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STUDIES ON SOME SPIDERS OF THE FAMILY ARANEIDAE (ARANEAE : ARACHNIDA) FROM MADHYA PRADESH, INDIA

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INTRODUCTION

The araneids are typical-orb-weaving spiders, distributed all over the world. In general they prefer to live in moist places and very rarely found in arid regions. Almost all the species construct orb-webs in the foliage, either high upon the trees or in shrubs, herbs or grass, but they are not ground dwellers. They built their orb-webs having geometrical precision and beauty. Their finished projects are incomparable in terms of the craftsmanship. Many of them build a nest like retreat by folding a leaf or bunch of leaves which is little away from the web but directly connected with the web-centre by threads. The araneids having no retreat, merely run away from the web or drop to the ground when disturbed, if undisturbed they will climb upto the web by means of thread they pulled out while falling. Generally the male araneids are much smaller than females and are not commonly seen in the web unlike females.

The characteristic feature of an orb-web is the central portion. It is lying within the supporting frame work, consists of series of radiating threads of non-viscid and non-elastic silk. These threads support a continuous thread or viscid and elastic silk which is spun spirally from periphery to the web-centre. The web-centre and pattern of viscid spiral are highly variable and often specific to different genera. It is also noticed that as the spiderlings become mature they go on changing their web-building patterns.

Since the araneid spiders are nocturnal in habit they are not seen on the web in day time with a few exceptions as tropical *Argiope*, *Cyclosa*, *Gastercantha*, *Leucage* etc. Usually after every few days the sticky silk dries up or becomes torn and is replaced and repaired in the evening by the spider. Some spiders roll up their webs in the morning before leaving the web to take shelter under bark or retreat of leaves. Again the web is reconstructed in the evening for trapping the prey at night.

The araneids devour all sorts of arthropods which entangled in their webs. Since these spiders have very poor vision, they locate their prey by feeling the vibration and tension of threads of the web. Then they quickly turn their prey with legs and simultaneously their IVth legs pull out from spinnerets and wrap the victim. The prey is bitten before dragged to the hub or to the retreat in a corner, where prey is sucked. In edible objects are cut out of web and dropped to the ground.

Since orb-weavers have poor vision, the male reveal their presence by plucking the threads of the female web. A female generally does not feast on her mate as many people believe but usually the male die soon after mating. Araneid spiders, in general, mature and breed in the monsoon only and die in the winter.

Some *Araneus* enclose their eggs in a fluffy mass of silk having no definite outline. Egg sac of *Argiope* is a silken cup which is surrounded by a thick layer of flossy silk which is enclosed in the firm, closely woven pear like outer covering. And the whole thing is held by folded leaves in the vegetation.

In the winter many female araneid spider lay several hundred of eggs in egg sacs and then die. In some cases the spiderlings are hatched out soon, but sometimes not until the next spring.

The spiders of the family Araneidae are little known in the Indian Fauna. Scanty informations are available on Indian forms of araneid spiders from the reports of Stoliczka (1869), Simon (1884, 1889, 1892), Thorell (1895) and Pocock (1900) who were the pioneer workers on this group of spiders. They described many species from India, Burma and Sri Lanka. Afterwards Gravely (1922) recorded some species of araneid spiders.

Tikader (1960, 1961, 1962, A, B, C, 1965, 1966, 1970, 1975, 1977), Tikader & Bal (1981) and Tikader & Biswas (1981) reported so many species from India.

Tikader (1982) reported a few species of Araneid spiders from Madhya Pradesh.

All type specimens are deposited in the National Zoological Collections, Zoological Survey of India, Kolkata.

SYSTEMATICS

Family ARANEIDAE Latreille

1806. *Araneids* Latreille, *Genera crustaceorum et Insectorum*, 1 : 82.

1815. *Araneides* : Leach, *Zoological Miscellany*, 2 : 134-137.

Characters : Carapace variable, thoracic region separated from cephalic region by oblique depression. Eyes less variable in size in different genera, eight in number and arranged usually in two rows, median eyes forming a quadrangle, either a square or a trapezium, lateral eyes usually

close and often projecting on angular tubercles. Sternum heart-shaped or triangular, narrowing behind, thus coxae IV nearly contiguous, labium with swollen distal edge. Maxillae widest distally and generally not longer than wide. Chelicerae strong, vertical and not divergent, provided with a boss on each, fang furrow armed with two sets of strong teeth. Leg long and strong, clothed with hairs and spines, three claws and auxillary foot claws not provided with trichobothria on femora or tarsi. Pedipalp with a single claw in female, paracymbium of male palpus attached to proximal end of cymbium. Abdomen variable in size and shape, epigastric furrow nearly straight, six spinnerets. Most of the spiders construct orb-webs, spiders hang in the web head down.

Type-genus : *Araneus* Clerk.

Distribution : Cosmopolitan.

Key to the Sub-families and genera of the Family ARANEIDAE

1. Tarsus and metatarsus together longer than patella and tibia 2
— Tarsus and metatarsus together not longer than patella and tibia ARANEINAE
2. Labium longer than wide; abdomen two and one-half to three times as long as wide; tarsus IV not provided with sustentaculum Sub-family NEPHILINAE 3
— Labium wider than long; abdomen not longer than two and one-half times of its width; tarsus IV provided with sustentaculum 4
3. Carapace with cephalic region convex and elevated; abdomen elongated or oval, non-lobate *Nephila* Leach
— Carapace flat; abdomen flat dorsally, lobate laterally *Herennia* Thorell
4. Posterior row of eyes strongly procurved; anterior lateral eyes smaller than posterior lateral Sub-family ARGIOPINAE 5
— Posterior row of eyes nearly straight or recurved; lateral eyes subequal Sub-family ARANEINAE 6
5. Eyes of anterior row not evenly spaced or medians closer to each other than to laterals; adult female longer than 9 mm.; tibia I of male straight and unmodified *Argiope* Audouin
— Eyes of anterior row evenly spaced; or medians closer to laterals than to each other; adult female smaller than 6 mm. tibia I of male curved and bearing strong spines *Gea* C. L. Koch
6. Posterior median eyes very close, nearly touching carapace provided with a U-shaped junction between cephalic and thoracic region *Cyclosa* Menge
— Posterior median eyes not very close, carapace not having any U-shaped junction between cephalic and thoracic region 7

7. Abdomen more than twice longer than wide 8
 — Abdomen less than twice longer than wide 9
8. Abdomen a little pointed mid-longitudinally over the carapace and no caudal projection; ventral side of abdomen with a white median longitudinal band framed by black *Larinia* Simon
 — Abdomen not pointed mid-longitudinally but provided with a pair of very prominent shoulder humps thus bifurcated anteriorly and a caudal projection, at the tip of which having three tubercles, ventral side of abdomen dirty brown *Arachnura* Vinson
9. Thoracic groove transverse; epigyne with distinct scape, often wrinkled, not provided with any lateral lobes *Araneus* Clerck
 — Thoracic groove longitudinal, epigyne with unwrinkled scape and provided with one or two pairs of lateral lobes *Neoscona* Simon

Genus 1. *Nephila* Leach

1815. *Nephila* Leach, *Zoological Miscellany*, : 133.

1894. *Nephila* : Simon, *Hist. Nat. Araign.*, 1(3) : 755.

Characters : Carapace with cephalic region convex, more elevated than thoracic region and usually armed posteriorly with one pair of tubercles. Labium longer than broad. Ocular quad nearly square or slightly wider behind. Legs very long and strong, spinulose; tarsi and metatarsi together longer than tibiae and patellae together. Epigyne heavily sclerotised.

Type-species : *Nephila maculata* (Fabricius).

Distribution : Tropical and rarely sub-tropical countries of the world.

1. *Nephila maculata* (Fabricius)

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

1922. *Nephila maculata* : Gravely, *J. Bombay nat. Hist. Soc.*, 28 : 1946.

Specimen examined : 1 ♀, Rani Durgavati Samadhi, Jabalpur district, Madhya Pradesh, Coll. V V Rao, 19.XI.1970, (Reg. No. A/1683). 29 ♀♀, Garampani kund on Jabalpur-Mandla Road, Mandla district, Madhya Pradesh, Coll. U. A. Gajbe, 22.XII.1981, (Reg. No. A/1684). 7 ♀♀, Garampani kund on Jabalpur Mandla Road, Mandla district, Madhya Pradesh, Coll. U. A. Gajbe, 22.X.1981.

Distribution : Trinneveli, Trivandrum, Ootacamund, Tamil Nadu, Karnataka, Dehra Dun, Hardwar, Uttar Pradesh, Madhya Pradesh, Tezpur, Darrang, Assam, Gazing Rongli, Sikkim, Kalimpong, Darjeeling, West Bengal, Thana, Poona, Maharashtra, Dongs, Gujarat, Andaman &

Nicobar Islands, MYANMAR : Therrawaddy, Tounghoo, Rangoon; SRILANKA : Peradeniya, Trinomali; CHINA, AUSTRALIA, MALAYSIA, JAPAN, NEW GUINEA.

Remarks : This species is being reported here for the first time from the Mandla and Jabalpur district of Madhya Pradesh.

2. *Nephila kuhlii* Doleschall

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

Specimen examined : 9 ♀ ♀, Garampani kund on Jabalpur-Mandla Road, Mandla district, Madhya Pradesh, Coll. U. A. Gajbe, 14.IX.1983 (Reg. No. A/1686).

Distribution : INDIA : Gobardanga, 24 Parganas, Darjeeling, West Bengal, Mandla, Madhya Pradesh, BURMA, Bhamo and eastwards to celebes.

Remarks : This species being reported here for the first time from Madhya Pradesh.

Genus 2. *Herennia* Thorell

1877. *Herennia* Thorell, *Annali Mus. Civ. Genova*, 10 : 370.

1894. *Herennia* : Simon, *Hist. Nat. Araign.*, 1(3) : 759.

Characters : Carapace flat, thickly covered with white pubescence. Ocular quad nearly as long as wide and slightly wider behind than in front, anterior median eyes larger than posterior medians, lateral eyes close and subequal in size, posterior row of eyes nearly straight. Legs long and slender clothed with hairs and spines, tarsi and metatarsi together longer than tibiae and patellae together. Abdomen flat above and lobate laterally, impressed with radically arranged lines of spots.

Type-species : *Herennia ornatissima* (Deleschall).

Distribution : INDIA, SRILANKA, MALAYSIA.

3. *Herennia ornatissima* (Doleschall)

1859. *Epeira ornatissima* Doleschall, *Act. Soc. Ind. Neeri.*, 5 : 32.

1877. *Herennia multipunctuata* : Thorell, *Annali, Mus. Genova*, 10 : 371.

Specimen examined : 1 ♀, Gudari village, near Orcha, Bastar district, Madhya Pradesh, Coll. U. A. Gajbe, 27.XII.1983, (Reg. No. A/1687). 1 ♀, Orcha, Bastar district, Madhya Pradesh, Coll. U. A. Gajbe, 28.XII.1983, (Reg. No. A/1638). 1 ♀, Garhbengal village near Narayanpur Tahsil, Bastar district, Madhya Pradesh, Coll. U. A. Gajbe, 30.XII.1983, (Reg. No. A/1689).

Distribution : INDIA : Trivandrum, Ootacamund, Tamil Nadu, Shillong, Meghalaya, Ponda, Goa, Bastar, Madhya Pradesh, SRI LANKA : Peradeniya, Kanthalai, MYANMAR : Tharrawaddy, Rangoon, Tenasserri, AUSTRALIA-MALAYSIA.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 3. *Argiope* Audouin

1826. *Argiope* Audouin, in Savigny, *Description del' Egypte.*, 1(4) : 121.

1829. *Argiopes* : Latreille, *Les Arachnids, Regne Animal*, 4 : 248.

Characters : Carapace remarkably flat, clothed with thick layer of white pubescence. Ocular quad forms a trapezium, longer than wide and wider behind than in front, posterior row of eyes strongly procurved, anterior lateral eyes smaller than posterior laterals, lateral eyes close and situated on conspicuous tubercles. Chelicerae small, weak and provided with small boss. Legs long and strong, metatarsus and tarsus together longer than patella and tibia together. Abdomen generally flat with variable shape. Adult females larger than 9 mm. Epigyne provided with thin or thick median septum. Web provided with a stabilimentum or two stabilimenta crossing.

Type-species : *Argiope lobate* (Thorell).

Distribution : Tropical and temperate countries of the world.

Key to the species of the genus *Argiope* Audouin

1. Abdomen broadly oval and conspicuously truncated anteriorly; dorsum provided with black transverse stripes and forming a net work on the posterior half. *aemula* (Walckenaer)
- Abdomen elongated oval with no truncation anteriorly, dorsum with no net work of black stripes 2
2. Anterior edge of the epigyne provided with a broad and conspicuous lip; median epigynal spetum abruptly wide posteriorly *anasuja* Thorell
- Anterior edge of the epigyne provided with very thin and inconspicuous lip; median epigynal spetum gradually wider posteriorly *pulchella* Thorell

4. *Argiope aemula* (Walckenaer)

1841. *Epeira aemula* Walckenaer, *Hist. Nat. Ins. Ant.*, 2 : 118.

1877. *Argiope aemula* : Thorell, *Annali. Mus. Civ. Genova*, 25 : 164.

Specimen examined : 1 ♀, Gariapahar Kanker, Bastar district, Madhya Pradesh, Coll. U. A. Gajbe, 4.I.1984, (Reg. No. A/1690). 1 ♀, Tewar village, near Shahpura, Jabalpur district, Madhya Pradesh, Coll. V S. Durve, 15.VII.1969, (Reg. No. A/1691).

Distribution : INDIA : Trivandrum, Nilgiri Hills, Tamil Nadu, Eastern Region of Maharashtra, Poona, Maharashtra, Darjeeling, West Bengal, Gujarat, Andaman & Nicobar Islands, Jabalpur, Bastar, Madhya Pradesh. SRI LANKA : Trincomali, Punduloya, MYANMAR : Rangoon, Tharrawaddy, Bhamo, INDO and AUSTR0-MALAYSIA.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

5. *Argiope anasuja* Thorell

1887. *Argiope anasuja* Thorell, *Annali. Mus. Civ. Genova*, **25** : 162.

1900. *Argiope anasuja* : Pocock, *Fauna Brit. India, Arachn.*, : 222.

Specimen examined : 2 ♀ ♀, Hatkachora village, near Jagdalpur, Bastar district, Madhya Pradesh, Coll. U. A. Gajbe, 2.I.1984. (Reg. No. A/1692). 8 ♀ ♀, Chitrakote, Bastar district, Madhya Pradesh, Coll. U. A. Gajbe, 26.XII.1983, (Reg. No. A/1693).

Distribution : INDIA : Ramnampuram, Chingleput, Oatacamund, Tuticorin, Tamil Nadu, Bangalore, Karnataka, Nasik, Maharashtra, Barkuda Islands (Chilka Lake) Orissa, Chota Nagpur, Chakradharpur, Bihar Kolkata, West Bengal, Bastar, Madhya Pradesh. SRI LANKA : Colombo, PAKISTAN : Karachi.

Remarks : This species is being reported here for the first time from the Bastar district of Madhya Pradesh.

6. *Argiope pulchella* Thorell

1881. *Argiope pulchella* Thorell, *Annali Mus. Civ. Genova*, **18** : 74.

1884. *Argiope pulchella* : Simon, *Annali. Mus. Civ. Genova*, **20** : 346.

Specimen examined : 1 ♀, Chotedongar village, Narayanpur Tahsil, Bastar district, Madhya Pradesh, Coll. U. A. Gajbe, 26.XII.1983, (Reg. No. A/1694).

Distribution : INDIA : Andaman and Laccadiv Islands, Palta, 24 Parganas, Kalimpong, Darjeeling, West Bengal, Bastar, Madhya Pradesh, Orissa, Assam, Poona, Maharashtra, Tamil Nadu, MYANMAR : Rangoon, Tharrawaddy, Moulmeing, Pegu. MALAYA PENNINSULA.

Remarks : This species is being reported here for the first time from Bastar district of Madhya Pradesh.

Genus 4. *Cycloa* Menge

1866. *Cyclosa* Menge, *Schrift nat. Ges. Danzig. (N.F.)*, **1** : 73.

1895. *Cyclosa* : Simon, *Hist. Nat. Araign.*, **1(4)** : 783.

Characters : Carapace with anteriorly narrow cephalic region, cephalic region distinctly separated from thoracic region by an oblique groove forming a U-shape, ocular quad trapezium like, much narrower behind than in front, anterior median eyes usually larger than posterior medians, posterior median very close, almost touching, laterals close and situated on prominent tubercles, both rows of eyes recurved. Palpal patella of male with one large strong and curved spines. Abdomen provided with humps, both paired and median unpaired. Epigyne having a small, weak scape which may be straight, wrinkle, bent, pointed or circular.

Type-species : *Cyclosa conia* (Pallas).

Distribution : Cosmopolitan.

7. *Cyclosa hexatuberculata* Tikader

1982. *Cyclosa hexatuberculata* Tikader, *Fauna of India, Spiders*, 2(1) : 197.

Specimen examined : 1 ♀, Chitrakote, Bastar district, Madhya Pradesh, Coll. U. A. Gajbe, 1.I.1984, (Reg. No. A/1695). 3 ♀ ♀, Forest Rest House, Geedam, Dantewada Tahsil, Bastar district, Madhya Pradesh, Coll. P. D. Gupta, 24.I.1987, (Reg. No. A/1695).

Distribution : INDIA : Poona, Maharashtra, Chitrakote, Bastar, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Bastar district of Madhya Pradesh.

8. *Cyclosa moonduensis* Tikader

1963. *Cyclosa moonduensis* Tikader, *J. Univ. Poona, Sci. & Tech.*, 25 : 46.

1982. *Cyclosa moonduensis* : Tikader, *Fauna of India, Spiders*, 2(1) : 191.

Specimen examined : 1 ♀, Hulki village on Jabalpur-Nagpur Road, Jabalpur district, Madhya Pradesh, Coll. U. A. Gajbe, 30.XI.1985.

Distribution : INDIA : Ahmednagar, Mundhva village, (Type-locality), Poona, Maharashtra, Jabalpur district, Madhya Pradesh.

Genus 5. *Larinia* Simon

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

1970. *Larinia* : Grashoff, *Senkenberg biol.*, 51(3-4) : 220.

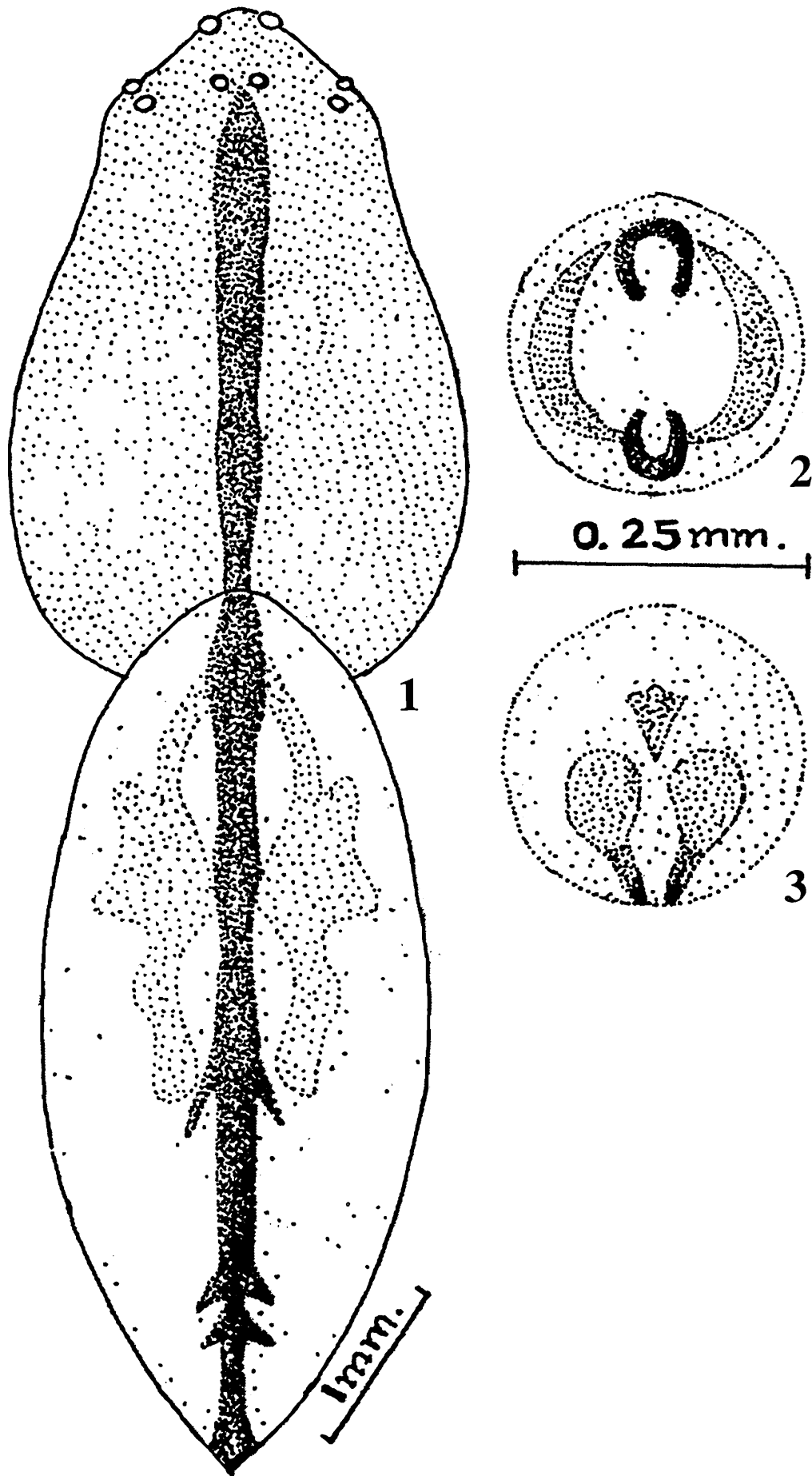
Characters : Carapace rather long, scarcely convex posteriorly ocular quad forming a trapezium, nearly twice as wide in front than behind, lateral eyes subequal in size and very close. Maxillae longer than wide. Legs long and slender. Abdomen elongated with a single median blunt point in front and no caudal process, ventral side with a longitudinal white band guarded laterally by black patches between epigastric furrow and spinnerets. Males with palpal patella bearing two heavy curved spines at the apex.

9. *Larinia mandlaensis* sp. nov.

(Figs. 1-3)

General : Cephalothorax and legs reddish-green, abdomen silvery white. Total length 8.30 mm. Carapace 3.80 mm. long, 2.50 mm. wide; abdomen 5.00 mm. long, 2.10 mm. wide.

Cephalothorax : Nearly one and half times longer than wide, narrowing in front, clothed with pubescence, cephalic region not clearly distinct from thoracic region, black longitudinal mid-dorsal band extending from the posterior median eyes to the deep longitudinal thoracic furrow as in fig. 1. Ocular quad forming a trapezium, more than three times wider in front than behind as in fig. 1.



Figs. 1-3. *Larinia mandlaensis* sp. nov.;
1. Dorsal view of female, legs omitted; 2. Epigyne; 3. Internal genitalia.

Anterior median eyes much larger than the posterior median eyes, posterior medians closely situated, laterals subequal, closed and situated on distinct tubercles, both rows of eyes recurved but posterior row very slightly recurved than the anterior row. Sternum rather elongated, heart-shaped, pointed behind, light dark shades with pale median area, clothed with pubescence. Labium as long as wide, light brown with pale distal border, maxillae slightly longer than broad, light brown provided with distinct scopulae. Chelicerae strong and stout, brownish, provided with distinct boss, anterior margin of each chelicerae armed with two teeth. Legs long and slender, clothed with hairs and spines.

Abdomen : Elongated, nearly two times longer than wide, pointed anteriorly over the carapace, clothed with pubescence. Dorsum of abdomen silvery white with black mid-longitudinal band extending from anterior to the posterior and laterally with light red band as in fig. 1. Ventral side slightly lighter than the dorsal. Epigyne as in fig. 2. Internal genitalia as in fig. 3.

Type-specimen : *Holotype* ♀, (in spirit), other details as above. Registration No. 5434/18.

Type-locality : INDIA : Madhya Pradesh, Narayanganj village, Mandla district, Coll. U.A. Gajbe, 23.1.1985.

Remarks : This species resemble *Larinia phtisica* (L. Koch) but differs from it as follows :
 (i) Cephalothorax provided with a black mid-dorsal band but in *L. phtisica* no such band is present.
 (ii) Chelicera provided with two teeth but in *L. phtisica* chelicera provided with four teeth.
 (iii) Abdomen mid-dorsally provided with black band but in *L. phtisica* abdomen provided with a mid longitudinal pale lines and two sub-median pale lines on each side. (iv) Epigyne and internal genitalia also structurally different.

Genus 6. *Araneus* Clerck

1757. *Aranelus* Clerck, *Argn. Suec.*, : 15.

1758. *Aranea* : Linnaeus, *Systema Naturae*, **10** : 619.

1921. *Araneus* : Gravely, *Rec. Indian Mus.*, **22**(4) : 414.

Characters : Carapace moderately convex with no horny out growths, thoracic groove transverse in female, but in male longitudinal, often having lateral prolongations. Ocular quad forming a trapezium, not much longer than wide, median eyes slightly unequal in size, laterals close and usually situated on prominent tubercles, both rows of eyes recurved. Males with a hook on coxa I and a groove on femur II; tibia II armed with spines on prolateral side and often bent. Epigyne with a prominent scape which may be long, wrinkle and winding or in some straight and short, epigynal openings situated in to the grooves at the base. Palpus of male with a large terminal apophysis, palpal patella with two strong, long curved spines.

Type-species : *Araneus angulatus* Clerck.

Distribution : Cosmopolitan.

10. *Araneus mitifica* Simon

1886. *Epeira mitifica* Simon, *Act. Soc. Linn. Bordeaux*, **40** : 150.

1906. *Araneus mitifica* : Bosenberg & Stand, *Abh. senckenb. naturforsch. Ges.*, **39**(1-2) : 22.

Specimen examined : 1♂, Chitrakote, Bastar district, Madhya Pradesh, Coll. U.A. Gajbe, 1.1.1984, (Reg. No. A/1702).

Distribution : INDIA : Poona, Maharashtra, Karnataka, West Bengal, Madhya Pradesh, Punjab, PAKISTAN : Lahore, BANGLADESH, MYANMAR, MALAYSIA.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

11. *Araneus bastarensis* sp. nov.

(Figs. 4-7)

General : Cephalothorax and legs light reddish-green, abdomen silvery white. Total length 8.00 mm. Carapace 3.00 mm. long, 2.20 mm. wide; abdomen 5.10 mm. long, 3.60 mm. wide.

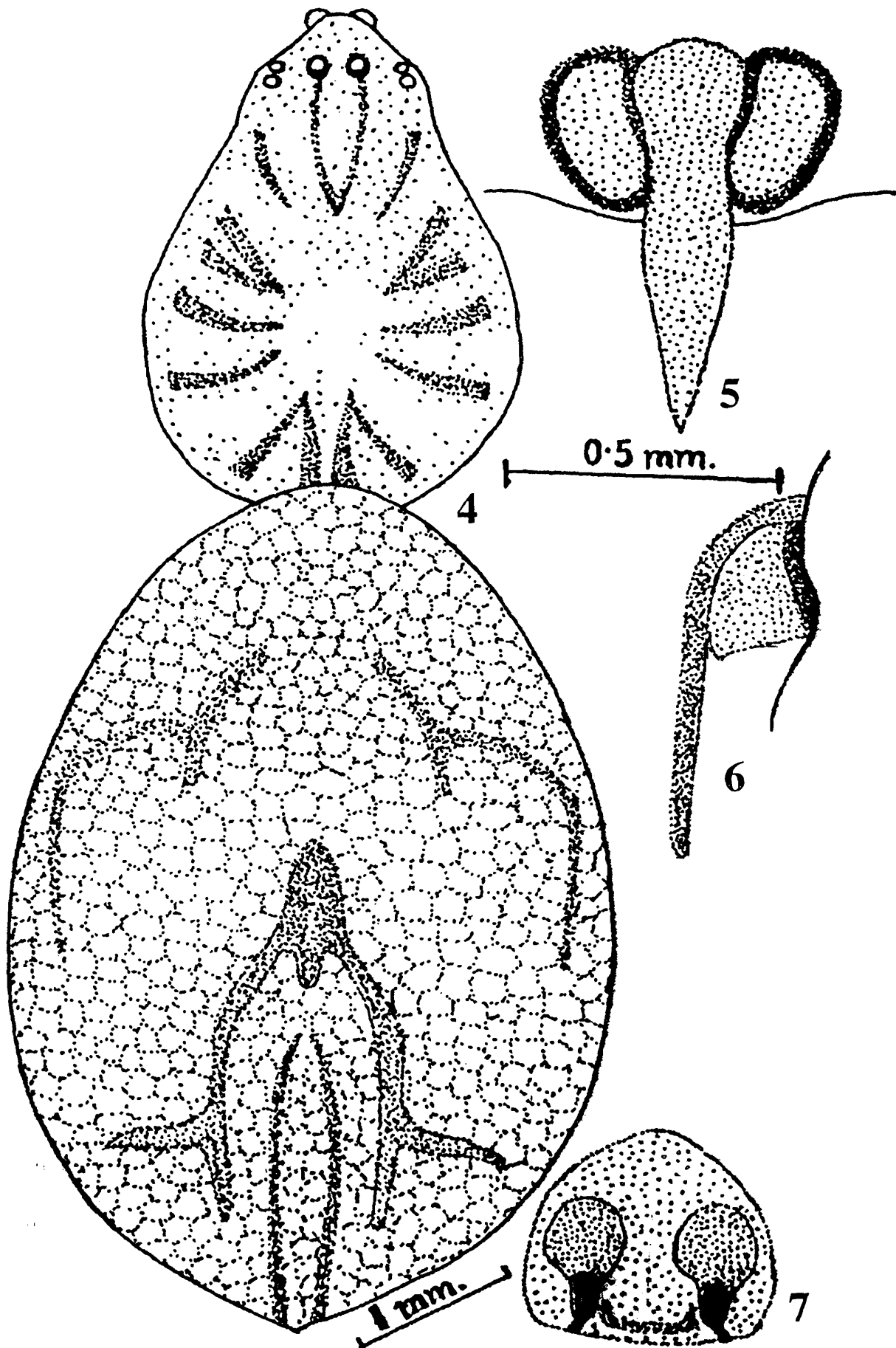
Cephalothorax : Longer than wide, narrowing in front, clothed with pubescence, uniform in colour with brownish patches radiates towards the lateral side as in fig. 4. Thoracic region having a distinct transverse groove. Ocular quad longer than wide and wider in front than behind. Median eyes subequal in size. Posterior median eyes encircled by black rings. Lateral eyes close and each situated on tubercle. Both rows of eyes recurved but posterior row less recurved than the anterior row. Sternum heart-shaped, pointed behind, light yellowish-green in colour, clothed with pubescence. Labium nearly as long as wide, light brown in colour with yellowish outer margin, provided with distinct scopulae. Chelicerae strong, yellowish, provided with inconspicuous boss. Legs long and strong, uniform in colour and provided with pubescence, hairs and spines.

Abdomen : Longer than wide, globular, clothed with pubescence, provided with brown reticulations and brown patches as in fig. 4. Ventral side same in colour as dorsal with brown reticulations. Epigyne provided with a long unwrinkled scape as in fig. 5 & 6. Internal genitalia as in fig. 7.

Type-specimen : *Holotype* : ♂, in spirit, other details as above. Registration No. 5435/18.

Type-locality : INDIA : Madhya Pradesh, Chitrakote, Bastar district, Coll. U. A. Gajbe, 1.1.1984.

Remarks : This species resembles with *Araneus pahalgaonensis* Tikader & Bal but differs from it as follows : (i) Cephalothorax without any patches but in *A. pahalgaonensis* cephalothorax provided with a median and two lateral longitudinal black patches. (ii) Sternum light yellow-green in colour but in *A. pahalgaonensis* sternum black in colour. (iii) Abdomen dorsally provided with brown patches and brown reticulations, but in *A. pahalgaonensis* abdomen dorsally provided with six pairs of sigilla, olive green and chalk white patches. (iv) Epigyne and internal genitalia also structurally different.



Figs. 4-7. *Araneus bastarensis* sp. nov.; 4. Dorsal view of female, legs omitted; 5. Epigyne, ventral view; 6. Epigyne lateral view; 7. Internal genitalia, posterior view.

Genus 7. *Neoscona* Simon

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

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

Characters : Presence of longitudinal thoracic groove in female separates *Neoscona* from all members of the genus *Araneus*. Ocular quad forming a trapezium and slightly longer than wide, anterior medians largest or subequal to the posterior medians, lateral eyes close and not situated on prominent tubercles, posterior laterals smallest, both rows of eyes recurved. In male, coxa I ventrally provided with a hook on the distal rim, tibia II having macrosetae (spines) on prolateral surface. Abdomen may be oval suboval, triangular or sub-triangular in shape. Epigyne is a simple tongue like, scape completely fused to the base and provided with one or two pairs of lateral lobes, epigynal openings situated on the underneath of scape. Palpal patela of male provided with two strong, curved and long spines, cymbium of male palp broad but it is rather narrow stripe like in *Araneus*.

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

Distribution : Species of *Neoscona* distributed all over the world.

Key to the species of genus *Neoscona* Simon

1. Abdomen triangular or sub-triangular 2
- Abdomen not triangular or sub-triangular. Abdomen rather tapering at both the anterior and posterior ends *molemensis* Tikader & Bal
2. Abdomen triangular, epigynal scape short, broad and triangular *nautica* (L. Koch)
- Abdomen sub-triangular, epigynal scape long narrow 3
3. Cephalic region provided with a conspicuous dark brown V-shaped patch, epigynal scape with a deep construction *mukerjei* Tikader
- Cephalic region not having any V-shaped patch, epigynal scape without a deep construction. Lateral lobes of epigyne very distinct and horn like and visible from ventral side of abdomen *rumpfi* (Thorell)

12. *Neoscona molemensis* Tikader & Bal

1981. *Neoscona molemensis* Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.* No. 24 : 22.

1982. *Neoscona molemensis* : Tikader, *Fauna of India, Spiders*, 2(1) : 257.

Specimen examined : 1 ♀, Tondabeda village near Orcha, Bastar district, Madhya Pradesh, Coll. U. A. Gajbe, 29.XII.183, (Reg. No. A/1701).

Distribution : INDIA : Molem, Goa, Bastar, Madhya Pradesh.

Remarks : This species is reported here for the first time from Madhya Pradesh.

13. *Neoscona nautica* (L. Koch)

1875. *Epeira natutica* L. Koch, *Aegypt, Abssin Arachn. Jickell* : 17.

1877. *Epeira pullata* : Thorell, *Annali Mus. civ. Genova*, **10** : 385.

Specimen examined : 1 ♀, Budhagar village, Jabalpur district, Madhya Pradesh, Coll. U. A. Gajbe, 10.X.1979, (Reg. No. A/1696). 1 ♀, On the bank of Gajana Nalla near Bargi village, Jabalpur district, Madhya Pradesh, Coll. U. A. Gajbe, 30.X.1985, (Reg. No. A/1697). 2 ♀ ♀, Narayanganj village, Mandla district, Madhya Pradesh, Coll. U. A. Gajbe, 23.I.1985, (Reg. No. A/1698).

Distribution : INDIA : Poona, East Khandesh, Maharashtra, Darjeeling, West Bengal, Rajkot, Gujarat, Riblong, Shillong, Meghalaya, Jabalpur, Mandla, Madhya Pradesh. MYANMAR : Rangoon, Tharrawaddy, Bham. PAKISTAN : Karachi, NORTH AMERICA.

Remarks : This species is being reported for the first time from Madhya Pradesh.

14. *Neoscona mukerjei* Tikader

1980. *Neoscona mukerjei* Tikader, *Proc. Indian Acad. Sci.*, **89**(3) : 247.

1981. *Neoscona mukerjei* : Tikader & Bal, *Rec. zool. Surv. India, Occ. pap. No. 24* : 17.

Specimen examined : 1 ♀, Madan Mahal, Jabalpur district, Madhya Pradesh, Coll. U. A. Gajbe, 12.1.1982.

Distribution : INDIA : Poona, Maharashtra, West Bengal, Jabalpur, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

15. *Neoscona rumpfi* (Thorell)

1887. *Araneus rumpfi* Thorell, *Annali Mus. civ. Genova*, **13** : 296.

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

Specimen examined : 1 ♀, Garampani kund, on Jabalpur-Mandla Road, Mandla district, Madhya Pradesh, Coll. U. A. Gajbe, 22.XII.1981, (Reg. No. A/1699). 1 ♀, Madan Mahal, Amanpur, Jabalpur district, Madhya Pradesh, Coll. U. A. Gajbe, 25.V.1979.

Distribution : INDIA : Chingleput, Ootacammund, Tamil Nadu, Bangalore, Karnataka, Wagar Karoor, Andhra Pradesh, Poona, Maharashtra; Orissa, Jabalpur, Mandla, Madhya Pradesh. MYANMAR : Rangoon, Tharrewaddy, Bhamo. PAKISTAN : Karachi. INDO and AUSTRO-MALAYSIA.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

SUMMARY

This paper deals with 15 species under 7 genera out of which two species are described as new to science.

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