length. Anterior median eyes slightly smaller than anterolateral. Clypeus long subrectangular. Legs long and stout, I and II longer than III and IV I leg with conspicuous incomplete transverse black mark anteriorly above on femur, a narrow black spot in front on patella, a small spot on the base, a large black spot subapically on tibiae in front and a faint brown patch on the tip of metatarsi; I pair of legs with three spines above on femur; II legs with a small black spot on patella and a black spot subapically on tibiae in front, metatarsi I and II with six pairs of ventral spines, III and IV pairs without spot and spine. Male unknown.

Abdomen: Pentagonal slightly overlapping the posterior region of cephalothorax in front, broadest at the middle, this portion tuberculating

laterally and a black spot on the top of tubercle a yellow spot just on inner side of black spot, posterior half of abdomen with prominent transverse muscular corrugation.

Distribution: India: Habra (type-locality), Calcutta, West Bengal.

67. *Thomisus dhakuriensis* Tikader

(Plate X. Fig. 134)

Thomisus dhakuriensis Tikader, 1960, *J. Bombay nat. Hist. Soc.*, 57 : 180.

Thomisus dhakuriensis : Tikader, 1971, *Mem. zool. Surv. India*, 15(3): 18.

Specimens examined: 2 ♀ ♀, Dhakuria, Calcutta, 12.12.1978. *Coll. B. K. Tikader.*

General: Cephalothorax brownish-green; ocular area yellowish brown, with small chalk-white patches; eyes black. Clypeus green with dark brown in the middle. Total length 5.50 mm. Carapace 2.50 mm. long, 3.00 mm. wide; abdomen 4.00 mm. long 3.70 mm. wide.

Cephalothorax: Broad posteriorly, slightly narrowing in front, maximum width slightly more than length. Eyes black, anterior median eyes somewhat smaller than the anterior laterals; clypeus long, subrectangular. Legs long and stout, I and II legs longer than III and IV legs, I legs with conspicuous black spots basally below on femur, a narrow black spot subapically on tibia in front; with three spines from black pigmented spots on each femur in front; II legs with a black spot basally below on femur and a narrow black spot basally in front on tibia, metatarsi of I and II with five pairs of ventral spines, III and IV without spot and spine.

Abdomen: Pentagonal, overlapping the posterior region of cephalothorax in front, broadest just behind the middle, with four elliptical black spots laterally, two on each side, one near the broadest region and the other near the anterior region. Three pairs of very dark brown spots subapically on dorsal surface; black spots arranged in longitudinal rows posterior pair the largest; a single minute crescent shaped black spot medially at anterior margin, posterior end with conspicuous transverse muscular corrugation.

Distribution: India: Dhakuria (type-locality), Calcutta, West Bengal.

68. *Thomisus pugilis* Stoliczka

(Plate X. Figs. 135-136)

Thomisus (Xysticus) [Sic] pugilis Stoliczka, 1869, *J. Asiat. Soc. Bengal*, 38: 225.

Thomisus pugilis : Sherriffs, 1929, *Ann. Mag. nat. Hist. Soc.*, 10 (6): 243.

Thomisus pugilis : Dyal, 1935, *Bull. Zool. Punjab. Univ.*, 1: 20.

Thomisus pugilis : Tikader, 1971, *Mem. zool. Surv. India*, 15(3): 21.

Specimen examined: 1 ♀, Dhakuria, Calcutta, 7.8.1958. *Coll. B. K. Tikader.*

Cephalothorax: Broader than long, produced forwards into two lateral conical processes, and pale brown in colour, but light in the middle. Antero-lateral eyes larger and situated on the antero-lateral edge on the cones; postero-lateral midway on the posterior face of the cones; ocular quad slightly wider than long and narrower anteriorly. Clypeus very high and a pair of white streaks extending to the top of the cephalic prominence. Sternum is broadly oval. Anterior metatarsi provided with five pairs of ventral spines, posterior legs without spine.

Abdomen: Subquadrate, and a pair of basal, conical shoulder tubercles each with a black spot situated inwardly in the middle. Colour of the abdomen white or yellowish white with transverse grooves in the posterior half which are absent in some of the specimens. Average length about 6 mm. The male is very small; its abdomen coloured with dark reddish brown, interspersed sparsely with white.

The female is commonly found on light coloured rose which it resembles so closely that it is neither detected by enemies nor evaded by flower-visiting insects on which it preys. During mating season the female who flees rather than attack it. The male, as it get near the female jumps on her back and settles on the posterior half of her abdomen. At first the female tries to shake off the male but as her attempt is usually unsuccessful, she submits and the male is seen riding her till copulation takes place in the course of three or four days. The male has also been sometimes seen riding on the back of a young female till she casts her last molt and is ready for copulation.

Distribution: India: Calcutta, West Bengal; Madras and Punjab.

69. *Thomisus bulani* Tikader

(Plate X. Figs. 137-138)

Thomisus bulani Tikader, 1960, *J. Bombay nat. Hist. Soc.*, 57(1): 178.

Thomisus bulani : Tikader, 1971, *Mem. zool. Surv. India*, 15(3): 22.

Specimen examined: 1 ♀, Dhakuria, Calcutta, 5.3.1959. *Coll. B. K. Tikader.*

General: Cephalothorax greenish, ocular area-whitish, triangular with a transverse yellow patch between the posterior median eyes. Abdomen chalk-white. Total length 5.00 mm. Carapace 2.50 mm. long, 2.30 mm. wide; abdomen 3.40 mm. long, 3.60 mm. wide.

Cephalothorax: High, as long as wide. Anterior median and anterior lateral eyes more or less equal. Clypeus moderate, sub-rectangular.

Legs long and stout, I and II legs longer than III and IV, metatarsi of I and II with five pairs of ventral spines, posterior legs without spine; I pair of legs with three spines in each femur in front but not arising from black pigmented spots. Sternum heart-shaped, pointed behind.

Abdomen: Pentagonal, overlapping the posterior region of cephalothorax in front, broadest just behind the middle, with three pairs of reddish-brown spots on dorsal surface near the lateral borders; the spots arranged in longitudinal rows, the posterior pair of spots the largest; four very minute reddish-brown spots present on the middle, and sometimes only two spots; posterior end with conspicuous transverse muscular corrugation.

Distribution: India: Dhakuria (type locality), Calcutta, West Bengal.

70. *Thomisus cherapunjeus* Tikader

(Plate X. Figs. 139-140)

Thomisus cherapunjeus Tikader, 1966, *Proc. Indian Acad. Sci.*, **64**(1) : 54.

Thomisus cherapunjeus : Tikader, 1971, *Mem. zool. Surv. India*, **15**(3) : 24.

Specimen examined: 1 ♀, Salt lake, Calcutta, 25.12.1976. *Coll. Bijan Biswas.*

General: Cephalothorax and legs deep to light green, abdomen brown and mixed with dirty white. Total length 5.20 mm. Carapace 2.20 mm. long, 2.00 mm. wide; abdomen 3.40 mm. long, 2.50 mm. wide.

Cephalothorax: Slightly longer than wide, clothed with fine hair, cephalic region slightly high and narrow, lateral two sides provided with conspicuous longitudinal broad deep brown patch extending from base of lateral eyes to base of thorax. Ocular tubercle high and laterally pointed and transversely joined with an elevated ridge and chalk-white in colour, mid-dorsally provided with a narrow longitudinal chalk-white line extending from ocular area to base of thorax. Eyes black, both rows recurved but posterior row less recurved and longer than anterior row; both lateral eyes situated on the base of opposite side of lateral conical tubercle, anterior lateral eyes larger than others. Ocular quad longer than wide and narrow in front. Clypeus moderate, margin of clypeus provided with seven small spines directed forward but middle one directed upward. Sternum heart-shaped, pointed behind, clothed with hair. Legs I and II pairs very long and stout; tibiae of I with five and metatarsi with eight pairs of robust ventral spines.

Abdomen: Longer than wide, nearly elliptical in shape, maximum width behind the middle. Dorsal side provided with five sigilla marked with deep brown or black. Lateral sides of abdomen provided with three or four longitudinal deep brown thin lines and all lines joined

respectively on the posterior side of abdomen. Ventral side uniform pale green in colour and two sides provided with longitudinal parallel muscular elevations.

Distribution: India: Shillong; Assam; Calcutta, West Bengal.

71. *Thomisus elongatus* Stoliczka

(Plate X. Figs. 141-142)

Thomisus (Xysticus) (Sic) elongatus Stoliczka, 1869. *J. Asiat. Soc. Bengal.* 38 : 227.

Thomisus elongatus : Tikader, 1971, *Mem. zool. Surv. India*, 15(3) :25.

Specimens examined: 2 ♀ ♀ , Calcutta, 10.6.1957. *Coll. B.K. Tikader.*

General: Cephalothorax and abdomen greyish white. Total length 8.50 mm. Carapace 2.50 mm. long, 2.10 mm. wide; abdomen 6.00 mm. long, 2.30 mm. wide.

Cephalothorax: Quadrangular, convex the ocular portion in front truncate, a little narrow with projecting corners, the posterior lateral margins of the thorax being slightly curved; a broad white band runs posteriorly from the antero-lateral corners, it occupies the whole length of the thorax, and slightly indented with black on each side of its base; the sloping flanks are brown, and the margins again white with a very thin brown stripe at the extreme edges. The first pair of the middle and the corresponding pair of the lateral eyes, placed on the perpendicular front side of the thorax; the former on a slight protuberance close together, the later which a little larger near the edges below the projecting corners; on the other side, still nearer to the outer point, the posterior laterals situated, being directed backward, the posterior central eyes above, but not quite on the front ridge, they nearly twice as far apart from each other than the anterior centrals, in size they hardly differ. Legs I and II long and stout than III and IV

Abdomen: Sub-cylindrical, slightly narrow and truncate in front where it partially covers the base of the thorax; in the middle it somewhat flattened; pointed and slightly elevated at the posterior end. The upper side marked with numerous raised lines, covering towards the terminal upper portion of the abdomen. Ventral side a number of similar raised lines, separated from former by a broad whitish band, they begin at the side of the trachean opercula and coverage towards the spinnerets. The genital opening very small, furnished on each side with a minute tubercle.

Distribution: India: Calcutta (*type-locality*) West Bengal.

Genus 33. *Xysticus* Koch

- Xysticus* Koch, 1835, *H. Schaeft. Deutschl. Ins.*, : 35.
Xysticus : Simon, 1892, *Hist. Nat. Araign.* 1 : 1035.
Xysticus : Comstock, 1940, *The Spider Book*, New York, : 545.
Xysticus : Locket & Millidge, 1951, *British Spiders*, London, (1) : 175.
Xysticus : Tikader, 1960, *J. Bombay nat. Hist. Soc.*, 57(1) : 173.
Xysticus : Tikader, 1962, *J. Linn. Soc.*, 44(300) : 576.
Xysticus : Tikader, 1971, *Mem. zool. Surv. India*, 15(3) : 44-53.

Characters: Cephalothorax rather square-fronted, clothed with simple isolated hair and spines, which are usually pointed, rarely blunt, but nearer clavate. Posterior eyes nearly equidistant, medians smaller than laterals; the anterior medians usually a little further from each other than from the anterior laterals. The lateral eyes situated in low sub-confluent tubercles. The tibiae and metatarsi of the anterior legs usually furnished with five or six isolated teeth. Abdomen much wider behind than in front, usually bearing a dentate band on its dorsal surface. These spiders live under stones and leaves or under loose bark; a few live on low plants and bushes.

Type-species: *Xysticus cristatus* Clerck.

Distribution: Europe, Africa, Asia and America.

72. *Xysticus minutus* Tikader
(Plate X. Figs. 143-144)

- Xysticus minutus* Tikader, 1960, *J. Bombay nat. Hist. Soc.* 57(1) : 173.
Xysticus minutus : Tikader, 1971, *Mem. zool. Surv. India*, 15(3) : 50.

Specimens examined: 1 ♀, Palta, Dist. 24 Parganas, West Bengal, 10.11.1977. Coll. Bijan Biswas. 4 ♀ ♀, Baranagar Railway Station area, Calcutta, 22.1.1978. Coll. Bijan Biswas. 1 ♀, 2 ♂ ♂, Tala Tank area, Calcutta 7.12.1977 Coll. Bijan Biswas. 1 ♂, Dattabad, Calcutta, 14.9.1962. Coll. B. D. Basu.

General: Cephalothorax light brown, legs greenish, abdomen light brown. Total length 2.20 mm. Carapace 1.00 mm. long, 1.00 mm. wide; abdomen 1.30 mm. long, 1.20 mm. wide.

Cephalothorax: As long as wide, spined, the sides with broad longitudinal dark brown patches, a pair of long pale brown irregular lines from the base of posterior median eyes, extending to the middle of the thorax. Clypeus median, margin with seven strong spines, directed forward but the median directed upward. Eyes black, round, ringed with dirty-white tubercles; ocular quad slightly wider than long, space of the anterior median eyes a little wider than that of posterior; lateral

eyes larger; posterior median eyes smaller than anterior median. Legs spined, with brown transverse bands, tibiae I and II with two pairs of ventral spines. The apex of tibiae I and II with broad dark brown patches.

Abdomen: Oval, dorsum, slightly overlapping the posterior region of cephalothorax, dorsal surface with dentate bands beautifully coloured with admixture white, dark brown and red.

Distribution: India: Calcutta, West Bengal; Poona; Shillong; Gujarat.

Genus 34. *Synaema* Simon

Synaema Simon, 1864, *Hist. Nat. Ar.*, 1 : 70.

Xysticus : Emerton, 1892, *Trans. Connect. Acad. Sci.*, 8 : 366.

Synaema : Keyserling, 1893, *Verh. Zool. bot Ces Wien.*, 33 : 667.

Synaema : Comstock, 1940, *Spider Book*, New York, : 553.

Synaema : Tikader, 1960, *J. Bombay nat. Hist. Soc.*, 57(1) : 174.

Synaema : Tikader, 1962, *J. Linn. Soc.*, 44(300) : 578.

Characters: The genus *Synaema* is closely allied to *Xysticus* but differs in the following characters. The median ocular area is a little more narrow in front than behind the anterior eyes, the tarsal claws of the first two pairs of legs furnished with more than five or six teeth, and the teeth extend beyond the middle of the claw, the cuticle smooth. Abdomen dorsoventrally compressed. These spiders are found on the folding of leaves of low plants and bushes.

Type-species: *Synaema globosum* Fab.

Distribution: Asia, America and Africa.

73. *Synaema decorata* Tikader

Synaema decorata Tikader, 1960, *J. Bombay nat. Hist. Soc.*, 57(1) : 174-176.

Synaema decorata : Tikader, 1971, *Mem. zool. Surv. India*, 15(3) : 54.

Specimens examined: 1 ♂, Dhakuria, Calcutta, 1.4.1958. *Coll. B. K. Tikader*, 10 ♀♀, 5 ♂♂, Dhakuria lake, Calcutta, 5.2.1978. *Coll. Bijan Biswas*. 1 ♀, Ghoshpara, Jadavpur, Calcutta, 12.12.1976. *Coll. Bijan Biswas*.

General: Cephalothorax green, ocular tubercles chalk-white, eyes black; legs and abdomen green. Total length 3.40 mm. Carapace 1.40 mm. long, 1.40 mm. wide; abdomen 2.00 mm. long, 1.80 mm. wide.

Cephalothorax: As long as wide, eyes four pairs, lateral eyes larger, posterior median eyes smaller than the anterior medians, except the posterior median eyes all ringed with chalk-white ocular tubercles, lateral tubercles contiguous; ocular quad slightly wider than long, space

anterior median eyes a little smaller than that of the posterior median. Clypeus narrow, margin of clypeus bearing slender spines. Legs I and II pairs longer than III and IV, tibiae of I leg with four pairs of ventral spines, bases of spines black, the first pair of spines shortest.

Abdomen: More or less elliptical, dorsoventrally flattened. Very slightly overlapping the cephalothorax, four pairs of circular black spots on the dorsum near the lateral margin, the posterior pair largest.

Distribution: India: Dhakuria, (type-locality), Calcutta, West Bengal; Karnataka.

Genus 35. *Bomis* Koch

Bomis Koch, 1873, *Ar. Austr.*, 10 : 528.

Bomis : Simon, 1892, *Hist. Nat. Araign.*, 1 : 1005.

Bomis : Tikader, 1962, *J. Linn. Soc.*, 44 (300) : 580.

Characters: Cephalothorax wider than long, convex, posteriorly subvertical. Eyes small, equal and equidistant, posterior slightly recurved, medians remote each other than the laterals, distinctly recurved, median ocular area large, slightly narrower in front. Clypeus flat, sloping abruptly from the ocular area. Sternum narrow, pointed behind, labium broad at base apically reduced. Legs short, stout, metatarsi very short. Abdomen broad, convex, truncated in front, posterior rounded and transversely furrowed.

Type-species: *Bomis larvata* Koch.

Distribution: North Hollandia, India.

74. *Bomis bengalensis* Tikader

(Plate X. Figs. 145-146)

Bomis bengalensis Tikader, 1962, *J. Linn. Soc.*, 44(300) : 580.

Specimen examined: 1 ♀, Dhakuria, Calcutta, 3.7.1957. Coll. B. K. Tikader.

General: Cephalothorax and legs yellowish brown, abdomen pale yellowish. Total length 3.10 mm. Carapace 1.20 mm. long, 1.60 mm. wide; abdomen 1.90 mm. long, 2.20 mm. wide.

Cephalothorax: Rectangular, wide behind, convex, clothed with uniform fine pubescence. Eyes round, black, ringed with white tubercles, both rows recurved but posterior row less recurved than anterior and longer, ocular quad wider than long, lateral eyes slightly larger and tubercles nearly contiguous. Posterior medians further away from each other than from the laterals. Clypeus high and sloping downward. Legs stout, short, clothed with hair or spiny-hair, almost equal in length claw tuft very prominent. Sternum heart-shaped, clothed with fine hairs.

Abdomen: Wider than long, nearly rectangular with white characteristic pattern of closely set minute acute tubercles on the dorsum, paired black circles subanteriorly on either side, the inner circle being larger and nearly in the middle, an irregular transverse black band on the posterior side. Ventral side pale yellow, margin encircled by two or three muscular elevated ridges with characteristic white tubercles.

Distribution: India: West Bengal.

Genus 36. *Camaricus* Thorell

Camaricus Thorell, 1887, *Ann. Mus. Civ. Gen.*, : 261.

Camaricus : Simon, 1892, *Hist. Nat. Araign.*, 1 : 1012.

Camaricus : Workman, 1896, *Malaysian Spider*, 1 : 4.

Camaricus : Tikader, 1977, *Rec. zool. Surv. India*, 72(1-4) : 192.

Characters: Cephalothorax moderately high, wider in front, side nearly parallel, clothed with hair. Eyes in two rows, both are recurved, middle eyes nearer to the laterals. Crab-like appearance. Abdomen decorated and clothed with hair.

Type-species: *Camaricus maugii* Walck.

Distribution: Africa, India, Malaysia.

75. *Camaricus formosus* Thorell

(Plate XI. Figs. 147-148)

Camaricus formosus Thorell, 1887, *Ann. Mus. Civ. Gen.*, : 261.

Camaricus fornicatus : Thorell, 1890, *Arach. Nies. de. Sumatra*, : 60.

Camaricus formosus : Workman, 1896, *Malaysian Spider*, 1 : 4.

Camaricus formosus : Tikader, 1977, *Rec. zool. Surv. India*, 72(1-4) : 192.

Specimens examined: 5 ♀ ♀', Pratapgarh, (Jadavpur, Calcutta,) 19.12.1976. *Coll. Bijan Biswas*. 4 ♀ ♀, near Jadavpur Railway Station, Calcutta, 11.12.1976. *Coll. Bijan Biswas*, 1 ♀, Habra, Dist. 24 Parganas, West Bengal, 7.9.1958. *Coll. B. K. Tikader*, 1 ♀, Zoological Survey of India, Calcutta, 1.7.1949. *Coll. A. P. Kapur*.

General: Cephalothorax red, legs light greenish, abdomen dark brown. Total length 7.40 mm. Carapace 3.00 mm. long, 2.50 mm. wide; abdomen 4.20 mm. long, 4.00 mm. wide.

Cephalothorax: High, clothed with black hair, wider in front, anterior portion and the lateral sides of cephalothorax provided with conspicuous deep brown or black patches. Centre of the cephalothorax provided with deep brown patch but in male specimen there is no such patch. Eyes two rows, both rows recurved, posterior row slightly longer

than anterior row. Middle eyes situated adjacent to lateral eyes. Ocular quad longer than wide. Legs robust, clothed with hair and spines and ornamented with black patches, but in male I and II pair complete dark brown in colour. Tibiae and metatarsi provided with three pairs of ventral spines. Chelicerae moderate, dark brown in colour. Sternum heart-shaped, pointed behind, clothed with fine hair.

Abdomen: Longer than wide, widest behind the middle, clothed with black hairs, conspicuously decorated longitudinally and laterally by chalk-white bands. Ventral side light brown, mid-ventral side provided with longitudinal broad brown patch extending from epigastric fold to near the base of spinnerets.

Distribution: India: Karnataka, Poona, Maharashtra; Andaman Islands; Calcutta; West Bengal.

Genus 37. *Tharpyna* Koch

Tharpyna Koch, 1874, *Ar. Austr.*, : 548.

Tharpyna : Simon, 1892, *Hist. Nat. Araign.*, 1 : 1015.

Tharpyna : Workman, 1896, *Malaysian Spider*, 1 : 4

Characters: Cephalothorax moderate high, convex, slightly wide, in front, side nearly parallel. Eyes in two rows, both are recurved; middle eyes nearer to each other. Ocular quad longer than wide and wider behind. Crab-like appearance. Abdomen decorated and clothed with hairs.

Type-species: *Tharpyna diademata* Koch.

Distribution: Java, Hollandia, New Zealand, India, Burma, Sumatra.

76. *Tharpyna indica* Tikader & Biswas

(Text-figs. 15-17)

Tharpyna indica Tikader & Biswas, 1979, *J. Bombay nat. Hist. Soc.*, 75(3) : 903-905

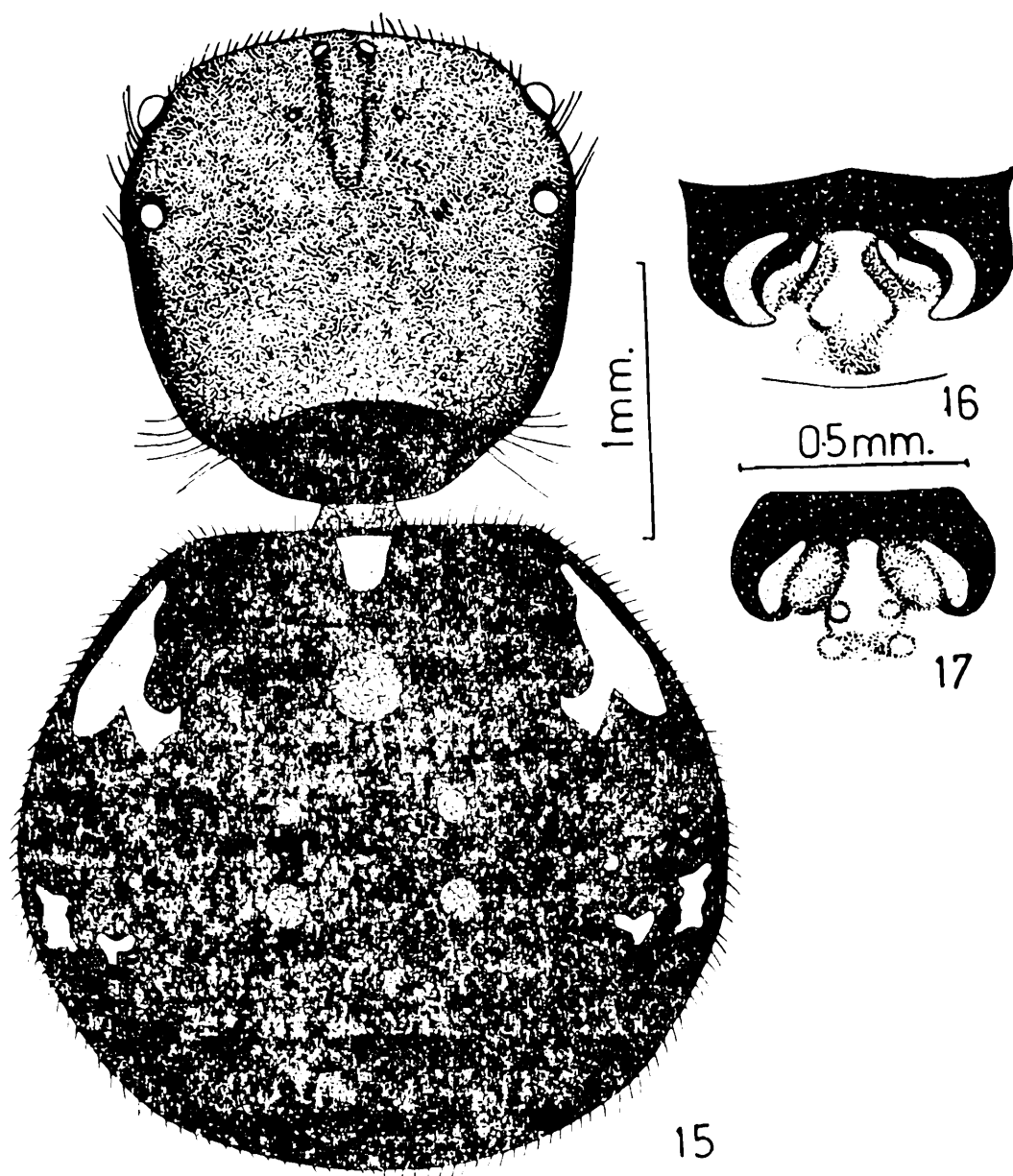
Specimens examined: 2 ♀♀, Choona Bhati near Sibpur Botanical Garden, Dist. Howrah, West Bengal, 25.8.1977. *Coll. Bijan Biswas.*

General: Cephalothorax reddish brown, abdomen black with white patches. Total length 4.50 mm. Carapace 1.75 mm. long, 1.75 mm. wide; abdomen 2.30 mm. long, 2.70 mm. wide.

Cephalothorax: Nearly as long as wide, with moderately high and convex, smooth shine with deep brown, slightly narrowing posteriorly clothed with few stout hairs, thoracic region slightly elevated. Eyes in two rows, both recurved. Anterior lateral larger and posterior medians, smallest than others. Both medians adjacent to each other. Ocular quad,

slightly longer than wide and wider behind. Sternum heart-shaped, pointed posteriorly, brown, covered with fine hair. Labium brown, longer than wide. Distal end of maxillae wide and pale. Chelicerae reddish brown, covered with fine hair. Legs reddish brown except the pale colour of coxae and the proximal end of the femora II, III & IV.

Abdomen: Almost round slightly narrowing anteriorly, jet black covered with pubescence dorsally near the edge provided with conspicuous irregular shaped chalk-white patches as in text fig. 15. Anterior median area with a big sigilla followed posteriorly by two pairs of sigillae. Posterior extremity also provided with small white patches and spots. Ventral side black. Two pale round spots present just posterior to the epigyne. Epigyne as in text fig. 16. Internal genitalia as in text-fig. 17. Male unknown.



FIGS. 15-17. *Tharpyna indica* Tikader & Biswas
 15. Dorsal view of female, legs omitted.
 16. Epigyne.
 17. Internal genitalia.

Distribution: India : Sibpur Botanical garden (Type locality) Dist. Howrah, West Bengal.

Genus 38. *Philodromus* Walckenaer

- Philodromus* Walckenaer. 1825, *Ent. Fr. Ar.*, : 86.
Philodromus : Simon, 1892, *Hist. Nat. Araign.*, 1 : 1063,
Philodromus : Thorell, 1895, *Spiders of Burma*, : 279.
Philodromus : Comstock, 1940, *Spider Book*, New York, : 556.
Philodromus : Tikader, 1962, *J. Linn. Soc.*, 44(300) : 581.
Philodromus : Tikader, 1962, *Proc. zool. Soc.*, 15(1) : 39.
Philodromus : Tikader, 1966, *Proc. Linn. Soc.*, 177(1) : 35.
Philodromus : Tikader, 1971, *Mem. zool. Surv. India*, 15(3) : 67.

Characters: Cephalothorax broader than long, relatively narrower in front than in genera *Xysticus* and *Oxyptila*. Eyes small and more uniform in size than in genera *Xysticus* and *Oxyptila*. Eyes in a smaller crescent-shaped group with the anterior row shortest, posterior strongly recurved, the medians further from each other than from the laterals. Abdomen usually oval, not appreciably widened or truncated behind. Legs relatively long, II pair of legs generally longer than I pair; III and IV pairs a little shorter than I and II pairs.

Most of the species of the genus occur on plants; but a few are found inside houses and on fancing.

Type-species: *Philodromus aureolus* Clerck.

Distribution: All over the world.

77. *Philodromus assamensis* Tikader

(Plate XI. Fig. 149)

- Philodromus assamensis* Tikader, 1962, *J. Linn. Soc.*, 44(300) : 581.
Philodromus assamensis : Tikader, 1971, *Mem. zool. Surv. India*, 15(3) : 70.

Specimen examined: 1 ♀, Duttabad, Calcutta, 14.9.1962. *Coll. B. D. Basu.*

General: Cephalothorax, legs and abdomen light to deep brown. Total length 4.90 mm. Carapace 1.80 mm. long, 1.80 mm. wide; abdomen 3.20 mm. long, 2.70 mm. wide.

Cephalothorax: Depressed but cephalic region high, as long as wide, a white median longitudinal broad band extends from the ocular area to base of cephalothorax, clothed with fine pubescence. Clypeus high, margin provided with long spine-like hair directed forward. Eyes round and black, both rows recurved, all eyes forming a crescent-shaped group,

the anterior row much shorter than the posterior, the posterior medians further from each other than from the laterals, posterior laterals slightly larger than others. Sternum oval, very narrowly produced behind, clothed with stiff hairs. Legs relatively long, II legs slightly longer than the I, clothed with hair. Femora, patella and tibiae with irregular white patches. Tibiae and metatarsi of I and II with two pairs of ventral spines; tarsal scopulae well developed and claw tufts prominent.

Abdomen: Longer than wide, posterior half wide and end tapering, at the sides with dark brown patches; posterior half of abdomen medially with deep brown chevrons.

Distribution: India: Shillong; Assam; Calcutta.

78. *Philodromus maliniae* Tikader

(Plate XI. Figs. 150-151)

Philodromus maliniae Tikader, 1966, *Proc. Linn. Soc.*, 177(1) :39-40.

Philodromus maliniae : Tikader, 1971, *Mem. zool. Surv. India*, 15(3) :77.

Specimen examined: 1 ♀, Choona Bhati near Sibpore Botanical Garden, Dist. Howrah, West Bengal, 25.8.1977. *Coll. Bijan Biswas.*

General: Cephalothorax light brown, legs green, abdomen pale brown. Total length 3.10 mm. Carapace 1.20 mm. long, 1.40 mm. wide; abdomen 2.00 mm. long, 1.20 mm. wide.

Cephalothorax: Uniform depressed, slightly wider than long, lateral margins provided with white patch, middle with light brownish colour, provided with irregular deep brown dots; clothed with very fine pubescence. Clypeus very narrow, eyes round and black, provided with tubercles, anterior row short, posterior medians separated further from each other than from laterals. Both rows of eyes very close, and eyes not forming a crescent shaped group. Sternum oval, not pointed behind, clothed, with very fine pubescence and margin provided with irregular dark brown dots. Legs relatively long, II legs slightly longer than I, clothed with fine hair. Base of tibiae and metatarsi of all legs provided with conspicuous black patches. Tarsal scopulae not very well developed and claw tufts prominent.

Abdomen: Longer than wide, depressed, clothed with fine pubescence, posterior end obtusely pointed. Dorsal side of abdomen provided with white and light brown patches and also with some irregular conspicuous deep brown dots. Ventral side uniform pale brown in colour, provided with conspicuous deep brown dots.

Distribution: India: Poona, Maharashtra; West Bengal.

Genus 39. *Tibellus* Simon

- Tibellus* Simon, 1875, *Ar. Fr.*, 2 : 307.
Tibellus : Simon, 1895, *Hist. Nat. Araign.*, 1 : 1065.
Tibellus : Comstock, 1940, *The Spider Book*, New York, : 562.
Tibellus : Locket & Millidge, 1951, *British Spider, Ray. Society*, 1 : 202.
Tibellus : Tikader, 1960, *J. Bombay nat. Hist. Soc.*, 57(1) : 176.
Tibellus : Tikader, 1962, *J. Univ. Poona Sci. & Tech.*, 22 : 133.
Tibellus : Schick, 1965, *Bull. Amer. Mus. Nat. Hist.*, 129(1) : 99.

Characters: Cephalothorax appreciably longer than wide. The change in position of the eyes have gone further than in the genus *Thanatus*, and the eyes of the anterior row, with the posterior median pair, from a small compact hexagonal group from which the posterior laterals are conspicuously removed. Abdomen long and cylindrical or cigar-shaped. Legs relatively long, bearing scopulae on both tarsi and metatarsi. These spiders are found in grass and on bushes, when at rest the legs are stretched out longitudinally, two pairs forward and two pairs backward.

Type-species: *Tibellus oblongus* Walck.

Distribution: Europe, America, Africa and Asia.

79. *Tibellus elongatus* Tikader

(Plate XI. Figs. 152-153)

- Tibellus elongatus* Tikader, 1960, *J. Bombay nat. Hist. Soc.*, 57(1) : 176-177.
Tibellus elongatus : Tikader, 1971, *Mem. zool. Surv. India*, 15(3) : 82.

Specimens examined: 1 ♀, Dhakuria, Calcutta, 1.6.1958, *Coll. B. K. Tikader*. 1 ♀, Pratapgarh, (Jadavpur, Calcutta) 19.12.1976. *Coll. Bijan Biswas*.

General: Cephalothorax pale greenish, eyes black, legs pale-green. Clypeus green, abdomen brownish. Total length 8.90 mm. Carapace 4.00 mm. long, 3.50 mm. wide; abdomen 5.00 mm. long, 2.80 mm. wide.

Cephalothorax: Longer than wide, sparsely spined, sides about $\frac{1}{4}$ portion with dark brown pigmented patches; clypeus medium, margin of clypeus with eight spines directed forward. Anterior row of eyes closer, recurved, anterior four eyes and posterior two median eyes form a wide hexagonal area, posterior lateral eyes remote from other eyes and the largest. Legs long, spined bearing numerous black pigmented dots, I and II pairs of legs longer than the others, tibiae I and II with three pairs of ventral spines in the apical three fourths portion.

Abdomen: Long, cylindrical, spined, narrower behind, very slightly overlapping the posterior region of cephalothorax, with a long median black pigmented line from nearly the base of abdomen to tip, four pairs of transverse pigmented lines from the median line to the lateral margin, these four pairs almost parallel with each other.

Distribution: India: Dhakuria (type-locality), Calcutta; Poona, Maharashtra.

FAMILY XIV SALTICIDAE

Characters: This family comprises those spiders commonly known as "Jumping spiders". They are characterised above all else by the massive square-fronted carapace, bearing on its front the four large forward directed eyes; behind these, set well back, are two small eyes, and behind these again there are the two posterior eyes of medium size, the whole forming a large quadrangle. Legs normally rather short, with two tarsal claws and usually a claw tuft; tarsal scopulae are sometimes present.

Genus 40. *Salticus* Latreille

Salticus Latreille, 1804, *Nouv. Dict. H. N.*, 24 : 135.

Cyrtanota : Simon, 1864, *Hist. Nat. Ar.* 2 : 324.

Salticus : Simon, 1897, *Hist. Nat. Araign.* 2 : 606.

Salticus : Locket & Millidge, 1951, *British Spiders, Ray Society*, 1 : 208.

Characters: The ocular trapezium is about one-third broader than long. Sternum narrowed in front. Chelicerae with one large tooth on inner margin, and two smaller ones on outer margin; chelicerae of male greatly elongated and projecting. Tibiae and metatarsi I armed ventrally with hairs only, and no paired spines.

Type-species: *Salticus scenicus* Clerck.

Distribution: Europe, America, Asia.

80. *Salticus ranjitus* Tikader

(Plate XI. Figs. 154-155)

Salticus ranjitus Tikader, 1967, *Proc. Indian Acad. Sci.*, 66(4) : 117.

Specimens examined: 2 ♂♂, Baikunthapur, Baraipur, Dist. 24 Parganas, West Bengal, 30.10.1977. Coll. Bijan Biswas. 1 ♂, 1 ♀, Choona Bhati near Sibpore Botanical Garden, Dist. Howrah, West Bengal, 25.8.1977. Coll. Bijin Biswas. 1 ♀, Palta, Dist. 24 Parganas West Bengal, 10.11.1977. Coll. Bijan Biswas. 6 ♀♀, Baranagar Railway Station area Calcutta, 22.1.1978. Coll. Bijan Biswas. 1 ♀, 1 ♂, Baghajatin Railway Station, Calcutta, 12.12.1976. Coll. Bijan Biswas. 2 ♀♀,

Bally, Dist. Howrah, West Bengal, 27.5.1962. Coll. S. K. Ghosh. 3 ♀ ♀, Ghoshpara, Jadavpur, Calcutta, 12.12.1976. Coll. Bijan Biswas.

General: Cephalothorax and abdomen deep brown to black, legs light green, Total length 3.50mm. Carapace 1.50 mm. long, 1.20 mm. wide; abdomen 2.00 mm. long, 1.20 mm. wide.

Cephalothorax: Longer than wide, somewhat rectangular, clothed with fine black hair; cephalic and anterior thoracic regions high and flat, posterior thoracic region abruptly bent behind. Eyes pearly white, anterior row slightly recurved, and anterior median eyes larger than laterals by more than four times. Middle row of eyes very small and situated nearly equidistant from anterior and posterior rows. The ocular trapezium about one-third broader than long. Chelicerae with one large tooth on inner margin, and two smaller ones on outer margin. Sternum oval, black clothed with hairs. Legs strong and stout, I and II more stout than III and IV legs. Tibiae and metatarsi of I and II provided with three and two ventral spines respectively.

Abdomen: Longer than wide and nearly egg-shaped dorsum provided with irregular minute white dots; posterior end with transverse conspicuous white band. Ventral side with white and deep brown longitudinal patches.

Distribution: India: West Sikkim (type locality) Calcutta, West Bengal; Poona; Punjab.

Genus 41. *Phidippus* Koch

Phidippus Koch, 1846, *Die. Arachn.*, 13 : 125.

Phidippus : Peckham, 1901, *Trans. Wis. Acad. Sci.*, 13 : 288.

Phidippus : Peckham & Peckham, 1909, *Trans. Wis. Acad. Sci.*, 16(1): 380.

Phidippus : Comstock, 1949, *The Spider Book*, : 688.

Phidippus : Tikader, 1974, *Proc. Indian Acad. Sci.*, 79(3) : 120.

Characters: Spiders above median size, sometimes very large and hairy. Cephalothorax high and massive, wide and rather short and convex. The sides round out widely both from above, below and from in front to the middle point. The cephalic plate slants forward. The thoracic plate short and wide. The thorax falls from the dorsal eyes at first gradually and then more steeply. The eyes small in proportion to the size of the spider. The first row recurved; and second row about twice as far from the third as from the first row, the dorsal eyes as large as the anterior lateral and form a row which plainly narrower than the cephalothorax at that place. Chelicerae with one moderate tooth on inner margin and two on outer margin. The I legs heavy, strong with hair and few spines and often fringed mainly in the male.

The abdomen in *Phidippus* are all modifications of normal type, light basal and side bands, etc. Abdomen generally longer than wide.

Type-species: Phidippus variegatus (Lucas.)

Distribution: All tropical and sub-tropical countries of the world

81. *Phidippus pateli* Tikader

(Plate XI. Figs. 156-159)

Phidippus pateli Tikader, 1974, *Proc. Indian Acad. Sci.*, 79(3) : 124.

Specimens examined: 5 ♀♀, 2 ♂♂, Sibpore Botanical Garden, Dist. Howrah, West Bengal, 5.9.1958. *Coll. B. K. Tikader.* 1 ♀, 2 ♂♂, Baikunthapur, Baraipur, Dist. 24 Parganas, West Bengal, 30.10.1977 *Coll. Bijan Biswas.* 1 ♂, Palta, Dist 24 Parganas, West Bengal, 10.11.1977. *Coll. Bijan Biswas.* 1 ♂, Dhakuria lake, Calcutta, 5.2.1978. *Coll. Bijan Biswas.* 1 ♂, Maniktola, Calcutta, 8.9.1912. *Coll. F. H. Gravely,* 1 ♂, Zoological Survey of India, Calcutta, Rain time, 1912. *Coll. F. H. Gravely,* 1 ♂, Nagtola, Calcutta, 11.12.1976. *Coll. Bijan Biswas.*

General: Cephalothorax, abdomen and legs pale orange colour. Total length 12.00 mm. Carapace 4.40 mm. long, 3.50 mm. wide; abdomen 7.00 long, 3.00 mm. wide.

Cephalothorax: Longer than wide; high in front, posterior and lateral sides sloping. Cephalic region flat, clothed with fine white hair, outer sides of lateral eyes provided with tuft of conspicuous long black hair. Eyes comparatively small according to the size of the spider. Anterior row recurved. Base of eyes encircled with a black patch. Anterior lateral eyes and posterior lateral eyes nearly same size, second pair of eyes very small and situated near the anterior lateral eyes than the posterior eyes. Middle of cephalothorax provided with a small deep fovea. Chelicerae with one moderate tooth on inner margin and two (anterior moderate and posterior small) teeth on outer margin. Maxillae provided with thick scopulae on upper end. Sternum nearly oval, narrowing in front. Legs I and II more robust than III and IV Tibiae and metatarsi I and II provided with four and two pairs of ventral spines respectively.

Abdomen: Longer than wide and pointed behind, clothed with fine short and long hair. Dorsally with a conspicuous V-shaped longitudinal deep brown band. Ventral side uniform pale colour.

Distribution: India: Sibpore, Botanical Garden near Calcutta, West Bengal; Poona, Maharashtra; Ahwa, Dist. Dang, Gujarat.

82. *Phidippus indicus* Tikader
(Plate XIII. Figs. 160-163)

Phidippus indicus Tikader, 1974, *Proc. Indian Acad. Sci.*, 79(3) : 122.

Specimens examined: 2 ♀♀, Baikunthapur, Baraipur, Dist. 24 Parganas, West Bengal, 30.10.1977. *Coll. Bijan Biswas.* 1 ♂, Choona Vhati near Botanical Garden, Sibpore, Dist. Howrah, West Bengal, 25.8.1977. *Coll. Bijan Biswas.* 3 ♀♀, Dhakuria lake, Calcutta, 5.2.1978. *Coll. Bijan Biswas.* 1 ♀ Baranagar Railway Station area, Calcutta, 22.1.1978. *Coll. Bijan Biswas.* 1 ♂, Tala tank area, Calcutta, 7.12.1977. *Coll. Bijan Biswas.* 2 ♂♂, Baghajatin Railway Station, Calcutta, 12.12.1976. *Coll. Bijan Biswas.* 1 ♂, Eden Gardens, Calcutta, 18.10.1975. *Coll. Bijan Biswas.* 10 ♂♂, Sibpore Botanical Garden, Dist. Howrah, West Bengal, 28.6.1965. *Coll. P. Parui.*

General: Cephalothorax and legs brownish-red, abdomen light brown Female's legs more red than male. Total length 7.80 mm. Carapace 4.00 mm. long, 3.00 mm. wide; abdomen 3.80 mm. long, 1.90 mm. wide.

Cephalothorax: Longer than wide, high in front, posterior and lateral sides sloping. Cephalic region flat, clothed with fine hair. In female, outer sides of lateral eyes provided with tuft of conspicuous long black hair. Anterior median eyes milk-white and others pearly white. Anterior row recurved. Base of eyes encircled with a conspicuous black patch. Anterior lateral eyes and posterior eyes nearly same size; second pair of eyes very small and situated near the anterior lateral eyes than the posterior eyes. Middle of cephalothorax provided with a small deep fovea. Chelicerae with one moderate tooth on inner margin and two (anterior small and posterior moderate) teeth on outer margin. Sternum nearly oval, longer than wide, narrowing in front. Legs I and II more robust than III and IV Tibiae and metatarsi I and II provided with three and two pairs of ventral spines respectively.

Abdomen: Longer than wide and pointed behind (female less pointed), clothed with hair. Dorsally decorated with some light patch. Ventral side pale, provided with broad longitudinal deep brown conspicuous band.

Distribution: India: Gujarat; Calcutta, West Bengal.

83. *Phidippus bengalensis* Tikader
(Plate XII. Figs. 164-168)

Phidippus bengalensis Tikader, 1976, *Entomon*, 2(1) : 97-98.

Specimens examined: 2 ♀♀, 1 ♂, Sibpore Botanical Garden, Dist. Howrah, West Bengal, 3.2.1969. *Coll. B. K. Tikader.* 1 ♀, 1 ♂, Baranagar Railway Station area, Calcutta, 22.1.1978. *Coll. Bijan Biswas.*

General: Cephalothorax, legs and abdomen light brown in female but male cephalothorax, legs brownish red and abdomen deep brown. Total length in female 8.00 mm. Carapace 4.00 mm. long, 3.00 mm. wide. abdomen 4.00 mm. long, 2.50 mm. wide.

Cephalothorax: Longer than wide, high in front, posterior and lateral sides sloping. Cephalic region flat, clothed with fine and some long hair. In female, outer sides of lateral eyes provided with tuft of conspicuous long black hair. Anterior median and lateral eyes milky-white and other eyes pearly white. Anterior rows of eyes recurved. Bases of all eyes except anterior median provided with conspicuous black patch. Anterior lateral eyes and posterior eyes nearly same size; second pair of eyes very small and situated near the anterior lateral eyes than the posterior eyes. Middle of cephalothorax provided with a small deep fovea. Chelicerae with one moderate tooth on inner margin and two small teeth on outer margin. Sternum nearly oval, longer than wide, narrowing in front. Legs clothed with hair and spines I and II more robust than III and IV Tibiae and metatarsi I and II provided with three and two pairs of ventral spines respectively.

Abdomen: Longer than wide and pointed behind, clothed with hair. Anterior lateral half of abdomen provided with deep brown patches. Middle of abdomen provided with a pair of sigilla which are encircled by a V-shaped black or brown marking. Ventral brown patches, extending from epigastric fold to the base of spinnerets.

Distribution: India: Howrah, Calcutta; West Bengal, Poona, Maharashtra; Mysore; Karnataka; Punjab.

Genus 42. *Marpissa* Koch

Marpissa Koch, 1846, *Die. Arachn* 13 : 56.

Marpissa : Simon, 1897, *Hist. Nat. Araign.*, 2 : 610.

Marpissa : Peckham & Peckham, 1909, *Trans. Wis. Acad. Sci.*, 16(1):480.

Marpissa : Comstock, 1948, *The Spider Book*, : 686.

Marpissa : Locket & Millidge, 1951, *British Spiders*, 1 : 215.

Marpissa : Tikader, 1967, *Sci. & Cult.*, 31(5) : 262.

Marpissa : Tikader, 1974, *Proc. Indian Acad. Sci.*, 79(5) : 204.

Characters: Cephalothorax longer than wide, cephalic region flat and low, widest behind the dorsal eyes. Eyes region occupying little more than one-third of the cephalothorax; ocular trapezium about 1.5 times broader than long, parallel sided. Chelicerae with one tooth on inner margin and two on outer margin. Sternum narrowed in front. Legs usually 1423 in the male and 4132 in female. In both sexes tibiae and metatarsi I and II provided with three and two pairs of ventral spines respectively.

Type-species: *Marpissa muscosa* Clerck.

Distribution: Europe, Central Asia, America, Japan and Oriental region.

84. *Marpissa dhakuriensis* Tikader

(Plate XII. Figs. 169-170)

Marpissa dhakuriensis Tikader, 1974, *Proc. Indian Acad. Sci.*, 79(5) : 207.

Specimens examined: 1 ♀, Dhakuria, Calcutta, 18.7.1958. *Coll. B. K. Tikader.* 1 ♀, Lindsay building, Zoological Survey of India, Calcutta, 10.8.1970. *Coll. Bijan Biswas.* 1 ♀, Ballygunge Lake area, Calcutta, 20.11.1949. *Coll. T. B. Sinha.*

General: Cephalothorax and abdomen brown and legs light brown. Total length 7.00 mm. Carapace 2.80 mm. long, 2.00 mm. wide; abdomen 4.20 mm. long, 2.40 mm. wide.

Cephalothorax: Longer than wide, cephalic region flat, ocular region more dark than the rest portion of cephalothorax, clothed with fine white hair and middle provided with a conspicuous fovea. Lateral lower margin of cephalothorax provided with a band of white hair. Anterior middle eyes milky white and other pearly white. Anterior row recurved and anterior median eyes nearly three times larger than the lateral eyes. Middle row of eyes very small and situated nearly equidistant from anterior lateral and posterior eyes. Ocular area wider than long. Chelicerae with one moderately large tooth on inner margin and two slightly smaller teeth on outer margin. Labium longer than wide, maxillae provided with scopulae. Sternum nearly oval narrowing anteriorly. Legs I and II short and stout, clothed with hair and few spines, and legs formula 4132. Tibiae and metatarsi of I and II provided with two pairs of ventral spines.

Abdomen: Longer than wide, clothed with fine hair; lateral side provided with a longitudinal whitish band. Ventral side pale.

Distribution: India: Dhakuria, Calcutta, West Bengal.

85. *Marpissa decorata* Tikader

(Plate XII. Figs. 171-172)

Marpissa decorata Tikader, 1974, *Proc. Indian Acad. Sci.*, 79(5): 206.

Specimens examined : 2 ♀ ♀, Sibpore Botanical Garden, Dist. Howrah, West Bengal, 10.1.1956. *Coll. B. K. Tikader.* 1 ♀, Baikunthapur, Baraipur, Dist. 24 Parganas, West Bengal, 30.10.1977. *Coll. Bijan Biswas.* 1 ♀, Baranagar Railway station, area, Calcutta, 22.1.1978. *Coll.*

Bijan Biswas. 1 ♀, Baishnabghata, Calcutta, 11.12.1977. *Coll. Bijan Biswas*. 1 ♀, Ballygunge lake area, Calcutta, 20.11.1949. *Coll. T B. Sinha*.

General: Cephalothorax reddish-brown, abdomen brown and legs deep brown. Total length 8.10 mm. Carapace 4.00 mm. long, 2.80 mm. wide; abdomen 4.00 mm. long, 3.00 mm. wide.

Cephalothorax: Longer than wide, high in front, posterior and lateral sides sloping. Cephalic region flat, clothed with fine hair, outer sides of laterals eyes provided with few long black hair, just behind the ocular platform on the middle of cephalothorax with a small fovea. Two longitudinal conspicuous white patches extending from posterior eyes to near the base of cephalothorax. Eyes moderate, anterior median eyes pearly white. Anterior row recurved, base of eyes encircled with deep brown patch. Anterior lateral eyes slightly larger than the posterior eyes; second pair of eyes very small and situated more near to the anterior lateral eyes than to the posterior eyes. The ocular trapazium broader than long. Chelicerae with a moderate tooth on inner margin and two small teeth on outer margin. Maxillae provided with fine scopulae. Sternum nearly oval, narrowing in both sides. Legs I and II more robust than III and IV, clothed with long grey hair and few spines, legs formula 4132. Tibiae and metatarsi I and II provided with three and two pairs of ventral spines respectively.

Abdomen: Longer than wide and pointed behind, clothed with two types of hair, base provided with fine short hair and some long grey hair all over the abdomen. White and black decorated patches on the dorsum of abdomen. Ventral side white, middle provided with a longitudinal brown patch extending from epigastric fold to the base of the spinnerets.

Distribution: India: Sibpore Botanical Garden, Dist. Howrah, Calcutta, West Bengal.

86. *Marpissa bengalensis* Tikader

(Plate XIII. Figs. 173-174)

Marpissa bengalensis Tikader, 1974. *Proc. Indian Acad. Sci.*, 79(5) : 212.

Specimen examined: 1 ♀, Dhakuria, Calcutta, 4.4.1958. *Coll. B. K. Tikader*.

General: Cephalothorax brown to deep brown, abdomen light and, legs reddish-brown. Total length 8.20 mm. Carapace 4.00 mm. long 3.00 mm. wide, abdomen 4.00 mm. long, 3.00 mm. wide.

Cephalothorax: Longer than wide, high in front, posterior and lateral sides sloping, clothed with fine small grey and long black hair. Cephalic region high and flat. Anterior median eyes milky white and other pearly white. Anterior row recurved, base of eyes encircled with black patch. Anterior median eyes nearly four times larger than anterior lateral eyes. Anterior lateral and posterior eyes nearly similar size, and second pair of eyes very small and situated nearly equidistant from anterior and posterior row. Middle of cephalothorax with a small fovea situated just behind the ocular platform. Chelicerae with a moderate tooth on inner margin and two close teeth on outer margin. Maxillae provided with a tuft of fine scopulae. Sternum nearly oval, narrowing in front. Legs I and II more robust than III and IV, clothed with long grey hair and spines, legs formula 4132. Tibiae and metatarsi I and II provided with three and two pairs of ventral spines respectively.

Abdomen: Longer than wide and narrowing in behind, clothed with hair. Middle of dorsum with a longitudinal whitish band. Ventral side pale, and provided with irregular brown spots.

Distribution: India: Dhakuria, Calcutta, West Bengal.

87. *Marpissa calcutaensis* Tikader

(Plate XIII. Figs. 175-176)

Marpissa calcutaensis Tikader, 1974, *Proc. Indian Acad. Sci.*, 79(5) : 210.

Specimens examined: 2 ♀ ♀, Calcutta, 12.1.1958. *Coll. B. K. Tikader*. 2 ♀ ♀, Museum compound, 19.9.1910. *Coll. F. H. Gravely*. 2 ♀ ♀, Zoological Survey of India, Calcutta, Rain time. *Coll. F. H. Gravely*.

General: Cephalothorax, abdomen and legs light brown. Total length 7.20 mm. Carapace 3.50 mm. long, 2.80 mm. wide; abdomen 3.50 mm. long, 2.50 mm. wide.

Cephalothorax: Longer than wide, cephalic region flat and deep brown colour; middle of cephalothorax light in colour and provided with a small deep fovea; one-third of the posterior portion of cephalothorax abruptly slope behind. Eyes anterior middle milky-white and other pearly white, anterior row slightly recurved, and anterior median eyes nearly four times larger than the lateral eyes. Middle row of eyes very small and situated nearly equidistant from anterior lateral and posterior rows. Ocular trapezium broader than long and slightly high like platform. Posterior eyes and anterior lateral eyes nearly same size. Cephalothorax clothed with thick hair and few spines. Chelicerae with one moderately large tooth on inner margin, and two nearly similar teeth on outer margin. Sternum oval, narrowed in front, clothed with hair and few spines. Legs strong and stout, clothed with hair and spines

and legs formula 4132. Tibiae and metatarsi of I and II provided with three and two pairs of ventral spines respectively.

Abdomen: Longer than wide, narrowing in behind; clothed with black and white hair; behind the middle on the dorsum a whitish cross-like band. Anterior portion of abdomen provided with forward projecting strong hair. Ventral side pale colour clothed with fine hairs.

Distribution: India: Calcutta, West Bengal.

88. *Marpissa tigrina* Tikader

(Plate XIII. Figs. 177-178)

Marpissa tigrina Tikader, 1965, *Sci. & Cult.*, 31 (5): 262.

Specimens examined: 1 ♀, 1 ♂, Duttabad, Salt lake area, Calcutta, 30.8.1962. *Coll. S. K. Ghosh.*

General: Cephalothorax, legs and abdomen pale green. Total length 8.00 mm. Carapace 2.90 mm. long, 2.20 mm. wide; abdomen 5.10 mm. long, 2.50 mm. wide.

Cephalothorax: Longer than wide, convex but ocular area slightly high and flat; clothed with fine hair. Ocular area encircled by a U-shaped red-brown broad marking and two arms of this U, extended up to the base of thorax. Anterior row of eyes recurved, milky white and anterior middle eyes very large. Middle and posterior row of eyes black, and middle eyes very small and situated near the anterior row than posterior row. The antero-middle of thorax provided with a inconspicuous fovea. Chelicerae with one small tooth on inner margin and two on outer margin. Sternum oval, greatly narrowed in front; clothed with fine hair. Legs long and stout, I pair of legs stout than the II pair and IV pair longer than the rest. Tibiae and metatarsi of I provided with three and two pairs of ventral spines respectively.

Abdomen: Long, narrowing behind, clothed with hair. Dorsal side provided with conspicuous red-brown chevron like pattern. Ventral side uniform pale white, clothed with fine hair.

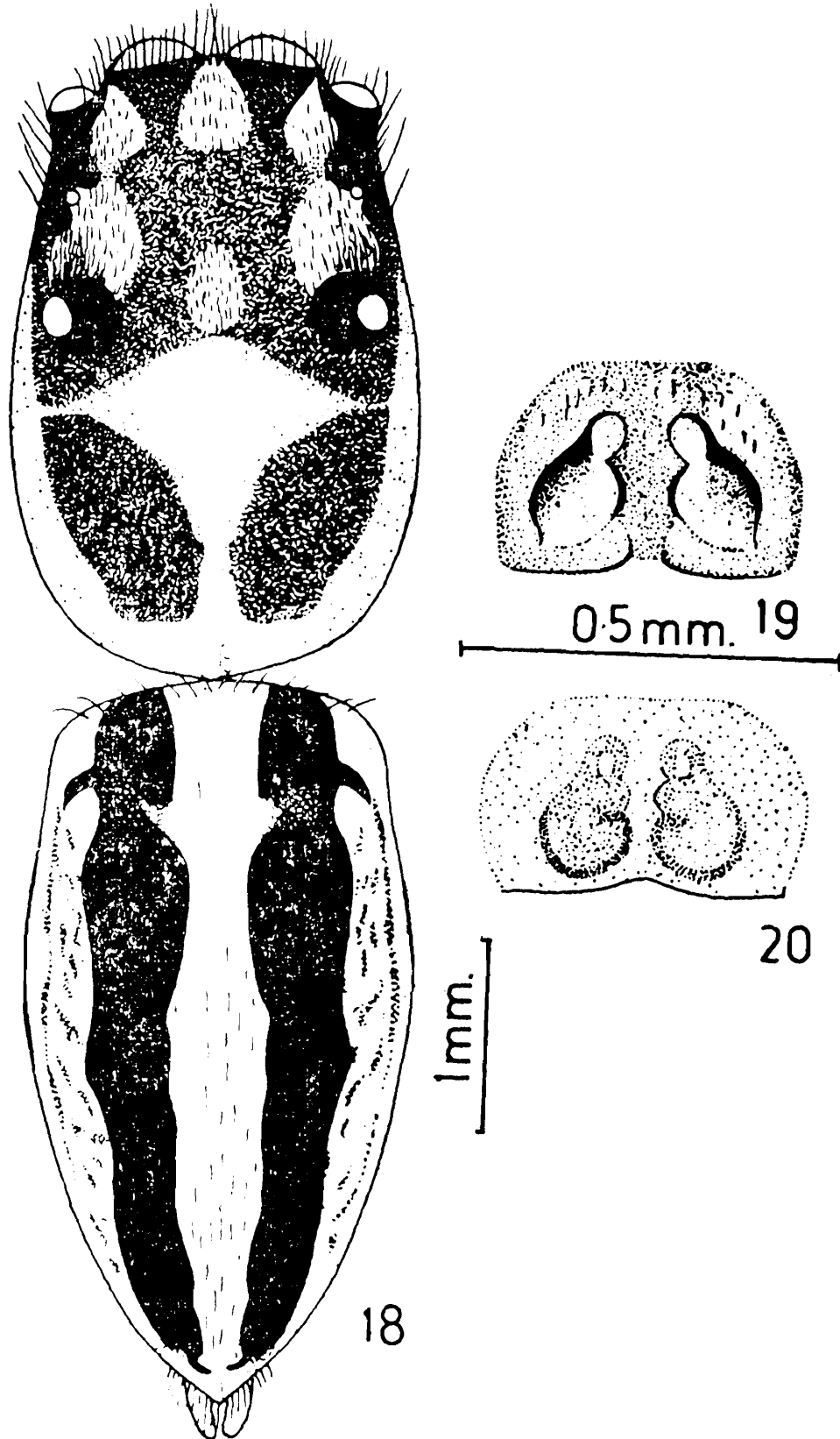
Distribution: India: Poona (*Type-locality*), Maharashtra; Calcutta, West Bengal; Punjab.

89. *Marpissa anusuae* sp. nov.

(Text-figs. 18-20)

General: Cephalothorax deep brown, abdomen and legs greenish pale. Total length 7.20 mm. Carapace 3.20 mm. long, 2.10 mm. wide; abdomen 3.75 mm. long, 2.00 mm. wide.

Cephalothorax: Longer than wide, deep brown, clothed with black and few pale hair. Cephalic region flat with a conspicuous pale, nearly square-shaped patch as in text-fig. 18, and with small fovea. Eyes of



FIGS. 18-20. *Marpissa anusuae* sp. nov.
 18. Dorsal view of female, legs omitted.
 19. Epigyne.
 20. Internal genitalia.

anterior row recurved and anterior median eyes nearly four times longer than the lateral eyes. Middle row of eyes small and situated nearly equidistant from anterior and posterior laterals. Base of eyes encircled by black patch. Posterior lateral eyes slightly smaller than the anterior lateral eyes. Chelicerae moderately strong and with one tooth inner margin and two teeth outer margin. Labium longer than wide, maxillae broad in front and provided with scopulae. Sternum elliptical, clothed with fine hair. Legs moderately strong, clothed with hair and spines. Legs formula 4123. Tibiae and metatarsi of I and II provided with four and two pairs of ventral spines respectively.

Abdomen: Longer than wide, narrowing behind, clothed with fine and few coarse hair. Dorsum provided with two longitudinal conspicuous deep brown or black bands extending from base to the end of abdomen as in text-fig. 18. Ventral side uniform pale colour. Epigyne as in text-fig. 19. Internal genitalia as in text-fig. 20.

Holotype: Female in spirit deposited at Z.S.I. Calcutta, Reg. No. 4340/18

Type-locality: Eden garden, Calcutta, 18.10.1975. *Coll. Bijan Biswas.*

This species resembles *Marpissa kalapani* Tikader but can be separated as follows: (i) There is a square-shaped conspicuous pale patch on the middle of thorax but in *M. kalapani* no such patch. (ii) Anterior lateral eyes slightly larger than the posterior laterals but in *M. kalapani* both the laterals nearly same size. (iii) Tibiae and metatarsi of I provided with three and two pairs of ventral spines respectively. (iv) Epigyne and internal genitalia structurally different.

Genus 43. *Plexippus* Koch

Plexippus Koch, 1846, *Die. Arachn.*, 13 : 107.

Menemerus : Peckham, 1888, *Trans. Wis. Acad. Sci.*, 7 : 84.

Plexippus : Simon, 1897, *Hist. Nat. Araign.*, 2 : 734.

Plexippus : Tikader, 1967, *Proc. Indian Acad. Sci.*, 66(4) : 118.

Characters: Cephalothorax long and rather high, slightly convex, a little dilated behind dorsal eyes, with sides nearly vertical and parallel in front, rounded behind; cephalic part inclined; thoracic falling gradually from a little way behind dorsal eyes to near the posterior border, then dropping abruptly. Eye region occupying but little more than $\frac{1}{3}$ of cephalothorax, $\frac{1}{4}$ wider than long; a little wider in front than behind. Front eyes in a curved row, the middle less than twice as larger as lateral. Second row a little nearer to the lateral than the dorsal. Third row slightly narrower than the cephalothorax. Chelicerae with two teeth on the upper and one on the lower margin. Labium a little longer than

wide. Coxæ of the I separated by less than the width of the labium. Sternum rather long, rounded behind, constricted in front, not truncated.

Type-species: *Plexippus paykullii* (Aud.)

Distribution: All over the world.

90. *Plexippus paykullii* (Aud.)

(Plate XIII. Figs. 179-182)

Attus paykullii Aud., 1825. *Descr. Egypte, 2nd Ed.*, 22 : 172

Plexippus paykullii : Koch, 1850, *Ueb. Ar. Syst.*, 5 : 51.

Plexippus paykullii : Simon, 1897, *Hist. Nat. Araign.*, 2 : 734.

Plexippus paykullii : Comstock, 1940, *The Spider Book*, New York, : 701.

Plexippus paykulli : Tikader, 1967, *Proc. Indian Acad. Sci.*, 66 (4) : 120.

Marpissa mandali : Tikader, 1974, *Proc. Indian Acad. Sci.*, 79 (5) : 213.

Specimens examined: 3 ♀ ♀, Palta, Dist. 24 Parganas, West Bengal, 10.11.1977. *Coll. Bijan Biswas.* 2 ♀ ♀, Baikunthapur Baraipur, Dist. 24 Parganas, West Bengal, 30.10.1977. *Coll. Bijan Biswas.* 8 ♂ ♂, Dhakuria lake, Calcutta, 5.2.1978. *Coll. Bijan Biswas.* 1 ♀, Madan Street, Building, Zoological Survey of India, Calcutta 30.1.1978. *Coll. Bijan Biswas.* 1 ♀, Jabaksum house, Zoological Survey of India, Calcutta, 7.5.1973. *Coll. Bijan Biswas.* 1 ♀, Tollygunge, Calcutta, 10.8.1949. *Coll. T. B. Sinha.* 1 ♀, Eden Garden, Calcutta, 18.10.1978. *Coll. Bijan Biswas.* 1 ♂, Calcutta, 6.10.1950. *Coll. A. P. Kapur.* 1 ♂, Beliaghata, Calcutta, 8.1.1950. *Coll. T. B. Sinha.* 13 ♀ ♀, Jabakusum house, Zoological Survey of India, Calcutta, 25.5.1973. *Coll. Bijan Biswas.* 2 ♀ ♀, 2 ♂ ♂, Palta, Dist. 24 Parganas, West Bengal, 10.9.1976. *Coll. Bijan Biswas.*

General: Cephalothorax dark brown or black, legs olive brown, abdomen deep brown. Total length 4.50 mm. Carapace 2.10 mm. long, 1.90 mm. wide; abdomen 2.30 mm. long, 1.50 mm. wide.

Cephalothorax: Longer than wide, convex clothed with fine grey and black hair. Cephalic region flat and metallic black. Anterior row of eyes recurved and anterior middle eyes very large and milky-white. anterior lateral eyes pearly white and smaller than middle eyes by about half. Middle row of eyes very small and situated equidistant from anterior and posterior rows of eyes; posterior row of eyes median size and pearly white. A pale longitudinal patch on the middle of thorax and centre provided with a fovea. Sternum oval and narrowed in front, pale yellowish in colour and clothed with hair. Legs long and stout, I and II pairs stouter than III pair, and IV pairs longer than I and II pairs of legs. Tibiae and metatarsi of I and II provided with three and two ventral spines respectively.

Abdomen: Longer than wide, nearly oval shaped but posterior end narrowing. Mid-dorsal with a longitudinal light patch extending from base to near end of abdomen. Ventral side not uniform dark brown. Male more black than female.

Distribution: America, Europe, Africa, India, Burma, Sri Lanka and in all of the warmer regions of the world.

Genus 44. *Euophrys* Koch

Euophrys Koch, 1834, *Schaeffer*, 8 : 123.

Euophrys : Simon, 1876, *Ar. Fr.*, 3): 170.

Euophrys : Emerton, 1891, *Tran. Connect. Acad.*, 8 : 223.

Euophrys : Simon, 1897, *Hist. Nat. Araign.*, 2 : 572.

Euophrys : Peckham & Peckham, 1909, *Trans. Wis. Acad. Sci.*, 16(1) : 515.

Euophrys : Tikader, 1977, *Rec. zool. Surv. India*, 72(1-4) : 207.

Characters: Cephalothorax moderately high and convex, highest at dorsal eyes. Sides parallel in cephalic part, bulging behind dorsal eyes, vertical, or slanting inward. Eyes region occupying two-fifths of cephalothorax, equally wide in front and behind or a little wider in front. Front eyes touching in a straight or slightly curved row, the lateral half or more than half as large as the middle. Small side eyes halfway between the others or a little nearer to the dorsal, third row as wide as cephalothorax. Sternum oval, coxae of I pair very widely separated, labium wide and semi-circular.

Type-species: *Euophrys frontalis* Walck.

Distribution: Europe, Japan, Africa, America, India.

91. *Euophrys chiriatapuensis* Tikader

(Plate XIII. Figs. 183-184)

Euophrys chiriatapuensis Tikader, 1977, *Rec. zool. Surv. India*, 72 : 206.

Specimens examined: 7 ♀ ♀, Choona Bhati, near Botanical Garden, Sibpore, Dist. Howrah, West Bengal, 25.8.1977. *Coll. Bijan Biswas*. 1 ♀, Dum Dum Air Port area, Calcutta, 7.12.1977. *Coll. Bijan Biswas*.

General: Cephalothorax deep brown, legs and abdomen greenish brown. Total length 7.00 mm. Carapace 3.00 mm. long, 2.20 mm. wide; abdomen 3.50 mm. long, 2.00 mm. wide.

Cephalothorax: Cephalothorax longer than wide, not very high, clothed with black hair and white short spatulate hair, anterior portion slightly wider than posterior region, centre of cephalothorax provided with conspicuous fovea. Behind the posterior eyes a conspicuous crescent

shaped white hairy patch, covered the whole cephalothorax. Eyes pearly white, anterior median eyes nearly touching each other in a slightly recurved row, the lateral eyes nearly half of the middle eyes. Middle row of eyes between the anterior lateral eyes and posterior eyes. Sternum oval, clothed with fine hair. Labium slightly longer than wide, end of maxillae provided with conspicuous scopulae. Chelicerae not very strong, inner margin provided with two teeth and outer margin also with two small teeth. Legs clothed with hair and spines; first pair of legs robust and longer than others. Tibiae and metatarsi I and II provided with three and two pairs of ventral spines respectively.

Abdomen: Longer than wide, narrowing behind, clothed with fine hair, anterior portion and middle portion of abdomen decorated with golden patches. Ventral side pale white coloured provided with longitudinal dark brown patch extending from epigastric fold to near the base of spinnerets.

Distribution: India: South Andaman, (*Type-locality*) West Bengal.

Genus 45. *Rhene* Thorell

Rhene Thorell, 1869, *Nat. Act. reg. Soc. Sci.*, 7(3) : 37.

Rhene : Simon, 1897, *Hist. Nat. Araign.*, 2 : 641.

Rhene : Tikader, 1973, *Proc. Indian Acad. Sci.*, 78(2) : 68.

Rhene : Tikader, 1977, *Proc. Indian Acad. Sci.*, 85(5) : 274.

Characters: Cephalothorax wider than long, posterior portion of cephalothorax more wider than anterior; clothed with conspicuous thick hair. Posterior eyes situated far behind the anterior row of eyes. Small beetle-like spider.

Type-species: *Rhene flavigera* Koch.

Distribution: Africa, Madagascar, Asia, Malaysia, Central America.

92. *Rhene indicus* Tikader

(Plate XIV Figs. 185-187)

Rhene indicus Tikader, 1973, *Proc. Indian Acad. Sci.*, 78(2) : 68.

Specimens examined: 1 ♀, Ghoshpara, (Jadavpur, Calcutta), 12.12.1977. *Coll. Bijan Biswas.* 4 ♀♀, 2 ♂♂, Baranagar Railway Station area, Calcutta, 22.1.1978. *Coll. Bijan Biswas.*

General: Cephalothorax and legs deep brown, abdomen light pale. Male reddish yellow. Total length 6.20 mm. Carapace 2.20 mm. long, 3.00 mm. wide; abdomen 4.00 mm. long, 3.00 mm. wide.

Cephalothorax: Wider than long, clothed with thick mouse-hair. Anterior and posterior end slightly narrower than middle. Eyes black but anterior eyes pearly white. Anterior row slightly recurved. Anterior lateral eyes and posterior eyes nearly same size; second pair of eyes small and situated very near to the anterior lateral eyes. Base of eyes encircled with a black patch. Chelicerae with a small tooth on inner margin and two more small teeth on the outer margin. Sternum nearly oval, narrowing in front, clothed with thick hair. Male, legs short and robust, clothed with hair. First pair of legs conspicuously stout and dorsal side of femur bulging prominently. Ventral side of tibiae of I legs provided with scopulae-like hair. Tibiae and metatarsi I and II provided with two pairs of ventral spines.

Abdomen: Short, longer than wide, narrowing behind; clothed with fine pubescence and erected black hair. Dorsum provided with two pairs of depression spots. Ventral side uniform pale white, clothed with fine hair. Male abdomen dorsally decorated with white and red hair.

Distribution: India: Punjab; Calcutta, West Bengal.

93. *Rhene danieli* Tikader

(Plate XIV Figs. 188-189)

Rhene danieli Tikader, 1973, *Proc. Indian Acad. Sci.*, 78(2) : 68

Specimen examined: 1 ♂, Baranagar Railway Station, area, Calcutta, 22.1.1978. Coll. Bijan Biswas.

General: Cephalothorax, legs and abdomen deep to light brown. Total length 5.10 mm. Cephalothorax 2.20 mm. long, 2.50 mm. wide; abdomen 3.00 mm. long, 2.00 mm. wide.

Cephalothorax: Wider than long, clothed with thick mouse hair. Anterior and posterior end narrower than middle. Eyes black but anterior median eyes milky-white. Anterior row slightly recurved and short. Anterior lateral eyes and posterior eyes nearly same size; second pair of eyes very small and situated very near to the anterior lateral eyes. Base of eyes encircled with a black patch. Posterior eyes situated far behind the anterior group of eyes. Cephalothorax provided with a broad longitudinal black or deep brown patch extending from anterior eyes to base of the cephalothorax. A conspicuous track-like marking from second row of eyes to the posterior eyes. Chelicerae with a small tooth on inner margin and two big peculiar teeth on the outer margin. Sternum nearly oval, narrowing in front. Legs short and robust clothed with hair. I pair of legs conspicuously stout and dorsal side of femur bulging prominently. Ventral side of tibiae of I legs provided with scopulae-like hair. Tibiae and metatarsi I and II provided with two pairs of ventral spines.

Abdomen: Short, longer than wide, narrowing behind, clothed with fine hair. Dorsum decorated with transverse white and brown bands. Ventral side uniform pale or brown.

Distribution: India: Bombay, Calcutta, West Bengal.

94. *Rhene decoratus* Tikader
(Plate XIV Figs. 190-192)

Rhene decoratus Tikader, 1977, *Proc. Indian Acad. Sci.*, 85(5) : 276.

Specimens examined: 1 ♀, 1 ♂, Dhakuria lake area, Calcutta, 5.2.1978.
Coll. Bijan Biswas.

General: Cephalothorax, legs and abdomen pale greenish. Total length 5.20 mm. Carapace 1.80 mm. long, 2.00 mm. wide; abdomen 3.50 mm. long, 2.00 mm. wide.

Cephalothorax: Wider than long, clothed with fine and some thick hair. Anterior and posterior end slightly narrower than middle. Eyes black but anterior eyes milky-white. Anterior row slightly recurved and short. Anterior lateral eyes and posterior eyes nearly same size; second pair of eyes small, and situated very near to the anterior lateral eyes. Base of eyes encircled with a conspicuous black patch. Posterior eyes situated far behind the anterior group of eyes. Cephalothorax provided with two pairs of inconspicuous light brown patches. Legs short and robust, clothed with fine hair, I pair of legs conspicuously stout and dorsal side of femur bulging prominently. Tibiae and metatarsi I and II provided with two pairs of ventral spines.

Abdomen: Long, narrowing behind, clothed with fine hair. Middle of abdomen provided with two pairs sigillae and posterior half provided with some deep brown dots and transverse bars. Ventral side uniform pale, provided with irregular chalk-white patches.

Distribution: India: Poona, Maharashtra; Calcutta, West Bengal.

Genus 46. *Myrmarachne* Mac Leay

Myrmarachne Mac Leay, 1839, *Ann. Mag. Nat. Hist.*, 2 : 10.

Myrmarachne : Simon, 1897, *Hist. Nat. Araign.*, 2 : 504.

Myrmarachne : Narayan, 1915, *Rec. Indian Mus.*, 11(5) : 396.

Myrmarachne : Tikader, 1973, *Proc. Indian Acad. Sci.*, 78(2) : 59.

Characters: Body, long and narrow. Ocular trapezium nearly as long as broad. Sternum about three times as long as broad. Chelicerae with several teeth on inner margin; chelicerae very long and strong developed in male.

Type-species: *Myrmarachne melanocephalus* Mac Leay

Distribution: Oriental and sub-tropical regions of the world.

95. *Myrmarachne orientales* Tikader
(Plate XIV Figs. 193-194)

Myrmarachne orientales Tikader, 1973, *Proc. Indian Acad. Sci.*, 78(2) : 60.

Specimens examined: 1 ♂, Palta, Dist. 24 Parganas, West Bengal, 10.11.1977. *Coll. Bijan Biswas.* 4 ♂♂, Ghoshpara, (Jadavpur, Calcutta), 12.12.1976. *Coll. Bijan Biswas.* 1 ♂, Baghajatin Railway Station, Calcutta, 12.12.1976. *Coll. Bijan Biswas.* 1 ♀, 2 ♂♂, Ballygunge lake area, Calcutta, *Coll. T. B. Sinha.* 1 ♂, Zoological Survey of India, Calcutta, 1912. *Coll. F. H. Gravely.*

General: Cephalothorax and legs reddish, abdomen brown. Total length 11.50 mm. (including chelicerae in male). Cephalothorax 3.50 mm. long, 2.00 mm. wide; abdomen 5.20 mm. long, 1.20 mm. wide.

Cephalothorax: Longer than wide, cephalic region high and flat with deep brownish-red. Cephalic and thoracic junction constricted and thoracic region sloping behind. Eyes anterior row slightly recurved, ocular trapezium wider than long. Chelicerae in male very prominent, nearly as long as cephalothorax. Fang uniform pointed and end slightly curved, inner margin of a chelicerae with small teeth and outer margin provided with 4-5 slightly larger teeth. Sternum long and narrow. Legs thin and long, clothed with hair; legs formula 4132. Female almost same colour and size, except very long chelicerae in male.

Abdomen: Long and narrow and provided with a constriction just behind the anterior end of abdomen. Pedicel very long and prominent.

Distribution: India: Dhakuria, Calcutta (type-locality), West Bengal.

96. *Myrmarachne maratha* Tikader
(Plate XIV Figs. 195-197)

Myrmarachne maratha Tikader, 1973, *Proc. Indian Acad. Sci.*, 78(2) : 59.

Specimen examined: 1 ♂, Tollygunge, Calcutta, 11.9.1916. *Coll. F. H. Gravely.*

General: Cephalothorax and legs brownish-green, abdomen deep-brown. Total length 5.40 mm. Carapace 2.90 mm. long, 1.20 mm. wide; abdomen 2.20 mm. long, 1.20 mm. wide.

Cephalothorax: Longer than wide, cephalic region high and flat with brownish-green but in male deep-brown. Eyes anterior row slightly recurved and all eyes encircled by black patch; ocular trapezium nearly as long as wide. Chelicerae in male very prominent nearly as long as cephalothorax. Fang bend and lower margin in the middle prominent

projection. Margin of chelicerae in male with small teeth. Sternum long and narrow. Legs thin and long, clothed with hair, legs provided with two longitudinal black or brown conspicuous bands, one on the front and other on the behind. Legs formula 4132. Male more darker than female.

Abdomen: Long and narrow, provided with transverse dark and pale patches.

Distribution: India: Mukund Nagar Colony (type locality), Poona Maharashtra; Calcutta, West Bengal.

97. *Myrmarachne bengalensis* Tikader

(Plate XV Figs. 198-200)

Myrmarachne bengalensis Tikader, 1973, *Proc. Indian Acad. Sci.*, 78(2) : 65.

Specimens examined: 3 ♀♀, Dhakuria, Calcutta, 24.8.1958. Coll. B. K. Tikader.

General: Cephalothorax and legs deep-brown. abdomen brownish. Total length 7.00 mm. Carapace 3.20 mm. long, 1.20 mm. wide; abdomen 3.20 mm. long, 1.90 mm. wide.

Cephalothorax: Longer than wide clothed with fine grey hair; cephalic region very high and flat. Cephalic and thoracic junction very much constricted and thoracic region sloping behind. Eyes anterior row slightly recurved. Ocular trapezium wider than long. Sternum long and narrow. Legs thin and long, clothed with fine hair. I and II pairs of legs pale in colour and provided with longitudinal conspicuous deep-brown marking, III and IV pairs of legs deep-brown colour, legs formula 4132.

Abdomen: Longer than wide and posterior end of abdomen wider than anterior end, clothed with fine pale pubescence. Ventral side slightly pale in colour than dorsal side. Pedicel not very long.

Distribution: India: Dhakuria (type-locality), Calcutta, West Bengal.

FAMILY XV LYSSOMANIDAE

Characters: This group of spiders which many authors have included in the family Salticidae (Jumping-spider) but due to their peculiar eye position, Bank (1892) separated them from the family Salticidae and created a family Lyssomanidae. The anterior lateral eyes are situated behind the anterior median eyes, thus forming a second row of eyes; the eyes of these spiders are therefore in four rows, each row consisting of two eyes. In certain members of this family, the body is longer than in the typical forms, and antlike in appearance.

Genus 47. *Lyssomanes* Hentz.

Lyssomanes Hentz, 1844, *J. Bost. Soc. Nat. Hist.*, **11** : 48.

Lyssomanes Simon, 1897, *Hist. Nat. Araign.*, **2** : 398.

Lyssomanes : Bank, 1905, *Amer. Nat.*, **39** : 320.

Lyssomanes : Peckham & Peckham, 1909, *Trans. Wis. Acad. Sci.*, **16**(1) : 595.

Lyssomanes : Tikader, 1967, *Proc. Indian Acad. Sci.*, **66**(4) : 120.

Characters: Cephalothorax moderately high, longer than wide. Eyes in four transverse rows of two each. Eyes of first close together, from two to three times as large as those of second row, occupying the entire face. Second row just behind first row. Third row composed of very small eyes and nearer the second than the fourth row. Eyes of the fourth row about as large as those of the second and nearer together. Quadrangle formed by second and fourth rows as wide as long or slightly wider.

Type-species: *Lyssomanes viridis* (Walck.)

Distribution: America, India.

98. *Lyssomanes bengalensis* Tikader & Biswas

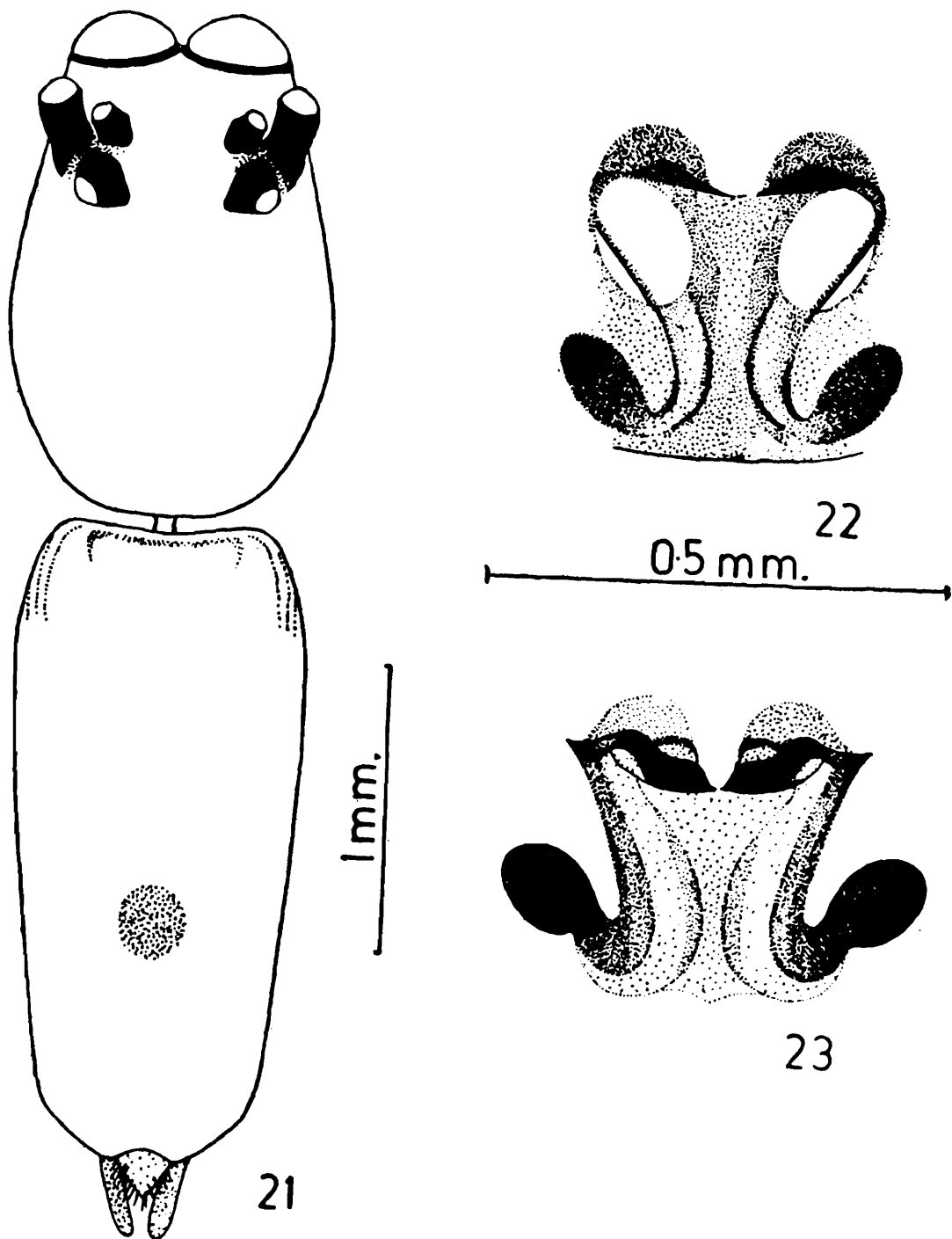
(Text-figs. 21-23)

Lyssomanes bengalensis Tikader & Biswas, 1978, *Proc. Indian Acad. Sci.*, **87**(9) : 259

Specimens examined: 3 ♀♀ Baikunthapur village, Baraipur, Dist. 24, Parganas, West Bengal, 30.10.1977. *Coll. Bijan Biswas.*

General: Cephalothorax, abdomen and legs pale yellow in colour. Total length 4.20 mm. Carapace 1.80 mm. long, 1.10 mm. wide; abdomen 2.20 mm. long, 1.00 mm. wide.

Cephalothorax: Longer than wide slightly narrowing in front, cephalic region high, thoracic region sloping behind. Middle of thoracic region provided with a fine fovea. Eyes four rows and anterior medians largest and white. Bases of rest of the eyes provided with conspicuous black patches as in text-fig. 21. Anterior lateral eyes (second row) with prominent stalk. Posterior median eyes (third row) smaller than the others and situated on a stalk. Posterior lateral eyes (fourth row) of medium size and situated with a wide tubercle. Ocular quad slightly longer than wide. Sternum almost round, pale. Labium slightly longer than wide. Maxillae broader in front and provided with inconspicuous scopulae. Chelicerae moderately strong and retromargin of fang furrow provided with three small equal teeth. Legs long and slender, clothed with hair and spines. Tibiae and femora of I leg provided with four pairs of long, ventral spines. Tarsi provided with well developed black claw tufts.



FIGS. 21-23. *Lyssomanes bengalensis* Tikader & Biswas

21. Dorsal view of female, legs omitted.

22. Epigyne.

23. Internal genitalia.

Abdomen: Long, slender, clothed with pubescence. A light brown patch present at the mid-dorsal side as in text-fig. 20. Ventral side pale. Epigyne as in text-fig. 22. Internal genitalia as in text-fig. 23.

Distribution: India: Baikunthapur village, Baraipur, (type-locality) Dist. 24 Parganas, West Bengal.

99. *Lyssomanes andamanensis* Tikader

(Plate XV Figs. 201-203)

Lyssomanes andamanensis Tikader, 1977, *Rec. zool. Surv. India*, 72 : 205.*Specimen examined*: 1 ♂, Palta, Dist. 24 Parganas, West Bengal, 10.9.1976. *Coll. Bijan Biswas*.*General*: Cephalothorax and abdomen deep brown, legs light green. Total length 5.00 mm. Carapace 2.10 long, 1.50 mm. wide; abdomen 2.80 mm. long, 1.00 mm. wide.*Cephalothorax*: Cephalothorax longer than wide, clothed with fine pubescence; cephalic region high, thoracic region sloping behind. Cephalothorax provided with a conspicuous white light patch from anterior eyes to base of cephalothorax. Eyes four rows, anterior eyes white and bases of rest of the eyes encircled by conspicuous black patch. Anterior eyes close together and anterior median eyes more than six times larger than anterior lateral eyes, anterior lateral eyes with prominent stalk. Posterior middle row of eyes not very small and situated behind the stalk of the anterior lateral eyes; posterior row of eyes medium size. Ocular quad slightly wider than long. Sternum heart-shaped, pointed behind and clothed with fine hair. Chelicerae not strong. Legs long and slender, clothed with hair and spine-like hair. Tibiae, metatarsi of all legs provided with conspicuous longitudinal deep brown line. In female there is no such marking on the leg. Tarsi provided with well developed claw tufts.*Abdomen*: Long, clothed with thick hair, posterior end provided with deep brown transverse hair and sides provided with a tuft of hair. Spinnerets conspicuously long with two segments. Abdomen of female uniform pale colour.*Distribution*: India: Andaman Islands (Type-locality), Palta, Calcutta, West Bengal.

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PLATES

PLATE I

1. Dorsal view of female of *Oecobius putus*, one side legs omitted.
2. Dorsal view of male of *O. putus*, one side legs omitted.
3. Epigyne of *O. putus*.
4. Male palp of *O. putus*.
5. Dorsal view of female of *Stegodyphus sarasinorum*, legs omitted
6. Epigyne of *S. sarasinorum*
7. Internal genitalia of *S. sarasinorum*
8. Cephalothorax of *Uloborus danolius*.
9. Lateral view of abdomen of *U. danolius*
10. Epigyne of *U. danolius*
11. Internal genitalia of *U. danolius*
12. Lateral view of abdomen of *Artema atlenta*
13. Lateral view of abdomen of *Cossopriza lyoni*
14. Epigyne of *C. lyoni*
15. Internal genitalia of *C. lyoni*

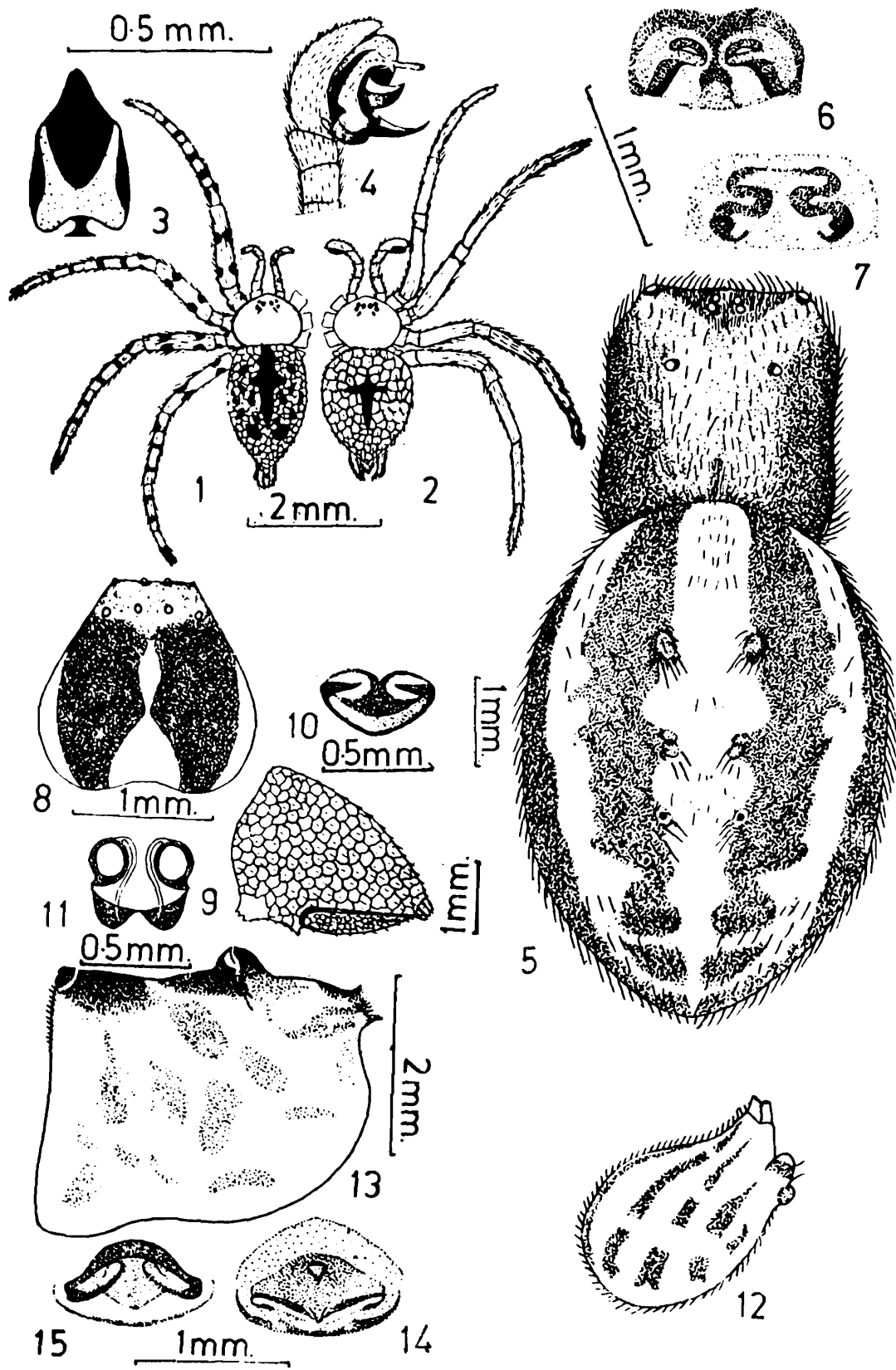
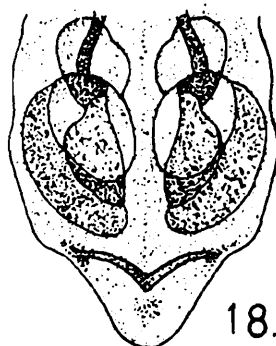
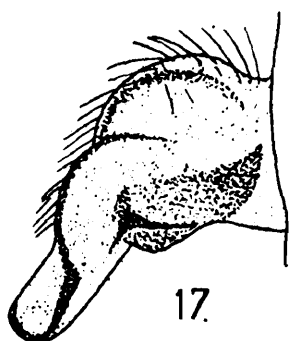
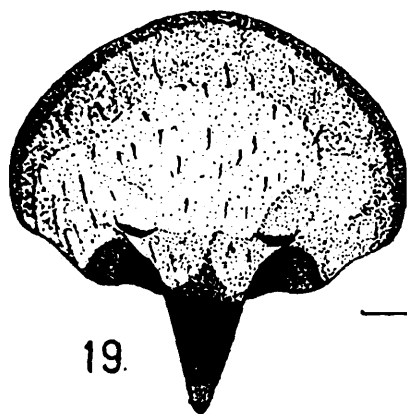


PLATE II

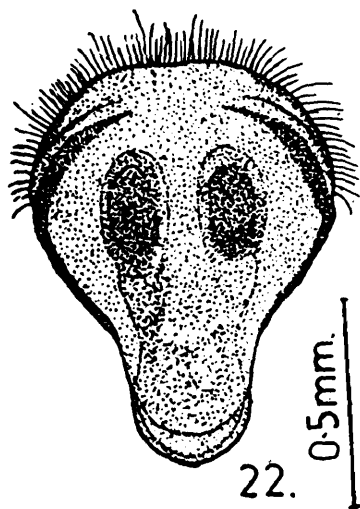
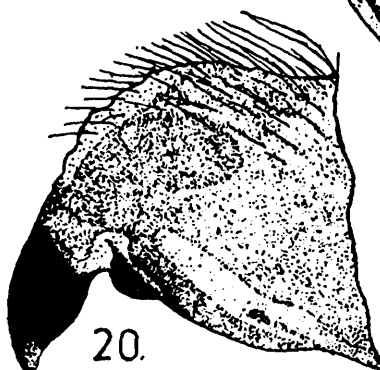
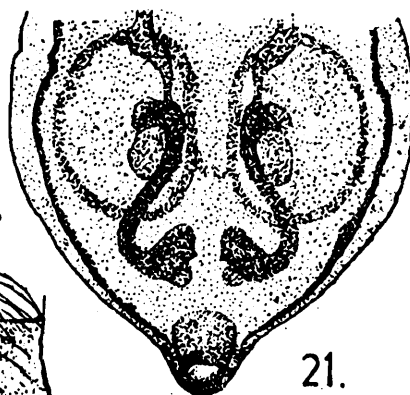
16. Epigyne of *Araneus excelsus* front view.
17. Epigyne of *A. excelsus* lateral view.
18. Internal genitalia of *A. excelsus*.
19. Epigyne of *Araneus dehaanii* front view.
20. Epigyne of *A. dehaanii* lateral view.
21. Internal genitalia of *A. dehaanii*.
22. Epigyne of *Neoscona poonaensis* front view.
23. Epigyne of *N. poonaensis* lateral view.
24. Internal genitalia of *N. poonaensis*.



0.5mm.



0.5mm



0.5mm.

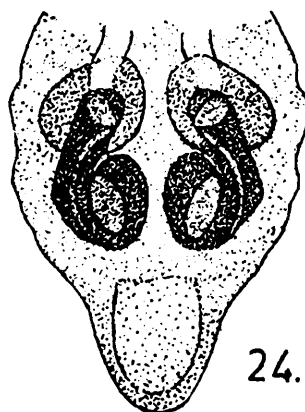
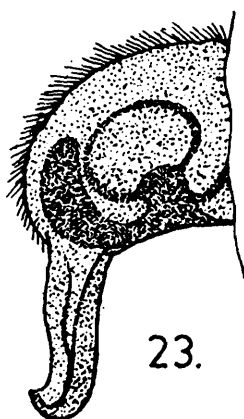


PLATE III

25. Epigyne of *Neoscona bengalensis*, front view.
26. Epigyne of *N. bengalensis*, lateral view.
27. Internal genitalia of *N. bengalensis*.
28. Epigyne of *Neoscona rumpfi*, front view.
29. Epigyne of *N. rumpfi*, lateral view.
30. Internal genitalia of *N. rumpfi*.
31. Epigyne of *Neoscona theis*, front view.
32. Epigyne of *N. theis*, lateral view.
33. Internal genitalia of *N. theis*.

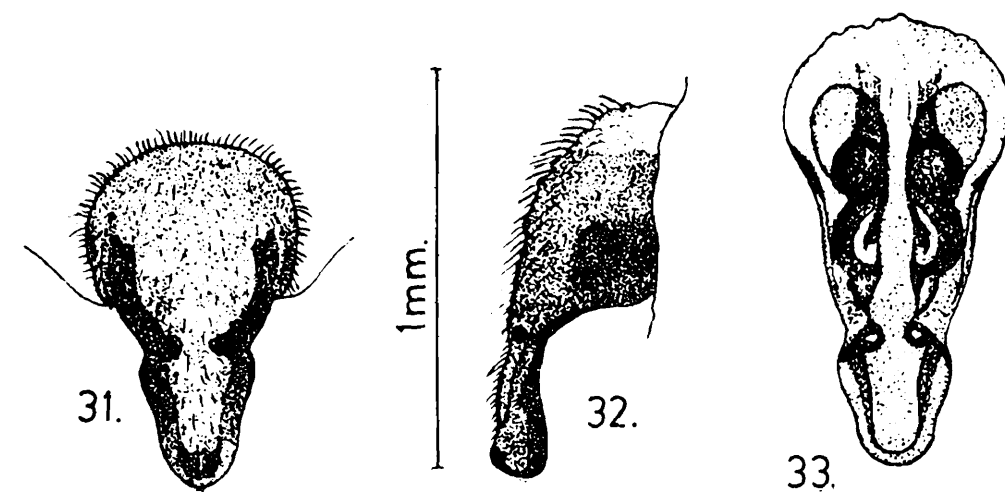
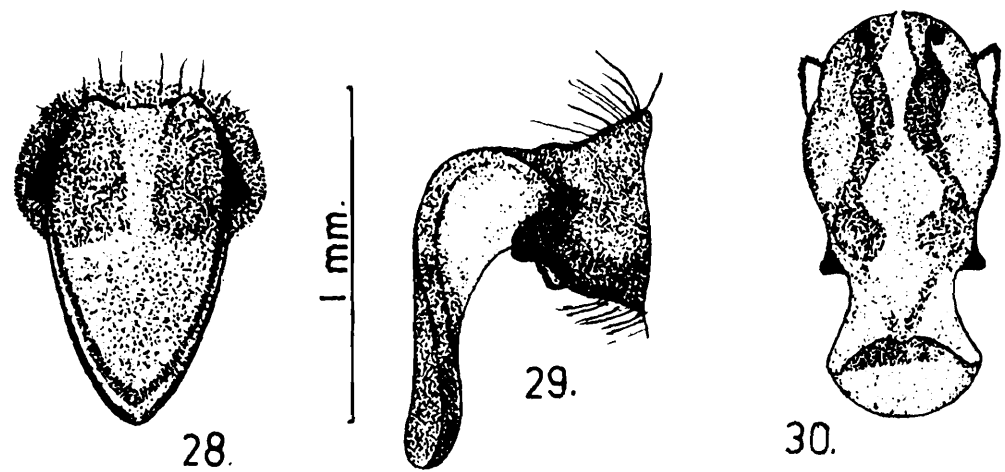
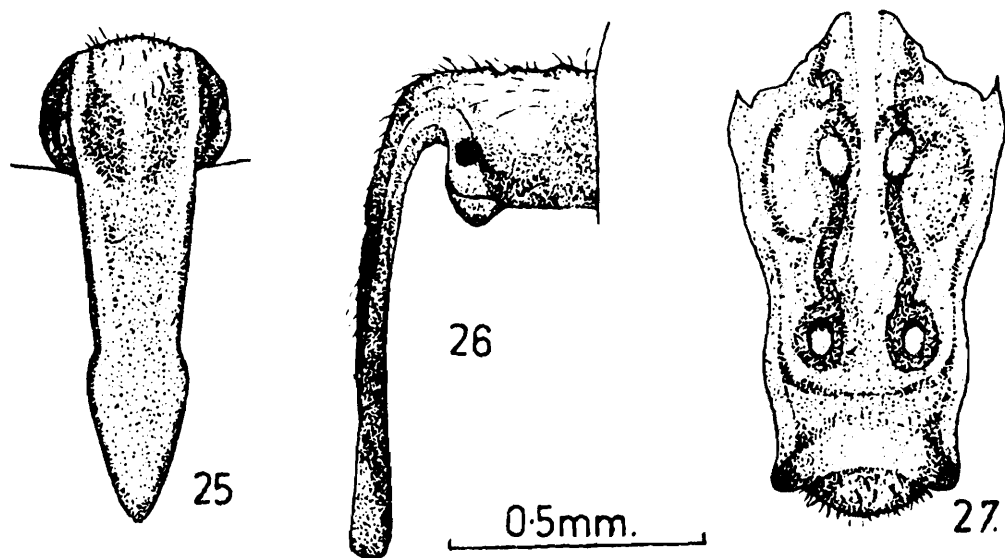


PLATE IV

34. Epigyne of *Neoscona nautica*, front view.
35. Epigyne of *N. nautica*, lateral view.
36. Internal genitalia of *N. nautica*.
37. Epigyne of *Cyrtarachne bengalensis*, front view.
38. Chelicera of *C. bengalensis*, showing teeth.
39. Epigyne of *Cyrtarachne inaequalis*, front view.
40. Chelicera of *C. inaequalis*, showing teeth.
41. Epigyne of *Cyrtarachne raniceps*, front view.
42. Chelicera of *C. raniceps*, showing teeth.
43. Epigyne of *Cyrtophora citricola*, front view.
44. Internal genitalia of *C. citricola*.
45. Epigyne of *Cyrtophora cicatrosa*, front view.
46. Internal genitalia of *C. cicatrosa*.
47. Epigyne of *Gasteracantha hasseltii*, front view.
48. Epigyne of *G. hasseltii*, lateral view.
49. Internal genitalia of *G. hasseltii*.
50. Epigyne of *Gasteracantha khulii*, front view.
51. Epigyne of *G. khulii*, lateral view.
52. Internal genitalia of *G. khulii*,

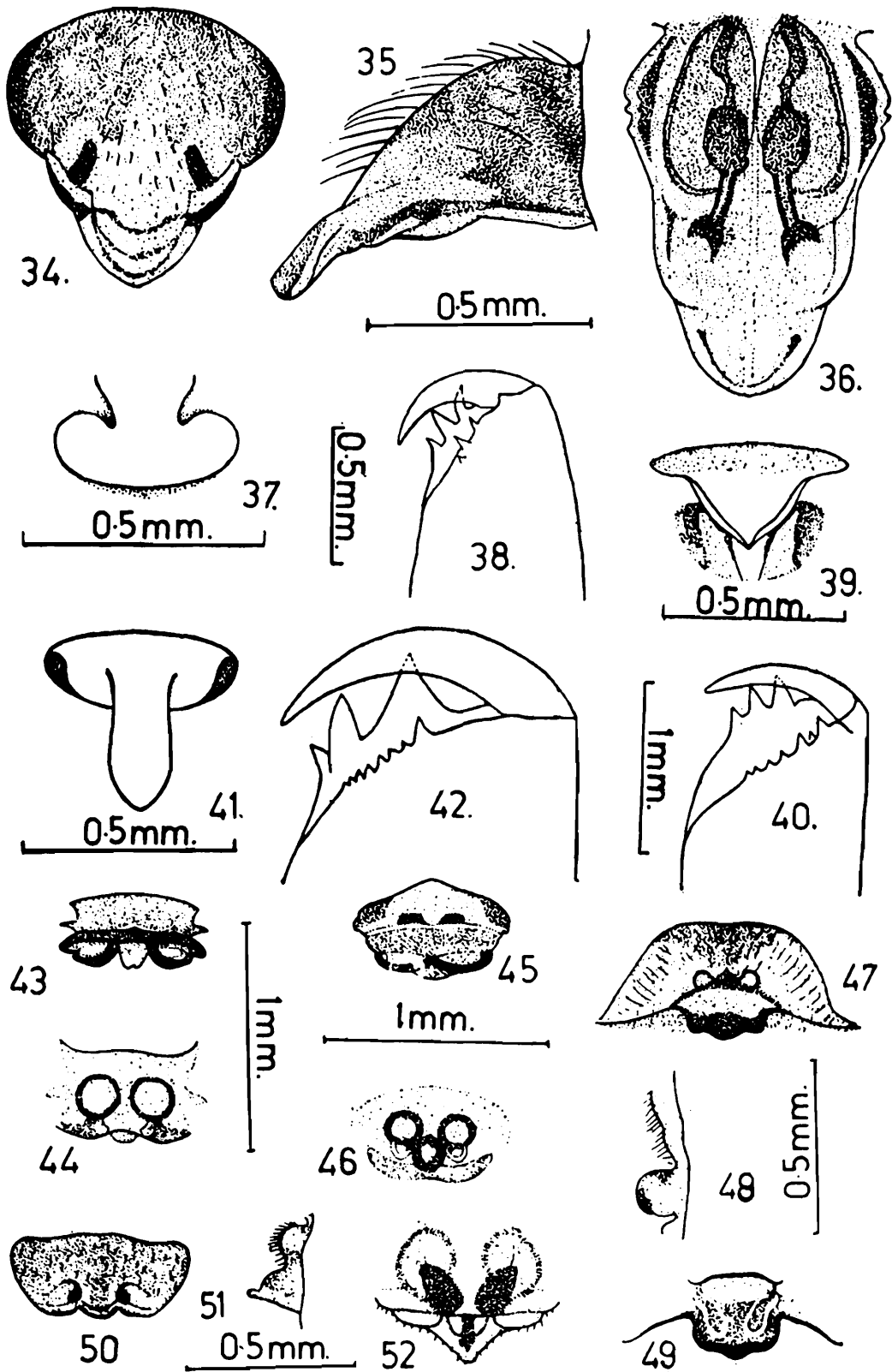


PLATE V

53. Epigyne of *Gasteracantha mammosa*, front view.
54. Epigyne of *G. mammosa*, lateral view.
55. Internal genitalia of *G. mammosa*.
56. Epigyne of *Argiope catenulata*, front view.
57. Internal genitalia of *A. catenulata*.
58. Epigyne of *A. catenulata*, lateral view.
59. Epigyne of *Argiope shillongensis*, front view.
60. Internal genitalia of *A. shillongensis*.
61. Epigyne of *A. shillongensis*, lateral view.
62. Epigyne of *Argiope pulchella*, front view.
63. Internal genitalia of *A. pulchella*.
64. Epigyne of *A. pulchella*, lateral view.

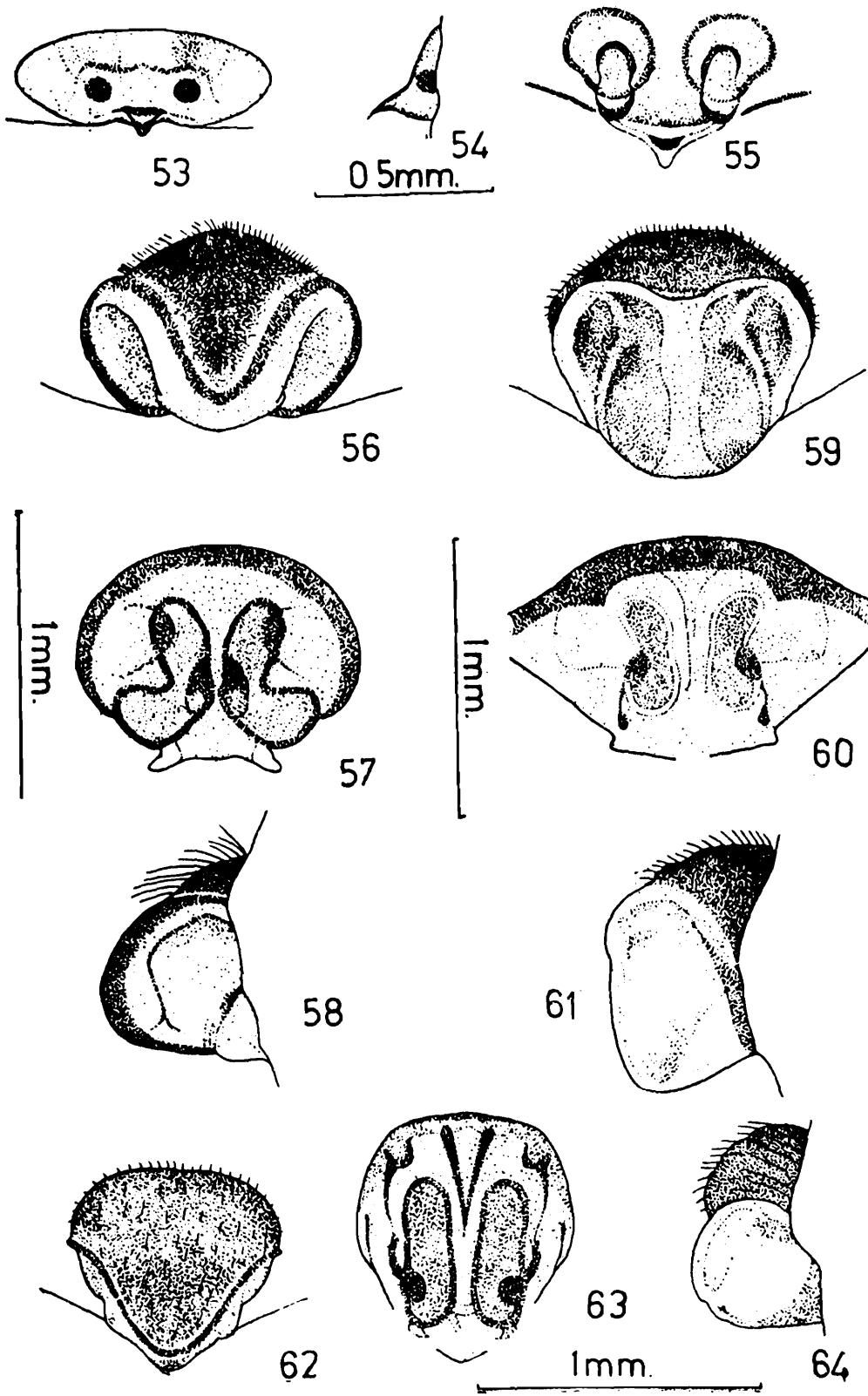


PLATE VI

65. Dorsal view of abdomen of *Leucauge bengalensis*.
66. Lateral view of abdomen of *L. bengalensis*.
67. Dorsal view of abdomen of *Leucauge decorata*.
68. Epigyne of *L. decorata*, front view.
69. Lateral view of abdomen of *L. decorata*.
70. Dorsal view of *Singa chota*, legs omitted.
71. Epigyne of *S. chota*, front view.
72. Epigyne of *Larinia phthisica*, front view.
73. Internal genitalia of *L. phthisica*.
74. Spinnerets of *Hersilia savignyi*.
75. Epigyne of *H. savignyi*, front view.
76. Internal genitalia of *H. savignyi*.

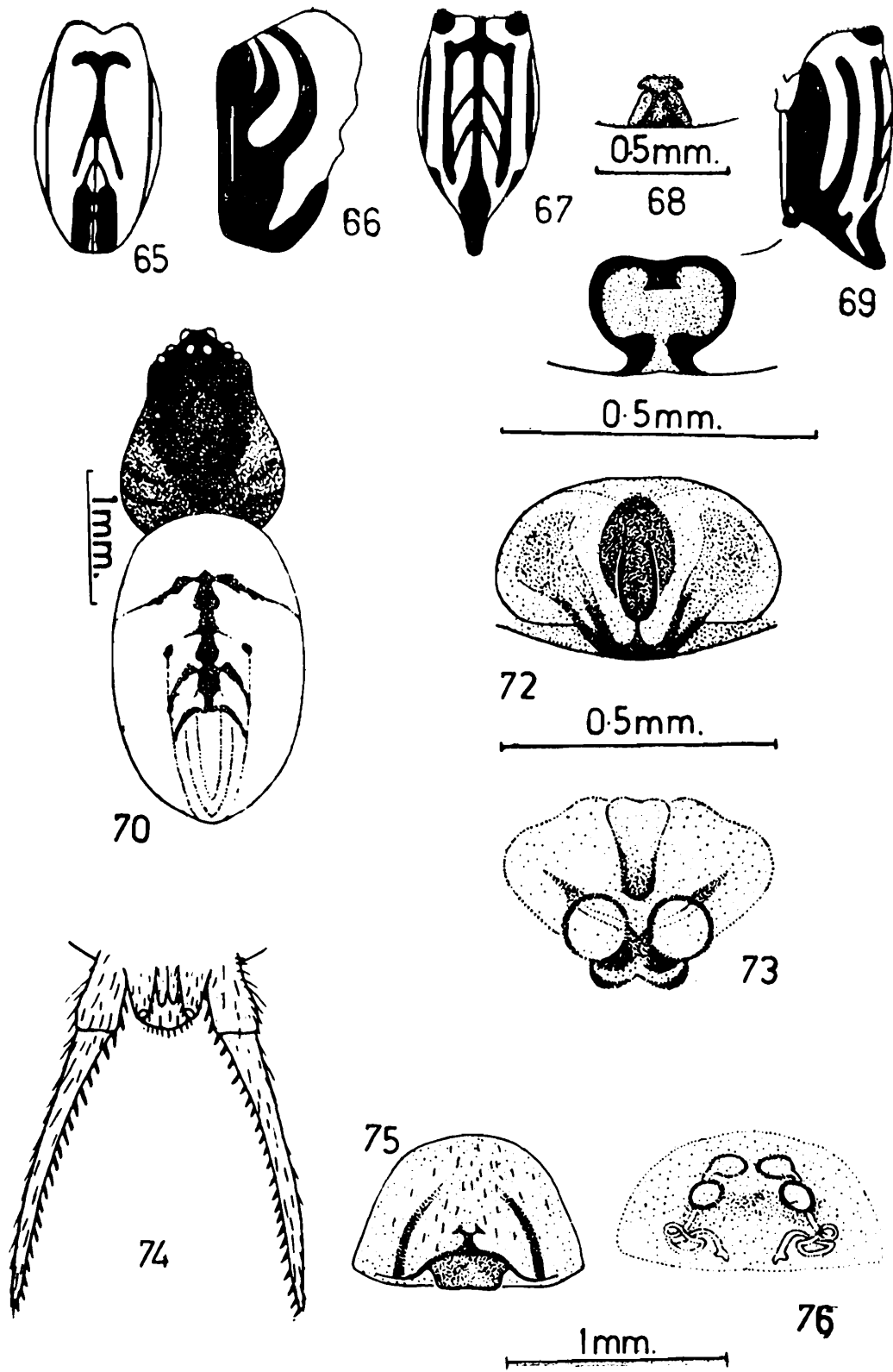


PLATE VII

77. Epigyne of *Hippasa holmerae*, front view.
78. Internal genitalia of *H. holmerae*.
79. Male palp of *H. holmerae*.
80. Epigyne of *Lycosa mackenziei*, front view.
81. Internal genitalia of *L. mackenziei*.
82. Epigyne of *Pardosa barmanica*, front view.
83. Internal genitalia of *P. barmanica*.
84. Epigyne of *Pardosa leucopalpis*, front view.
85. Internal genitalia of *P. leucopalpis*.
86. Epigyne of *Pardosa annandalei*, front view.
87. Internal genitalia of *P. annandalei*.
88. Epigyne of *Pardosa barasantiensis*, front view.
89. Internal genitalia of *P. burasantiensis*.
90. Epigyne of *Pardosa sumatrana*, front view.
91. Internal genitalia of *P. sumatrana*.
92. Epigyne of *Pardosa oakleyi*, front view.
93. Internal genitalia of *P. oakleyi*.

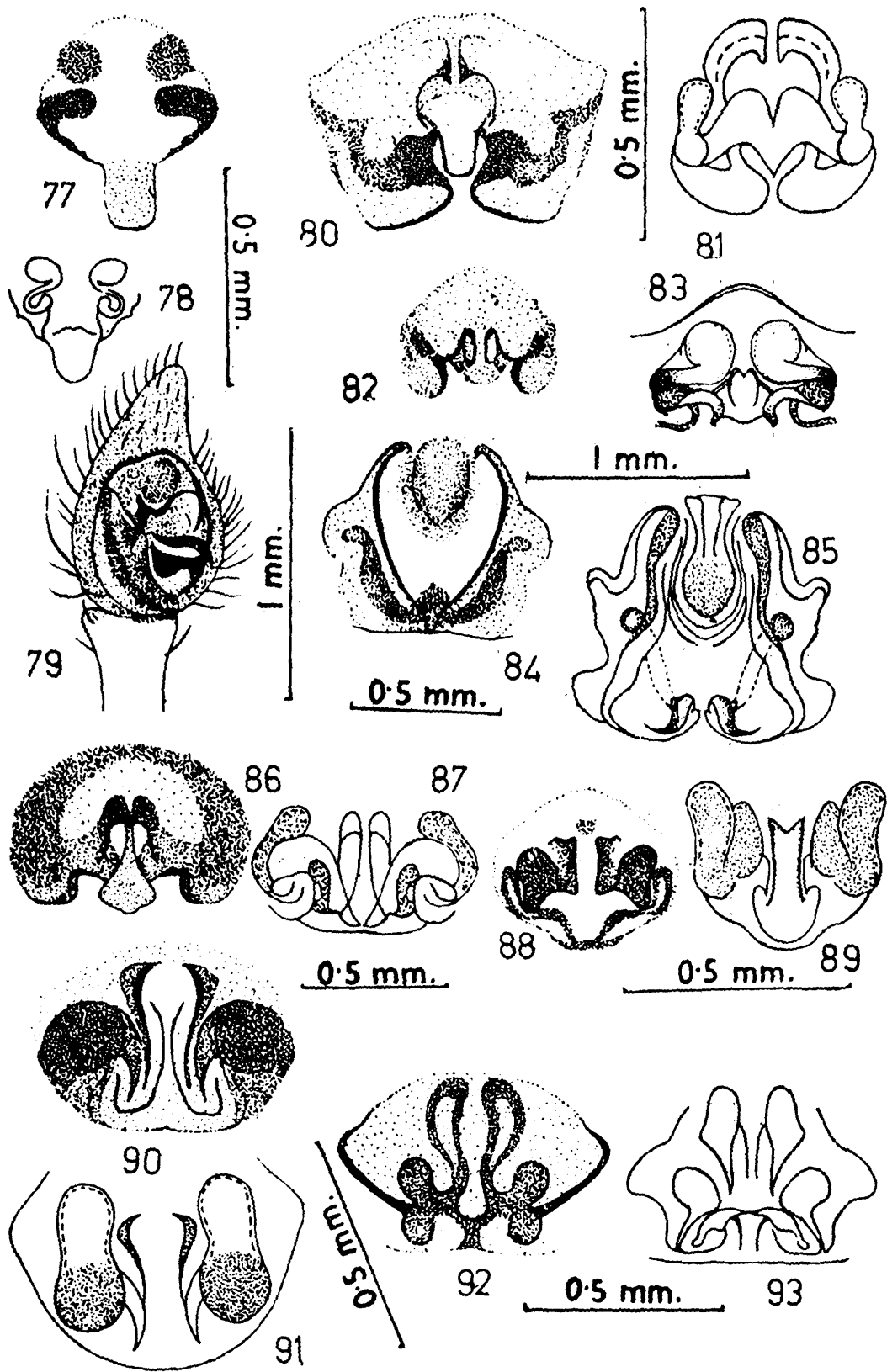


PLATE VIII

94. Epigyne of *Arcotosa indicus*, front view.
95. Internal genitalia of *A. indicus*.
96. Epigyne of *Arcotosa himalayensis*, front view.
97. Internal genitalia of *A. himalayensis*.
98. Epigyne of *Oxyopes barmanica*, front view.
99. Male palp of *O. barmanica*.
100. Epigyne of *Oxyopes javanus*, front view.
101. Male palp of *O. javanus*.
102. Dorsal view of *Oxyopes ratnae*, female legs omitted.
103. Epigyne of *O. ratnae*, front view.
104. Male palp of *O. ratnae*.
105. Dorsal view of *Oxyopes shweta*, female, legs omitted.
106. Epigyne of *O. shweta*, front view.
107. Male palp of *O. shweta*.
108. Epigyne of *Oxyopes sikkimensis*, front view.
109. Male palp of *O. sikkimensis*.
110. Epigyne of *Peucetia viridana*, front view.
111. Internal genitalia of *P. viridana*.

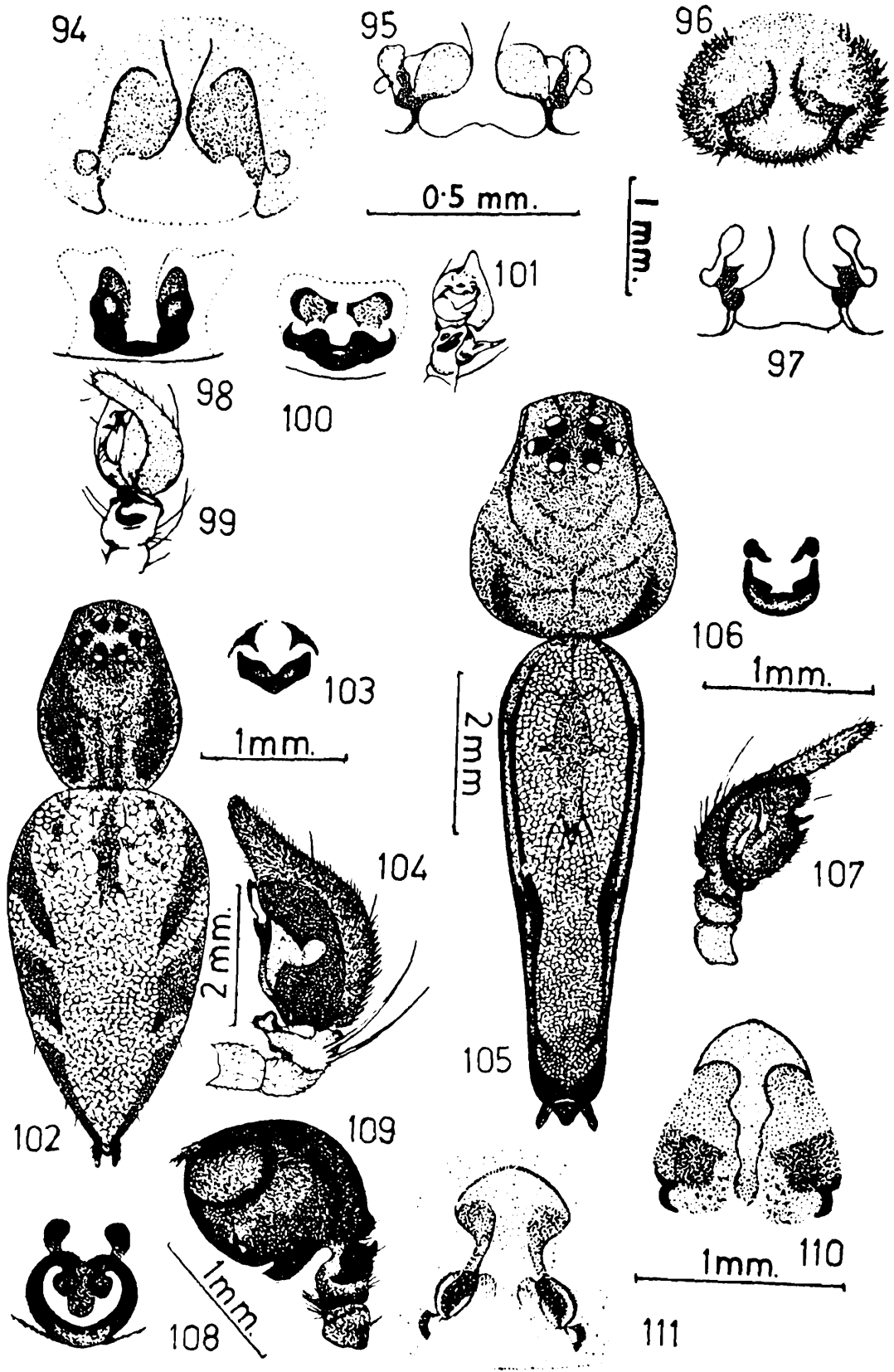


PLATE IX

112. Dorsal view of *Drassodes malodes*, legs omitted.
113. Maxillae and labium of *D. malodes*.
114. Epigyne of *D. malodes*.
115. Dorsal view of *Scotophaeus domesticus*, legs omitted.
116. Maxillae and labium of *S. domesticus*.
117. Epigyne of *S. domesticus*.
118. Epigyne of *Clubiona analis* front view.
119. Internal genitalia of *C. analis*.
120. Epigyne of *Clubiona filicata*, front view.
121. Internal genitalia of *C. filicata*.
122. Male palp of *Chiracanthium insigne*.
123. Epigyne of *Chiracanthium melanostoma*, front view.
124. Internal genitalia of *C. melanostoma*.
125. Epigyne of *Chiracanthium trivialis*, front view.
126. Internal genitalia of *C. trivialis*.
127. Epigyne of *Castianeira himalayensis*, front view.
128. Internal genitalia of *C. himalayensis*.

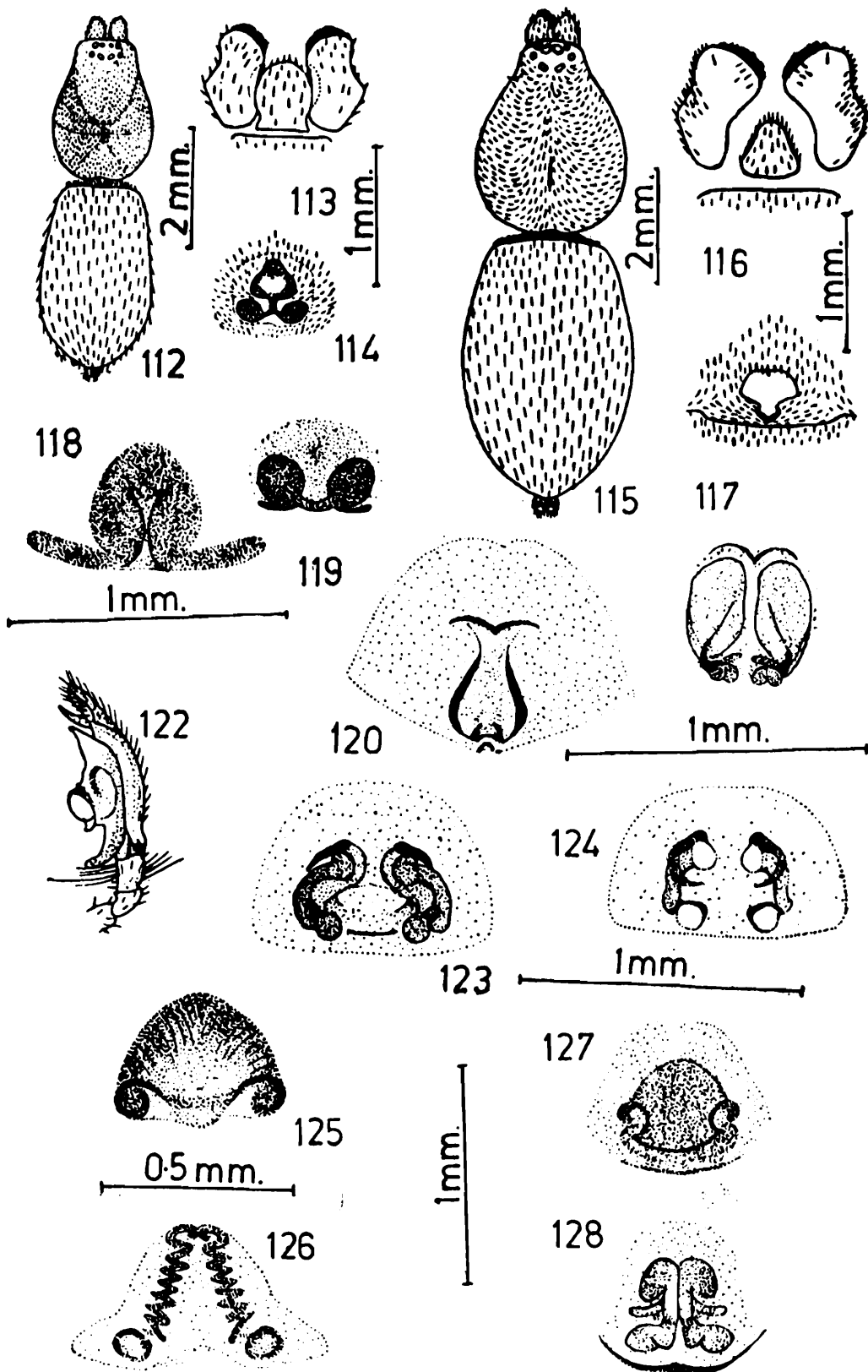


PLATE X

129. Epigyne of *Castianeira zetes*, front view.
130. Internal genitalia of *C. zetes*.
131. Epigyne of *Thomisus katrajghatus*, front view.
132. Internal genitalia of *T. katrajghatus*.
133. Epigyne of *Thomisus projectus* front view.
134. Epigyne of *Thomisus dhakuriensis*.
135. Dorsal view of *Thomisus pugilis*, legs omitted.
136. Epigyne of *T. pugilis*.
137. Epigyne of *Thomisus bulani*, front view.
138. Internal genitalia of *T. bulani*.
139. Epigyne of *Thomisus cherapunjeus*, front view.
140. Internal genitalia of *T. cherapunjeus*.
141. Dorsal view of *Thomisus elongatus*, legs omitted.
142. Epigyne of *T. elongatus*.
143. Dorsal view of *Xysticus minutus*, legs omitted.
144. Epigyne of *X. minutus*.
145. Dorsal view of *Bomis bengalensis*.
146. Epigyne of *B. bengalensis*.

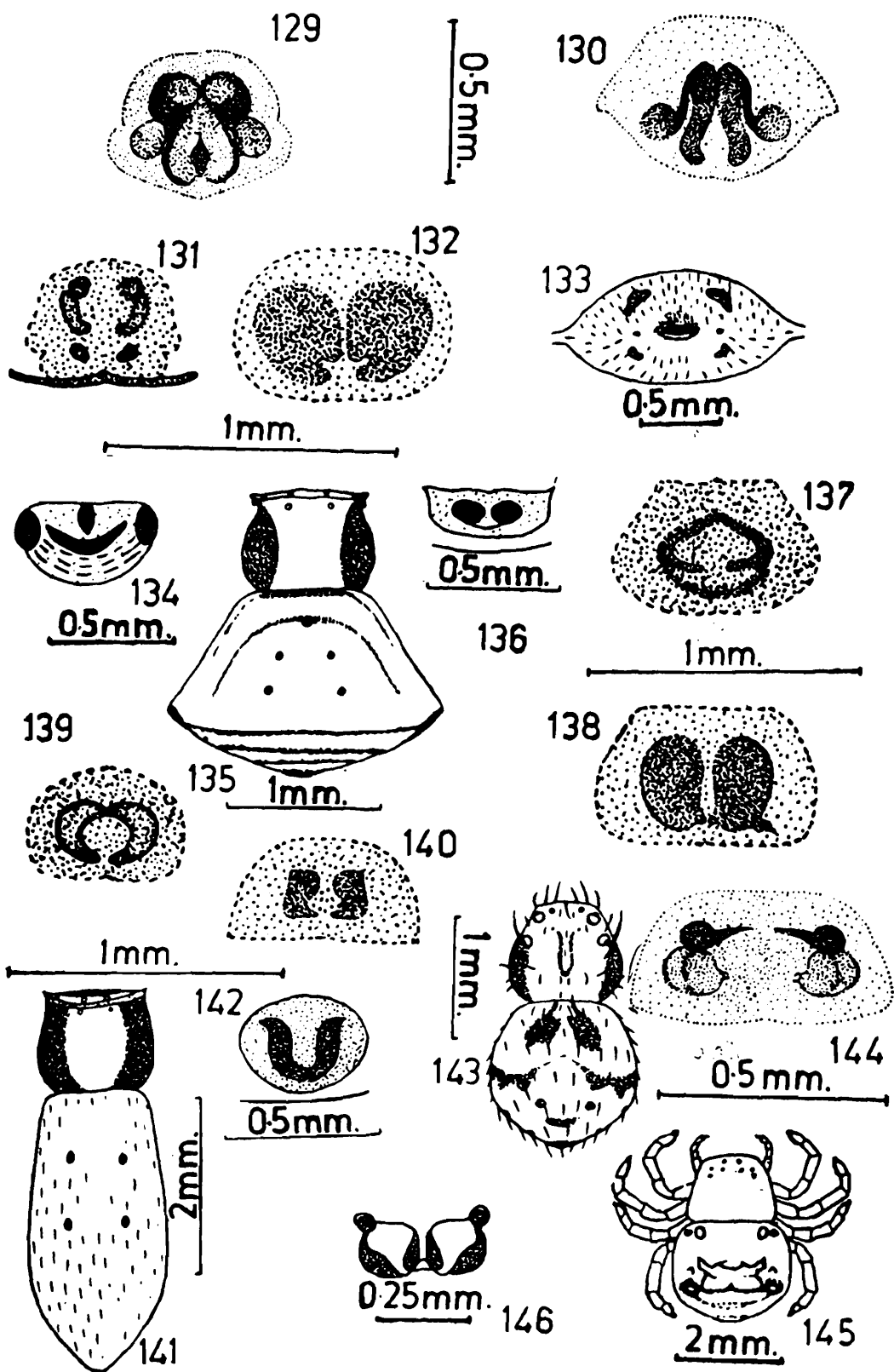


PLATE XI

147. Epigyne of *Camaricus formosus*, front view.
148. Internal genitalia of *C. formosus*.
149. Epigyne of *Philodromus assamensis*.
150. Dorsal view of *Philodromus maliniae*, legs omitted.
151. Epigyne of *P. maliniae*.
152. Dorsal view of *Tibellus elongatus*, legs omitted.
153. Epigyne of *T. elongatus*.
154. Dorsal view of *Salticus ranjitus*, legs omitted.
155. Epigyne of *S. ranjitus*.
156. Dorsal view of female *Phidippus pateli*, legs omitted.
157. Dorsal view of male *P. pateli*, legs omitted.
158. Epigyne of *P. pateli*.
159. Male palp of *P. pateli*.

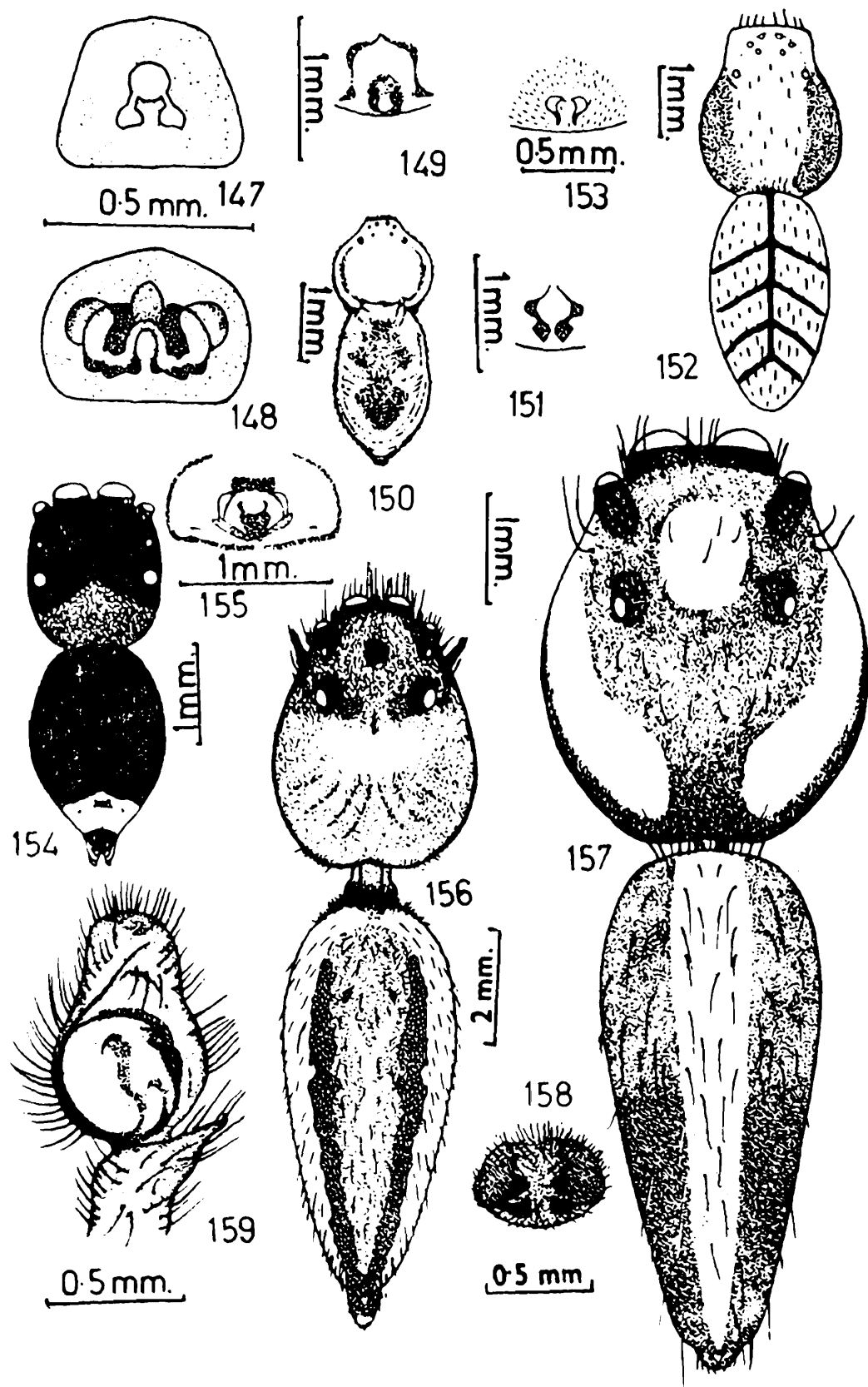


PLATE XII

160. Dorsal view of male *Phidippus indicus*, legs omitted.
161. Cephalothorax of *P. indicus*, female.
162. Epigyne of *P. indicus*.
163. Male palp of *P. indicus*.
164. Dorsal view of female *Phidippus bengalensis*, legs omitted.
165. Cephalothorax of male *P. bengalensis*.
166. Male palp of *P. bengalensis*.
167. Epigyne of *P. bengalensis*.
168. Internal genitalia of *P. bengalensis*.
169. Dorsal view of female *Marpissa dhakuriensis*, legs omitted.
170. Epigyne of *M. dhakuriensis*.
171. Dorsal view of female *Marpissa decorata*, legs omitted.
172. Epigyne of *M. decorata*.

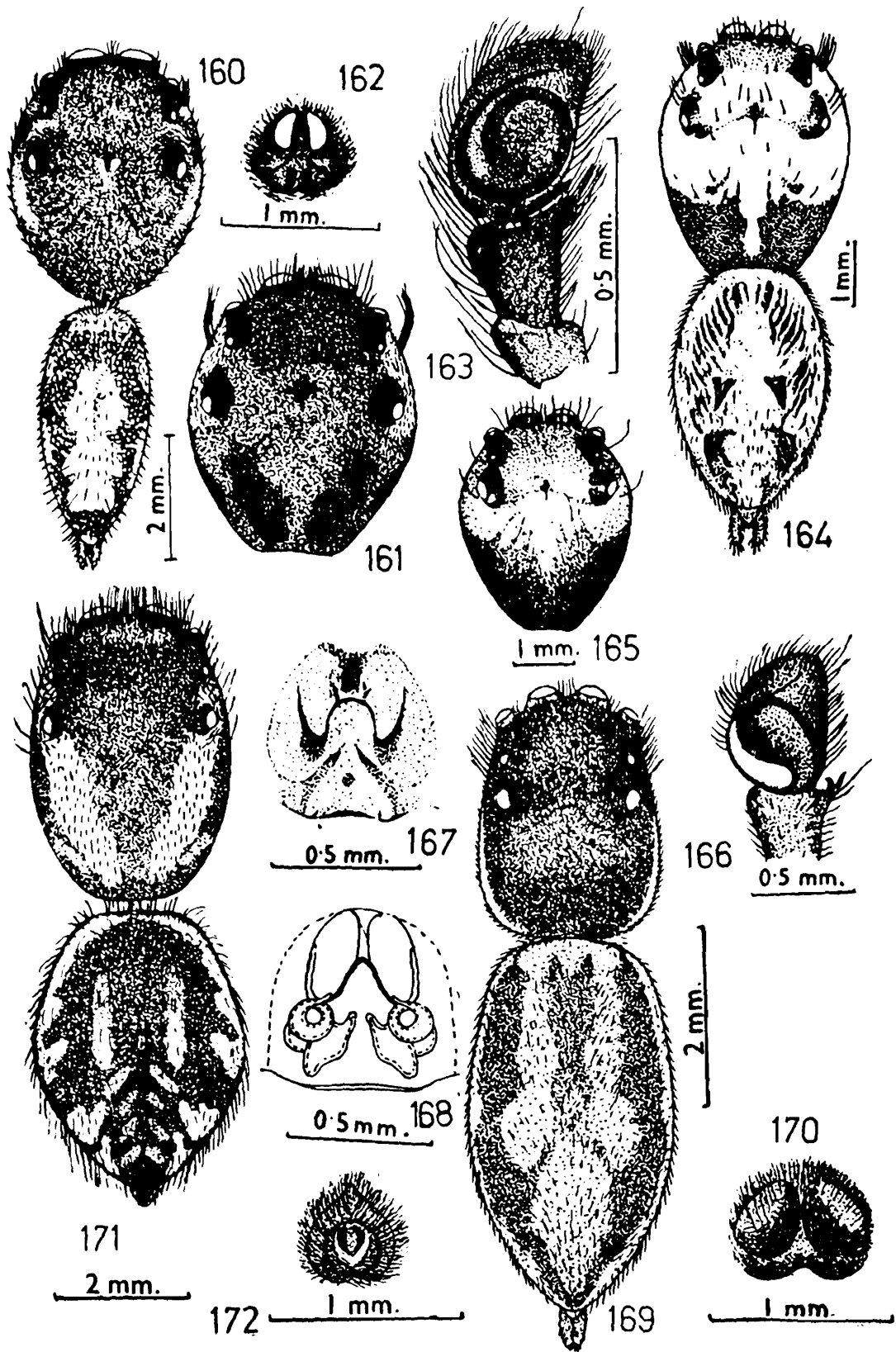


PLATE XIII

173. Dorsal view of female, *Marpissa bengalensis*, legs omitted.
174. Epigyne of *M. bengalensis*.
175. Dorsal view of female *Marpissa calcutanesis*, legs omitted.
176. Epigyne of *M. calcutaensis*.
177. Dorsal view of female *Marpissa tigrina*, legs omitted.
178. Epigyne of *M. tigrina*.
179. Dorsal view of female *Plexippus paykullii*, legs omitted.
180. Dorsal view of male *P. paykullii*, legs omitted.
181. Epigyne of *P. paykullii*.
182. Male palp of *P. paykullii*.
183. Epigyne of *Euophrys chiriatapuensis*, front view.
184. Internal genitalia of *E. chiriatapuensis*.

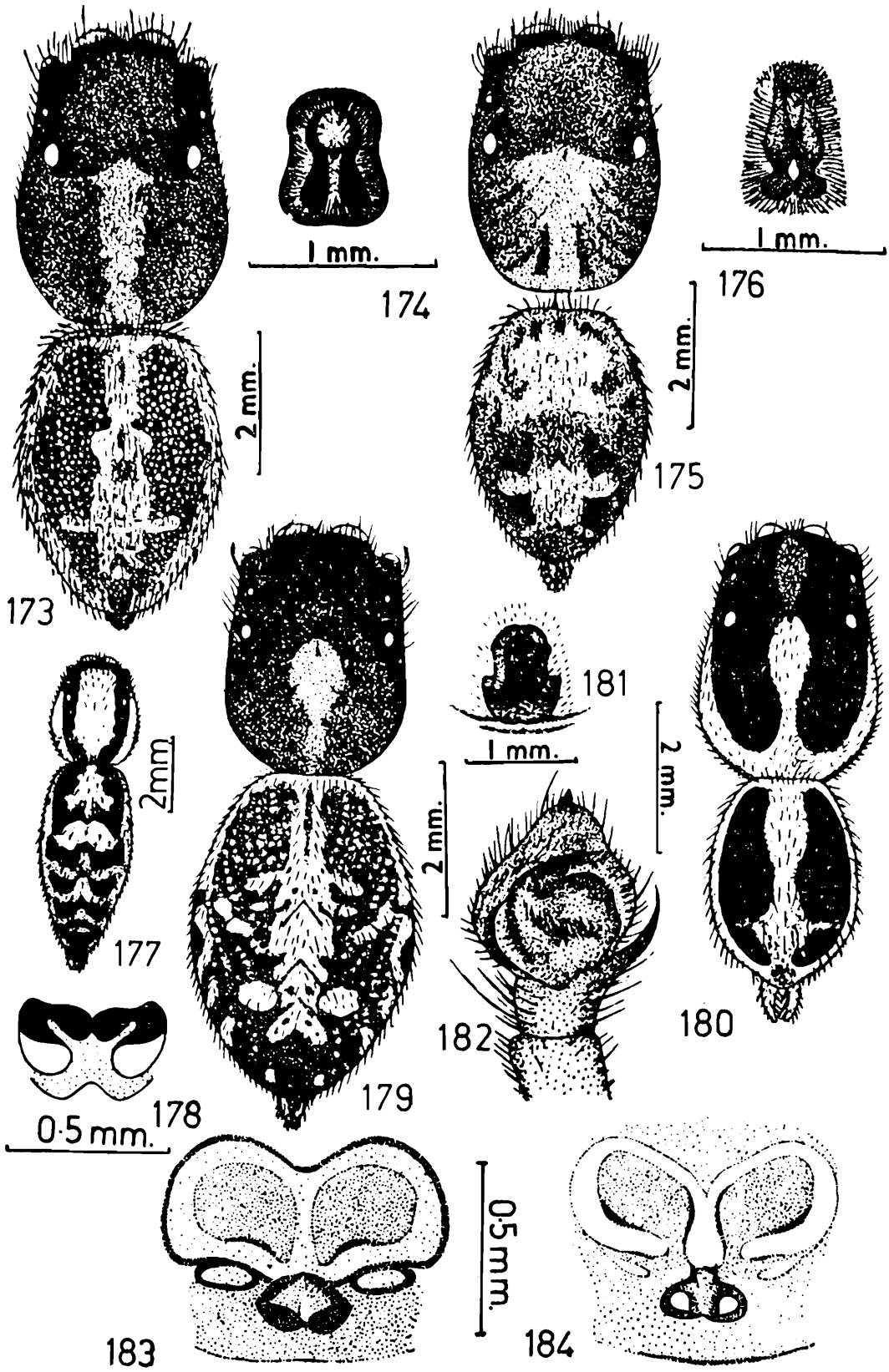


PLATE XIV

185. Dorsal view of female *Rhene indicus*, legs omitted.
186. Male palp of *R. indicus*.
187. Epigyne of *R. indicus*.
188. Dorsal view of male *Rhene danieli*, legs omitted.
189. Male palp of *R. danieli*.
190. Dorsal view of female *Rhene decoratus*, legs omitted.
191. Epigyne of *R. decoratus*.
192. Internal genitalia of *R. decoratus*.
193. Dorsal view of female *Myrmarachne orientales*, legs omitted.
194. Epigyne of *M. orientales*.
195. Dorsal view of female *Myrmarachne maratha*, legs omitted.
196. Epigyne of *M. maratha*.
197. Male palp of *M. maratha*.

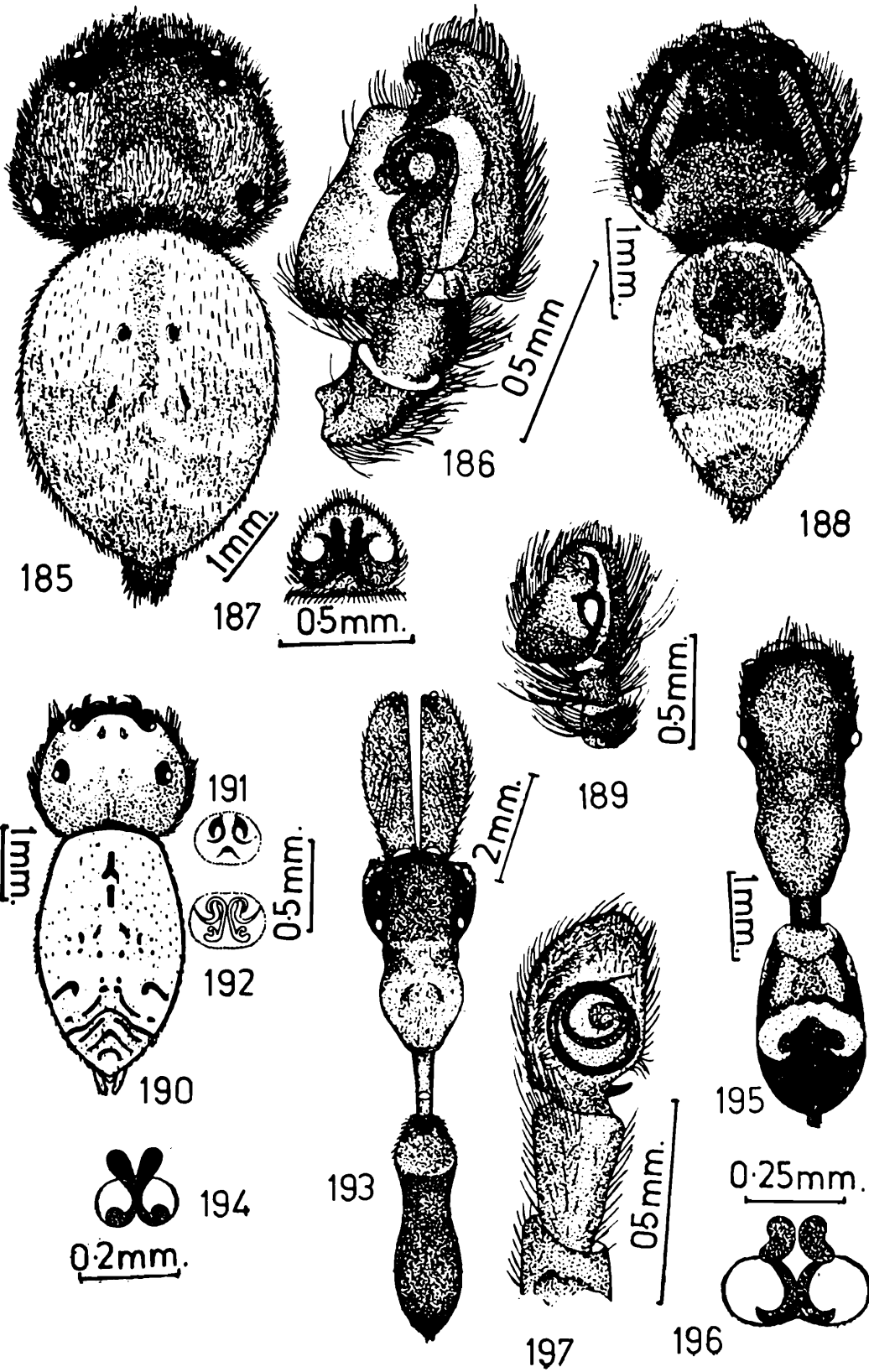


PLATE XV

198. Dorsal view of female *Myrmarachne bengalensis*, legs omitted.
199. Epigyne of *M. bengalensis*.
200. Lateral view of cephalothorax of *M. bengalensis*.
201. Dorsal view of female *Lyssomanes andamanensis*, legs omitted.
202. Epigyne of *L. andamanensis*.
203. Male palp of *L. andamanensis*.
204. Cephalothorax of *Lycosa kempfi*.
205. Epigyne of *L. kempfi*.
206. Internal genitalia of *L. kempfi*.

