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***Salticidae (Araneae) of India in the collection of the Hungarian National Natural History Museum in Budapest***

[With 192 figures in the text]

**Abstract.** Description of 46 species of *Salticidae* from the Oriental Region: 40 species (additional five identified to the genus only) from India and also one related from Malaysia. Among these, six genera are described as new: *Ghumattus*, *Habrocestoides*, *Heliophanooides*, *Imperceptus*, *Madhyattus*, *Orissania*. 27 species are described as new. Two species have been transferred to other genera: *Hyllus semicupreus* (SIMON, 1885) (from *Sandalodes*) and *Phintella indica* (SIMON, 1901) comb. n. (from *Heliophanus*). Additionally discovery of three species of TIKADER identified by that author in the AMNH–New York allowed the following synonymization: *Phidippus indica* TIKADER, 1974 = 1♂ *Hyllus semicupreus* (SIMON, 1885) (syn. n.), *Phidippus pateli* TIKADER, 1974 = *Telamonia dimidiata*? (SIMON, 1899) (syn. n.), *Salticus ranjütus* TIKADER, 1967 = *Phintella vittata* (C.L. KOCH, 1846) (syn. n.)

INTRODUCTION

High percentage of unknown species among 40 studied in this paper, exactly 67%, confirms the general opinion that *Salticidae* of India and adjacent areas of the Oriental Region are still very poorly known. Main source of knowledge are old descriptions by XIX century authors – insufficient for identification of taxa, but at least the type specimens of majority of these are known and were studied during this or previous studies by several recent authors (PRÓSZYŃSKI 1984c, 1987, WANLESS 1983a, ŽABKA 1985). There are also recent publications by TIKADER (1965–1978) and some few other authors, but species described or identified by them cannot be recognized without comparison of type, specimens or other documentary material. Unfortunately these specimens are not available for study now and letters sent to their respective authors concerning loan of types or other forms of cooperation remain unanswered. It remains a question whether in such circumstances, with part of species unrecognizable, is there a

justification for identification or description of new taxa, when the possibility of mistake is quite considerable. It seems however, that advantages of having detailed study of new material available is greater than harm resulting from possible mistakes due to the above conditions.

The collection of *Salticidae* in the Hungarian National Natural History Museum in Budapest is of special importance because it contains large number of species relatively fresh and well preserved. Together with collections of *Salticidae* from Mongolia and Vietnam that Museum is now a real treasure for study of Central, Eastern, South Eastern and Southern Asian *Salticidae*. This is largely due to concentrated efforts of a number of zoologists of that Museum, a very reasonable and effective policy of collecting during the last 30 years, apparently a continuation of the traditions of zoological explorations by Hungarian zoologists since the second half of XIX century. I am unable to give here an account of history and recent efforts of these exploration, and can mention only that myself and my collaborators had opportunity to work on materials from Mongolia collected by the late Director of that Museum – Dr. Z. KASZAB, from Vietnam by Dr. TOPÁL and Dr. MATSKÁSI and from India by Dr. TOPÁL.

The present study gives an account of majority of Indian collection in Budapest (a few species have been left for further studies), and a few relevant species from other collections.

**M e t h o d s.** The specimens were studied both in Budapest Museum and in my Laboratory in Siedlce under various stereomicroscopes available there (Zeiss-Jena "Citoval" and "Technival", as well as Polish made PZO MSt 131 with effective magnification from about 70 up to 200 times) and drawn with a help of eye piece grid. Internal structure of epigyne was studied on permanent or temporary microscopic preparations (macerated in the 10–20% KOH aqueous solution in the room temperature – 24 to 72 hours, stained with Chlorazol Black E ethyl alcohol solution, 98% ethyl alcohol, toluen, xylen and mounted either in the Canada Balsam or, if temporary preparation, in Clove Oil) with a help of compound microscope Zeiss-Jena "Amplival".

**A c k n o w l e d g e m e n t s.** I wish to express my deep gratitude the Hungarian National Natural History Museum in Budapest and to its Staff Members for making this collection available for my studies and for facilities and assistance in research my research; I am particularly obliged to the late Dr. Z. KASZAB, Dr. S. MAHUNKA, the collector – Dr. TOPÁL as well as to a number of other persons, whom I remember with warm gratitude. Unless otherwise indicated all specimens studied are kept in the Collection of the Hungarian Natural History Museum in Budapest. As usually I used for comparison authoritatively identified specimens of *Salticidae*, including types, from a number of Zoological Collections – among those I used the most during writing the present paper are:

- British Museum (NH), Cromwell Road, London SW7 5BD, UK – Mr. F. R. WANLESS;
- California Academy of Sciences, Dept. of Entomology, Golden Gate Park, San Francisco, Cal., 94118, USA, – Dr. W. PULAWSKI;
- Museum of Comparative Zoology, Harvard University, Cambridge, Mass., 02138, USA – Prof. H.W. LEVI, Dr. W.P. MADDISON;
- Museum National d' Histoire Naturelle, Laboratoire de Zoologie, 61, rue de Buffon, 75231 Paris 5-me, France – Dr. J. HEURTAULT.

I wish to express my deep gratitude to the above Institutions and the collection Curators, as well as to other Zoological Collections and Curators,



mentioned in my earlier papers. Without previous knowledge gained with their assistance this paper could not be written.

Particular taxonomic problems were consulted with E.M. ANDREEVA, W.P. MADDISON, F.R. WANLESS, P. WIJESINGHE, W. WESOŁOWSKA, and M. ŽABKA. I wish to acknowledge with thanks the assistance from N.I. PLATNICK in various problems of computer utilization, which greatly contributed to completion of this paper.

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Simultaneously I apologize for poor quality of drawings due to their recovery from Xerox copies after lost of originals sent by mail.

#### TAXONOMIC SURVEY

### Genus *Carrhotus* THORELL, 1891

#### *Carrhotus malayanus* sp. n.

(Figs 1–5)

Material: ♂ holotype, 1 juv., Malaya: 16 mi. NE K[uala] Lumpur 1000', VI 1962. Leg. ? Det. J. PRÓSZYŃSKI, 2 IV 1986. Coll. CAS, San Francisco.

**R e m a r k.** Species resembling *Carrhotus viduus* (type species of the genus) in the general structure of the palpal organ, from which differs in much longer and more pronouncedly tapering embolus, slightly waving, also cymbium is longer. Although the species comes from outside India and is kept in other collection, its description here facilitates comparison with other related species.

**M e a s u r e m e n t s:** Length of cephalothorax: 2.50; Length of abdomen: 2.25; Length of eye field: 1.00; Height of cephalothorax: 1.56; Width of eye field I: 1.62; Width of eye field III: 1.62; Width of cephalothorax: 1.94.

**MALE.** Length about 5 mm, cephalothorax high; abdomen oval narrower than cephalothorax, tapering posteriorly.

Cephalothorax dark brown with bands of sparse white setae marginally; dorsal profile rounded (Fig. 1). Abdomen greyish with gleaming green scales; a pair of small marginal white spots of scales resembling transverse lines in the posterior  $\frac{4}{5}$ th of the abdomen. Frontal aspect: clypeus low, brown with sparse white setae, eyes AME surrounded ventrally with white setae. Chelicerae brown, elongate, two and half times longer than AME's diameter, anteriorly flattened with sparse small spines in dark sockets; large single retromarginal tooth. Sternum, coxae and abdomen ventrally dark. Legs uniformly dark, short, I – slightly longer; setae and spines numerous and long. Palpal organ: see Figs 2–5.

***Carrhotus sannio* (THORELL, 1877)**

(Fig. 6)

*Plexippus sannio* THORELL, 1877c: 617 (D ♂);*Carrhotus sannio*: PRÓSZYŃSKI, 1984c: 16 (♂♀);*Carrhotus sannio*: ŽABKA, 1985: 207-206, ff. 63-70, m. 5 (♂♀).

Material: ♂ India (No. 940): Daitari, Jajpur-Keonjhar District, Orissa, 25 XI 1967, netting in grasses in forest.

Measurements and morphological description – see under *Carrhotus tristis* below.

***Carrhotus tristis* (THORELL, 1895)**

(Figs 8-11)

*Carrhotus tristis* THORELL, 1895: 379 (D ♂);*Carrhotus tristis* PRÓSZYŃSKI, 1984c: 17 (♂).

Material: 1 ♂, India (No. 36): Nalbani (N. Salt Lake) near Calcutta, W. Bengal, 7 XII 1966, netting in grasses. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**Remark:** characterized in ♂ by long embolus arising from the top of bulbus and bent "S" like; whilst unusually long in the genus there are species with intermediate form of embolus particularly *Carrhotus malayanus* sp. n. described above.

**Measurements** (♂ *tristis*-♂ *sannio*-♂ *viduus*): L. cphth: 2.94-2.31-3.57; L. abdomen: 3.04-2.41-3.88; L. eye field: 1.09-1.09-1.36; H. cphth: 1.26-1.26-2.20; W. eye field I: 1.78-1.57-2.10; W. eye field III: 1.89-1.57-2.20; W. cphth.: 2.31-1.89-2.94;

**MALE – comparison of *Carrhotus tristis* with *C. viduus* and *C. sannio*.**

General shape resembles very closely ♂ of *sannio* with cephalothorax of average proportions, twice longer than high, eye field shorter than half but longer than one third of length of cephalothorax and less than one third broader than long, slightly broader posteriorly (in *sannio* distances of eyes I lateral and III are equal). Length of abdomen in three species comparable to cephalothorax. **Cephalothorax** dark brown, covered densely with adpressed whitish setae, some sparse upright fine white setae and sparse dark bristles; eye field with an indistinct pattern of fine colorless adpressed and sparse standing setae visible only when light comes from certain directions; thorax with darker median area, sides with white adpressed setae. Cephalothorax in *sannio* and *viduus* now devoid of setae, dark brown. **Abdomen** with "hairy" appearance due to scattered bristles, remnants of pattern of adpressed scale like short setae making dark median lines (spots or maybe streak), followed by two parallel light areas; anterior tip with a bunch of long colorless bristles. Abdomen in *C. viduus* entirely bald now with empty sockets of lost bristles; in *C. sannio* uniformly dark grey with silver appearance due to remnants of whitish adpressed setae, a number of bristles and a bunch of whitish bristles on apical edge. **Frontal aspect:** shape and proportions of eyes, clypeus and chelicerae comparable in the three species. In



*C. tristis* eye field almost black with some white adpressed setae, anteriorly reddish; no distinct ring of setae around eyes I; lower parts of face and chelicerae light brown; clypeus low with white setae beneath eyes median, arising diagonally, overhanging cheliceral bases and making sparse white fur on upper parts of chelicerae. Chelicerae long, about 3x diameter of AME. In *C. sannio* similar white fur on upper half but denser and longer, white setae cover all width of clypeus, face and chelicerae blackish brown. Pedipalps dark brown, hairy. No hairs left in *C. viduus* now. **Legs** generally light, femora I-IV pale yellowish brown with slightly darker apical half; tibia I-IV yellowish brown with indistinct median lighter ring; metatarsi I-IV and tarsi I-II yellowish fawn, III-IV light yellow. Legs in *C. sannio* and *C. viduus* generally dark brown: in *C. sannio* only tarsi I-IV and metatarsi I-IV being distinctly lighter, tibiae III-IV with lighter median ring, in *C. viduus* only tarsi indistinctly lighter. **Palpal organ**: embolus in *C. viduus* (Fig. 7) conical apically in the middle of bulb; in *C. malayanus* (Figs 2-5) much broader and longer, slightly waving; in *C. tristis* (Figs 8-11) much longer and narrower; entirely different in *C. sannio* - short, arising laterally and bent, similar but more robust in *C. xanthogramma* (LATREILLE, 1819) with fang like short apical part. *C. bellus* WANLESS, 1983a: 61-63, ff. 21a-g from Seychelles resembles very closely *C. viduus*. **Ventral aspect** darker brown medially, lighter laterally. Chelicerae dark brown, dentition in the three species characteristic: the anterior median corner of chelicerae expanded into triangular plate with perpendicular apical edge covering anteriorly the fang in the resting position, it ends abruptly under 90° angle and is followed by two high black teeth; the posterior median ridge not developed, with a large conical black tooth. In *C. viduus* these structures stronger expanded, inner posterior tooth enormous. Maxillary plates in the three species, labium and sternum brown. Coxae fawn to yellowish getting lighter posteriorly. Abdomen pale yellowish grey with darker brownish grey median streak, tapering posteriorly; spinnerets ventrally brownish grey. In *C. viduus* maxillary plates and labium blackish brown, sternum and coxae dark brown, abdomen greyish brown with yellow lung-books, *C. sannio* similar except broad median area of abdomen black.

### ***Carrhotus viduus* (C.L. KOCH, 1846)**

(Fig. 7)

*Carrhotus viduus*, ANDREEVA, KONONENKO, PRÓSZYŃSKI, 1981: 103, f. 39-42 (♂♀);

*Mogrus ornatus* ANDREEVA, KONONENKO, PRÓSZYŃSKI, 1981: 103, ff. 41-42 (s. *Carrhotus viduus*);

*Carrhotus viduus* PRÓSZYŃSKI, 1984c: 16 (♂).

Material: ♂ India (No. 723): Kanheri near Bombay, Maharashtra (near the cave temples) 27 VIII 1967. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

Measurements and morphological description - see under *Carrhotus tristis* above. *Carrhotus bellus* WANLESS, 1983: 61-63, ff. 21a-g from Seychelles differs in minor proportions and shape of the palpal organ; its systematic position is uncertain and requires direct comparison with specimens of *Carrhotus viduus*.



Genus *Dexippus* THORELL, 1891*Dexippus topali* sp. n.

(Figs 12-19)

Material: ♂ holotype, ♀ allotype. India (No. 837): Darjeeling, W Bengal, below N. Point, 1200 m, 16 X 1967, sifted litter and moses on bark of trees. 1 ♀ paratype, India (No. 418/1979-1980) Goomti, Darjeeling District, W Bengal, 1250 m) 27 V 1980, sifted and extracted from moses on trees. All leg. TOPÁL, coll. Hungarian NH Museum, Budapest.

**M e a s u r e m e n t s:** (first - ♂, second - ♀): L. cphth.: 2.00, 2.12; L. abd.: 2.00, 2.31; L. e-f.: 1.06, 1.19; H. cphth.: 1.62, 1.75; W. e-f. I: 1.56, 1.62; W. e-f. III: 1.69, 1.87; W. cphth.: 1.19, 1.37.

**Mutual characters in MALE and FEMALE.** Small spiders with high cephalothorax, flat eye fields and anterior thorax passing abruptly into steep and high posterior thoracal wall (Fig. 18). Abdomen oval, grey mottled yellow, with various proportions of dark and light areas; "hairy" appearance due to long sparse setae. Diameter of AME about twice longer than that of ALE. Eyes I encircled with tiny sparse setae: dorsally reddish, ventrally white. Clypeus low with sparse and inconspicuous whitish setae. Chelicerae short, brown, anteriorly with sparse whitish setae; the apical edge almost horizontal ending with a large prolateral tooth. Metatarsus I with 2 pairs of long ventral spines, tibia I with 3 pairs of long ventral spines. There is a sparse fur of greyish setae ventrally on tibia and patella I in ♂, absent in ♀.

**MALE. Cephalothorax** greyish brown with two thin irregular median darker streaks from the fovea posteriorly; eyes surrounded black; scarce remnants of tiny white setae on lateral surfaces. General appearance of **abdomen** resembles some European *Neon* and *Euophrys*: greyish mottled yellow, surface sculptured with greyish ridges and yellow grooves; median longitudinal area yellowish with a thin median line of dots in the posterior half of abdomen. Spinnerets conical, greyish brown. **Palpal organ:** embolus apically bent anteriorly, arises at the anterior inner angle of and runs parallel to the anterior edge of the bulbus (Figs 12-13); thicker and more straight than in *D. kleini* THORELL, 1891 (cf. PRÓSZYŃSKI 1984c: 33) whose tibial apophysis shorter and single pronged, the dorsal ramus not developed.

**FEMALE.** Resembles externally ♂ very closely. **Cephalothorax** greyish brown with tegument separated now from the soft tissues; remnants of whitish setae posteriorly on thorax. Abdomen mosaic greyish mottled yellowish, with numerous grey spots influencing the general appearance; covered with remnants of tiny adpressed whitish setae and scattered brown setae. Spinnerets conical, yellowish, externally dark brown. **Epigyne** has flat posterior bell shaped structure covering copulatory opening, surrounded anteriorly by thick semilunar thickening (Figs 14-15), two median spherical bodies under tegument being parts of swollen spermathecae; details of internal structures are shown on Figs 16-17.



The paratype ♀ from Goomti slightly larger, differs from allotype in epigyne indistinctly narrower, with two small conical structures accompanying copulatory openings, in proportions of internal structures as seen through tegument and in slightly darker coloration.

### Genus *Epeus* Peckham et Peckham, 1885

**Remark:** The shape of eye field with actually four rows of eyes, shape of cephalothorax and legs identical with *Epeus alboguttatus* THORELL, 1887 (cf. ŽABKA 1985: 275–276, ff. 113–120), also distinct resemblances in epigyne; different spination of tibia I in *E. indicus* calls for further studies. Unidentati.

#### *Epeus albus* sp. n.

(Figs 20–21, 25)

**Material:** ♀ holotype, India (No. 929): Jajpur-Keonjhar District., Orissa, 23 XI 1967. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**D i a g n o s i s:** White without dark abdominal spots.

**M e a s u r e m e n t s:** L. cphth.: 2.22; L. abd.: 3.05; L. e-f.: 1.04; H. cphth.: 1.25; W. e-f. I: 1.45; W. e-f. III: 1.38; W. cphth.: 1.94;

**Remark.** Large spider, white (Fig. 25) devoid of posterior spots on abdomen, with spinnerets yellowish and legs devoid of darker tibial spots; closely resembles *Epeus indicus* sp. n. which has dark abdominal marks.

**FEMALE. Cephalothorax** yellow, eye field whitish, eyes lateral on black fields; remnants of colorless whitish scales near eyes III. **Abdomen** dorsally whitish with sparse inconspicuous gleaming scales, spinnerets yellow. **Frontal aspect** comparable with *Epeus indicus* sp. n. described below: AME lighter, scales penetrating from beneath between AME yellowish white, clypeal band of white scales broader. Chelicerae yellow. Pedipalps whitish. **Legs** I yellow, tibia with 4 pairs of particularly long ventral spines. **Ventral aspect:** mouth parts yellow, remaining structures whitish, spinnerets yellowish. **Epigyne:** see Figs 20–21.

#### *Epeus indicus* sp. n.

(Figs 22–23, 26, 29)

**Material:** ♀ holotype, India (No. 929): Jajpur-Keonjhar District., Orissa, 23 XI 1967. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**D i a g n o s i s.** White medium size spider with 3 small black marks posteriorly along mid-line of abdomen (Fig. 23), black spinnerets and black surroundings of eyes ALE II and III; black basal and apical spots laterally on tibiae I–II, no such spots on tibia IV (legs III missing). Unidentati.

**M e a s u r e m e n t s:** L. cphth.: 2.49; L. abd.: 3.05; L. e-f.: 1.11; H. cphth.: 1.38; W. e-f. I: 1.66; W. e-f. III: 1.52; W. cphth.: 2.01.

**FEMALE. Cephalothorax** yellowish, eyes lateral surrounded black (Figs 26, 29); behind fovea 4 darker yellow radii. Eyes anterior lateral (ALE) drawn back with lenses on the level of darker bases of anterior median eyes (AME), both ALE and AME are directed anteriorly like in any other *Salticidae*. Eyes II small (about  $\frac{1}{5}$ th of diameter of ALE,) located half way between eyes III and ALE, on the edge of the black field surrounding ALE. **Abdomen** whitish, posteriorly with 3 distinct and one indistinct black marks along mid-line; faint traces of 2 pairs of intensively white scales marginally, followed by yellow scales behind them and also marginally. **Frontal aspect:** diameter of AME slightly more than twice that of ALE; the latter bluish medially and almost black laterally, whilst the AME have greyish pink outer part and pearl yellowish central one. Eyes anterior surrounded with white setae, whilst wedge shaped spots of yellowish orange scales penetrate between AME and ALE from beneath and above. Clypeus covered by broad band of strikingly white scales. Chelicerae yellow, pedipalps yellowish white with tarsus and tibia fawn. Legs long and thin. Epigyne: sclerotized rims of the copulatory openings make part of an almost regular circle in the anterior third of epigyne, followed by very small pockets (Fig. 22).

#### Genus *Euophrys* C. L. KOCH, 1834

Large and important Holarctic genus, occurring also in Africa and S America, requiring taxonomic revision. Apart from Northern Mountains belonging to the Palaearctic Region there is only a single species described from India (and Andaman Is.) – *E. chiriatapuensis* TIKADER, 1977: 106, f. 26 (♀), unknown yet to me.

#### *Euophrys minutus* sp. n.

(Figs 30–32)

**Material:** ♀ holotype, India (No. 851): Kurseong, Darjeeling District., West Bengal, 1000 m, 18 X 1967. Sifted litter in forest. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**Remark:** Superficial resemblance of epigyne to *Lechia squamata* ŽABKA, 1965: 236, figs 259–262 is not confirmed by direct comparison of specimens, paratype of the latter has lower and longer cephalothorax with scales, whilst present species has only sparse setae. The proportions of cephalothorax fit genus *Euophrys* (as compared directly with *E. obsoleta*), similarity of epigyne being less certain.

**Measurements:** L. cphth.: 1.13; L. abd.: 0.88; L. e-f.: 0.59; H. cphth.: 0.59; W. e-f. I: 0.88; W. e-f. III: 0.80; W. cphth.: 0.86.

**FEMALE. Cephalothorax** yellowish fawn with dark greyish brown eye field and black surroundings of eyes; sparse colorless tiny setae over the eye field. **Abdomen** yellowish grey mottled yellow with paler yellow median streak, divided medially by darker brownish grey irregular line of spots (Fig. 32). **Frontal aspect:** face greyish yellow with brown median margin, upper rims of eyes along the same straight line, eyes anterior median almost twice as large as ALE, surround-



ded by microscopic whitish setae. Clypeus very low with a few thin colorless setae. Chelicerae short. Palps fawn yellow. **Legs** yellowish fawn, tibia I with 3 pairs of ventral spines and no laterals. **Ventral aspect** yellowish to fawn yellowish. **Epigyne**: see Figs 30–32.

### Genus *Ghumattus* gen. n.

Small spider with some superficial resemblance of palpal organ to *Phlegra*: reduction of embolus, development of bulbus and two pronged pedipalpal tibia, however so different that they do not warrant classification into *Phlegra*; also the shape of cephalothorax is entirely different: high and short, with rounded dorsal surface and steep posterior thoracal slope. Chelicerae unidentati. Type species: *Ghumattus primus* sp. n.

### *Ghumattus primus* sp. n.

(Figs 33–37, 43)

Material: ♂ holotype, India (No. 341): Ghum, Darjeeling District, Senchal Forest, 2200 m, 19 IV 1967, beaten from bushes in forest (attention: labelled in the collection gen. sp. unknown cf. "*Phlegra*"). Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**M e a s u r e m e n t s**: L. cphth.: 2.00; L. abd.: 1.62; L. e-f.: 0.81; H. cphth.: 1.06; W. e-f. I: 1.19; W. e-f. III: 1.09; W. cphth.: 1.25.

**MALE**. Specimen damaged with soft tissues separated from the chitinous tegument, coloration lost. **Cephalothorax** dark brown with eye field blackish, slightly paler median streak behind fovea. General appearance shown on Fig. 43. **Abdomen** flattened, broad and short, with traces of grey wrinkles posteriorly on sides. **Frontal aspect** dark brown with diameter of AME's twice that of ALE's, the latter located along upper half of AME; eyes encircled with sparse minute whitish setae. The upper part of face has rectangular outline; clypeus dark brown, almost bald, its height equal to ALE's diameter. **Pedipalps** brown, cymbium covered with colorless setae. **Legs** I distinctly longer; femur I dark brown prolaterally, remaining segments of leg I light brown with broad darker brown annulation; tibia I with three pairs of ventral spines. **Ventral aspect**: apical edge of chelicerae almost horizontal, retrolateral tooth big; there is a protuberance on external angle of maxillary plate (Fig. 37); sternum broad, anteriorly broadly truncated. **Palpal organ** (Figs 33–36): elongate oval bulbus with posterior extension, embolus short, thick, split at the top (Fig. 35); tibial apophysis with two thick semilunar prongs. Some superficial resemblance in outline of tibia and posterior part of bulbus in the "*Euophrys*" *semiglabrata* (SIMON, 1868) (cf. HEĆIAK, PRÓSZYŃSKI 1984: 378–379, ff. 1–14) a species originally described as *Phlegra* and provisionally transferred to *Euophrys*; suspicions on relationships of these two forms require comparison of hidden parts of embolus, dorsally to bulbus, on new specimens.



Genus *Habrocestoides* gen. n.

Small size jumping spiders characterized by peculiar structure of male and female genital organs and general appearance. **Cephalothorax** medium high, highest between eyes III and fovea, eye field and thorax sloping. Dorsal tops of orbits of eyes I along single straight line; relation of diameters of AME to ALE 2.5: 1.5, height of clypeus slightly less than  $\frac{1}{2}$  diameter of AME. Anterior part of abdomen in ♂ may be slightly hardened. Legs I indistinctly longer than IV in ♂, shorter than IV in ♀. **Palpal organ**: bulbus divided diagonally into broader anterior part with seminal receptacle channel and posterior one narrowing anteriorly and passing into short embolus, usually slightly bent, sometimes broadened apically. Tibial apophysis short and usually characteristically bent, articulating with protruding lateral edge of cymbium. **Epigyne** with a pair of depressions – openings posteriorly, narrow posterior rim broadened medially with characteristic round internal structure. Copulatory channels membranous leading anteriorly to sclerotized spermathecae, located more or less transversally. The structure of genital organs resembles somewhat *Habrocestum* (hence name) but not as closely as to warrant classification with that genus. It differs from *Habrocestum* also in lower and more sloping cephalothorax. Type species: *Habrocestoides bengalensis* sp. n. from India, described below. I have seen similar species among not yet described species from Caucasus, Nepal, Bhutan and China.

*Habrocestoides bengalensis* sp. n.

(Figs 38–42)

**Material**: ♀ holotype (the darker one), ♂ allotype, 2 ♂♂ paratypes, 5 ♀♀ paratypes, India (No. 771): Ghum (Senchal Forest Reserve 2200 m.), Darjeeling District, sifted mosses on bark of tree; ♀ paratype, India (No. 120): Daitari, Jajpur-Keonjhar District, Orissa, 6 I 1967, singled from under stones and bark of trees in forest near brook; 1 ♂ paratype, India (No. 311): Darjeeling, sifted litter; 1 ♀ paratype, India (No. 828): Ghum (Senchal Forest Reserve 2200 m.), Darjeeling District, 13 X 1967, singled from mosses on soil and stones in forest; 1 ♀ paratype (1 out of 2 specimens), India (No. 768): Ghum (Senchal Forest Reserve 2200 m.), Darjeeling District, 6 X 1967, sifted litter; 1 ♂ paratype, India (No. 767): Ghum (Senchal Forest Reserve 2200 m.), Darjeeling District, 5 X 1967, extracted from moss on bark of trees; 1 ♀ paratype, India (No. 319), collected on lamps; 2 ♀ paratypes, India (No. 433): Debrapani, Darjeeling District, West Bengal, 1650 m. extracted and sifted from mosses on trees 30 V – 12 VI 1980. All leg. TOPAL, coll. Hungarian NH Museum, Budapest.

**Attention**: some ♀♀ looks slightly different, cannot decide yet whether due to individual variation or specific differences.

**Diagnosis**. Small spider with head high and thorax sloping, eye field wider than longer, cephalothorax brown with lighter median streak along the thorax, from fovea to hindmargin. Clypeus devoid of contrasting setae. Chelicerae with single retromarginal tooth, legs annulated, in ♀ the 1st pair is the longest, in ♂ 1st and IVth pairs looks equally long. Tibia I with 3 pairs of ventral spines.

**Measurements** (♂, ♀, some on additional ♂ and ♀): L. cphth.: 2.25, 2.00, 2.00, 2.12, 1.62, 1.75, 1.75; L. abd.: 2.25, 2.00, 2.00, 1.87, 1.56, 1.50; L.



e-f.: 0.87, 0.87; H. cphth.: 0.69, -; W. e-f. I: 1.31, 1.19; W. e-f. III: 1.25, 1.19; W. cphth.: 1.25, 1.31.

Length of segments of legs in ♂

Leg:	Tarsus	Metatarsus	Tibia	Patella	Femur	5 segments
I	0.62	1.00	1.19	0.81	1.62	5.24
II	0.50	0.69	0.75	0.62	1.12	3.68
III	0.50	0.87	0.75	0.50	1.12	3.74
IV	0.62	1.19	0.87	0.62	1.37	4.67

**MALE. Cephalothorax** high, with the highest area stretching from the eyes III to fovea, the eye field slopes gently anteriorly, the posterior thoracal slope being steep; dark brown with light yellow line posteriorly from fovea, anterior and lateral margins of eye field blackish. Surface of cephalothorax slightly light reflecting, devoid of setae or scales except inconspicuous sparse colourless adpressed short setae on the eye field and a few beneath eyes lateral; sparse thicker dark brown setae protruding behind eyes I, in one specimen a few whitish setae between eyes I median. **Abdomen** with smoother brownish median area, corresponding to inconspicuous scutum in anterior half of abdomen; lateral  $\frac{2}{3}$ rd of the dorsal surface wrinkled, with edges of wrinkles grey and bottoms punctuated yellowish. Irregular and inconspicuous stripes of dots along edges of end in a pair of larger brownish grey spots in the middle of abdomen, oriented slightly diagonally; in one specimen there are indistinct greyish brown chevrons in the posterior part of the abdomen. Anal tubercle and spinnerets yellowish. **Frontal aspect** dark brown with slightly paler area beneath eyes I lateral. Dorsal rims of eyes I along single straight line; relation of diameters of AME to ALE 2.5 : 1.5, height of clypeus slightly less than  $\frac{1}{2}$  diameter of AME. Clypeus, chelicerae and pedipalps brown, cymbium slightly lighter. Ventral aspect fawn, surface of abdomen yellowish grey with the median line of greyish indistinct spots; blackish grey spots on the border of lateral surfaces. **Legs** yellowish, brown annulated; femora I-II dark brown, especially on anterior surface, but with narrow whitish apical tip; femora III-IV with two dark annuli separated by whitish yellow one; their apical tip also whitish. Leg I: metatarsus, tibia and patella with whitish yellow median annuli strongly contrasting with remaining dark brown annulation. **Palpal organ** (Figs 38-40): tip of embolus appears to be broadened triangularly, actually sharp point of embolus is separated by a white line from lateral dark sclerotized point, study of that requires magnification higher than that available for me.

**FEMALE.** There are two strikingly different color forms among ♀♀ with seemingly identical epigyne. I assume provisionally that these forms are conspecific, but they deserve some attention in the future.

1. A form with dark abdomen, large dark spots ventrally on abdomen, longer legs and more contrasting annulation on legs - 3 ♀♀ in sample No. 771 and 1 ♀ in sample No. 768.



2. A lighter form with abdomen resembling ♂ – greyish wrinkled with a pair of median darker spots. Some specimens with this kind of coloration are distinctly shorter (3 ♀ in sample No. 771), one is however as long as the darker one (1 ♀ in sample No. 828).

3. Some specimens cannot be classified with these form due to partial maceration of their abdomen (in samples No. 120 and No. 828).

**FEMALES** generally similar to **MALES**, differ in lighter coloration of cephalothorax and legs, legs I being also distinctly shorter. Abdomen either resembling male (or female group 1, but without brown darkening in the anterior median part) or mosaic of blackish grey wrinkles separated by whitish or yellowish punctuation; median streak remains distinctly lighter, as in females group 2. The latter resembles coloration in some *Euophrys* from Himalaya and Europe. **Cephalothorax** brown or greyish brown with mid-thoracal yellow line and yellowish sides above ventral margin. Eye field darker with short, adpressed, poorly visible fine setae. **Abdomen**: common feature seen in all ♀♀ is their grey wrinkling with paler grooves between; darker pigmented ♀♀ have light grooves more contrasting, dark ridges either denser or sparser. The pair of dark spots well visible in lighter ♀♀, is invisible on the generally dark background in darker ♀♀; it is general brightening of the wrinkles in lighter females which makes the dark pair of spots striking. In darker females irregular dark grey spots on ventral surface of abdomen are made by partial fusion of separate spots, lateral surfaces of abdomen almost black with light wrinkles; in lighter females ventral surface of abdomen remains yellowish with greyish shade, lateral surfaces of abdomen brownish grey. **Frontal aspect**: face as in male, clypeus slightly lower – about 1/3rd of diameter of AME; pedipalps yellowish with femora almost white. Legs lighter than in ♂♂, with less contrasting annulation, femora I–II light. Epigyne: see Figs 41–42.

### *Habrocestoides indicus* sp n.

(Figs 44–47)

Material: ♂ holotype, India: exact locality unknown, 1979–1980. Leg. TOPAL. Coll. Hungarian NH Museum, Budapest.

**D i a g n o s i s**: differs from *H. bengalensis* in details of palpal organ – particularly shape of embolus, smaller.

**M e a s u r e m e n t s**: L. cphth.: 1.49; L. abd.: 1.49; L. e-f.: 0.79; H. cphth.: 0.87; W. e-f. I: 1.09; W. e-f. III: 1.01; W. cphth.: 1.14.

**MALE. Cephalothorax** high, dark brown with whitish yellow median thoracal line from fovea to hindmargin. **Abdomen** much damaged with soft tissues shrunken and separated from the tegument. **Frontal aspect** dark, blackish brown with light brown pedipalpal cymbium. **Legs** dark brown light annulated. **Palpal organ**: embolus broader than in *Habrocestoides bengalensis* sp. n., split longitudinally into two, division of bulbus more diagonal, patella longer and thinner (Figs 45–47).



Genus *Heliophanoides* gen. n.

Small, dull coloured spiders resembling superficially ♀♀ *Heliophanus*, from which differs by internal structure of epigyne, with spherical spermathecae separated by median depression. ♂♂ unknown. Cephalothorax dark devoid of any distinct colour pattern, clypeus low without contrasting pattern in studied species. Abdomen bag shaped oval, dark blackish grey covered with sparse minute scales, in some species with faint traces of diagonal lighter bands. Legs slender, yellowish. Epigyne with central groove, oval, round or cordiform, limited posteriorly by a transverse bar; the central part is followed laterally by shallow depressions; internally heavily sclerotized spherical chambers of spermathecae connected directly with even more sclerotized copulatory openings, the channels entirely reduced; accessory glands and cones of fertilization channels located in the median anterior corner of spermathecae.

Several more species, not yet described, seen already from Bhutan, Nepal and India. No males found yet – or recognized as congeneric with the ♀♀. Type species: *Heliophanoides epigynalis* sp. n. described below.

*Heliophanoides bhutanicus* sp. n.

(Figs 52–55)

Material: ♀ holotype, "Bhutan, Phuntsholing, 67 km, Thimpu 1415. No. 24. Coll. Exped. NH Museum, Basel, 1972" (labelled provisionally as "Ictus No. 6, Bhutan")

**FEMALE.** Externally similar to other species of this genus. **Cephalothorax** dark brown with inconspicuous small scales whitish iridescent greenish. **Abdomen** lighter than cephalothorax, greyish brown, light reflecting with indistinct pattern shown in Fig. 52; spinnerets greyish brown. Length of cephalothorax 1.4, length of abdomen 2.4 mm. Pedipalps and legs dark yellow, legs III somewhat lighter yellow. Labium and sternum dark brownish grey. Surrounding of **epigyne** peculiarly pigmented (Fig. 53); groove cordiform shaped (Fig. 54), posterior rim curved, internal structure seems to be of special diagnostic value (Fig. 56).

*Heliophanoides epigynalis* sp. n.

(Figs 49, 51)

Material: ♀ holotype, India (No. 848): Kurseong, Darjeeling District, West Bengal, 1000 m, netting in grasses in forest, 18 X 1967. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**R e m a r k:** Resembles very closely *Heliophanoides bhutanicus* sp. n. from Bhutan.

**M e a s u r e m e n t s:** L. cphth.: 1.47; L. abd.: 1.81; L. e-f.: 0.67; H. cphth.: 0.76; W. e-f. I: 1.01; W. e-f. III: 1.05; W. cphth.: 1.13.

**FEMALE.** **Cephalothorax** brown with darker eye field, grey pigmentation near ventral margin and above petiolus, remnants of whitish scales, in some areas small adpressed setae; no stridulatory setae under eyes lateral. **Abdomen** damaged, soft tissues separated and contracted, with traces of general grey



pigmentation and minute colorless gleaming light reflecting scales and sparse small setae; spinnerets dark brown. **Frontal aspect:** face brown with clypeus reduced, the whole height of face occupied by AME, eyes I pearl coloured, surrounded with whitish setae; ten small inconspicuous brownish bristles overhang chelicerae; chelicerae yellowish fawn, small. Pedipalps yellow. Legs yellow. **Ventral aspect:** mouth parts brownish, sternum dark brown, broad with colorless setae arranged into semicircular lines. Coxae whitish. Abdomen greyish covered with colorless iridescent scales. **Epigyne:** see Figs 49, 51.

***Heliophanoides spermathecalis* sp. n.**

(Figs 50, 56)

Material: ♀ holotype, India (No. 838): Darjeeling, 1200 m, beaten from the bushes, 16 X 1967. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**FEMALE.** Resembling closely *H. epigynalis* sp. n. without any particularly striking external difference. Differs distinctly in internal structure of epigyne (Fig. 50) the spherical spermathecae being proportionally smaller, their copulatory openings piercing sclerotized walls larger. The median sclerotized plate joining both openings is shorter and does not extend beyond the posterior rim of spermathecae.

There is one more undescribed species in the Collection of the Hungarian NH Museum, Budapest (2 ♀♀, India (No. 438): Debrapani, Darjeeling District, W Bengal 1650 m, netted in the undergrowth in the indigenous forest, 31 V 1980, leg. TOPÁL), I abstain temporarily from its description.

Genus ***Heliophanus*** C.L. KOCH, 1833

An impotent Palaearctic and African genus, recently revidied by WESOŁOWSKA 1986; in India only single species.

***Heliophanus curvidens*** (O. P.-CAMBRIDGE, 1872)

(Fig. 48)

*Heliophanus berlandt* PRÓSZYŃSKI, ŻOCHOWSKA, 1981: 18, ff. 7-14 (D ♂♀);

*Heliophanus curvidens*: PRÓSZYŃSKI, 1982: 280-283, ff. 33, 36 (♂, ♀);

*Heliophanus curvidens*: WESOŁOWSKA, 1986: 45, ff. 538-548, 884-map (♂♀).

Material: 1 ♂, 1 ♀, India (No. 405): Kashmir, 5 km from Shrinagar, beaten from bushess, 1800 m, 26 V 1967. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

Known geographical distribution: Israel to Himalaya and Mongolia.

**Epigyne:** see Fig. 48.



**Hyllus pudicus** THORELL, 1895

(Figs 58-59)

*Hyllus pudicus* THORELL, 1895: 373 (D ♂♀);*Hyllus pudicus*: PRÓSZYŃSKI, 1984c: 64-65 (♂♀).

Material: 1 ♂, India (No. 376): Barlikapur, West Bengal, 7 V 1967 (attention - "possibility of mistake in date and locality"). Leg. TOPÁL. Coll. Hungarian NH-Museum, Budapest.

Known heretofore from: Burma [+ Malaysia ?], Minikoi, I. Sipora.

**Remarks.** Palpal organ almost identical with those of Burmese specimens shown by PRÓSZYŃSKI 1984c: 65 - differences in proportions of the bulbus may be due to optical shortening resulting from slightly diagonal position of the specimen during examination, differences in tibial apophysis dentition presumably due to individual variation.

**Measurements:** L. cphth.: 4.93; L. abd.: 4.83; L. e-f.: 1.99; H. cphth.: 3.15; W. e-f. I: 2.94; W. e-f. III: 3.57; W. cphth.: 4.30.

**MALE.** Spider with characteristic proportions of the body: large rounded, high cephalothorax (broadest at eyes III and somewhat behind - roughly between 2/7th and 4/7th of its length) and a narrow, long, gradually tapering abdomen, at its broadest part equal to the width of eye field at eyes III. Legs robust and short. **Cephalothorax** chestnut brown with blackened surroundings of eyes and slightly lighter yellowish median thoracal streak from fovea to hind margin. Almost bald now, with a few minute whitish scales and remnants of upright black thicker setae, apparently scattered previously over the dorsal surface. There is a broad belt of white scales on sides beneath eyes III - apparently rubbed out anteriorly and posteriorly to that area. **Abdomen** elongate, narrow, gradually tapering, with brownish grey wrinkled lateral margins of dorsal surface and lighter median streak, constricted in the middle by darker wedges and three times posteriorly. Blunt posterior end greyish brown, spinnerets dark brown. There are some colorless scales, poorly visible, which give some gleam, sparse thicker brown setae give "hairy" appearance. **Frontal aspect:** eyes anterior median have diameter twice of lateral ones, both pearl white. There are a few rows of whitish scales anteriorly across eye field and on face sides beneath eyes ALE and AME, slightly longer colorless scales form a "roof" over cheliceral bases; frontal surfaces of chelicerae also covered densely with similar scales - adpressed flat but arranged somewhat disorderly. These frontal surfaces of chelicerae limited medially by black sclerotized edge, running diagonally from touching point at the bases of chelicerae to the apical tip of each; median surfaces arranged diagonally and visible from anterior. Pedipalps fawn yellowish with sparse fringe of white bristles medially, there is a row of large scales basally across dorsal surface of cymbium. **Legs** brown, I longer. All covered sparsely with blackish setae ventrally on tibia and femur I. Remnants of white scales scattered over legs, apparently rubbed out on some segments. Spines on tibia I small, poorly visible ventral and lateral rows. **Palpal organ:** bulbus longer oval, cymbium apically longer, embolus arises at 8 hour position (Figs 58-59). **Ventral aspect:** chelicerae somewhat enlarged with single big inner tooth; maxillary plates, labium dark brown, coxae and sternum greyish brown. Abdomen ven-



trally dark greyish brown trapezium followed by thin yellowish margins; spinnerets greyish brown.

***Hyllus semicupreus* (SIMON, 1885) comb. n.**

(Figs 57, 60–61)

*Thyene semicuprea* SIMON, 1885c: 4, 29;

*Sandalodes semicupreus* SIMON, 1900g: 512;

*Sandalodes semicupreus* SIMON, 1903: 689, ff. 820, 821 [= A, B];

*Phidippus indica* TIKADER, 1974b: 122, f. 5–9 (D ♂♀), syn.n.

*Phidippus indica*: TIKADER, BISWAS, 1981: 92, f. 160–163 (♂♀)

*Sandalodes semicupreus*: PRÓSZYŃSKI, 1984c: 64–65 (F ♂♀).

Material: 1 ♂ India (No. 94): Molem, Goa, 18 II 1980, netted in undergrowth at brook in forest. Leg. TOPÁL. Coll. Hungarian NH-Museum, Budapest. 1♂ *Phidippus indica* TIKADER, 1974, Sibpur, Botanical Garden, Howrah, W. Bengal, 2 III 1969. Leg. det. B.K. TIKADER, coll. AMNH, New York = 1♂ *Hyllus semicupreus* (SIMON, 1885), det. J. PRÓSZYŃSKI, 8. VI. 90.).

Known distribution: India, Sri Lanka.

**R e m a r k.** I propose to reclassify this species from the genus *Sandalodes* Keyserling, 1883 because of general resemblance of the palpal organ and epigyne to other *Hyllus*, particularly *H. pudicus* THORELL, 1895.

**M e a s u r e m e n t s:** L. cphth.: 3.05; L. abd.: 3.60; L. e-f.: 1.38; H. cphth.: 1.66; W. e-f. I: 2.01; W. e-f. III: 2.22; W. cphth.: 2.63.

**MALE.** Medium size spider, its general appearance shown in Fig. 57. **Cephalothorax** high, rounded, broadest behind eyes III, brown with eyes lateral on black areas. Two spots of white setae on sides below eyes III, sparse scales on eye field. **Abdomen** long, tapering, with light median serrated area and dark grey margins. **Frontal aspect:** clypeus fawn with colorless setae. Chelicerae brown, basally with white scales. **Legs** dark, I longest and strongest. **Palpal organ** differs from *Hyllus pudicus* THORELL, 1895 in embolus arising at 4 hour (and not 8), surrounding posterior part of bulbus at the distance separated from it and longer, bulbus less elongate oval – more round, tibia short, tibial apophysis apically serrated but without longer dorsal spur (Figs 58–61).

***Hyllus* sp. cf. *semicupreus***

(Figs 62–64).

Material: 1 ♀ India (No. 836): West Bengal, Darjeeling, below North Point, 900 m, beaten from bushes, 15 X 1967. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**R e m a r k.** Proportions of epigyne and its internal structure resemble *Sandalodes semicupreus*: PRÓSZYŃSKI, 1984c: 64 but are not identical. The decision whether it is the same species or related one should be delayed until more material becomes available.

**M e a s u r e m e n t s:** L. cphth.: 3.78; L. abd.: 5.46; L. e-f.: 1.68; H. cphth.: 1.78; W. e-f. I: 2.20; W. e-f. III: 2.10; W. cphth.: 3.36.

**FEMALE.** Large spider with broad cephalothorax and large abdomen gradually narrowing and seeming thinner owing to its colour pattern and long



spinnerets. **Cephalothorax** yellowish with darker lines radiating from fovea. The posterior margin of eye field pigmented dark brown with fawn adpressed setae, there is a whitish yellow belt immediately behind it. Eye field fawn with eyes surrounding black, all covered with remnants of dense white adpressed setae, particularly dense and white immediately behind eyes I and between AME. Dark thin marginal line along edge of carapace. **Abdomen** long with white streak of guanine crystals impregnating lobes of the hepatic gland, both sides of that streak colorless, appear now yellowish grey. Marginal line blackish brown along posterior half of abdomen, fusing in front of spinnerets; anteriorly yellowish. Sides of abdomen yellowish with white setae, spinnerets dorsally blackish brown. **Frontal aspect:** eyes anterior surrounded with white setae – over clypeus particularly long and dense white setae, arranged horizontally, a few longer overhanging cheliceral bases; chelicerae yellow with thin colorless setae, single retrolateral tooth; pedipalps whitish yellow with thin colorless setae. **Legs** yellowish, I yellowish fawn, tibia-tarsus I-II slightly darker fawn; tibia I with 3 pairs of ventral and one additional prolateral spine. **Ventral aspect** yellowish; abdomen – mosaic of translucent silver guanine filled lobes of the gland, with elongate diamond shaped dark brown mark posteriorly. **Epigyne** (originally was blocked with waxy secretion) and its right spermatheca with channel – ventral and dorsal view are shown in Figs 62–64.

#### Genus *Imperceptus* gen. nov.

Minute jumping spider resembling externally *Euophrys* with epigyne more similar to *Heliophanus hamifer* SIMON, 1885 (cf. WANLESS 1983: 73 figs 24c–f; WESOŁOWSKA 1986: 37, figs 428–431) and internal structure of epigyne somewhat comparable with *Icius*, there are long accessory gland canals near copulatory openings. Cephalothorax somewhat higher than in *Heliophanus*, eye field slightly narrowing posteriorly (in *Heliophanus* distinctly broadened), cephalothorax narrower in relation to the eyes III. Unidentati.

#### *Imperceptus minutus* sp. n.

(Figs 65–66).

**Material:** ♀ holotype, India (No. 871): Ghum (Senchal Forest Reserve, 2200 m, from 10 pitfall traps in forest, 21 X 1967; 1 ♀ paratype, India (No. 768): same place, sifted litter, 6. X. 1967. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**Diagnosis:** minute spider resembling externally *Euophrys* with epigyne externally rather similar to *Heliophanus* (especially *curvidens*) but differing in appearance of spermatheca and especially by prominent accessory gland; it differs from *Heliophanus* in high cephalothorax with steep posterior thoracal wall.

**Measurements:** L. cphth.: 1.57; L. abd.: 1.92; L. e–f.: 0.79; H. cphth.: 0.96; W. e–f. I: 1.22; W. e–f. III: 1.18; W. cphth.: 1.36.



**FEMALE.** **Cephalothorax** high, highest at eyes III (difference between upper rim of eyes ALE and III = 0.35 mm or 36%) and after short stretch of flat surface, just behind fovea begins steep posterior thoracal slope. Brown with darker blackish brown eye field, lighter behind eye field, but there is no contrasting pattern. **Abdomen** globular, brown, yellow dotted, there are lighter median chevrons on paratype specimen. **Face** brown with clypeus bald, sparse row of colorless setae overhanging chelicerae, the latter and pedipalps light brown. **Legs** light brown with weak darker annulation, tibia I with three pairs of ventral spines. The species seems to be devoid of any distinct recognition characters except **epigyne** (Figs 65–66): pit like depression with sclerotized rims; there are two brown lateral angular sclerotizations on that rim in the paratype specimen, well visible on drawing of preparation of the holotype.

#### Genus *Jajpurattus* gen. n.

Very small spider which can be recognized by peculiar shape of pedipalpal femur (Fig. 70), embolus conical (Fig. 69). Cephalothorax with square appearance – broad and high with steep posterior slope and eye field gently sloping forward, abdomen dull grey with indistinct chevron pattern (Fig. 67). Chelicerae fissionati (Fig. 68).

#### *Jajpurattus incertus* sp. n.

(Figs 67–71)

Material: ♂ holotype, India (No. 1009): Daitari, Jajpur-Keonjhar District., West Bengal, 1000 m, 22 XI–3 XII. 1967, from 34 pitfall traps in forest. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**M e a s u r e m e n t s:** L. cphth.: 1.26; L. abd.: 1.18; L. e–f.: 0.63; H. cphth.: 0.71; W. e–f. I: 1.01; W. e–f. III: 0.92; W. cphth.: 1.01.

**MALE.** Very small spider with palpal organ expanded due to maceration. General coloration dark and dull. **Cephalothorax:** broad and high, its flat surface ends abruptly half way the thorax and gives the animal a square appearance; dark greyish brown with eye field almost black except median brown streak; sparse, minute colorless setae. **Abdomen** grey and yellowish grey, with a pattern of thick grey mottled yellowish lines, separated by yellowish areas. There are two pairs of indistinct yellowish spots separated by grey areas in the anterior half of abdomen and a few transversal lines in the posterior part. **Frontal aspect:** face dark, eyes surrounded ventrally by minute whitish setae, dorsally fawn. Clypeus low, brown, bald. Chelicerae small, their median apical parts depressed, apical edge almost horizontal. **Ventral aspect:** Inner cheliceral tooth long with two cusps on left chelicera and only one cusp developed on the right one – therefore the spider can be considered a fissionati. Sternum broad, round, greyish brown. Coxae, femora, patellae and tibiae (ventrally) greyish brown. Abdomen ventrally yellowish grey. Legs brown or greyish brown with lighter annuli; tarsi lighter – yellowish. Tibia I with 3 pairs of ventral spines. Pedipalps: femur bent with basal protuberance (Fig. 70), fawn greyish grey; tibia



and cymbium greyish brown. Clusters of white setae apically on femur and antero-laterally on patella and tibia. **Palpal organ**: preserved in an expanded form, due to maceration, embolus in a form of conical needle, broad at the basis, slightly shorter than length of the bulbous (Fig. 69).

Genus *Langona* SIMON, 1901.

The genus contains three species described from S India from ♀♀ only (see HĘCIAK, PRÓSZYŃSKI 1983: 209–233), which do not allow any suggestions on possible position of the male specimen described below. In the present state of knowledge of these spiders it seems to be lesser evil to describe this specimen as a new than to leave it without notice.

*Langona goaensis* sp. n.

(Figs 72–74)

Material: ♂ holotype, India (No. 94): Molem, Goa, 18 II 1980, netted in undergrowth at brook in forest. Leg. TOPAL. Coll. Hungarian NH Museum, Budapest.

**D i a g n o s i s**: a typical *Langona* (general appearance – Fig. 72) differing from all remaining males in that genus in much broader tibial apophysis (in lateral view) and by presence of peculiar fan like radiating setae dorsally on cymbium – long, flat, colorless, light reflecting, with transversal darker thin stripes pattern. In other species cymbium covered dorsally either by scales or dark blade like setae.

**M e a s u r e m e n t s**: L. cphth.: 2.77; L. abd.: 2.63; L. e-f.: 1.04; H. cphth.: 1.38; W. e-f. I: 1.52; W. e-f. III: 1.52; W. cphth.: 2.01. Legs III longer than the I and IVth ones.

**MALE. Cephalothorax** with two white streaks of setae, characteristic for *Langona* (Fig. 72), merging on the anterior half of the eye field which is also white, with a broad dark area between them; sides brown, under eyes lateral blackish, there are white setae on lower half of sides in their anterior half. **Abdomen**: median stripe white, two marginal stripes blackish brown, sides white. **Frontal aspect**: face yellow, on its upper part and around eyes I grey setae with fawn shade. Clypeus yellow with colorless setae, its height equal to  $\frac{2}{3}$ rd of diameter of AME. Chelicerae slender yellow, median side brownish forming a small cavity with brown hairs; there are silver and colorless scales on tips and on external sides of chelicerae. **Palpal organ**: pedipalps whitish, tibia with characteristic for the genus blade like long black setae, cymbium dorsally with fan like radiating setae, long, flat, colorless, light reflecting with transversal darker thin stripes pattern (Figs 73–74).



Genus *Madhyattus* gen. n.

Minute jumping spider characterized by high cephalothorax with abrupt and steep posterior thoracal wall (Fig. 79), epigyne resembling some *Pseudicius*. Abdomen covered with light reflecting scales.

*Madhyattus jabalpurensis* sp. n.

(Figs 76–78, 79)

Material: ♀ holotype (epigyne in microscopic slide), 1 ♀ paratype, India (No. 275): Jabalpur (outskirts), Madhya Preadesh, beaten from bushes in dry valley with sparse secondary forest, 29 III 1967. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**R e m a r k.** Epigyne, particularly its internal structure, resemble *Pseudicius koreanus* WESOŁOWSKA, 1981a: 60–61, ff. 52–55 (also BOHDANOWICZ, PRÓSZYŃSKI 1987: 67–71, ff. 72–73 as *Icius koreanus*); however cephalothorax is much higher and the stridulatory setae under eyes lateral are lacking which excludes it from the genus *Pseudicius*. Of the other hand this kind of epigyne may be also an intermediate stage in the passage to the globular spermathecae in the genus *Heliophanoides* gen. n. from Bhutan and India.

**D i a g n o s i s.** Small spider with dark brown cephalothorax ornate with three vertical white lines of setae from carapace margin upwards, a spot of white scales behind eyes III; segments of leg I white except dark brown femur, but prolateral surfaces of all these segments dark brown. Abdomen elongate flat, whitish to greyish white with brownish median line and a pair of indistinct brown spots in the middle; covered with flat, adpressed, light reflecting colorless setae.

**M e a s u r e m e n t s:** L. cphth.: 1.31; L. abd.: 1.57; L. e-f.: 0.61; H. cphth.: 0.66; W. e-f. I: 0.83; W. e-f. III: 0.92; W. cphth.: 1.01.

**FEMALE. Cephalothorax:** dark brown with rough surface; dense small spots of white setae in a shallow depression behind eyes III and a small patch of white setae behind fovea at the edge of the thoracic slope. Lateral surfaces with three vertical columns of white setae arising from above coxa III, II and I. **Abdomen** elongate and flat, narrowing only near the end, covered with whitish adpressed light reflecting setae both on white marginal spots (along anterior half of abdomen and posteriorly) and darker brownish grey areas, partially changing their appearance. The main darker features are: a) thin dark median line, b) a pair of indistinct brown spots in the mid-length of abdomen, c) slightly darker area from pair of dark spots over the anterior half of the abdomen. There is a bunch of short dark bristles along the anterior edge of abdomen. **Frontal aspect:** eye field appears blackish, clypeus brown and bald, reduced to almost nil under AME, beneath eyes ALE fawn with a few white adpressed setae and two longer blackish bristles stretching almost horizontally beneath AME. Eyes I set very closely without free space left between; diameter of AME twice that of ALE, ALE aligned to dorsal rim of AME. Chelicerae brown, pedipalps whitish, dorsal surfaces of patella-tarsus I whitish (while prolateral surfaces of these segments dark brown); femur I dark brown. **Legs** whitish except dark brown femur I, broad



brown streak along prolateral surfaces of patella-tarsus I and lateral surfaces basally on femora II-IV. Tibia I thin, thinner than patella I, with walls parallel without any visible swelling, sparse stouter colourless setae ventrally, spines on tibia I invisible, I am not sure whether they exist at all. Leg I shorter than leg IV, there is no similarity to leg I in *Pseudictius*. **Ventral aspect:** mouth parts, sternum, coxae III-IV greyish brown, coxae I-II pale yellowish. Abdomen greyish brown, slightly lighter than sternum. There are two white spots immediately in front of brownish grey spinnerets. **Epigyne:** see Figs 77-78; in one specimen rim of copulatory opening is more sclerotized.

### Genus *Myrmarachne* MACLEAY, 1839

Genus *Myrmarachne* presents well known difficulties for any taxonomist because of large number of seemingly very similar forms – there is already well over 100 species described. Their similarity comes from mimicking the same protective model – ants, of the other hand it is not certain whether some morphological differences are not result of individual variation. The genital organs of ♂♂ appear remarkably similar in majority of species, the genital organs of ♀♀ are more diversified in their internal structure, visible only after preparation (maceration, cleaning of soft tissues, staining in Chlorazol Black E alcohol solution, clearing with Toluol or Clove Oil, mounting in temporary or permanent microcopic slide). It seems that in many ♀♀ these differences concern mainly membranous soft channels between copulatory openings and sclerotized channels – the latter constant for many species; unfortunately just these membranous structures are overlooked if not cleared and stained properly or damaged during too hasty removal of remnants of soft tissues. A lot of light on identification of African *Myrmarachne* has been thrown by WANLESS 1978a and on Vietnamese by ŽABKA 1985. Unfortunately there is at least 20 species of *Myrmarachne* described from India itself or adjacent areas, usually unrecognizable by existing descriptions and drawings, the actual number of species living there may be much higher, simultaneously a number of forms may be expected to appear to be synonyms. Anybody describing or identifying *Myrmarachne* from that area before good revisionary study is carried out and completed should realize the very high risk of erroneous interpretations. On the other hand accessible identified specimens (even erroneously) may promote such revisionary studies.

### *Myrmarachne daitarensis* sp. n.

(Figs 80-81, 83-89)

Material: ♀ holotype, ♂ allotype, 1 juv. ♀ India (No. 376) – mistaken label, no data; 1 ♀ paratype, India (No. 96): Daitari, Jajpur-Keonjhar District, Orissa, 31 XII 1966, beaten from bushes in forest near brook. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**R e m a r k.** ♀ resembles closely *M. globosa* WANLESS, 1987 from Vietnam and Zaire – as illustrated by ŽABKA 1985: 334 ff. 328-331, from which it differs in



minor details of epigyne and its internal structures, and in constricted abdomen, which in *M. globosa* is most curiously globular.

**Measurements** (♂, ♀ No. 96): L. cphth.: 2.81, 2.56; L. abd.: 1.37, 3.25; L. e-f.: 1.06, 0.94; H. cphth.: 1.25, 0.87; W. e-f. I: 1.25, 1.19; W. e-f. III: 1.37, 1.31; W. cphth.: 1.37, 1.31; L. of chelicerae 3.00.

**MALE.** ♂ exactly matches ♀ (see below) in all external features except enormously expanded **chelicerae** – flattened dorsally with apical 1/3rd swollen club like with blackish brown apical tip, remaining 2/3rd parallel; width of swollen part twice that of narrower part. Chelicerae yellow with internal surfaces dark brown; with 10 small retrolateral (outer) teeth gradually getting bigger posteriorly, prolateral 3 evenly spaced in the apical half, the third being the biggest (about twice the height of the posterior retrolateral); fang smooth, extends along the whole length of chelicerae. No darkening on lateral surfaces of femora or any other segments of leg I. General appearance of cephalothorax and abdomen shown in Figs 80–81. **Palpal organ:** embolus relatively thick making single coil in the anterior half of bulbus only; tibial apophysis broad and short, ventrally with a notch, laterally pointed sharp (Figs 83–86).

**FEMALE.** Light coloured. **Cephalothorax** yellow to yellowish fawn, black surrounding of eyes lateral and dark brown line behind eyes AME. With one constriction vertically (behind eye field) and two constrictions laterally (behind eye field and between coxae II and III). Eye field anteriorly bright yellow – possibly an artifact. Petiolus divided in the middle, yellow with thin brown edges. **Abdomen** light greyish, constricted anteriorly with constriction saddle shaped, preceded by a distinct protuberance and by two broad darker pigmented wrinkled bands: one in front and second behind the constriction. There is a whitish streak dorsally along anterior half of the abdomen, expanding sideways behind constriction; swollen posterior half of abdomen greyish. Spinnerets yellowish grey. **Frontal aspect:** eyes AME expands over almost the whole height of face leaving almost no clypeus, there are sparse white setae beneath AME. Anterior surface of chelicerae runs originally almost horizontally then bent vertically down making a small bulge – beneath surface flat and broad, relatively short. **Legs** pale yellowish, there is a thin dark line along prolateral surface of the whole femur I (in ♀ No. 376) or limited to its apical half only (in ♀ No. 96); there is also weak inconspicuous darkening along retrolateral surface of femur, patella and basal part of tibia I. **Ventral aspect** generally yellowish, abdomen pale greyish. Sternum generally narrow: anteriorly diamond shaped and broadened between coxae I and II, then constricted and broadened again in the break space between coxae II and III – from there thin and long triangular process runs behind – up to coxae IV. **Epigyne** unusual in sclerotization of rims of membraneous openings and well visible roof of vagina posteriorly to openings (Fig. 86), spermathecae simple spherical broadenings of almost straight sclerotized canals without any sclerotized coils characteristic of majority of *Myrmarchne* – these characters resemble closely *M. globosa* WANLESS, 1987 as illustrated by ŽABKA 1985: 334 ff. 328–331. Instead of narrow membraneous channels located dorsally to membraneous openings they form complicated coils (Fig. 88).



***Myrmarachne jajpurensis* sp. n.**

(Figs 90-92)

Material: ♀ holotype, India (No. 925): Daitari, Jajpur-Keonjhar District, Orissa, 23 XI 1967, sifted litter in forest. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**M e a s u r e m e n t s:** L. cphth.: 2.81; L. abd.: 2.37; L. e-f.: 1.06; H. cphth.: 0.94; W. e-f. I: 1.31; W. e-f. III: 1.31; W. cphth.: 1.25.

Species very similar to ♀ *Myrmarachne daitarensis* sp. n. from which it differs in slightly darker yellow coloration of cephalothorax with absence of very light area of anterior eye field (if this is not an artifact), lack of second constriction on the cephalothorax, different shape of sternum which is broader with very short posterior sternal salient, shorter broadening between coxae II and III, different number and size of tibial I spines – here being seven with spines 1 to 5 ending near the apical end of the segment – which means that the first one is very short and the following gradually longer, the fifth one being the longest and equal to about half length of the segment. The spines on metatarsus I – two pairs, are also very long and reach near apex of the tarsus. This pattern of spines is not repeated on the next pairs of legs which appear to be devoid of spines.

In ♀♀ *Myrmarachne daitarensis* sp. n. the spines on tibia I are weak, short and do not touch themselves – there are 4 pairs of them, and also two pairs of slightly stronger spines – but not as strong as in the species described here. There is a dark grey streak along ventro-prolateral surface of femur I with very weak trace on patella I and still weaker repeated on femur II. Abdomen with soft tissues shrunken, appears similar to the previous species. Epigyne resembling *Myrmarachne daitarensis* sp. n. from which it differs in details of spermathecae and absence of vaginal roof, and the long membraneous channel – unfortunately uncoiled during preparation (Figs 91-92).

***Myrmarachne kiboschensis* LESSERT, 1925**

(Figs 93-98)

*Myrmarachne kiboschensis* LESSERT, 1925a: 441 ff. 18-22 (D ♂♀);

*Myrmarachne kiboschensis*: WANLESS, 1978a: 76-80, ff. 47A-G; 48A-K;

*Myrmarachne kiboschensis*: ŽABRA, 1985: 247, f. 337-341 (♂).

Material: 1 ♂, 2 ♀♀, India (No. 36): Nalbani (N. Salt Lake) near Calcutta, West Bengal, 7 XII 1966, netting in grasses. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

Known distribution: Africa to Vietnam.

**M e a s u r e m e n t s:** (first – ♂, second – ♀): L. cphth.: 1.69, 1.94; L. abd.: 1.50, 2.50; L. e-f.: 0.69, 0.75; H. cphth.: 0.81, 0.81; W. e-f. I: 0.81, 0.94; W. e-f. III: 0.94, 1.06; W. cphth.: 1.12, 1.06; L. of chelicerae 1.56.

**MALE.** Small dark *Myrmarachne* spider with chelicerae almost as long as cephalothorax, almost parallel, slightly broadened in their anterior 1/3rd, their dorsal surfaces flat. **Cephalothorax** not only constricted but divided by a sort of a furrow, laterally and dorsally emphasized by clusters of white adpressed setae; dark brown covered with sparse and delicate colourless setae; with



anterior half of eye field and basal half of chelicerae lighter. **Petiolus** short, its sclerite not divided. **Abdomen** dark brown, shining, covered by two sclerites – scuta: the anterior covering  $\frac{1}{3}$ rd of abdomen, inclined, its upper edge darkened, separated from the posterior sclerite by greyish membrane; the posterior one covers the remaining part of the abdomen. **Frontal aspect**: face brown covered sparsely with colorless setae running horizontally. **Legs** greyish brown, leg III and dorsal surfaces of patellae–tarsi I–IV whitish; prolateral surfaces of femur, patella, tibia I dark brown, similar darkening on femur II. Tibia I spineless. **Palpal organ**: embolus encircles the whole bulbus (Fig. 95); tibial apophysis not twisted into usual spiral, conical and rather robust, with ventral edge almost straight and dorsal one sloping and slightly waving (Fig. 96). **Ventral aspect**. Chelicerae with 6 small teeth externally and 5–6 internally, the fang somewhat bent ventrally in the  $\frac{1}{3}$ rd of its length. Pedipalps, mouth parts and sternum greyish brown; coxae whitish; abdomen greyish. Sternum relatively wide (Fig. 97).

**FEMALE** (dark one). **Cephalothorax** blackish brown with deep single constriction, deepened by a narrow furrow with remnants of whitish scales. **Petiolus** with divided sclerite, the anterior one being larger and darker. **Abdomen** oval, broad, uniformly dark grey with scarce indistinct colorless setae. There is no constriction in one specimen and only a shallow indistinct lateral at about  $\frac{1}{5}$ th of length in the second specimen. Both specimens have anterior abdominal sclerites. **Frontal aspect** dark brown with clypeus very narrow covered with indistinct horizontal setae. **Legs** dark brown with lighter whitish sides of patellae IV and basally ventral surfaces of femur II. **Ventral aspect**: Coxae I–II whitish, III dark brown, IV dark brown with a whitish spot ventrally. Sternum dark greyish brown. **Epigyne** with two separate small round membranous “windows” instead of usual single one, separated by space slightly narrower than diameter of either of “window”, internal sclerotized channels not visible, with exception of two small oval spots in front of “windows” (see Fig. 94). Posterior edge of epigyne shallowly and narrowly curved.

### *Myrmarachne* sp. 1

(Fig. 98)

Material: 1 ♀, India (No. 36): Nalbani (N. Salt Lake) near Calcutta, West Bengal, 7 XII 1966, netting in grasses. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

Cephalothorax light brown, abdomen light greyish yellow with constriction. Epigyne with two separate small oval membranous “windows” arranged slightly diagonally and more narrow than in *Myrmarachne kiboschensis*, separating space also narrower, internal sclerotized channels well and prominently visible, also two small oval spots in front of “windows” (see Fig. 98). Posterior edge of epigyne straight.



***Myrmarachne* sp. 2**

(Fig. 82)

Material: 1 ♀, India (No. 452): Pesoke, Darjeeling District, West Bengal, 800 m, 3-4 VI 1980, netted in undergrowth of forest. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

Light coloured. No preparation or measurement taken yet. Epigyne resembles superficially *Myrmarachne lugubris* KULCZ. but instead of curved edge there is a sclerotized spot at the posterior edge of epigyne (Fig. 82).

Genus ***Orissania*** gen. n.

Average size and shape jumping spider with relatively high thorax and steep posterior thoracal wall, eyes II separated from III by shallow depression. It can be recognized by its unique epigyne with broad, bell shaped vaginal roof in the middle of epigyne, with two lateral arches protecting entrance to the copulatory openings, spermatheca two chambered. Chelicerae unidentati. Type species *Orissania daitarica* sp. n.

***Orissania daitarica*** sp. n.

(Figs 99, 101-105)

Material: ♀ holotype, India (No. 99): Daitari, Jajpur-Keonjhar Distr., Orissa, 31 XII 1966, beaten from bushes near brook. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**R e m a r k.** Several years of storage have changed external appearance of internal structure of epigyne in the permanent Canada Balsam slide: the external bell like cover has become transparent and practically invisible except for skeletal elements forming network resembling its original shape but smaller, spermathecae consist of two connected spherical bodies each; the opening is long slit between two prominent, heavily sclerotized, lateral half crescent plates, ear like.

**M e a s u r e m e n t s:** L. cphth.: 2.97; L. abd.: 3.32; L. e-f.: 1.22; H. cphth.: 1.57; W. e-f. I: 2.06; W. e-f. III: 2.01; W. cphth.: 2.45.

**FEMALE.** The external appearance gives no recognition characters, it resembles somewhat *Yaginumaella*, from which it differs in epigyne. **Cephalothorax** of average proportions, brown with lighter broad streak from fovea to hindmargin covered with fine white adpressed setae; remaining dorsal areas of thorax with dark adpressed setae, sides lighter yellow. Surrounding of eyes black with colorless setae. **Abdomen** greyish mottled yellow with indistinct yellowish median streak expanded in the posterior part of the abdomen. Covered sparsely with fine brown bristles. Spinnerets yellowish with dark grey dorsal surface. **Frontal aspect:** eye field, clypeus and chelicerae light brown, eyes surrounded white setae except reddish laterally along the rim of eyes ALE, beneath ALE two parallel white lines of short scales, clypeus almost bald; chelicerae covered with sparse whitish setae, pedipalps pale yellow with long white setae. **Legs** I brown, remaining fawn with weak annulation; tibia I with 3 pairs of ventral setae.



**Ventral aspect:** mouth parts light brown, chelicerae unidentati; sternum and coxae yellow. Abdomen ventrally yellowish grey with two marginal darker grey lines; spinnerets yellow with brownish grey setae. **Legs** light brown, indistinctly annulated, robust, III and IV almost equal in length. **Epigyne** with broad, bell shaped vaginal roof in the middle, with two lateral arches bordering entrance to the copulatory openings, spermatheca two chambered (Figs 101–105). ♂ unknown.

### Genus *Pancorius* SIMON, 1902

Contains 13 species, all in the Oriental Region, one of which has been actually quoted also from India itself. Medium size spiders with relatively simple palpal organs and epigyne consisting of simple sclerotized plate ending some distance before epigastric furrow, spermathecae in studied specimens two chambered without developed channels. One is tempted to consider "*Maevia himalaya*" TKADER, 1967 as belonging to the genus *Pancorius* on the basis of characters which could be deduced from drawings of TKADER 1967: 118–119, ff. 2a–b, without specimen however this is only a hypothesis.

### *Pancorius darjeelingianus* sp. n.

(Figs 106–108)

**Material:** ♀ holotype, India (No. 384): 21 V 1980, Sukna, Darjeeling District, W. Bengal, Rest House and Wild Life Sanctuary, 180 m; 1 ♀ paratype, India (No. 857+340 – mixed up samples): Lopchu, Darjeeling District, W. Bengal, Tea Estate, 1500 m, beaten from the bushes in forest, 1966–1967 [no exact date given]. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**Measurements** (♀ paratype): L. cphth.: 3.88; L. abd.: 4.41; L. e–f.: 1.78; H. cphth.: 2.31; W. e–f, I: 2.62; W. e–f, III: 2.52; W. cphth.: 3.15.

**FEMALE. Cephalothorax** dark brown with lighter brown diamond shaped mark in the fovea area, as broad as eye field but shorter than in ♂ of related species described below. Median area of eye field lighter chestnut brown, eyes surrounded with black, no white streak on cephalothorax, only minute, sparse and poorly visible setae. **Abdomen** greyish brown mottled yellowish with median pale yellow streak. The darker marginal belts of dorsal surface covered with brown adpressed setae making darker brown spots, there are three pairs of thin marginal white spots. Median lighter streak in the posterior half of abdomen consists of 5 fused chevrons, marked by constrictions. Spinnerets blackish brown. **Frontal aspect:** face dark brown, chelicerae blackish brown, their anterior walls bulging. There is a sparse line of colorless setae along edge of clypeus, overhanging chelicerae, much less conspicuous than in ♂. Sparse colorless setae scattered over surface of chelicerae. **Ventral aspect:** chelicerae apically broad, unidentati, sternum and coxae light brown to fawn; abdomen fawn greyish with darker broad median area, greyish brown. Spinnerets ventrally greyish fawn. **Epigyne** and its internal structures are shown in Figs 107–108.



***Pancorius magnus* ŽABKA, 1985**

(Figs 109-112)

*Pancorius magnus* ŽABKA, 1985: 422, f. 387-400 (D♂♀).

Material: 1 ♂ paratype, India (No. 849): Kurseong, Darjeeling District, W. Bengal, 1000 m, 18 X 1967, beaten from bushes in forest. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**Remark.** Species described from Vietnam and quoted already from India by ŽABKA 1985: 422, ff. 387-400.

**Measurements:** L. cphth.: 3.57; L. abd.: 3.46; L. e-f.: 1.78; H. cphth.: 2.41; W. e-f. I: 2.62; W. e-f. III: 2.41; W. cphth.: 3.15.

**MALE. Cephalothorax** dark brown with large broad diamond shaped light area from fovea to mid-thorax – its posterior limits transformed into broad semicircle. Eyes surroundings black. Sparse remnants of minute adpressed setae remain in some areas – mainly black, less frequently whitish. **Abdomen** partly macerated, with median streak light and lateral streaks grey mottled yellowish. There are a few small brown bristless and traces of numerous fallen out. Minute adpressed colorless setae remained in few areas. Spinnerets dark greyish brown. **Frontal aspect:** eyes I pearl surrounded by reddish setae with white tips. A row of stout white setae overhanging chelicerae. Chelicerae of normal length but broad and robust, with large prolateral tooth at the end of apical horizontal edge; covered medially with white short setae, longer near median edge. **Legs** I longer, brown, with metatarsus, tibia and patella covered ventrally with a fur of short black setae. There is also a bunch of similar black setae on retrolateral ventral edge apically on femur I. Tarsus I contrasting yellow. Legs II similarly coloured but the fur less dense; legs III-IV fawn. **Palpal organ** simple, with oval bulbus and short embolus located in the 11 hour position and slightly dilated in its mid length; tibial apophysis simple (Figs 111-112). **Ventral aspect:** outer edges of maxillary plates bent with outer angles drawn out and rounded. Maxillary plates and labium light chestnut brown, sternum fawn, coxae light brown to light fawn. **Abdomen** light fawn to grey with median area darker grey.

***Pancorius submontanus* sp. n.**

(Figs 113-124)

Material: ♂ holotype, ♀ (No. II) allotype, India (No. 857+340 – mixed up samples): Lopchu, Darjeeling District, W. Bengal, Tea Estate 1500 m, beaten from the bushes in forest (Senchal Reserve Forest, 2200 m) 19 IV 1967, sifted moss on tree trunks. Leg. TOPÁL. Coll. Hungarian NH-Museum, Budapest. ♂ ♀ paratypes "23616 *Hyllus* vel *Pharacocerus* b. ses pl. de Hímal". [= bases plateau de Himalaya] – coll. SIMON, MNHN, Paris.

**Remark.** Because these ♂♂ and ♀♀ were collected and kept together in two independent collections I assume provisionally that they are conspecific.

**Measurements** (first – ♂, second – ♀): L. cphth.: 4.62, 3.36; L. abd.: 4.51, 3.88; L. e-f.: 1.89, 1.78; H. cphth.: 2.73, 2.10; W. e-f. I: 2.94, 2.52; W. e-f. III: 2.73, 2.52; W. cphth.: 3.36, 3.04.



**MALE.** Large spider with general outline of the body comparable with *Telamonia festiva* but not with *Hyllus pudicus* from which it differs in cephalothorax not rounded, eye field slightly narrowing posteriorly (and not broadening), abdomen oval and only indistinctly narrower than thorax, spines on tibia I long, robust and striking; there are no diagonal ridges on chelicerae. It is apparently congeneric with ♂ of *Pancorius magnus* ŽABKA, 1986 from Vietnam and possibly conspecific with ♀ allotype, specimen (♀ No. I) from the same sample. **Cephalothorax** dark brown with diamond shaped large whitish spot from fovea to half of the length of the thorax and broad belt of white adpressed setae along sides – just above ventral margin – from beneath eyes III to the petiolus area. There are some white scales on diamond spot and some black ones on dark areas, the largest part of surface, however, being bald now. **Abdomen** oval, greyish, wrinkled, mottled yellowish fawn, darker posteriorly, with paler yellowish median streak about ¼th of width of abdomen, beginning and ending in some distance from both apexes of the abdomen. There are sparse fine brownish bristles scattered over the abdomen and a few remaining inconspicuous colorless adpressed setae. Spinnerets brown. This pattern is roughly comparable with that in ♀ and also in *Pancorius magnus*, except that these have no lateral white belts on cephalothorax. **Frontal aspect** brown with chelicerae dark brown, eyes pearl colored surrounded with inconspicuous reddish setae. White setae over clypeus beneath eyes I median growing diagonally half upright and are directed horizontally – they do not overhang chelicerae. No white setae on chelicerae. Chelicerae of normal proportions with rounded frontal surfaces depressed medially, their apical edge runs almost horizontally and ends with two black prolateral teeth hidden between setae. They resemble chelicerae in ♀ which however have some sparse white setae. Chelicerae in *P. magnus* of the same length but much broader and covered with white scale like setae. Pedipalps yellowish fawn, somewhat broader than in *P. magnus*. **Ventral aspect:** chelicerae dark brown, unidentat. Maxillary plates and labium dark brown; sternum brown lighter centrally; coxae greyish brown. In ♀ and in ♂ *P. magnus* pattern similar but lighter. **Abdomen** – large trapezium almost black, margins lighter grey. In ♀ and in ♂ *P. magnus* central trapezium also darker but the whole abdomen much paler. Spinnerets brown in all 3 forms, their special feature: outer edge of maxillary plate bent and external angle somewhat expanded. **Legs** fawn with patellae and tibiae brown, tibia – patella I dark brown. Spines large, dark brown and conspicuous, on tibia II there are four ventral and two lateral on each side (on tibia I these are poorly visible on dark background). There is sparse black fur of thin and short setae ventrally on tibia and patella I, the fur is not visible in ♀ but distinct in *P. magnus*. **Palpal organ:** see Figs 113–117.

**FEMALE.** **Cephalothorax** yellowish fawn, median thoracal area paler, eye field fawn, eyes surroundings black; sparse remnants of tiny whitish and dark adpressed setae. **Abdomen** with characteristic median white streak of adpressed white setae, followed laterally by fawn setae, posteriorly reddish brown; sides and anterior tip whitish, with mosaic pattern of bunches of brown adpressed setae; sparse short brown bristles scattered over abdomen; spinnerets long, yellowish fawn. **Frontal aspect:** eyes surrounded with white; clypeus fawn



covered with white setae, arranged mostly horizontally, a few of them overhanging chelicerae. Chelicerae twice longer than diameter of AME, yellow with sparse fine colorless setae. **Legs** yellowish, I and II yellowish fawn, the I being lighter; spines on tibia I: retrolaterally 4 short ventral spines, prolaterally three ventral (of which two longer) and close to them two lateral (of which the first, between first and second ventral, is long, the second very short). On metatarsus I two pairs of long ventral spines. **Ventral aspect** yellowish, there is a broad longitudinal grey area along abdomen divided medially by two thin whitish lines. **Epigyne**: sclerotized plate located in the anterior half of the epigyne, copulatory opening diagonal slits; there are small lobes at the posterior edge of the sclerotized plate which appear to be sclerotized pockets (Figs 118–121, 123–124).

***Pancorius tagorei* sp. n.**

(Figs 125–128)

Material: ♀ holotype, ♂ allotype, India (No. 836): Darjeeling District, West Bengal (below North Point, 900 m), beaten from bushes, 15 X 1967. Leg. TOPAL. Coll. Hungarian NH Museum, Budapest.

**Measurements** (♂, ♀): L. cphth.: 3.15, 3.57; L. abd.: 3.04, 3.78; L. e-f.: 1.47, 1.68; H. cphth.: 2.20, 2.31; W. e-f. I: 2.31, 2.41; W. e-f. III: 2.56, 2.31; W. cphth.: 2.62, 2.73.

**MALE.** Resembles closely *Pancorius magnus* in dark brown coloration of cephalothorax with lighter brown spot (anteriorly diamond shaped, posteriorly semicircular), greyish coloration of abdomen with lighter median streak, dark brown legs I–II with black fur of setae ventrally on tibia–patella I and related wall of black setae apically on ventral edge of femur I, broadening of blackish brown chelicerae covered anteriorly with short white setae – mainly apically and medially. The dimensions of specimens of both species are comparable and palpal organs are similar, with indistinct differences in proportions. Differs from *Pancorius magnus* in:

- details of abdominal pattern which is lighter and consists of two pairs of dark spots: one smaller median and one larger (extending over  $\frac{1}{3}$ rd of abdomen) located posteriorly on marginal darker streaks; the light streak has 4–5 indistinct darker chevrons in the posterior half of abdomen; the mottling is less distinct;
- broadening of chelicerae slightly less striking, large prolateral tooth smaller, the posterior surface protuberance less striking;
- differences in palpal organ: embolus smaller and thinner, bulbus slightly broader, cymbium slightly shorter, tibial apophysis slightly broader (Figs. 125–126).

**FEMALE.** Differs from ♀ *Pancorius submontanus* in being smaller, the general appearance is comparable. **Cephalothorax** brown with lighter spot in the fovea area (narrower than in ♀♀ *Pancorius submontanus* but longer) expanding up to hindmargin. Abdomen more greyish, with marginal  $\frac{2}{3}$ rd anteriorly darker – dark brown and with posterior large dark marginal spots, lighter area in the middle expands over the whole width of abdomen but has a pair of small dark spots in the middle, the median streak along posterior half of abdomen divided by four



darker chevrons. The pattern resembles closely that in ♂, differs from those in ♀♀ No. 857+340 where median streak is continuous without chevrons and has only constrictions: marginal posterior spots present, the middle ones are absent. **Frontal aspect** comparable with ♀♀ *Pancorius submontanus*. **Epigyne**: posterior edge of sclerotized plate comes closer to the epigastric furrow than in related species, is shallowly carved with distinct vaginal roof between spermathecae; copulatory openings semilunar lead directly to posterior spermathecal chamber without any channel, the posterior chamber connected with anterior one by a short sclerotized channel swollen in second half into small intermediate round chamber, the accessory glands in a form of a very prominent flattening near terminal opening of spermatheca and fertilization channel (Figs 127–128).

### Genus *Pandisus* SIMON, 1900

Five species of this genus known from Madagascar have been recently revised by WANLESS 1980d, hence relatively better understood, four remaining known from Western Hemisphere are much less known. To my knowledge not yet reported from India or the Oriental Region.

### *Pandisus indicus* sp. n.

(Figs 24, 27–28)

**Material**: ♀ holotype, India (No. 929); Jajpur-Keonjhar District., Orissa, beaten from bushes in forest, 23 XI 1967. **Leg.** TOPAL. Coll. Hungarian NH Museum, Budapest.

**Remarks**. The general appearance, including shape of cephalothorax with constriction anteriorly in the eye field region and long thin legs, does not resemble *Salticidae*, rather *Linyphiidae*. Eyes of *Salticidae* type with ALE drawn back and forming additional row of eyes, they are also located  $\frac{1}{2}$  of their diameter above eyes AME. Diameter of AME 2.5 that of ALE (as well as diameter of eyes III). Eyes II minute, separated from ALE by their diameter (and 2 diameters from eyes III) but located on the edge of the same black field. Small white spider. Eyes III much narrower than ALE. Legs long, thin, whitish, ornate with small blackish spots on retrolateral surfaces of tibiae I–III (one apically and one basally) on tibia IV only one – apical and much weaker. Tibia I with 6 long ventral spines: the 1–4 gradually longer, the 5–6 comparatively shorter. Chelicerae slender, inclined backward – after breaking out one can see 5 minute prolateral teeth to whom correspond retrolateral minute dots – which may be microscopic teeth but cannot be distinguished as such under relatively low maximum magnification power (62.5 times) available for me.

**Measurements**: L. cphth.: 1.51; L. abd.: 2.02; L. e-f.: 0.55; H. cphth.: 0.63; W. e-f. I: 0.88; W. e-f. III: 0.63; W. cphth.: 0.88.

**FEMALE**. **Cephalothorax** white, with elongated scales visible on black surroundings of eyes. **Abdomen** white (posteriorly smashed and bent). Spinnerefts whitish. **Frontal aspect**: whitish, ALE bluish with blackish margins. Clypeus white with whitish vertical scales. Chelicerae and pedipalps white. **Legs**:



Femora and patellae white, remaining segments appear to be devoid of soft tissues and are colorless – slightly yellowish with dark tibial spots. Tibiae about as long as femora. Patellae short. **Ventral aspect**: white. **Epigyne**: see Fig. 24.

### Genus *Pellenes* SIMON, 1876

An important Holarctic genus with some species occurring in Africa; whilst there is a number of species occurring in Central and Middle Asia, no species has been reported yet from anywhere in the Oriental Region (an exception is unrecognizable *Habrocestum coronatum* DYAL 1935: 228 from Punjab, renamed *Pellenes dyali* ROEWER 1951: 452; I have no reasons to consider that seriously until actual specimen is produced).

The genus can be identified by characteristic genital organs, falling into a few types, and by abdominal pattern containing usually some median white line and sometimes also additional transversal or diagonal lines, all on blackish background. Another useful character may be tibia I, usually swollen medially with more or less reduced spines.

### *Pellenes maderianus* KULCZYŃSKI, 1905

(Figs 129–131)

*Pellenes maderianus* KULCZYŃSKI, 1905g: 457 (D ♂);

*Pellenes maderianus*: PRÓSZYŃSKI 1976: 52, ff. 273, m. 139.

Material: 1 ♀ India (No. 293–294): Jabalpur (outskirts), Madhya Pradesh. 1 IV 1967, singled from blossoming bushes. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**Remark.** Species described from Madeira and recently found in Israel (PRÓSZYŃSKI in prep.) – which characterizes its distribution as Mediterranean. The present specimen differs slightly from the Mediterranean ones in having copulatory opening straight and not diagonal – the significance of this difference is uncertain.

**Measurements:** L. cphth.: 1.34; L. abd.: 1.51; L. e–f.: 0.63; H. cphth.: 0.67; W. e–f. I: 0.88; W. e–f. III: 1.05; W. cphth.: 1.09.

**FEMALE. Cephalothorax** broadest behind eyes III – in half of its length, there is a broad white transversal band across the thorax anteriorly expanding triangularly onto eye field, covered with light scales. Remaining thorax and eye field dark brown, with some whitish scales over the eye field and sparse whitish setae over thorax. Sides dark brown, anteriorly with whitish scales (reaching to the eyes III) gradually getting sparser. **Abdomen** broad oval with white line along anterior edge and white median line – forming together white letter “T”, there are also some white marginal spots. Remaining surface dark brown with a dark band limiting anteriorly white letter “T” and two streaks limiting it marginally. White areas covered with white scales, brown with adpressed brown setae – elongate scales. Dorsal spinnerets brownish grey. **Frontal aspect** with broad white scales, particularly densely beneath eyes I, scales on the clypeus margin longer, partially overhanging cheliceral bases. Eyes I surrounded ventrally with broad



white scales, dorsally with inconspicuous – colorless or slightly brown scales. Sparse broad scales anteriorly on the eye field appear striking on that position. Diameter of AME's about 2.5 of that of ALE's. Chelicerae very short, their length about equal to diameter of ALE, brown with single vertical line of colorless scales along each. Pedipalps yellowish white. **Leg I**: patella and tibia dark brown with sparse colorless scales and setae. Remaining legs yellowish fawn. Tibia I characteristic of the genus: broad with two pairs of delicate ventral spines, inconspicuous among setae. **Ventral aspect** generally yellowish fawn, abdomen whitish grey with sides darker. Epigyne shown in Figs 130–131, resembles that species from Israel, with entrances to copulatory channels located at the sides of the relatively broad vaginal roof. The differences are: transversal and not diagonal alignment of copulatory openings, somewhat broader vaginal roof and seemingly slightly broader sclerotized complex of spermatheca channel – it is however so complicated and difficult to study that without direct comparison of specimens no final conclusion on their relationships could be drawn. There are also some resemblances to *P. tocharistanus* ANDREEVA, 1976: ff. 106–109 – very similar coloration of the body and similar type of epigyne, with opening slits aligned diagonally like in the Israel specimen, however it seems to differ in more narrow vaginal roof. For the moment no comments on relationships of these forms can be offered.

#### Genus *Phintella* STRAND in BOESENBERG et STRAND, 1906

Cephalothorax shorter than in *Pseudicius* and broader, higher, devoid of row of stridulatory spines on tubercles under eyes lateral, characteristic of that genus. Cephalothorax and abdomen covered with scales. Abdomen either dark with median lighter streak or spotted, sometimes with contrasting transverse belts. Anterior edge of abdomen in some species divided by a shallow furrow. Palpal organ with two pronged tibial apophysis, both of which may be developed or reduced in different degree – in which they resemble *Pseudicius*. Bulbus simple, embolus fleshy extension of main body of bulbus, gradually tapering, its narrow part usually very short. Epigyne in a form of simple depressed weakly sclerotized plate, with simple straight or gently bent channels and spherical spermathecae. The genus appear to contains large number of species (including a number of not described yet) in the Oriental Region, relationships of these species and their delimitation from other genera require further studies.

#### *Phintella assamica* sp. n.

(Figs 132–133)

Material: ♀ holotype, India (No. 912): Mansal near Cherrapunjee, Assam, 18 XI 1967, beaten from bushes on forest. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**R e m a r k.** Species apparently closely related to *Phintella bifurcata* sp. n., with differences in epigyne; slightly larger.



**Measurements:** L. cphth.: 1.57; L. abd.: 2.10; L. e-f.: 0.83; H. cphth.: 0.79; W. e-f. I: 1.18; W. e-f. III: 1.18; W. cphth.: 1.36.

**FEMALE. Cephalothorax** very similar to ♀ *P. bifurcata* sp. n. from which it differs in division of sides into lower white and upper fawn belts (in a specimen of *P. bifurcata* one side is uniformly whitish yellow, the second fawn, posteriorly lighter). White scales more pronounced, also white orbital setae around eyes I better visible. **Abdomen** covered with distinct white scales, there are small dark dots consisting of scales with darker median line and these spots form indistinct pattern of median darker line in the anterior half, chains of marginal darker dots, one or remnants of a few dark chevrons posteriorly. **Legs** yellow, femur I with dark streak on prolateral surface. **Epigyne:** channels narrower, almost parallel and touching each other (Fig. 133), in *P. bifurcata* these are converging and thicker.

### *Phintella bifurcata* sp. n.

(Figs 134-136, 137-140)

**Material:** ♂ holotype, India (No. 1000): Daitari, Jajpur-Keonjhar District, Orissa, 3. XII. 1967, beaten from bushes on forest edge; 1 ♀ allotype, 2 ♂ paratypes, India (No. 335): Darjeeling District, West Bengal (below North Point), 900 m, 17 IV 1967, beaten from bushes on forest edge. All leg. TOPAL. Coll. Hungarian NH-Museum, Budapest.

**Measurements** (♂, ♀, both from sample No. 335): L. cphth.: 1.50, 1.50; L. abd.: 2.00, 2.06; L. e-f.: 0.75, 0.75; H. cphth.: 0.81, 0.69; W. e-f. I: 1.12, 1.03; W. e-f. III: 1.06, 1.02; W. cphth.: 1.37, 1.12.

**Remark:** cephalothorax shorter than in *Pseudictius* broader and higher, devoid of characteristic row of stridulatory spines on tubercles under eyes lateral. Cephalothorax and abdomen covered with scales.

**MALE. Cephalothorax** brown with eye field yellowish, surroundings of eyes lateral black; there are remnants of transversal belts of scales over eye field - white one behind eyes I, a few smaller brown scales at the level of eyes II (which are located half way between ALE and III). There is a belt of striking white setae (less visible on some specimens) encircling thorax, beginning under eyes lateral broken dorsally on thorax by some dark scales. These belts of scales appear to touch white belt at the top of abdomen. On sides of cephalothorax the already mentioned white belt is followed by a dark brown one (with remnants of dark scales), followed next by a white supramarginal belt, the ventral margin itself being brown. **Abdomen** elongate oval with very small groove at the anterior tip, whitish yellow, appearing white with thin dark, almost black band encircling it along lateral surface and forming a sort of a dark frame; there is a median longitudinal stripe (about 1/2th of width of dorsal surface) at present yellowish with sparse remnants of dark brown scales. Spinnerets greyish brown. **Frontal aspect:** clypeus covered with shining white scales, there is also a triangular fringe of white scales basally on anterior surface of light yellowish brown chelicerae. Pedipalps fawn with white scales on patella and distal part of femur. **Legs** whitish with anterior pair brown, long and robust, tibia I with three pairs



of ventral spines, particularly slender prolaterally. Metatarsus-tarsus I thinner, yellowish. **Palpal organ** resembling *Phintella* and also *Siler hanoicus* PRÓSZYŃSKI, 1985 (whose systematic position seems to be uncertain) with long spoon like apophysis bifurcating terminally (Figs 138, 140), in one specimen dorsal ramus of fork is longer. **Ventral aspect:** Very special hook on the external angle of maxillary plate (cf. similar in ♂ *Ph. debilis*) pointed ventrally just behind external distal edge and large bent retrolateral tooth on chelicerae (Figs 135–136).

**FEMALE.** Pale coloured specimen with fawn thorax and yellowish eye field, both covered with whitish scales, white abdomen with some spots of brownish scales, legs pale yellow with ventral surface of femur I blackish brown. **Cephalothorax:** eye field yellowish, eye surroundings black, thorax dorsally brown, sides yellow, ventral margin with thin dark grey line; all cephalothorax covered with colorless scales and whitish adpressed setae. **Abdomen** whitish with marginal line (partially passing into chain of spots) of brown setae. There are spots of brown scales on sides giving somewhat mosaic appearance. Weak traces of chevrons consisting of brown scales in the posterior part of abdomen, also sparse darker scales scattered irregularly. **Frontal aspect:** face yellowish, eyes I surrounded with white, clypeus reduced with AME taking whole height of face. Remnants of clypeus between AME covered with white setae overhanging chelicerae. AME's diameter twice that of ALE's. There is a dense layer of white scales under ALE. Chelicerae small yellowish with darker vertical line. Pedipalps whitish yellow. **Legs** pale yellow with blackish brown prolateral surface of femur I. **Ventral aspect:** mouth parts and sternum pale fawn, coxae whitish. **Abdomen** whitish grey with yellowish shade. **Epigyne** simple with spherical spermathecae and straight short channels running diagonally forwards and ending with simple openings (Fig. 134) they seem to be broader than in *Phintella assamica* sp. n.

### *Phintella debilis* (THORELL, 1892)

(Figs 141–145)

*Chrysilla debilis* THORELL, 1892: 319, 474 (D ♂);

*Phintella debilis*: ŽABKA, 1985: 425–426, ff. 408–419, 448 (T♂♀ from *Chrysilla*).

**Material:** 4 ♂♂, 5 ♀♀, India (samples Nos. 96, 956, 929, 974, 1000): Daitari, Jajpur-Keonjhar District, Orissa, beaten from bushes in forest and on forest edge, Dec. 1966; Nov. and Dec. 1967; 1 ♂ India (No. 836): Ghum, Darjeeling District, W Bengal (below North Point, 900 m), beaten from bushes, 15 X 1967; 1 ♀, India (No. 98): (some mistake, no such label on the list of 1966 collection); All leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**Remark.** There is some variation among studied specimens but no clear indications that they are not conspecific.

**Measurements** (♂, ♀, both sample No. 956): L. cphth.: 1.62, 1.50; L. abd.: 1.62, 2.06; L. e-f.: 0.75, 0.75; H. cphth.: 0.94, 0.69; W. e-f. I: 1.19, 1.06; W. e-f. III: 1.06, 1.06; W. cphth.: 1.12, 1.06.

**MALE. Cephalothorax:** light fawn with dorsum of thorax and sides covered with dark brown scales and spots of intensive white scales; beneath eyes lateral, a line above ventral margin from above coxae II to IV, some sparse white setae and scales above eyes I and inconspicuous white dots medially on level of eyes



III. Tegument iridescent. **Abdomen** elongate and tapering; characteristic abdominal pattern of both tegument pigmentation and scales - white and brown - consisting of a light stripe followed by two dark stripes limited marginally by thin white lines beneath which sides dark. The median light stripe anteriorly divided by a thin brownish line. Spinnerets brownish grey. **Frontal aspect:** clypeus narrow, between and beneath eyes AME shining colorless scales, also beneath ALE. Chelicerae small but appearing long with apical ends diverging, and with small inconspicuous line of colorless scales basally. Pedipalps brown with spots of white scales dorsally on patella and basally on cymbium (on its retrolateral half). **Legs:** greyish brown, with femur I somewhat darker and with lighter yellowish areas dorsally on patella I, apical half of tibia I, metatarsus I and tarsus I also light. Legs I longer. Femora iridescent. **Palpal organ:** tip of embolus doubled by shallow fissure (Figs 142-143), apart from that it resembles closely *P. bifurcilinea*. **Ventral aspect:** yellowish fawn with median more greyish streak along abdomen, there is a curious thin line of dark scales along lateral surfaces of abdomen. External angle of maxillary plates drawn into a kind of a blunt broad hook, not sclerotized.

**FEMALE** (based on specimen No. 956). **Cephalothorax:** uniformly greyish brown without white spots except marginal band of white scales. **Abdomen:** dark to greyish brown, mottled sparsely yellow, with white median line along posterior half of abdomen and thin inconspicuous fragments of marginal white lines in the posterior half consisting of two broader spots. Spinnerets dark brown. Sparse but large colorless setae give abdomen gleaming dots. **Frontal aspect:** dark, clypeus narrow, bald. Chelicerae small; pedipalps whitish. **Legs:** uniformly yellowish; tibia I with three pairs of large ventral spines and single minute lateral. **Ventral aspect:** mouth parts dark brown, sternum greyish brown, coxae yellowish. Abdomen ventrally with blackish median longitudinal stripe (as wide as epigyne), followed on both sides by two whitish stripes, sides of abdomen blackish brown mottled sparsely yellowish. **Epigyne:** see Fig. 145.

### *Phintella indica* (SIMON, 1901) comb. n.

(Figs 190-192)

*Heltophanus indicus* SIMON, 1901k: 152;

*Pseudictius indicus*: WESOŁOWSKA, 1986: 231, f. 876-879 (T♂ from *Heltophanus*).

Material: 1 ♂, "18904 *Heltophanus indicus* E.S. Trichinopoly (Cst)". Coll. E. SIMON, MNHN Paris.

**M e a s u r e m e n t s:** L. cphth.: 1.50; L. abd.: 2.00; L. e-f.: 0.69; H. cphth.: 0.62; W. e-f. I: 0.94; W. e-f. III: 0.95; W. cphth.: 1.10.

**MALE.** **Cephalothorax** flat and relatively broad, lower than in other species; light brown, almost bald now, with a band of white scales along ventral margin and a dot of minute white adpressed setae just behind eyes III, some sparse whitish setae beneath lateral edges of eye field; eye field with two dark oval central spots, lateral edges black; sides with rugosity but no row of tubercles with stridulatory setae. **Abdomen** whitish now and uniform, narrower than cephalothorax, dorsally flattened, elongate oval, posteriorly tapering, anteriorly



broadly rounded. **Frontal aspect:** the whole height of face taken by eyes AME, clypeus entirely reduced, eyes ALE along upper half of AME, their diameter about 0.285 of that of AME. Tiny inconspicuous whitish setae around eyes I. Chelicerae slightly elongated, diverging apically with two larger teeth at the apical angle prolaterally, with narrow cavity left between apical half of both. **Ventral aspect:** chelicerae with single retromarginal tooth distant from fang basis; leg I and mouth parts brown, sternum anteriorly brownish yellow, posteriorly whitish yellow, coxae II-IV and abdomen ventrally whitish. **Legs:** striking contrast between legs I – robust long and brown, and legs II-III – slender, shorter and white. Femur I prolaterally with transverse-diagonal row of black microspines in apical half. Tibia I narrowing apically, devoid of bristles characteristic for *Pseudicus*, with two pairs of spines ventrally – in basal and medial position, also additional single unpaired spine prolaterally closely to median one and slightly more apically and dorsally to it, probably best defined as anterior lateral; all these spines are relatively short, the retrolateral ones shorter. Metatarsus and tarsus I light. **Pedipalpal** femur with a low, crest like ventral protuberance. Two tibial apophyses: lateral one – black and crest like, ventral one – black and conical but ending blunt. There is a flap like protuberance of cybium entering space between both apophyses – a structure I have not seen in *Phintella* or related genera. Bulbus flat, elongate oval, passing into short tapering embolus – rather similar to other *Phintella*.

### *Phintella sukna* sp. n.

(Figs 146–147)

**Material:** ♀ holotype, India (No. 385): Sukna, Darjeeling District, Rest House and Wild Life Sanctuary, 180 m, netted in undergrowth of forest, 21 V 1980. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**Measurements:** L. cphth.: 1.57; L. abd.: 2.27; L. e-f.: 0.87; H. cphth.: 0.87; W. e-f. I: 1.18; W. e-f. III: 1.14; W. cphth.: 1.22.

**FEMALE. Cephalothorax:** dark with light area behind eye field diamond shaped extended posteriorly by a narrow streak, there is also supramarginal white belt (Fig. 145). In *P. vittata* specimen lighter area form diamond shaped spot without streak or supramarginal belt. **Abdomen:** see Fig. 145. **Frontal aspect:** face brown with tiny colorless scales appearing slightly bluish, eyes I surrounded whitish. Chelicerae short slender, brown. **Pedipalps** and **legs** whitish. **Ventral aspect:** sternum whitish. **Epigyne:** the depressed groove is divided anteriorly by two semiarches into two halves (Fig. 147).

### *Phintella vittata* (C. L. KOCH, 1846)

(Figs 148, 149–152)

*Plexippus vittata* C. L. KOCH, 1846: 125;  
*Salticus ranjitus* TIKADER, 1967: 117, f. 1 (D ♀) **syn. n.:**



*Salticus rarjitus*: TIKADER, BISWAS, 1981: 89, f. 154-155 (♀);

*Phintella vittata* ŽABKA, 1985: 429-430, f. 435-441, 453 (♂♀ transfer from *Chryzilla*).

**Material:** ♂, India (No. 101): Molem, Goa (120 m) 19 II 1980, netted in undergrowth at a brook in the forest; 1 ♀, 1 juv. ♂, India (No. 452): Pesoke, Darjeeling District, 800 m, netted in undergrowth of forest, 3-4 VI 1980. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest. 4 ♂♂, 4 ♀♀, *Salticus rarjitus* TIKADER, Loc. Bally, Dist. Howrath, W. Bengal, coll. D. Sinha, 13. VII. 1969. Det. B.K. TIKADER = *Phintella vittata* (C.L. Koch, 1846), det. J. PRŌSZYŃSKI, 8. VI. 90.

**Remark.** Specimens identified by TIKADER as "*Salticus*" *rarjitus* (also his drawings figs 1a-c in TIKADER 1967: 117-118) agree with drawings of *Phintella vittata* in ŽABKA 1985: Figs 435-441, as well as with Figs 148, 149-152 published here; this opinion was seconded also by Mr. P. WIJESINGHE.

**Measurements** (♂, ♀): L. cphth.: 1.66, 1.75; L. abd.: 1.53, 2.45; L. e-f.: 0.87, 0.83; H. cphth.: 0.96, 0.87; W. e-f. I: 1.22, 1.22; W. e-f. III: 1.18, 1.22; W. cphth.: 1.40, 1.40.

**MALE.** Small spider with iridescent small scales. **Cephalothorax** broad and high. Eye field: dark greyish - blackish brown with mosaic of remnants of tiny whitish scales on anterior half of eye field, iridescent in changing light. There is a lighter transversal diamond shaped spot anteriorly on thorax, just behind eye field with some whitish iridescent scales posteriorly, remaining parts are dark. **Abdomen:** now with tegument separated from soft tissues, blackish with posterior diamond shaped area white and small dark posterior spot, some scales iridescent. **Frontal aspect:** brownish, with two rows of larger whitish iridescent scales along ventral edge of clypeus. Eyes I surrounded with sparse tiny whitish setae dorsally, invisible ventrally. Length of chelicerae anteriorly slightly longer than AME's diameter and slightly narrower than at tip. Length of fang about equal to AME's diameter - it is smooth dorsally and not curved as on ŽABKA's specimen (ŽABKA 1985: Fig. 438); the posterior aspect of chelicerae more resembling ŽABKA's drawing due to diagonal outline of retrolateral edge. **Legs:** greyish brown, slightly iridescent. **Palpal organ:** large triangular flap on side of embolus, tibial apophyses of unequal size and varying appearance depending from the side they are examined from (see Figs 149-150).

**FEMALE.** **Cephalothorax** dark, lighter area form diamond shaped spot without streak or supramarginal belt. The colorless scales in the white diamond area at least twice bigger than in *Ph. sukmana*. **Abdomen** darker than in *Ph. sukmana*, in the posterior half seems to be broken into three separate spots. Sternum dark brownish grey. **Epigyne:** the groove limited anteriorly by single arc (Figs. 148), in *Ph. sukmana* divided into two halves (cf. Fig. 147).

#### Genus *Pseudicius* SIMON, 1902

A widespread diversified genus, occurring from Palaearctics and Africa to Australia and Pacific Archipelagoes, comprising numerous species, in which interpretation of relationships among species, groups of species and with similarly looking genera presents special difficulty. For more details and description of numerous new species see PRŌSZYŃSKI 1992.



*Pseudicius daitaricus* sp. n.

(Fig. 154)

Material: ♀ holotype, India (No. 929): Daitari, Jajpur-Keonjhar District, Orissa, 23 XI 1967, beaten from bushes in forest. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**FEMALE.** The specimen almost completely damaged, with only tegument and epigyne left. **Cephalothorax:** below eyes lateral the characteristic row of 7 protuberances with spines. Shape of cephalothorax typical for the *Pseudicius*. **Abdomen** smashed and falling into pieces. Covered with mixture of whitish and brownish setae dorsally, with concentration of brownish ones marginally. Two round spots of dark brown setae at the posterior end of abdomen, slightly laterally. Ventrally covered with white setae. **Frontal aspect:** clypeus covered densely with long, intensely white diagonal setae. **Legs:** tibia I swollen with single prolateral spine and no retrolateral spines. Metatarsus I with 2 normal spines prolaterally and 2 reduced – much shorter retrolaterally. **Epigyne:** with median pear shaped groove posteriorly and two long thin pockets located along the groove in the mid-length of epigyne. Membraneous, not sclerotized and poorly visible channels make two flat coils counterclockwise, then bent dorsally and continue next loop, almost complete, in an opposite direction, that is clockwise; after that the membraneous channel passes into sclerotized one which branches immediately into two: a long and prominent channel of the accessory gland anteriorly, and spermatheca proper posteriorly, the latter turning next anteriorly and running medially, touching the second spermatheca. The spermatheca is slightly swollen distally, with long spines on internal surface (Fig. 154). The basic plan of that structure is very similar to *Pseudicius modestus* SIMON, (Figs. 155–157) which differs from this species by longer and thinner spermathecae, longer and more complicated (and even less visible) coils of membraneous channels, longer sclerotized channels making 3 loops; also external pockets are larger and located more anteriorly.

*Pseudicius frigidus* (O. P.-CAMBRIDGE, 1885)

(Fig. 153)

Material: ♀ holotype, India (No. 405): Kashmir, 5 km from Shrinagar, beaten from the bushes, about 1800 m, 26 V 1967; Kashmir (No 396): around ruins of Pari Mahal, 28 V 1967, beaten from bushes. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest. Comparative material: ♀ lectotype, 1 ♀ paralectotype (designated PRÓSZYŃSKI 1987: 56), "9614 *lc.[tus] icioides (Phlegra)* ES. Himalaya/Ind. Mm". Coll. SIMON, MNHN, Paris [= *Pseudicius frigidus* (O. P.-CAMBRIDGE, 1885) – syn. PRÓSZYŃSKI 1987: 56]

Species already mentioned by ANDREEVA et al. 1984: 84, 373–374, ff. 69–74 from the same collection, known also from Afghanistan and China: Yarkand. Characterized by lateral and posterior location of pockets on epigyne and much simpler internal structure of epigyne (Fig. 153).



***Pseudicius modestus* SIMON, 1885**

(Figs 155-157)

Material: ♀ lectotype, 1 ♀ paralectotype (designated PRÓSZYŃSKI 1987: 56) "4602 *P.[seudicius] modestus* ES. Rumuad/Fabre" - Coll. SIMON, MNHN Paris.

Species comparable to *Pseudicius daitaricus* sp. n. - ♀ with pockets moved to the anterior part of epigyne, anteriorly to central groove, copulatory channels do form complicated spiral of four non sclerotized coils, visible only after staining (in Chlorazol Black E), these in turn pass into three coils of sclerotized channels lying dorsally to soft ones, these finally branch, giving off single channel running anteriorly and ending dorsally to the superficial pockets - presumably by accessory glands and the second sclerotized channels originating sideways then turning to posterior margin of epigyne and then turning again anteriorly producing thin elongate spermatheca along median line of the plate.

Genus ***Rhene*** THORELL, 1869

Large genus distributed in the tropics mainly of the Old World; it contains several species described from the Oriental Region, some of them from India itself. Unfortunately types of not all species are accessible at present and existing descriptions do not permit sure identification.

***Rhene albigera* (C. L. KOCH, 1848)**

(Figs 158-161)

*Rhene albigera*: ŽABKA, 1985: 442, f. 535-540 (♂).

Material: 1 ♂, India (No. 725): Kanheri, Maharashtra (near the cave temples), 27 VIII 1967; 1 ♂, India (No. 591): Bhaja, Maharashtra, 6 VIII 1967. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

Known geographical distribution: India to Sumatra, I. Bintang.

**MALE. Cephalothorax:** characteristic for *Rhene* broad, eye field long much widening posteriorly, eyes II close to ALE, cephalothorax widest at eyes III behind which it slopes abruptly and steeply down (thorax short). Surface of cephalothorax now bald with dense conspicuous fringe of white setae anteriorly and laterally, which seems to expand width of cephalothorax. **Abdomen** oval, flat, with dorsal surface hardened and forming scutum; fawn with blackish posterior tip, two pairs of lines posteriorly and anterior angles covered with white adpressed setae. **Frontal aspect:** face low, broad, clypeus very low, eye field black, chelicerae with internal edges carved making a large chamber between both when pressed together. Diameter of AME almost 2.5 that of ALE. Face light brown with very distinct and striking white line of setae above eyes I on the edge of eye field. Chelicerae short, chamber between them located more apically, locked apically by large triangular flap on apex of each chelicera. **Legs:** I with dense fur of setae ventrally on tibia, patella and tarsus, tibia I with spines only in the apical half - two ventral prolaterally and only one retrolaterally.



*Rhene daitarensis* sp. n.

(Figs 168-169)

Material: ♀ holotype, India (No. 989): Daitari, Jajpur-Keonjhar District, Orissa, netting in grasses in forest, 27 XI 1967 (attention: labelled *Rhene* sp. 3). Leg. TOPAL. Coll. Hungarian NH Museum, Budapest.

**D i a g n o s i s:** Posterior edge of epigyne deeply curved with huge grooves leading to copulatory opening (Fig. 168); copulatory opening divided into small presumably blind posterior chamber and narrow anterior channel leading into copulatory channel, the latter with prominent pores of the accessory gland at its bent; spermatheca convoluted elongate chamber (Fig. 169).

**FEMALE.** General appearance comparable with males, but abdomen soft, devoid of scutum. **Cephalothorax** dark brown covered with very thin colorless setae, longer along margins of eye field. **Abdomen:** anterior half divided by median broad brown streak, lateral angular areas lighter, posterior half with two waving brownish transversal bands separated by lighter thin line, posterior tip blackish brown delimited anteriorly by thin white line; covered uniformly with minute whitish adpressed setae and scattered evenly brown minute bristles. Spinnerets dark brown. **Frontal aspect:** face, palps and legs II dark brown, clypeus covered sparsely with short colorless setae, a few longer overhang cheliceral bases; chelicerae covered sparsely with colorless and whitish setae. **Pedipalps** with sparse minute whitish scales and colorless setae, same on legs I. **Legs:** brown, posterior ones fawn; tibia I thick, cylindrical, on apical half with short reduced spines: one pair of ventral and one unpaired on retrolateral edge (in other words: two on prolateral, one on retrolateral edge); sparse and inconspicuous ventral brush of setae on tibia and patella I, on femur I a line of very sparse setae on retrolatero-ventral edge. **Ventral aspect:** generally brown; abdomen light brownish grey. **Epigyne:** see Figs 168-169.

*Rhene darjeelingiana* sp. n.

(Figs 162-163, 167, 170-171)

Material: ♂ holotype, ♀ allotype, India (No. 843) Darjeeling, West Bengal (below North Point), 1400 m, beaten from bushes, 17 X 1967 (attention: specimens in separate samples labelled *Rhene* sp. 1, sp. 2); 1 ♂ paratype, India (No. 844), same locality and date, 900 m, netting from grasses and singled. Leg. TOPAL. Coll. Hungarian NH Museum, Budapest.

**R e m a r k.** This species could be possibly classified into genus *Zewippus* THORELL, 1891 as well. It remains an open questions whether *Rhene* and *Zewippus* should be kept separate. Personally I am in favour of merging them, but the matter may be perhaps deferred until more information shall be available.

**D i a g n o s i s:** ♂ recognizable by strange appearance of embolus and conductor laterally resembling short broad cones of equal height, separated by broad semicircular groove in ventral position these are reduced to thin semicircularly bent blades). Abdomen almost black with posterior white transversal line and two marginal pairs of thin white spots seems to be also sufficiently distinct from



other species known to me, but its coloration require confirmation on larger series of specimens. ♀ epigyne with posterior edge shallowly curved, copulatory opening closely to the middle line of epigyne (Fig. 167), spermatheca in a form of a channel twisted into circular loop and small straight posterior chamber equal to the diameter of that loop (Figs 170–171).

**MALE. Cephalothorax:** characteristic for *Rhene* broad, eye field long much widening posteriorly, eyes II close to ALE, cephalothorax widest at eyes III behind which it slopes abruptly and steeply down (thorax short). Surface of cephalothorax now bald with sparse and inconspicuous fringe of white setae anteriorly and laterally. **Abdomen** oval, flat, with dorsal surface hardened and forming scutum uniformly dark brown, posteriorly with striking pair of whitish transversal lines and some less distinct marginal spots, some short colourless adpressed setae anteriorly and laterally. **Frontal aspect:** eye field black, face low, broad, brown without any distinct white line above eyes I, the latter surrounded sparsely with inconspicuous fawn setae, diameter of AME almost 2.5 that of ALE; clypeus very low, chelicerae appears bent with internal edges curved making a large chamber between both when pressed together. **Legs:** I with dense fur of setae ventrally on tibia, patella and tarsus, tibia I with spines only in the apical half – two ventral prolaterally and two retrolaterally. **Palpal organ:** ventral and lateral appearance as well as details of embolus shown on Figs 164–166.

**FEMALE.** General appearance comparable with male, but abdomen soft, devoid of scutum. **Cephalothorax:** yellowish fawn covered with mixture of colorless setae with small addition of brown ones; setae on thorax and its sides stands upright, on lateral areas of eye field grow horizontally expanding width of body. **Abdomen:** uniformly yellowish grey with traces of two pairs of very thin lighter transversal lines on marginal parts of abdomen in its posterior third. Covered with inconspicuous minute adpressed colourless setae and fine short brown bristles scattered evenly over abdomen. Spinnerets greyish yellow. **Frontal aspect:** face light brown with broad intensively white clypeus covered with dense white setae. Chelicerae fawn, apically yellowish, covered densely with white short setae (except basal and apical ends). Pedipalps whitish with white setae and a few dark bristles. **Legs** yellowish, I yellowish fawn with tarsi–metatarsi yellowish, covered with short adpressed whitish setae. Tibia I thick, cylindrical with short reduced spines limited to apical half only: two pairs of ventral spines (two on prolateral and two on retrolateral edge). Tibia and patella I ventrally with fur of longer dark grey setae, a line of setae on ventro-retrolateral edge of femur I. **Ventral aspect:** generally yellowish fawn with abdomen yellowish grey. **Epigyne** and its internal structure are shown on Figs 167, 170–171.

#### Genus *Similaria* gen. n.

External appearance similar to a number of other genera, including *Yaginumaella* and *Evarcha*, it is most unusual internal structure of epigyne which prompted description of this species as a new genus. The external appearance



of epigyne does not give any suggestion concerning systematic position of the species. Particularly striking are long and bent accessory gland channel and funnel like copulatory channel squized between oval spermathecal chamber and its elongate bent distal part. External unusual characters include two very long spines on metatarsus I. Dimensions as given below, external appearance on Fig. 182. Type species *Similaria enigmatica* sp. n. ♂ unknown.

### *Similaria enigmatica* sp. n.

(Figs 172-174. 182)

Material: ♀ holotype, India (No. 812): Ghum, Darjeeling District, West Bengal, Senchal Forest Reserve, beaten from bushes in forest, 13 X 67. Leg. TOPÁL. Coll. Hungarian NH-Museum, Budapest.

**M e a s u r e m e n t s:** L. cphth.: 2.75; L. abd.: 3.00; L. e-f.: 1.25; H. cphlth.: 1.62; W. e-f. I: 1.94; W. e-f. III: 1.75; W. cphth.: 2.12.

**FEMALE. Cephalothorax:** eye field dark brown, anteriorly almost black, medially reflecting light due to microstructure of the surface; thorax dorsally dark brown, except broad light yellowish streak in the fovea area, narrowing posteriorly, with a single preserved spot of whitish adpressed setae; sides light brown. **Abdomen** oval, greyish mottled yellow (a grey network with relatively large yellowish cell centers) with broad white median streak surrounded by irregular blackish grey darkenings. **Frontal aspect:** eyes I surrounded by remnants of indistinct whitish setae, ALE above median line of AME, their diameter equal to 0.5 of the AME. Clypeus low, brown, almost bald with sparse indistinct colorless setae overhanging chelicerae. Chelicerae brown with sparse thin colorless setae over frontal surface. Pedipalps brown with patella and femur yellowish. **Legs:** I brown with lighter basal half of femur ventrally; patella I dorsally lighter brown, some two lighter indistinct annuli on tibia I, median and apical; tarsus I and metatarsus I light brown; remaining legs lighter. Spines: 3 pairs of long ventral on tibia I (the median being the longest), 2 very long spines on metatarsus I; similar pattern of spination on legs II, but with additional spines prolaterally: 1 on tibia and 2 on metatarsus II. **Ventral aspect:** chelicerae dark brown, unidentati; sternum broad, broadly truncated anteriorly; abdomen yellowish grey. **Epigyne:** single oval depression with two deeper grooves in the middle of a sclerotized plate; its internal structure rather unusual with long and bent accessory gland channel and funnel like copulatory channel squized between oval spermathecal chamber and its elongate bent distal part (Figs 172-174).

### *Synagelides* sp.

(Figs 175-181)

Material: 1 ♂, India (No. 418): Geomti, Darjeeling District, W Bengal, Forest Rest House, 1250 m, sifted from moses on trees, 27 V 1981. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest. 1 ♂ Nepal: Tongshang sur 2100 m, 28. IV. 1970. Leg. M. HUBERT, MNHN, Paris.



**Remark.** With 22 species differing by small, usually ill defined differences, the genus *Synagelides* deserves apparently a taxonomic revision. At the present state it is very difficult to assign newly collected specimens to any of already described forms or to decide that they belong to a new taxon.

**MALE** (Indian specimen). Small spider with typical *Synagelides* features, general appearance shown on Fig. 175. **Cephalothorax** brown, eye field anteriorly and laterally blackish, rugose, with small light reflecting pits. **Abdomen** bag shaped, constricted in the middle; anteriorly brown with two white spots at anterior angles, broad white belt at constriction, posterior part blackish brown, spinnerets white. **Frontal aspect:** face dark with clypeus beneath AME dark brown, beneath ALE lighter brown, eyes anterior surrounded with indistinct and sparse whitish setae. Chelicerae slender, short, greyish yellow with two vertical yellow lines. **Pedipalps** light brown, typical for *Synagelides* (Figs 176–181), with dorsal processes of cymbium asymmetrical – one in a form of a triangular vertical wall, the other in a form of a flat narrow process coming from cymbium under right angle and lying flat on the surface of tibia – appearing to grown into it (Fig. 178). **Legs** light with lateral dark thin longitudinal streaks, I much longer with femur dark, patella I slightly swollen in the apical half and white, tibia I with four pairs of long ventral spines, metatarsus I with two pairs of long ventral spines.

### *Telamonia dimidiata* (SIMON, 1899)

*Victria dimidiata* (SIMON, 1899h: 118 (D ♂);

*Phidippus patell* TIKADER, 1974b: 124, f. 10-11 (D ♀), *syn. n.*;

*Phidippus patell* TIKADER, MALHOTRA, 1978b: 545, f. 1-3 (D ♂, 1 ♀);

*Phidippus patell* TIKADER, BISWAS, 1981: 91, f. 156-159 (♂, 1 ♀);

*Telamonia dimidiata*: PRÓSZYŃSKI, 1984b: 428-429, ff. 29-32 (♂, ♀, T from *Victria*);

*Telamonia dimidiata*: Koh 1989: 115 (♂, ♀ N, color phot.);

*Telamonia dimidiata*: PRÓCHNIEWICZ, 1990: 156, ff. 10-17 (♂, ♀).

**Material:** 1 ♂, 1 ♀, "*Phidippus patell* TIKADER, 1974. Poona, Maharashtra, 9 IV 75. Leg. det. B.K. TIKADER" = 1 ♂, 1 ♀, *Telamonia dimidiata* (SIMON, 1899), det. J. PRÓSZYŃSKI, 8 VI 90. Coll. AMNH, New York.

### "*Thyene*" sp.

(Figs 183-184)

**Material:** 1 ♂ India (No. 376): Barkalikapur, West Bengal, 7 V 1967. Leg. TOPÁL. Coll. Hungarian NH Museum, Budapest.

**Remark.** Species closely related to *Thyene orientalis* ŽABKA, 1985: 454-455, ff. 632-635 which by remark of ŽABKA himself could be perhaps classified as *Parysinus* SIMON, 1901. Whilst I share with M. ŽABKA lack of knowledge of that genus (for the reasons explained in PRÓSZYŃSKI 1987: V) I am positive that it rather should not be considered *Thyene* because of its peculiar bicuspid retromarginal tooth well illustrated on ŽABKA, 1985: Fig. 635 and equally well visible on my specimen, also general appearance of the studied specimen do not seem to



agree with *Thyene*, of the other hand there are only minor detail difference in the palpal organ which may be not significant. *Parysirus* was classified by SIMON into "fissidentat" group of genera which corresponds well with dentition in these specimens.

**M e a s u r e m e n t s:** L. cphth.: 1.76; L. abd.: 2.02; L. e-f.: 0.80; H. cphth.: 0.97; W. e-f. I: 1.34; W. e-f. III: 1.34; W. cphth.: 1.39.

**MALE.** Cephalothorax only slightly broader than eye field, gradually narrowing posteriorly, abdomen narrower than cephalothorax – the impression strengthened by the colour pattern. **Cephalothorax** dorsally greyish fawn with yellowish longitudinal area from fovea to hindmargin, brightened by some white setae; marginal streaks of dorsal surface ( $\frac{1}{3}$ rd of width) darkened by dark brown setae. Sides lighter yellow, covered densely with white setae. Resulting pattern consists of 2 white streaks laterally, two dark streaks and a median light streak behind eye field – which is greyish fawn. **Abdomen** elongate and tapering posteriorly with broad median light area covered densely with white setae, the margins are brownish grey, spinnerets long, greyish brown. **Frontal aspect:** face light brownish, AME twice the diameter of ALE, eyes I surrounded with whitish setae ventrally and fawn dorsally. There is a row of short club like flattened white setae along ventral edge of clypeus arranged horizontally. Chelicerae slender, brown, with a few minute white setae basally. Pedipalps brownish. **Legs** I and II dark brown, III–IV brownish. **Palpal organ:** resembling "*Thyene*" *orientalis* ŽABKA, 1985: ff. 632–633, from which differs by different position of the fleshy "flap" of the bulbus – 9 hour position instead of 6 hour and narrower tibial apophysis, perhaps slightly longer (Figs 183–184). **Ventral aspect:** yellowish, there are three grey lines along abdomen.

#### Genus *Yaginumaella* PRÓSZYŃSKI, [1976] 1979

The genus contains a number of species distributed in the Oriental Region, some penetrating into Palaearctic Region as far North as N Japan and N Primore in the USSR. The controversy concerning congeneric status of *Yaginumaella* versus *Ptocasius* SIMON shall be probably best resolved by separation of their species according to relationship. This may wait a little bit longer until more species shall be known. A fact overlooked in all discussion is that SIMON classified his *Ptocasius* (supposed senior synonym of at least part of the *Yaginumaella* species) into "fissidentat" group of genera, whilst *Yagitrumaella* seems to have single retromarginal tooth on chelicerae, although nobody bothered to check that character yet. The discussion on which date of description to accept may ended with acceptation for formal reasons the 1979, with understanding that my paper of 1976 contains all vital information for definition and recognition of the genus, although no formal description in words.



***Yaginumaella senchalensis* sp. n.**

(Figs 185–189)

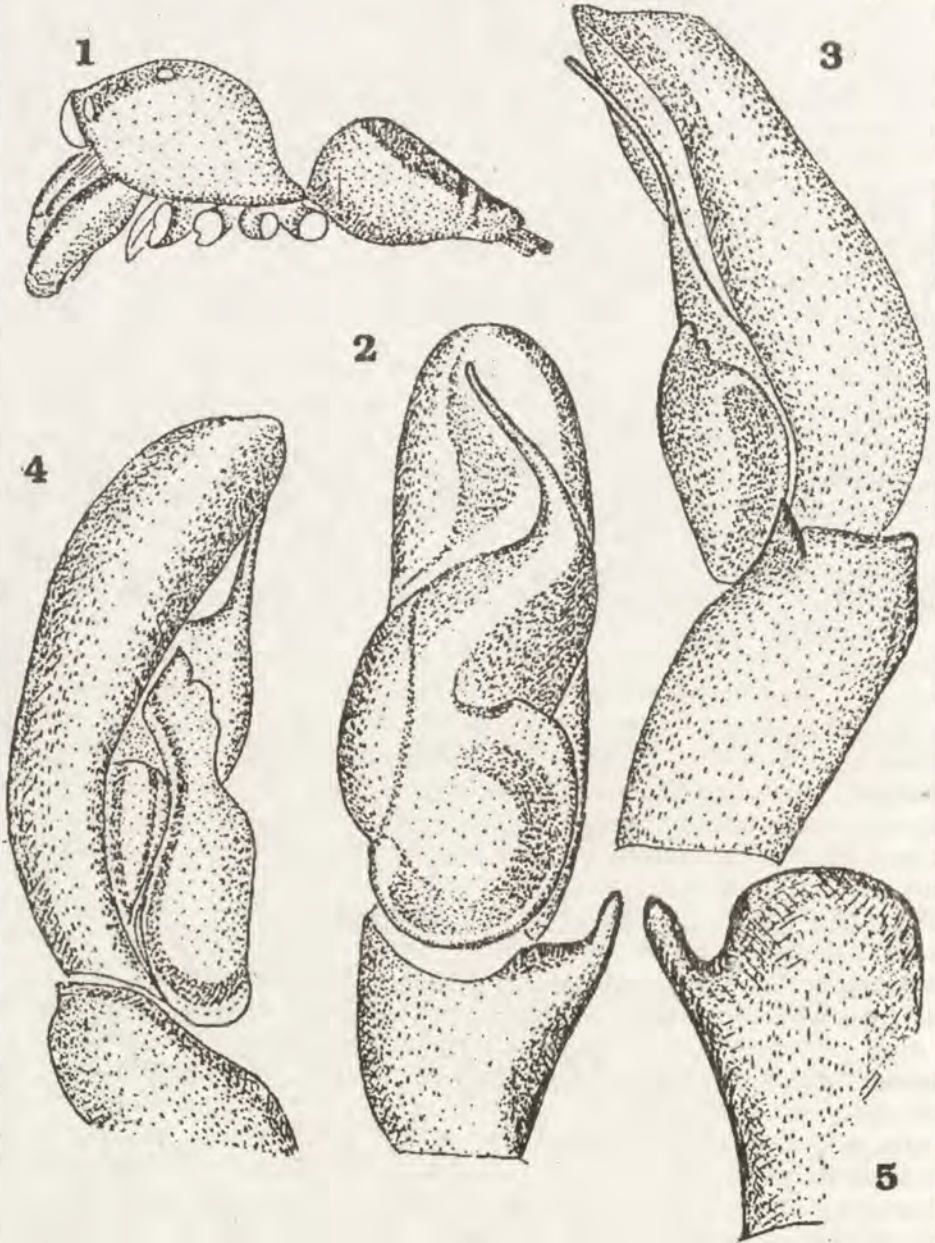
Material: ♀ holotype, ♂ allotype, 6 ♀♀ paratypes, 5 ♂♂ paratypes, India (No. 340, 812): Ghum, Darjeeling District, West Bengal (Senchal Forest Reserve, 2000 m, 19.IV and 13.X 1967, sifted mosses on bark of tree and beaten from bushes in forest. Leg. TOPAL. Coll. Hungarian NH Museum, Budapest.

**Measurements** (first – ♂ allotype, second – ♀ holotype): L. cphth.: 2.37, 2.50; L. abd.: 2.75, 3.12; L. e-f.: 1.00, 1.19; H. cphth.: 1.31, 1.50; W. e-f. I: 1.56, 1.69; W. e-f. III: 1.37, 1.62; W. cphth.: 1.87, 2.00.

**MALE. Cephalothorax** light brown with whitish median thoracal streak – expanded around fovea, median part of eye field light brown with a line of indistinct adpressed white setae anteriorly and on median half of rim of ALE, remaining setae surrounding eyes I indistinct – greyish fawn. Eyes lateral surrounded blackish. Lower sides of cephalothorax whitish with marginal streak covered with reddish brown adpressed setae. Ventral edge of carapace dark brown. **Abdomen** covered in  $\frac{4}{5}$ th with indistinct scutum – yellowish with brownish margins. Margins of dorsal surface and sides greyish with sparse brownish setae. **Frontal aspect**: face brown with sides beneath eyes lateral white, triangular spot of whitish setae above eyes I median, AME surrounded with brownish setae dorsally and whitish grey ventrally. Long but sparse whitish setae overhanging chelicerae – the latter brown and broad. Pedipalps whitish with brownish grey cymbium. **Ventral aspect**: sternum broad, broadly truncated, yellowish grey; coxae whitish; abdomen light greyish. **Legs** I brown with lighter yellowish dorsal surface of patellae I; remaining legs lighter yellow with light fawn annuli on tibiae and patellae. **Palpal organ**: shown on figs 185–186.

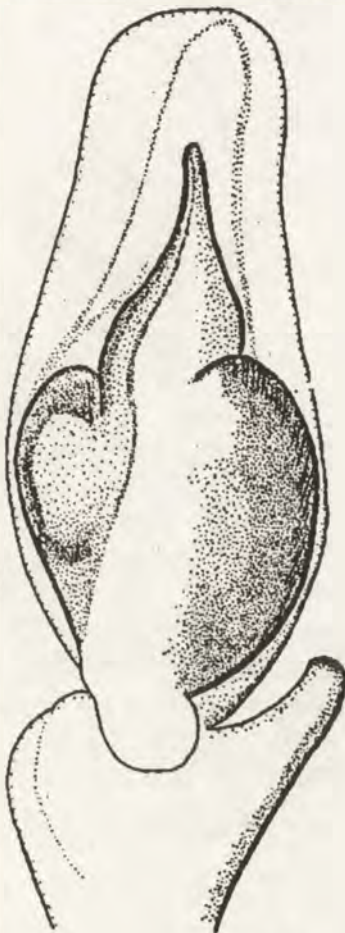
**FEMALE.** Related to *Yaginumaella tenzingi* ŽABKA, 1980c: f. 18 and *Yaginumaella nepalica* ŽABKA, 1980c: 376–380, f. 17. **Cephalothorax**: light brown with black area around eyes lateral, whitish spot around fovea followed by whitish median streak posteriorly; lower sides whitish yellow, ventral margin greyish fawn, ventral edge brown. **Abdomen** devoid of scutum, greyish mottled yellow with median light stripe branching sideways in  $\frac{2}{3}$ rd of abdomen; sides lighter. **Frontal aspect**: brownish with sides beneath ALE whitish, remaining clypeus brown. Eyes AME surrounded ventrally with strikingly whitish setae, dorsally fawn and greyish. White setae overhanging chelicerae, shorter than in ♂♂. Chelicerae fawn. Pedipalps greyish fawn with patella and femur whitish. **Legs** I greyish fawn with patella and femur whitish; remaining legs with contrasting light annuli and dark brown (on tibiae II–IV). **Ventral aspect**: sternum yellow with darker margins; coxae whitish, abdomen greyish with darker median stripe and two lines of irregular lighter rounded spots ventro-marginally. **Epigyne**: pockets located medially very closely to the copulatory openings (Fig. 187), the internal structure shown on Fig. 188.





Figs 1-5. *Carrhotus malayanus* sp. n. General appearance (1) and palpal organ (2-5).





7



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Figs 6-7. Comparison of palpal organ in *Carrhotus sannio* (THORELL, 1877) (6) and *Carrhotus viduus* (C. L. KOCH, 1846) (7).



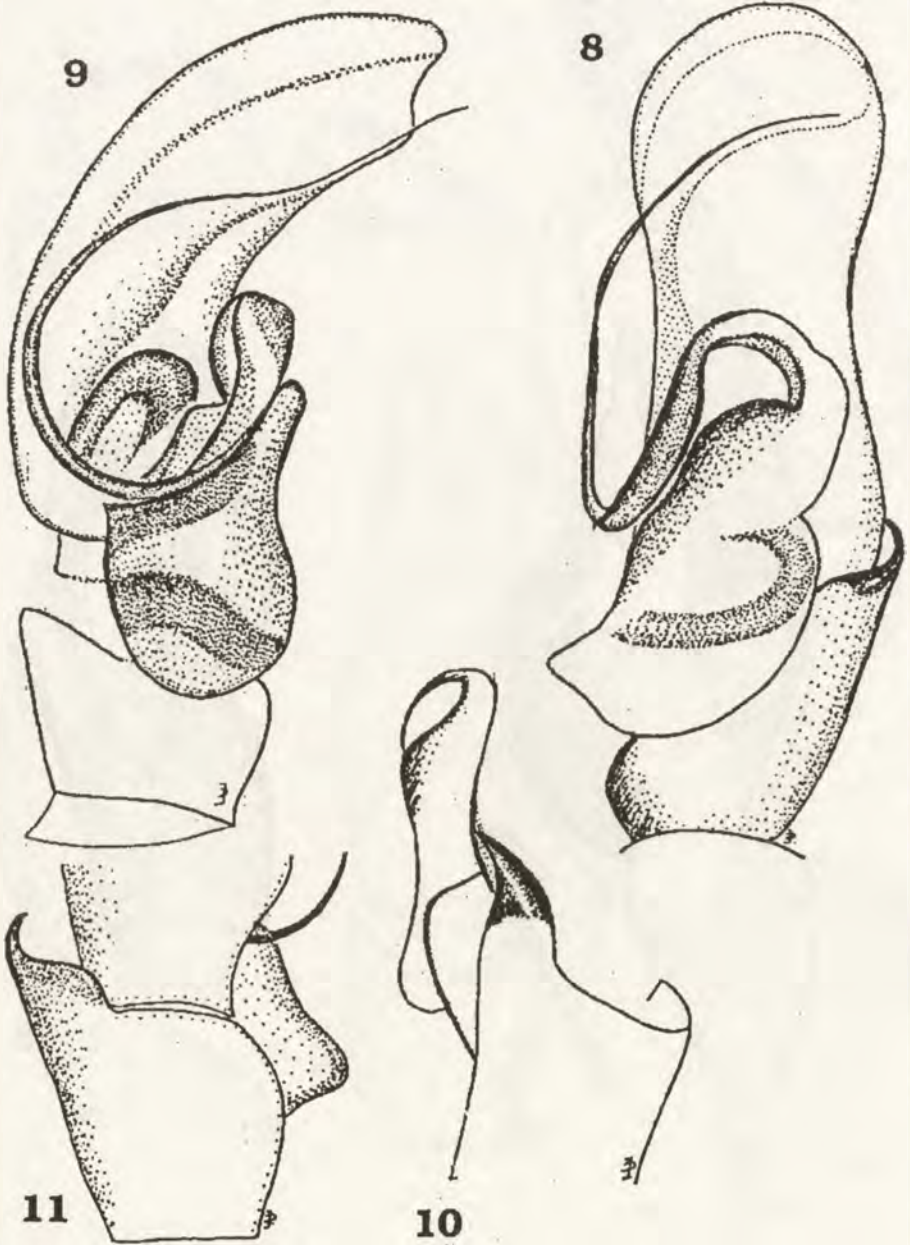


Fig. 8-11. *Carrhotus tristis* (THORELL, 1895). Palpal organ.





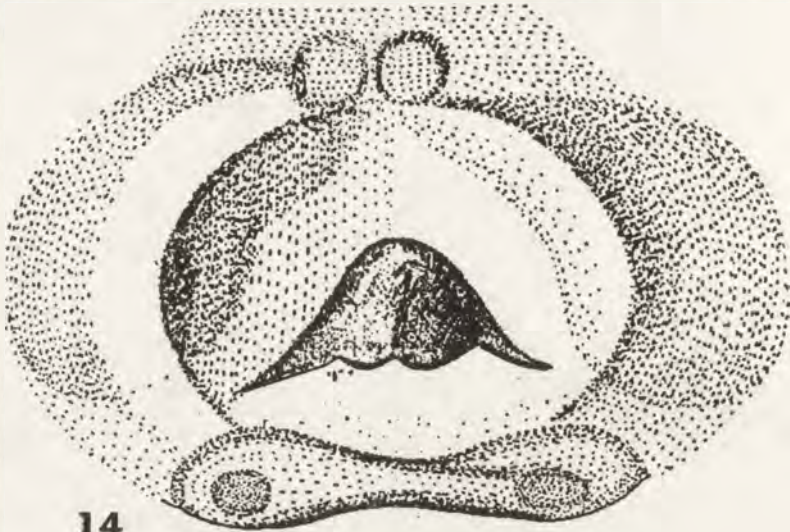
**12**



**13**

Figs 12-13. *Dexippus topali* sp. n. Palpal organ.

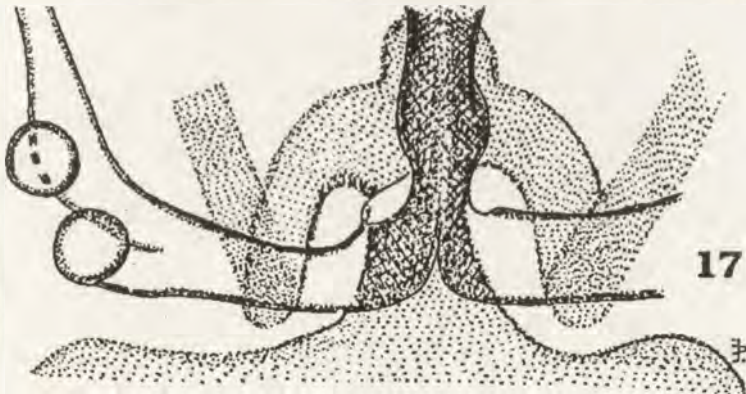
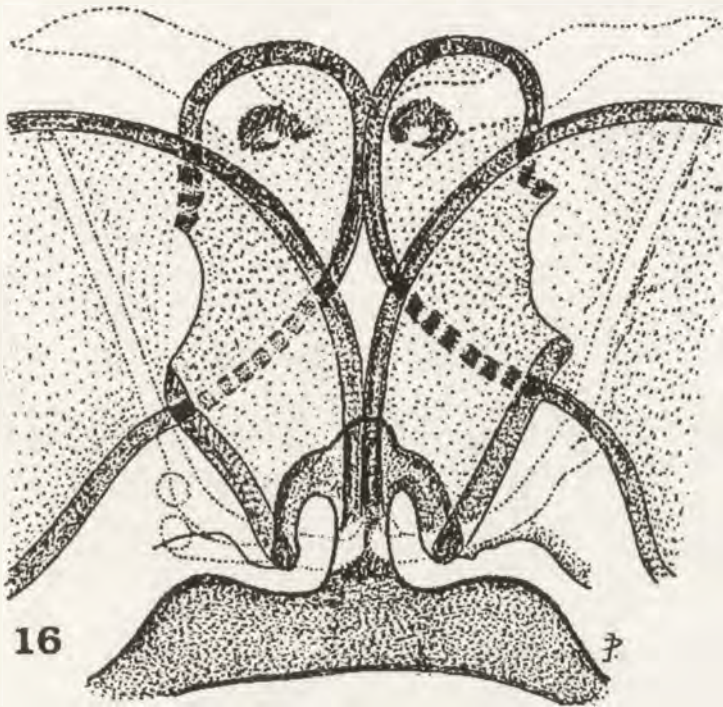




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Figs 14–15. *Dexippus topalt* sp. n. Epigyne (14) and its internal structure (15).



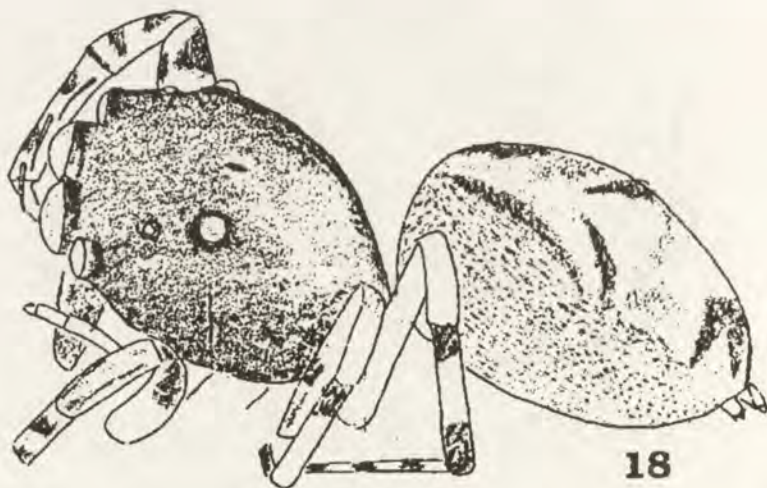


Figs 16-17. *Dexippus topali* sp. n. Central area of internal structure of epigyne: details of posterior parts of spermathecae (16) and dorsal view of delicate narrow channel being presumably accessory gland channel (17).





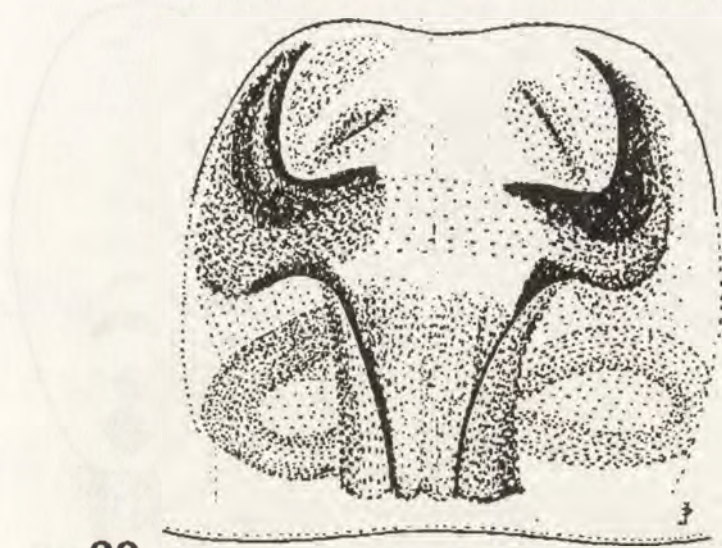
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Figs 18-19. *Dexippus topali* sp. n. General appearance (18) and epigyne (19) (in another specimen).





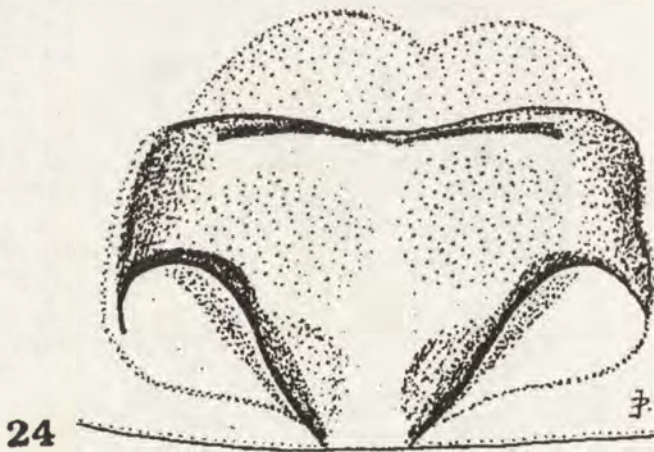
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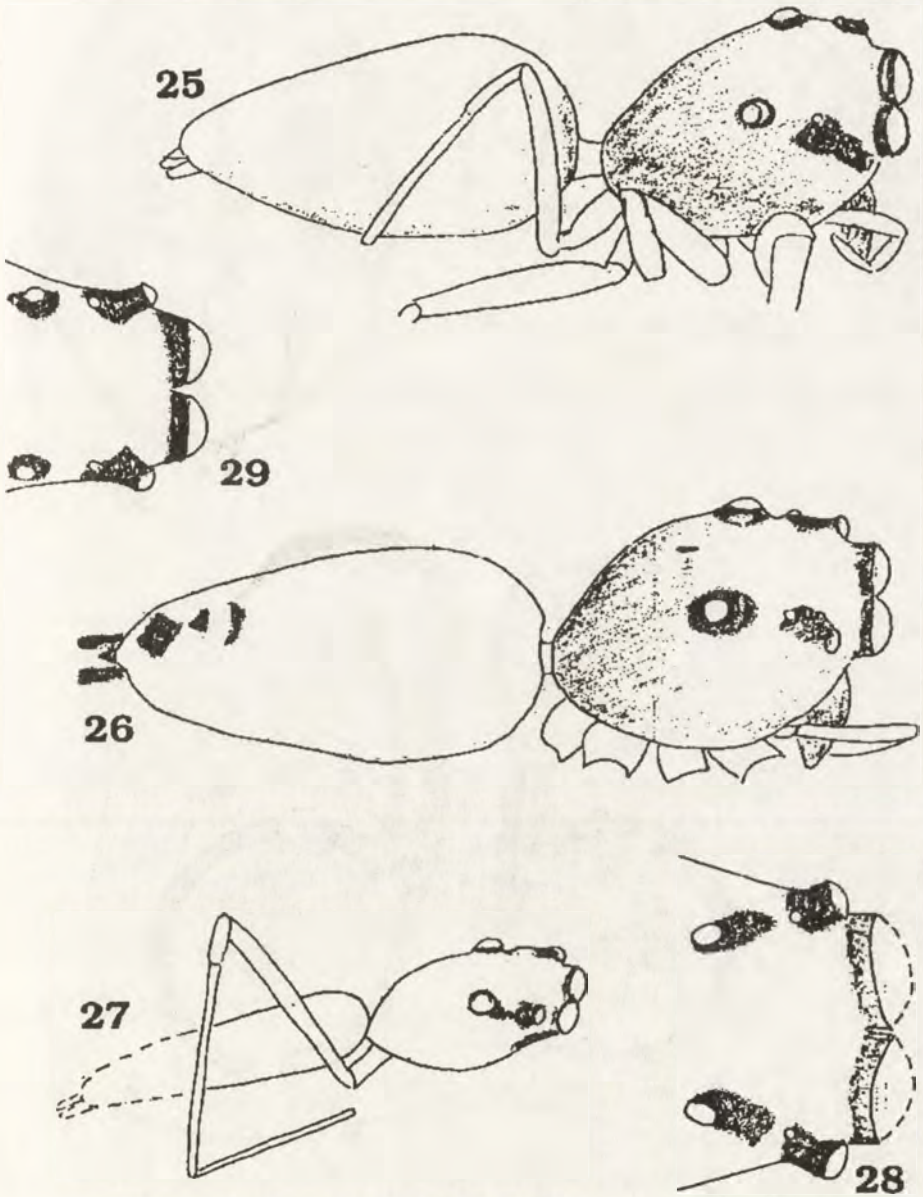
Figs 20-21. *Epeus albus* sp.n. Epigyne: ventral (20) and lateral views (21).



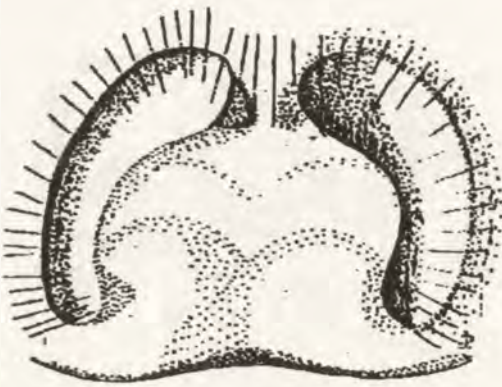


Figs 22–24. Epigyne (22) and abdominal pattern (23) in *Epeus indicus* sp. n.; epigyne in *Pandisus indicus* sp. n. (24).





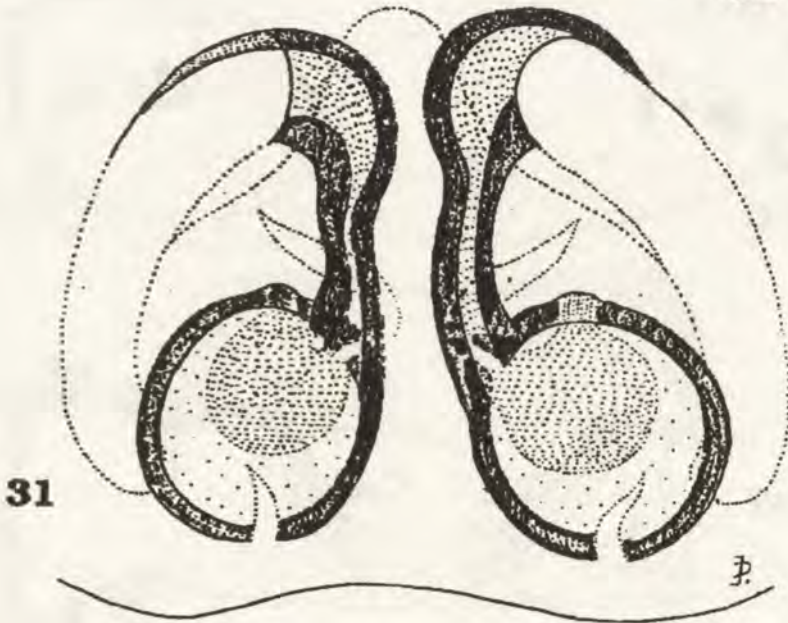
Figs 25-29. Comparison of general appearance and eyes pattern of *Epeus albus* sp. n. (25), *Epeus indicus* sp. n. (26, 29) and *Pandisus indicus* sp. n. (27, 28).



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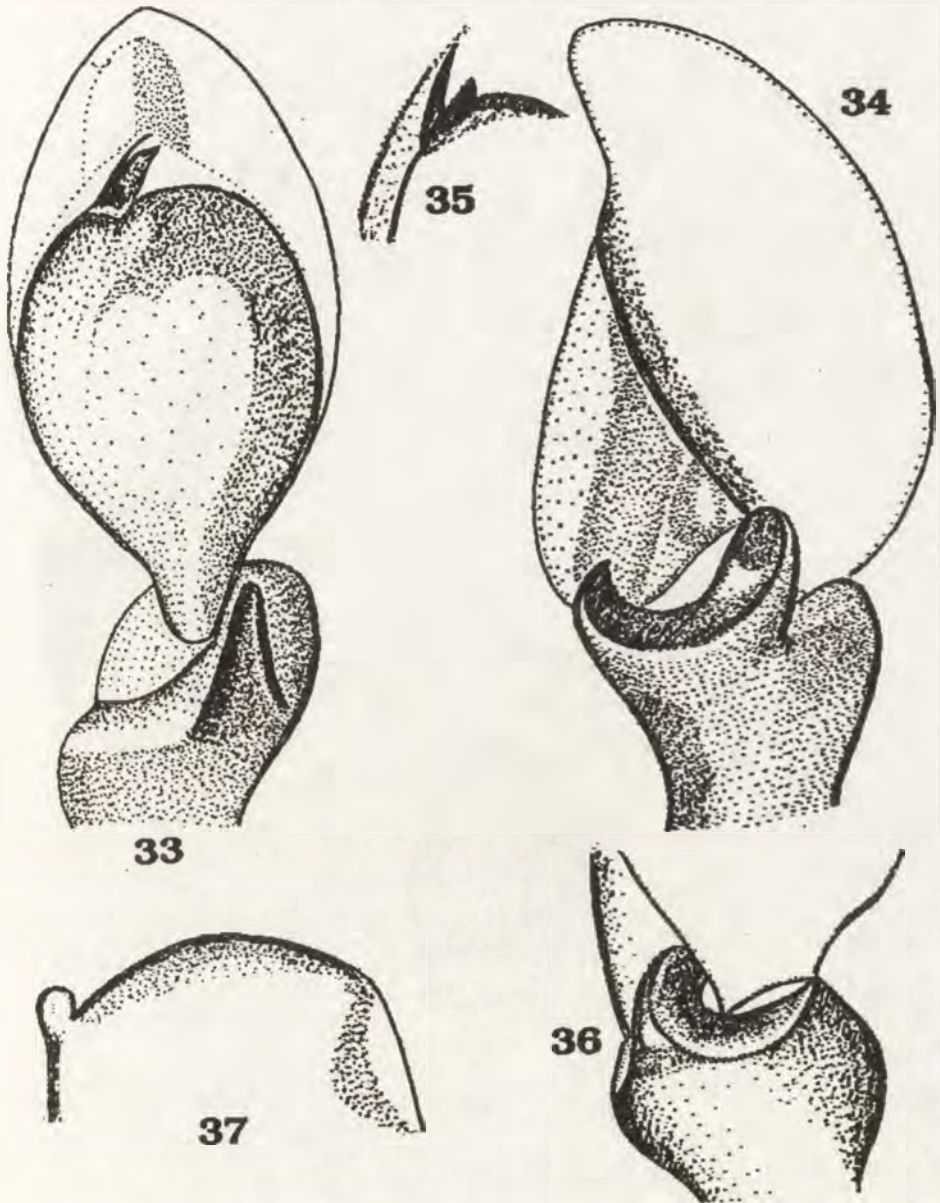
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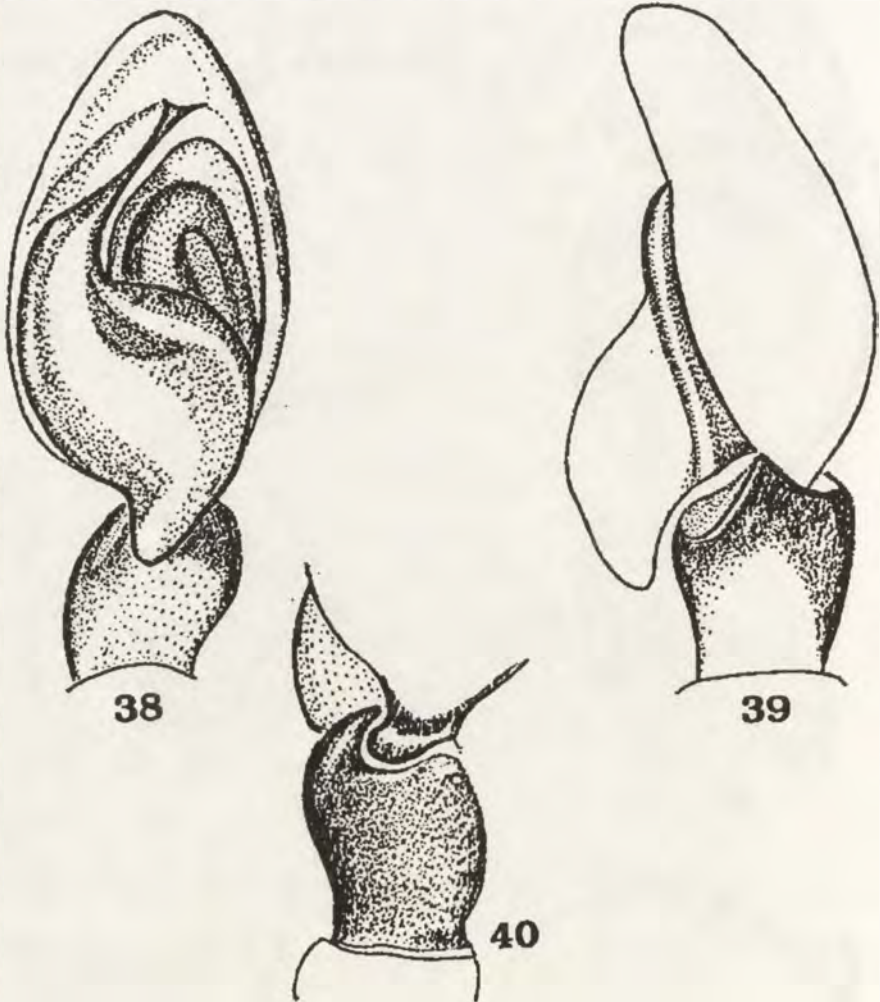
31

Figs 30-32. *Euophrys minutus* sp. n. Epigyne (30) and its internal structure (31), abdominal pattern (32).



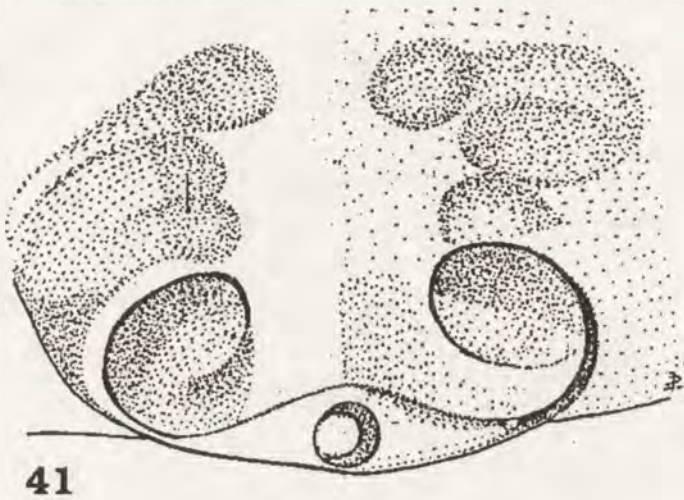


Figs 33–37. *Ghumattus primus* sp. n. Palpal organ (33, 34.), tip of embolus (35) in postero-ventral view, tibial apophysis (36); protuberance on external angle of maxillary plate (37).



Figs 38–40. *Habrocestoides bengalensis* sp. n. Palpal organ.



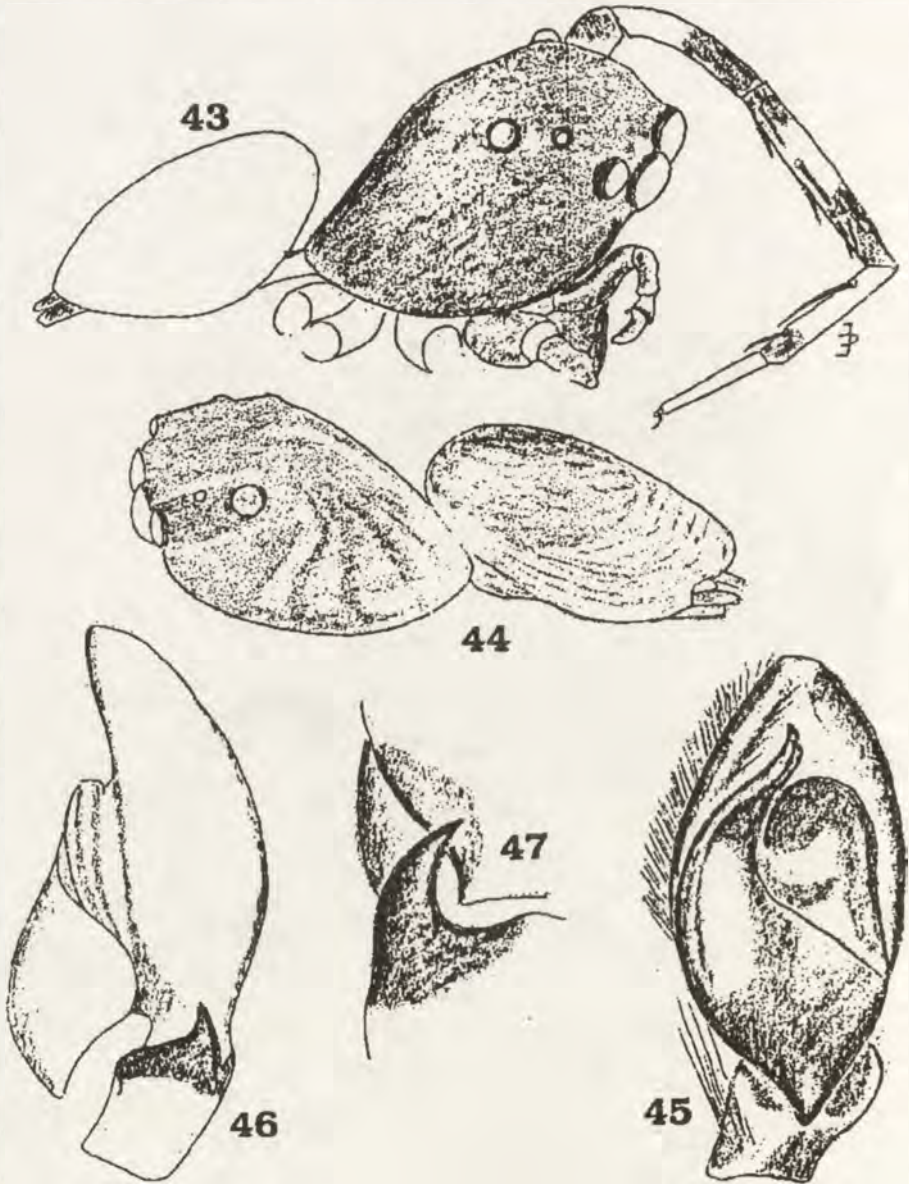


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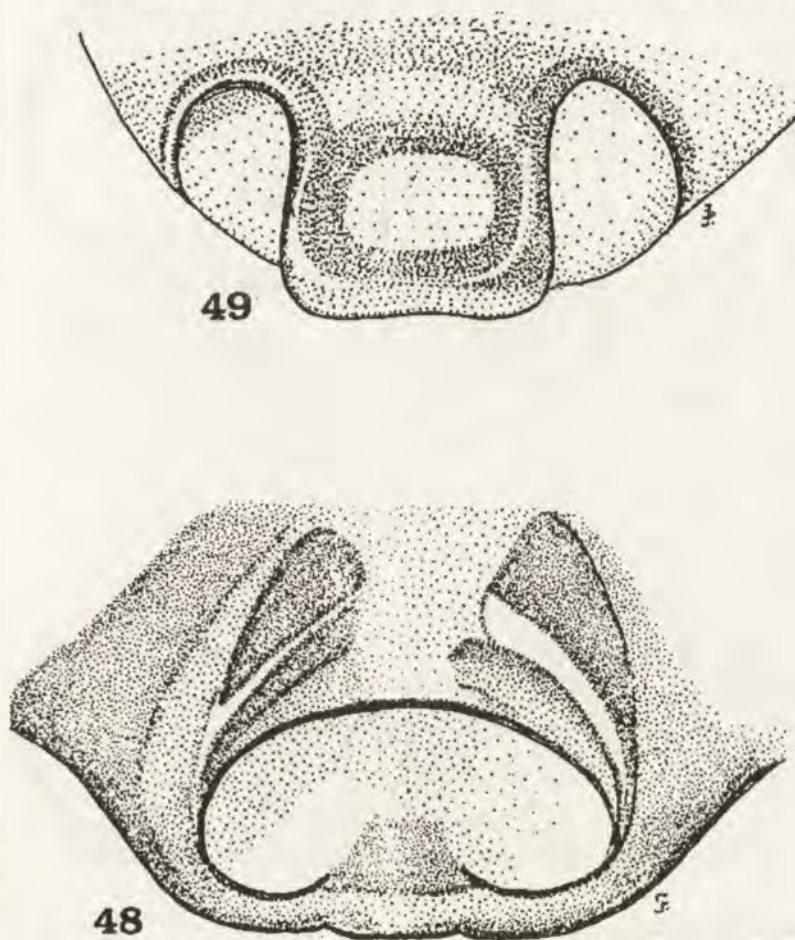
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Figs 41-42. *Habrocestoides bengalensis* sp. n. Epigyne (41) and its internal structure (42).

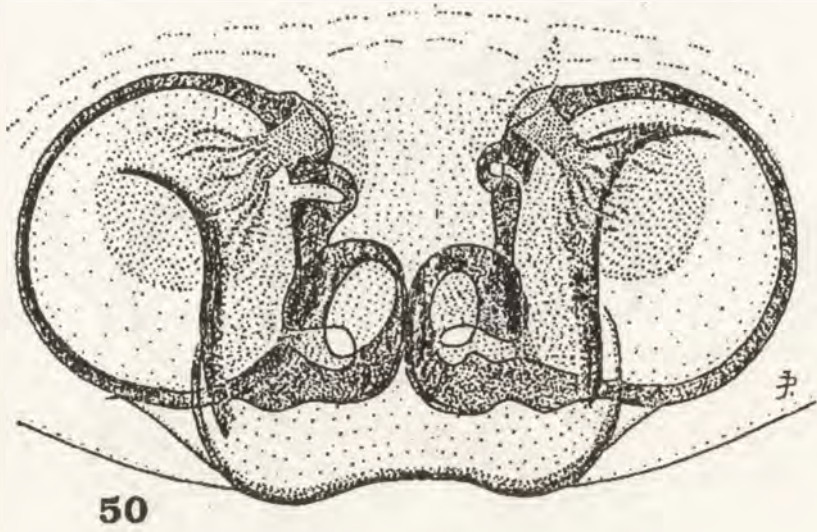


Figs 43–47. *Ghumattus primus* sp. n. General appearance (43); *Habrocestoides indicus* sp. n. general appearance (44), palpal organ ventrally and laterally (45, 46), tibial apophysis dorsally (47).

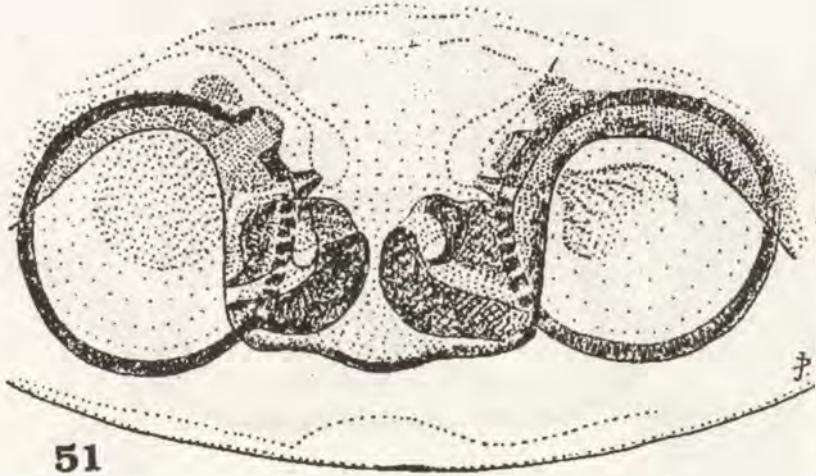




Figs 48-49. Epigyne in *Heliophanus curvidens* (O. P.-CAMBR., 1872) (48) and *Heliophanoides epigynalis* sp. n. (49).



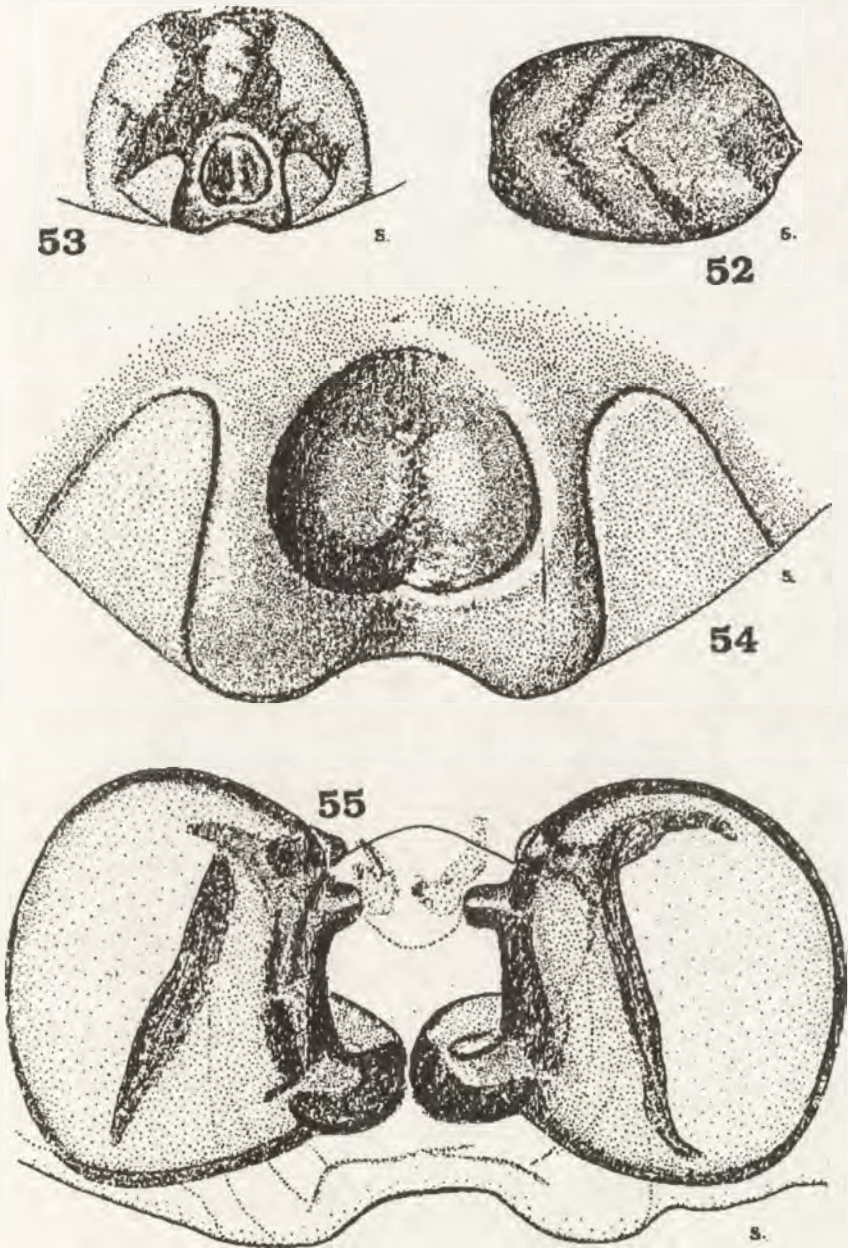
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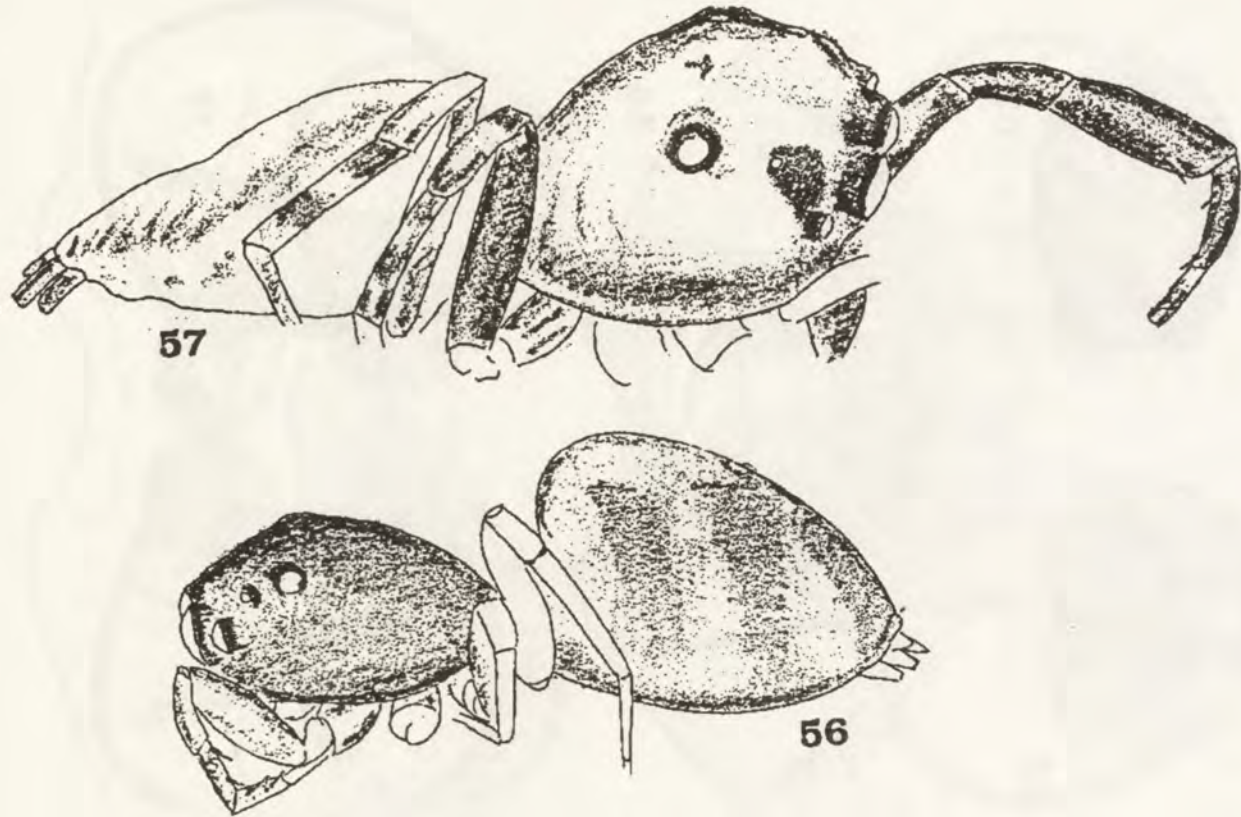
51

Figs 50–51. Comparison of internal structure of epigyne in *Heliophanoides spermathecalis* sp. n. (50) and *Heliophanoides epigynalis* sp. n. (51).



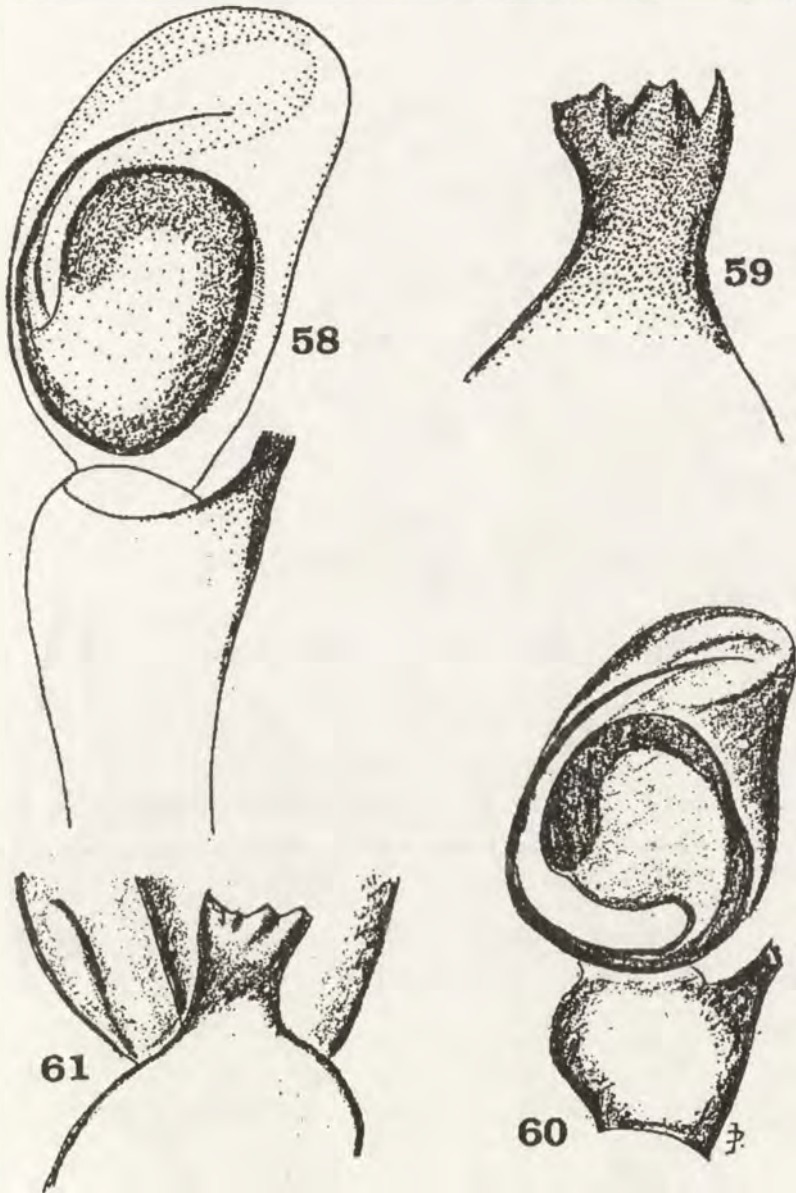


Figs 52–55. *Heliophanoides bhutanicus* sp. n. Abdominal pattern (52), epigyne (54) and its surrounding (53) as well as its internal structure (55) (drawn by A. STAREGA).

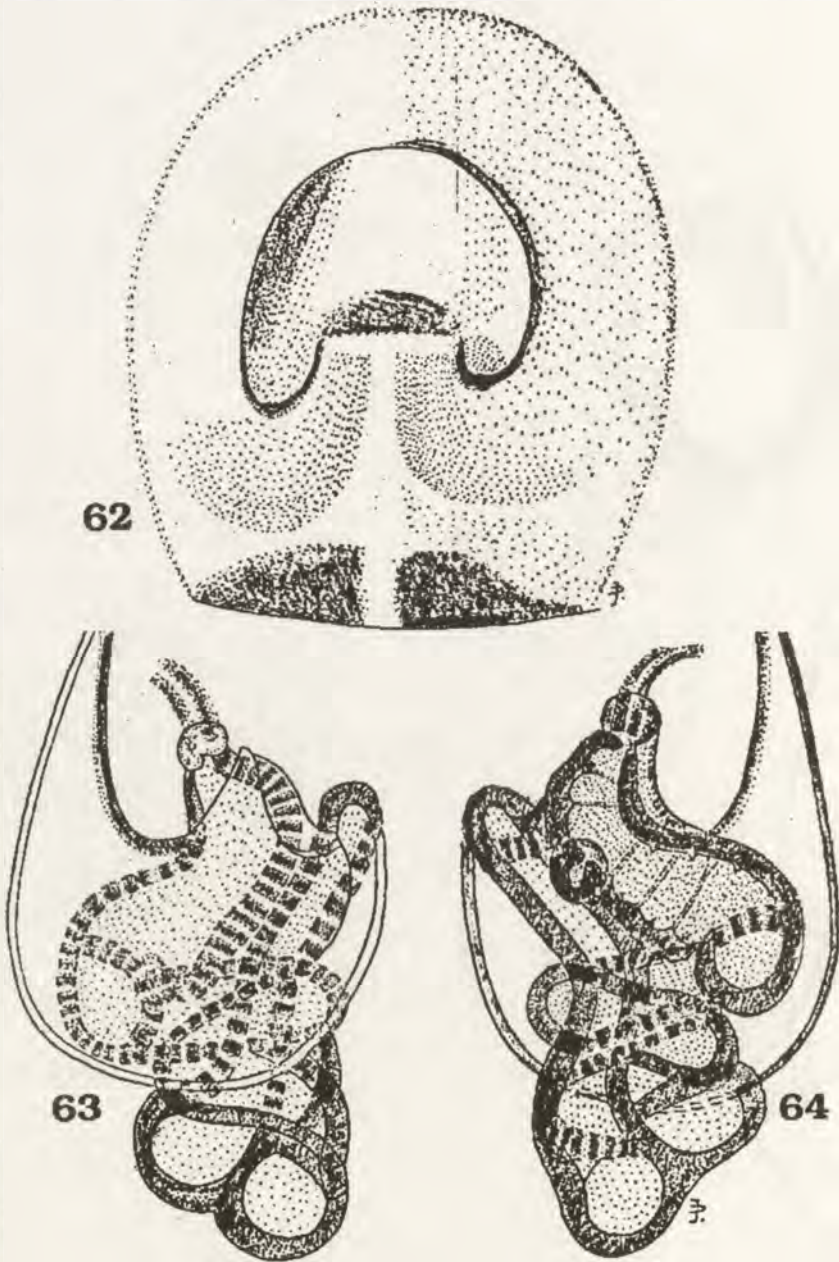


Figs 56–57. General appearance of *Helltophanoides spermathecalis* sp. n. (56) and *Hyllus semicupreus* (SIMON, 1885) (57).



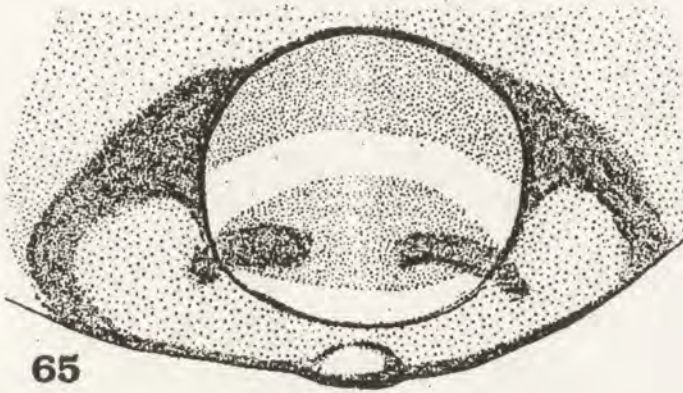


Figs 58-61. Comparison of palpal organ and tibial apophysis in *Hyllus pudicus* THORELL, 1895 (58, 59) and *Hyllus semicupreus* (SIMON, 1885) comb. n. (60, 61).

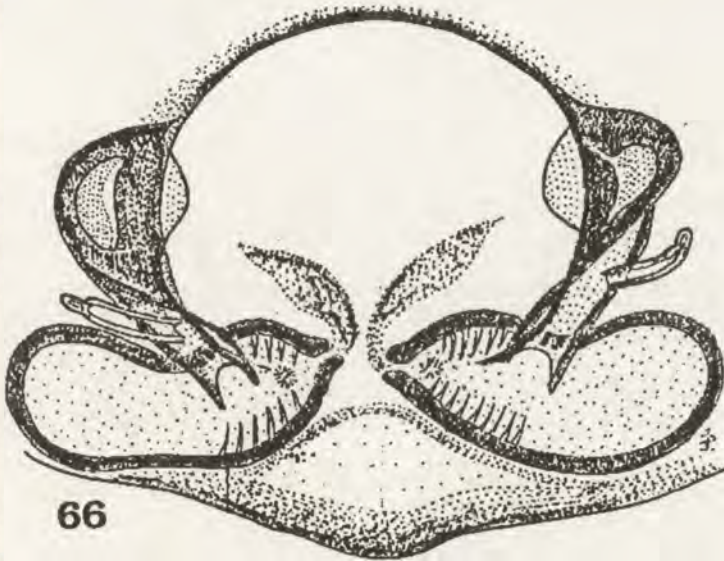


Figs 62–64 *Hylis* sp. cf. *semicupreus*. Epigyne (62) and its right spermatheca with channel – ventral (63) and dorsal view (64).



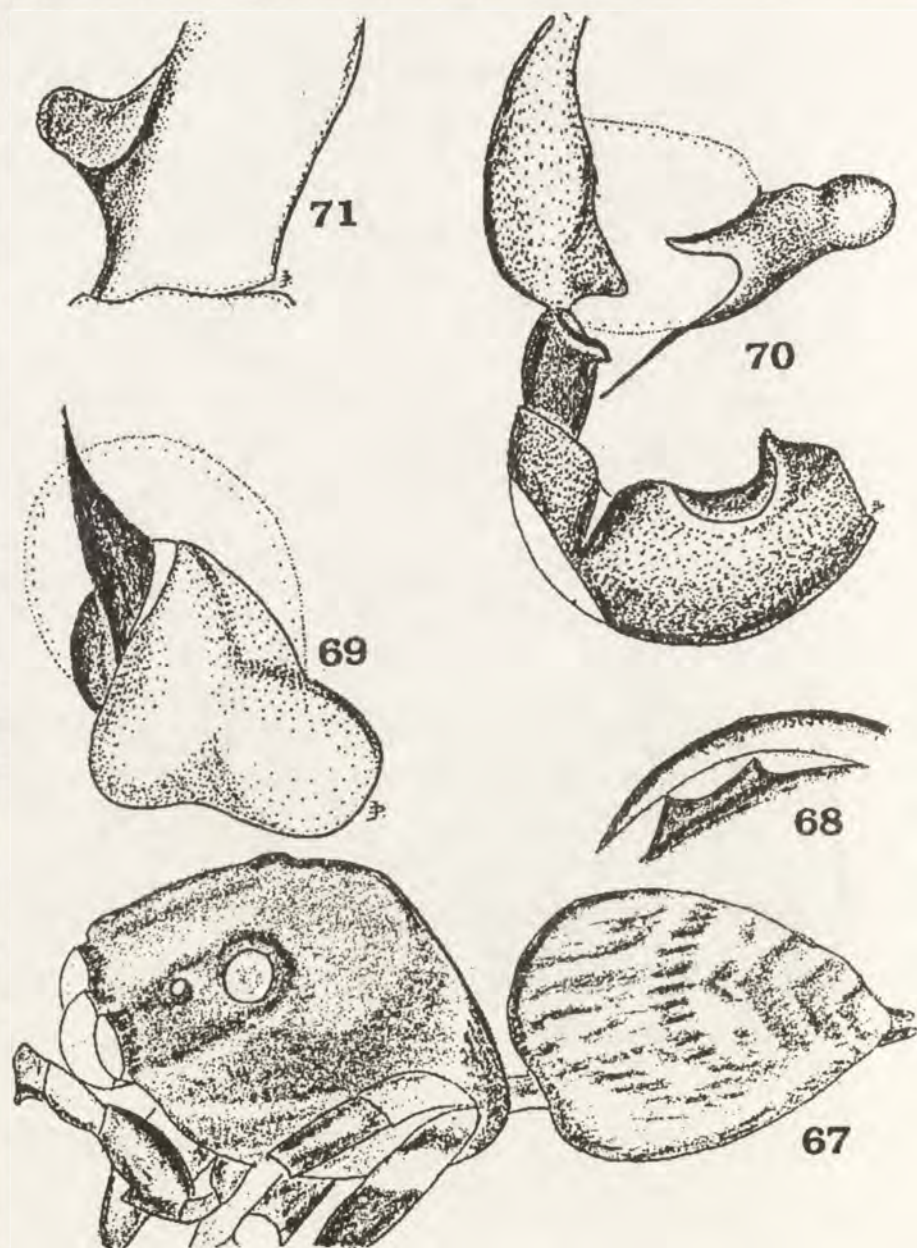


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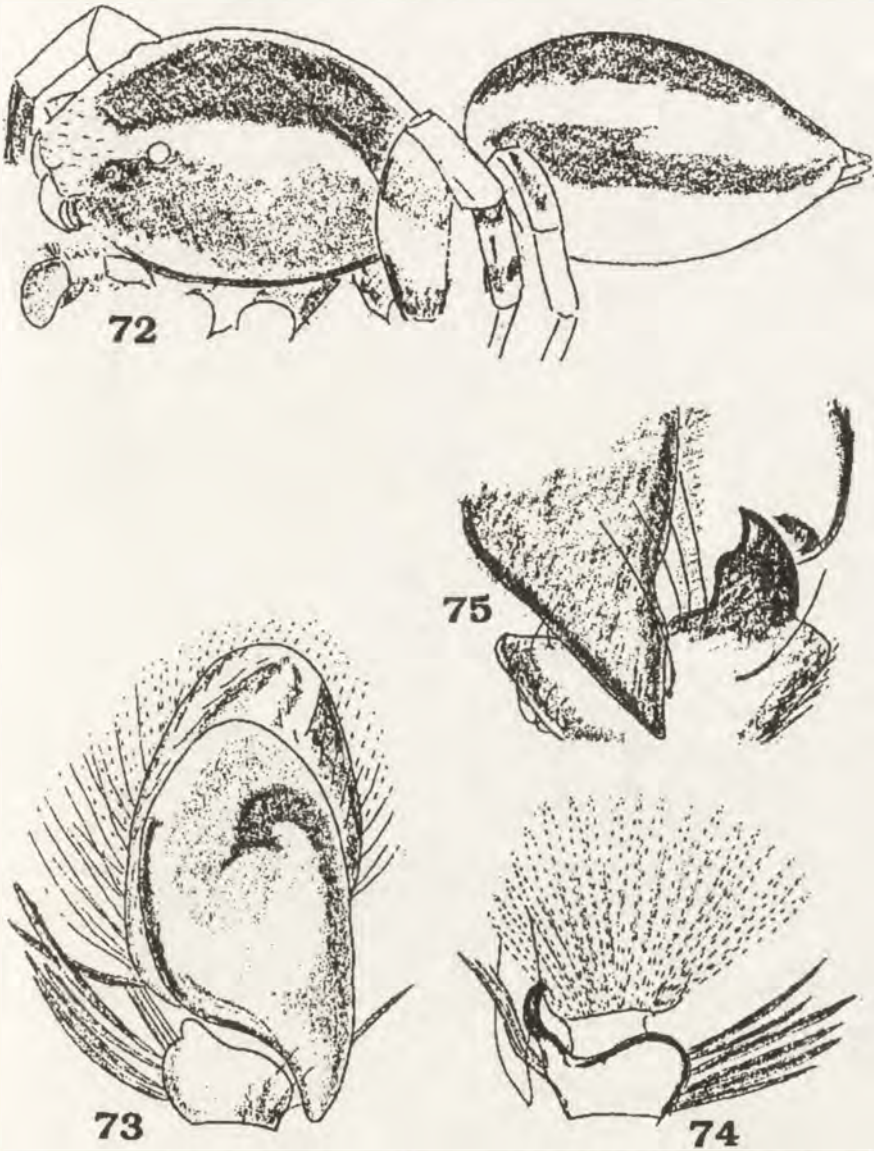
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Figs 65–66. *Imperceptus minutus* sp. n. Epigyne (65) and its internal structure (66).

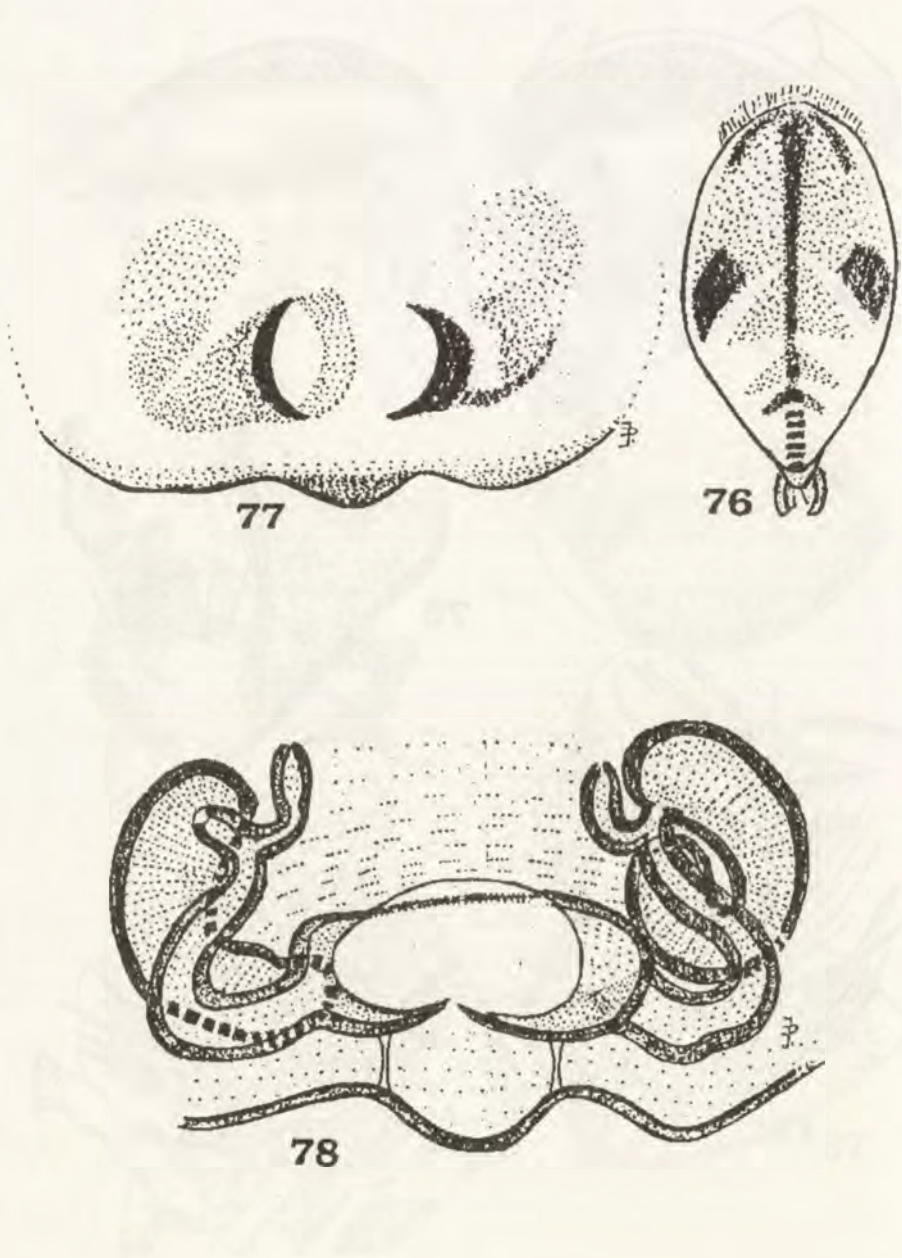


Figs 67-71. *Jajpurattus incertus* sp. n. General appearance (67), cheliceral dentition (68), palpal organ (expanded due to maceration): bulb and embolus (69), lateral view of pedipalp (70)



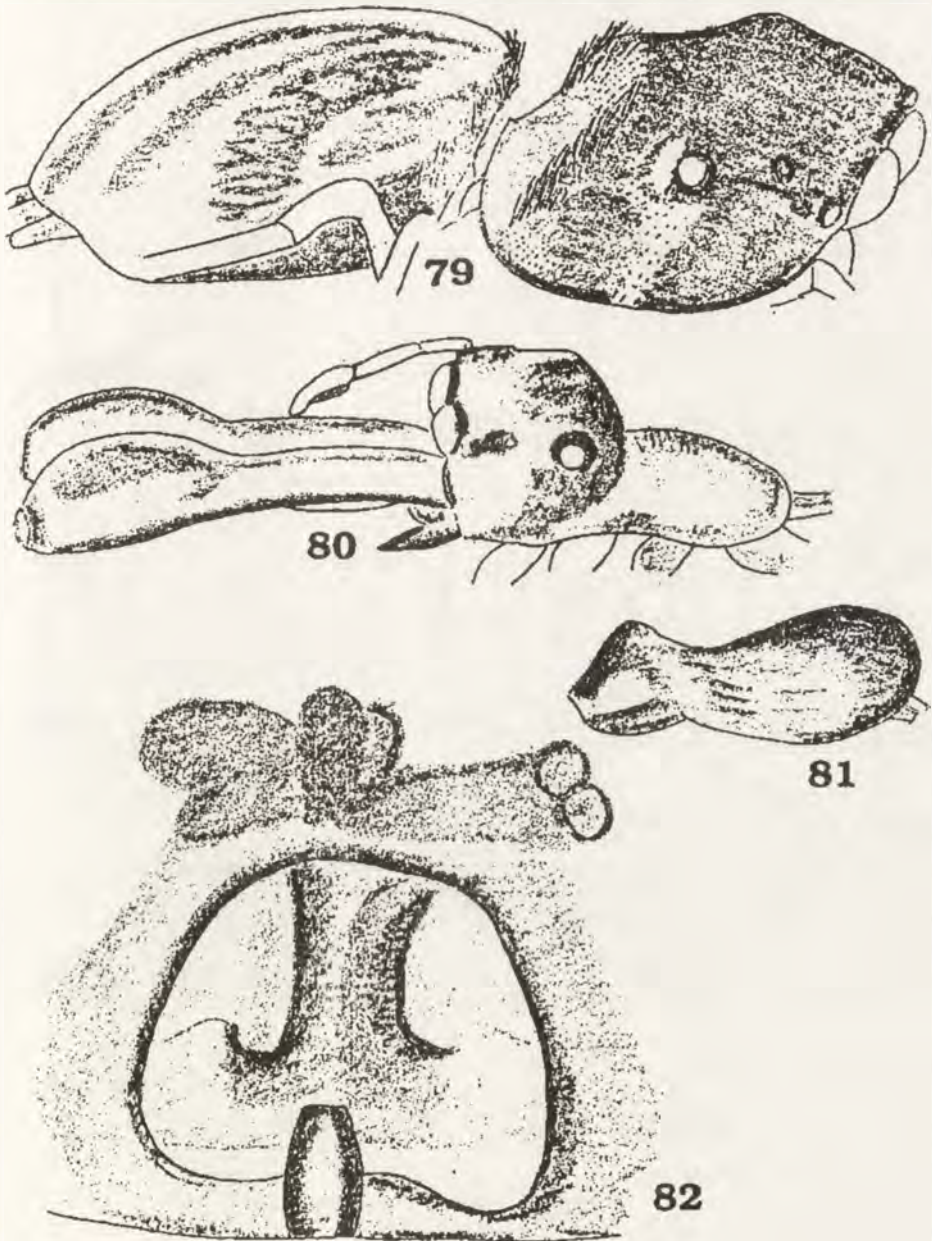


Figs 72-75. *Langona goaensis* sp. n. General appearance (72), palpal organ ventrally (73), its tibial apophysis dorsally (74) (note fan like radiating long setae, flat, colorless, light reflecting with transversal darker thin stripes pattern) and laterally (75).

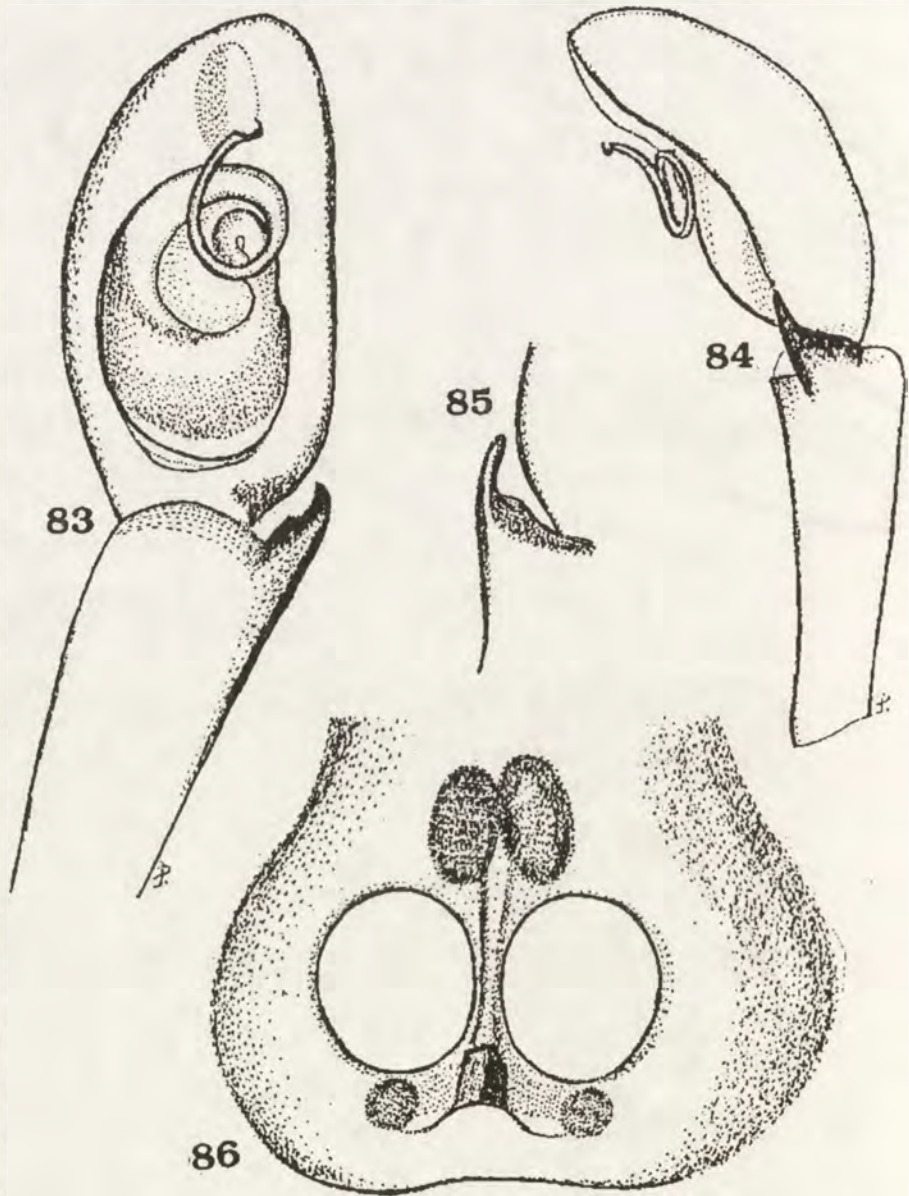


Figs 76–78. *Madhyattus jabalpurensis* sp. n. Abdominal pattern (76), epigyne (77) and its internal structure (78).



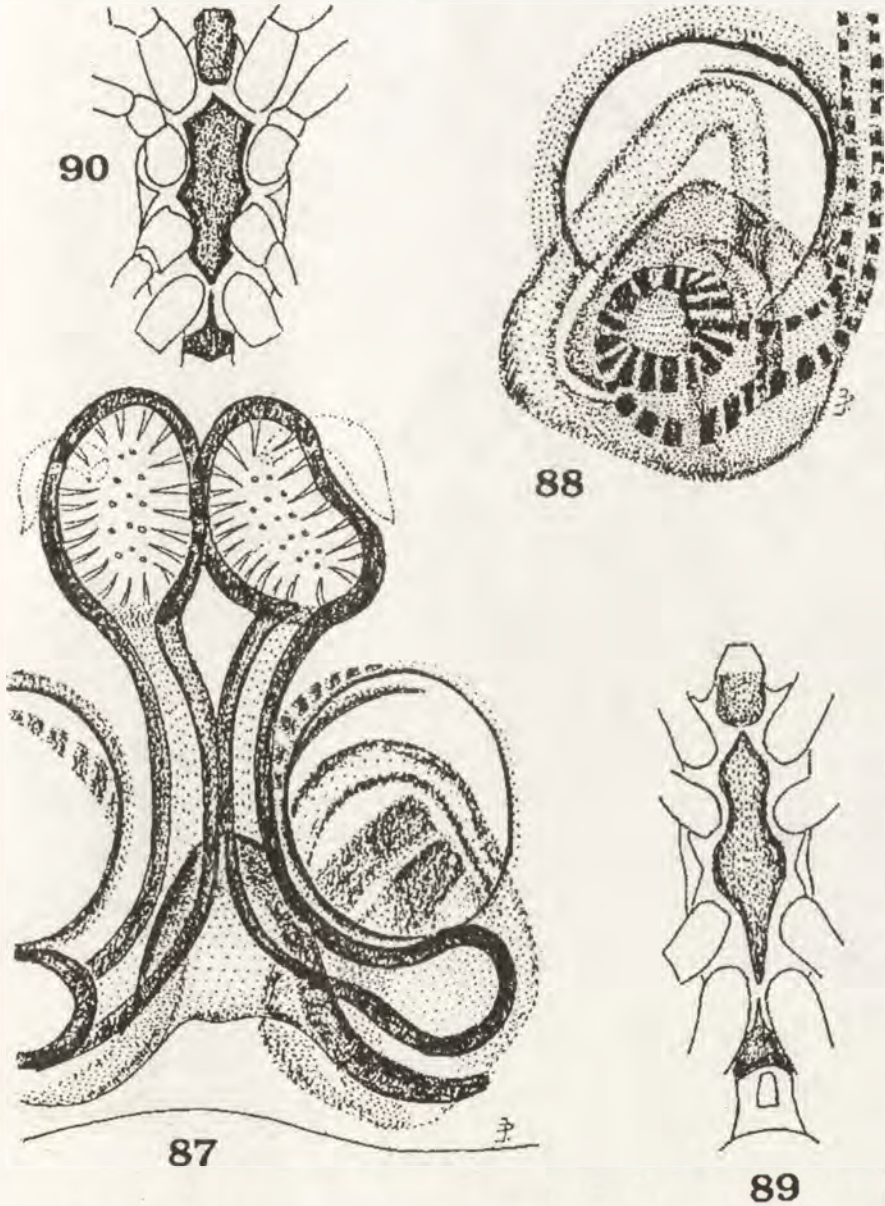


Figs 79–82. General appearance of *Madhyattus jabalpurensis* sp. n. (79) and a ♂ of *Myrmarachne dattarensis* sp. n.: cephalothorax (80) and abdomen (81); epigyne of ♀ *Myrmarachne* sp. 2 (82).

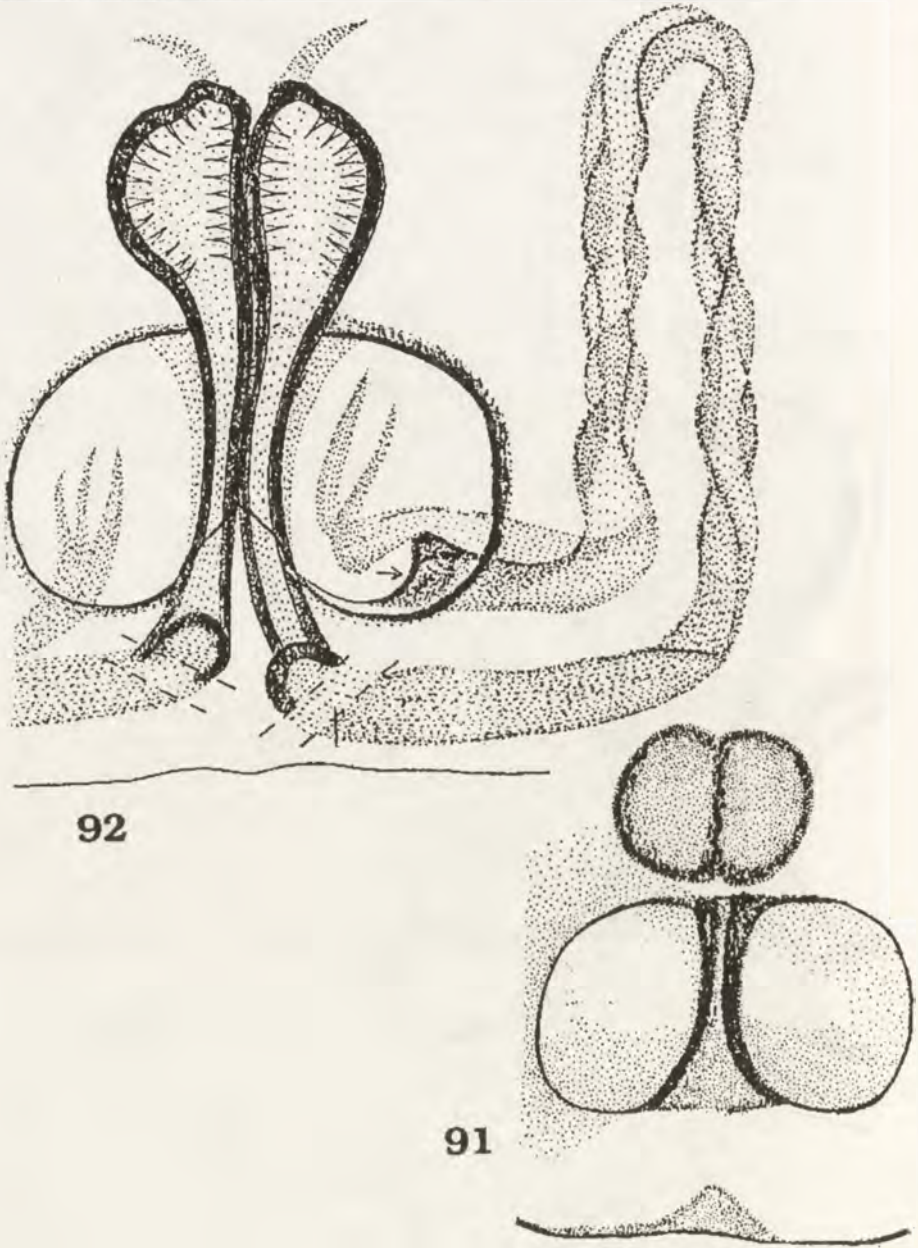


Figs 83–86. *Myrmarachne daitarensis* sp. n. ♂ palpal organ ventrally (83), laterally (84) and tibial apophysis dorsally (85); ♀ epigyne (86).



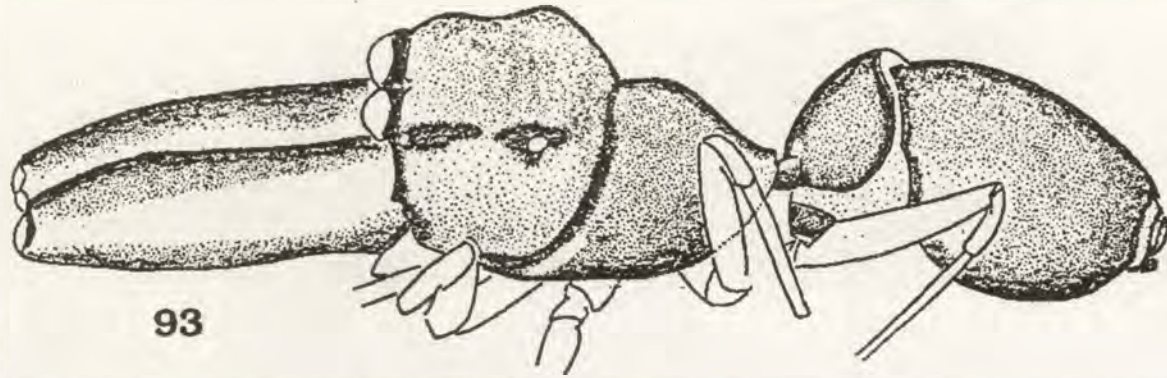


Figs 87-90. *Myrmarachne daitarensis* sp. n. Internal structure of epigyne (87), details of its membranous channels (88) and shape of sternum (89); *Myrmarachne jajpurensis* sp. n. shape of sternum (90).



Figs 91-92. *Myrmarachne jajpurensis* sp. n. Epigyne (91) and its internal structure (soft membranous copulatory channel disentangled during preparation) (92).



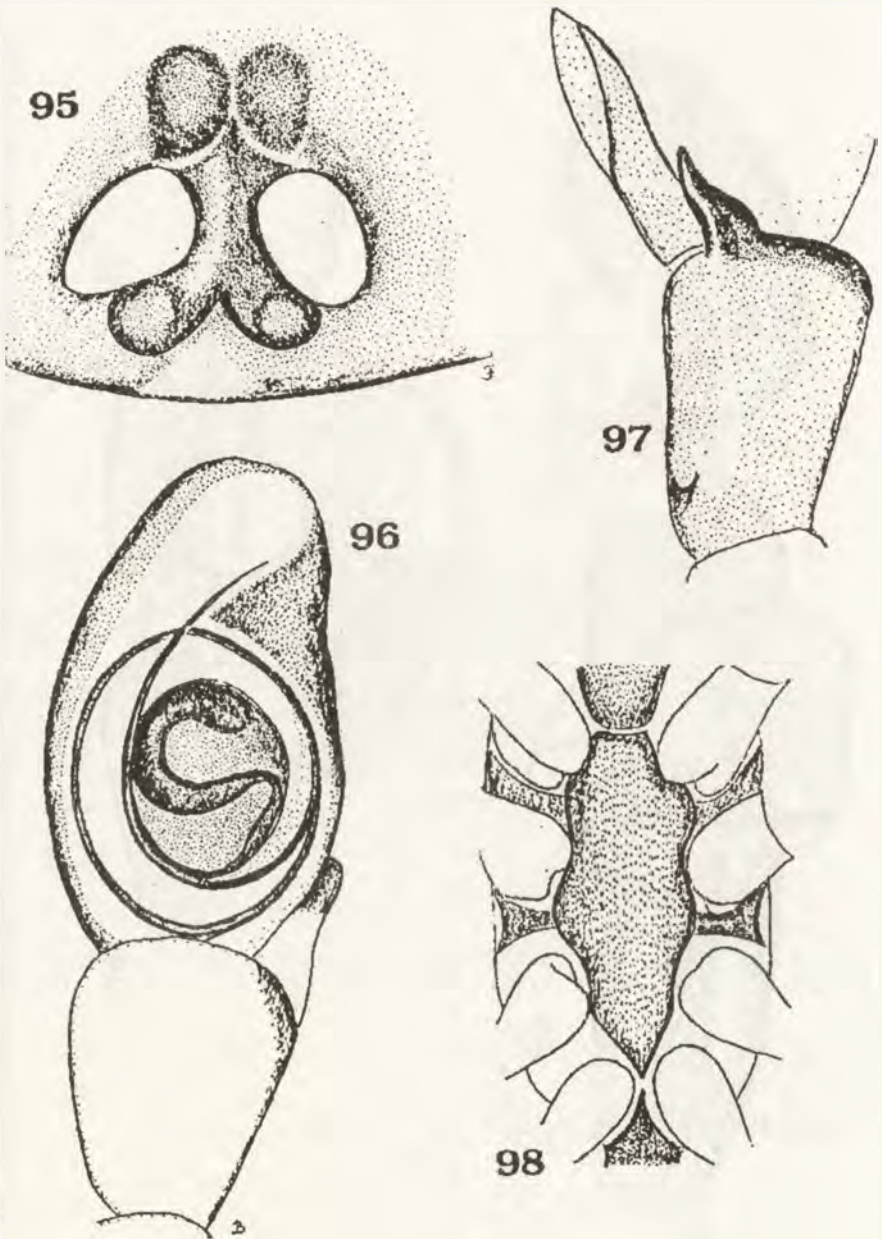


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Fig. 93-94. *Myrmarachne kiboschenis* LESSERT, 1925. ♂ general appearance (93), ♀ epigyne (external view only) (94).



Figs 95–98. *Myrmarachne tiboschensis* LESSERT, 1925 (95–98): palpal organ ventrally (95), tibia laterally (96) and sternum (97); *Myrmarachne* sp. 1 (98): epigyne external view only.



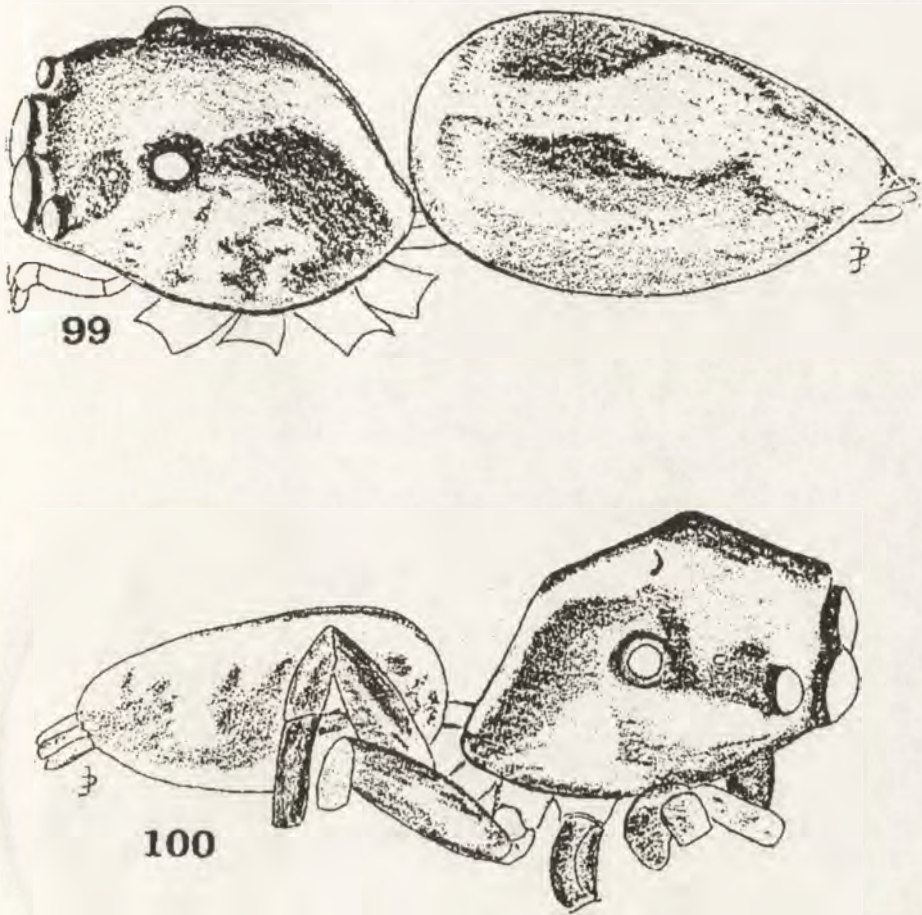


Fig. 99-100. General appearance of *Orissania daitarica* sp. n. (99) and "*Thyene*" *indica* sp. n. (100).

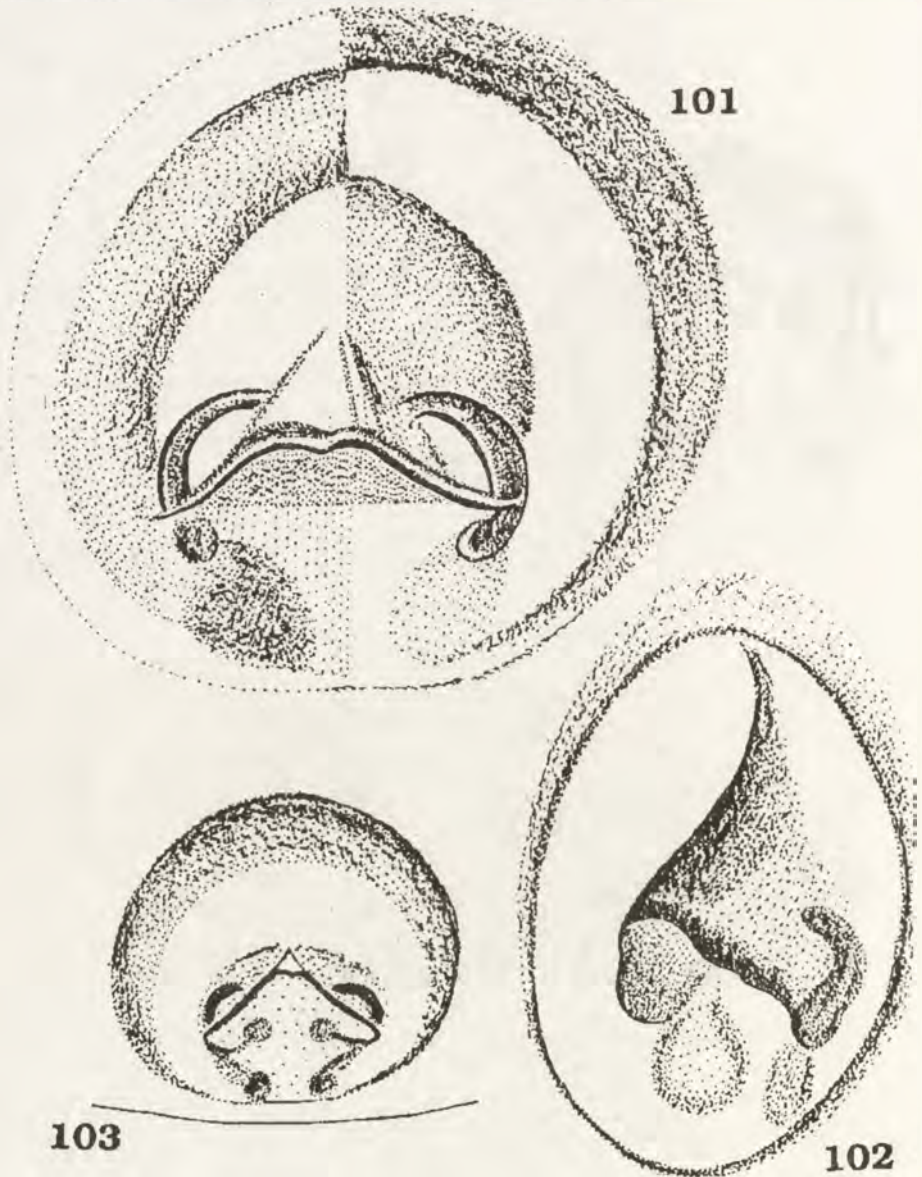


Fig. 101-103. *Orissania daitarica* sp. n. Epigyne (101), its lateral view (102) and surroundings (103).



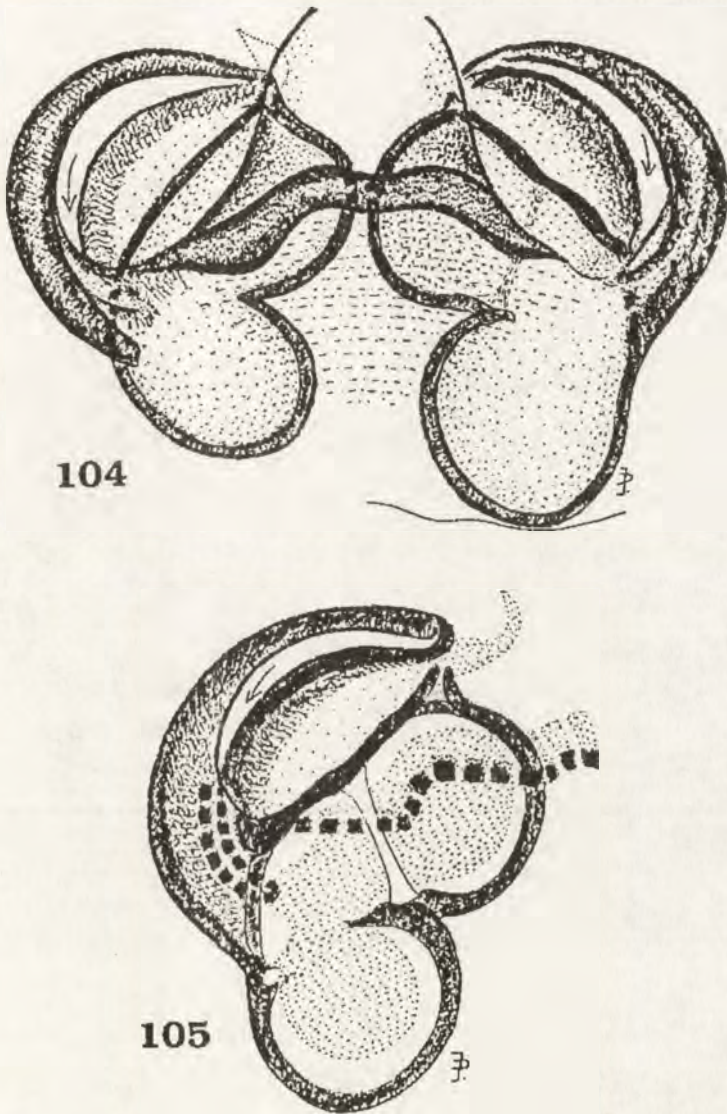
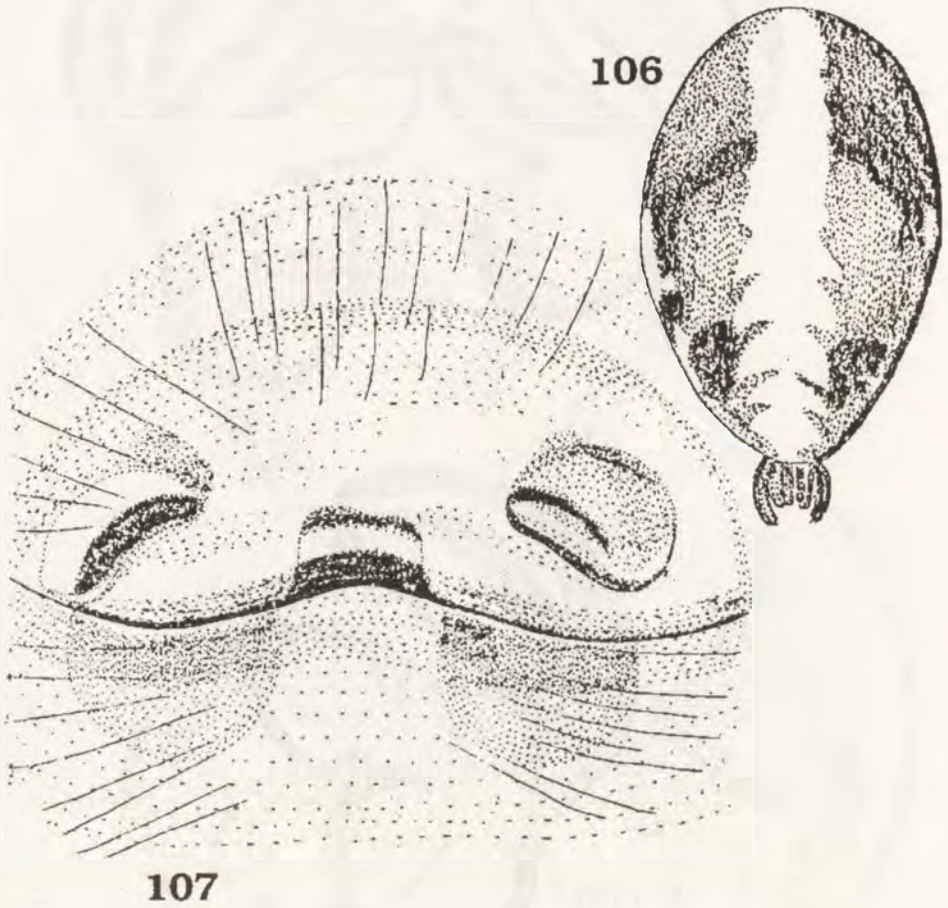


Fig. 104-105. *Orissania daitarica* sp. n. Internal structure of epigyne (104) and its right half in dorsal view (105).

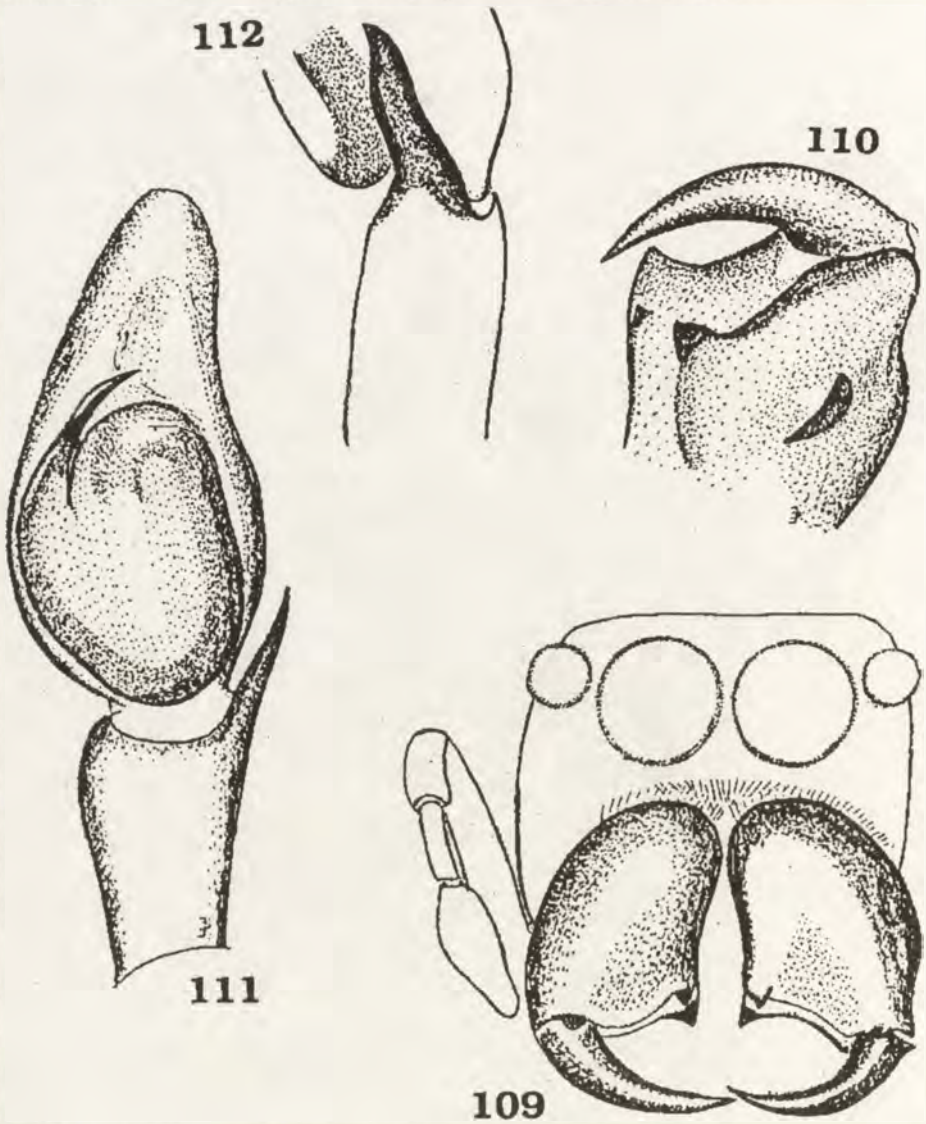


Figs 106–107. *Pancortius darjeelingianus* sp. n. Abdominal pattern (106) and epigyne (107).



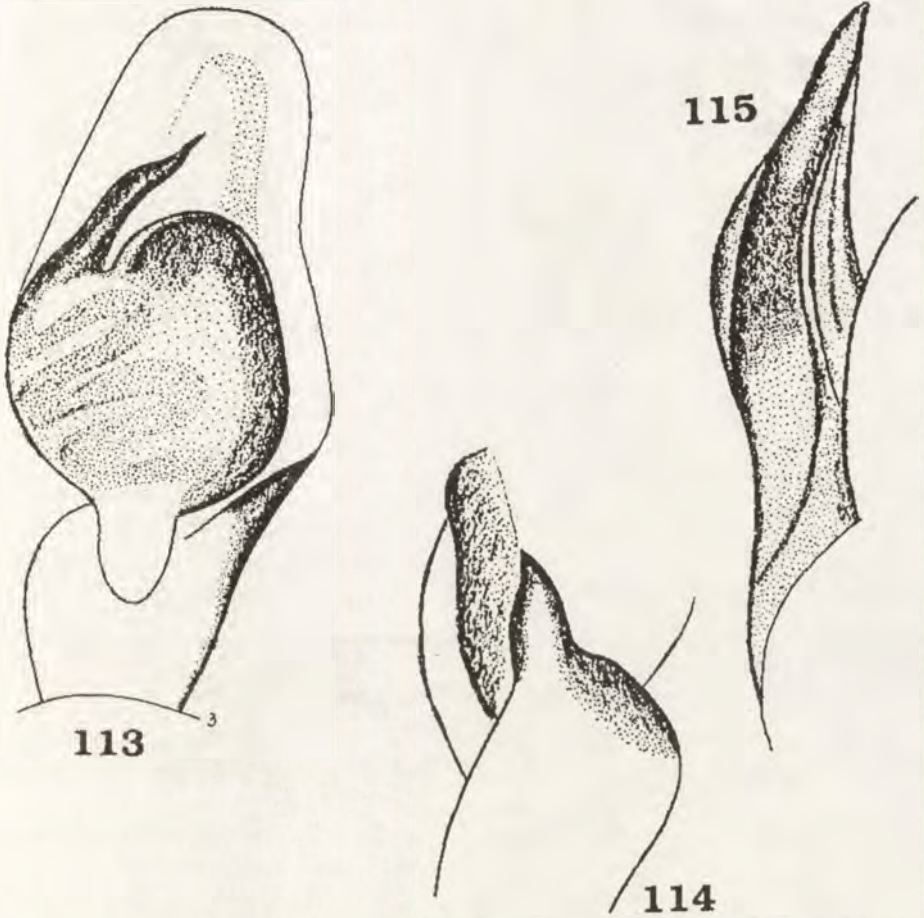


Figs 108. *Pancorius darjeelingianus* sp. n. Internal structure of epigyne, right half.

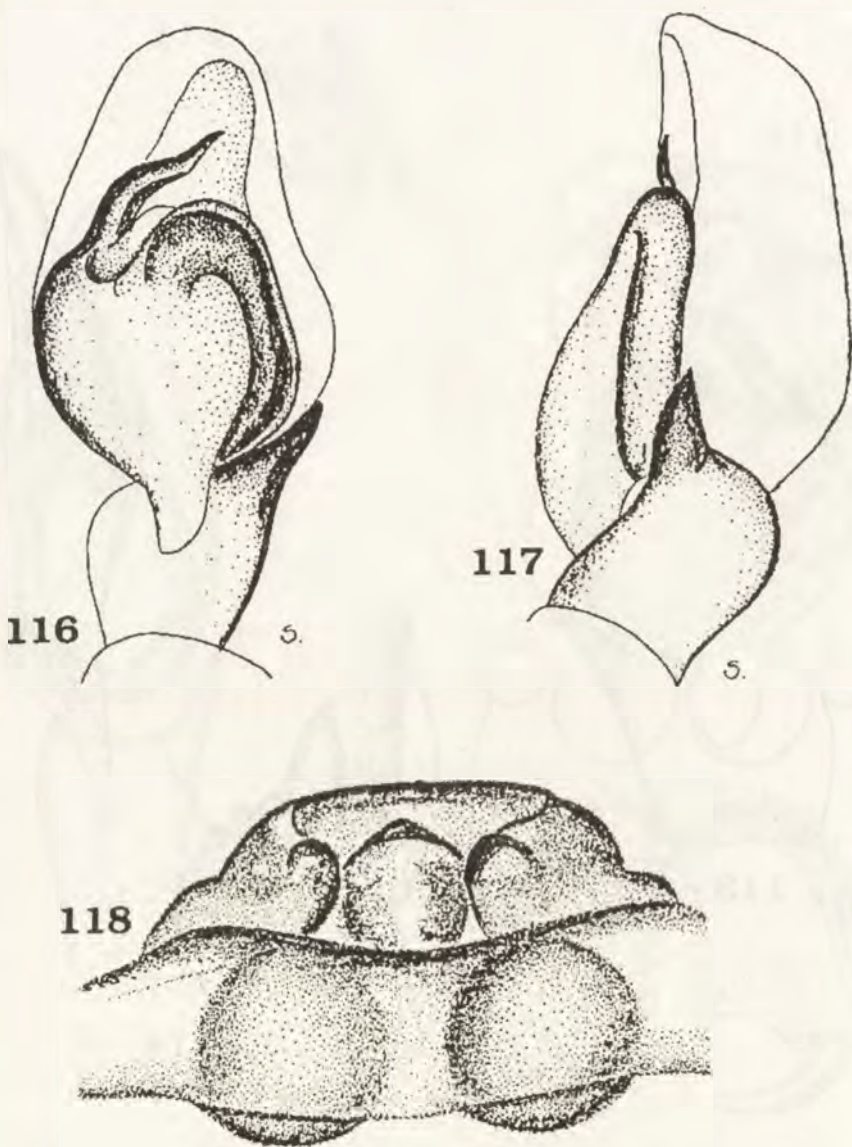


Figs 109–112. *Paucorius magnus* ŽABKA, 1985. Frontal appearance (109), chelicera (110), palpal organ (111, 112).





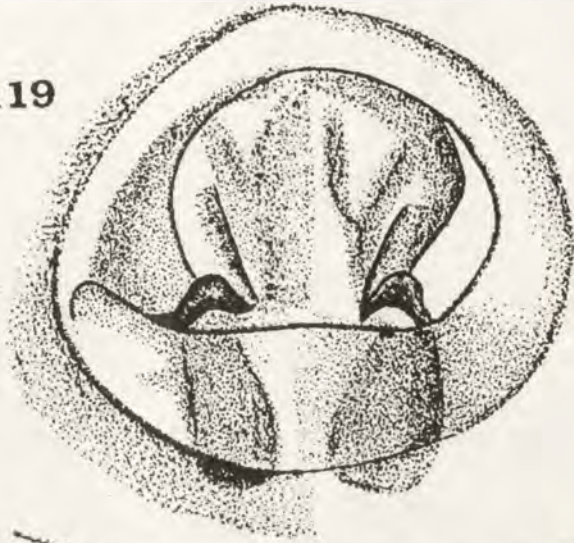
Figs 113-115. *Pancorius submontanus* sp. n. Palpal organ (113), tibial apophysis (114) and embolus latero-medially (115) in specimen from the Budapest collection.



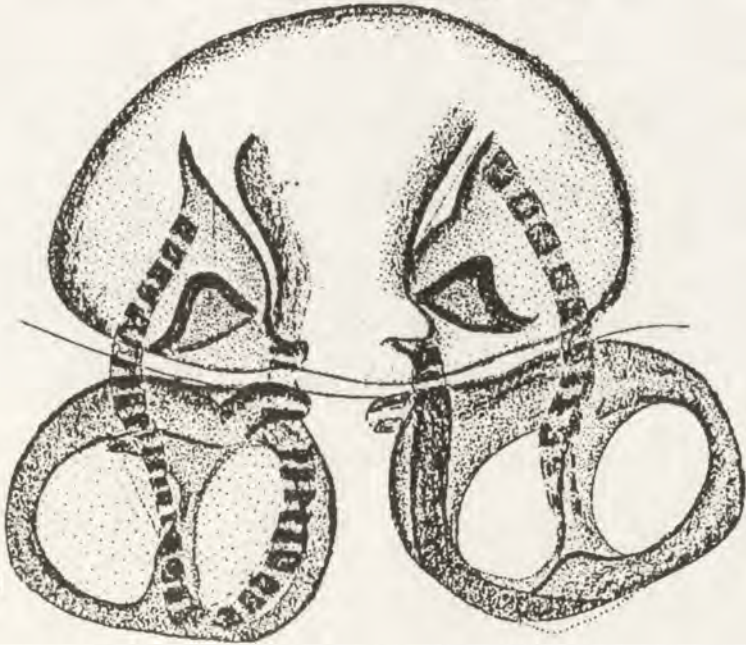
Figs 116–118. *Pancorius submontanus* sp. n. Palpal organ (116, 117) and posterior horizontal view on epigyne (118) in specimens from the Paris collection.



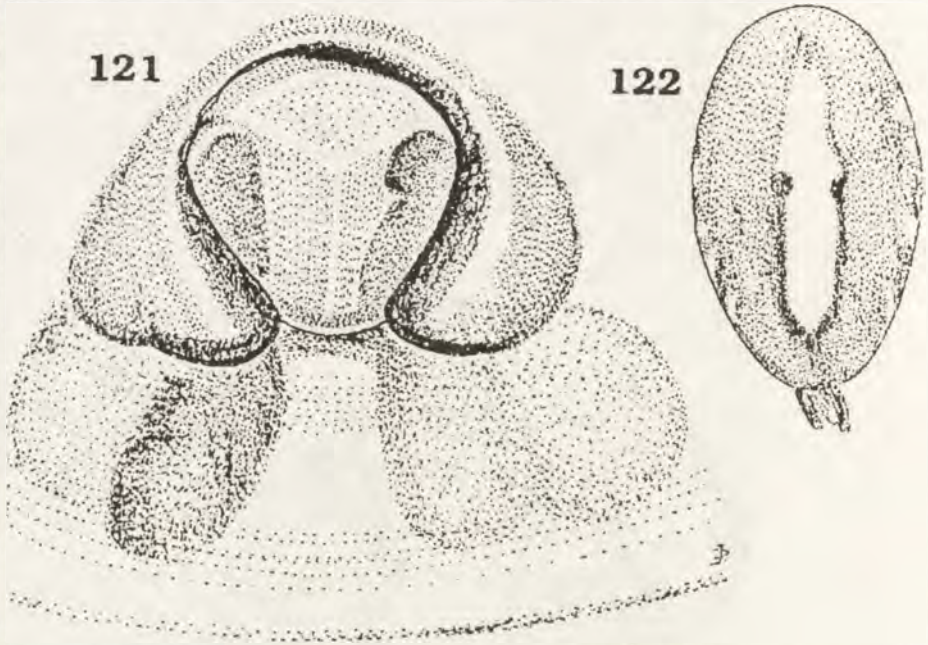
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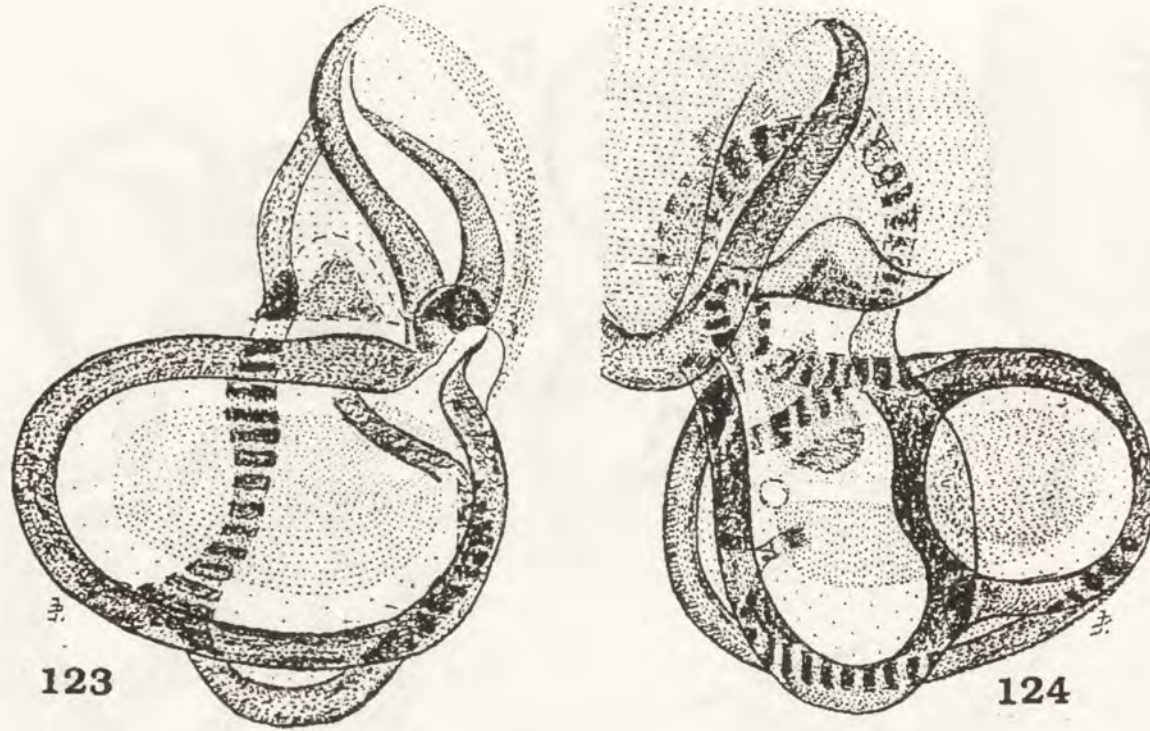


Figs 119–120. *Pancorius submontanus* sp. n. Epigyne (119) and its internal structure (120) in specimens from the Paris collection.



Figs 121–122. *Pancorius submontanus* sp. n. Epigyne (121) and abdominal pattern (122) in specimen from the Budapest collection.

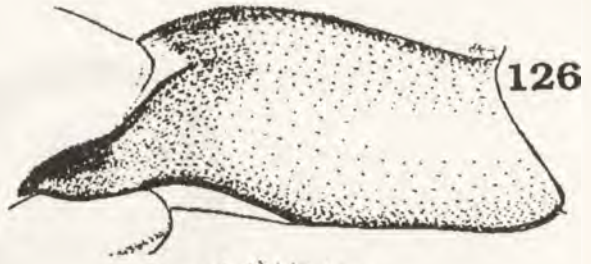




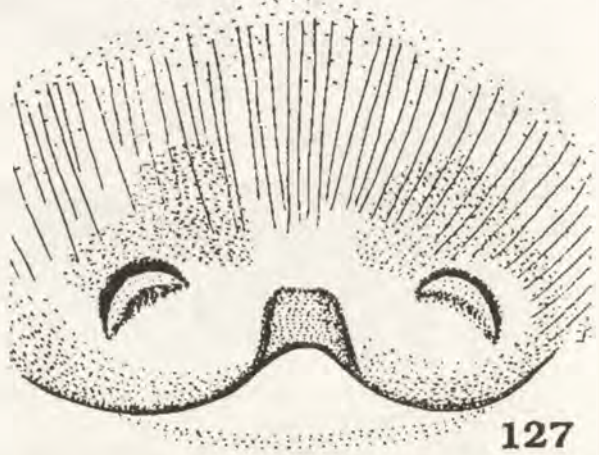
Figs 123-124. *Pancortius submontanus* sp. n. Single spermatheca in dorsal (123) and ventral view (124) in specimen from the Budapest collection.



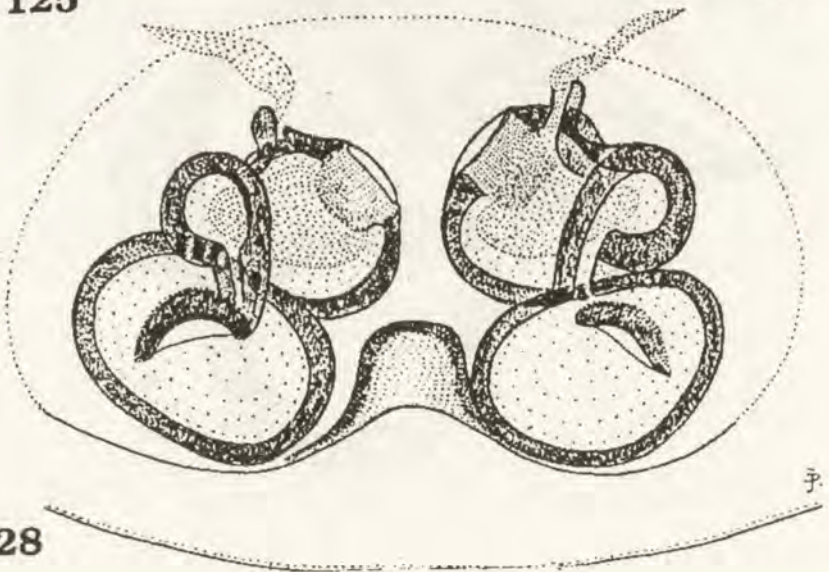
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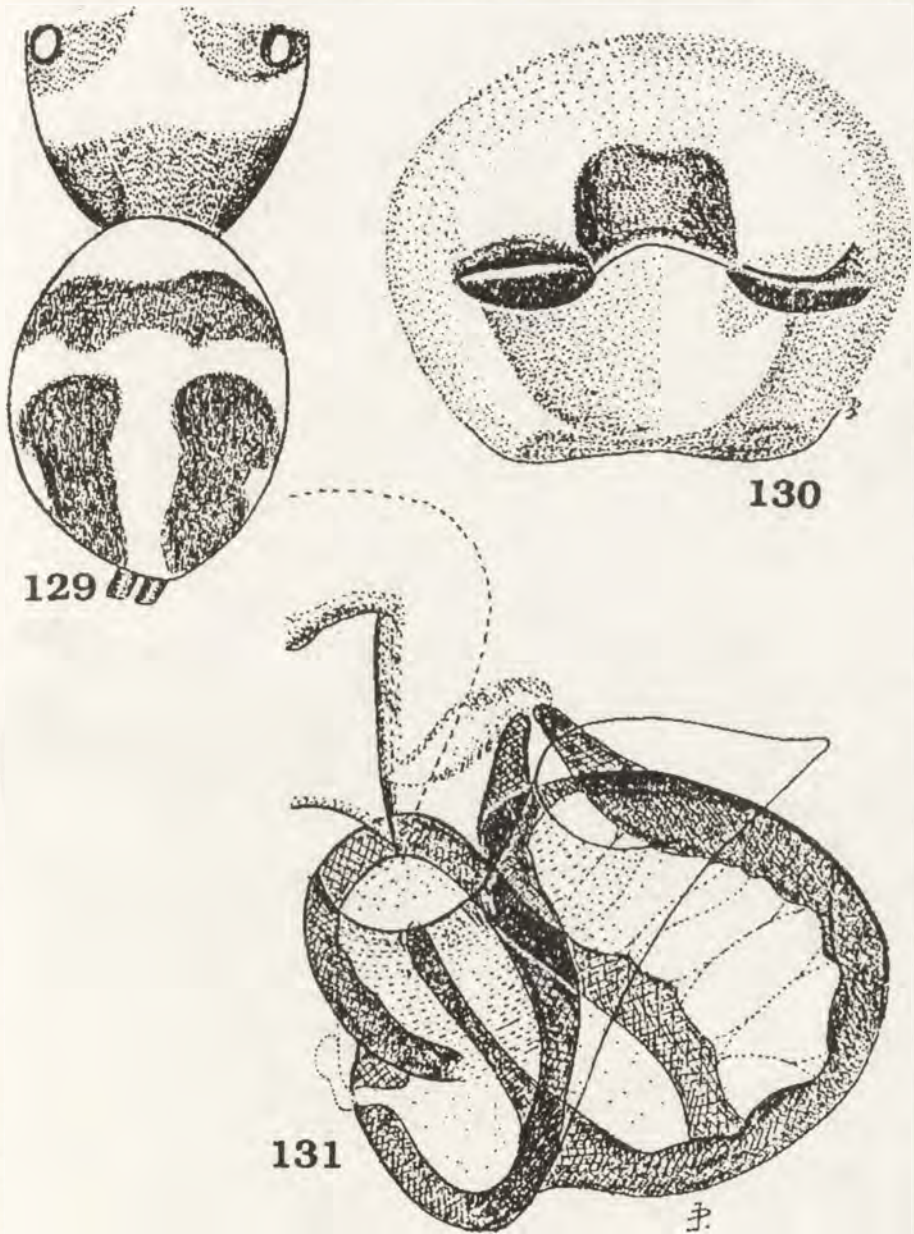
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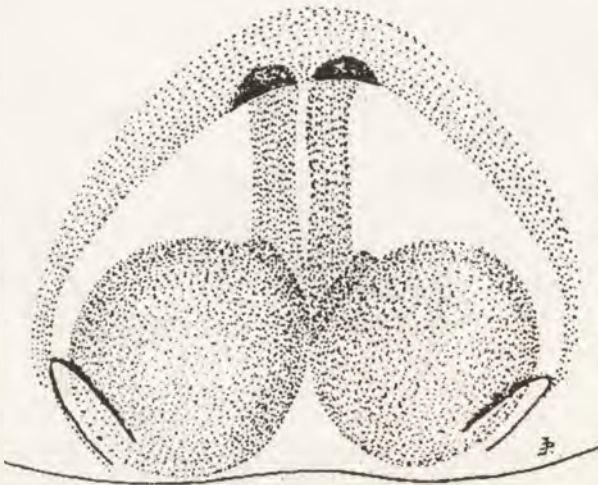
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Figs 125–128. *Pancorius tagorei* sp. n. Palpal organ (125), palpal tibia laterally (126); epigyne (127) and its internal structure (128).





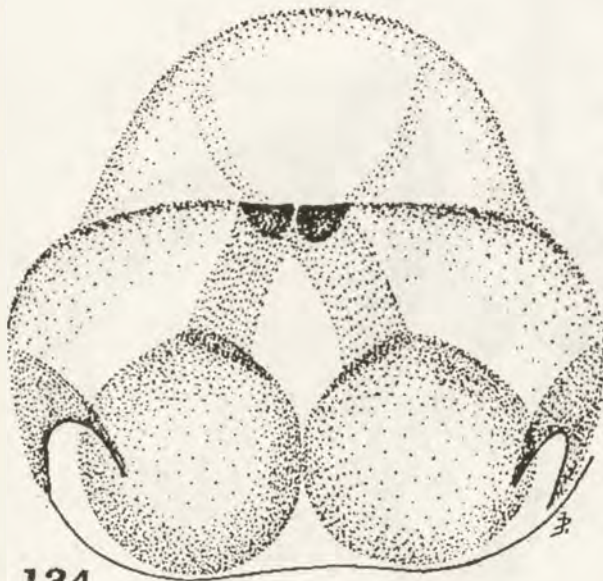
Figs 129–131. *Pellenes maderianus* KULCZYNSKI, 1905. Colour pattern (129), epigyne (130) and its internal structure (131).



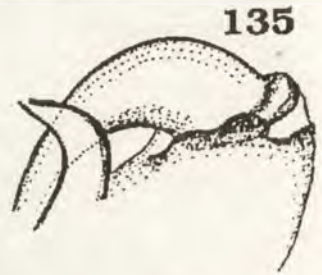
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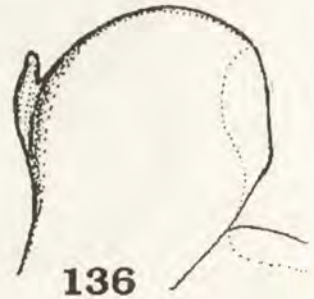
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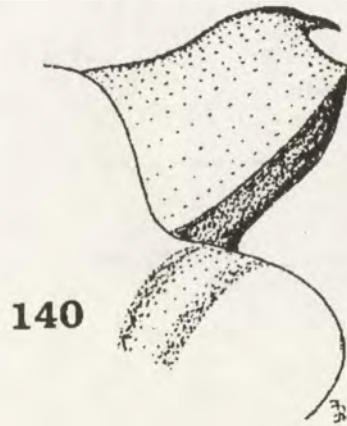
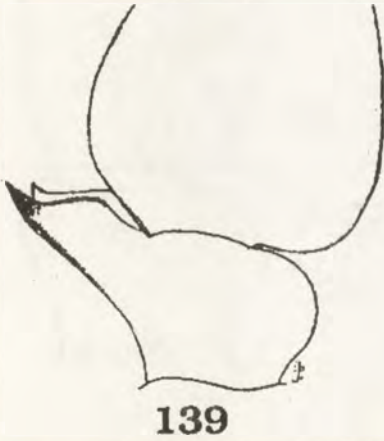
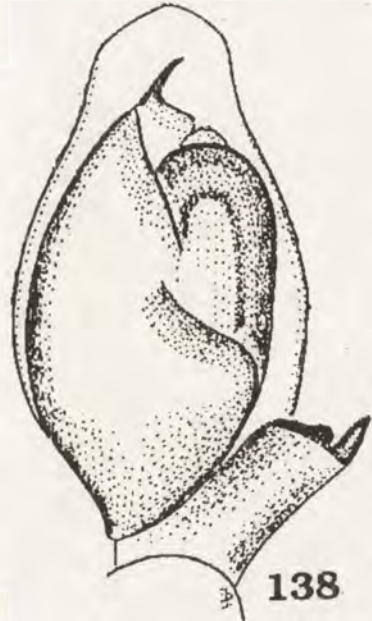
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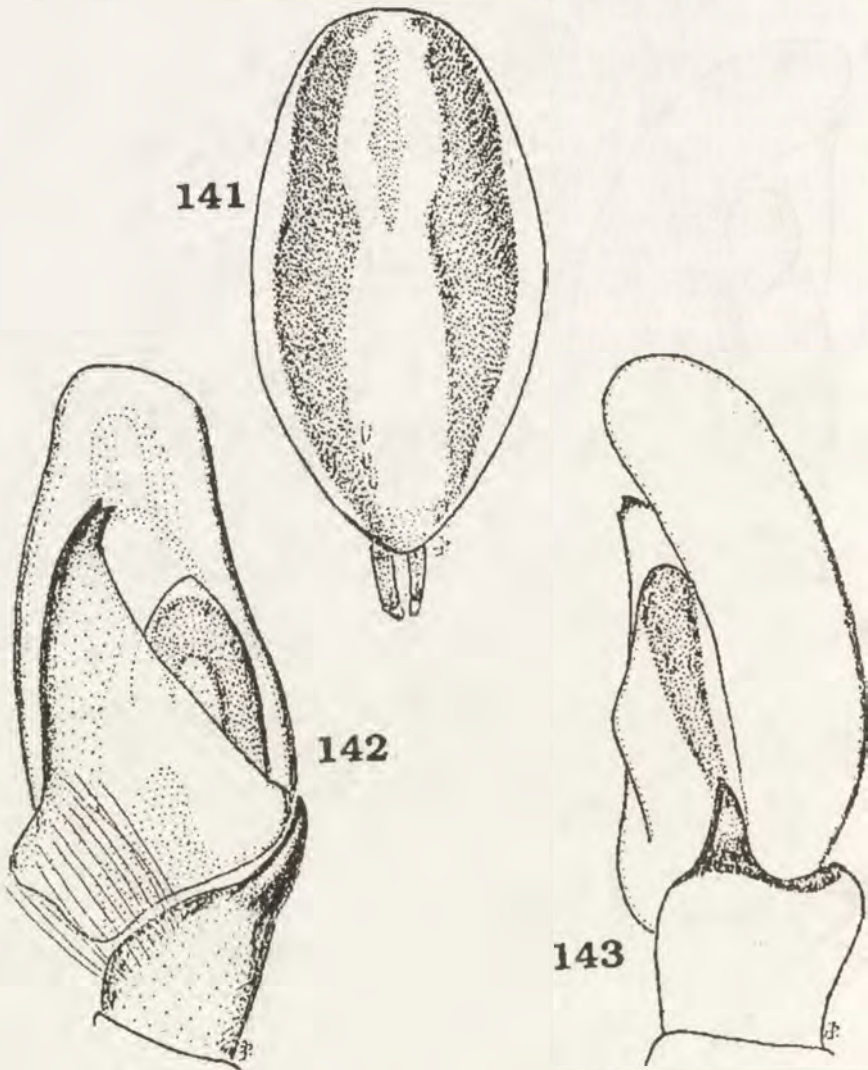
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Figs 132-136. Epigyne (1342) and abdominal pattern (133) in *Phintella assamica* sp. n.; *Phintella bifurcata* sp. n. epigyne (134), also cheliceral tooth (135) and hook like process on maxillary plate (136).



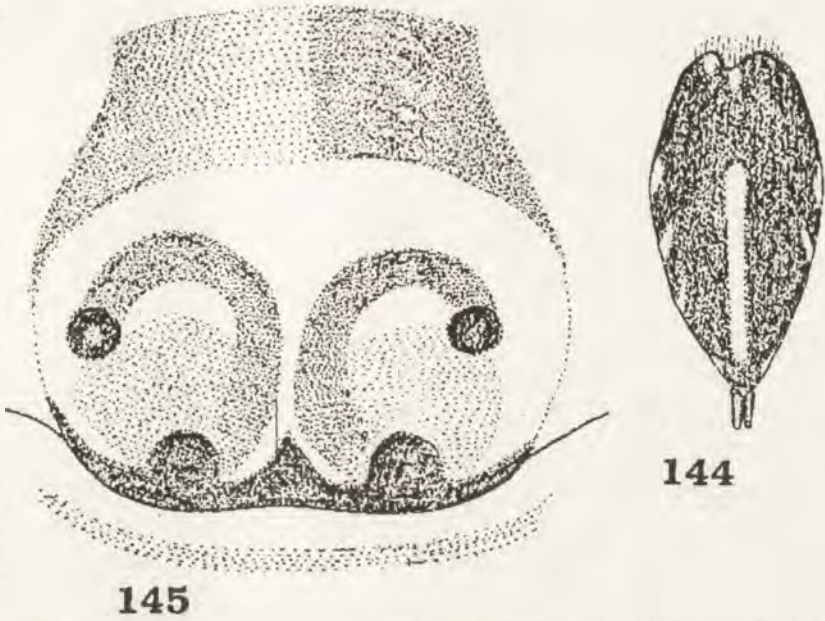


Figs 137-140. *Phintella bifurcata* sp. n. Palpal organ (137, 138), tibial apophysis in dorsal (139) and anterior views (140).

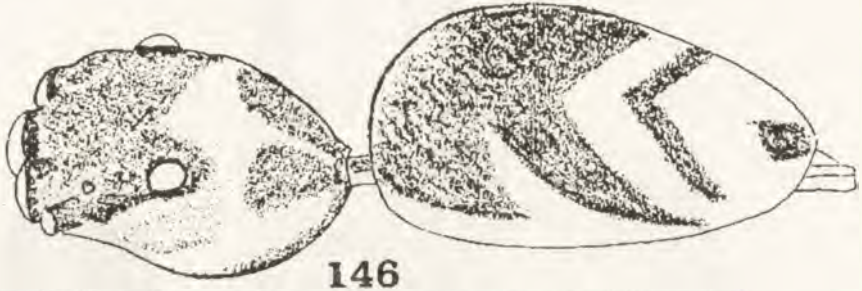


Figs 141–143. *Phintella debilis* (THORELL, 1892). General appearance of abdomen (141), palpal organ ventrally (142) and laterally (143).





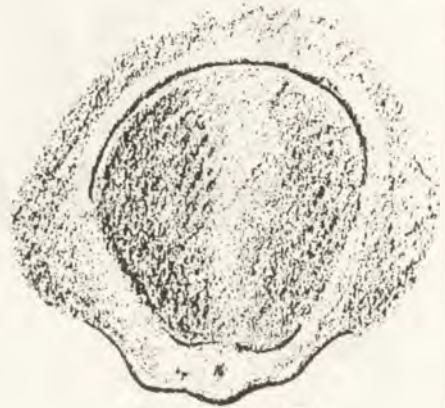
Figs 144-145. *Phintella debilis* (THORELL, 1892). Epigyne (145) and abdominal pattern (144).



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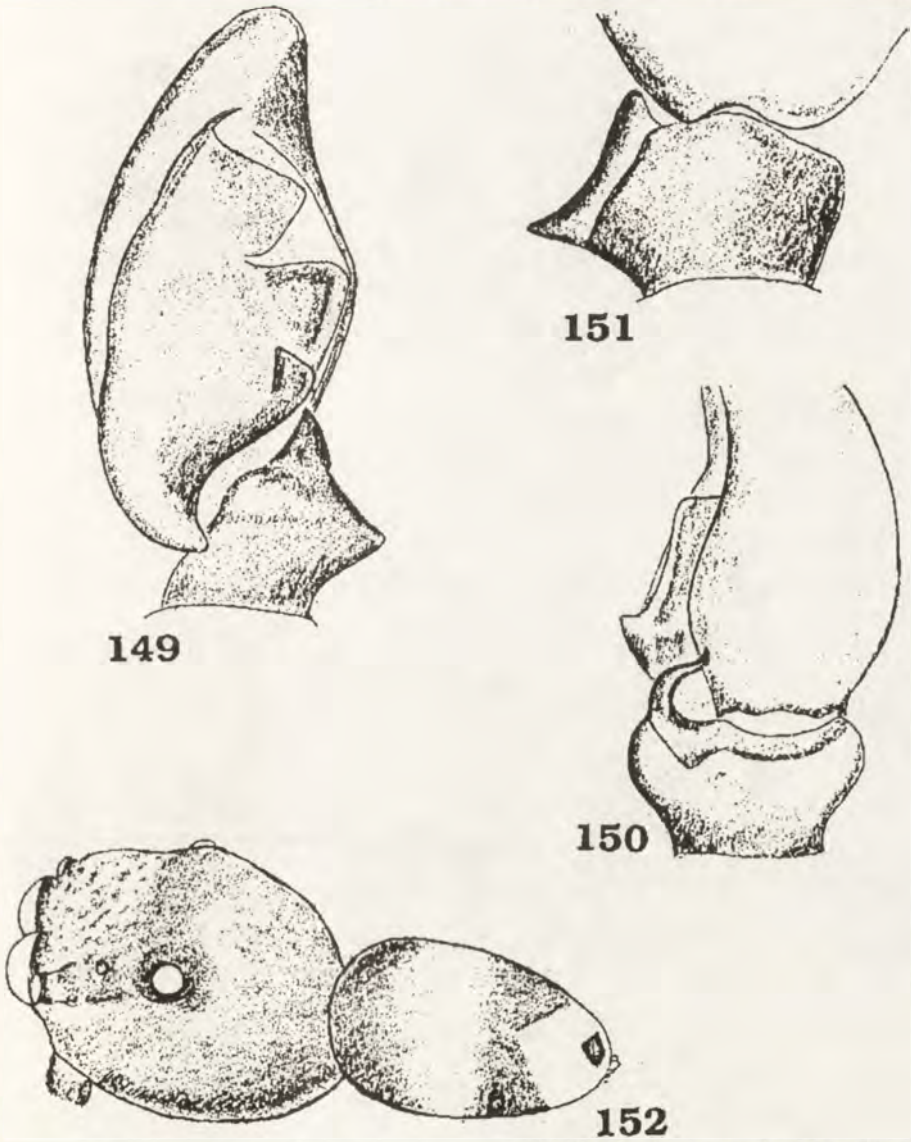
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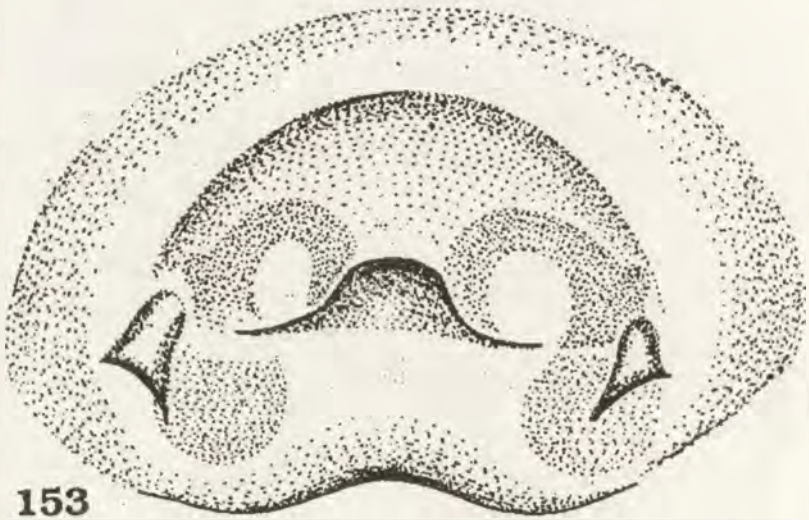
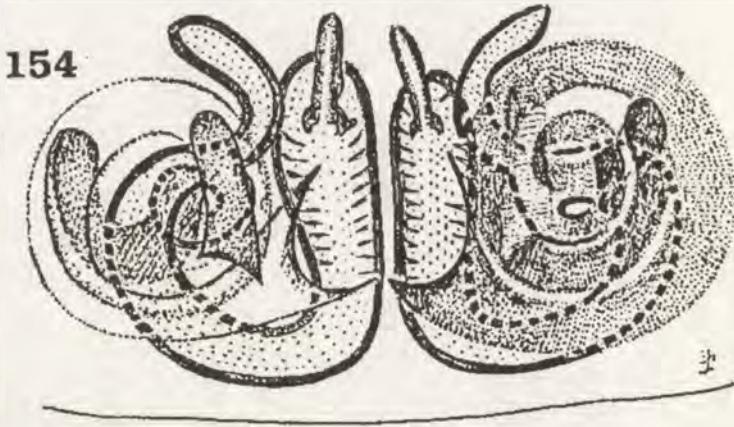
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Figs 146-148. *Phintella suknana* sp. n. General appearance (146) and epigyne (147);  
*Phintella vittata* (C.L. Koch, 1846) - epigyne (148).



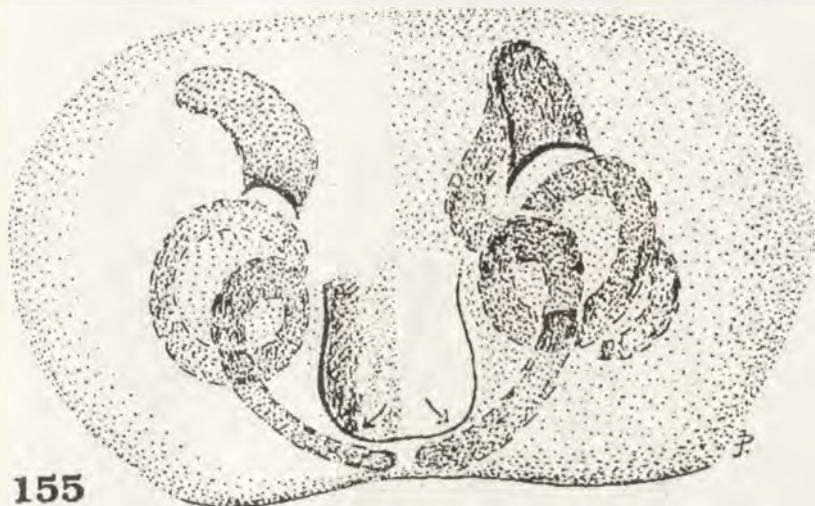


Figs 149-152. *Phintella vittata* (C.L. KOCH, 1846). Palpal organ (149-151) and general appearance (152).

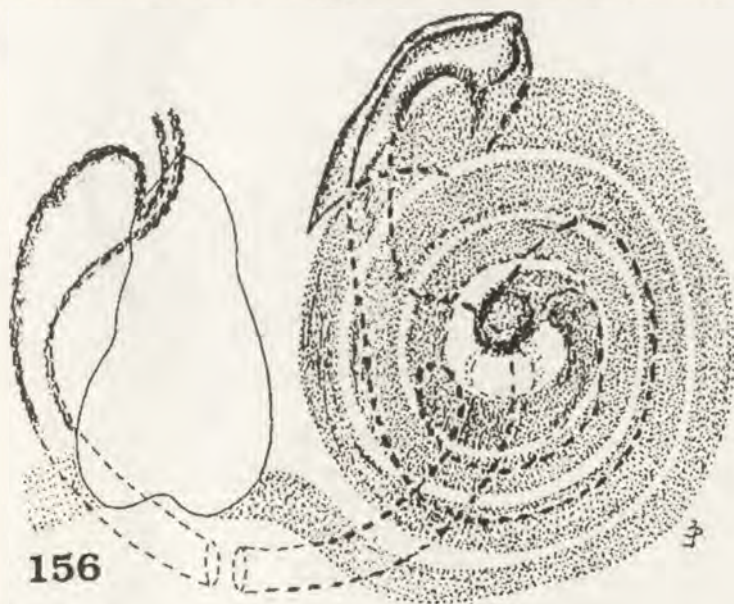


Figs 153–154. Epigyne in *Pseudicicus frigidus* (O. P.-CAMBRIDGE, 1885) (153) and *Pseudicicus dallarticus* sp. n. (154) (internal structure with outline of the external appearance only).



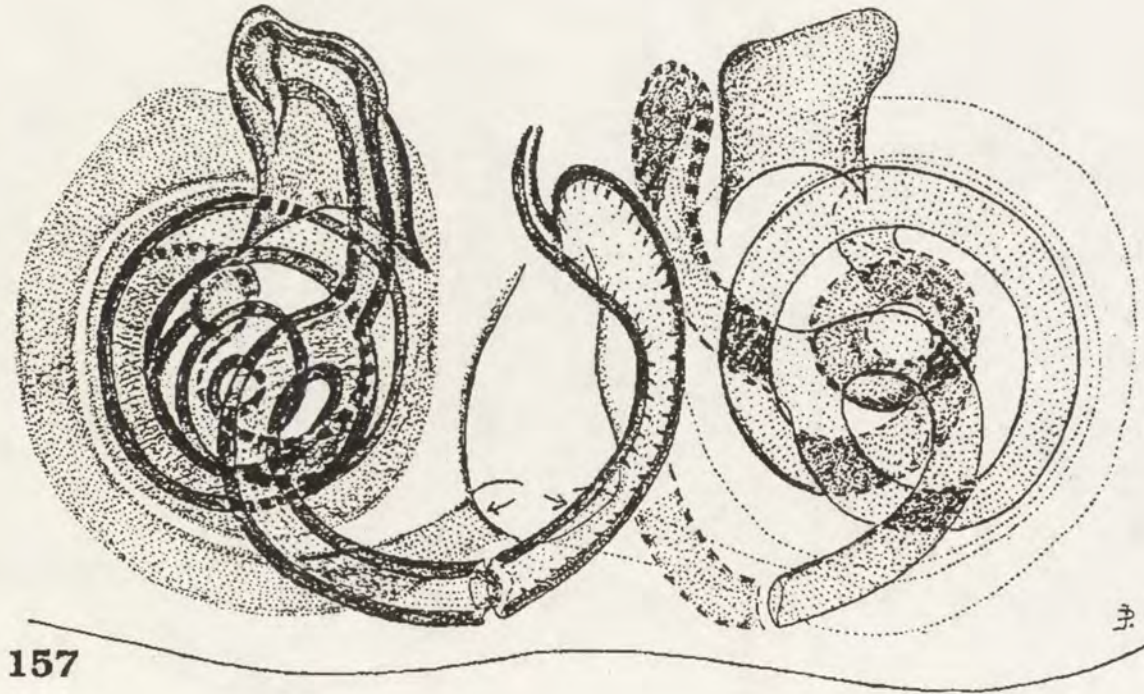


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Figs 155–156. *Pseudicius modestus* SIMON, 1885. Epigyne (155) and its internal structure (156). Note that channels visible through tegument of epigyne are in fact not original copulatory channels as it may appear but their heavily sclerotized distant ends (see also Fig. 157).



Figs 157. *Pseudictius modestus* SIMON, 1885. Internal structure of epigyne, shown on semi-diagrammatic drawing (see also Fig. 155-156).





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Figs 158–160. *Rhene albiger* (C. L. Koch, 1848). Abdominal pattern (158), palpal organ ventrally (159), embolus and conductor ventro-laterally (160).



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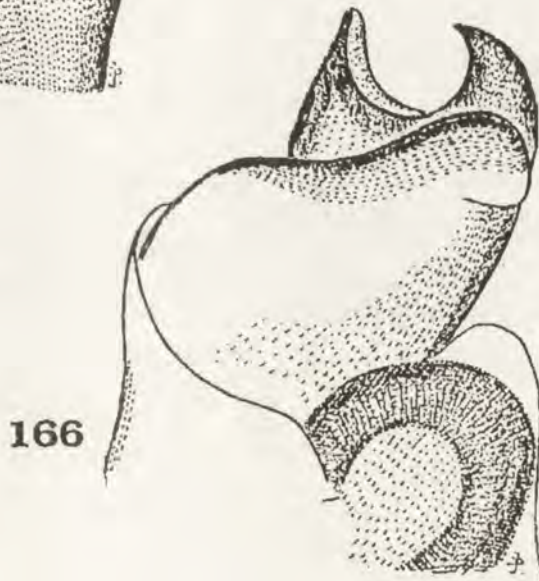
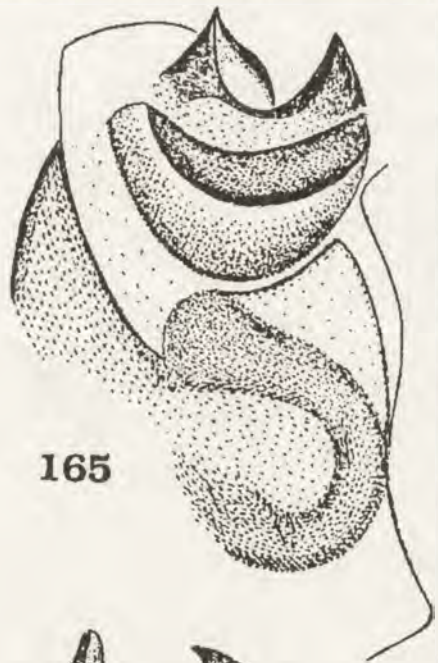
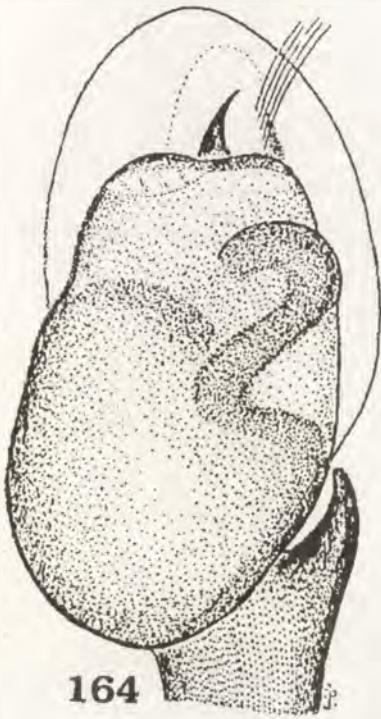
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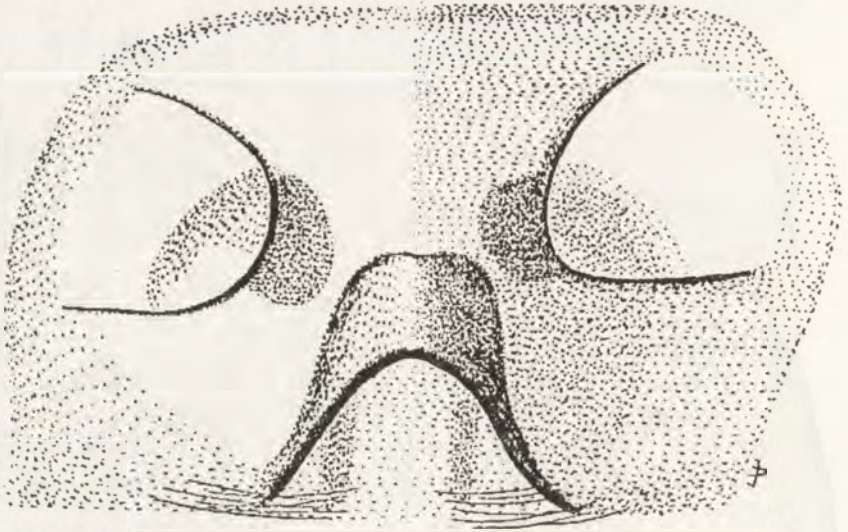
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Figs 161-163. Abdominal pattern in *Rhene albiger* (C.L. KOCH, 1848) (161) and *Rhene darjeelingiana* sp. n. (162), also palpal organ laterally (163) in the latter species (163).

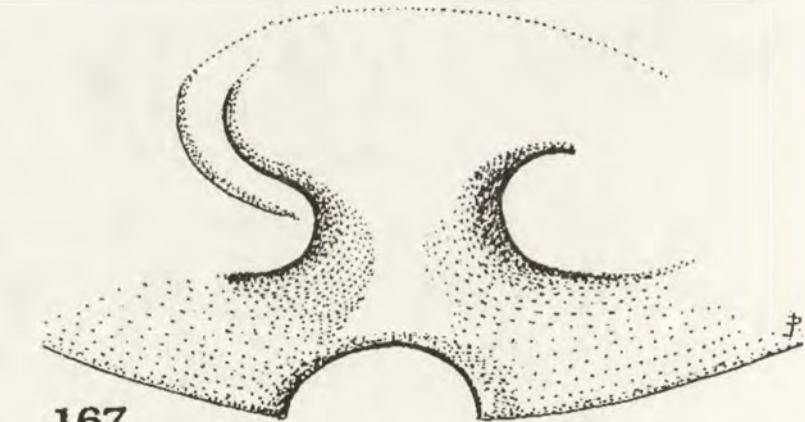




Figs 164–166. *Rhene darjeelingiana* sp. n. Palpal organ ventrally (164), details of embolus antero-ventrally (165) and laterally (166).



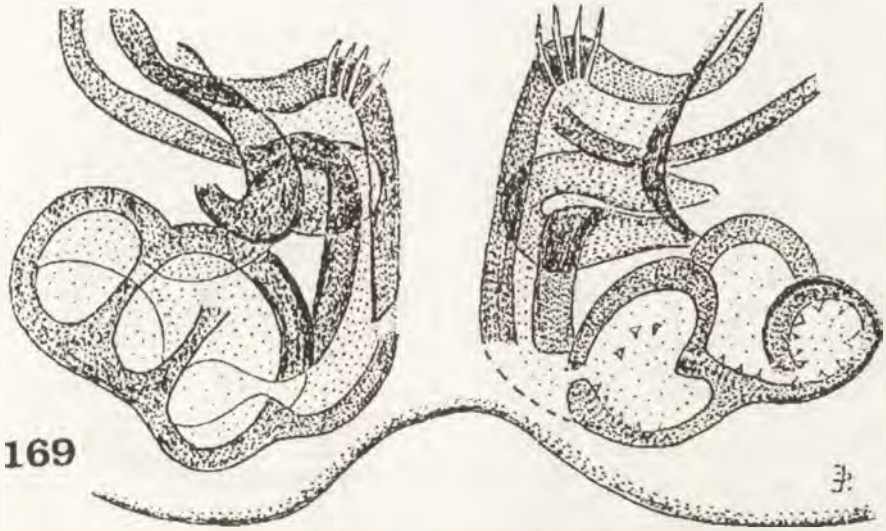
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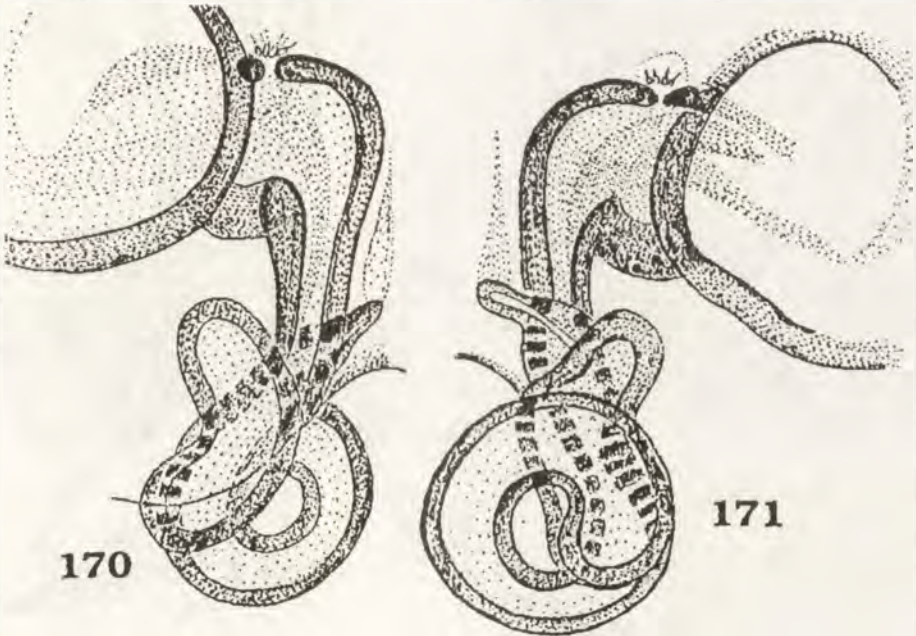
Figs 167-168. Comparison of epigyne in *Rhene daitarensis* sp. n. (168) and *Rhene darjeelingiana* sp. n. (167).





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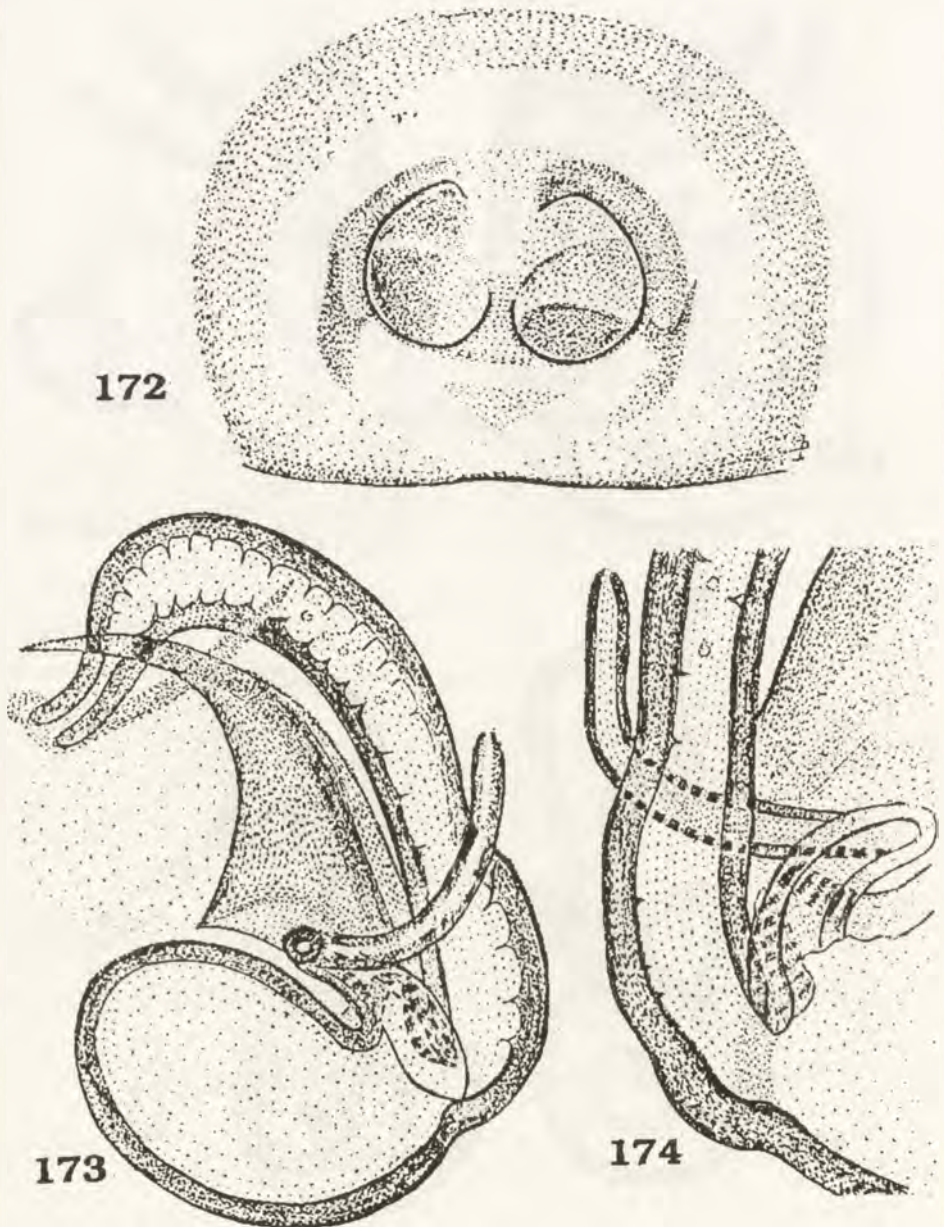
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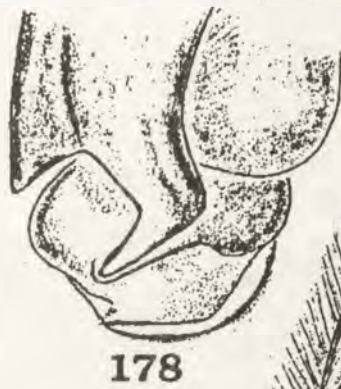
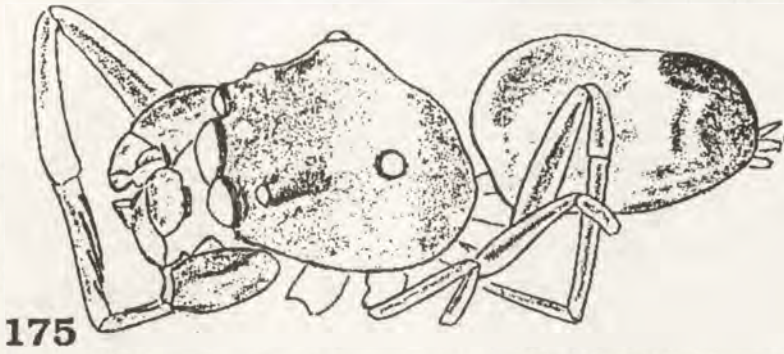
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Figs 169–171. Comparison of internal structure of epigyne in *Rhene daitarensis* sp. n. (169) and in *Rhene darjeelingiana* sp. n.: right spermatheca with channel, ventral (170) and dorsal (171) views.

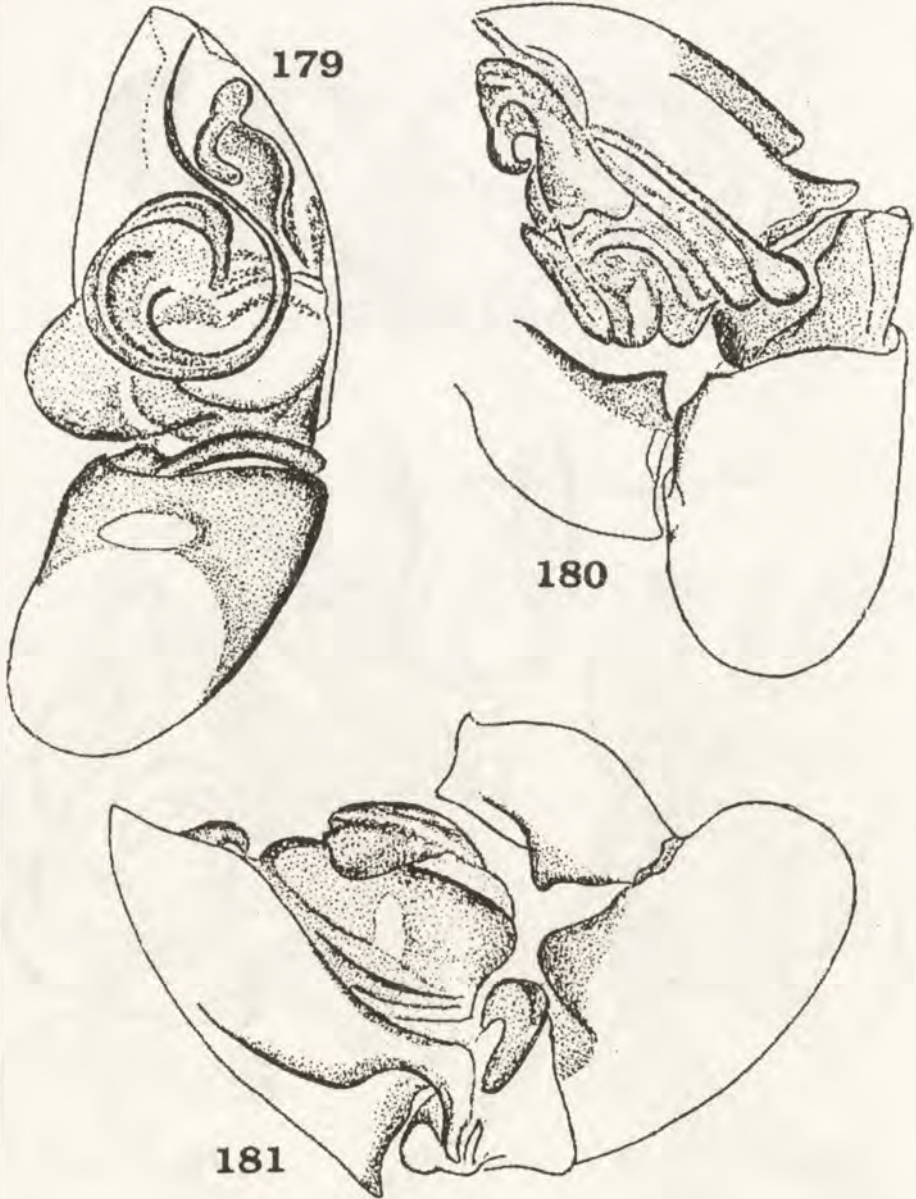


Figs 172-174. *Similaria enigmatica* sp. n. Epigyne (172), right spermatheca (173) and accessory gland (174).



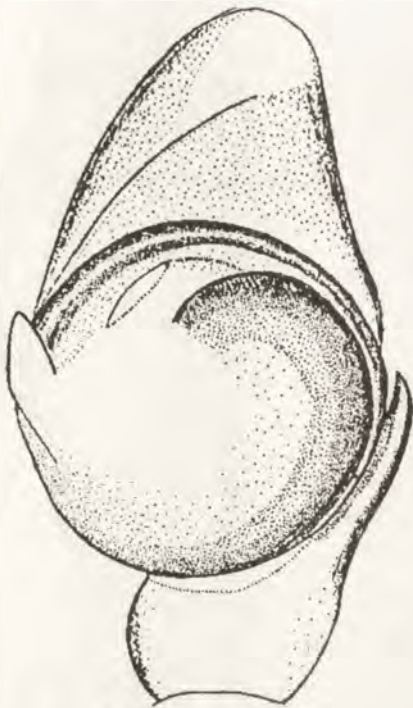


Figs 175-178. *Synagelides* sp. General appearance (175); palpal organ ventrally (176), laterally (177) and details of "locking apparatus" dorsally on cymbium and tibia (178).



Figs 179-181. *Synagelides* sp. Nepal specimen - palpal organ: ventrally (179) and laterally from both sides (180, 181).

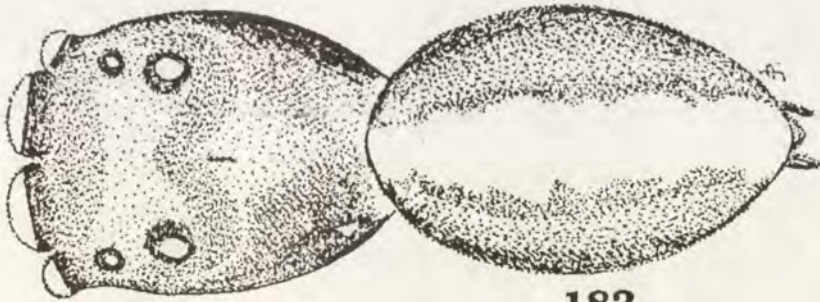




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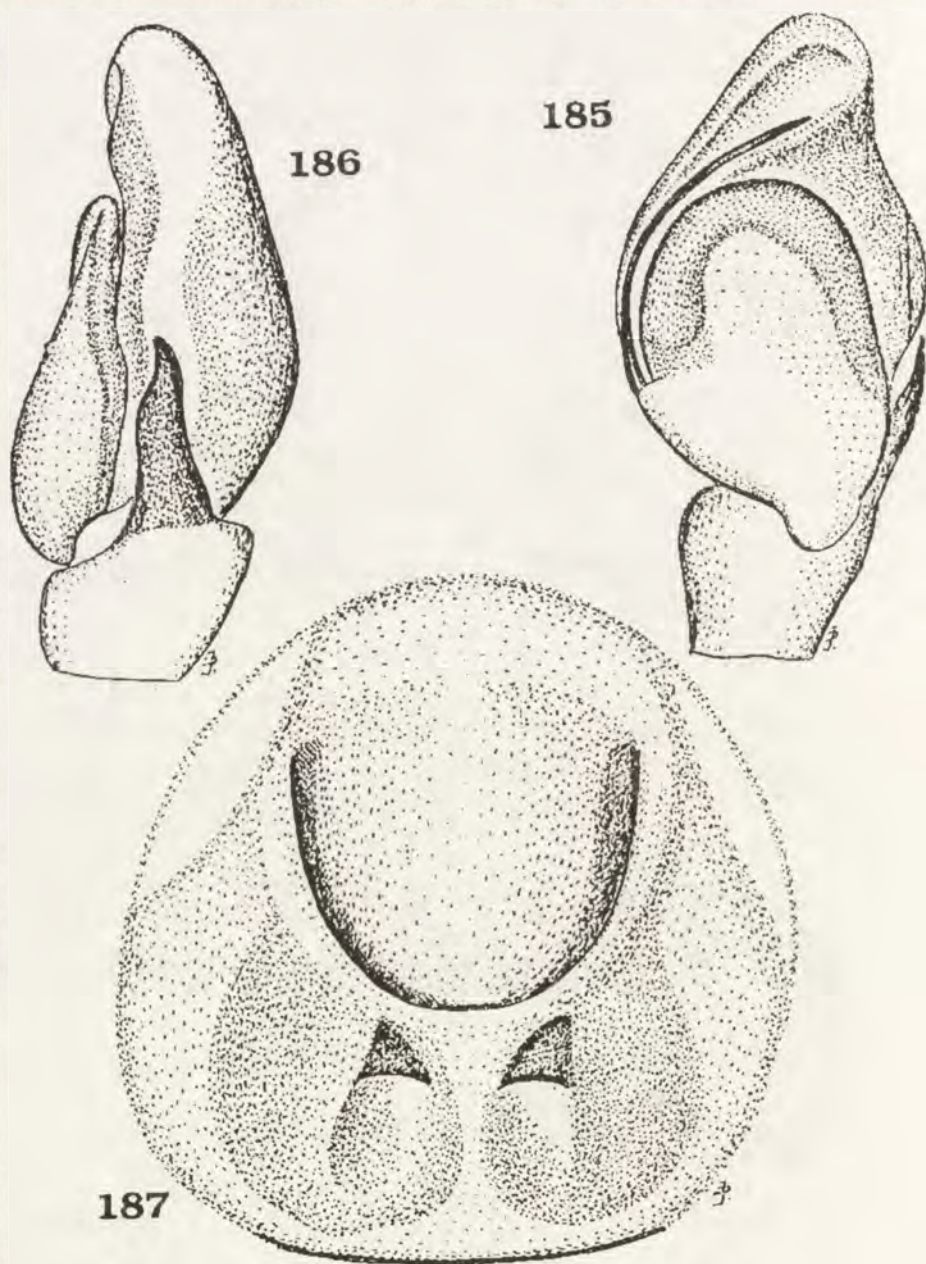


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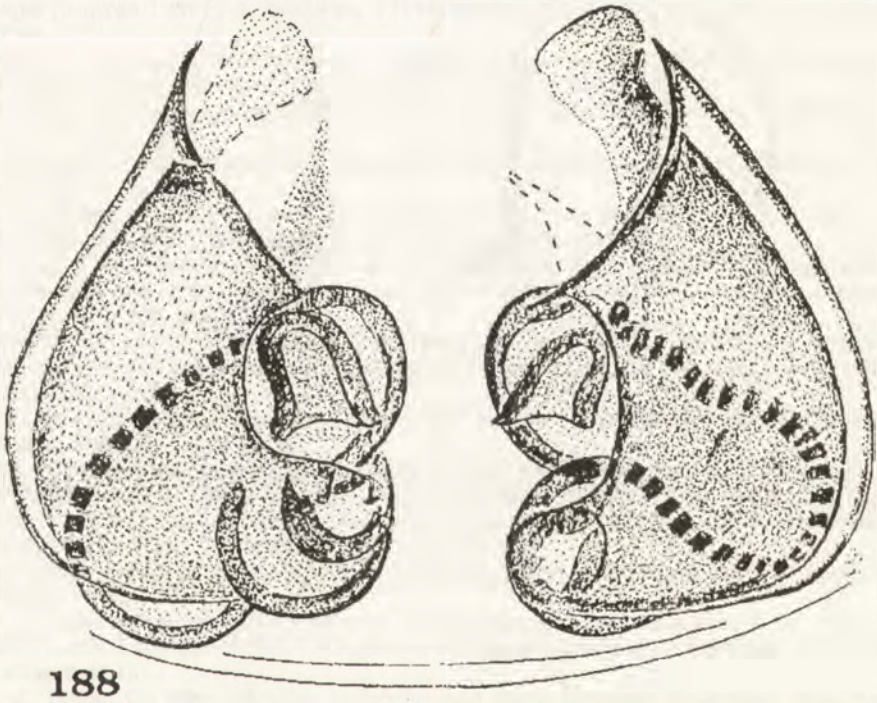
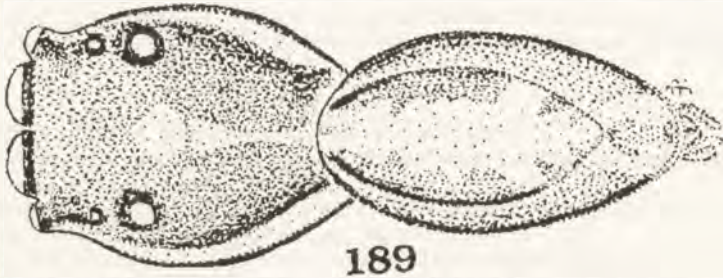
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Figs 182-184. *Similaria enigmatica* sp. n. - general appearance (182) and "*Thyene*" sp.: palpal organ (183, 184).

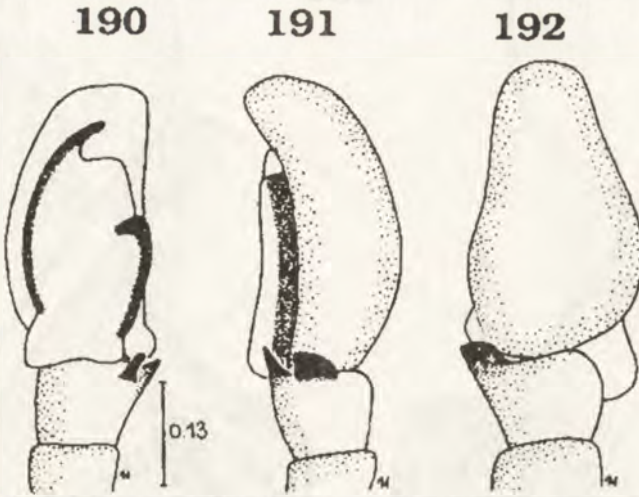


Figs 185-187. *Yaginumaella senchalensis* sp. n. Palpal organ (185, 186) and epigyne (187).





Figs 188-189. *Yaginumaella senchalensis* sp. n. General appearance (189) and internal structure of epigyne (188).



Figs 190–192. *Phintella indica* (SIMON, 1901) comb. n. Palpal organ (from WESOŁOWSKA 1986: Figs 876–878, original drawings of J. PRÓSZYŃSKI lost).



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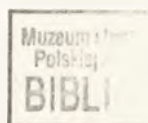
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STRESZCZENIE

[Tytuł: *Salticidae (Araneae)* Indii w zbiorach Węgierskiego Muzeum Przyrodniczego w Budapeszcie]

Praca zawiera opis 46 gatunków *Salticidae* z Regionu Orientalnego, w tym 40 (ponadto pięciu oznaczonych tylko do rodzaju) z Indii i jednego z Malezji, a także opisy sześciu nowych rodzajów: *Ghumattus*, *Habrocestoides*, *Heliophanoides*, *Imperceptus*, *Madhyattus*, *Orissania* i 27 nowych gatunków. Dwa gatunki przeniesiono do innych rodzajów: *Hyllus semicupreus* (SIMON, 1885) (z *Sandalodes*) i *Phintella indica* (SIMON, 1901) comb. n. (z *Heliophanus*). Odnalezienie trzech gatunków ze zbiorów TIKADER'A w Amerykańskim Muzeum Historii Naturalnej w Nowym Jorku umożliwiło następujące synonimizacje: *Phidippus indica* TIKADER, 1974 = 1♂ *Hyllus semicupreus* (SIMON, 1885) (syn. n.); *Phidippus pateli* TIKADER, 1974 = *Telamonia dimidiata*? (SIMON, 1899) (syn. n.); *Salticus raryjūtus* TIKADER, 1967 = *Phintella vittata* (C.L. Koch, 1846) (syn. n.)



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