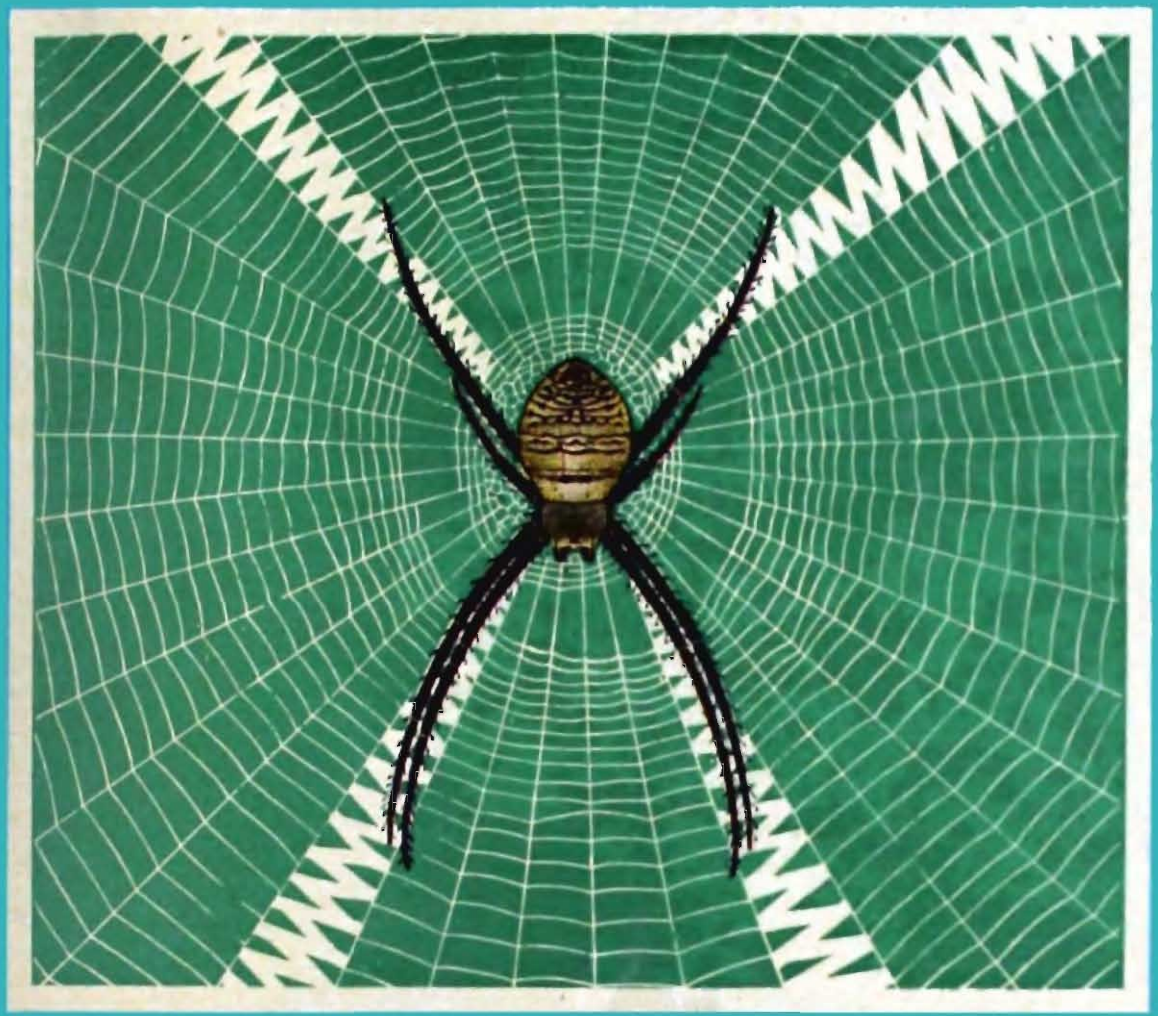

Fauna of India

SPIDERS

ARANEAE

(ARANEIDAE & GNAPHOSIDAE)

B. K. TIKADER

Spiders, though ubiquitous, have remained a neglected group and about eighty years back a consolidated volume on entire Arachnida was published by Pocock (1900) in the *Fauna of British India*. During the last 25 years, mainly through the work of the author, enormous amount of information on Indian spiders has been gathered and the first volume which was published by the author (1980) was divided into two halves : the first half dealt with the family Thomisidae (Crab-spiders), with 25 genera and 115 species and the second with the Lycosidae (Wolf-spiders) including 9 genera and 81 species. The present is the second volume and is also divided into two halves : the first half deals with the family Araneidae (=Argiopidae), with 21 genera and 101 species and the second with Gnaphosidae embracing 21 genera and 89 species. A volume on the Indian Scorpions by this author is in the press and he is also writing a Handbook on spiders which will give complete information about Arachnida of India.

Apart from systematic studies on spiders of above mentioned families, the author has given a detailed general account of external anatomy, characters of taxonomic importance, ecology, habits and orb-weaving mechanism of spiders in the family Araneidae (=Argiopidae).

THE FAUNA OF INDIA

SPIDERS : ARANEAE

Vol. II

Part 1

FAMILY

ARANEIDAE (= ARGIOPIDAE)

TYPICAL ORB-WEAVERS

Part 2

FAMILY

GNAPHOSIDAE

By

B. K. TIKADER, Ph.D., D.Sc.

Zoological Survey of India

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EDITOR'S PREFACE

After independence the responsibility for publication of "Fauna of British India" was passed on from the Secretary of State for India (to the British Government) to the Government of India and consequently the Director, Zoological Survey of India, was entrusted with the task of editing the series. In keeping with the changed political set up after August 1947, the title of the series was also changed as "Fauna of India" It was decided to select authors for this prestigious series of Zoological publications from amongst reputed specialists on diverse groups of animals available in India, as far as possible.

Spiders, though ubiquitous, have remained a neglected group and about 80 years ago a consolidated volume, on the entire Arachnida was published by Pocock (1900) in the *Fauna of British India* series who listed only 200 species and the family Gnaphosidae, which forms half of the present volume, was not even represented. During the last 25 years, mainly through the work of the author enormous amount of information in Indian Spiders have been gathered and the present volume is the Second in the series of projected volumes on Indian spiders. The volume is divided into two halves : the first half deals with the family Araneidae (=Argiopidae), with 21 genera and 101 species and the second with the Gnaphosidae corresponding 21 genera and 89 species.

The volume begins with a short but clear and well illustrated account of the taxonomic characters of spiders, and Orb-weaving mechanism of spiders of the family Araneidae, followed by a key to the 44 families of Indian spiders. Then follows the descriptions of various genera and species.

It is really a great privilege for me that I am able to write

the editor's preface for this prestigious publication of "Fauna of India" Vol. II on Spiders, of which I am myself the author. It is hoped that the present volume will provide a handy tool to specialists and research students in India and elsewhere in the study of Indian spiders.

Calcutta
10th March, 1982
Dol Purnima

B. K. TIKADER
Director,
Zoological Survey of India

AUTHOR'S PREFACE

The first thing which strikes our mind by the name of spider, is its spinning habit. The spiders which comprise the family Araneidae are known as typical orb-weavers. They create special attention to the naturalists because of their unique weaving capability to construct the geometrical precison and beauty of the orb-webs. These spiders have world-wide distribution with their interesting diversified forms and habits, and they are abundantly available in rainy season. Mostly they are nocturnal and leave their webs during day time. In our country the detailed taxonomic studies on this interesting group of spiders are very meagre.

The main purpose of this volume of fauna is to clear the previous confusion, as far as possible, regarding the taxonomic identities of the araneid spiders of India. Scanty informations are available on Indian forms of araneid spiders from the reports of Stoliczka (1869), Simon (1864, 1889, 1892-1895, 1906), 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, but their descriptions are very inadequate for identification upto the species level and are practically without proper illustrations. Afterwards Gravely (1921-1922) and Dyal (1935) recorded some species of araneid spiders but these descriptions and illustrations are unsatisfactory too.

Pocock (1900) has recorded only fiftyone species of the family Araneidae (=Argyopidae) in his "*Fauna of British India, Arachnida*" volume. He had included tetragnathid spiders in this family, which were later separated into separate family namely Tetragnathidae.

While studying the spiders of the family Araneidae, I felt that it is very essential to examine the type-speciments of the described species from India and to provide the redescriptions and detailed illustrations for clearing the uncertainty and confusion for other

workers in this field. Fortunately I have received and studied the type-materials and authenticated identified specimens from different museums, such as the type-specimens of Gravely, Sinha and Tikader from the National Collections of the Zoological Survey of India, Calcutta, the type-specimens of Simon from the Museum National d' Histoire Naturelle, Paris, the type-specimens and authenticated identified specimens of Pocock from the British Museum (Natural History), London. Only the availability of these type materials and authenticated identified specimens brought this faunal work to completion. I have provided the redescriptions and detailed illustrations of these type-specimens in this faunal work. The genera *Gea* and *Parawixia* have been recorded for the first time from India in this volume.

The first part of the volume deals with one hundred and one species belonging to twenty one genera of the family Araneidae (=Argiopidae). Of these, six species are new to the science. I have given a detailed general account of external anatomy, characters of taxonomic importance, ecology, habits and orb-weaving mechanism of spider in the family Araneidae (=Argiopidae). As far as possible keys for identification of genera and species as well as the diagrams for each species of the family for easy identification and a list of families and higher categories and key to families of Indian spiders have been provided.

Regarding the known species the measurements and descriptions are given related to the type material as well as authenticated identified specimens only. In case of new species the measurements and descriptions are based on Holotypes. Registration number of type-specimens are given. The type-specimens of new species described in this faunal work have been deposited in the National Collections, Zoological Survey of India, Calcutta. Other materials studied are deposited in the Collection of Western Regional Station, Zoological Survey of India, Poona.

This faunal work could not be completed without the help of many individuals and institutions. I take this opportunity to express my deepest gratitude for loans of type-specimens and authenticated identified specimens of many araneid specimens and other helps to : Mr. F. R. Wanless, Arachnida section, British

Museum (Natural History), London. Prof. M. Vachon, Museum National d' Historie Naturelle, Paris ; Prof. H. W. Levi, Museum of Comparative Zoology, Harvard University, U.S.A. ; Dr. M. Grasshoff, Forchungs-Institut Senckenberg, Frankfrut, West Germany.

I got the opportunity to examine and study the large collections of araneid spiders received from a number of gentlemen to whom I am gratefully acknowledging my thanks : Dr. Pattanaik, Central Rice Research Institute, Cuttack, Orissa ; Dr. B. H. Patel, Department of Zoology, Sir P. P. Institute of Science, Bhavnagar, Gujarat ; Dr. B. S. Lamba, Zoological Survey of India, Northern Regional Station, Dehra Dun, U.P. ; Dr. H. Khajuria, Zoological Survey of India, High Altitude Zoological Field Station, Solan, H.P. ; Dr. K. Reddiah, Zoological Survey of India, Central Regional Station, Jabalpur, M.P. ; Dr. T G. Vazirani, Zoological Survey of India, Desert Regional Station, Jodhpur, Rajasthan ; Dr. Asket Singh, Zoological Survey of India, Eastern Regional Station, Shillong, Meghalaya.

Thanks are due to Dr. R. H. Kamble, Dr. D. B. Bastawde, Dr. Bijan Biswas and especially to Dr. Animesh Bal for assisting in various ways during the preparation of the manuscript as well as illustrations. I am indebted to Shri Iqbal Shaikh, Photographer, Shri P. W. Garde and Shri Dilip J. Kamble, Artists, Zoological Survey of India, Western Regional Station, for preparation of photographs as well as some illustrations and to Shri K. H. Valecha, Stenographer, for typing the manuscript.

I am thankful to Shri G. Sivagurunathan, Publication Production Officer and the staff of the Publication Division, Zoological Survey of India, Calcutta for assisting in various ways for quick publication of this volume.

Lastly I would like to express my grateful thanks to the Department of Environment, Government of India, for honouring me by assigning the writing up of fauna volumes on spiders.

Calcutta
10th March, 1982
Dol Purnima

B. K. TIKADER

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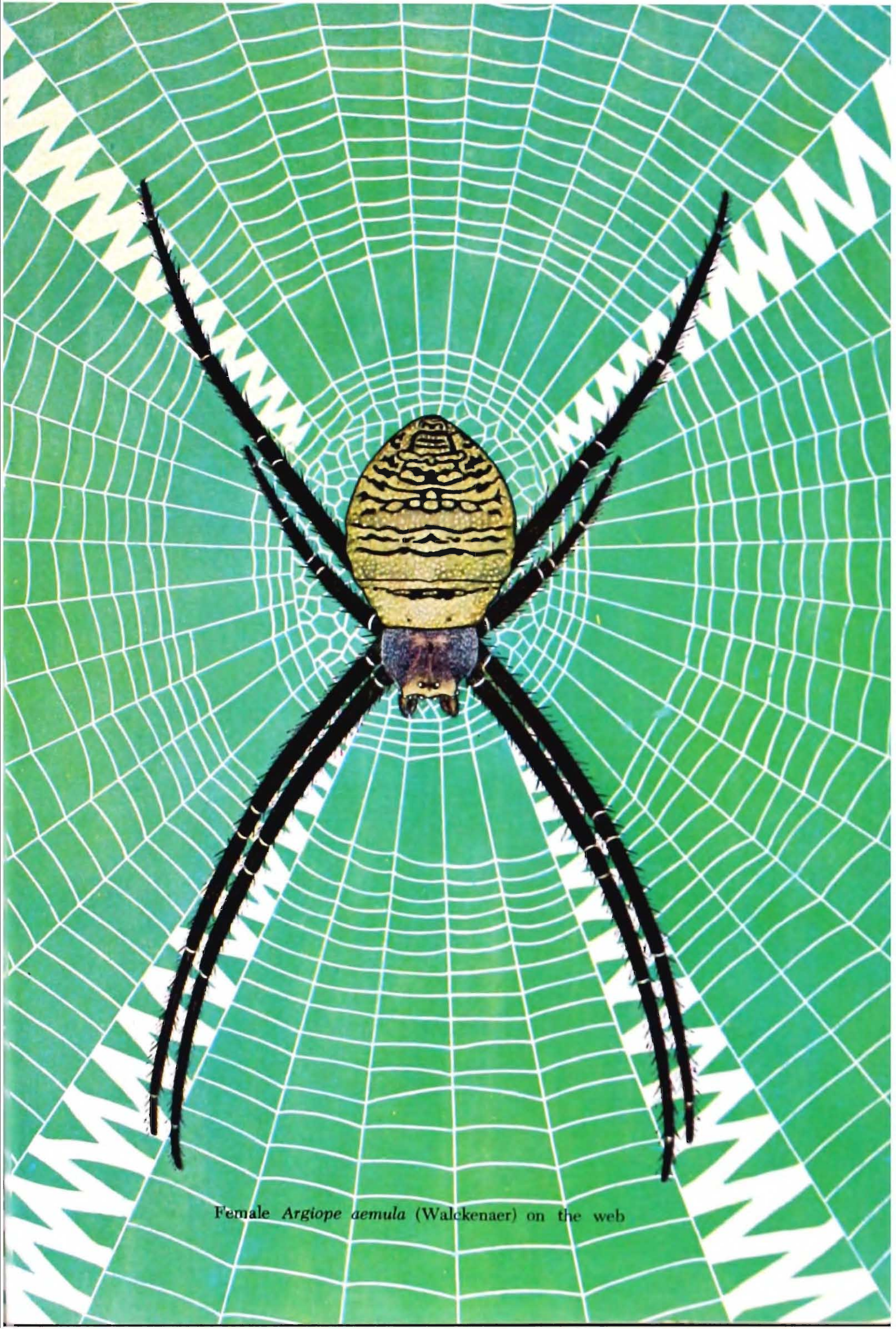
Part 1
FAMILY
ARANEIDAE (=ARGIOPIDAE)
TYPICAL ORB-WEAVERS



Female *Argiope aemula* (Walckenaer) on the web

General Ecology, Habits and Orb-weaving mechanism of some Spiders of the Family araneidae

The araneid or typical orb-weaving spiders are 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 build their orb-webs having geometrical precision and beauty. Their finished products are incomparable in terms of the craftmanship. 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 up to 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 webs 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 of 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*, *Gasteracantha*, *Leucauge*, 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 4th legs pull out silk from spinnerets and wrap the victim. The prey is bitten before being dragged to the hub or to the retreat in a corner, where prey is sucked. Inedible 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 females web. A female generally does not feast on her mate as many people believe but usually the males 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 some araneids like *Cyclosa* and *Cyrtophora* the egg laying is extended over a considerable period of time and thus a series of egg sacs are formed and are seen attached to their webs.

In the winter many female araneid spiders 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.

Orb-Weaving Mechanism of Araneid Spiders

(Figs. 1-49)

Among spiders araneids are unique because of their peculiar habit to construct the orb-webs having geometrical precision. Their finished product is a masterpiece of their craftmanship. The webs mainly serve as trapping nets to capture their prey, often camouflage the spiders from their prey and predators. The threads of webs are nothing but the solidified secretion of silk glands, present inside the abdomen. The silk secretion which is a kind of protein, solidifies as soon as it comes in contact with the air. The secretion of silk gland comes out from the minute microscopic spigots present on the mound or spinnerets,

Orb-weaving spiders are of various kinds, so their modes of web-building also different to some extent. Primarily two types of operations are seen. One, the bridge line alongwith the outer frameworks are constructed first. By this way the orb-webs are either vertical or horizontal in position with the adjacent supporting objects. The other type, where after formation of bridge line a V-shaped two radii are formed from a second thread just below the upper bridge line, and the other radii alongwith outer frames are constructed. But in both the types the operations are a little bit variable according to the availability of adjacent supporting objects. After formation of all radii, the spider construct the non-viscid spiral thread from centre to periphery which later replaced by viscid spiral thread from periphery to centre.

Here the two types of web-building operations have been discussed :

In the first instance the spider *Gasteracantha mammosa* C. L. Koch (=*G. brevispina*) pays out silk from its spinnerets to the wind from at a point A until the free end of the thread gets entangled to an end B on the shrub (Fig. 1). From A the spider goes over to the point B and sticking the end firmly there. The spider then walks back and forth along the line to strengthen it by laying more silk on it. Thus the bridge line A-B is established (Fig. 2). From A the spider proceeds upto the middle of the bridge line i.e. C, from where it drops down a thread over a weed below and fixes the thread at D on the weed (Fig. 3). From this point the spider continues the thread and carrying it loose by one of its hind legs not to be entangled on the supporting weeds on which it walks, and goes over the weeds upto a stump E of the shrub where it entangles the line. Now, it climbs up along the branch from E by trailing the thread and attaches it to the point A (Fig. 4, 5). Thus D-E and E-A outer frameworks have been formed.

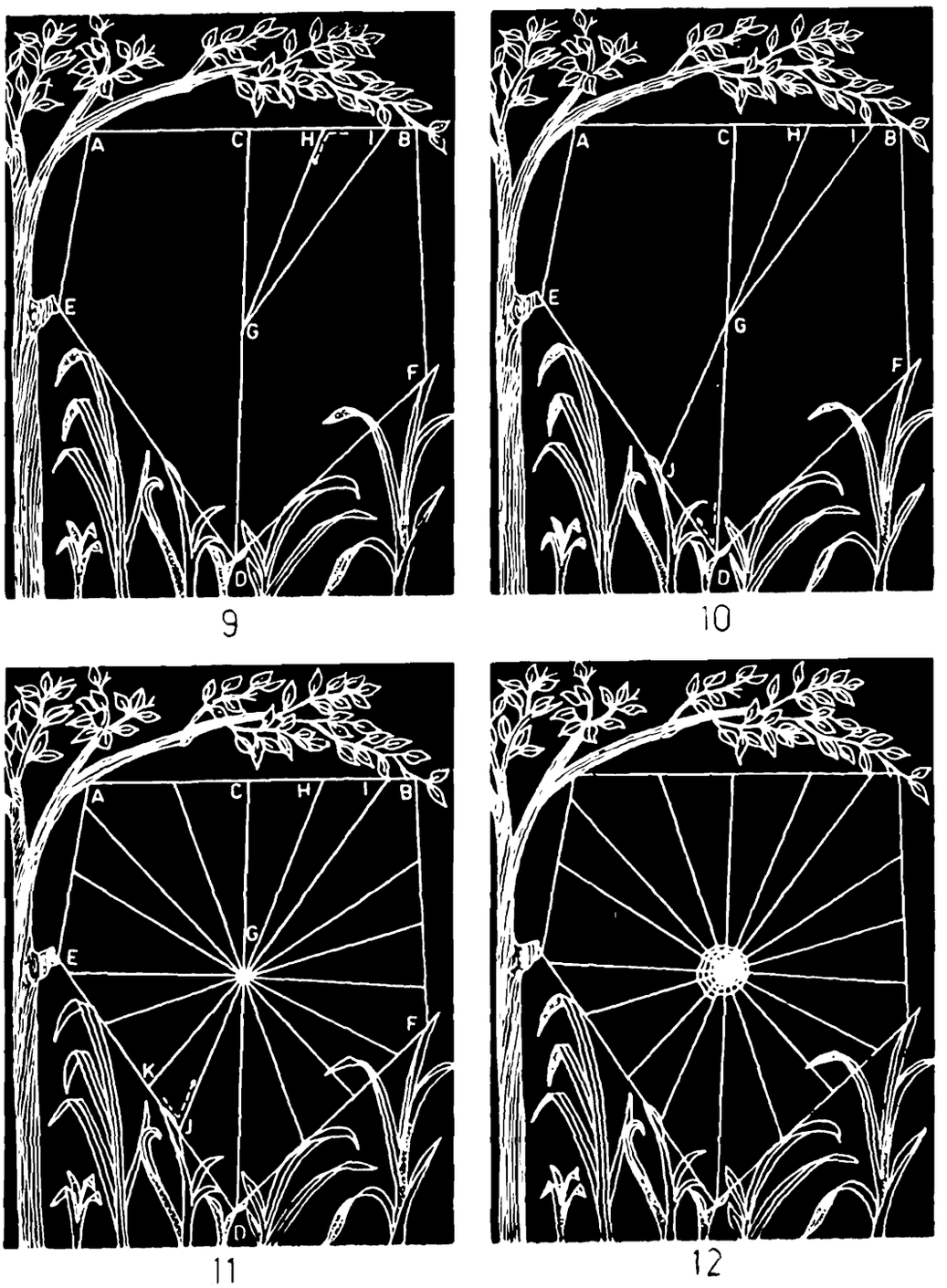
Then the spider crosses the bridge without any trailing thread upto B and from there it drops down on the weed below by a dragline thread and fixes it at the point F on the weed, thus B-F is formed (Fig. 6). From the point F the spider crawls down along the weed with a thread to form F-D (Fig. 7). In this way

Figs. 1-4. Orb-weaving mechanism of *Gasteracantha mammosa* C. L. Koch.

a pentagonal framework is built with the bridge line A-B and outer four boundary lines B-F, F-D D-E, E-A, the line C-D, which passes from the middle of the bridge line C as a diameter through the centre of the entire space upto the middle of the opposite boundaries of the future web.

Figs. 5-8. Orb-weaving mechanism of *Gasteracantha mammosa* C. L. Koch.

After this, the spider starts to construct the radial threads through a point on the already formed diameter C-D, which will be the centre or hub at the future web. In anticipation to this operation, it crawls upto a point G on D-C. At G the spider attaches a thread and trailing it loose behind proceeds upto C



Figs. 9-12. Orb-weaving mechanism of *Gasteracantha mammosa* C. L. Koch.

and from there it goes a little distance towards B and at point H entangles the line tight and makes the radius GH (Fig. 8). From H point the spider moves a few centimeters further towards B and at the point I fixes a fresh thread and trailing it loose

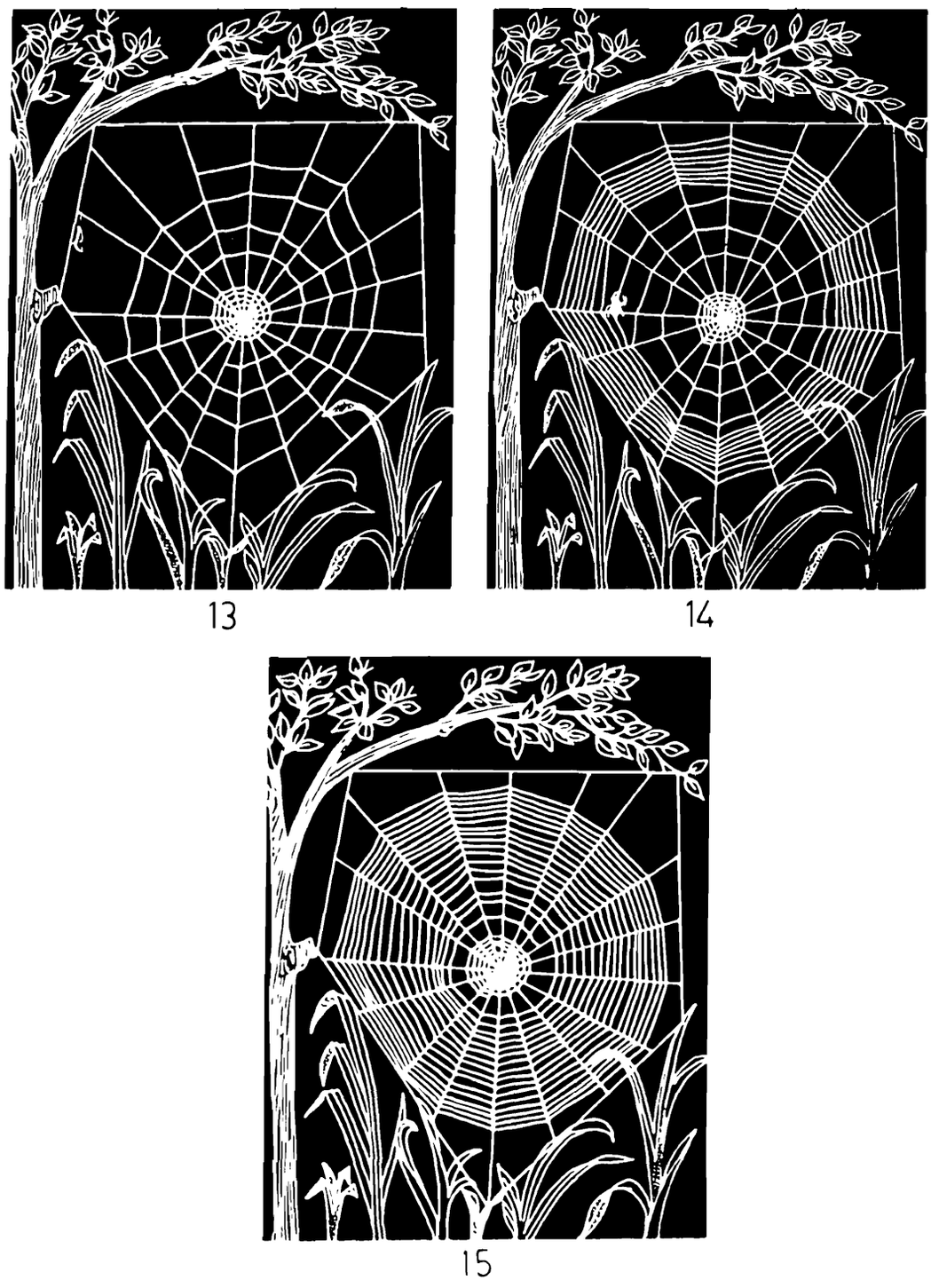
comes back to G alongwith the radius HG and by pulling tight the thread at G the spider makes IG radius. (Fig. 9).

Next, the spider spins a new thread from G and trailing the line loose descends down to D and turns towards E, at J it fixes the thread tight and thus the radial thread GJ is formed (Fig. 10). From J, the spider moves a little away towards E upto the point K, where it fixes a new thread and carrying the thread upto G via JG and attaches it to G. In this way another radial thread KG is formed. The spider repeats the operation to construct the radial threads in pair, are laid alternately on the right and left until the required radii are formed which are sufficient to hold the future web (Fig. 11).

After completion of all radii, the spider moves to the centre of the web and gives attention to some extent to give sufficient support to the radial threads, so it spins a few turn of spiral thread immediately outside the hub. This small spiral around the hub is called attachment zone (Fig. 12), and it is, ofcourse, before the spider starts a temporary non-viscid spiral. Because of this attachment zone, the radial threads are getting the uniform tension.

Once the hub and the attachment zone are completed, the spider starts to weave a spiral from the end of the attachment zone and continuing to the periphery in an anti-clockwise direction (Fig. 13), with turns as far as the spider can stretch. The thread of this temporary spiral is coarse and non-viscid and its function is to hold the radial threads for subsequent operations.

When the temporary spiral is completed, the spider reverses its direction, rolls up the old one and puts down the new, finer and more closely interspaced viscid silk which is elastic too (Fig. 14). This viscid spiral is weaving in a clockwise direction with measured action and uniform speed. In spinning the viscid thread the spider fastens it to a radius and then moves on pulling out the thread from the spinnerets, but before the thread is fastened to another radius the spider takes hold of it with the claws of one hind leg, and straightening this leg pulls out from the spinnerets ; the spinnerets are then applied to the next radius



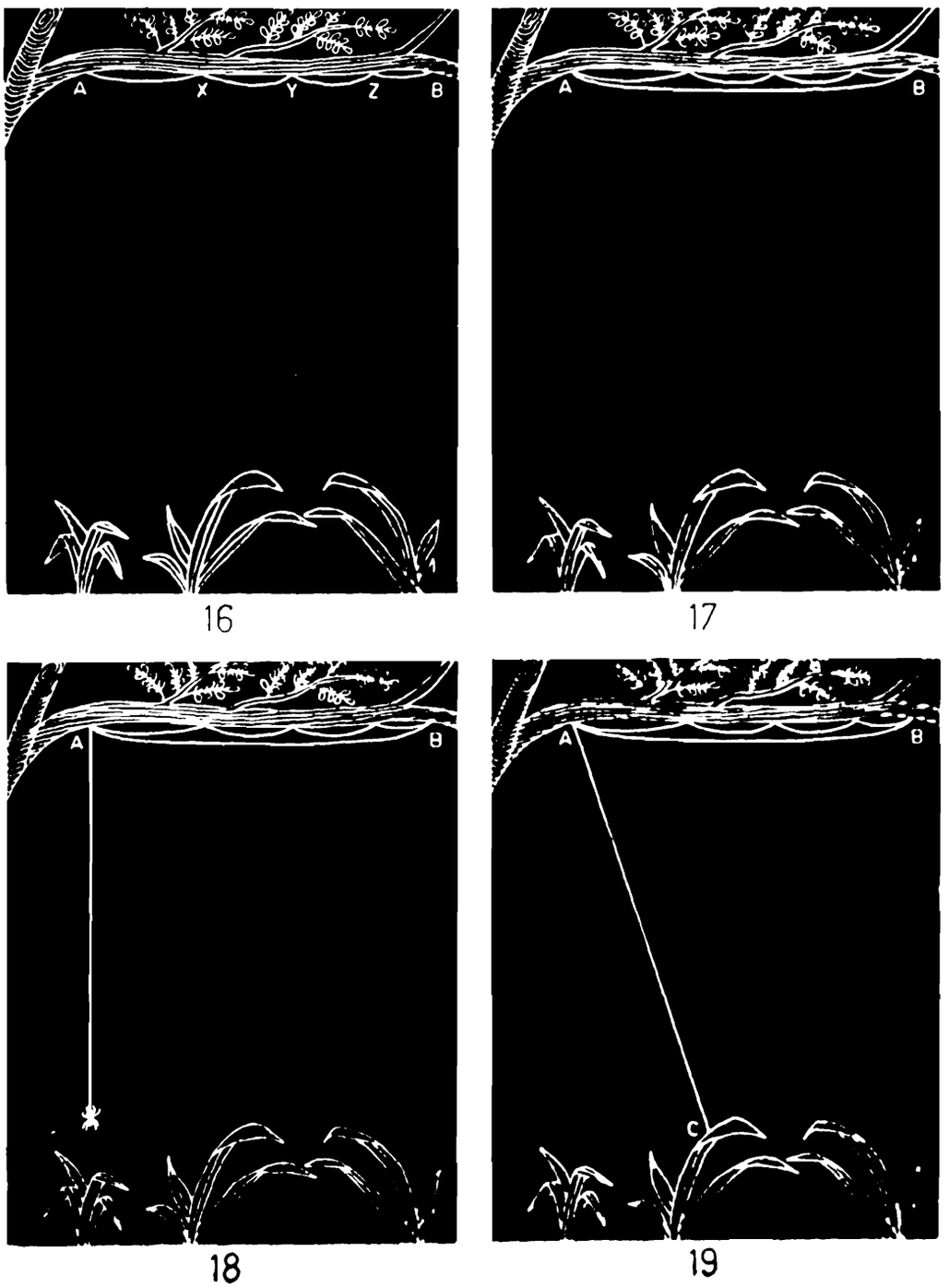
Figs. 13-15. Orb-weaving mechanism of *Gasteracantha mammosa* C. L. Koch.

and the thread fastened in place. After this the spider takes away its hind leg and the thread contracts to the length of the space between the two subsequent radii.

The viscid spiral does not cover entirely upto the hub but leave a space between the viscid spiral and the attachment zone

called free zone (Fig. 15). By following the above mentioned modes of operation to construct the web, the final product gets a "geometrical precision" which reveals the highest achievement of the craftmanship of orb-weaving spiders (Fig. 15).

In the second instance the young *Araneus* spider starts to



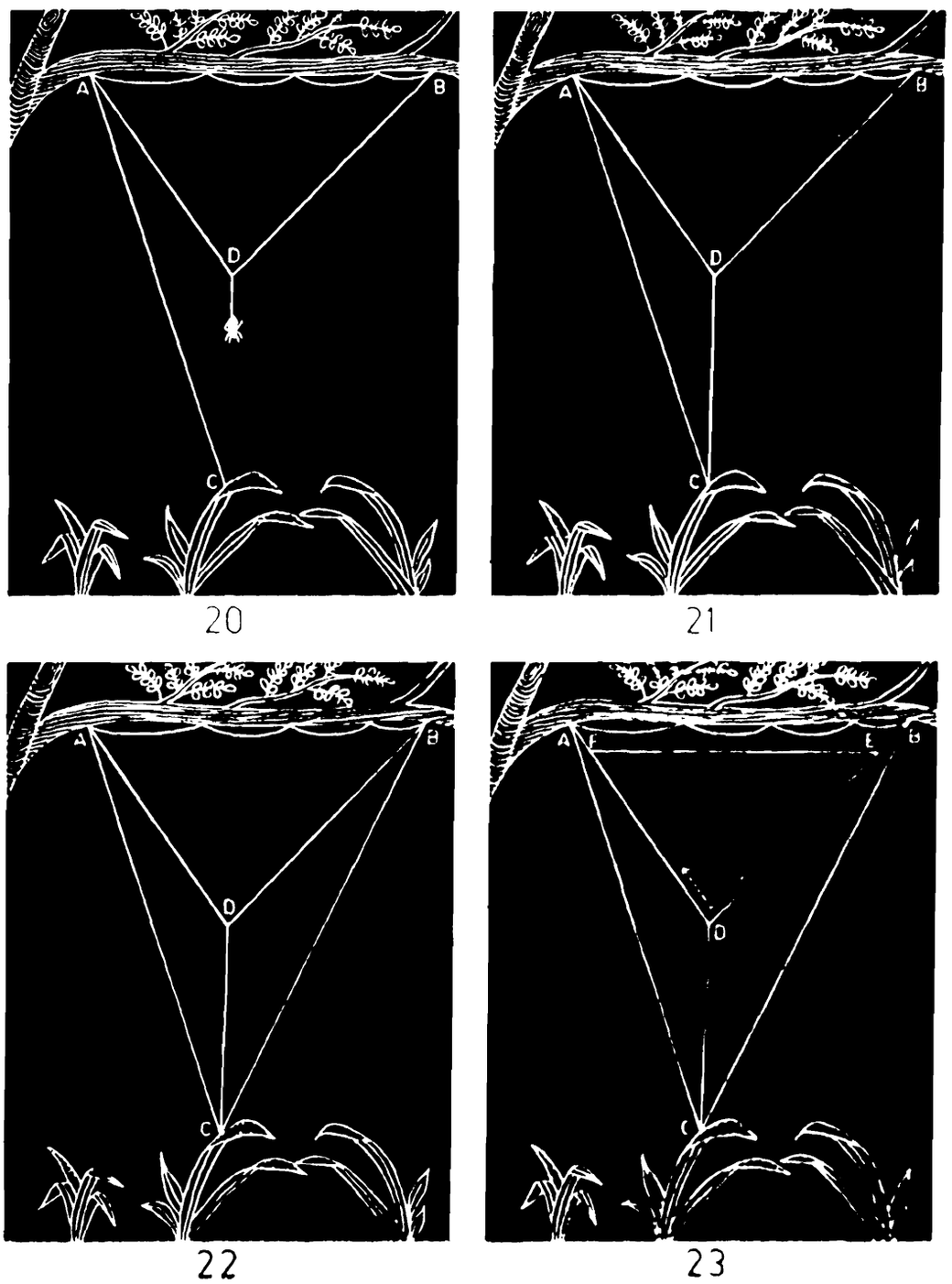
Figs. 16-19. Orb-weaving mechanism of young *Araneus* spider

weave its web at the beginning of dark in the evening. At point A on a tree branch it fixes a thread and then crawls along the branch in an inverted position by trailing behind the thread carefully and attaches at the points X, Y, Z and finally at B (Fig. 16). From B the spider returns to A carrying behind a loose thread which it fixes to A. Thus an upper bridge line A-B is established (Fig. 17).

Soon after this the spider drops down by a thread upto a level of a small plant below (Fig. 18) to reach to the plant the spider dangles to and fro, and as soon as it gets the plant, fixes the thread on any of the branches firmly. Through this oscillation and also with the help of wind it reaches to the plant (Fig. 19). Thus A-C is formed, and along this A-C the spider climbs back to A and then towards B upto D, the mid-point of A-B. At the point D the spider cuts the thread and attaches the spinnerets to the cut end, and makes the thread A-B longer by rotating itself. Thus a V-shaped structure of thread is formed (Fig. 20). From the bent point of V the spider drops down by a thread forming a Y and attaches the end of the thread at C (Fig. 21).

The spider then fixes a thread at C and trailing it behind and climbs upto B following the way C-D-B. At B the thread is hauled tight and fixed (Fig. 22). Thus a boundary line of the framework at future orb-web C-B is formed. From B the spider moves down a little distance towards D and fixes a thread there at E. The spider then trailing loose a thread, goes upto F via D, a little below of A where the thread is pulled tight and fixed. Thus the upper boundary line E-F is formed after removing the original bridge line A-B (Fig. 23).

From F the spider moves a few distance towards E and at G fixes a thread, and by holding it carefully not to be entangled to any pre-existing thread the spider moves upto D via F. At D the thread fixes tight. Thus the radial thread GD is formed. Then from D the spider trailing a thread upto H via C, and the thread is pulled and fixed tightly at H. In this way another spoke DH is formed (Fig. 24). The spider then moves to the point J and attaches a thread there and return to D via H to

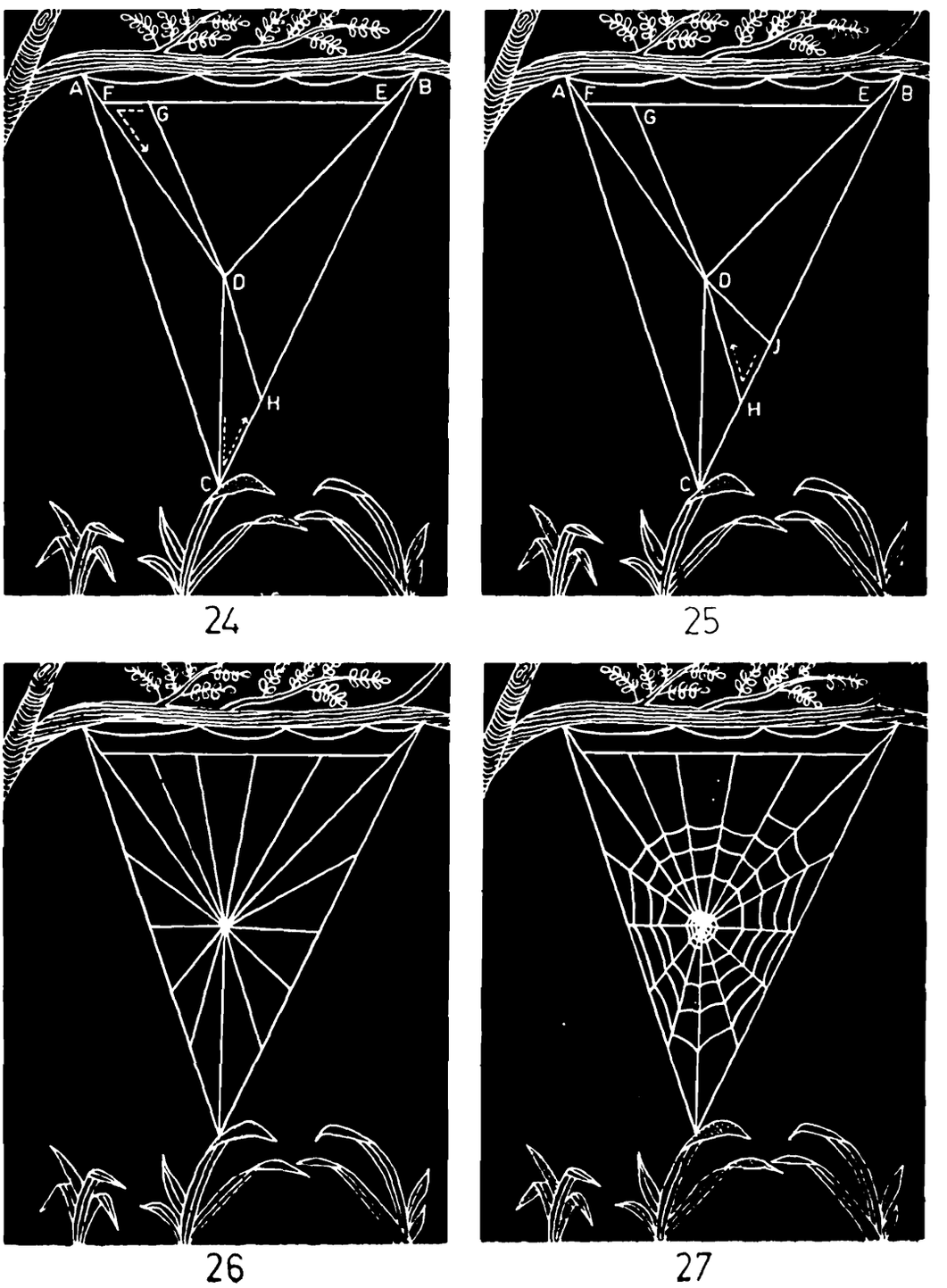


Figs. 20-23. Orb-weaving mechanism of young *Araneus* spider.

fix a thread to form the spoke JD (Fig. 25) By following the same procedure all other spokes or radial threads at the future orb-web are formed, one or two to the right alternating with one or two to the left (Fig. 26)

Next to this, the spider starts the subsequent phases to com-

plete the orb-web, so the attachment zone and non-viscid spirals are formed after leaving the free zone as stated in the first case (Fig. 27). Then the non-viscid spiral is removed by closer meshed viscid spiral, weaving clockwise from periphery to the centre (Fig. 28). In this way the orb-web in vertical plane is constructed by *Araneus* spiders.



Figs. 24-27. Orb-weaving mechanism of young *Araneus* spider.

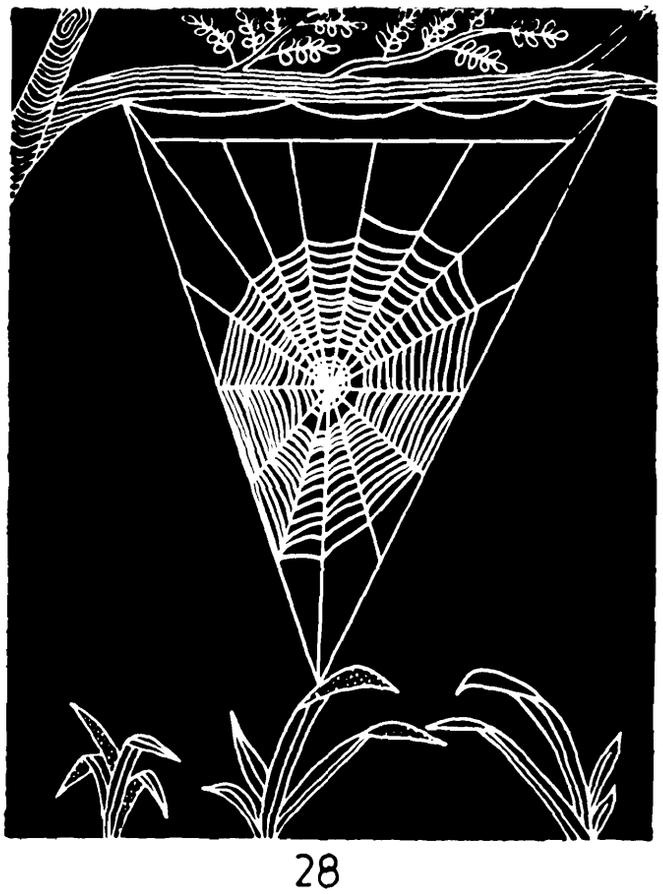


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Fig. 28. Orb-weaving mechanism of young *Araneus* spider.

Different features of a typical orb-web is shown in the text-fig. 29.

Net element "*Thread*" : Generally large orb-weavers produce thicker threads. Within one species of spider, the diameter of the thread also changes with age. The thread thickness of an adult large orb-weaver is 0.010 mm. to 0.012 mm. per individual thread. The thread produced by *Nephila* is the strongest among spider's thread. The strong webs of *Nephila*, matted and twisted, are used by South Sea Islanders for various kinds of bags and fish nets (Kullmann, 1975).

As a spider walks around, it usually emits a double or even quadruple thread - this is called "dragline" This dragline serves as a safety line so that in the face of danger the spider can let itself fall without loosing contact to the last attachment disk to which it can return by climbing up the thread.

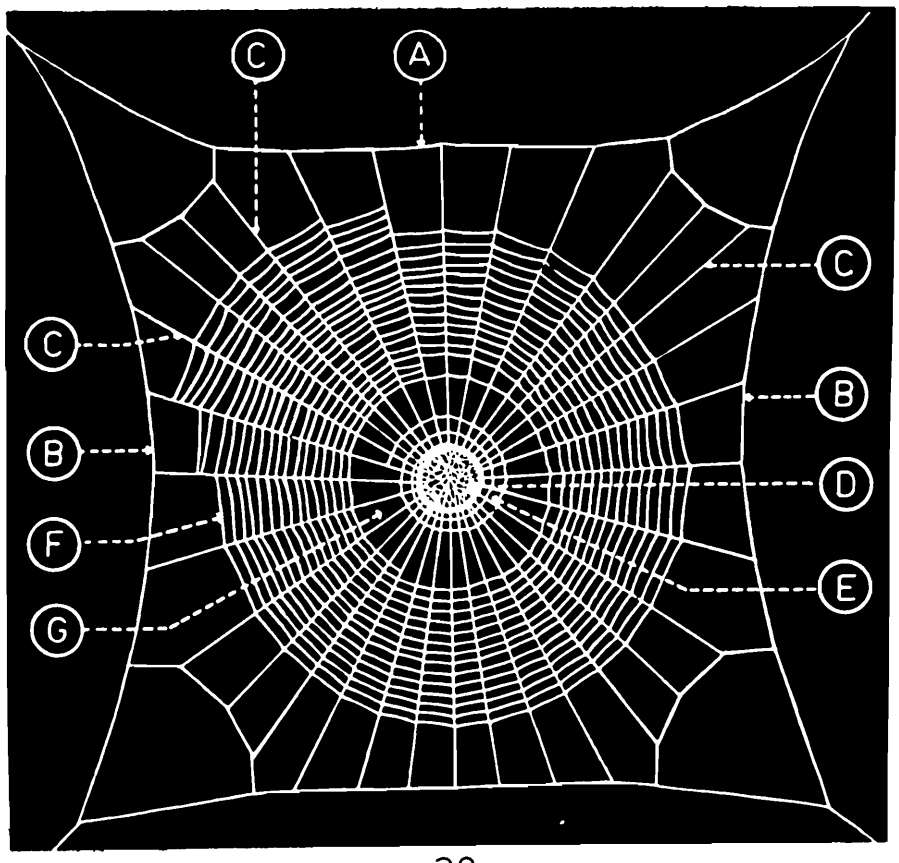

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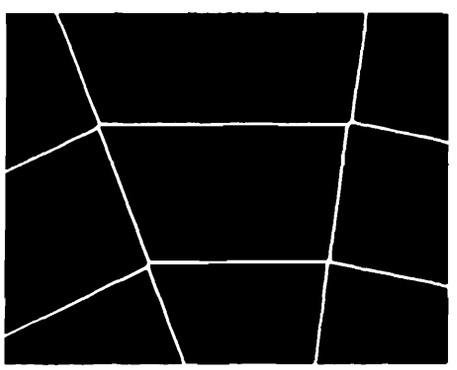
Fig. 29. Different parts of a typical orb-web.

The mesh of the orb-webs : The mesh is the geometrical elements of the web. It is formed by the joining together the threads and knots of the close lines.

Accordingly, they are only of four kinds found in orb-webs. The Trapezoid mesh (Fig. 30) as found in general orb-webs. The Square mesh (Fig. 31) which is constructed in the sheet of the orb-web made by *Cyrtophora*. The Rectangular mesh (Fig. 32) constructed by *Nephila*, and the rest one is Irregular mesh (Fig. 33) which is also found in the hub of the orb-web of some araneids.

Net-support : Orb-webs are suspended by one or more pairs of threads or thread bundles from objects close to it, such as grass, leaves, branches, ropes, stones and spanned between them. On one side it consists of objects found ready to hand such as grass, leaves, branches, fence wire, stones, walls etc. and on the other hand, at adjusting elements such as foundation lines and anchoring



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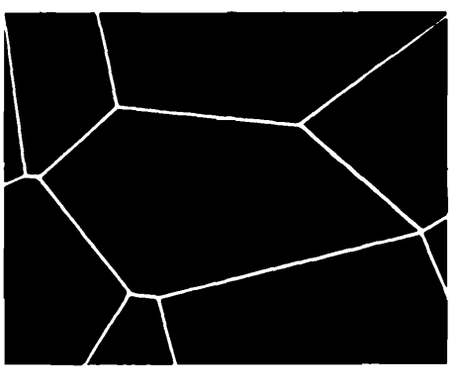

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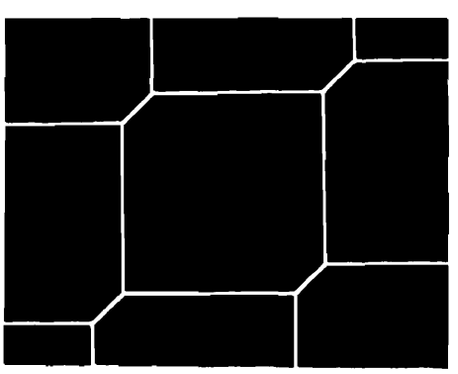

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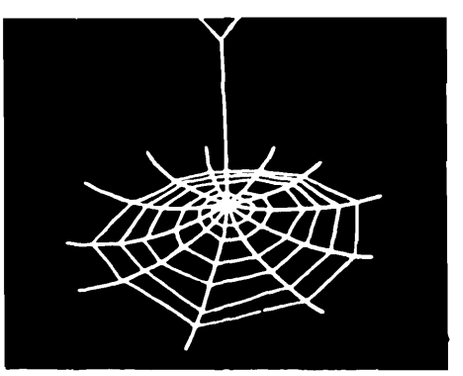

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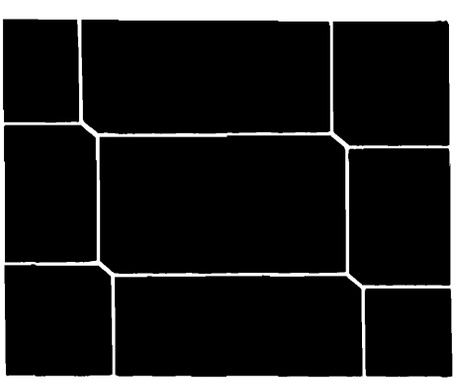

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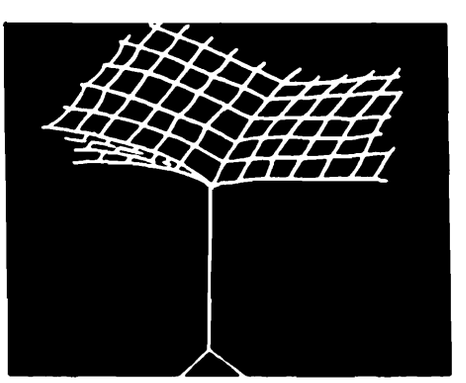

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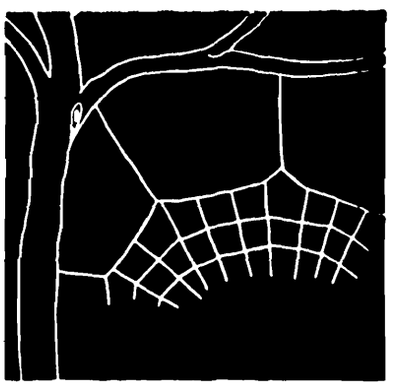
Fig. 30. Trapezoid mesh.
Fig. 31. Square mesh.
Fig. 32. Rectangular mesh.
Fig. 33. Irregular mesh.
Fig. 34. Anchoring threads.
Fig. 35. Anchoring threads.

threads (Figs. 34, 35). They transmit the forces to the net supports such as branches (Fig. 36) External net supports such as blades of grass (Fig. 37) or wall or building corners (Fig. 28) are known. However, internal net supporting, particularly blades

of grass, may also be observed (Fig. 39). If the net supports are very elastic, as in case of very long suspension threads or very flexible grass (Fig. 40), their elastic-constructive behaviour is an essential help for trapping the prey.



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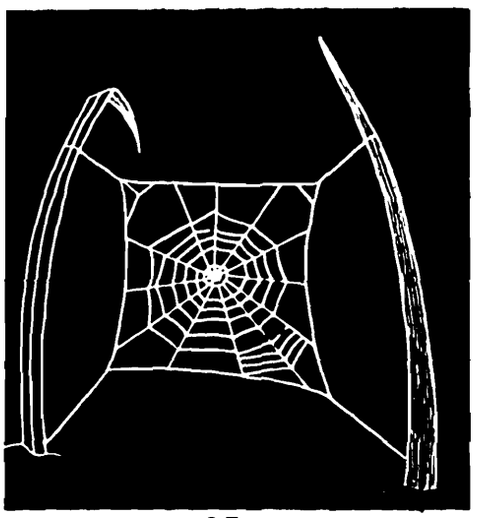

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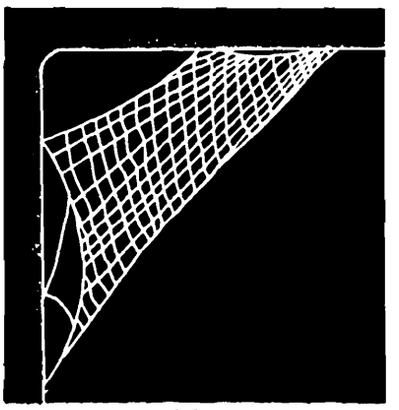

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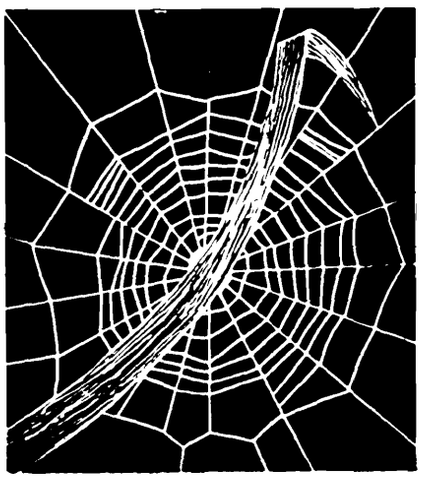

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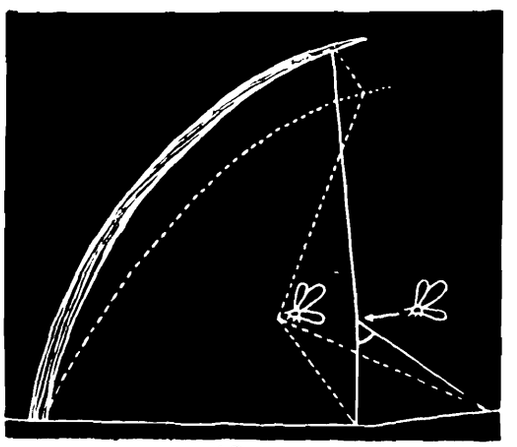

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Fig. 36. Tree branches.
Fig. 37. Blades of grass.
Fig. 38. Building corners.
Fig. 39. Blade of grass as internal net-support.
Fig. 40. Very flexible grass.

Special features in orb-webs : The spides of *Gasteracantha* weave some small fussy silk balls along the viscid spiral, which are afterwards entangled with debris to form rounded mass of waste products of their body size. So it is very difficult to locate the spider in exact position in the web (Fig. 41) This is also a kind of protective device. The young *Gasteracantha* may make a stabilimentum where as adults do not (Levi, 1978)

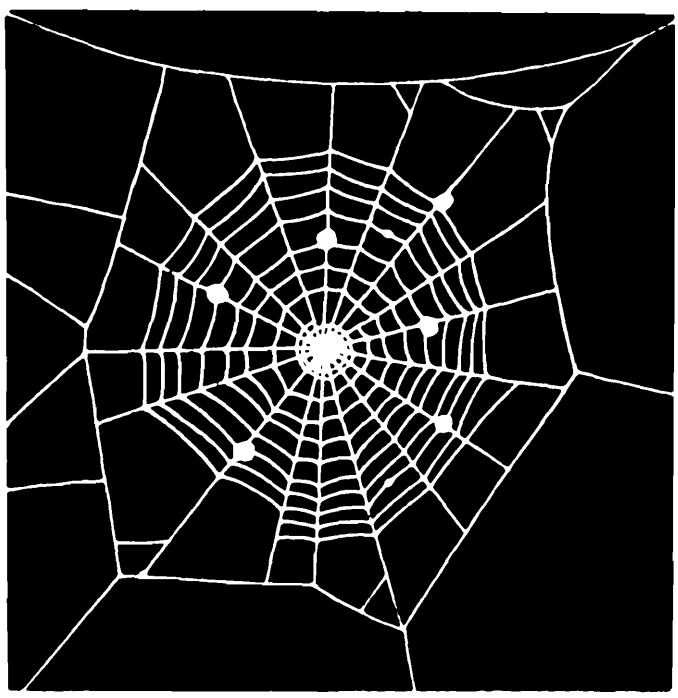

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Fig. 41. Orb-web of *Gasteracantha* with fussy silk balls.

In the genera *Argiope* and *Cyclosa*, the orb-webs are commonly provided with stabilimentum. It is a zigzag ribbon like structure accross the hub. It consists of a large number at minute threads resembling a swathing band and spun from the small spiggots of the aciniform glands.

In the webs of *Argiope*, the stabilimentum is X-marked across the hub (Fig. 42). It is always more elaborate in young than in adults. Despite its names the ribbon like white bands do not function in support of the web, so it is seen the webs of largest females often lack of stabilimentum. The stabilimentum may obscure the out-line of the spider, which does not have a retreat but hangs in the centre of the web (Levi, 1968) It is not

periodically replaced as is the viscid silk. Since the decorative stabilimentum is found in diverse groups, sometimes only in the webs of immature, it may have different functions in different webs (Levi, 1978).

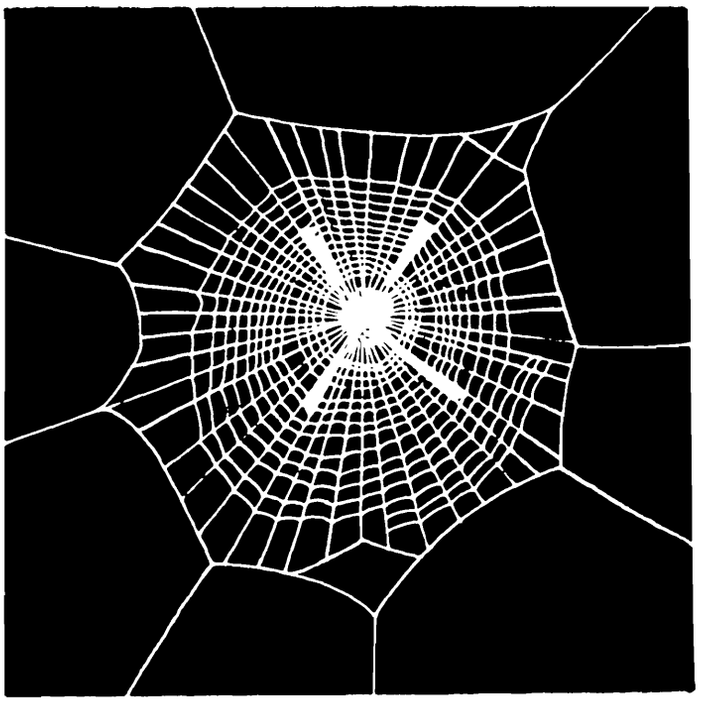

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Fig. 42. Orb-web of *Argiope*, provided with X-shaped stabilimentum.

In the orb-webs of *Cyclosa*, the stabilimentum is generally a small one, placed just above and below the hub. *Cyclosa insulana* does not spin stabilimentum in the webs but the female spider fastens her egg-sacs in a series which extends across the web from the hub to the upper margin looks like a dead twigs or debris in a row in the web. The spider hangs in the web in a small gap at the centre between the upper half and the lower half of the structure (Fig. 43). This band of egg-sacs and the spider are of the same grey colour, so it is very difficult to find out the spider in the web. *C. mulmeinensis* constructs horizontal web without any stabilimentum. The spider waits in the hub for prey and the female fastens its egg-sacs in the webs at a side.

Some orb-weavers wait away from the web in a retreat which is directly connected with the hub by thread called trap-line.

This retreat is made up of leaves fastened together with silk, a little away above or a side of the web (Fig. 44). When any insect gets trapped in the web, the disturbance caused on the web is communicated to the spider waiting in the retreat, and

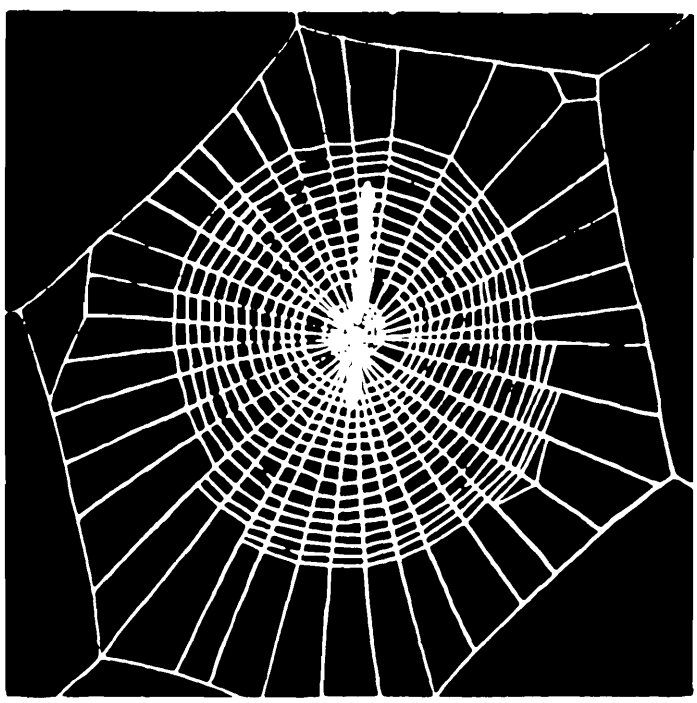

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Fig. 43. Orb-web of *Cyclosa insulana* (Costa).

the spider rushes to get the prey. These retreats or nests are commonly found in the spiders—*Araneus mitifica*, *Neoscona rumpfi*, *N. mukerjei*, *Parawixia dehaanii*, *Zygeilla* sp. etc.

Zygeilla builds the orb-web, in which characteristically one sector remains free of viscid spiral threads (Fig. 45). There is one radius leading through this open sector to the retreat of the spider as a trap-line. Their webs are renewed almost everyday.

In case of *Gea*, the orb-web occationally has a sector missing from the lower half, compare with the web of *Zygeilla* where the sector is missing from the upper half. *Gea* constructs the web close to the ground in low vegetation and not having any stabilimentum.

In some genera, as in *Meta*, *Leucauge*, *Gasteracantha*, the

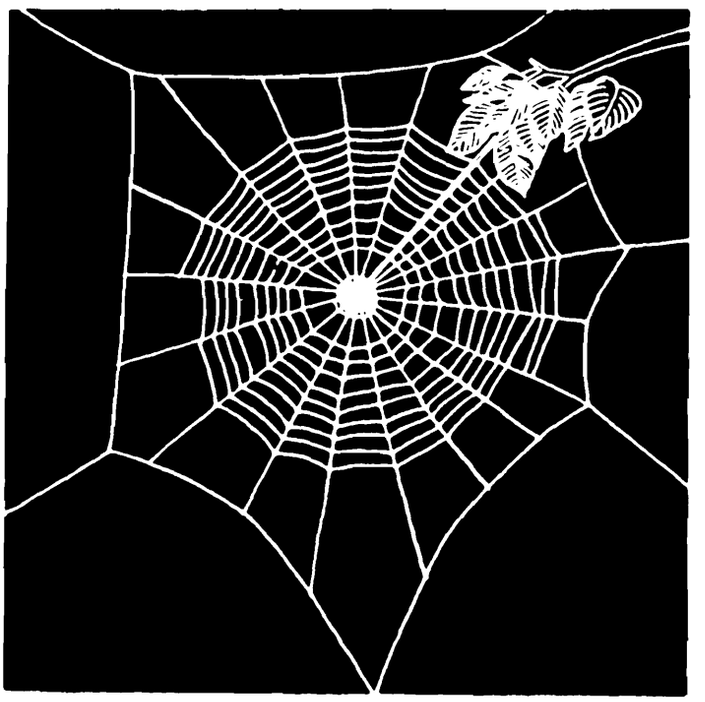

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Fig. 44. Orb-web of an araneid spider with retreat.

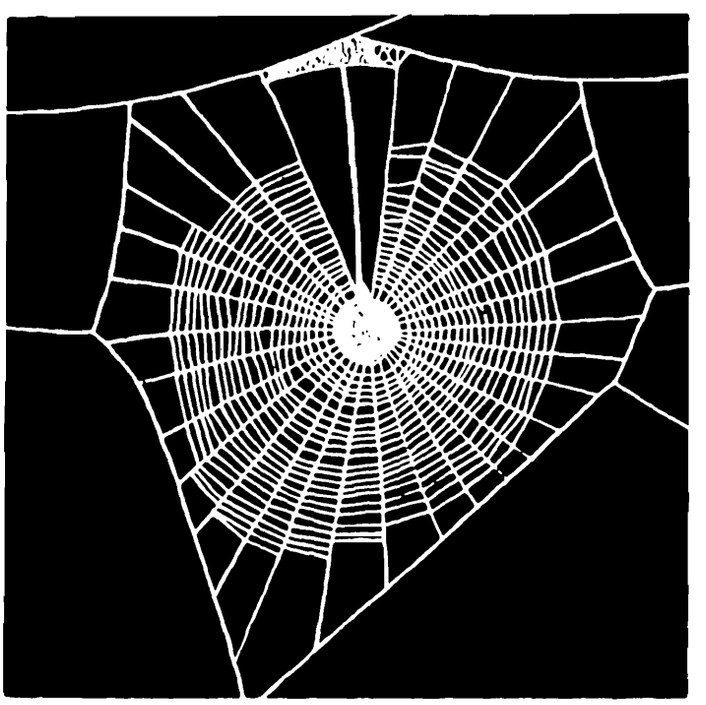

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Fig. 45. Orb-web of *Zygeilla*.

hub is open. This open hub fascilitates the spider to move from one face to the other. The hub of *Neoscona* is not fully

open but crossed by only one or two threads (Fig. 46), unlike webs made by *Araneus* where the hub is meshed (Fig. 47).

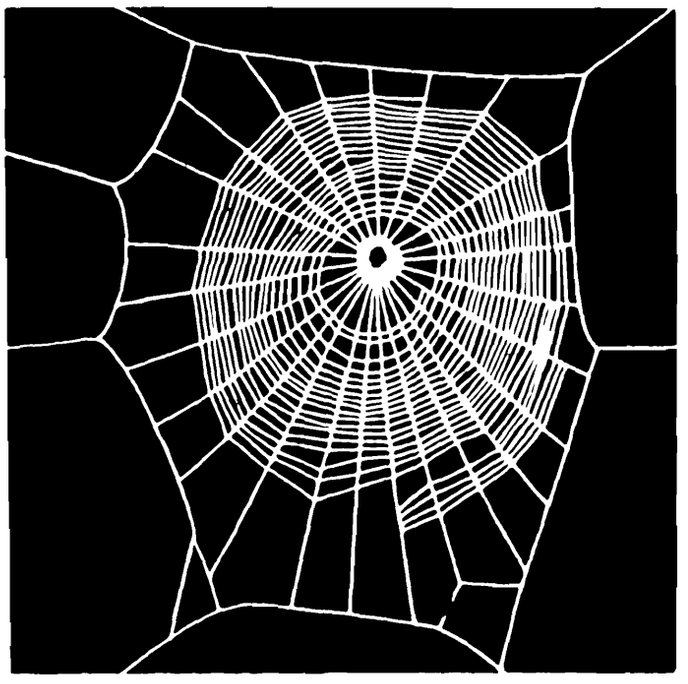

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Fig. 46. Orb-web of *Neoscona*.

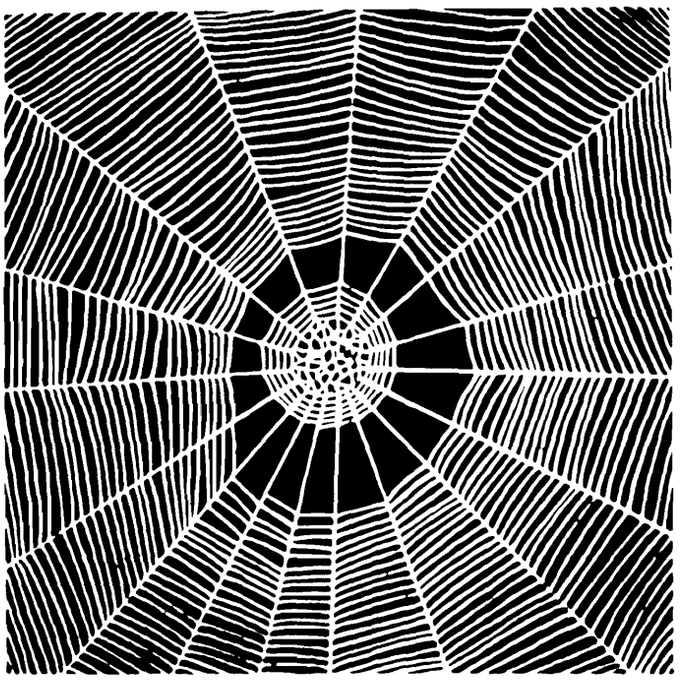

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Fig. 47. Orb-web of *Araneus*

Neoscona sits in the hub with the tip of the abdomen pushed through the open space of the hub.

Leucauge builds the web in horizontal plane in low bushes during day time. Very quickly they construct their webs, which are devoid of retreats. The spider hangs at the centre upside down posture. Almost everyday they build their nets after removing the old one.

Nephila makes a huge web, nearly one metre or more in diameter, in shaded woods. The webs are different in number of respects from the others in the family. The radii are pulled out at their direct course to give a notched appearance (Fig. 48) and the viscid spiral is of yellowish in colour rather than white. The silk of *Nephila* is the strongest natural fibre known (Levi, 1968). The strong webs of *Nephila*, matted and twisted, are

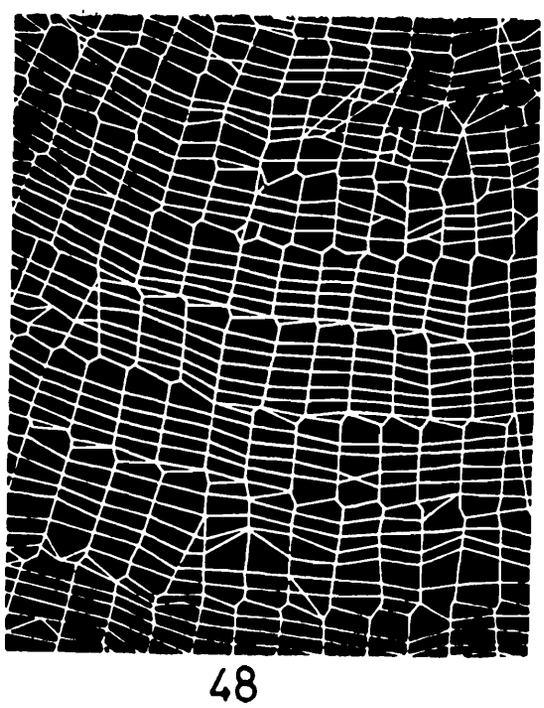

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Fig. 48. Part of the orb-web of *Nephila*.

used by South Sea Islanders for various kinds of bags and fish nets. Unlike other orb-weavers, the *Nephila* makes use of the same web for a long period replacing only the viscid lines. The webs of young *Nephila* are complete orbs the adults construct incomplete webs in the upper side. *N. maculata* is having an orb-web with a barrier web in the lower side.

Larinia makes the orb-web in the low bushes without any retreat. It does not rest in the centre of the web but on the vegetation to the side in day time. At night it sits in the hub only.

Members of the genus *Cyrtophora* produce the most unusual webs, thus perhaps the most specialised one. They make horizontal dome shaped webs with a barrier-web above and below (Fig. 49) The webs are devoid of viscid silk which is a specialised character since sticky threads are found in almost all araneids. The mesh

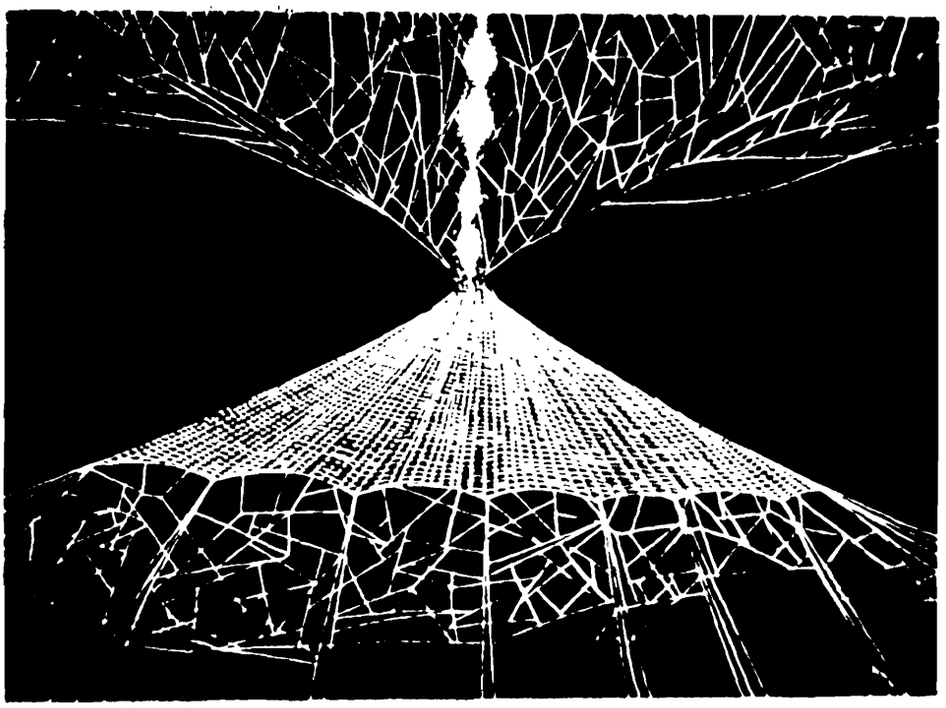

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Fig. 49. Horizontal dome shaped web of *Cyrtophora citricola* (Forskal) with a barrier web above and below.

of the web, which takes several nights to build, is so extraordinarily small that it can be said that it is a derived character. The webs of *Cyrtophora* are the best example of highest achievement of technical masterpiece among the spiders. *C. cicatrosa*, *C. citricola*, live in large colonies that span huge areas with contiguous barrier webs. These spiders make very few catches but since new webs are not constructed frequently, little energy is spent. The moths or other insects fly against the barrier web, tumble down to the domed horizontal orb-web, and are pulled through by the spider from below the web. The threads of the

orb are not viscid and thus the rain water does not affect them, so no need to replace them frequently. It is observed that *Cyrtophora* takes 4-5 nights to complete its web (Kullmann, 1975).

General Taxonomic characters of Spiders with special reference to the Family araneidae

(Figs. 50-62)

The body of the spider is divisible into a distinctive *cephalothorax* and *abdomen*, joined together by a narrow pedicel. The *cephalothorax* is covered dorsally by a hard sclerotic, the *carapace*, and ventrally by the *sternum* as in text-figs. 50 and 51. The anterior margin of sternum articulates movably with the *labium*. With few exceptions there is a deep transverse groove, forming a kind of hinge, between the sternum and the labium. The legs are articulated in the pleural membrance between the lateral edges of the *carapace* and *sternum*.

On the cephalic region six to eight simple eyes are present. The eyes are generally of two kinds, *viz.*, black or *diurnal* and white or *nocturnal* eyes. When only one type is present, the condition is described as *homogeneous*, in contrast to the *heterogeneous*, when both the types are present. The eyes are usually arranged in a double row, *viz.*, the *anterior row* and the *posterior row*. Each row usually contains four eyes. The rows of eyes are frequently curved. If the curvature is such that the lateral eyes are further forward then the medium eyes, the row is called *procurved*, and if further back, procurved as in text-fig. 57. According to their position, the eyes are described as the *anterior medians*, the *posterior medians*, the *anterior laterals* and the *posterior laterals*. The cephalic area, occupied by the eyes, is known as *ocular area*. The area margined by the four median eyes is termed as *ocular quad*. The area between the anterior row of eyes and the anterior margin of carapace is *clypeus*. There is often a depression in the middle of the thorax, called *thoracic groove* or *fovea* as in text-fig. 50.

There are six pairs of appendages on the cephalothorax. The first pair of appendages are the chelicerae. Each chelicera bears a curved fang at its apex. The inner surface of chelicera may

be finely denticulate and may also have a groove, into which the fang can be closed when not in use. This groove may also be armed with tooth on each side ; the outer margin of this groove is described as *promargin* and the inner margin as *retromargin.* There are sometimes long stout hairs on the promargin to constitute the so called *fang-scopulae*, as in text-fig. 54.

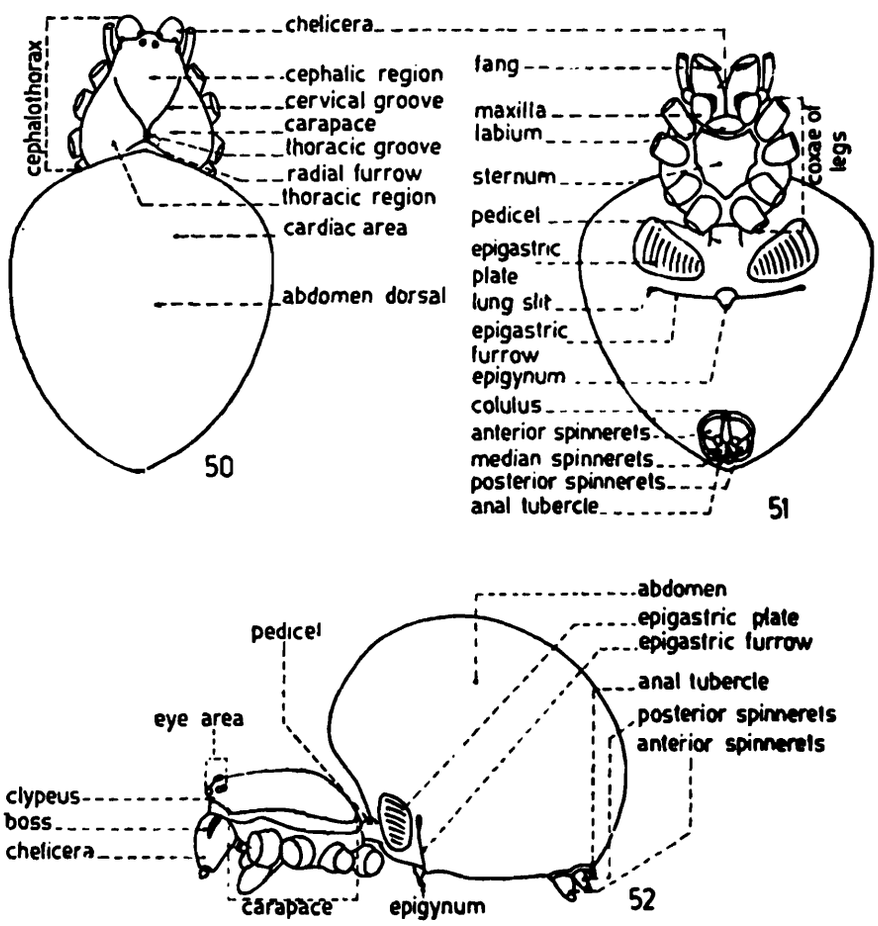


Fig. 50. Dorsal view of a typical spider, legs omitted.
Fig. 51. Ventral view of a typical spider, legs omitted.
Fig. 52. Lateral view of a typical spider, legs omitted.

The pedipalps are the second pair of appendages. The palp proper is composed of six segments, *viz.*, *coxa*, *trochanter*, *femur*, *patella*, *tibia* and *tarsus* as in text-fig. 53. In females the tarsus is simple and may or may not be with a single claw. The basal segment, the coxa of palp expands into a plate like structure called maxilla, each side of which is generally provided with thick tuft of hairs called scopulae as in text-fig. 53. In mature males the tarsus of palp is modified to carry a complicated copulatory organ. Generally the tibia, sometimes also the patella

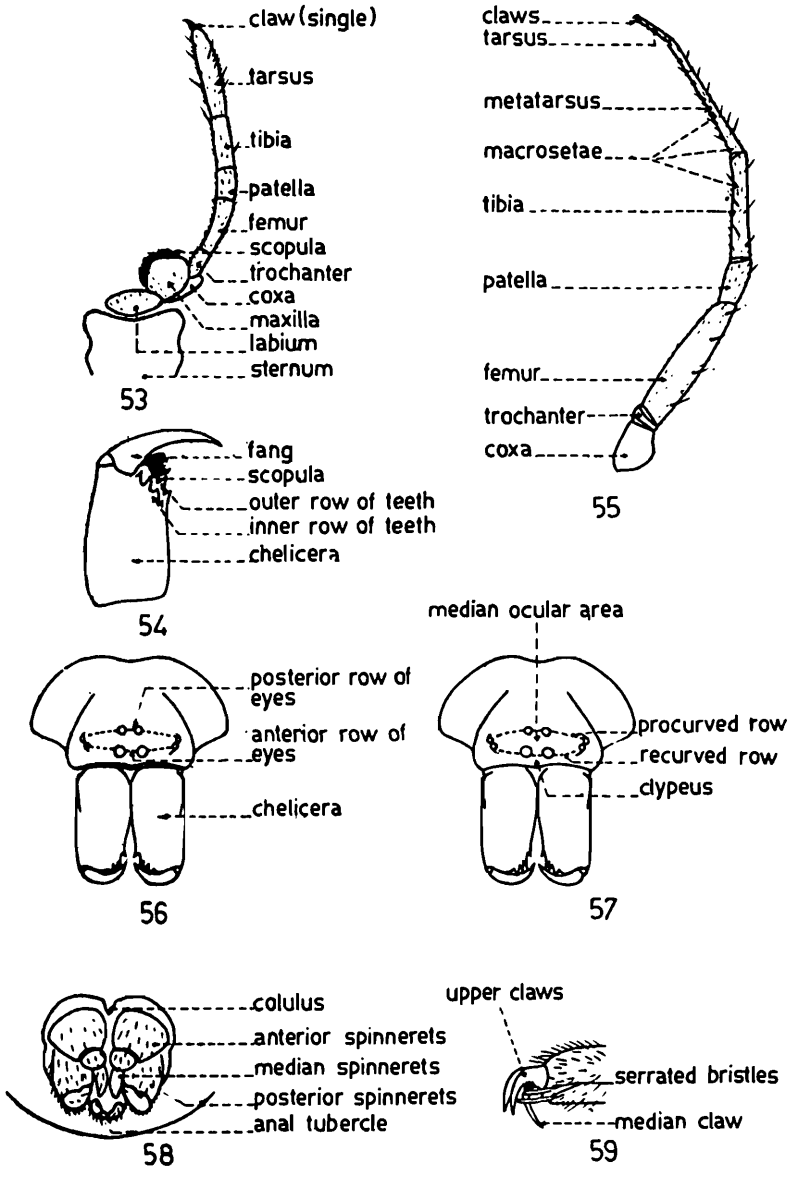


Fig. 53. Labium, maxilla and pedipalp of female.
Fig. 54. Inner view of chelicera.
Fig. 55. Lateral view of a leg.
Fig. 56. Face, front view of a typical spider.
Fig. 57. Face, front view of a typical spider showing arrangement of eyes.
Fig. 58. Ventral view of spinnerets.
Fig. 59. Distal end of tarsus showing claws.

constitute *apophysis* of the palp (which is of different shapes in different species) and is of very important taxonomic value. Generally the tarsus has a bowl-shaped cavity on its ventral surface and is called *cymbium*. In many groups mature males are provided with an appendage, the *paracymbium*. The complex structure of mature male palp is very important for generic or specific identification of spiders. The complicated palpal organ

consits of many parts, but that is a matter beyond the scope of this fauna.

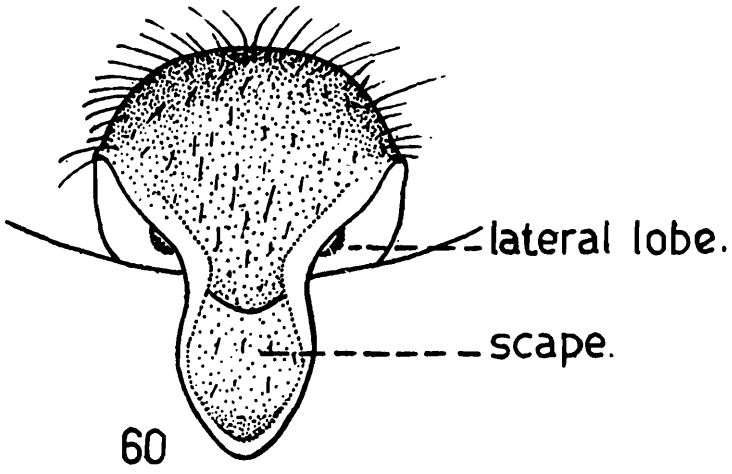
There are four pairs of legs designated as I, II, III and IV respectively. Each legs is composed of seven segments, *viz.*, *coxa*, *trochanter*, *femur*, *patella*, *tibia*, *metatarsus* and *tarsus* as in text-fig. 55. The legs are variously clothed with spines, spinules, bristles and hairs of various types. The distal ends of tarsi are provided with two or three claws. A characteristic tuft of hair called *claw-tuft* is sometimes found just above the claw. Spines on the dorsal sides of legs are distinguished as *dorsal spines* and those on the ventral side as *ventral spines*, as in text-fig. 55. Spiders usually have at least two claws at the end of each tarsus. In many families a single median ventral third claw is present as in text-fig. 59. The paired claws may be provided with a few teeth.

The abdomen is produced posteriorly into a conical *anal tubercle* and bears three pairs of spinnerets ventrally, *viz.*, the first or the *anterior pair*, the second or the *median* and the third or the posterior pair of spinnerets as in text-fig. 58. In a number of families there is present in front of the anterior (ventral) spinnerets a seive-like plate, called the *cribellum*. The special type of silk is omitted from this organ and is combed by a series of curved bristles comprising the calamistrum borne on metatarsus IV In many familes of spiders which do not possess the cribellum, a conical appendage called the *colulus*, lies between the bases of the anterior spinnerets.

The ventral surface of abdomen is provided with one or two pairs of *lung-books*, followed by one or two paired spiracles. The female genital organ is the epigyne, is situated just anterior to a transverse fold, known as *epigastric furrow* as in text-fig. 51. In many cases the epigyne is provided with a tongue like sclerotic projection called scape often having paired lateral lobes (as in *Neoscona*) as in text-fig. 60. Epigyne having two external openings which lead to the *spermathecae* inside and a pair of narrow curved tubes called *fertilization tubes* originate from the posterior median margin of spermathecae as in text-fig. 61.

The tarsi of spider are often armed with hairs of the type

known as *tenent hairs*, i.e., hairs dilated at their tips. In some families, spiders have very fine hairs called as *pubescence*. Sometimes the hairs are modified as *spiny-hairs* or *macrosetae*.



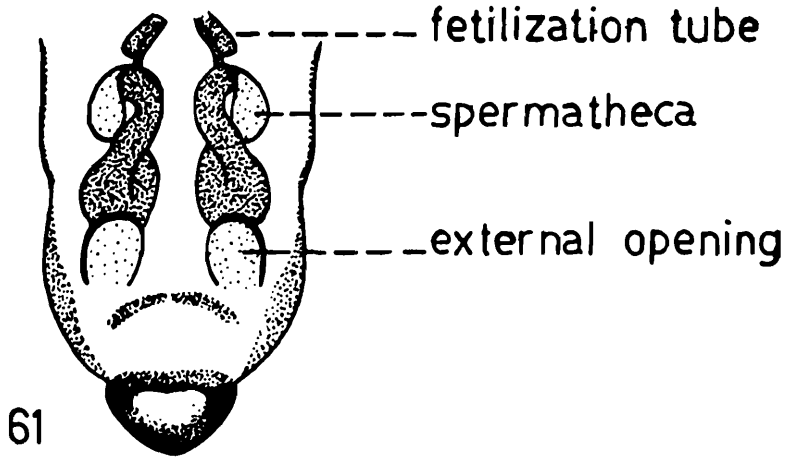


Fig. 60. Ventral view of epigynum of *Neoscona mukerjei* Tikader, showing different parts.
Fig. 61. Posterior view of internal genitalia of *N. mukerjei* Tikader, showing different parts.

Apart from the above mentioned general characters, the araneid spiders are possessing some special morphological characters having highly taxonomic importance are stated below.

Carapace generally longer than wide, narrowing in front and convex but in some *Chorizopes*, as in *C. khanjanes* and *C. anjanes* it is broadest anteriorly, as well as rounded at highly convex

cephalic region. Carapace is usually smooth but in some it is armed with horny tubercles and spine like structures as in *Caerostris* and *Ordgarius*. Thoracic region is provided with a groove, either longitudinal or transverse or in some trifod posteriorly as characteristic feature, in female *Araneus* it is always transverse but in *Neoscona* female longitudinal. In both the cases the males provided with fine longitudinal groove. Carapace moderately clothed with hairs and pubescence but in *Argiope* it is densely clothed with small fine silky pubescence, where as very few hairs are in *Zygeilla*. Eight eyes are present in two rows on the cephalic region and in most cases the lateral eyes are very close or nearly close, with exception in *Poltys* where the eyes are not in two rows but both anterior and posterior medians are on vertical plane and laterals are widely apart from each other. Both rows of eyes are generally recurved but in *Argiope* the posterior row is strongly procurved, in some *Leucauge* and *Meta* posterior row is very narrowly recurved or nearly straight. Ocular quad either a trapezium or a square. Posterior laterals are generally smaller or subequal to the anterior laterals but in *Argiope* and *Gea* they are remarkably smaller than anterior laterals.

Sternum usually heart-shaped, narrowing posteriorly and clothed with hairs and pubescence but in *Chorizopes khanjanes* it is distinctly triangular. Labium, in general, wider than long but in *Nephila* and *Leucauge* it is longer than wide and as long as wide respectively. Maxillae usually as long as wide or a rather roundish and provided with distinct scopulae, with exception in *Meta*, *Leucauge* and *Nephila* it is rather longer than wide and broadest distally. Chelicerae moderately or highly strong, vertical and non-divergent, in *Argiope* they are remarkably small and weak ; in all cases having with boss, either small or prominent ; both promargin and retromargin of fang furrow armed a few unequal teeth.

Legs are highly modified and variable in this family, but in all the tarsi having three claws—paired superior and toothed and one median inferior and untoothed ; tarsi also accompanied with one pair of serrated bristles. In *Araneus* and *Neoscona* males, coxae I provided with a hook on the distal rim of venter ;

Neoscona males specially having a coniform spur on the posterior edge of the ventral surface of coxa IV and also tibia II armed with macrosetae (spines) on the prolateral surface where as in *Araneus* males the coniform spur is present on the coxa II and there is a proximal depression on the dorsal surface of femur II. *Caerostris* having dorso-ventrally depressed patellae, tibiae and metatarsi, in *Poltys* patellae and tibiae I, II like wise flattened. Palpal patellae, tibiae and metatarsi of *Caerostris* females are also dorso-ventrally flattened. Most araneides having sustentaculum a strong spine bent upward at its tip, situated on the ventral surface of tarsus IV near the claws. In *Leucauge* there is a double fringe of long hairs on the prolateral surface of the proximal half.

Palpal organ of male araneid spider is highly complicated and variable from genus to genus, species to species. In *Araneus* and *Neoscona* the cymbium is a concave plate like structure and the paracymbium is only a prominent hook shaped structure arising vertically from the axis of the base of the cymbium and not articulated with the cymbium as in text-fig. 62. There are three special kind of hooks or apophysis, just below another sclerite—subterminal apophysis and a transverse, wider than high plate like median apophysis, provided with a large spur on the endal corner as in text-fig. 62, varied extremely in different genera. Sometimes the spur is bifurcated or a lesser spur may present. The embolus is long and winding and supported by conductor as in text-fig. 62. Tegulum and Subtegulum are ring like sclerites bearing the terminal apophysis, often modified to vertical knob as in text-fig. 62. There is one striking feature—haematodocha which is a sac like structure and in most araneids, divided into two as their position—basal haematodocha and distal haematodocha. The wall of the haematodocha consist of elastic connective tissue and during mating it is distended with blood. Palpal patellae of male *Araneus* and *Neoscona* bear two long and strong curving spine like hairs as in text-fig. 62, but in *Cyclosa* it is only one.

Abdomen of araneid spiders is extremely variable, shape may be oval, suboval, triangular, subtriangular, elliptical, elongated, barrel shaped etc ; often provided with humps and tubercles ;

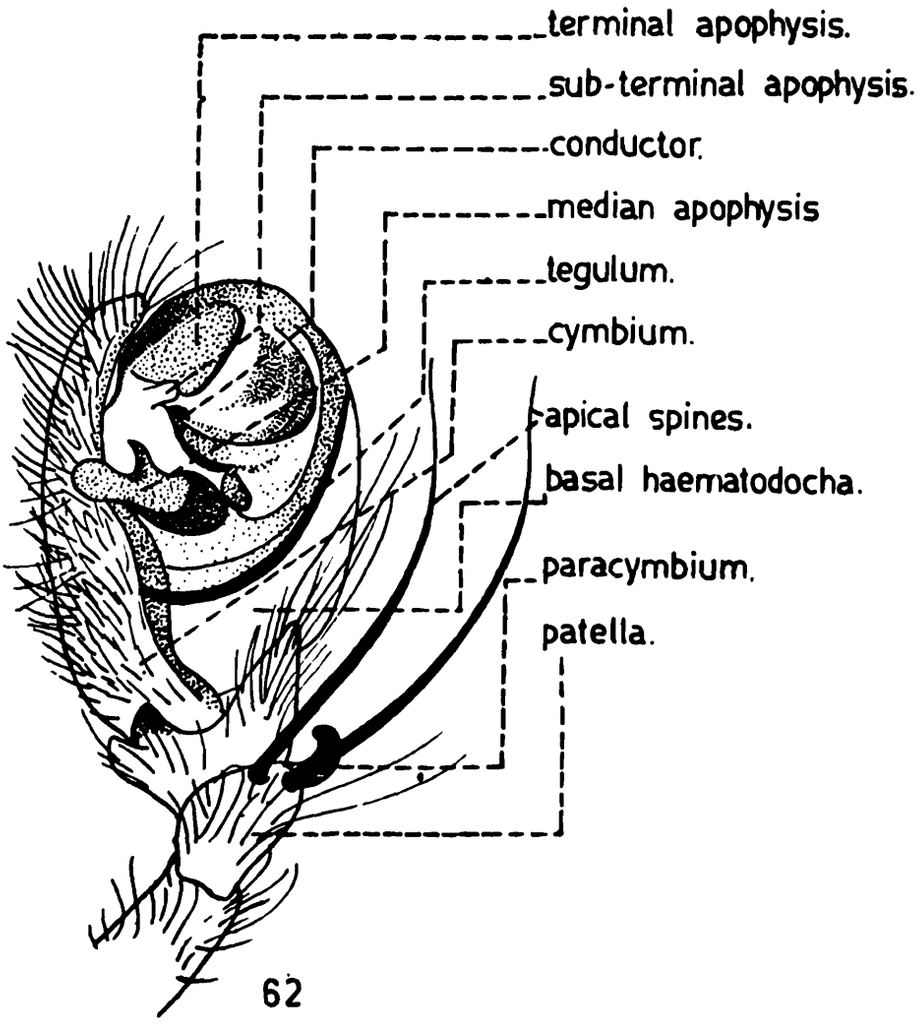


Fig. 62. Lateral view of left palp of *Neoscona theis* (Walckenaer), showing different parts.

no hump is found in Indian *Neoscona*. Shape of the abdomen is generally species specific in many genera. Colour variation is a common phenomenon among araneids, it varies from individual to individual ; some tropical *Argiope*, *Cyclosa*, *Leucauge* acquire silvery colouration on their abdomen, perhaps an adaptation to open sunny areas for their diurnal habit. In general the middle pairs of spinnerets of araneid spiders are much smaller and remain hidden in between more larger anterior and posterior pairs. In *Gasteracantha* the spinnerets are situated on an elevation surrounded by a thick flange in the form of a ring. No cribellum or calamistrum present among araneids.

Epigyne is the most species specific structure and it is authentically known that the differences in the structure of both external

and internal are the best way for separating females. Many genera *viz.*, *Araneus*, *Neoscona*, *Cyclosa*, *Gasteracantha*, *Poltys*, etc. having more or less a distinct projectile sclerite from the base of the epigyne called scape, others are either plate like or with a median septum instead of scape. In *Neoscona*, scape is provided with one or two pairs of lateral lobes. Scape of *Araneus* is often wrinkled and winding. External openings of epigyne are underneath the scape in *Neoscona* but in *Araneus* they are in the grooves at the base. Internal genitalia reveal the ducts of spermathecae are extremely spiral in *Cyrtaractine* unlike other araneids where they are simple ducts.

In most species of the family Araneidae, there is remarkable sexual dimorphism ; the males are much smaller than females and having special clasping spines or spurs on the legs. In some, shape of the carapace as well as abdomen are different. The male araneids are very rare and are not as commonly seen as the females on their webs.

Families and Higher Categories of Spiders

Order ARANEAE

Orthognatha

Mesothelae (Atypical tarantulas)

Family

1. LIPHISTIIDAE Thorell 1869.
2. ANTRODIAETIDAE Gertsch 1940.
3. MECICOBOTHRIIDAE Holmberg 1882.

* 4. ATYPIDAE Bertkau 1878.

Opisthothelae (Typical tarantulas)

Family

* 5. THERAPHOSIDAE Thorell 1869.

6. PARATROPIDIDAE Pocock 1903.
7. PYCNOTHELIDAE Petrunkevitch 1923.

* 8. BARYCHELIDAE Pocock 1897.
9. MIGIDAE Pocock 1897.
* 10. DIPLURIDAE Pocock 1897.
* 11. CTENIZIDAE Thorell 1887.
* 12. ACTINOPODIDAE Pocock 1903.

Labidognatha

Hypochiloidea

Family

13. HYPOCHILIDAE Marx 1888.
14. GRADUNGULIDAE Forster 1955.

Neocribellatae

Family

* 15. FILISTATIDAE Ausserer 1867.
* 16. OECOBIIDAE Blackwall 1862.
* 17. ERESIDAE Koch 1850.
* 18. DINOPIDAE Koch 1850.
* 19. ULOBORIDAE Cambridge 1871.
* 20. DICTYNIDAE Cambridge 1871.
* 21. AMAUROBIIDAE Bertkau 1878.
* 22. PSECHRIDAE Simon 1890.
23. TENGELLIDAE Dahl 1908.
24. ZOROPSIDAE Bertkau 1882.
25. ACANTHOCTENIDAE Cambridge 1902

Ecribellatae

Haplogynae (Primitive hunters and weavers)

Family

26. SICARIIDAE Keyserling 1880.
* 27. SCYTODIDAE Blackwall 1852.

* 28. LOXOSCELIDAE Gertsch 1949.
29. DIGUETIDAE Gertsch 1949.
30. PLECTREURIDAE Banks 1898.
31. CAPONIIDAE Simon 1890.
* 32. OONOPIDAE Simon 1890.
* 33. TETRABLEMMIDAE Cambridge 1873.
34. OCHYROCERATIDAE Fage 1912.
35. LEPTONETIDAE Simon 1980.
36. TELEMIDAE Petrunkevitch 1923.
37. DYSDERIDAE Koch 1837.
38. SEGESTRIIDAE Petrunkevitch 1933.

Entelogynae

Trionycha (Higher web weavers)

Family

* 39. PHOLCIDAE Koch 1850.
40. SYMPHYTOGNATHIDAE Hickman 1931.
* 41. THERIDIIDAE Sundevall 1833.
42. NESTICIDAE Dahl 1926.
43. HADROTARSIDAE Thorell 1881.
* 44. LINYPHIIDAE Blackwall 1859.
45. MICRYPHANTIDAE Bertkau 1872.
46. THERIDIOSOMATIDAE Vellard 1924.
* 47. ARANEIDAE (=ARGIOPIDAE) Dahl 1912.
* 48. TETRAGNATHIDAE Menge 1866.
* 49. AGELENIDAE Koch 1837.
50. ARGYRONETIDAE Menge 1871.
51. DESIDAE Pocock 1895.
* 52. HAHNIIDAE Bertkau 1878.

Three Clawed hunters

Family

* 53. HERSILIIDAE Thorell 1869.
* 54. UROCTEIDAE Thorell 1869.
55. MIMETIDAE Simon 1890.
56. ARCHAEIDAE Koch 1854.
* 57. ZODARIIDAE Thorell 1881.
* 58. PALPIMANIDAE Cambridge 1871.
* 59. PISAURIDAE Simon 1890.
* 60. LYCOSIDAE Sundevall 1833.
* 61. OXYOPIDAE Thorell 1869.
62. SENOCULIDAE Simon 1890.
63. TOXOPIDAE Hickman 1940.

Dionycha (two clawed hunting spiders)

Family

64. AMMOXENIDAE Simon 1893.
* 65. GNAPHOSIDAE Pocock 1884.
* 66. PRODIDOMIDAE Simon 1894.
67. HOMALONYCHIDAE Petrunkevitch 1923.
68. CITHAERONIDAE Caporiacco 1937.
* 69. CLUBIONIDAE Wagner 1888.
70. ANYPHAENIDAE Bertkau 1878.
71. AMAUROBIOIDIDAE Hickman 1949.
72. ZORIDAE Dahl 1912.
* 73. CTENIDAE Keyserling 1876.
* 74. SPARASSIDAE Bertkau 1872.
* 75. HETEROPODIDAE Pocock 1896.
* 76. SELENOPIDAE Cambridge 1900.
* 77. PLATORIDAE Simon 1890.
* 78. THOMISIDAE Sundevall 1833.

79. APHANTOCHILIDAE Thorell 1873.

* 80. SALTICIDAE Blackwall 1841.

* 81. LYSSOMANIDAE Banks 1892.

* The families so far reported from India.

KEY TO THE FAMILIES OF INDIAN SPIDERS

1. Chelicerae paraxial, i.e. projecting forward horizontally and fang articulated with chelicerae in a vertical plane and movable in a plane more or less parallel to the median plane of the body ; fang closing backward. With two pairs of book lungs.....Suborder ORTHOGNATHA-2
   Chelicerae diaxial i.e. projecting downward and fang articulated with chelicerae in a vertical plane and movable in a more or less transverse plane. Commonly with one pair of book lungs.....Suborder LABIDOGNATHA-7

2. Abdomen with one to nine sclerotized tergites. Furrow of cheliceral fang indistinct. Anal tubercle not immediately behind spinnerets, but separated from the spinnerets by considerable distance.....Atypical tarantulas-3
   Abdomen without sclerotized tergites. Anal tubercle immediately behind the four spinnerets. Furrow of cheliceral fang distinct.....Typical tarantulas-4

3. Maxillae normal. Eight spinnerets situated in the lower middle of abdomen.....Family LIPHISTIIDAE
   Maxillae strongly developed and labium fused with sternum. Six spinnerets, situated in the lower end of abdomen.....Family ATYPIDAE

4. Tarsi with a small median claw and two large lateral claws, and without claw tufts.....6
   Tarsi with only two claws and with claw tufts.....5

5. Chelicerae without a rastellum. Apical segment of the posterior spinnerets cylindrical and at least as long as the 2nd segment.....Family THERAPHOSIDAE
   Chelicerae with a rastellum. Apical segment of the posterior spinnerets small and shorter than the segments that precede it.....Family BRACHELIDAE

6. Chelicerae with a rastellum. Posterior spinnerets short or moderately long, anterior spinnerets close together at base. Head region much higher than the thoracic region.....Family CTENIZIDAE
Chelicerae without rastellum. Posterior spinnerets very long, anterior spinnerets separated by at least their length. Head region not higher than the thoracic region.....Family DIPLURIDAE

7. With a cribellum in front of spinnerets and a calmistrum on metatarsus IV, varying from just a few bristles to a row along the entire length of the metatarsus.....Section CRIBELLATAE-8
Without a cribellum and calamistrum.....Section ECRIBELLATAE-15

8. With two pairs of lungs.....Family HYPOCHILIDAE
With only one pair of lungs.....9

9. Anal tubercle large and prominent, two segmented with a fringe of long hairs. Posterior median eyes triangular or irregular in shape. Small spiders 2 to 2.50 mm. long with carapace sub-circular.....Family OECOBIDAE
Anal tubercle of the usual type, without a conspicuous fringe of hairs. Posterior median eyes circular.....10

10. Head region large, rounded, high, posterior lateral eyes remote from the rest.....Family ERESIDAE
Head low, narrowed, posterior lateral eyes very rarely remote from the others.....11

11. Tarsi furnished with ungual tufts and inferior claw.....Family PSECHRIDAE
Tarsi without ungual tufts and inferior claw.....12

12. Chelicerae fused together at the base. Labium fused to the sternum. Tracheal spiracle considerably in advance of the spinnerets. Calamistrum short.....Family FILISTATIDAE
Chelicerae not fused at base. Labium free. Tracheal spiracle in the usual position close to the spinnerets. Calamistrum much longer.....13

13. Tarsi with a dorsal row of trichobothria. Eight eyes, all light in colour, homogeneous.....Family AMAUROBIIDAE
Tarsi without trichobothria. Eight eyes, either all dark or heterogeneous.....14

14. Eyes eight, homogeneous, dark, both rows recurved. Metatarsus IV compressed and concave above.....Family ULOBORIDAE
Eyes eight, heterogeneous, the anterior medians alone dark. Metatarsus IV of the usual shape.....Family DICTYNIDAE

15. Tibia and metatarsus I and II with a prolateral row of long spines, at the intervals between which is a row of much shorter spines, curved near their ends and increasing in length distally.....Family MIMETIDAE
Tibia and metatarsus I and II without prolateral row of spines.....16

16. Sternum much wider than long, the posterior coxae widely separated.....Family PLATORIDAE
Sternum not wider than long, posterior coxae not widely separated.....17

17. Posterior spinnerets absent or much shorter than the anterior.....18
Posterior spinnerets present, not shorter than anterior.....20

18. Tarsi bear three claws. All legs short and are nearly equal in length and do not bear scopulae.....Family ZODARIIDAE
Tarsi bear two claws. I and II legs enlarged and bear scopulae.....19

19. Labium completely fused with the sternum. Two large and remnents of posterior four spinnerets present. Both I and II legs enlarged and relative leg segment lengths normal.....Family STENOCHILIDAE
Labium not fused with the sternum. Only two spinnerets present. I leg very much enlarged and modified. Platella is greatly elongated (longer than the tibia), metatarsus is shorter than the tarsus.....Family PALPIMANIDAE

20. Posterior spinnerets enormously long, usually longer than the abdomen.....Family HERSILIIDAE
Posterior spinnerets shorter and thick.....21

21. Anal tubercle very large, fringed with long hairs, ocular group compact.....Family UROCTEIDAE

Anal tubercle small, not fringed, ocular group not compact.....22

22. Tarsi long and flexible. Labium broader than long, legs very long and slender.....Family PHOLCIDAE
Tarsi of the usual type. Labium longer than wide, legs not very long.....23

23. With less than eight eyes.....24
With eight eyes.....27

24. Eyes six in three groups.....25
Eyes two, four or six in one group.....26

25. Carapace round and high behind. Sternum round behind.....Family SCYTODIDAE
Carapace flat and depressed. Sternum pointed behind.....Family LOXOSCELIDAE

26. Eyes six, median eyes larger than the laterals. Labium not joined with sternum. Epigastric furrow at the normal region.....Family OONOPIDAE
Eyes two, four or six, almost equal in size. Labium joined with sternum. Epigastric furrow far behind the normal region.....Family TETRABLEMMIDAE

27. Anterior row with six eyes.....Family SELENOPIDAE
Anterior row with four or two eyes.....28

28. Tarsi with two claws with claw tufts.....29
Tarsi with three claws without claw tufts.....39

29. Tarsal claws without teeth.....Family HOMALONYCHIDAE
Tarsal claws with usual teeth.....30

30. Eyes in three or four rows.....31
Eyes in the more common arrangement of two rows.....34

31. Eyes in four rows, the front eyes very large.....Family LYSSOMANIDAE
Eyes in three rows.....32

32. Front row of eyes more or less situated vertically ; median eyes enormously large, second row of two eyes usually very small, often minute, third row of two eyes of medium size.....Family SALTICIDAE

Front row of eyes not vertical, and eyes of this row smaller than those of the second, eyes of third row as large as second row.....33

33. First row of two eyes, second row with four and third row with two. Anterior laterals much closer to the posterior laterals than to the anterior medians. Retromargin of cheliceral fang furrow with at least three teeth.....Family CTENIDAE
First row with four eyes, second and third row each with two. Anterior laterals much closer to anterior medians than to the posterior laterals. Retromargin of cheliceral fang furrow with two teeth.....Family ZORIDAE

34. Tracheal spiracel in advance of the spinnerets at least one-third of the distance, between the latter and epigastric furrow.....Family ANYPHAENIDAE
Tracheal spiracle in the usual place just in front of spinnerets.....35

35. Legs, at least, I and II laterigrade, crab-like.....36
Legs usually prograde type.....38

36. Colulus absent. Retromargin of cheliceral fang furrow armed with teeth.....37
Colulus present. Retromargin of cheliceral fang furrow smooth.....Family THOMISIDAE

37. Cephalothorax as long as wide. Posterior row of eyes recurved, anterior row straight or procurved, lateral eyes larger. Apex of metatarsus without a soft trilobate membrane....Family HETEROPODIDAE
Cephalothorax as long as wide of slightly longer than wide. Posterior row of eyes straight or slightly procurved, anterior row usually straight and subequal, lateral not larger than medians. Apex of metatarsus with a soft trilobate membrane.....Family SPARASSIDAE

38. Anterior spinnerets conical, contiguous. Maxillae without a transverse or oblique depression. Eyes homogeneous or almost so (with few exceptions).....Family CLUBIONIDAE
Anterior spinnerets cylindrical, and separated by a distance about equal to the diameter of one. Maxillae with an oblique depres-

sion. Eyes distinctly heterogeneous, the anterior medians dark ; the posterior medians often oblique, oval, or triangular.....Family GNAPHOSIDAE

39. The six spinnerets in a more or less transverse row. Tracheal spiracle removed from the spinnerets at least one third of the distance to epigastric furrow.....Family HAHNIIDAE
The six spinnerets not in a transverse row, but of the usual arrangement. Tracheal spiracle in the usual place in front of the spinnerets.....40

40. Eyes group hexagonal, the posterior row procurved, and anterior row recurved, with the clypeus high. Abdomen pointed behind and legs with very conspicuous spines.....Family OXYOPIDAE
Eyes group not forming a hexagon, and clypeus much lower. Abdomen not pointed and legs without conspicuous spines.....41

41. Tarsus IV, usually, provided with a ventral row of 6 to 10 serrated bristles, forming a comb, for at least one sixth its length from the distal end ; this may be poorly developed in males.....Family THERIDIIDAE
Tarsus IV not provided with comb of serrated bristles.....42

42. Tarsi with trichobothria.....43
Tarsi without trichobothria.....45

43. Tarsi with single row of trichobothria. Trochanters not notched (most species living in sheet webs with a funnel, over which they run rapidly in an upright position).....Family AGELENIDAE
Tarsi with numerous trichobothria, but irregularly distributed. All trochanters with a curved notch.....44

44. Posterior row of eyes so strongly recurved that it may be considered to form two rows. Median claw smooth or with a single tooth. Anterior piece of lorum rounded behind and fitting into a notch of the posterior piece. Egg sac carried attached to spinnerets and young carried on mother's back.....Family LYCOSIDAE

Posterior row of eyes not forming two distinct rows, but only slightly recurved. Median claw with two or three teeth. Anterior piece of lorum with a notch into which the posterior piece fits. Egg sac held under cephalothorax. Young not carried by mother.....Family PAISAURIDAE

45. Clypeus in most lower than the height of the median ocular area. Eyes homogeneous (most are orb-weavers).....46
Clypeus usually as high as or more commonly higher than height of the median ocular area. Eyes heterogeneous (the majority are not orb-weavers).....47

46. Epigastric furrow between lung slits procurved. No boss on chelicerae. In most cases the chelicerae are large and powerful....Family TETRAGNATHIDAE
Epigastric furrow nearly straight. Boss present on chelicerae though rudimentary in some cases. (True orb-weavers). Chelicerae not very large.....Family ARANEIDAE (=ARGIOPIDAE)

47. Tibia of male pedipalp without apophysis (though the tibia may be dilated distally). Palp of female in most species with a claw at the end of tarsus. Tibia IV in most species with two dorsal spines, or if only one spine is present then there is one short spine on metatarsi I and II.....Family LINYPHIIDAE
Tibia of male pedipalp in most species with at least one apophysis. Palp of female without a claw at end of tarsus. Tibia IV with a single dorsal spine or bristle, and with the metatarsi spineless.....Family MICRYPHANTIDAE

Note : Family Hypochilidae and some other families are so far not recorded from India. They are included in the key just to satisfy the couplet characters.

FAMILY ARANEIDAE (A-ran'e-dae)

(Typical Orb-weavers)

1806. Araneides Latreille, *Genera Crustaceorum et Insectorum*, 1 : 82.
1815. Araneides : Leach, *Zoological Miscellany*, 2 : 134-137.
1833. Epeirides : Sundevall, *Conspectus Arachnidum*, : 13.
1890. Argiopidae : Simon, *Annls Soc. ent. Fr.*, (6) 10 : 81.
1900. Argyopidae : Pocock, *Fauna Brit. India, Arachn.*, : 213.

1921. Argiopidae : Gravely, *Rec. Indian Mus.*, 22 : 111.
1935. Argiopidae : Dyal, *Bull. Zool. Punjab Univ.*, 1 : 173.
1951. Argiopidae : Sinha, *Rec. Indian Mus.*, 49 : 67.
1953. Argiopidae : Locket & Millidge, *British Spiders*, 2 : 111.
1960. Argiopidae : Yaginuma, *Spiders of Japan, in colour*, : 49-69.
1968. Araneidae : Levi, *Bull. Mus. comp. Zool. Harv.*, 136 (9) : 320.
1970. Argiopidae : Tikader, *Rec. zool. Surv. India*, 64 (1-4) : 26.
1972. Araneidae : Kaston, *How to know the spiders*, : 135.
1981. Araneidae : Tikader & Ball, *Rec. zool. Surv. India, occ. Pap.*, 24 : 1-60.

Characters : Carapace variable, thoracic region separated from cephalic region by oblique depressions. 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 or 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. Legs long and strong, clothed with hairs and spines ; three tarsal claws and auxilliary 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* Clerck.
Distribution : Cosmopolitan.

Key to the sub-families and genera of the family ARANEIDAE
(Figs. 63-106)

1. Spinnerets situated on an elevated circular space surrounded by a thick flange in the form of a ring (Fig. 63); abdomen hard flattened dorsally and provided with conical humps and spines.....Sub-family GASTERACANTHINAE
Genus GASTERACANTHA

Spinnerets not surrounded by thick flange in the form of a ring ; abdomen not hard.....2

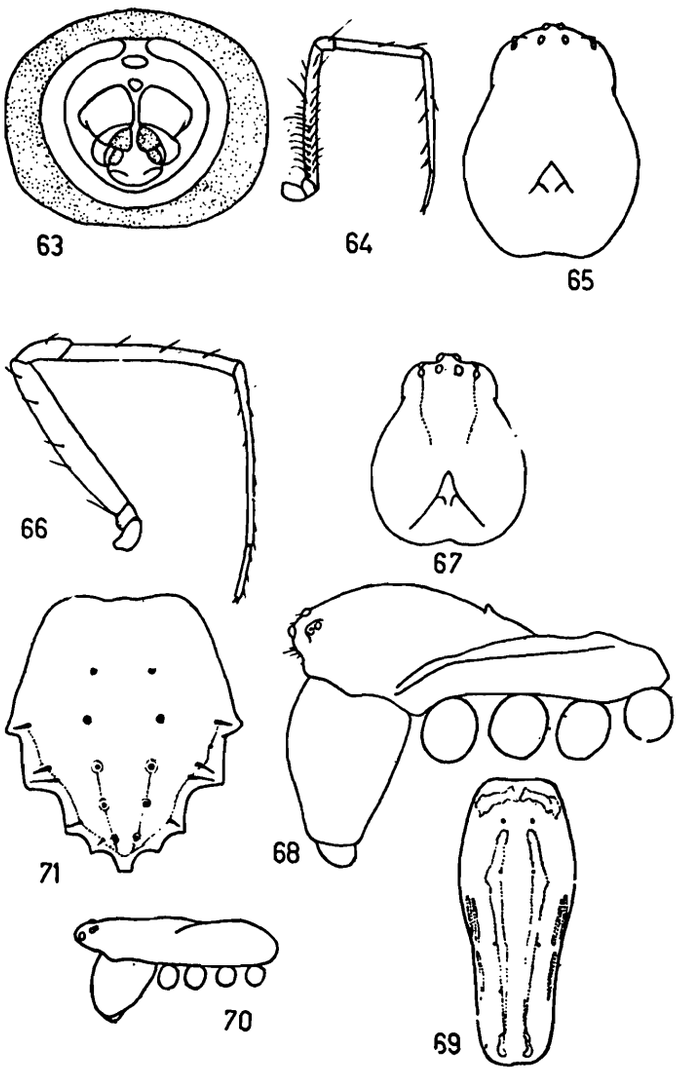


Fig. 63. Ventral view of spinnerets of *Gasteracantha*.
Fig. 64. Lateral view of left leg IV of *Leucauge*.
Fig. 65. Dorsal view of cephalothorax of *Leucauge*, legs omitted.
Fig. 66. Lateral view of left leg IV of *Meta*.
Fig. 67. Dorsal view of cephalothorax of *Meta*, legs omitted.
Fig. 68. Lateral view of cephalothorax of *Nephila*, legs omitted.
Fig. 69. Dorsal view of abdomen of *Nephila*.
Fig. 70. Lateral view of cephalothorax of *Herennia*, legs omitted.
Fig. 71. Dorsal view of abdomen of *Herennia*, legs omitted.

2. Epigastric plates without transverse furrows ; chelicerae with rudimentary boss.....Sub-family METINAE-3
Epigastric plates provided with transverse furrows ; chelicerae usually having well developed boss.....4

3. Femora IV with a double fringe of hairs on the prolateral surface of the basal half (Fig. 64); abdomen ornamented with silvery bands or spots; thoracic furrow deep but not long (Fig. 65).....**Leucauge**
Femora IV not so fringed (Fig. 66); abdomen having no silvery pigmentation; thoracic furrow deep and long, often trifid posteriorly (Fig. 67).....**Meta**

4. Tarsus and metatarsus together longer than patella and tibia.....5
Tarsus and metatarsus together not longer than patella and tibia.....Sub-family ARANEINAE-9

5. 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-6
Labium wider than long; abdomen not longer than two and one-half times of its width; tarsus IV provided with sustentaculum.....7

6. Carapace with cephalic region convex and elevated (Fig. 68); abdomen elongated or oval, non-lobate (Fig. 69).....**Nephila**
Carapace flat (Fig. 70); abdomen flat dorsally, lobate literally (Fig. 71).....**Herennia**

7. Posterior row of eyes strongly procurbed; anterior lateral eyes smaller than posterior laterals.....Sub-family ARGIOPINAE-8
Posterior row of eyes nearly straight or recurved; lateral eyes subequal.....Sub-family ARANEINAE-9

8. Eyes of anterior row evenly spaced (Fig. 72); or medians closer to laterals than to each other; adult female smaller than 6 mm.; tibia I of male curved and bearing strong spines (Fig. 73).....**Gea**
Eyes of anterior row not evenly spaced or medians closer to each other than to laterals (Fig. 74) adult female larger than 9 mm.; tibia I of male straight and unmodified (Fig. 75).....**Argiope**

9. Abdomen wider than long.....10
Abdomen longer than wide.....13

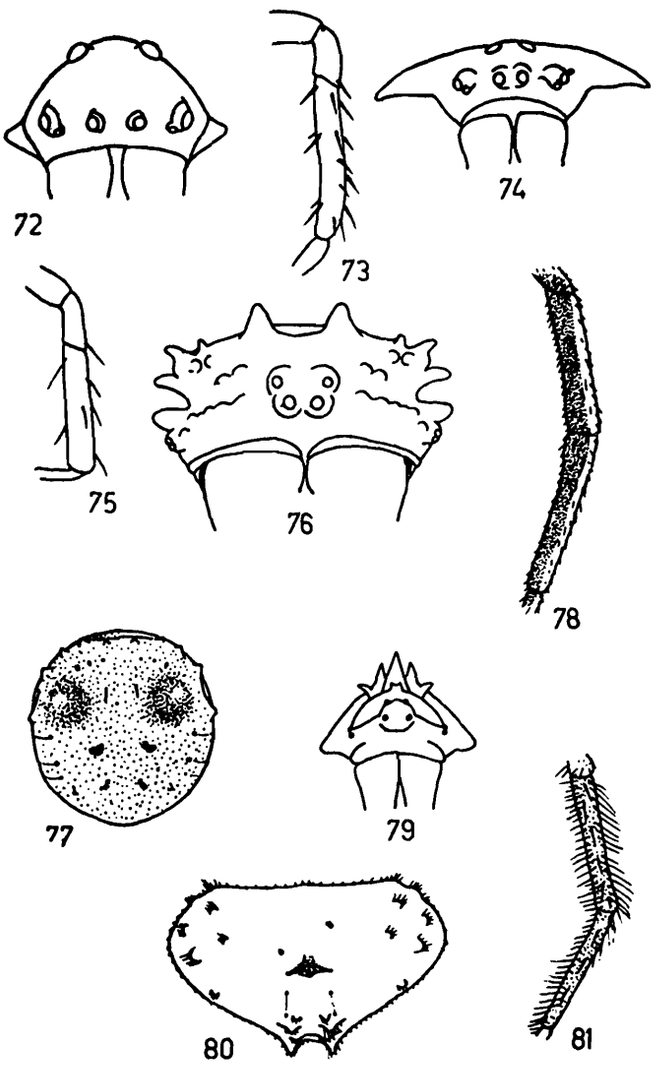


Fig. 72. Front view of face of *Gea*, showing arrangement of eyes.

Fig. 73. Lateral view of tibia of left leg I of *Gea*, showing macrosetae.

Fig. 74. Front view of face of *Argiope*, showing arrangement of eyes.

Fig. 75. Lateral view of tibia of left leg I of *Argiope*, showing macrosetae.

Fig. 76. Front view of face of *Caerostris*, showing arrangement of eyes and tubercles.

Fig. 77. Dorsal view of abdomen of *Caerostris*.

Fig. 78. Dorso-lateral view of tibia and metatarsi of leg I of *Caerostris*.

Fig. 79. Front view of face of *Ordgarius*, showing arrangement of eyes and tubercles.

Fig. 80. Dorsal view of abdomen of *Ordgarius*.

Fig. 81. Dorso-lateral view of tibia and metatarsi of leg I of *Ordgarius*.

10. Carapace armed with a few tubercles ; ocular quad situated on an elevation.....11
Carapace unarmed ; ocular quad not situated on any elevation.....12

11. Ocular quad narrower in front than behind (Fig. 76); abdomen globular with a prominence on each side of dorsum (Fig. 77); abdominal tubercles not provided with tufts of long hairs (Fig. 77); tibiae and metatarsi flat dorsally (Fig. 78).....**Caerostris**
Ocular quad wider in front than behind (Figs. 79 & 80); abdomen triangular with a prominence on each side of dorsum (Fig. 79); abdominal tubercles provided with tufts of long hairs (Fig. 80); tibiae and metatarsi not flat dorsally (Fig. 81).....**Ordgarius**

12. Integument of abdomen leathery (Fig. 82); dorsum of abdomen strongly convex (Fig. 82); epigyne provided with short blunt scape (Fig. 83).....**Cyrtarachne**
Integument of abdomen not leathery, provided with numerous tubercles (Fig. 84); dorsum of abdomen not strongly convex (Fig. 84), epigyne with no scape (Fig. 85).....**Pasilobus**

13. Carapace strongly convex, anteriorly roundish (Fig. 86); cephalic region strongly elevated than thoracic region (Fig. 86); abdomen provided with a few tubercles (Fig. 87).....**Chorizopes**
Carapace may or may not convex and anteriorly narrowing ; cephalic region not elevated than thoracic region ; abdomen may or may not with tubercles.....14

14. Ocular quad situated on a distinct projection from cephalic region (Fig. 88); lateral eyes widely separated from each other (Fig. 88).....**Poltys**
Ocular quad not situated on any projection ; lateral eyes closely situated.....15

15. Carapace flat with distinct thoracic furrow (Fig. 89); abdomen anteriorly very high and provided with atleast one pair of shoulder humps (Fig. 90).....**Cyrtophora**

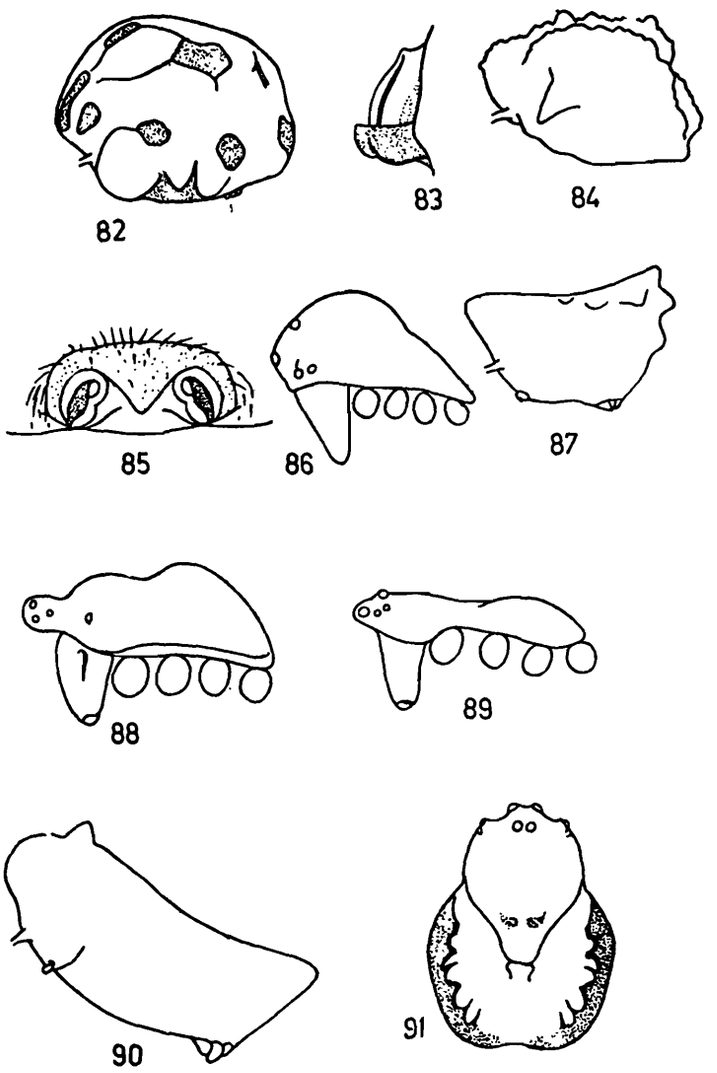


Fig. 82. Lateral view of abdomen of *Cyrtarachne*.
Fig. 83. Lateral view of abdomen of *Cyrtarachne*.
Fig. 84. Lateral view of abdomen of *Pasilobus*.
Fig. 85. Ventral view of epigyne of *Pasilobus*.
Fig. 86. Lateral view of cephalothorax of *Chorizopes*, legs omitted.
Fig. 87. Lateral view of abdomen of *Chorizopes*.
Fig. 88. Lateral view of cephalothorax of *Poltys*, legs omitted.
Fig. 89. Lateral view of cephalothorax of *Cyrtoprora*, legs omitted.
Fig. 90. Lateral view of abdomen of *Cyrtoprora*.
Fig. 91. Dorsal view of cephalothorax of *Cyclosa*, legs omitted.

Carapace not flat, thoracic furrow may or may not distinct ; abdomen anteriorly not high and shoulder humps may or may not present.....16

16. Posterior median eyes very close, nearly touching (Fig. 91); carapace provided with a U-shaped junction between cephalic and thoracic region (Fig. 91).....**Cyclosa**
Posterior median eyes not very close; carapace not having any U-shaped junction between cephalic and thoracic region.....17

17. Abdomen more than twice longer than wide.....18
Abdomen less than twice longer than wide.....19

18. Abdomen a little pointed mid-longitudinally over the carapace and no caudal projection (Fig. 92); ventral side of abdomen with a white median longitudinal band framed by black (Fig. 93).....**Larinia**
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 (Fig. 94); ventral side of abdomen dirty brown (Fig. 95).....**Arachnura**

19. Carapace with cephalic region bulging behind the ocular area, also provided with granules (Fig. 96); anterior row of eyes procurved (Fig. 97); epigyne with short beak like scape (Fig. 98).....**Parawixia**
Carapace with cephalic region not bulging and no granules; anterior row of eyes recurved; epigyne may or may not provided with scape; when present, not beak like.....20

20. Cephalic region brownish black than light coloured thoracic region and provided with very few hairs (Fig. 99); dorsum of abdomen with distinct folium (Fig. 100).....**Zygeilla**
Cephalic region otherwise with more hairs; dorsum of abdomen with or without distinct folium.....21

21. Thoracic groove transverse (Fig. 101); epigyne with distinct scape, often wrinkled, not provided with any lateral lobes (Figs. 102 & 103).....**Araneus**

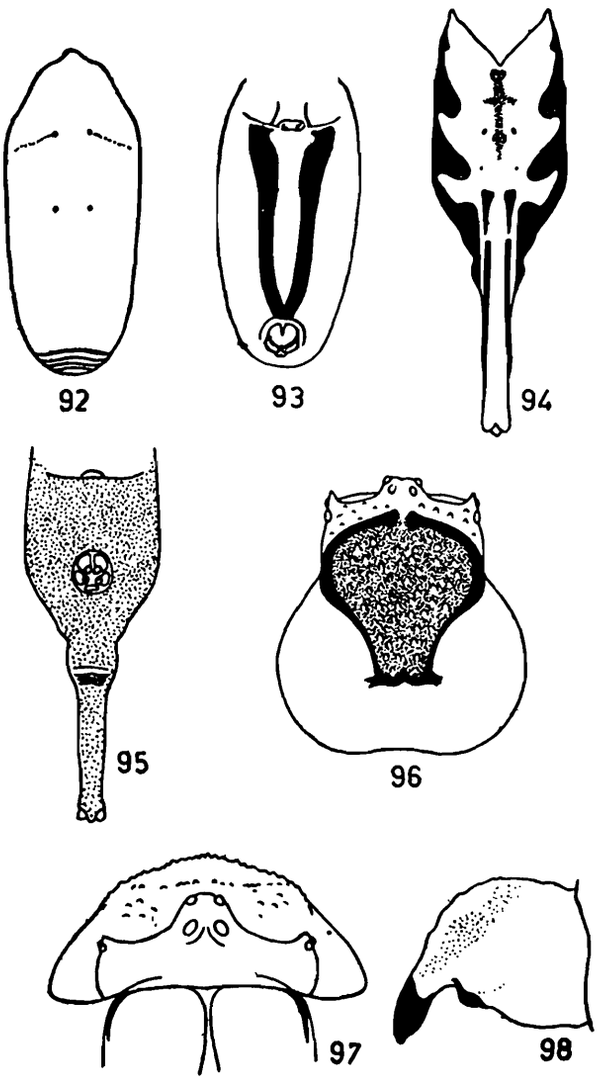


Fig. 92. Dorsal view of abdomen of *Larinia*.

Fig. 93. Ventral view of abdomen of *Larinia*.

Fig. 94. Dorsal view of abdomen of *Arachnura*.

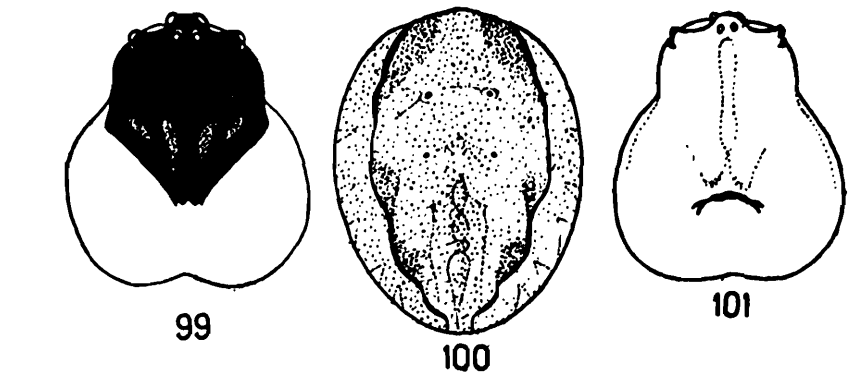
Fig. 95. Ventral view of abdomen of *Arachnura*.

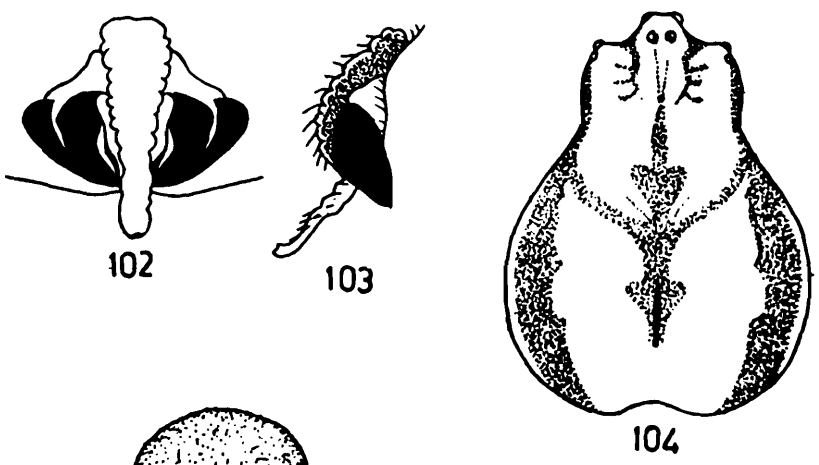
Fig. 96. Dorsal view of cephalothorax of *Parawixia*, legs omitted.

Fig. 97. Front view of face of *Parawixia*, showing arrangement of eyes.

Fig. 98. Lateral view of epigyne of *Parawixia*.

Thoracic groove longitudinal (Fig. 104); epigyne with unwrinkled scape and provided with one or two pairs of lateral lobes (Figs. 105 & 106).....**Neoscona**





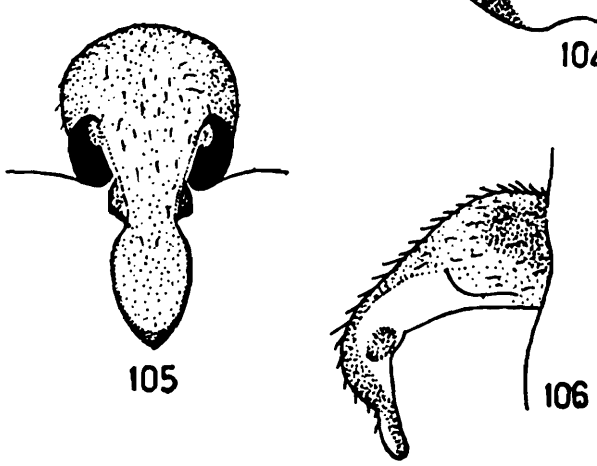


Fig. 99. Dorsal view of cephalothorax of *Zygeilla*, legs omitted.
Fig. 100. Dorsal view of abdomen of *Zygeilla*.
Fig. 101. Dorsal view of cephalothorax of *Araneus*, legs omitted.
Fig. 102. Ventral view of epigyne of *Araneus*.
Fig. 103. Lateral view of epigyne of *Araneus*.
Fig. 104. Dorsal view of cephalothorax of *Neoscona*, legs omitted.
Fig. 105. Ventral view of epigyne of *Neoscona*.
Fig. 106. Lateral view of epigyne of *Neoscona*.

Genus 1. **Gasteracantha** Sundevall

1833. *Gasteracantha* Sundevall, *Conspectus Arachnidum*, : 14.
1895. *Gasteracantha* : Simon, *Hist. Nat. Araign.*, 1 (4) : 845.
1900. *Gasteracantha* : Pocock, *Fauna Brit. India, Arachn.*, : 231.
1921. *Gasteracantha* : Gravely, *Rec. Indian Mus.*, 22 (4) : 416.
1951. *Gasteracantha* : Sinha, *Rec. Indian Mus.*, 49 : 81.
1960. *Gasteracantha* : Chrysanthus, *Nova Guinea (Zool)*, 10 (3) : 23.
1960. *Gasteracantha* : Yaginuma, *Spiders of Japan, in colour*, : 63.
1970. *Gasteracantha* : Tikader, *Rec, zool. Surv. India*, 64 (1-4) : 38.
1981. *Gasteracantha* : Tikader & Biswas, *Rec. zool. Surv. India, occ. Pap.*, 30 : 33.

Characters : Carapace with cephalic region much elevated at the middle and sloping anteriorly and posteriorly. Ocular quad wider behind than in front ; median eyes usually subequal in size. Abdomen large, subquadrate, transversely oblong or narrowed laterally ; integument horny, impressed with large sigilla ; provided with an anterior, a median and a posterior spine on either side of abdomen, often the medians much longer. Spinnerets elevated on a large projection occupying a circular space limited by a thick flange in the form of a ring.

Type-species : *Gasteracantha cancriformis* (Linnaeus).

Distribution : Tropical countries of the world.

Key to the species of the genus **Gasteracantha** Sundevall

1. Ventral tubercle present in front of spinnerets.....2
   Ventral tubercle absent in front of spinnerets.....6

2. Anterior and median spines of abdomen subequal and very closely situated (Fig. 107).....*geminata*
   Anterior and median spines of abdomen not subequal and widely separated.....3

3. Cephalic region provided with a median bulge like conical elevation ; abdominal spines very short (Fig. 111).....*mammosa*
   Cephalic region not provided with any conical elevation; abdominal spines moderately long.....4

4. Spines provided with conspicuous bulged base and abruptly narrowed at apex (Fig. 115).....*unguifera*

Spines not provided with bulged base and gradually narrowed at apex.....5

5. Dorsum of abdomen provided with three conspicuous transverse yellowish bars (Fig. 123); median spines slightly curved posteriorly (Fig. 123) .....*diadesmia*
Dorsum of abdomen provided with one conspicuous transverse yellowish bar (Fig. 127); median spines not curved (Fig. 119).....*kuhlii*

6. Length of median spine slightly less than half the width of abdomen at the base of anterior spines ; scape of epigyne rounded from lateral view (Fig. 129) .....*hasseltii*
Length of median spine greater than the width of abdomen at the base of anterior spines ; scape of epigyne not rounded.....7

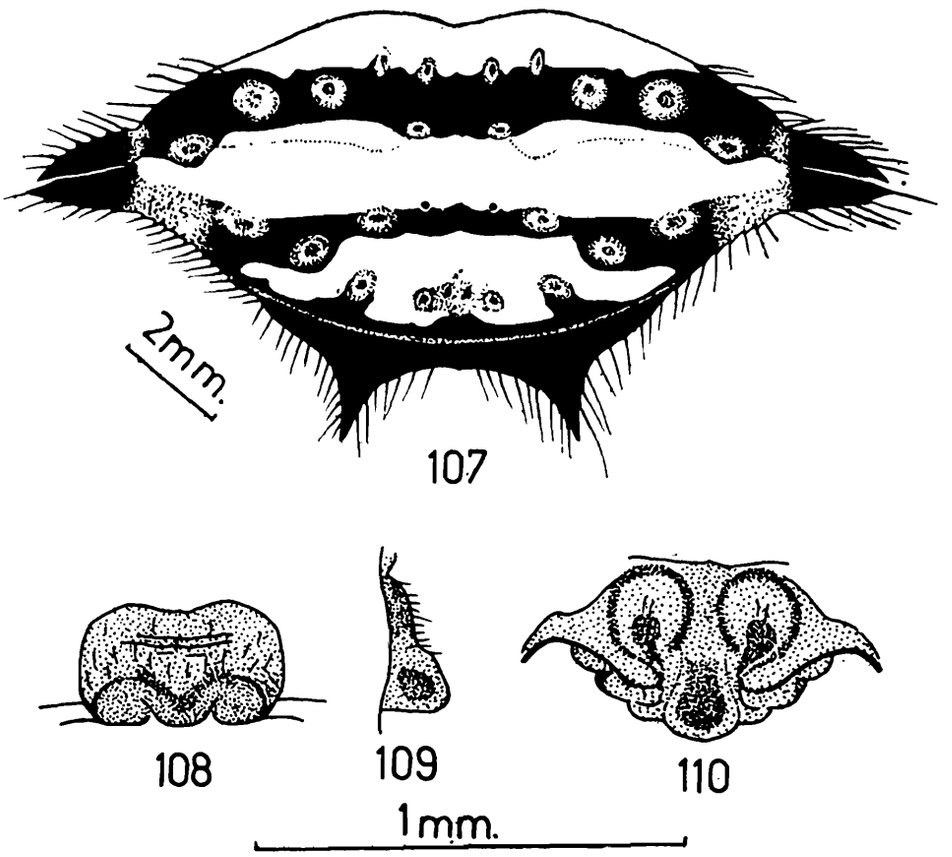
7. Median spines clavate distally (Fig. 131).....*remifera*
Median spines not clavate distally.....8

8. Length of median spine greater than three times abdominal width at the base of anterior spines ; median spine slender and arcuate ; tip of scape of epigyne not bent downward (Fig. 141).....*arcuata*
Length of median spine less than two times the width of abdomen at the anterior spines ; median spine not arcuata ; tip of scape of epigyne bent downward (Fig. 137).....*dalyi*

1. **Gasteracantha geminata** (Fabricius)

(Figs. 107-110)

1798. *Aranea geminata* Fabricius, *Suppl. Ent. Syst.*, : 292.
1838. *Gasteracantha geminata* : C. L. Koch, *Die Arachniden*, 4 : 16.
1841. *Plectana geminata* : Walckenaer, *Hist. Nat. Ins. Apt.*, 2 : 158.
1873. *Gasteracantha connata* : Butler, *Trans. ent. Soc. Lond.*, : 168.
1879. *Gasteracantha rimata* : O. P. Cambridge, *Proc. zool. Soc. Lond.*, : 282.
1895. *Gasteracantha geminata* : Simon, *Hist. Nat. Araign.*, 1 (4) : 836.
1900. *Gasteracantha geminata* : Pocock, *Fauna Brit. India, Arachn.*, : 233.
1914. *Gasteracantha* (*Collacantha*) *geminata* : Dahl, *Mitt, zool. Mus. Berl.*, 7 : 267.
1951. *Gasteracantha geminata* : Sinha, *Rec. Indian Mus.*, 49 : 83.
1963. *Gasteracantha geminata* : Tikader, *J. Univ. Poona, Sci. & Tech.* 24 : 41.



FIGS. 107-110. *Gasteracantha geminata* (Fabricius)
107. Dorsal view of abdomen of female.
108. Epigyne, ventral view.
109. Epigyne, lateral view.
110. Internal genitalia, posterior view.

General : Cephalothorax and legs dark brown, abdomen blackish brown. Total length 7.70 mm. Carapace 3.10 mm. long, 2.80 mm. wide ; abdomen 6.00 mm. long, 11.70 mm. wide, at the base of anterior spines.

Cephalothorax : Slightly longer than wide, anteriorly blunt, clothed with grey hairs, cephalic region elevated and thoracic region down posteriorly. Ocular quad wider than long and wider behind than in front ; median eyes subequal in size ; posterior medians encircled by black rings. Sternum heart-shaped, pointed behind, dark brown in colour with a very large yellowish chalk white patch, clothed with hairs ; labium nearly as long as wide, dark brown with pale distal margin ; maxillae dark brown with yellowish outer border, provided with distinct scopulae. Cheli-

dark brown with pale distal margin ; maxillae dark brown with moderate boss. Legs short and strong, femora of all legs provided with yellowish transverse bands, clothed with hairs.

Abdomen : Hexagonal, much wider than long, strongly overlapped on the cephalothorax in front, clothed with pubescence and hairs. Dorsum provided with three conspicuous yellowish white transverse bands as in text-fig. 107. Anterior and median spines nearly same size and very close to each other as in text-fig. 107, posterior spine smallest. Dorsum of abdomen also provided with a few pairs of conspicuous sigilla as in text-fig. 107. Ventral side of abdomen provided with scattered yellowish chalk white patches and a tubercle in front of the spinnerets. Epigyne provided with a very short and blunt scape as in text-figs. 108 & 109. Internal genitalia as in text-fig. 110.

Distribution : INDIA : Karnataka ; Tinnevelly, Ootacamund, Ramnad, Tamil Nadu, SRI LANKA : Matala, Peradeniya, Trincomali.

2. **Gasteracantha mammosa** C. L. Koch

(Figs. 111-114)

1845. *Gastercantha mammosa* C. L. Koch, *Die Arachniden*, 11 : 57.

1857. *Plectana brevispina* : Doleschall, *Natuurw. Tijdschr. Ned-Indië.*, 13 : 423.

1859. *Gasteracantha mammeata* : Thorell, *Oefv.Cep.Ak.Forh.*, 16 : 302.

1869. *Gasteracantha canningensis* : Stoliczka, *J. Asiat. Soc. Beng.*, 38 : 248.

1871. *Gasteracantha mastoidea* : L. Koch, *Arachn. Austral.*, 1 : 201.

1878. *Gasteracantha brevispina* : Thorell, *Annali. Mus. civ. Stor. nat. Giacomo Doria*, 13 : 294.

1882. *Gasteracantha flavida* : Hasselt, *Aplev Naturlike Historie*, 4(11A): 15.

1896. *Gasteracantha brevispina* : Workman, *Malays. spid.*, : 8.

1900. *Gasteracantha brevispina* : Pocock, *Fauna Brit. India, Arachn.*, : 235.

1911. *Gasteracantha mediofusca* : Merian, *Zool. J. (Syst.)*, 31(2) : 237.

1914. *Gasteracantha (Thelacantha) mammosa* : Dahl, *Mitt. zool. Mus. Berl.*, 7 : 258.

1921. *Gasteracantha brevispina* : Gravely, *Rec. Indian Mus.*, 22(4) : 416.

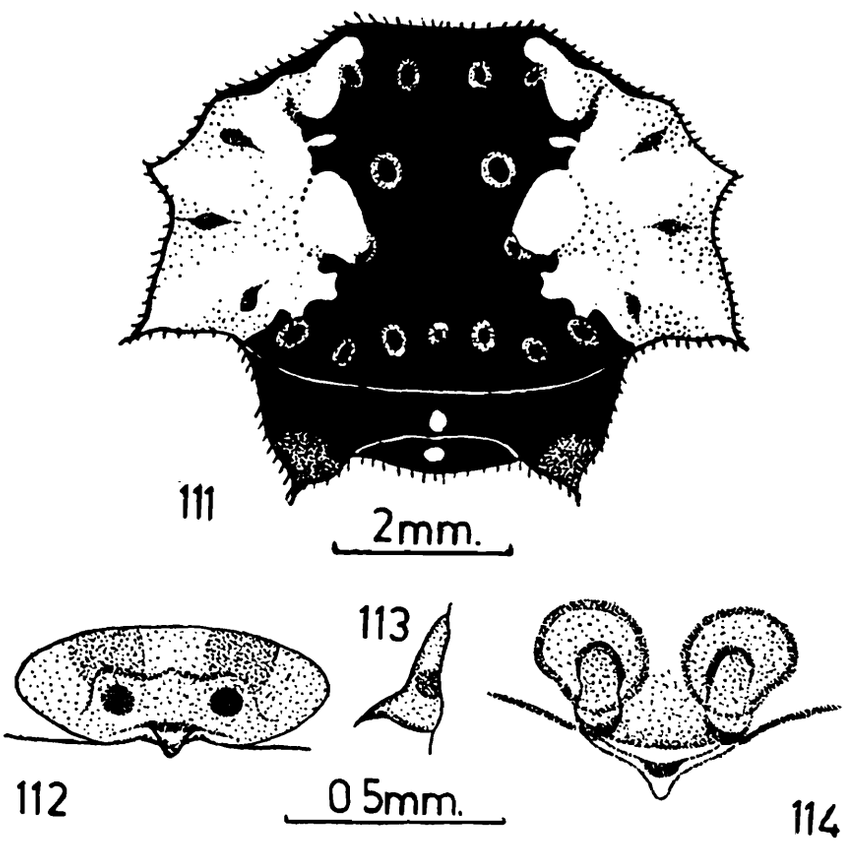
1951. *Gasteracantha brevispina* : Sinha, *Rec. Indian Mus.*, 49 : 83.

1960. *Gasteracantha brevispina* : Chrysanthus, *Nova Guinea (Zool)*, 10(3) : 25.

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

General : Cephalothorax and legs reddish brown, abdomen greenish brown. Total length 6.40 mm. Carapace 2.60 mm. long, 2.30 mm. wide ; abdomen 5.10 mm. long, 6.20 mm. wide at the base of anterior spines.

Cephalothorax : Slightly longer than wide, broad in front, clothed with grey hairs. Cephalic region provided with a median bulge like conical elevation, thoracic region abruptly down posteriorly. Ocular quad wider than long and wider behind than in front ; medians subequal in size ; posterior medians encircled by



FIGS. 111-114. *Gasteracantha mammosa* C. L. Koch

111. Dorsal view of abdomen of female.
112. Epigyne, ventral view.
113. Epigyne, lateral view.
114. Internal genitalia, posterior view.

black rings. Sternum heart-shaped, pointed behind, deep brown in colour having a median reddish patch, clothed with hairs ; labium longer than wide, light brown and distal margin pale ; maxillae light brown with pale outer border, provided with distinct scopulae. Chelicerae very stout and strong, reddish brown, provided with moderate boss. Legs short and strong, clothed with hairs, femora III, IV and tibia IV yellowish in colour.

Abdomen : Roughly octagonal, wider than long, overlapping strongly on the cephalothorax anteriorly, clothed with pubescence and hairs. Dorsum provided with a pair of large yellowish white patches and a few pairs of conspicuous sigilla as in text-fig. 111. Ventral side of abdomen provided with a conspicuous tubercle in front of the spinnerets. Epigyne provided with a scape as in text-figs. 112 & 113. Internal genitalia as in text-fig. 114.

Distribution : INDIA : Andaman and Nicobar Islands ; Tamil Nadu ; Dehra Dun, U.P. ; Poona, Bombay, Maharashtra ; Darjeeling, Calcutta, West Bengal ; Bihar ; Orissa ; Shillong, Meghalaya ; Sikkim. BURMA : Moulmein, Tenasserim. PAKISTAN : Karachi. BANGLADESH. SRI LANKA. AUTRO-MALAYASA. JAPAN.

Remarks : Illustrations and description have been made on the basis of identified specimen deposited at Zoolgical Survey of India, Calcutta. Regd. No. 2876/H_2. The specimen was labelled as *Gasteracantha brevispina* (Doleschall 1957) which is nothing but a synonym to *Gasteracantha mammosa* C. L. Koch 1845.

3. **Gasteracantha unguifera** Simon

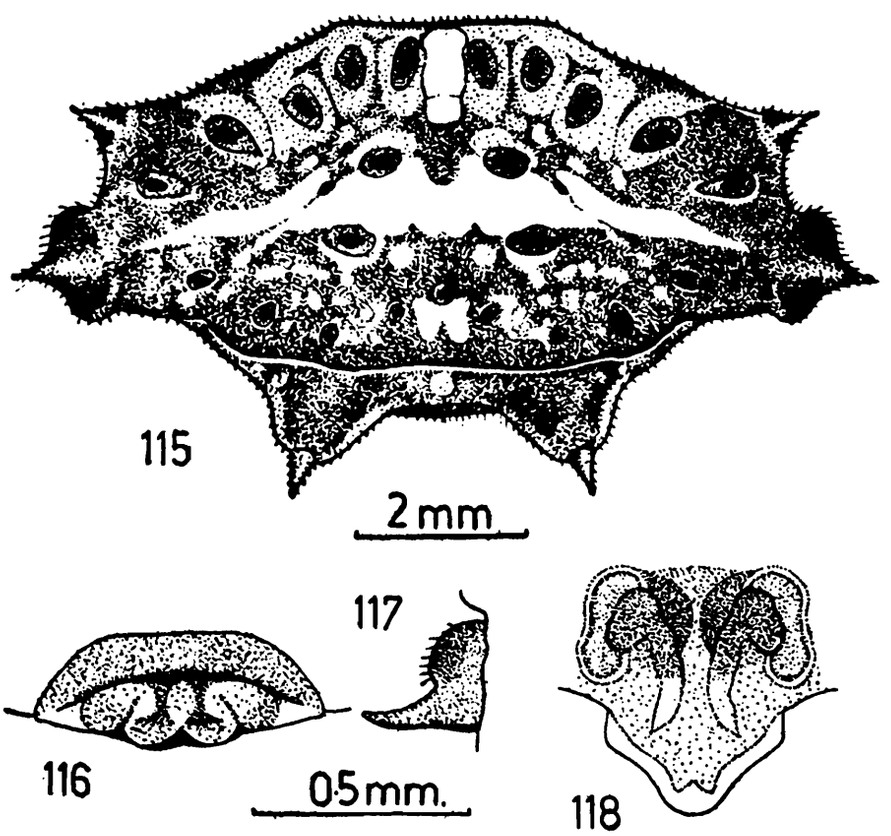
(Figs. 115-118)

1889. *Gasteracantha unguifera* Simon, *J. Asiat. Soc. Beng.*, **58** : 336.
1900. *Gasteracantha unguifera* : Pocock, *Fauna Brit. India, Arachn.*, : 234.
1914. *Gasteracantha* (*Thelacantha*) *unguifera* : Dahl, *Mitt. zool. Mus. Berl.*, **7** : 259.
1970. *Gasteracantha unguifera* : Tikader, *Rec. zool. Surv. India*, **64**(1-4) : 38.

General : Cephalothorax and legs reddish brown, abdomen pale and dark mixed colour. Total length 5.80 mm. Carapace 2.20 mm.

long, 2.10 mm. wide ; abdomen 4.60 mm. long, 7.50 mm. wide at the base of anterior spines.

Cephalothorax : Slightly longer than wide, anteriorly blunt, clothed with grey hairs. Both cephalic and thoracic regions having anterior and posterior slopping respectively, cephalic region provided with a fine groove. Ocular quad wider than long and wider behind than in front ; median eyes subequal in size ; posterior medians encircled by black rings. Sternum heart-shaped, pointed behind, reddish brown with an anterior median chalk white small patch, clothed with hairs ; labium wider than long, reddish brown with pale outer border ; provided with distinct scopulae. Chelicerae very short and much stout, reddish brown, having moderate boss. Legs short and strong, distal ends of segments with indistinct yellowish patches, clothed with hairs.



FIGS. 115-118. *Gasteracantha unguifera* Simon
115. Dorsal view of abdomen of female.
116. Epigyne, ventral view.
117. Epigyne, lateral view.
118. Internal genitalia, posterior view.

Abdomen : Roughly octagonal, much wider than long, overlapping anteriorly on the thoracic region of cephalothorax, clothed with hairs. Dorsum moderately concave ; provided with a transverse chalk white bar and a few pairs of conspicuous sigilla as in text-fig. 115. Median pair of spines largest and stout with bulged bases as in text-fig. 115. Ventral side of abdomen dark brown with scattered yellowish patches, provided with a tubercle in front of the spinnerets. Epigyne provided with a scape as in text-figs. 116 & 117. Internal genitalia as in text-fig. 118.

Distribution : INDIA : Himalayas, Jaunsar, Thadyar, Sikkim.

Remarks : Description and illustrations have been made on the basis of identified specimen deposited at Zoological Survey of India, Calcutta. Regd. No. 2712/18.

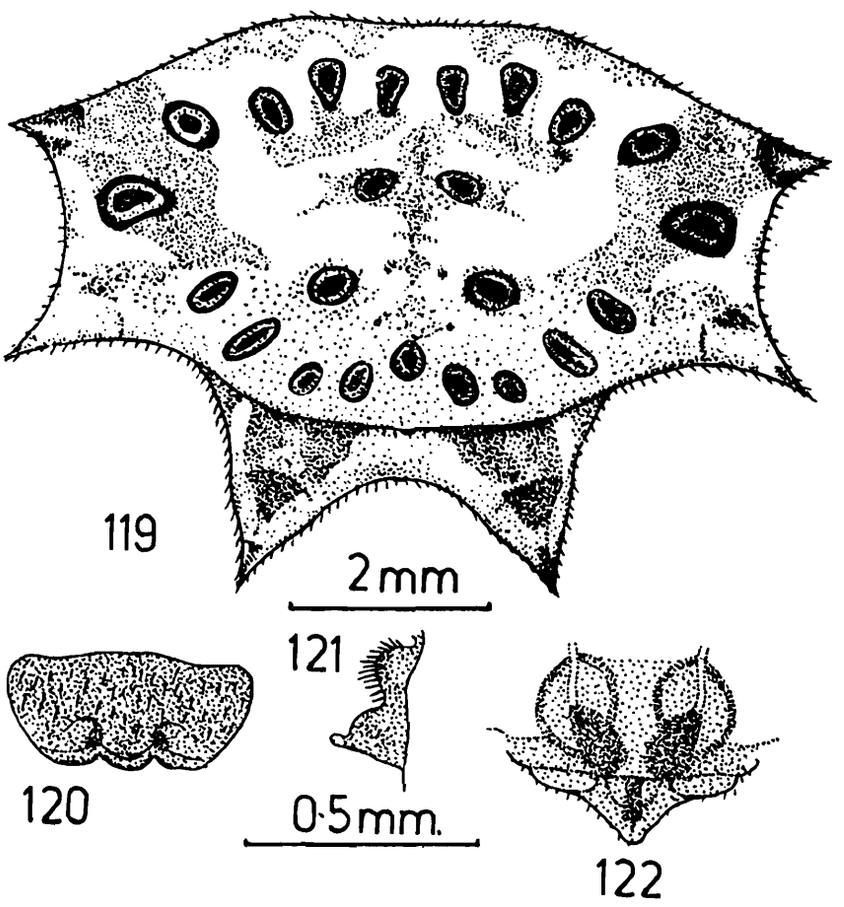
4. **Gasteracantha kuhlii** C. L. Koch

(Figs. 119-122)

1838. *Gasteracantha kuhlii* C. L. Koch, *Die Arachniden*, 4 : 20.
1841. *Plectana acuminata* : Walckenaer, *Hist. Nat. Ins. Apt.*, 2 : 159.
1845. *Gasteracantha annulipes* : C. L. Koch, *Die Arachniden*, 11 : 52.
1859. *Plectana leucomelas* : Doleschall, *Act. Soc. Ind. Neerl.*, 5(5) : 42.
1886. *Gasteracantha annamita* : Simon, *Act. Soc. linn. Bordeaux*, 40 : 148.
1887. *Gasteracantha leucomelaena* : Thorell, *Annali. Mus. civ. Genova*, 25 : 231.
1900. *Gasteracantha leucomelaena* : Pocock, *Fauna Brit. India, Arachn.*, : 235.
1904. *Gasteracantha leucomelas* : Simon, *Miss. Pavie Indo-Chin., Arachn.*, 3 : 283.
1914. *Gasteracantha (Gasteracantha) kuhlii* : Dahl, *Mitt. zool. Mus. Berl.*, 7 : 262.
1951. *Gasteracantha leucomelaena* : Sinha, *Rec. Indian Mus.*, 49 : 83.
1970. *Gasteracantha leucomelaena* : Tikader, *Rec. zool. Surv. India*, 64(1-4) : 40.

General : Cephalothorax and legs yellowish brown, abdomen blackish brown. Total length 5.70 mm. Carapace 2.30 mm. long, 2.20 mm. wide ; abdomen 4.70 mm. long, 7.10 mm. wide at the base of anterior spines.

Cephalothorax : Slightly longer than wide, anteriorly blunt, clothed with grey hairs, cephalic region elevated and thoracic region down posteriorly. Ocular quad wider than long and wider behind than in front ; median eyes subequal in size ; posterior medians encircled by black rings. Sternum heart-shaped, pointed behind, dark brown with a horse-shoe shaped chalk white patch, clothed with hairs ; labium slightly wider than long, dark brown with pale distal margin ; maxillae yellowish brown, provided with distinct scopulae. Chelicerae very strong and stout, deep brown, provided with prominent boss. Legs short and strong, distal ends of segments provided with indistinct transverse brown bands, femora IV with a distinct transverse brown band in the middle, clothed with hairs.



FIGS. 119-122. *Gasteracantha kuhlii* C. L. Koch
119. Dorsal view of abdomen of female.
120. Epigyne, ventral view.
121. Epigyne, lateral view.
122. Internal genitalia, posterior view.

Abdomen : Roughly octagonal, wider than long, strongly overlapped on the cephalothorax in front, clothed with pubescence and hairs. Dorsum slightly concave, provided with yellowish chalk white patches and a few pairs of conspicuous large sigilla as in text-fig. 119. Median and posterior spines subequal in size and much larger than the anterior spine as in text-fig. 119. Ventral side blackish, having scattered yellowish chalk white patches and a horny tubercle in front of the spinnerets. Epigyne provided with a very short scape as in text-fig. 121. Internal genitalia as in text-fig. 122.

Distribution : INDIA : Calcutta, Darjeeling, Kalimpong, West Bengal ; Bihar ; Assam ; Andaman and Nicobar Islands ; Sikkim : BHUTAN. BURMA : Rangoon, Tharrawaddy, Tenasserim. INDO-MALAYSIA. JAPAN.

Remarks : Illustrations and description are based on identified specimen deposited at Zoological Survey of India, Calcutta. Regd. No. 2899/18. The borrowed specimen was labelled as *Gasteracantha leucomelaena* (Doleschall-1859) which is merely a synonym to *Gasteracantha kuhlii* C. L. Koch 1838.

5. **Gasteracantha diadesmia** Thorell

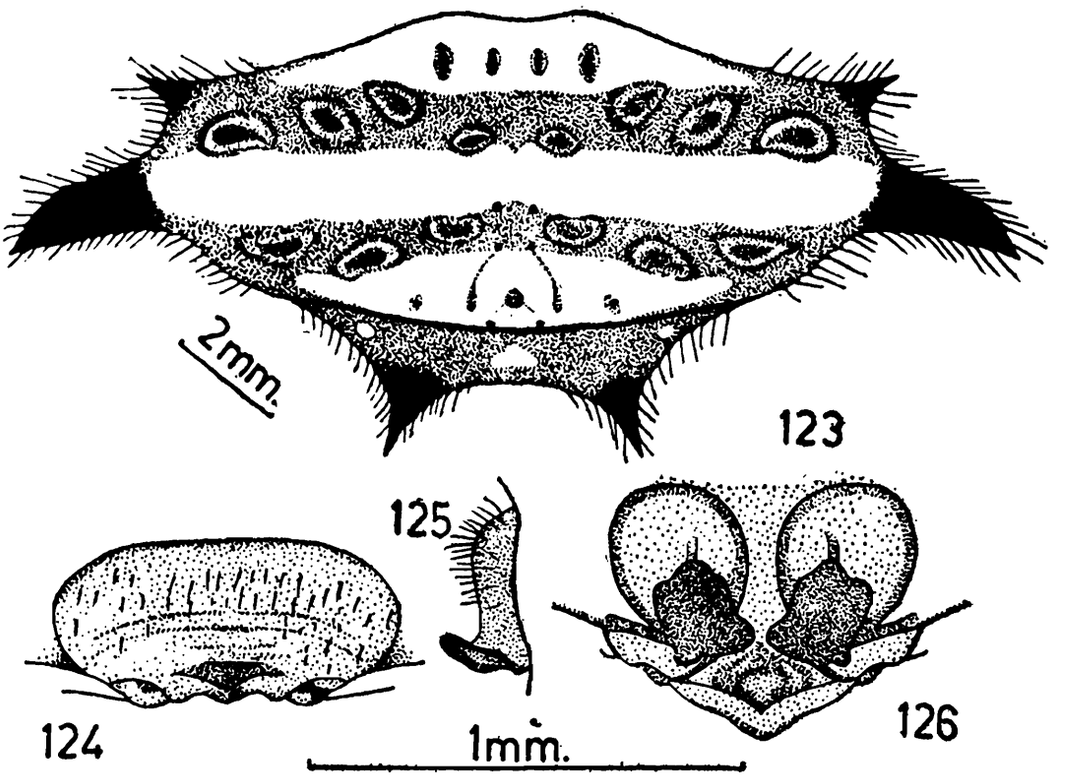
(Figs. 123-126)

1887. *Gasteracantha diadesmia* Thorell, *Ann. Mus. civ. Genova*, 25 : 225.
1900. *Gasteracantha diadesmia* : Pocock, *Fauna Brit. India, Arachn.*, : 234.
1970. *Gasteracantha diadesmia* : Tikader, *Rec. zool. Surv. India*, 64(1-4) : 40.

General : Cephalothorax and legs blackish brown, abdomen dark brown. Total length 7.80 mm. Carapace 3.30 mm. long, 3.00 mm. wide ; abdomen 6.40 mm. long, 11.80 mm. wide at the base of anterior spines.

Cephalothorax : Slightly longer than wide, anteriorly blunt, clothed with grey hairs ; cephalic region elevated and thoracic region down posteriorly. Ocular quad wider than long and wider behind than in front ; median eyes subequal in size ; posterior eyes encircled by black rings. Sternum heart-shaped, pointed behind,

blackish brown with a large yellowish chalk white patch, clothed with hairs ; labium nearly as long as wide, blackish brown with pale distal margin ; maxillae blackish brown with pale outer border provided with distinct scopulae. Chelicerae very stout and strong, blackish brown, provided with moderate boss. Legs short and strong, clothed with hairs.



Figs. 123-126. *Gasteracantha diadesmia* Thorell
123. Dorsal view of abdomen of female.
124. Epigyne, ventral view.
125. Epigyne, lateral view.
126. Internal genitalia, posterior view.

Abdomen : Roughly octagonal, much wider than long, overlapping anteriorly on the cephalothorax, clothed with pubescence and hairs. Dorsum concave, provided with three transverse yellowish chalk white bands, of which anterior one not reaches upto the base of the anterior pair of spines but middle one reaches at the base of the median pair of spines as in text-fig. 123, posteriorly three white spots ; median spines largest and slightly curved posteriorly ; a few pairs of large conspicuous sigilla on the dorsum as in text-fig. 123. Ventral side of abdomen provided with scat-

tered yellowish chalk white patches and a tubercle in front of the spinnerets. Epigyne provided with a very short scape as in text-fig. 125. Internal genitalia as in text-fig. 126.

Distribution : INDIA : Kalimpong, West Bengal ; Sikkim ; Andaman and Nicobar Islands. BURMA : Tharrawaddy, Tounghoo, Rangoon. THAILAND.

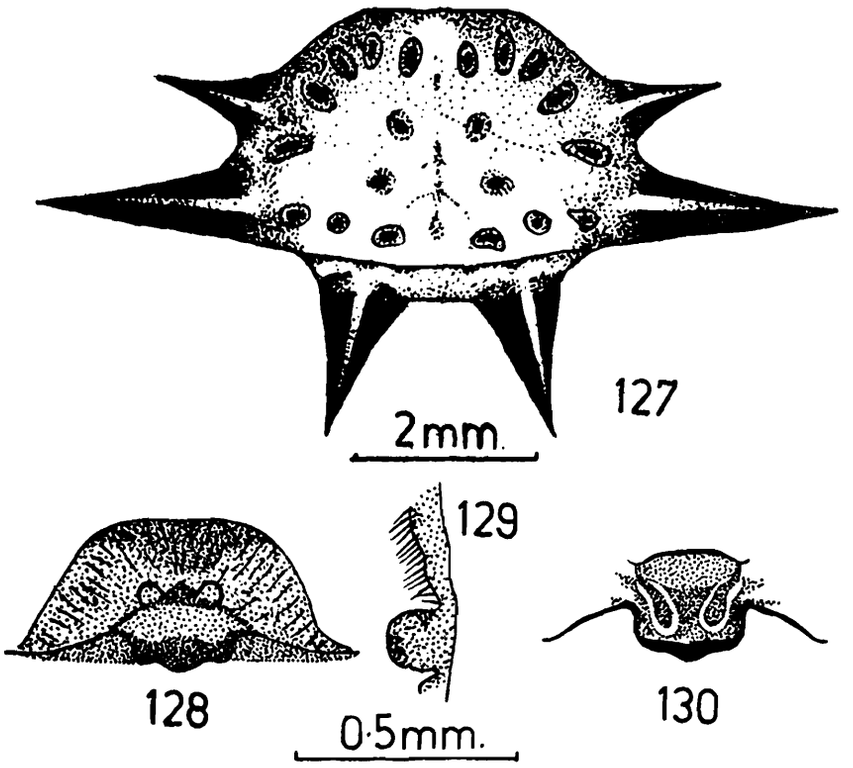
Remarks : Description and illustrations have been made on the basis of one specimen collected from Rishi, West Sikkim which is deposited at Zoological Survey of India, Western Regional Station, Poona, Regd. No. A 12/316.

6. **Gasteracantha hasseltii** C. L. Koch

(Figs. 127-130)

1938. *Gasteracantha hasseltii* C. L. Koch, *Die Arachniden*, 4 : 29.
1863. *Gasteracantha blackwalli* : Keyserling, *S. B. Nat. Ges. Isis Dresden*, : 65.
1864. *Gasteracantha helva* : Blackwall, *Ann. Mag. nat. Hist.*, (3)14 : 42.
1871. *Gasteracantha hepatica* : L. Koch. *Arachn. Austral.*, 1 : 8.
1878. *Gasteracantha hepatica* : Karsch, *Z. ges. Naturw.*, 51 : 800.
1879. *Gasteracantha helva* : O. P. Cambridge, *Proc. zool. Soc. Lond.*, : 287.
1882. *Gasteracantha pictospina* : Hasselt, *Aflev. Naturlike Historie*, 4(11A) : 14.
1885. *Actinacantha pictispina* : Simon, *Annls. Soc. ent. Belg.*, 29 C.R. : 37.
1887. *Plectana hasselti* : Thorell, *Annali. Mus. civ. Genova*, 25 : 224.
1888. *Actinacantha propingua* : Simon, *J. Asiat. Soc. Beng.*, 56 : 104.
1890. *Plectana blackwallii* : Thorell, *Annali. Mus. civ. Genova*, 28 : 68.
1900. *Gasteracantha hasseltii* : Pocock, *Fauna Brit. India, Arachn.*, : 233.
1901. *Gasteracantha perakensis* : Simon, *Proc. zool. Soc. Lond.*, (2) : 60.
1907. *Gasteracantha tjibodensis* : Strand, *Zool. J. (Syst.)*, 24(5) : 424.
1914. *Gasteracantha (Actinacantha) hasselti* : Dhal, *Mitt. zool. Mus. Berl.*, 7 : 250.
1921. *Gasteracantha hasseltii* : Gravely, *Rec. Indian Mus.*, 22 : 416.
1951. *Gasteracantha hasseltii* : Sinha, *Rec. Indian Mus.*, 49 : 82.
1970. *Gasteracantha hasseltii* : Tikader, *Rec. zool. Surv. India*, 64(1-4) : 41.

General : Cephalothorax dark brown, legs yellowish, abdomen blackish brown. Total length 4.60 mm. Carapace 2.10 mm.



FIGS. 127-130. *Gasteracantha hasseltii* C. L. Koch
127. Dorsal view of abdomen of female.
128. Epigyne, ventral view.
129. Epigyne, lateral view.
130. Internal genitalia, posterior view.

long, 1.90 mm. wide ; abdomen 3.30 mm. long, 4.20 mm. wide at the base of anterior spines. Medium spine 2.20 mm. long.

Cephalothorax : Slightly longer than wide, anteriorly blunt, clothed with brown and grey hairs ; cephalic region provided with a median groove like depression, thoracic region down posteriorly. Ocular quad wider than long and wider behind than in front ; medians subequal in size ; posterior medians encircled by black rings. Sternum heart-shaped, pointed behind, yellowish white in colour provided with a median rhombic shaped dark brown patch, clothed with hairs ; labium nearly as long as wide, dark brown and pale distal margin ; maxillae dark brown with pale outer border, provided with distinct scopulae. Chelicerae very stout and strong, blackish brown, provided with moderate boss. Legs short and strong, provided with dark brown patches, femora I, II with no patch, clothed with hairs.

Abdomen : Octagonal, much wider than long, overlapping anteriorly on the cephalothorax, clothed with pubescence and hairs. Dorsum chalk white, blackish brown outer sides and a few pairs conspicuous sigilla as in text-fig. 127. Median pair of spines largest and much pointed as in text-fig. 127. Ventral side of abdomen having scattered chalk white spots. Epigyne provided with a rounded scape as in text-fig. 129. Internal genitalia as in text-fig. 130.

Distribution : INDIA : Assam ; Kalimpong, Darjeeling, West Bengal ; Sikkim. BURMA : Tharrawaddy, Rangoon, Shwegoo, Tenasserim.

Remarks : Since I did not get the type-specimen of *Gasteracantha hasseltii* C. L. Koch, the description and illustrations are made on the basis of authenticated identified specimen, deposited at Zoological Survey of India, Calcutta. Regd. No. 2885/18.

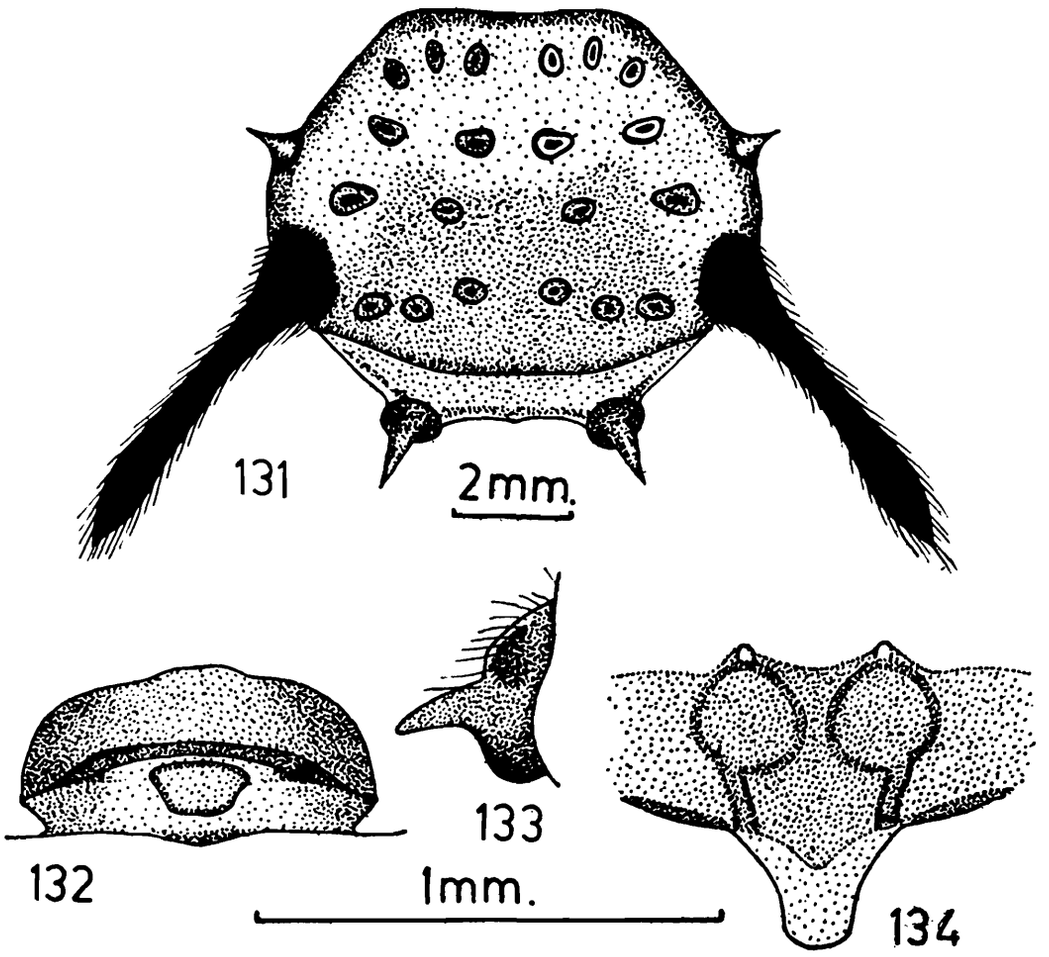
7. **Gasteracantha remifera** Butler

(Figs. 131-134)

1873. *Gasteracantha remifera* Butler, *Trans. ent. Soc. Lond.*, (2) : 154.
1892. *Plectana clavatrix* : Karsch, *Berl. ent. Z.*, **36** : 277.
1900. *Gasteracantha remifera* : Pocock, *Fauna Brit. India, Arachn.*, : 233.
1914. *Gasteracantha* (*Tatacantha*) *remifera* : Dahl, *Mitt. zool. Mus. Berl.*, **7** : 244.
1922. *Gasteracantha remifera* : Gravely, *J. Bombay nat. Hist. Soc.*, **28** : 1048.
1951. *Gasteracantha remifera* : Sinha, *Rec. Indian Mus.*, **49** : 82.

General : Cephalothorax and legs deep brown, abdomen blackish brown. Total length 9.00 mm. Carapace 4.10 mm. long, 3.40 mm. wide ; abdomen 7.40 mm. long, 7.70 mm. wide at the base of anterior spines. Median spine 12.00 mm. long.

Cephalothorax : Slightly longer than wide, anteriorly blunt, clothed with white hairs ; cephalic region elevated, provided with an inconspicuous median groove, thoracic region down posteriorly. Ocular quad wider than long and wider behind than in front ; median eyes subequal in size. Sternum heart-shaped, pointed behind, blackish brown in colour, clothed with hairs, labium nearly as long as wide, blackish brown, maxillae blackish brown, provided



FIGS. 131-134. *Gasteracantha remifera* Butler
131. Dorsal view of abdomen of female.
132. Epigyne, ventral view.
133. Epigyne, lateral view.
134. Internal genitalia, posterior view.

with distinct scopulae. Chelicerae much strong and stout, reddish brown, provided with moderate boss. Legs short and strong, clothed with hairs.

Abdomen : Dorsum concave and forms an arch between the median pair of spines as in text-fig. 131. Anterior pair of spines smaller than those of the posterior pair as in text-fig. 131. Median spines much thinner in the middle and clavate distally as in text-fig. 131. Dorsum of abdomen provided with a few pairs of conspicuous large sigilla as in text-fig. 131. Epigyne having a short, stout and pointed scape as in text-fig. 133. Internal genitalia as in text-fig. 134.

Distribution : INDIA : Tamil Nadu ; Borively National Park, Maharashtra. SRI LANKA : Trincomali.

Remarks : Illustrations and description based on identified specimen deposited at the Bombay Natural History Society collection.

8. **Gasteracantha dalyi** Pocock

(Figs. 135-138)

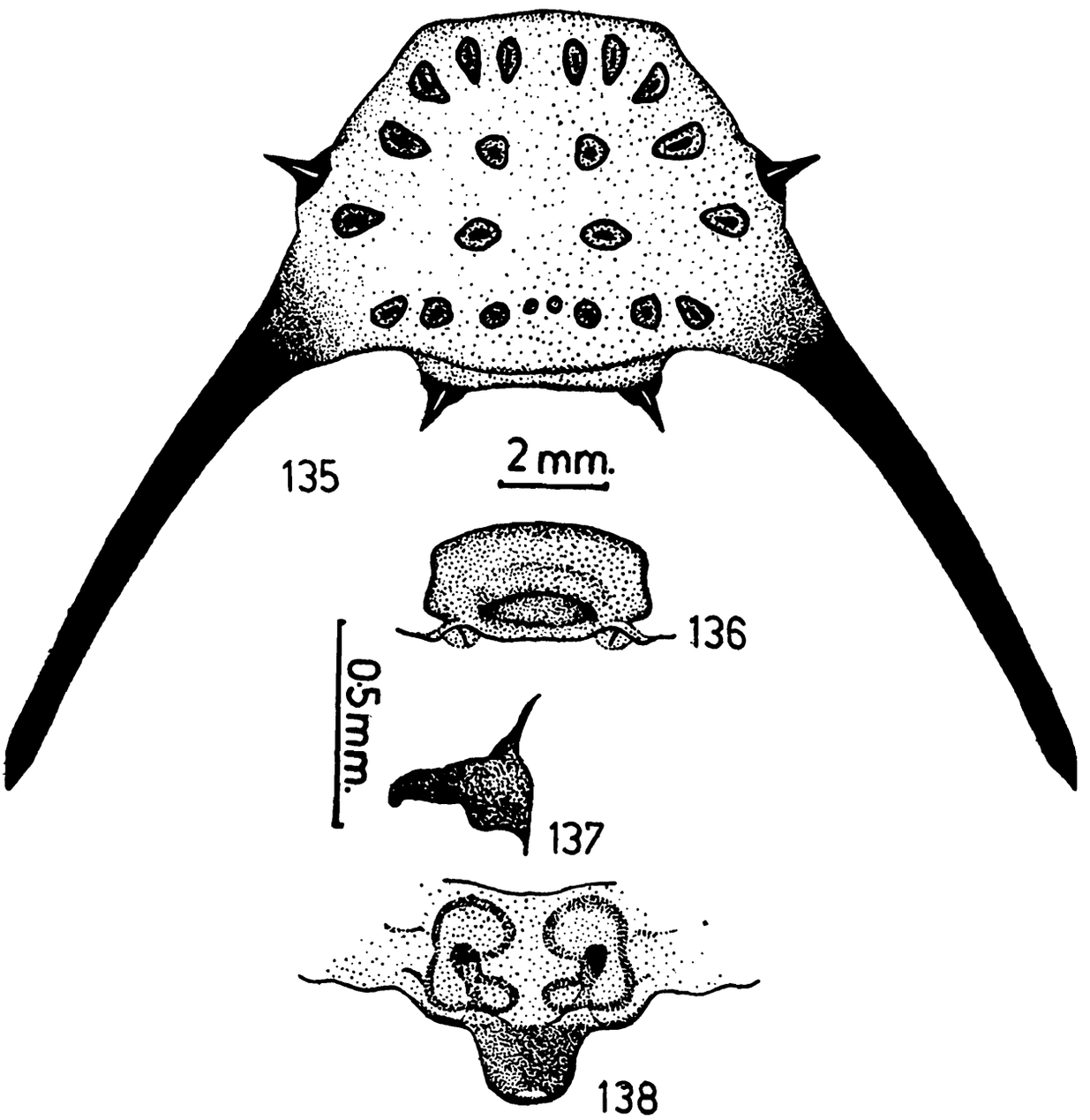
1900. *Gasteracantha dalyi* Pocock, *Fauna Brit. India, Arachn.*, : 232.

1914. *Gasteracantha (Tatacantha) dalyi* : Dahl, *Mitt. zool. Mus. Berl.*, 7 : 244.

General : Cephalothorax and legs deep brown, abdomen yellowish brown. Total length 9.60 mm. Carapace 4.00 mm. long, 3.40 mm. wide ; abdomen 7.70 mm. long, 8.90 mm. wide at the base of anterior spines. Median spine 14.00 mm. long.

Cephalothorax : Slightly longer than wide, anteriorly blunt, clothed with white hairs ; cephalic region elevated, provided with a distinct median groove and thoracic region down posteriorly. Ocular quad wider than long and wider behind than in front ; median eyes subequal in size. Sternum heart-shaped, pointed behind, deep brown in colour with chalk white patches laterally, clothed with hairs ; labium as long as wide, deep brown with pale distal margin ; maxillae deep brown with pale outer border, provided with distinct scopulae. Chelicerae much strong and stout, dark brown, provided with moderate boss. Legs short and strong, clothed with hairs.

Abdomen : Dorsum moderately concave and forming an arch between the median pair of spines as in text-fig. 135. Anterior and posterior spines small and nearly equal in size, median spines less than twice as long as the width of the abdomen and gradually pointed towards the distal ends as in text-fig. 135. Dorsum of abdomen yellowish with no conspicuous brown margins, provided with a few pairs of conspicuous large sigillae as in text-fig. 135. Epigyne provided with a downwardly bent scape as in text-fig. 137. Internal genitalia as in text-fig. 138.



FIGS. 135-138. *Gasteracantha dalyi* Pocock
135. Dorsal view of abdomen of female.
136. Epigyne, ventral view.
137. Epigyne, lateral view.
138. Internal genitalia, posterior view.

Distribution : INDIA : Yercaud, Shevaroy Hills, (Type-locality) Tamil Nadu. PAKISTAN.

Remarks : Description and illustrations are based on authenticated identified specimen deposited at Zoological Survey of India, Calcutta. Regd. No. 2714/18.

9. **Gasteracantha arcuata** (Fabricius)

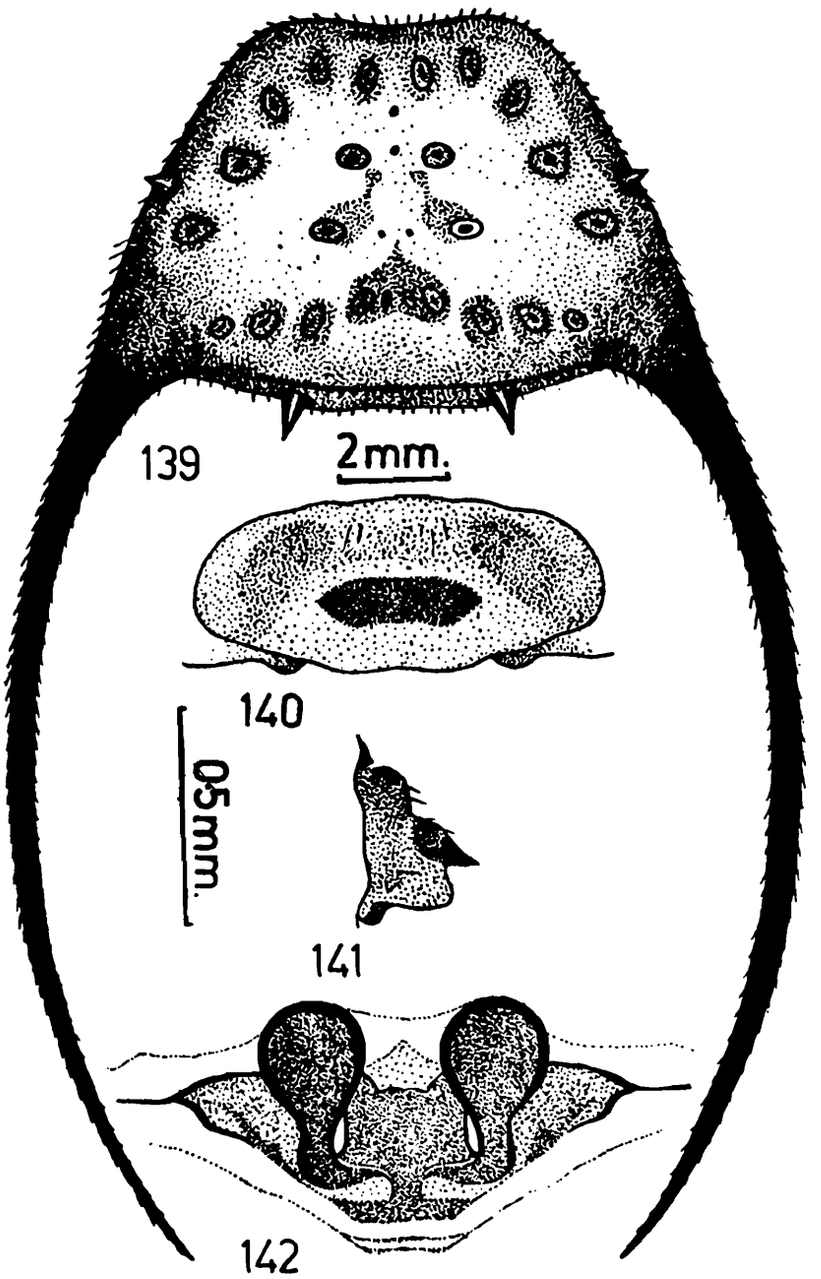
(Figs. 139-142)

1793. *Aranea arcuata* Fabricius, *Ent. Syst.*, 2 : 425.
1824. *Epeira curvicauda* : Vauthier, *Annls. Sci. nat.*, 1 : 261.
1838. *Gasteracantha arcuata* : C. L. Koch, *Die Arachniden*, 4 : 34.
1841. *Plectana curvicauda* : Walckenaer, *Hist. Nat. Ins. Apt.*, 2 : 175.
1859. *Plectana arcuata* : Doleschall, *Act. Soc. Ind. Neerl.*, 5(5) : 42.
1882. *Gasteracantha beccarii* : Hasselt, *Aflev. Naturlike Historie*, 4(11A) : 11.
1886. *Actinacantha arcuata* : Simon, *Act. Soc. linn. Bordeaux*, 40 : 147.
1899. *Gasteracantha fabricii* : Simon, *Annls. Soc. ent. Belg.*, 43 : 94.
1900. *Gasteracantha arcuata* : Pocock, *Fauna Brit. India, Arachn.*, : 232.
1903. *Gasteracantha arcuata* : Simon, *Annls. Soc. ent. Fr.*, 72 : 301.
1914. *Gasteracantha* (*Macracantha*) *arcuata* : Dahl, *Mitt. zool. Mus. Berl.*, 7 : 242.
1951. *Gasteracantha arcuata* : Sinha, *Rec. Indian Mus.*, 49 : 82.

General : Cephalothorax and legs blackish, abdomen brown. Total length 8.60 mm. Carapace 3.70 mm. long, 3.40 mm. wide ; abdomen 7.10 mm. long, 8.40 mm. wide at the base of anterior spines. Median spine 26.00 mm. long.

Cephalothorax : Slightly longer than wide, anteriorly blunt, clothed with white hairs, cephalic region elevated, provided with a distinct median groove and thoracic region down posteriorly. Ocular quad wider than long and wider behind than in front ; median eyes subequal in size. Sternum heart-shaped, pointed behind, black with no white patch, clothed with hairs ; labium slightly longer than wide, black with white distal margin ; maxillae black with white outer border, provided with distinct scopulae. Chelicerae much strong and stout, black, provided with indistinct boss. Legs short and strong, clothed with hairs.

Abdomen : Strongly concave on the dorsum forming an arch between the median pair of spines as in text-fig. 139 ; strongly overlapped on the cephalothorax. Anterior and posterior spines small and subequal in size, median spines exceeding three times larger than the width of the abdomen. Dorsum of the abdomen yellowish and chalk white with brownish sides, provided with a few pairs of conspicuous large sigilla as in text-fig. 139. Ventral side blackish with irregular yellowish chalk white patches. Epigyne



FIGS. 139-142. *Gasteracantha arcuata* (Fabricius)
139. Dorsal view of abdomen of female.
140. Epigyne, ventral view.
141. Epigyne, lateral view.
142. Internal genitalia, posterior view.

provided with a very short scape as in text-fig. 141. Internal genitalia as in text-fig. 142.

Distribution : INDIA : Shillong, Meghalaya ; Sikkim. BURMA : Tharrawaddy, Shwegoo. INDO-MALAYSIA.

Remarks : Due to lack of type specimen, description and illustrations are based on the specimen collected from Shillong, Meghalaya which was compared and confirmed with the authenticated identified specimen deposited at Zoological Survey of India, Calcutta. Regd. No. 8573/9.

Genus 2. **Leucauge** White

1841. *Leucauge* : White, *Ann. Mag. nat. Hist.*, 7(1) : 473.
1884. *Argyroepeira* : Emerton, *Trans. Conn. Acad. Arts. Sci.*, 6 : 331.
1900. *Argyroepeira* : Pocock, *Fauna Brit. India, Arachn.*, : 215.
1921. *Leucauge* : Gravely, *Rec. Indian Mus.*, 22 : 450.
1935. *Leucauge* : Dyal, *Bull. Zool. Punjab Univ.*, 1 : 187.
1951. *Leucauge* : Sinha, *Rec. Indian Mus.*, 49 : 81.
1960. *Leucauge* : Yaginuma, *Spiders of Japan, in colour*, : 70.
1962. *Leucauge* : Tikader, *J. Linn. Soc.*, 44(300) : 563.

Characters : Carapace truncate anteriorly. Thoracic furrow deep and posteriorly directed. Legs I and II long and slender ; femora IV with a double fringe of hairs on the prolateral surface of the basal half. Abdomen nearly twice as long as wide ; having silvery pigmentation ; epigastric plate without any furrow.

Type-species : *Leucauge hortorum* (Hentz)

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

Key to the species of the genus **Leucauge** White

1. Abdomen having one or more pairs of dorsal tubercles anteriorly.....2
   Abdomen not having dorsal paired tubercles anteriorly.....6

2. Abdomen with more than one pair of tubercles ; no caudal tubercle.....3
   Abdomen with one pair of tubercles ; caudal tubercles present.....4

3. Abdomen provided with three pairs of dorsal tubercles (Figs. 143 and 144).....*bengalensis*
   Abdomen provided with two pairs of dorsal tubercles (Figs 147 and 148).....*dorsotuberculata*

4. Abdomen tapering posteriorly ; not strongly overlapping on the carapace.....5
Abdomen tapering anteriorly (Figs. 151 and 152) ; strongly over-lapping on the carapace (Fig. 151).....*fastigata*

5. Both paired tubercles and median caudal tubercle highly prominent (Figs. 155 and 156).....*decorata*
Both paired tubercles and median caudal tubercle small and less prominent (Figs. 159 and 160).....*tessellata*

6. Abdomen uniformly silver white and decorated with longitudinal black bands (Fig. 163) ; mid-anteriorly provided with a shallow depression (Fig. 163) .....*celebesiana*
Abdomen having some silver white specks and not decorated with longitudinal black bands ; no depression anteriorly.....7

7. Abdomen oval ; black spots posteriorly.....8
Abdomen rather elongated (Fig. 168) ; black reticular patches irregularly (Fig. 168).....*ventralis*

8. Three paired and one median black spots at the posterior end of abdomen (Fig. 172).....*culta*
One paired black spots at the posterior end of abdomen (Fig. 175).....*pondae*

10. **Leucauge bengalensis** Gravely

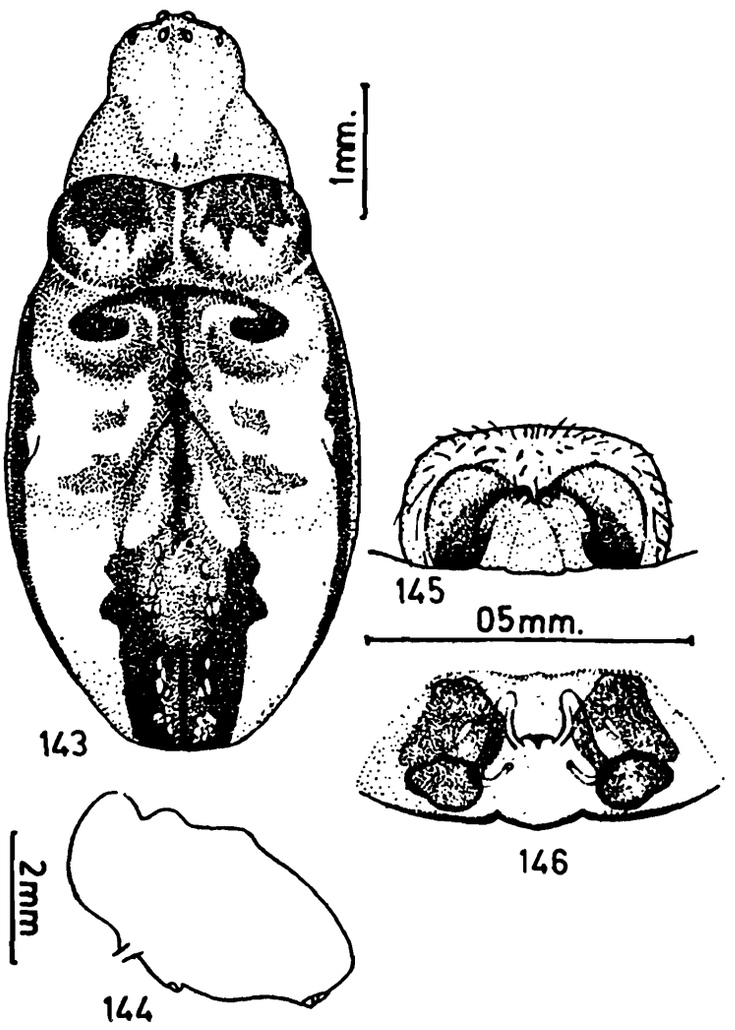
(Figs. 143-146)

1921. *Leucauge bengalensis* Gravely, *Rec. Indian Mus.*, 22(4) : 455.
1962. *Leucauge bengalensis* : Tikader, *J. Linn. Soc.*, 44(300) : 565.

General : Cephalothorax and legs pale yellowish, abdomen silver white with black and grey patches. Total length 5.80 mm. Carapace 1.80 mm. long, 1.75 mm. wide ; abdomen 4.40 mm. long, 2.80 mm. wide.

Cephalothorax : Longer than wide, cephalic region slightly elevated than flat thoracic region, clothed with scanty hairs. Ocular quad slightly longer than wide as in behind and narrower in front than behind as in text-fig. 143 ; anterior median eyes larger in size than posterior medians ; laterals slightly smaller than

medians, subequal, close and situated on moderately prominent tubercles ; both rows of eyes recurved but posterior row very narrowly recurved as in text-fig. 143. Sternum heart-shaped, pointed behind, yellowish brown, clothed with hairs ; labium nearly as long as wide, dark brown with pale distally, yellowish, having distinct scopulae. Chelicerae large and strong, pale yellowish, provided with small boss. Legs very long and slender, clothed with hairs and spines ; femora IV with a double fringe of long hairs on the prolateral surface of the proximal half ; distal ends of metatarsi and tarsi with brown patches.



FIGS. 143-146. *Leucauge bengalensis* Gravely

143. Dorsal view of female, legs omitted.
144. Lateral view of abdomen of female.
145. Epigyne, ventral view.
146. Internal genitalia, dorsal view.

Abdomen : Elongated, strongly overlapping anteriorly on the carapace, having three pairs of humps on the anterior half on the dorsum as in text-figs. 143 & 144. Dorsum of abdomen silver white with one median decoration composed of greyish and blackish patches and one pair of narrow blackish longitudinal bars laterally as in text-fig. 143. Ventral side blackish brown, also provided with a pair of silver white brackets one on each side in between epigastric furrow and spinnerets. Epigyne plate like, having a thin rim as in text-fig. 145. Internal genitalia very complicated as in text-fig. 146.

Distribution : INDIA : Calcutta, Hooghly, 24 Parganas, West Bengal.

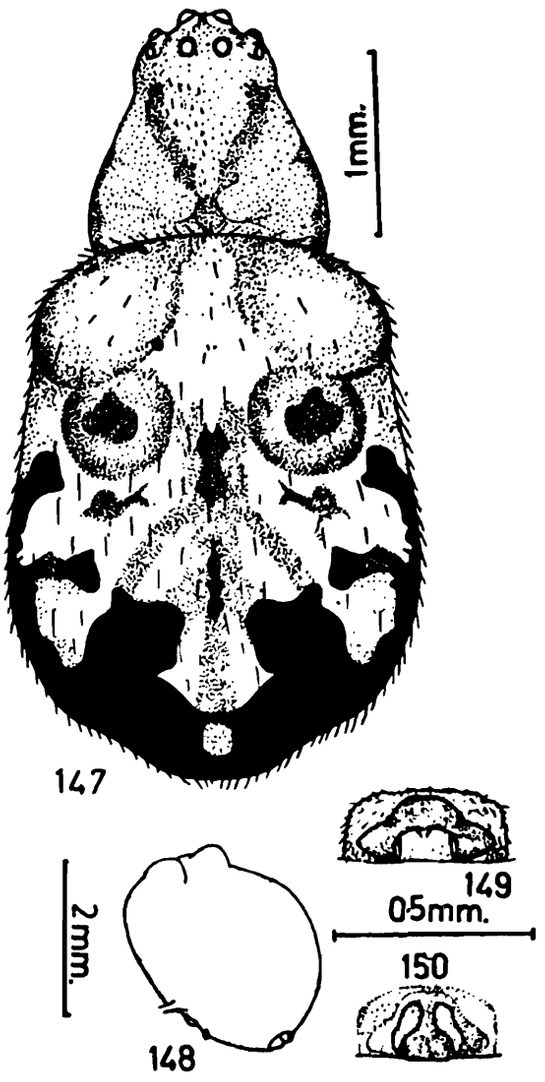
Remarks : Since I could not get the type-specimen the description and illustrations are based on identified specimen, deposited at Zoological Survey of India, Calcutta. Regd. No. 2457/18.

11. **Leucauge dorsotuberculata** sp.nov.

(Figs. 147-150)

General : Cephalothorax and legs pale with greenish patches and shades, abdomen with silver white, black and greyish patches. Total length 4.00 mm. Carapace 1.40 mm. long, 1.30 mm. wide ; abdomen 2.80 mm. long, 2.20 mm. wide.

Cephalothorax : Longer than wide, flat, clothed with a few hairs ; cephalic region having one pair of light green patches as in text-fig. 147 ; thoracic region with one pair of light green patches laterally, also provided with posteriorly trifid deep groove. Ocular quad forming a rectangular, longer than wide as in text-fig. 147 ; median eyes subequal in size ; laterals slightly smaller than medians, nearly equal in size, close and situated on prominent tubercles as in text-fig. 147 ; all eyes on black patches ; both rows of eyes recurved but posterior row very narrowly recurved as in text-fig. 147. Sternum heart-shaped, pointed behind, blackish, clothed with hairs, labium nearly as long as wide, blackish with pale distal margin ; maxillae longer than wide, blackish, provided with distinct scopulae. Chelicerae strong and stout, pale in colour, provided with small boss. Legs long and



FIGS. 147-150. *Leucauge dorsotuberculata* sp.nov.
147. Dorsal view of female, legs omitted.
148. Lateral view of abdomen of female.
149. Epigynum, ventral view.
150. Internal genitalia, dorsal view.

slender, clothed with hairs and spines ; femora IV with a double fringe of long hairs on the prolateral surface of the proximal half ; distal ends of coxae, patellae and both ends of femora and tibiae provided with black incomplete bands on the ventral side.

Abdomen : Rather roundish ; two pairs of large hump like tubercles on the dorsum, one anteriorly and other one in front of middle as in text-figs. 147 & 148. Dorsum of abdomen decorated with silvery white, black and greyish patches as in text-

fig. 147. Ventral side black, provided with one pair of large triangular silver white patches in between epigastric furrow and spinnerets ; four silver white spots around spinnerets. Epigyne plate like, having a thin semilunar rim anteriorly as in text-fig. 149. Internal genitalia as in text-fig. 150.

Holotype : Female, *paratype* four females in spirit, deposited in ZSI. Calcutta. Regd. No. 4934-35/18.

Type-locality : Pachgani, Dist. Satara, Maharashtra, India. Coll. *B. K. Tikader*, 24.8.1977.

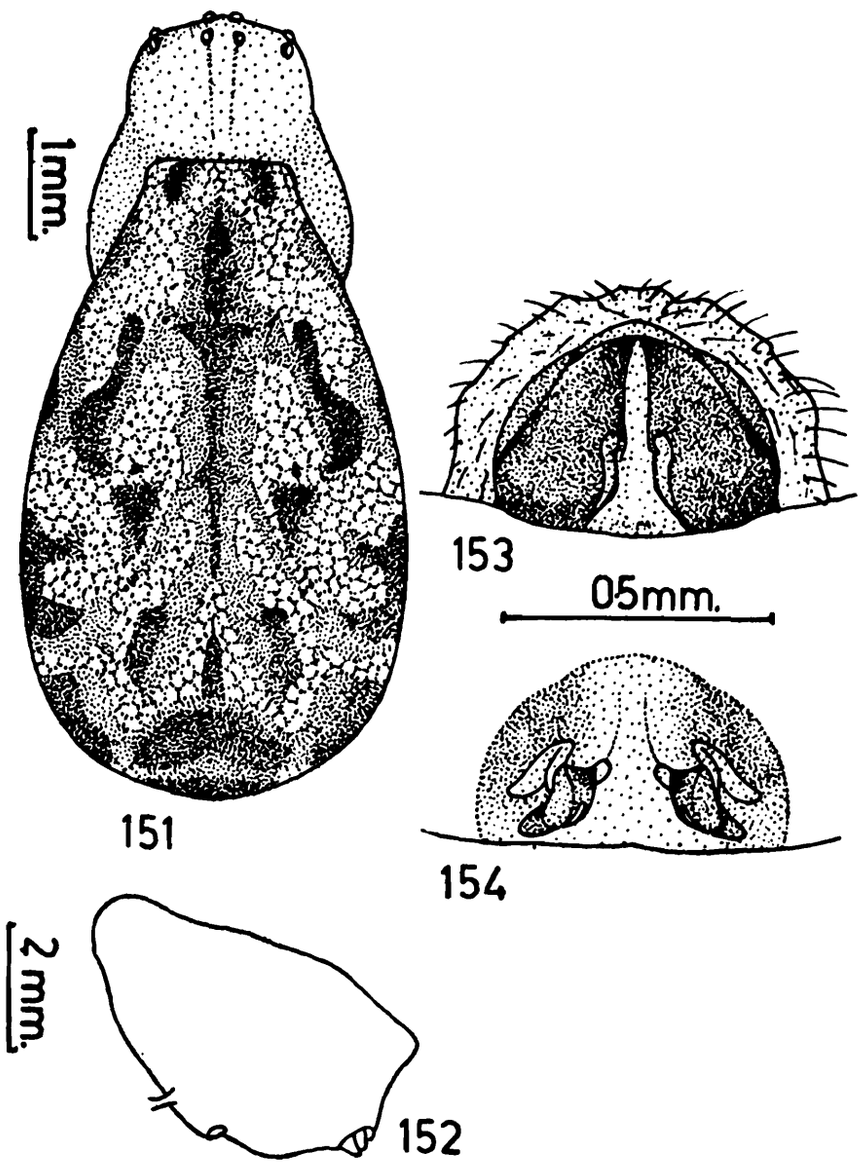
Discussion : This species having similarities with *Leucauge fastigata* (Simon) but differs as follows : (i) Abromen broad anteriorly with one pair of shoulder humps and other two small humps just behind them, but in *fastigata* abdomen narrower in front forming a single median blunt shoulder hump and no other hump on abdomen. (ii) Abdomen moderately overlapping in front on carapace, but in *fastigata* abdomen very strongly overlapping on the carapace. (iii) Genitalia also quite different in both the species.

12. **Leucauge fastigata** (Simon)

(Figs. 151-154)

1877. *Meta fastigata* Simon, *Anns. Soc. ent. Fr.*, 7(5) : 79.
1877. *Meta fastuosa* : Thorell, *Annali. Mus. civ. Genova*, **10** : 413.
1887. *Callinethis elegans* : Thorell, *Annali. Mus. civ. Genova*, **25** : 134.
1894. *Argyroepeira fastigata* : Simon, *Hist. Nat. Araign.*, 1(3) : 729.
1900. *Argyroepeira fastigata* : Pocock, *Fauna Brit. India, Arachn.*, : 216.
1905. *Leucauge fastigata* : Simon, *Mitt.Naturn.Mus.Hamburg*, 22(2) : 61.
1919. *Leucauge elegana* : Sherriffs, *Ann. Mag. nat. Hist.*, 4(9) : 233.
1921. *Leucauge fastigata* : Gravely, *Rec. Indian Mus.*, 22(4) : 56.
1931. *Leucauge fastigata* : Reimoser, *Mitt. zool. Mus. Berl.*, 17(5) : 748.
1938. *Leucauge fastuosa* : Roewer, *Mem. Mus. Hist. nat. Belg. (H.S.)*, 3(19) : 48.

General : Cephalothorax pale yellow, legs light brownish yellow, abdomen silver white with black patches and grey colour. Total length 7.50 mm. Carapace 3.00 mm. long, 2.60 mm. wide ; abdomen 6.20 mm. long, 3.75 mm. wide.



FIGS. 151-154. *Leucauge fastigata* (Simon)
151. Dorsal view of female, legs omitted.
152. Lateral view of abdomen of female.
153. Epigyne, ventral view.
154. Internal genitalia, dorsal view.

Cephalothorax : Longer than wide, scarcely clothed with hairs ; cephalic region slightly elevated than thoracic region which having a posteriorly trifid groove. Ocular quad longer than wide as in behind and narrower in front than behind as in text-fig. 151 ; all eyes are subequal in size and each surrounded by black ring ; lateral eyes close and situated on moderately prominent tuber-

cles ; both rows of eyes recurved but posterior row very narrowly recurved as in text-fig. 151. Sternum heart-shaped, narrower behind brownish yellow, clothed with hairs ; labium as long as wide, dark brown with pale distal margin ; maxillae longer than wide, narrower at the base, brownish in colour, provided with distinct scopulae chelicerae strong and stout, yellowish, having small boss. Legs very long and slender, clothed with hairs and spines ; femora IV with a double fringe of long hairs on the prolateral surface of the proximal half ; tibiae I, II, IV densely clothed with long hairs.

Abdomen : Strongly overlapping anteriorly on the carapace, having a broad, blunt median shoulder hump as in text-figs. 151 & 152. Abdomen broad posteriorly. Dorsum of abdomen silvery white with blackish patches as in text-fig. 151. Ventral side having a pair of bracket shaped patches composed of silver white specks in between epigastric furrow and spinnerets. Epigyne plate like, provided with a thin semicircular rim as in text-fig. 153 ; genital opening in the middle. Internal genitalia as in text-fig. 154.

Distribution : INDIA : Trichur, Parambikulum, Cochin, Kerala ; Barkuda Island (Chilka Lake), Ganjam, Orissa ; Hardwar, Saharanpur, U.P. BURMA : Tavoy, Arakan. SRI LANKA : Peradeniya.

Remarks : Illustrations and description have been made on the basis of authenticated identified specimen deposited at Zoological Survey of India, Calcutta. Regd. No. 2950/H_2.

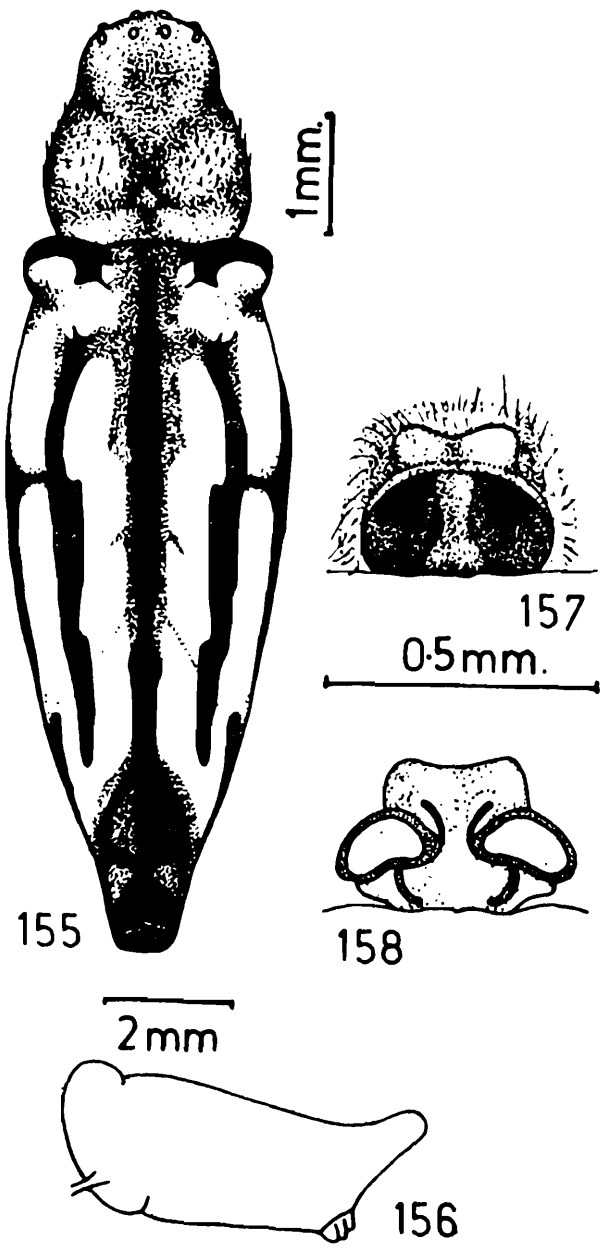
13. **Leucauge decorata** (Blackwall)

(Figs. 155-158)

1864. *Tetragnatha decorata* Blackwall, *Ann.Mag.nat.Hist.*, **14**(3) : 44.
1869. *Nephila angustata* : Stoliczka, *J. Asiat. Soc. Beng.*, **38** : 241.
1869. *Tetragnatha decorata* : O.P. Cambridge, *J. Linn. Soc.*, **10** : 389.
1877. *Meta celebesiana* : Thorell, *Annali. Mus. civ. Genova*, **10** : 422.
1896. *Argyroepeira celebesiana* : Workman, *Malays. Spid.*, : 52.
1900. *Argyrocperia celebesiana* : Pocock, *Fauna Brit. India, Arachn.*, : 216.
1906. *Leucauge decorata* : Simon, *Annls. Soc. ent. Fr.*, **75** : 282.
1921. *Leucauge decorata* : Gravely, *Rec. Indian Mus.*, **22**(4) : 454.
1962. *Leucauge decorata* : Tikader, *J. Linn. Soc.*, **44**(300) : 564.
1975. *Leucauge decorata* : Patel, *Vidya, J. Gujarat Univ.*, **18**(1) : 156.

General : Cephalothorax yellowish, legs yellowish with greenish shades, abdomen silvery white with blackish patches and lines. Total length 8.90 mm. Carapace 2.60 mm. long, 2.00 mm. wide ; abdomen 6.70 mm. long, 2.70 mm. wide.

Cephalothorax : Longer than wide, scarcely clothed with hairs ;



FIGS. 155-158. *Leucauge decorata* (Blackwall)
155. Dorsal view of female, legs omitted.
156. Lateral view of abdomen of female.
157. Epigyne, ventral view.
158. Internal genitalia, dorsal view.

cephalic region slightly higher than thoracic region ; thoracic region provided with a posterior trifid deep groove as in text-fig. 155. Ocular quad slightly wider than long and also very narrowly wider behind than in front as in text-fig. 155 ; median eyes subequal in size ; laterals slightly smaller than medians, nearly equal in size, close and situated on moderately prominent tubercles ; both rows of eyes recurved but posterior row very narrowly recurved as in text-fig. 155. Sternum heart-shaped, pointed behind, brownish yellow, clothed with hairs ; labium nearly as long as wide, blackish brown with pale distal margin ; maxillae longer than wide and broad distally, brownish yellow, provided with distinct scopulae. Chelicerae large, very strong and stout, yellowish, having small boss. Legs very long and slender, clothed with hairs and spines ; femora IV with a double fringe of long hairs on the prolateral surface of the proximal half.

Abdomen : Rather elongated, anterior part provided with two prominent humps and one upward directed caudal hump as in text-figs. 155 & 156. Dorsum of abdomen decorated with silvery white and blackish patches and lines as in text-fig. 155. Ventral side with a pair of elongated silvery white patches in between epigastric furrow and spinnerets and four silver white spots around spinnerets. Epigyne plate like having a thin semilunar rim anteriorly as in text-fig. 157. Internal genitalia as in text-fig. 158.

Distribution : INDIA : Bangalore, Karnataka ; Cochin, Kerala ; Nilgiri Hills, Red Hills, Chingleput, Tamil Nadu ; Dehra Dun, U.P. ; Calcutta, Darjeeling, Kalimpong, West Bengal ; Shillong, Meghalaya ; Sikkim ; Assam ; Bihar ; Orissa ; Gujarat ; Pondicheri. SRI LANKA : Colombo, Peradeniya. BURMA : Maymyo. PAKISTAN : Rawalpindi.

Remarks : The specimen studied for description and illustration was collected from Poona, Maharashtra.

14. **Leucauge tessellata** (Thorell)

(Figs. 159-162)

1887. *Callinethis tessellata* Thorell, *Annali. Mus. civ. Genoca*, 25 : 135.
1900. *Argyroepeira tessellata* : Pocock, *Fauna. Brit. India Arachn.*, : 216.

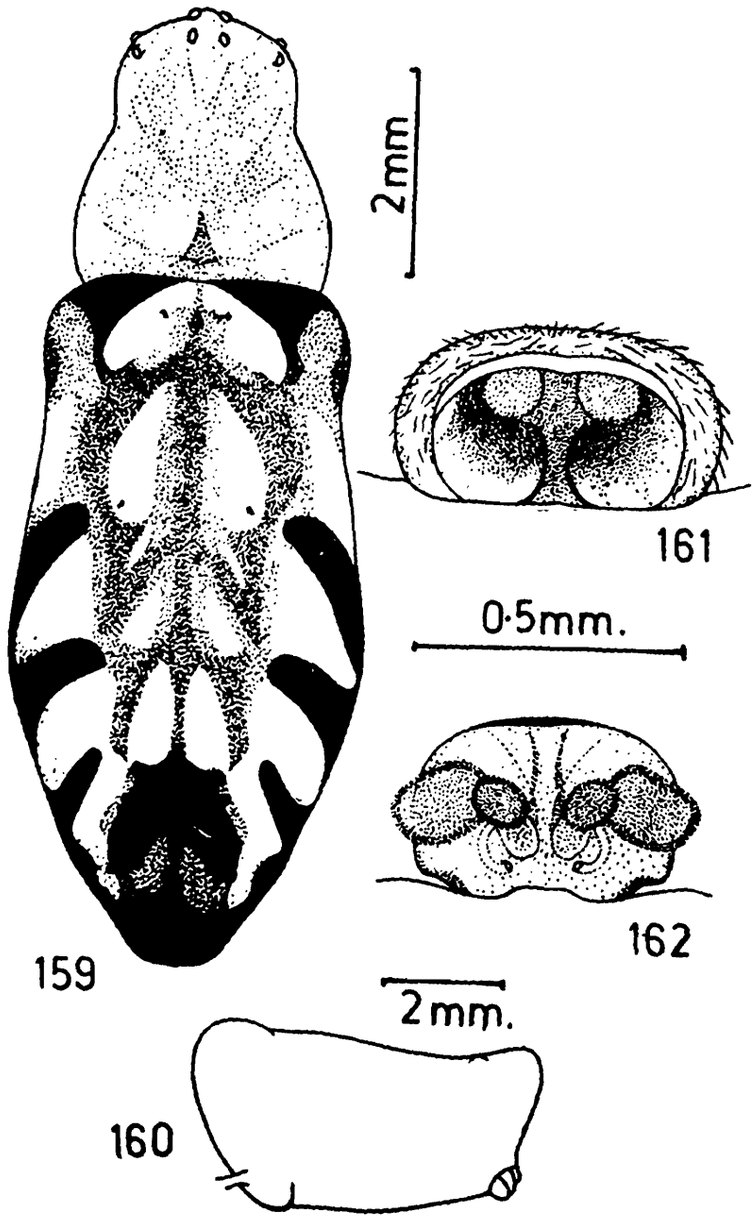
1921. *Leucauge tessellata* : Gravely, *Rec. Indian Mus.*, 22(4) : 455.
1962. *Leucauge tessellata* : Tikader, *J. Linn. Soc.*, 44(300) : 565.
1975. *Leucauge tessellata* : Patel, *Vidya, J. Gujarat Univ.*, 18(1) : 156.

General : Cephalothorax light brown, legs brownish with yellow patches, abdomen greyish with silvery white and blackish patches. Total length 9.40 mm. Carapace 3.20 mm. long, 2.50 mm. wide ; abdomen 6.65 mm. long, 3.50 mm. wide.

Cephalothorax : Longer than wide, flat, clothed with hairs ; cephalic region slightly elevated than thoracic region ; thoracic region lighter in colour and provided with posteriorly trifid deep groove. Ocular quad longer than wide and slightly narrower in front than behind as in text-fig. 159 ; anterior median eyes slightly smaller than posterior medians ; laterals smaller than medians, close and situated on moderately prominent tubercles ; both rows of eyes recurved but anterior row strongly recurved as in text-fig. 159. Sternum heart-shaped, pointed behind, yellowish clothed with hairs ; labium nearly as long as wide, blackish brown with yellowish distal margin ; maxillae longer than wide and broad distally, blackish brown with yellowish margins, provided with distinct scopulae. Chelicerae large, very strong and stout, dark brown, having small boss. Legs very long and slender, clothed with hairs and spines, femora IV with a double fringe of long hairs on the prolateral surface of the proximal half ; tibiae IV provided with dense layer of moderately strong and long hairs on the distal half.

Abdomen : A little elongated, anteriorly with two blunt rounded prominences and a blunt caudal hump at the posterior end as in text-figs. 159 & 160. Dorsum of abdomen provided with silvery white and chalk white patches and lines as in text-fig. 159. Ventral side with a pair of elongated silvery patches in between epigastric furrow and spinnerets. Epigyne plate like having a thin semilunar rim, anteriorly as in text-fig. 161. Internal genitalia as in text-fig. 162.

Distribution : INDIA : Cochin, Kerala ; Kalimpong, Darjeeling, West Bengal ; Rongli, East Sikkim, Sikkim ; Sonarpur, Assam ; Dangs, Gujarat ; Karnataka. BURMA : Shwegoo Myo, Tenasserim, BHUTAN.



FIGS. 159-162. *Leucauge tessellata* (Thorell)

159. Dorsal view of female, legs omitted.

160. Lateral view of abdomen of female.

161. Epigyne, ventral view.

162. Internal genitalia, dorsal view.

Remarks : Description and illustrations have been made on the basis of specimen collected from Rongli, East Sikkim.

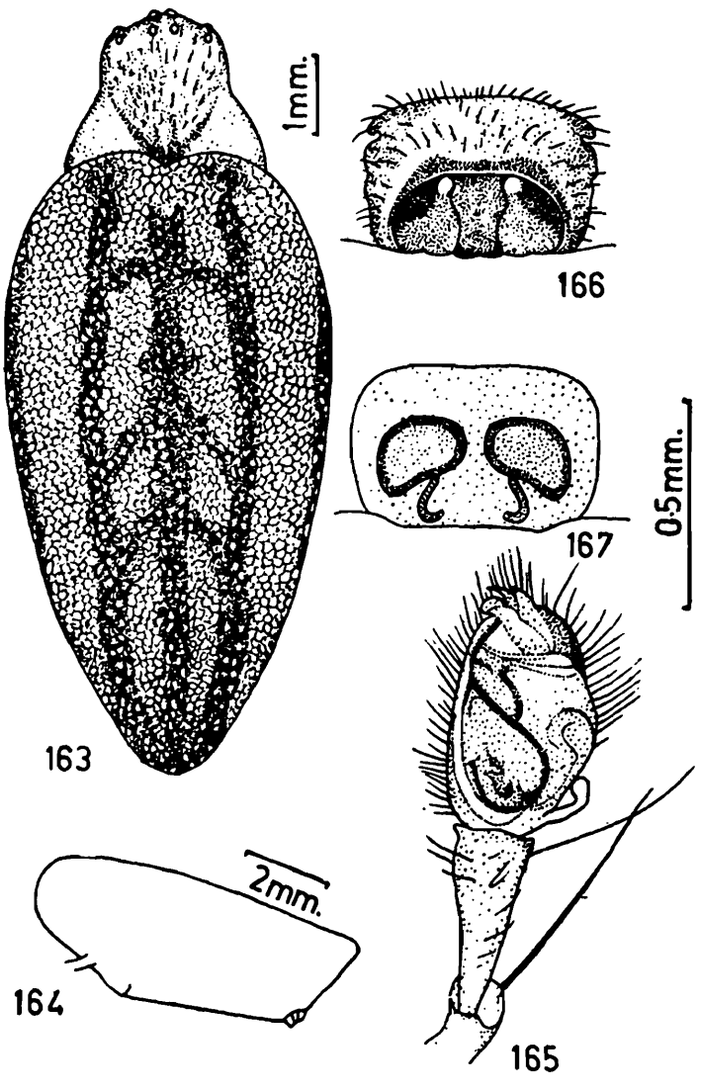
15. **Leucauge celebesiana** (Walckenaer)

(Figs. 163-167)

1841. *Tetragnatha celebesiana* Walckenaer, *Hist. Nat. Ins. Apt.*, 2 : 222.
1859. *Epeira nigro trivittata* : Doleschall, *Act. Soc. Ind. Neerl.*, 5 : 39.
1885. *Meta celebesiana* : Simon, *Annls. Soc. ent. Belg.* 29 C.R. : 38.
1885. *Meta nigrotrivittata* : Simon, *Annls. Soc. ent. Belg.*, 29 C.R. : 38.
1894. *Argyroepeira nigrotrivittata* : Simon, *Hist. Nat. Araign.*, 1(3) : 730.
1898. *Argyroepeira celebesiana* : Rainbow, *Proc. Linn. Soc. N.S.W.*, 23(3) :335.
1900. *Argyroepeira ventralis* : Pocock, *Fauna Brit. India Arachn.*, : 216.
1904. *Leucauge celebesiana* : Pocock, *Fauna and Geography of the Maldive and Laccadive Archipelagoes, Arachn. Lond.*, 2 : 800.
1921. *Leucauge celebesiana* : Gravely, *Rec. Indian Mus.*, 22(4) : 454.
1936. *Leucauge celebesiana* : Sherriffs, *Hong-Kong Nat.*, 7(2) : 111.
1951. *Leucauge celebesiana* : Sinha, *Rec. Indian Mus.*, 49 : 81.
1962. *Leucauge celebesiana* : Tikader, *J. Linn. Soc.*, 44(300) : 564.

General : Cephalothorax brownish yellow, legs brownish yellow with greenish shade, abdomen silvery white with black and grey patches and lines. Total length 10.00 mm. Carapace 2.80 mm. long, 2.60 mm. wide ; abdomen 8.00 mm. long, 4.30 mm. wide.

Cephalothorax : Longer than wide, flat, clothed with hairs ; cephalic region slightly higher than thoracic region ; thoracic region having a posteriorly trifid deep groove. Ocular quad forming a trapezium, wider posteriorly than in front and slightly wider than long as in text-fig. 163 ; median eyes sub-equal in size ; laterals slightly smaller than medians, equal in size ; close and situated on prominent tubercles ; both rows of eyes recurved but posterior row very narrowly recurved as in text-fig. 163. Sternum heart-shaped, pointed posteriorly, light brownish with a large median black patch, clothed with hairs ; labium nearly as long as wide, deep brown in colour ; maxillae longer than wide, deep brown with black borders, provided with distinct scopulae. Chelicerae large, very strong and stout, brownish yellow, provided with small boss. Legs very long and slender, clothed with hairs and spines ; femora IV with a double fringe of long hairs on the prolateral surface of the proximal half ; tibiae, I, II, IV with transverse blackish bands at distal ends. Male palp as in text-fig. 165.



FIGS. 163-167. *Leucauge celebesiana* (Walckenaer)
163. Dorsal view of female, legs omitted.
164. Lateral view of abdomen of female.
165. Ventral view of left male palp.
166. Epigyne, ventral view.
167. Internal genitalia, dorsal view.

Abdomen: Rather elongated, moderately overlapping anteriorly on carapace ; anterior end having a median depression as in text-fig. 163. Dorsum of abdomen decorated with silvery white and blackish patches and lines, forming a characteristic pattern as in text-fig. 163. Ventral side blackish with some silvery patches and spots. One pair of long silvery white patches in between epigastric furrow and spinnerets, and four silvery white spots around spinnerets. Epigyne plate like having a thin similar rim anteriorly as in text-fig. 166. Internal genitalia as in text-fig. 167.

Distribution : INDIA : Calcutta, Darjeeling, West Bengal ; Shillong, Cherrapunji, Khasi Hills, Meghalaya ; Ootacamund, Tamil Nadu ; Assam ; Poona, Maharashtra ; Gangtok, Rongli, Sikkim. BURMA : Rangoon, Tharrawaddy. SRI LANKA. CHINA.

Remarks : Description and illustrations have been made on the basis of one female and one male specimens, collected from Rongli, East Sikkim.

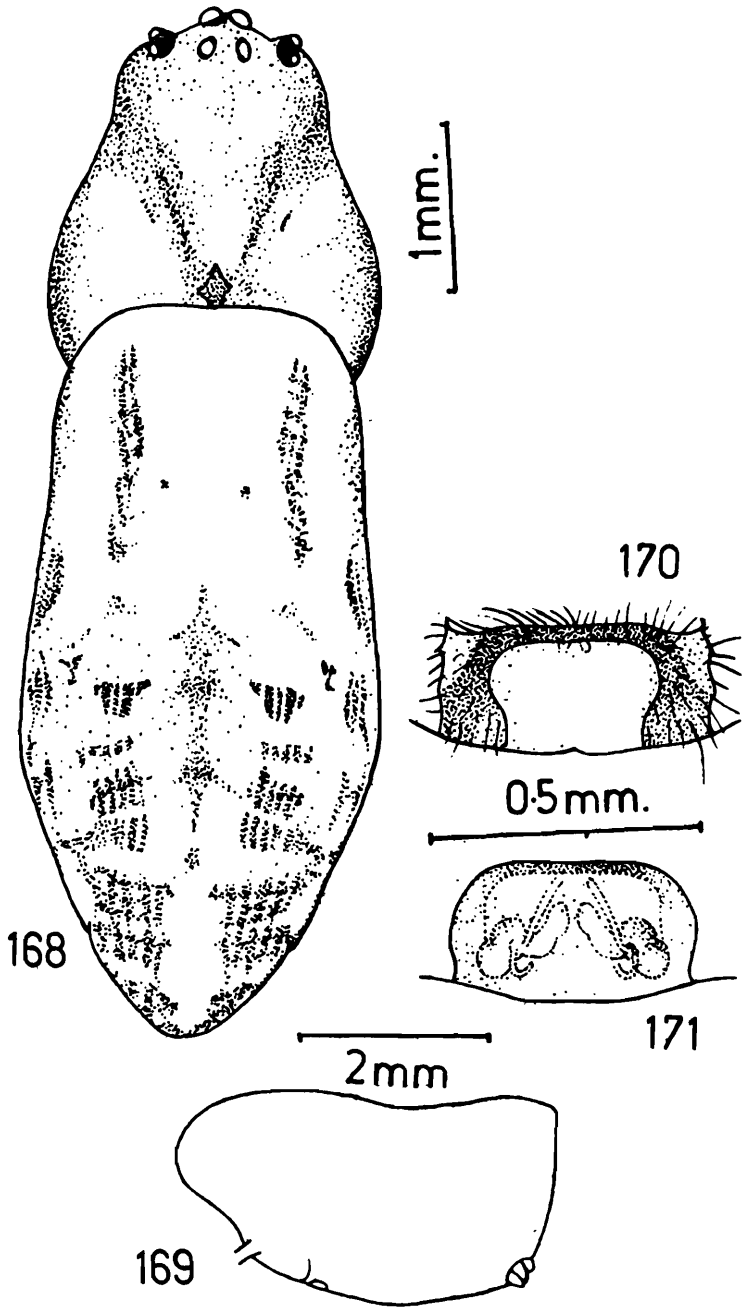
16. **Leucauge ventrallis** (Thorell)

(Figs. 168-171)

1877. *Meta ventralis* Thorell, *Annali. Mus. civ. Genova*, **10** : 423.
1887. *Argyroepeira ventralis* : Thorell, *Annali. Mus. civ. Genova*, 25 : 138.
1896. *Argyroepeira ventralis* : Workman, *Malays. Spid.*, : 65.
1900. *Argyroepeira ventralis* : Pocock, *Fauna Brit. India, Arachn.*, : 216.
1904. *Leucauge ventralis* : Pocock, *Fauna and Geograpry of the Maldive and Laccadive Archipelagoes, Arachn. Lond.*, **2** : 800.
1909. *Leucauge ventralis* : Simon, *Bull. scient. Fr. Belg.*, **42** : 102.
1921. *Leucauge ventralis* : Gravely, *Rec. Indian Mus.*, **22**(4) : 451.
1935. *Leucauge ventralis* : Dyal, *Bull. Zool. Punjab Univ.*, **1** : 188.
1962. *Leucauge ventralis* : Tikader, *J. Linn. Soc.*, **44**(300) : 566.

General : Cephalothorax greyish with brownish patches, legs pale yellow, abdomen greyish with blackish patches and silver white specks. Total length 5.90 mm. Carapace 2.30 mm. long, 1.90 mm. wide ; abdomen 4.20 mm. long, 2.10 mm. wide.

Cephalothorax : Longer than wide, clothed with pubescence and hairs ; in general cephalothorax flat and cephalic region slightly elevated than thoracic region ; thoracic region having a posteriorly trifid deep groove ; one dark brown longitudinal line on each side of the carapace as in text-fig. 168. Ocular quad longer than wide as in behind and rarrower in front than behind as in text-fig. 168. Anterior median eyes slightly larger than posterior medians ; laterals subequal to the posterior medians, close and situated on moderately prominent black tubercles ; both rows of eyes recurved but posterior row very narrowly recurved than anterior row as in text-fig. 168. Sternum heart-shaped narrowing behind, brown with dark shades, clothed with hairs ; labium nearly as long as wide, blackish brown with pale distal



FIGS. 168-171. *Leucauge ventralis* (Thorell)
168. Dorsal view of female, legs omitted.
169. Lateral view of abdomen of female.
170. Epigyne, ventral view.
171. Internal genitalia, dorsal.

margin ; maxillae longer than wide, broad distally, brown with dark shades and pale inner borders, provided with distinct scopulae. Chelicerae strong, brownish yellow, having small boss. Legs long and slender ; tibiae I, II and metatarsi I, II with

indistinct brown bands ; femora IV with a double fringe of long hairs on the prolateral surface of the proximal half.

Abdomen : Rather elongated, tapering posteriorly ; posterior end forming an indistinct caudal tubercle as in text-fig. 169. Dorsum of abdomen decorated with black patches and minute silver white specks as in text-fig. 168 Ventral side having a mid-longitudinal broad black patch guarded laterally by one white stripe on each side in between epigastric furrow and spinnerets ; a few black patches also present ; one pair of small black patches present laterally adjacent to the spinnerets. Epigyne plate like with a distinct conspicuous rim as in text-fig. 170. Internal genitalia as in text-fig. 171.

Distribution : INDIA : Chalakundi, Parambikulum, Cochin, Kerala ; Calcutta, West Bengal. SRI LANKA : Trincomali, Kandy.

Remarks : The studied specimen was borrowed from, Z.S.I., Calcutta, Regd. No. 2458/18.

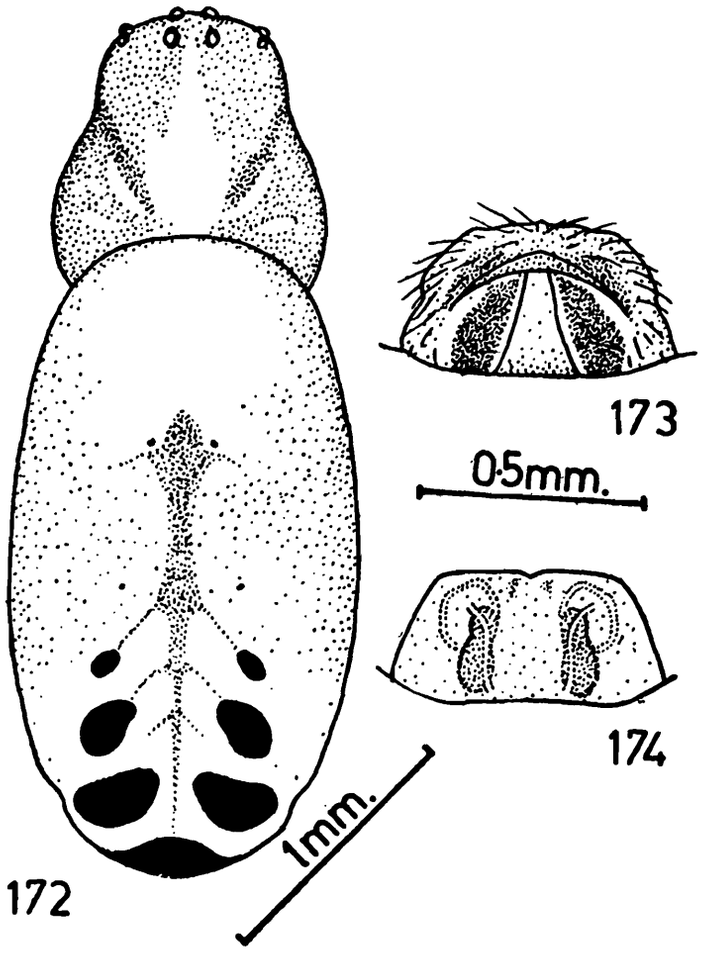
17. **Leucauge culta** (O.P. Cambridge)

(Figs. 172-174)

1869. *Tetragnatha culta* O.P. Cambridge, *J. Linn. Soc.*, **10** : 390.
1894. *Argyroepeira culta* : Simon, *Hist. Nat. Araign.*, 1(3) : 731.
1906. *Leucauge sexpustulata* : Simon, *Annls. Soc. ent. Fr.*, 75 : 307.
1921. *Leucauge culta* : Gravely, *Rec. Indian Mus.*, 22(4) : 452.
1934. *Leucauge culta* : Reimoser, *Revue. suisse Zool.*, 41(32) : 482.
1962. *Leucauge culta* : Tikader, *J. Linn. Soc.*, 44(300) : 565.

General : Cephalothorax and legs pale yellow, abdomen pale yellow and greyish with silver white specks and black patches. Total length 3.20 mm. Carapace 1.20 mm. long, 1.00 mm. wide ; abdomen 2.35 mm. long, 1.30 mm. wide.

Cephalothorax : Longer than wide, scarcely clothed with hairs, cephalic region slightly elevated than thoracic region. Ocular quad slightly wider than long and narrower in front than behind as in text-fig. 172 ; anterior median eyes smaller than posterior medians, posterior lateral eyes slightly smaller than anterior laterals, lateral eyes close and situated on moderately prominent black



FIGS. 172-174. *Leucauge culta* (O. P. Cambridge)
172. Dorsal view of female, legs omitted.
173. Epigyne, ventral view.
174. Internal genitalia, dorsal view.

tubercles ; both rows recurved but posterior row very narrowly recurved as in text-fig. 172. Sternum heart-shaped, narrowing behind, pale yellow, clothed with hairs ; labium nearly as long as wide, brownish with pale distal margin ; maxillae longer than wide, narrowing at the base, yellowish, having distinct scopulae. Chelicerae strong, pale yellowish, provided with small boss. Legs long and slender, clothed with hairs and spines ; femora IV with a double fringe of long hairs on the prolateral surface of the proximal half ; tarsi light brown in colour.

Abdomen : Elongated oval, moderately overlapping on the carapace as in text-fig. 172. Dorsum having with minute silver white specks, one median black patch at the extreme posterior

end and other three pairs of black patches in front of it as in text-fig. 172. Ventral side pale yellowish, one pair of black spots adjacent laterally to the spinnerets. Epigyne plate like, having a semicircular rim like structure as in text-fig. 173. Internal genitalia as in text-fig. 174.

Distribution : INDIA : Gopaldhara, Pashok, Soon, Darjeeling, West Bengal ; Valparai, Karnataka. SRI LANKA.

Remarks : Since I could not get type-specimen, the description and illustrations are based on one authenticated identified specimen deposited at Z.S.I., Calcutta, Regd. No. 2461/18.

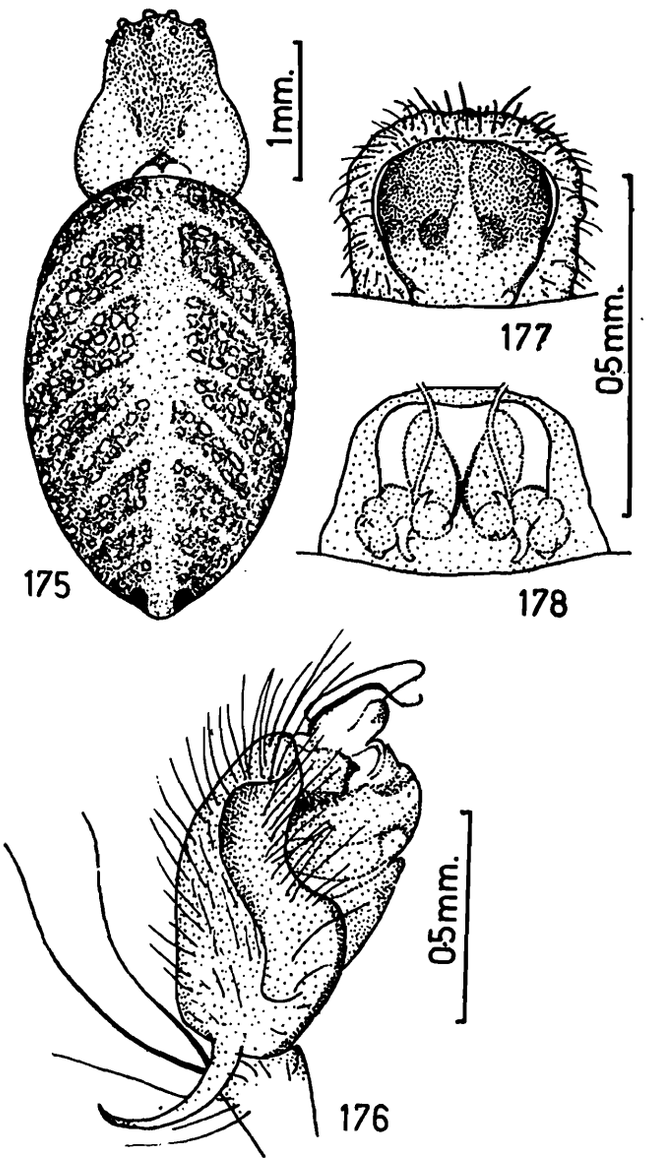
18. **Leucauge pondae** Tikader

(Figs. 175-178)

1970. *Leucauge pondae* Tikader, *Rec. zool. Surv. India*, 64(1-4) : 44.

General : Cephalothorax pale yellowish, legs light greenish yellow, abdomen greyish with silver specks. Total length 4.60 mm. Carapace 1.40 mm. long, 1.30 mm. wide ; abdomen 3.35 mm. long, 2.10 mm. wide.

Cephalothorax : Longer than wide, scarcely clothed with hairs, cephalic region very narrowly elevated than thoracic region, thoracic region provided with a posteriorly trifid groove as in text-fig. 175. Ocular quad slightly longer than wide and wider behind than in front as in text-fig. 175 ; median eyes subequal in size ; laterals slightly smaller than medians, equal in size, close and situated on moderately prominent black tubercles ; both rows of eyes recurved but posterior row very narrowly recurved as in text-fig. 175. Sternum heart-shaped, narrowing but not pointed behind, pale yellowish, clothed with hairs ; labium nearly as long as wide, brownish with pale distal margin ; maxillae longer than wide and much narrower proximally than distally, yellowish, having distinct scopulae. Chelicerae large and strong, pale yellowish, having small boss. Legs long and slender, clothed with hairs and spines, femora IV with a double fringe of long hairs on the prolateral surface of the proximal half ; distal ends of femora I, II and both ends of tibiae I, II, IV provided with black bands incomplete on the dorsal side. Male palp as in text-fig. 176.



FIGS. 175-178. *Leucauge pondae* Tikader

175. Dorsal view of female, legs omitted.
176. Dorso-lateral view of left male palp.
177. Epigyne, ventral view.
178. Internal genitalia, dorsal view.

Abdomen : Oval, slightly overlapping on the carapace as in text-fig. 175. Dorsum of abdomen greyish with numerous small silver white specks leaving some gaps thus forming pale lines as in text-fig. 175 at the extreme posterior end provided with two small black spots as in text-fig. 175. Ventral side with numerous silver white specks but also provided with some dark shades and one pair of black spots near the spinnerets in between epigastric furrow and spinnerets. Epigyne plate like and not having distinct

rim like structure as in text-fig. 177. Internal genitalia as in text-fig. 178.

Distribution : INDIA : Bank of Great Rangit river, Sikkim.

Remarks : Illustrations and description have been made on the basis of Holotype female and Allotype male, Regd. Nos. 3221/18 & 3222/18 respectively, and are deposited at Z.S.I., Calcutta.

Genus 3. **Meta** C. L. Koch

1836. *Meta* C. L. Koch, *in* Panzer, *Arachniden, Heft,* **134** : 6.
1841. *Epeira* : Walckenaer, *Hist. Nat. Ins. Apt.*, **2** : 82.
1859. *Epeira* : O. P. Cambridge, *Zoologist*, **17** : 6501
1865. *Meta* : Keyserling, *Verh. zool.-bot. Ges. Wien*, **15** : 800, 830.
1899. *Metabus* : O. P. Cambridge, *Biologia cent.-am.*, (*Zool.*), **1** : 298.
1928. *Metabus* : Petrunkevitch, *Trans. Conn. Acad. Sci.*, **29** : 75.
1933. *Auchicybaeus* : Gertsch, *Am. Mus. Novit.*, **637** : 11.
1953. *Meta* : Locket & Millidge, *British Spiders II*—Roy Soc., London, : 113.
1960. *Meta* : Yaginuma, *Spiders of Japan, in colour*, : 69.

Characters : Carapace with deep and long thoracic furrow, often trifid posteriorly. Ocular quad scarcely longer than wide, slightly wider behind ; median eyes subequal ; laterals close ; posterior row straight or slightly procurved ; posterior medians slightly closer to each other than to the adjacent laterals. Maxillae longer than broad and narrower proximally. Abdomen oval ; epigastric plate having no furrow.

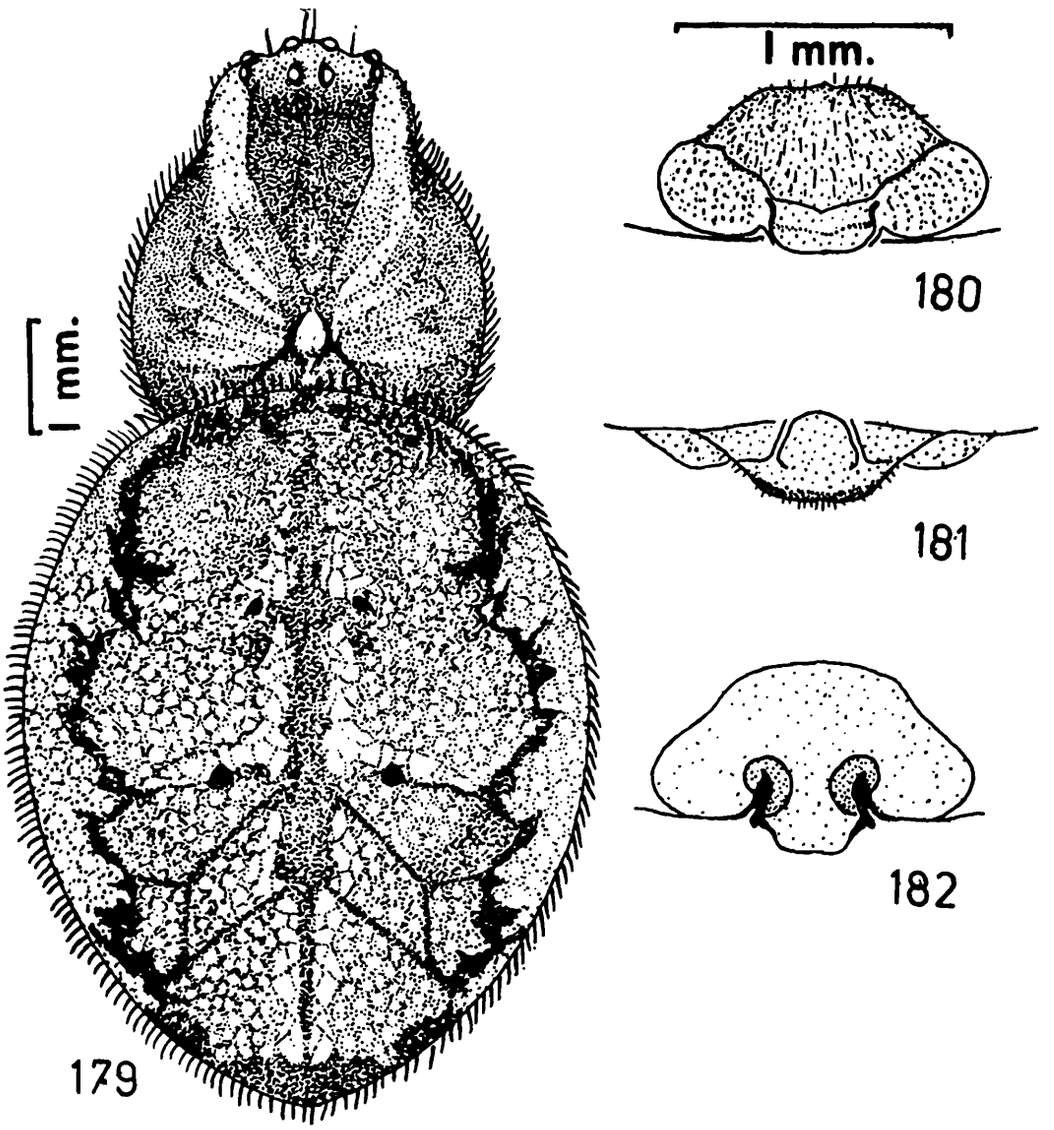
Type-species : *Meta menardi* (Latreille)

Distribution : ASIA, EUROPE.

19. **Meta simlaensis** sp. nov.

(Figs. 179-182)

General : Cephalothorax and legs light yellowish brown, greyish with chalk white and brownish patches. Total length 9.35 mm. Carapace 3.55 mm. long, 3.15 mm. wide ; abdomen 6.35 mm. long, 5.10 mm. wide.



FIGS. 179-182. *Meta simlaensis* sp. nov.

179. Dorsal view of female, legs omitted.

180. Epigyne, ventral view.

181. Epigyne, posterior view.

182. Internal genitalia, dorsal view.

Cephalothorax : Longer than wide, narrowing in front, clothed with pubescence and hairs ; cephalic region slightly elevated than thoracic region, provided with two fine black lines from behind the posterior lateral eyes and gradually narrowing to the thoracic furrow as in text-fig. 179 ; thoracic furrow deep and extending both anterior and posterior sides as in text-fig. 179. Ocular quad scarcely longer than wide and slightly wider behind

than in front as in text-fig. 179 ; median eyes subequal in size ; posterior medians slightly closer to each other than to the adjacent laterals. Posterior medians encircled by black rings ; anterior lateral eyes slightly smaller than posterior laterals, lateral eyes close and situated on prominent tubercles ; anterior rows of eyes recurved but posterior row nearly straight as in text-fig. 179. Sternum heart-shaped, pointed behind, brownish, clothed with pubescence and hairs ; labium slightly wider than long, brownish ; maxillae longer than wide, brownish, provided with distinct scopulae. Chelicerae moderate, brownish, having indistinct small boss. Legs long and strong, light yellowish brown, clothed with pubescence, hairs and spines ; femora provided with some fine but strong hairs on ventral side.

Abdomen : Oval, clothed with pubescence and hairs as in text-fig. 179. Dorsum of abdomen provided with a folium composed of chalk white, greyish and dark brownish patches an in text-fig. 179 ; three pairs of distinct sigilla arranged mid-longitudinally on the dorsum. Ventral side greyish brown, a median broad greyish patch guarded by a pair of chalk white bracket shaped patches in between epigastric furrow and spinnerets. Epigyne provided with a broad median septum and a pair of oval lateral swelling as in text-fig. 180. Internal genitalia as in text-fig. 182.

Holotype : Female, *paratype* one female in spirit, deposited in ZSI. Calcutta, Regd. No. 4936-37/18.

Type-locality : Holotype collected from Simla Hills, Simla, Himachal Pradesh, India. Coll. *B. Chopra*, 8.9.1925. *Paratype* one female in spirit, collected from Karcham, Kinnaur, Himachal Pradesh. Coll. *Arun Kumar & party*, 24.6.1975.

Discussion : This species is closely related with *Meta segmentata* (Clerck) but differs as follows : (i) Folium on the dorsum of abdomen is distinct and elliptical in shape, but in *segmentata* it is inconspicuous and broader anteriorly (club shaped). (ii) Epigyne with broad, oval lateral swelling on each side separated by median septum, but in *segmentata* epigyne with lateral swelling not oval and knob like,

Genus 4. **Nephila** Leach

1815. *Nephila* Leach, *Zoological Miscellany*, : 133.
1894. *Nephila* : Simon, *Hist. Nat. Araign.*, 1(3) : 755.
1900. *Nephila* : Pocock, *Fauna Brit. India, Arachn.*, : 217.
1912. *Nephila* : Dahl, *Mitt. zool. Mus. Berl.*, 6 : 27.
1951. *Nephila* : Sinha, *Rec. Indian Mus.*, 49 : 68.
1960. *Nephila* : Chrysanthus, *Nova Guinea, (Zool.)*, 10(3) : 23.
1960. *Nephila* : Yaginuma, *Spiders of Japan, in colour*, : 66.
1962. *Nephila* : Tikader, *J. Linn. Soc.*, 44(300) : 566.
1971. *Nephila* : Chrysanthus, *Zool. Ver. Leiden*, 113 : 41.

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.

Key to the species of the genus **Nephila** Leach

1. Abdomen elongated ; carapace without any strong and stout spines; epigyne having distinct horizontal rim or none.....2
   Abdomen oval (Fig. 183) ; carapace provided with very strong and stout spines with prominent bases (Fig. 183) ; epigyne having distinct semicircular rim (Fig. 184).....*malabarensis*

2. Carapace with one pair of prominent tubercles situated at the posterior end of cephalic region.....3
   Carapace with no such tubercles.....4

3. Abdomen having one pair of sub-median longitudinal yellow lines and numerous small longitudinal pale lines placed laterally (Fig. 188) ; ducts of spermatheca originated dorso-posteriorly (Fig. 190).....*maculata*

Abdomen having single median, broad, longitudinal yellow bar and no small pale lines (Fig. 192) ; ducts of spermatheca originated ventro-posteriorly (Fig. 194)..... *robusta*

4. Carapace provided with a 'V' shaped yellow patch (Fig. 195) ; abdomen yellowish in colour and no dark brown sides (Fig. 195) ; outer surface of spermatheca smooth (Fig. 197)..... *clavata*
Carapace with no yellow patch ; abdomen having single, mid-longitudinal broad yellow bar with dark brown sides (Fig. 199) ; outer surface of spermatheca rough and irregular (Fig. 201)..... *kuhlii*

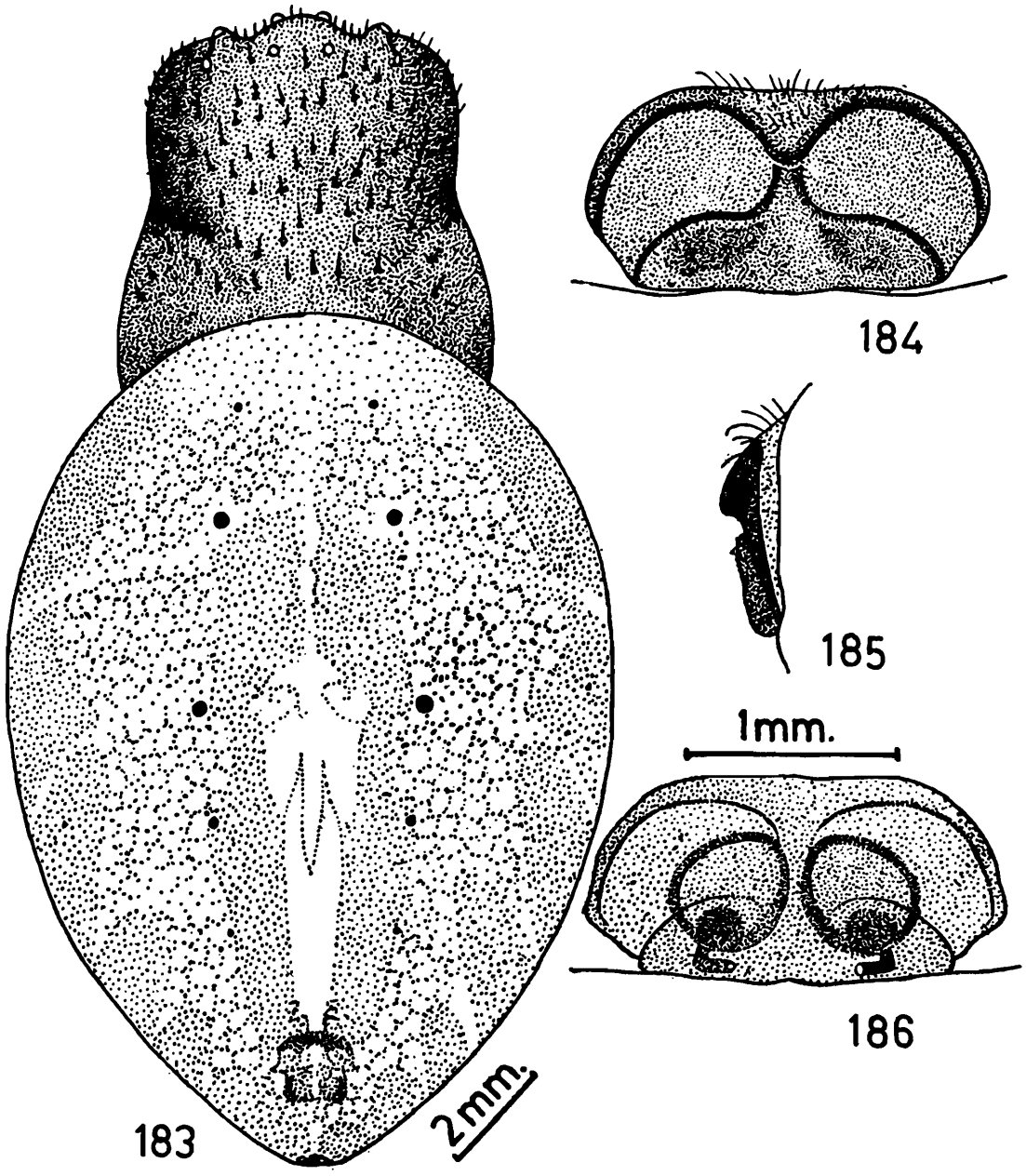
20. **Nephila malabarensis** (Walckenaer)

(Figs. 183-186)

1837. *Epeira malabarensis* Walckenaer, *Hist. Nat. Ins. Apt.*, **1** : 103.
1890. *Nephilengys malabarensis* : Thorell, *Annali. Mus. civ. Genova*, **28** : 188.
1900. *Nephila malabarensis* : Pocock, *Fauna Brit. India, Arachn.*, : 219.
1912. *Nephila (Nephilengys) malabarensis* : Dahl, *Mitt. zool. Mus., Berl.*, **6** : 49, 77.
1951. *Nephila (Nephilengys) malabarensis* : Sinha, *Rec. Indian Mus.*, **49** : 70.
1971. *Nephila (Nephilengys) malabarensis* : Chrysanthus, *Zool. Verh. Leiden*, **113** : 42.
1977. *Metepeira andamanensis* : Tikader, *Rec. zool. Surv. India*, **72** : 181-183.

General : Cephalothorax dark brown, legs brown and yellowish with dark brown patches, abdomen greyish yellow with brownish patches laterally. Total length 21.20 mm. Carapace 8.00 mm. long, 7.00 mm. wide ; abdomen 15.60 mm. long, 11.00 mm. wide.

Cephalothorax : Longer than wide, slightly narrower in front than behind, clothed with hairs and pubescence ; cephalic region elevated than thoracic region, reddish brown and armed with very strong and stout spines as in text-fig. 183 ; thoracic fovea shallow. Ocular quad slightly wider behind than long and narrower in front than behind as in text-fig. 183 ; anterior median eyes slightly larger than posterior medians ; laterals equal in size ; separated



FIGS. 183-186. *Nephila malabarensis* (Walckenaer)
183. Dorsal view of female, legs omitted.
184. Epigyne, ventral view.
185. Epigyne, lateral view.
186. Internal genitalia, dorsal view.

from each other more than three diameters as in text-fig. 183, both rows of eyes recurved but posterior row very narrowly recurved as in text-fig. 183. Sternum heart-shaped, pointed behind, yellowish with dark brown sides, clothed with hairs ; labium longer than wide, yellowish with dark brown sides ; maxillae elongated, much broad distally, dark brown with pale

borders, provided with distinct scopulae. Chelicerae very strong and stout, dark brown, provided with prominent boss. Legs short and strong, clothed with hairs and spines ; tarsi and metatarsi together longer than patellae and tibiae ; coxae, patellae, metatarsi and tarsi brownish ; femora and tibiae yellowish with dark brown ends.

Abdomen : Oval, longer than wide, clothed with short hairs, moderately overlapping on the carapace as in text-fig. 183. Dorsum of abdomen having some brownish patches laterally and five pairs of sigilla arranged mid-longitudinally as in text-fig. 183. Ventral side ornamented with two pairs of yellow patches in between epigastric furrow and spinnerets. Epigyne heavily sclerotised, having a distinct median septum anteriorly bent as beak like as in text-figs. 184 & 185. Internal genitalia as in text-fig. 186.

Distribution: INDIA : Bombay, Maharashtra ; Ootacamund, Tamil Nadu ; Trivandrum, Kerala ; Chota Nagpur, Purulia, Bihar ; Andaman and Nicobar Islands. BURMA : Moulmein. SRI LANKA : Punduloya, Peradeniya, Trinomali. Malaya Peninsula, THAILAND. NEW GUINEA. AUSTRALIA.

Remarks : Description and illustrations are based on one identified specimen which was described as *Metepeira andamanensis* Tikader. But having compared it with an authenticated identified specimen of *Nephila malabarensis* (Walckenaer) deposited at Z.S.I., Calcutta, Regd. No. 2321/18, I found that *M. andamanensis* is a synonym to *N. malabarensis.*

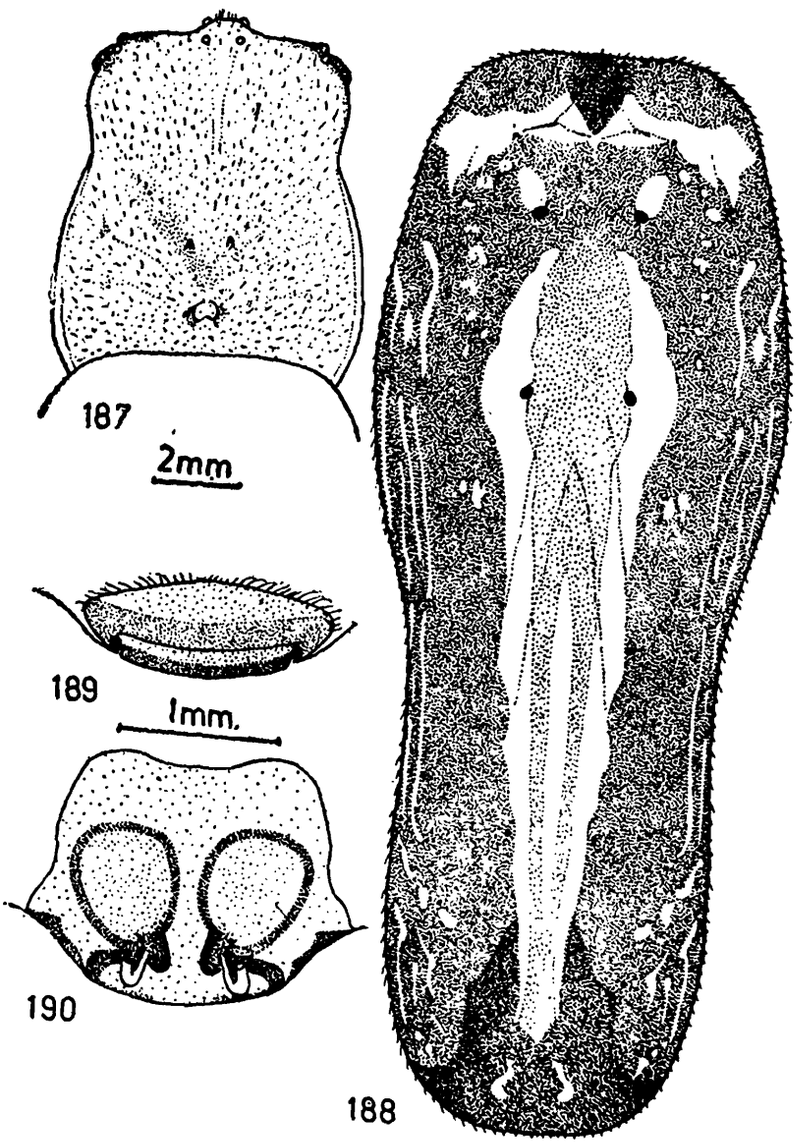
21. **Nephila maculata** (Fabricius)

(Figs. 187-190)

1793. *Aranea maculata* Fabricius, *Ent. Syst.*, 2 : 425.
1881. *Aranea maculata* : Thorell, *Annali. Mus. civ. Genova*, 17 : 145.
1900. *Nephila maculata* : Pocock, *Fauna Brit. India, Arachn.*, : 217.
1912. *Nephila (Nephila) maculata* : Dahl, *Mitt. zool. Mus. Berl.*, 6 : 52-54.
1922. *Nephila maculata* : Gravely, *J. Bombay nat. Hist. Soc.*, 28 : 1046.
1951. *Nephila (Nephila) maculata* : Sinha, *Rec. Indian Mus.*, 49 : 68.
1962. *Nephila maculata* : Tikader, *J. Linn. Soc.*, 44(300) : 567.
1971. *Nephila maculata* : Chrysanthus, *Zool. Verh. Leiden*, 113 : 41.
1975. *Nephila maculata* : Patel, *Vidya, J. Gujarat Univ.*, 18(1) : 157.

General : Cephalothorax and legs deep brown, abdomen olive-greyish with yellowish and brownish patches. Total length 37.40 mm. Carapace 10.80 mm. long, 8.20 mm. wide ; abdomen 28.40 mm. long, 11.00 mm. wide.

Cephalothorax : Longer than wide, densely clothed with silky yellowish small pubescence, slightly narrower in front ; cephalic region higher than thoracic region and provided with a pair of



FIGS. 187-190. *Nephila maculata* (Fabricius)

178. Dorsal view of cephalothorax of female, legs omitted.
188. Dorsal view of abdomen of female.
189. Epigyne, ventral view.
190. Internal genitalia, dorsal view.

sharp tubercles posteriorly ; thoracic region rather flat with a deep circular fovea. Ocular quad nearly as long as wide, slightly narrower in front than behind as in text-fig. 187 ; median eyes equal in size ; laterals small and subequal in size, close, situated on prominent tubercles ; both rows of eyes slightly recurved as in text-fig. 187. Sternum heart-shaped, pointed behind, having a tubercle anteriorly, deep brown, clothed with hairs ; labium longer than wide, deep brown with yellowish distal margin ; maxillae elongated and much broader distally, dark brown, with yellowish outer margins, provided with distinct scopulae. Chelicerae very strong and stout, dark brown, provided with prominent boss. Legs very long and strong, clothed with hairs and spines ; tarsi and metatarsi together larger than patellae and tibiae together ; coxae of legs and proximal half of palpus yellowish ventrally.

Abdomen : Long and cylindrical, clothed with hairs ; slightly over-lapping on the carapace as in text-fig. 188. Dorsum of abdomen with a pair of mid-longitudinal yellowish lines as in text-fig. 188, also decorated with other yellowish patches, laterally some weavy yellowish lines, posteriorly brownish. Five pairs of distinct sigilla arranged mid-longitudinally on the dorsum. Ventral side provided with a broad longitudinal olive-brown patch in between epigastric furrow and spinnerets ; some yellowish patches laterally ; around the spinnerets reddish in colour. Epigyne heavily sclerotised, having a transverse concave groove with a distinct ridge anteriorly as in text-fig. 189. Internal genitalia as in text-fig. 190.

Distribution : INDIA : Trinnevelly, Trivandrum, Ootacamund, Tamil Nadu ; Karnataka ; Dehra Dun, Hardwar, U.P. ; M.P. ; Tezpur, Darrang, Assam ; Gazing, Rongli, Sikkim ; Kalimpong, Darjeeling, West Bengal ; Thana, Poona, Maharashtra ; Dangs, Gujarat ; Andaman & Nicobar Islands. BURMA : Therrawaddy, Tounghoo, Rangoon. SRI LANKA : Peradeniya, Trincomali. CHINA. AUSTRALIA, MALAYSIA, JAPAN. NEW GUINEA.

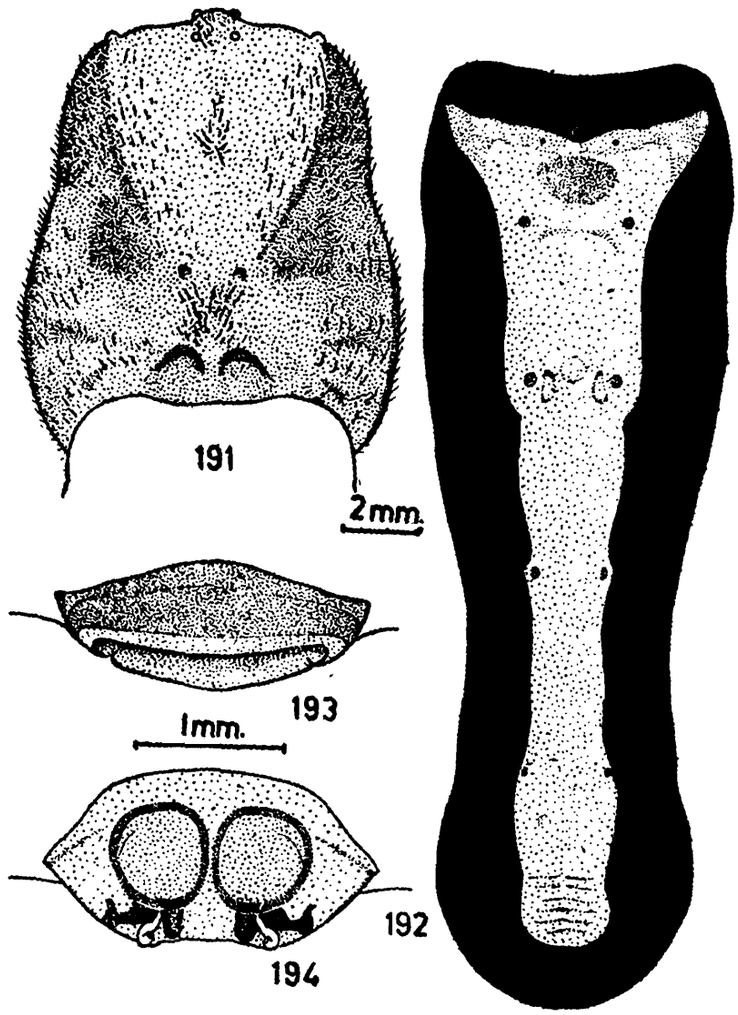
Remarks : Illustrations and description are based on an authenticated identified specimen, deposited in Zoological Survey of India, Western Regional Station, Poona, Regd. No. Ar/109.

22. **Nephila robusta** Tikader

(Figs. 191-194)

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

General : Cephalothorax and legs reddish brown, abdomen dark brown with a median, broad, longitudinal greyish yellow patch. Total length 38.15 mm. Carapace 13.80 mm. long, 10.80 mm. wide ; abdomen 26.65 mm. long, 9.00 mm. wide.



FIGS. 191-194. *Nephila robusta* Tikader

191. Dorsal view of cephalothorax of female, legs omitted.
192. Dorsal view of abdomen of female.
193. Epigyne, ventral view.
194. Internal genitalia, dorsal view.

Cephalothorax : Longer than wide, slightly narrowing in front than behind, clothed with brown pubescence and a longitudinal row of large hairs from centre of ocular quad to middle of cephalic region ; cephalic region distinctly elevated than thoracic region and unlike *kuhlii* Doleschall, provided with a pairs of distinct tubercles posteriorly as in text-fig. 191. Ocular quad nearly as long as wide behind and slightly narrower in front than behind as in text-fig. 191 ; median eyes equal in size ; laterals also equal in size but slightly smaller than medians, close, anterior laterals not visible from above ; anterior row of eyes moderately recurved as seen from in front, but posterior row very narrowly recurved as seen form above as in text-fig. 191. Sternum heart-shaped, pointed behind, reddish brown, clothed with pubescence and hairs ; labium distinctly elongated than wide, dark brown with yellowish distal border ; maxillae elongated and much broader distally, reddish brown with yellowish outer margins, provided with distinct scopulae. Chelicerae very strong and stout, reddish brown, having prominent boss. Legs very long and strong, clothed with pubescence hairs and spines ; tarsi and metatarsi together longer than patellae and tibiae together ; coxae III & IV having yellowish patch ventrally on distal half.

Abdomen : Long and cylindrical, clothed with hairs ; slightly overlapping on carapace. Dorsum of abdomen having a mid-longitudinal greyish yellow patch, broad anteriorly and gradually narrowing posteriorly as seen in text-fig. 192 ; four pairs of distinct sigillae on the dorsum. Ventral side dark brown. Epigyne heavily sclerotised ; like *maculata* (Fabricius) and *kuhlii* Dolschall, the epigyne provided with a transverse concave groove with a distinct ridge as in text-fig. 193. Internal genitalia as in text-fig. 194 ; and quite different from that of *maculata* and *kuhlii*.

Distribution : INDIA : Gobardanga (*Type-locality*) 24 parganas, West Bengal.

Remarks : Description and illustrations are based on Holotype, deposited at Z.S.I., Calcutta, Regd. No. 2566/18.

23. **Nephila clavata** L. Koch

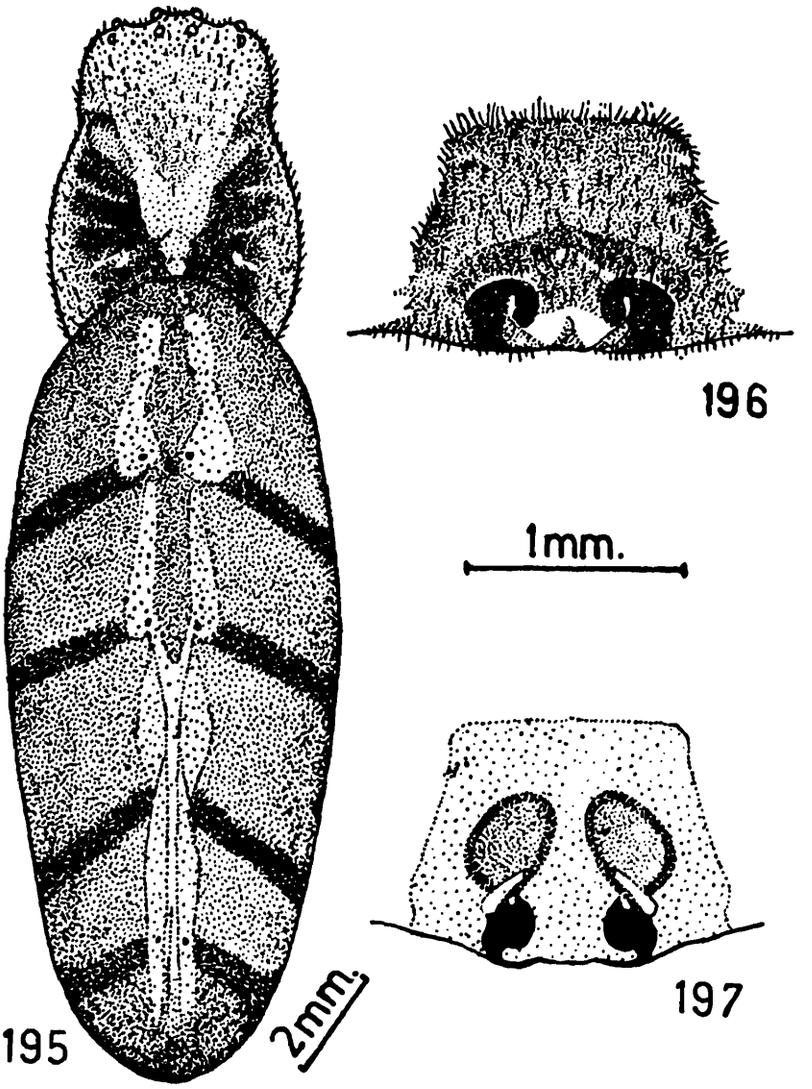
(Figs. 195-197)

1878. *Nephila clavata* L. Koch, *Verh. zool.-bot. Ges. Wien.*, 27 : 741.
1898. *Nephila limbata* : Thorell, *Annali. Mus. civ. Genova*, 39 : 335.
1900. *Nephila clavata* : Pocock, *Fauna Brit. India, Arachn.*, : 218.
1906. *Nephila obnubilla* : Simon, *Annls. Soc. ent. Fr.*, 75 : 308.
1906. *Nephila clavata* : Bosenberg & Strand, *Abh. senckenb. nat. urforsch. Ges.*, 30(1-2) : 190.
1912. *Nephila* (*Trichonephila*) *clavata* : Dahl, *Mitt. zool. Mus. Berl.*, 6(1) : 35.
1933. *Nephila clavata* : Saito, *Tr. Sapporo nat. Hist. Soc.*, 13(1) : 32-61.
1951. *Nephila* (*Trichonephila*) *clavata* : Sinha, *Rec. Indian Mus.*, 49 : 69.
1970. *Nephila clavata* : Tikader, *Rec. zool. Surv. India*, 64(1-4) : 46.

General : Cephalothorax and legs brown, abdomen yellowish. Total length 20.20 mm. Carapace 6.70 mm. long, 4.70 mm. wide ; abdomen 15.25 mm. long, 6.30 mm. wide.

Cephalothorax : Longer than wide, densely clothed with yellowish pubescence, slightly narrower in front ; cephalic region provided with 'V' shaped yellowish patch posteriorly and lighter in colour than thoracic region as in text-fig. 195 ; no tubercle in cephalic region ; thoracic region dark brown in colour with shallow fovea. Ocular quad as long as wide behind and slightly narrower in front than behind ; median eyes equal in size ; laterals subequal in size, a little away from each other and situated on prominent tubercles ; both rows of eyes slightly recurved as in text-fig. 195. Sternum triangular, rather elongated, pointed behind, dark brown with a T-shaped yellowish patch, clothed with pubescence and hairs ; labium distinctly elongated than wide, dark brown with pale distal border ; maxillae broader distally, dark brown with pale outer margins, provided with distinct scopulae. Chelicerae strong and stout, reddish brown with moderate boss. Legs very long and strong, clothed with hairs and spines ; tarsi and metatarsi together longer than patellae and tibiae together ; femora and tibiae with yellowish transverse patches in the middle.

Abdomen : Elongated, clothed with hairs, slightly overlapping on the carapace. Dorsum of abdomen yellowish with five pairs



FIGS. 195-197. *Nephila clavata* L. Koch

195. Dorsal view of female, legs omitted.

196. Epigyne, ventral view.

197. Internal genitalia, dorsal view.

of sigillae arranged mid-longitudinally as in text-fig. 195. Ventral side olive brown with some yellowish patches. Epigyne plate like as in text-fig. 196. Internal genitalia as in text-fig. 197.

Distribution : INDIA : Darjeeling, West Bengal ; Shillong, Meghalaya ; Gazing, Sikkim ; Andaman & Nicobar Islands ; Laccadive Island. BHUTAN. BURMA : Namkham. THAILAND : Lampam. PAKISTAN : Baluchistan. JAPAN. CHINA. FORMOSA.

Remarks : Description and illustrations are based on one authenticated identified specimen, deposited in Zoological Survey of India, Western Regional Station, Poona, Regd. No. Ar/324.

24. **Nephila kuhlii** Doleschall

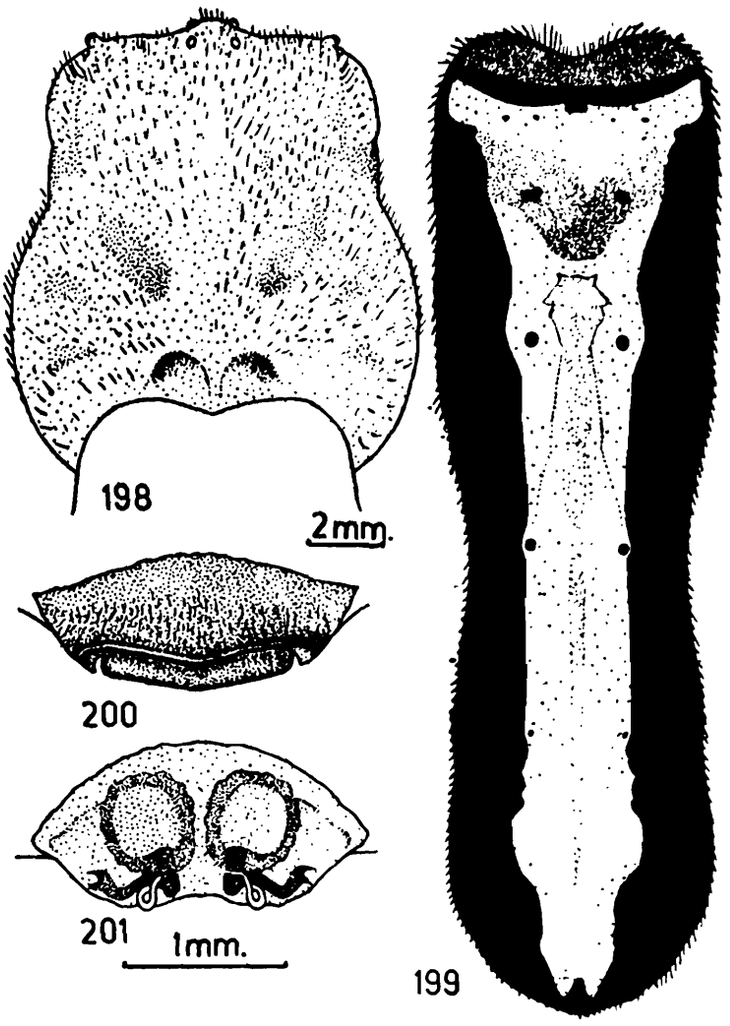
(Figs. 198-201)

1859. *Nephila kuhlii* Doleschall, *Acta. Soc. Ind. Neerl.*, 5(5) : 27.
1900. *Nephila kuhlii* : Pocock, *Fauna Brit. India, Arachn.*, : 218.
1962. *Nephila kuhlii* : Tikader, *J. Linn. Soc.*, 44(300) : 567.

General : Cephalothorax reddish brown, legs yellowish with reddish shades and patches. Total length 35.55 mm. Carapace 12.25 mm. long, 10.70 mm. wide; abdomen 25.25 mm. long, 7.65 mm. wide.

Cephalothorax : Longer than wide, slightly narrowing in front than behind, clothed with pubescence and a few large hairs as in text-fig. 198, cephalic region distinctly elevated than thoracic region but not provided with any tubercles ; thoracic region provided with a moderately deep fovea as in text-fig. 198. Ocular quad wider behind than long and slightly narrower in front than behind as in text-fig. 198, median eyes equal in size ; laterals also equal in size but slightly smaller than medians, close, anterior laterals not seen from above ; anterior row of eyes moderately recurved as seen from in front, but posterior row very narrowly recurved as seen from above as in text-fig. 198. Sternum heart-shaped, pointed behind, dark brown, clothed with pubescence and hairs ; labium distinctly elongated than wide, dark brown ; maxillae elongated and much broader distally, reddish brown with yellow outer margins, provided with distinct scopulae. Chelicerae very strong and stout, reddish brown, provided with distinct boss. Legs very long and strong, clothed with pubescence, hairs and strong spines ; tarsi and metatarsi together longer than patellae and tibiae together.

Abdomen : Long and cylindrical, clothed with hairs ; slightly overlapping on carapace. Dorsum of abdomen provided with a mid-longitudinal greyish yellow patch as in text-fig. 199 ; four pairs of distinct sigilla on the dorsum. Ventral side dark brown.



FIGS. 198-201. *Nephila kuhlii* Doleschall

198. Dorsal view of cephalothorax of female, legs omitted.

199. Dorsal view of abdomen of female.

200. Epigyne, ventral view.

291. Internal genitalia, dorsal view.

Epigyne strongly chitinised; like *maculata* (Fabricius) and *robusta* Tikader, the epigyne having a transverse concave groove with a distinct ridge as in text-fig. 200. Internal genitalia as in text-fig. 201 and quite different from that of *maculata* and *robusta.*

Distribution : INDIA : Gobardanga, 24 Parganas ; Darjeeling, West Bengal. BURMA : Bhamo, and eastwards to Celebes.

Remarks : Description and illustrations are made on the basis of one authenticated identified specimen, deposited at Z.S.I., Calcutta, Regd. No. 2464/18.

Genus 5. **Herennia** Thorell

1877. *Herennia* Thorell, *Annali. Mus. civ. Genova*, **10** : 370.
1894. *Herennia* : Simon, *Hist. Nat. Araign.*, 1(3) : 759.
1900. *Herennia* : Pocock, *Fauna Brit. India, Arachn.*, : 219.
1951. *Herennia* : Sinha, *Rec. Indian Mus.*, **49** : 70.
1971. *Herennia* : Chrysanthus, *Zool. Verh. Leiden*, **113** : 41.

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 sub-equal 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 radially arranged lines of spots.

Type-species : *Herennia ornatissima* (Doleschall)

Distribution : India, Sri Lanka, Malaysia.

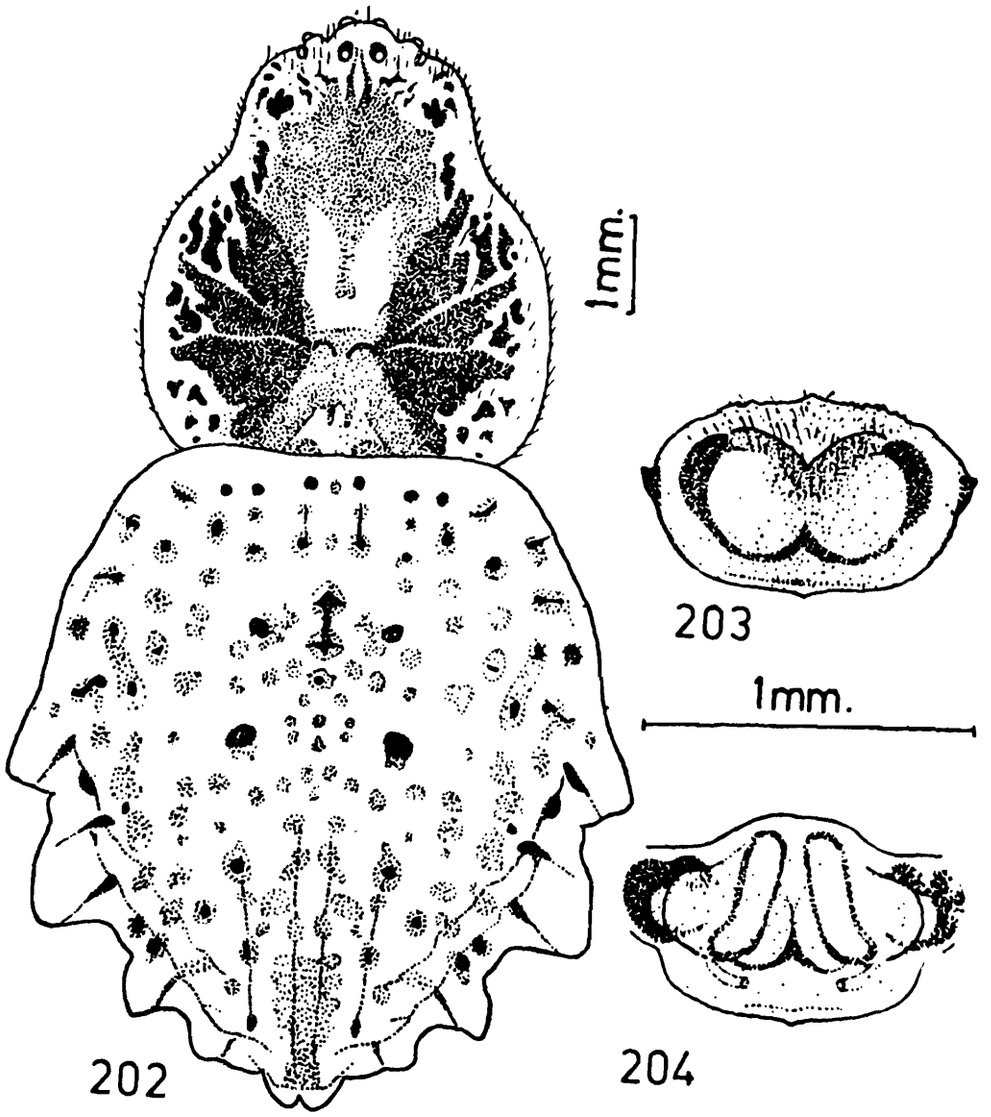
25. **Herennia ornatissima** (Doleschall)

(Figs. 202-204)

1859. *Epeira ornatissima* Doleschall, *Act. Soc. Ind. Neerl.*, 5 : 32.
1869. *Epeira mammillaris* : Stoliczka, *J. Asiat. Soc. Beng.*, **38** : 236.
1877. *Herennia multipunctata*: Thorell. *Annali, Mus. civ. Genova*, **10**: 371.
1894. *Herennia ornatissima* : Simon, *Hist. Nat. Araign.*, 1(3) : 759.
1900. *Herennia ornatissima* : Pocock, *Fauna Brit. India, Arachn.*, : 219.

General : Cephalothorax brownish with yellowish white patches, legs yellowish with brownish patches, abdomen greyish white. Total length 12.00 mm. Carapace 5.30 mm. long, 4.70 mm. wide ; abdomen 7.20 mm. long, 7.20 mm. wide.

Cephalothorax : Longer than wide, flat, narrowing in front, clothed with pubescence and hairs ; cephalic region light brown



FIGS. 202-204. *Herennia ornatissima* (Doleschall)
202. Dorsal view of female, legs omitted.
203. Epigyne, ventral view.
204. Internal genitalia, dorsal view.

with a U-shaped yellowish white patch as in text-fig. 202, thoracic region provided with dark brown patches and yellowish sides, having a transverse groove as in text-fig. 202. Ocular quad as long as wider behind and slightly wider behind than in front as in text-fig. 202 ; anterior median eyes larger than posterior medians ; lateral eyes subequal in size, close and situated on prominent tubercles ; anterior row of eyes recurved and posterior row nearly straight as in text-fig. 202. Sternum heart-shaped, broad

anteriorly, but not pointed posteriorly, orange-yellowish, clothed with hairs ; labium longer than wide, orange-yellowish ; maxillae longer than wide, orange-yellowish, provided with distinct scopulae. Chelicerae strong and stout, light brownish, provided with moderate boss. Legs long and slender, clothed with hairs and spines ; patellae, tarsi and metatarsi brownish.

Abdomen : Flat, lobate, having four pairs of lateral lobes as in text-fig. 202, clothed with hairs. Dorsum of abdomen provided with numerous greyish specks with distinct centres, five pairs of distinct sigilla arranged mid-longitudinally and a few longitudinal lines posteriorly as in text-fig. 202. Ventral side provided with one median broad yellowish patch with a large black spot in the centre in between epigastric furrow and spinnerets. Epigyne plate like with a thin median septum as in text-fig. 203. Internal genitalia as in text-fig. 204.

Distribution : INDIA : Trivandrum, Ootacamund, Tamil Nadu ; Shillong, Meghalaya ; Punda, Goa. SRI LANKA : Peradeniya, Kanthalai. BURMA : Tharrawaddy, Rangoon, Tenasserim. AUSTRO-MALAYSIA.

Remarks : Due to want of the type-specimen, the description and illustrations are based on identified specimen collected from Shillong, Meghalaya, India.

Genus 6. Gea C. L. Koch

1843. *Gea* C. L. Koch, *Die Arachniden,* **10** : 101.
1872. *Ebaea* : L. Koch, *Die Arachniden Australiens,* **1872** : 130.
1968. *Gea* : Levi, *Bull. Mus. comp. Zool. Harv.*, **136**(9) : 322.
1971. *Gea* : Chrysanthus, *Zool. Verh. Leiden,* **113** : 18.

Characters : Carapace with moderately convex cephalic region. Ocular quad forms a trapezium, wider behind than in front ; eyes of anterior row evenly spaced or medians close to laterals than to each other ; posterior medians larger than anterior medians ; anterior laterals smallest and not seen from above. Chelicerae small, weak and having small boss. Legs moderately long, metatarsi and tarsi together longer than patellae and tibiae

together. In male, tibia I curved and armed with macrosetae (spines) unlike that of *Argiope*. Adult female smaller than 6 mm.

Type-species : *Gea heptagon* (Hentz)

Distribution : ASIA, AMERICA.

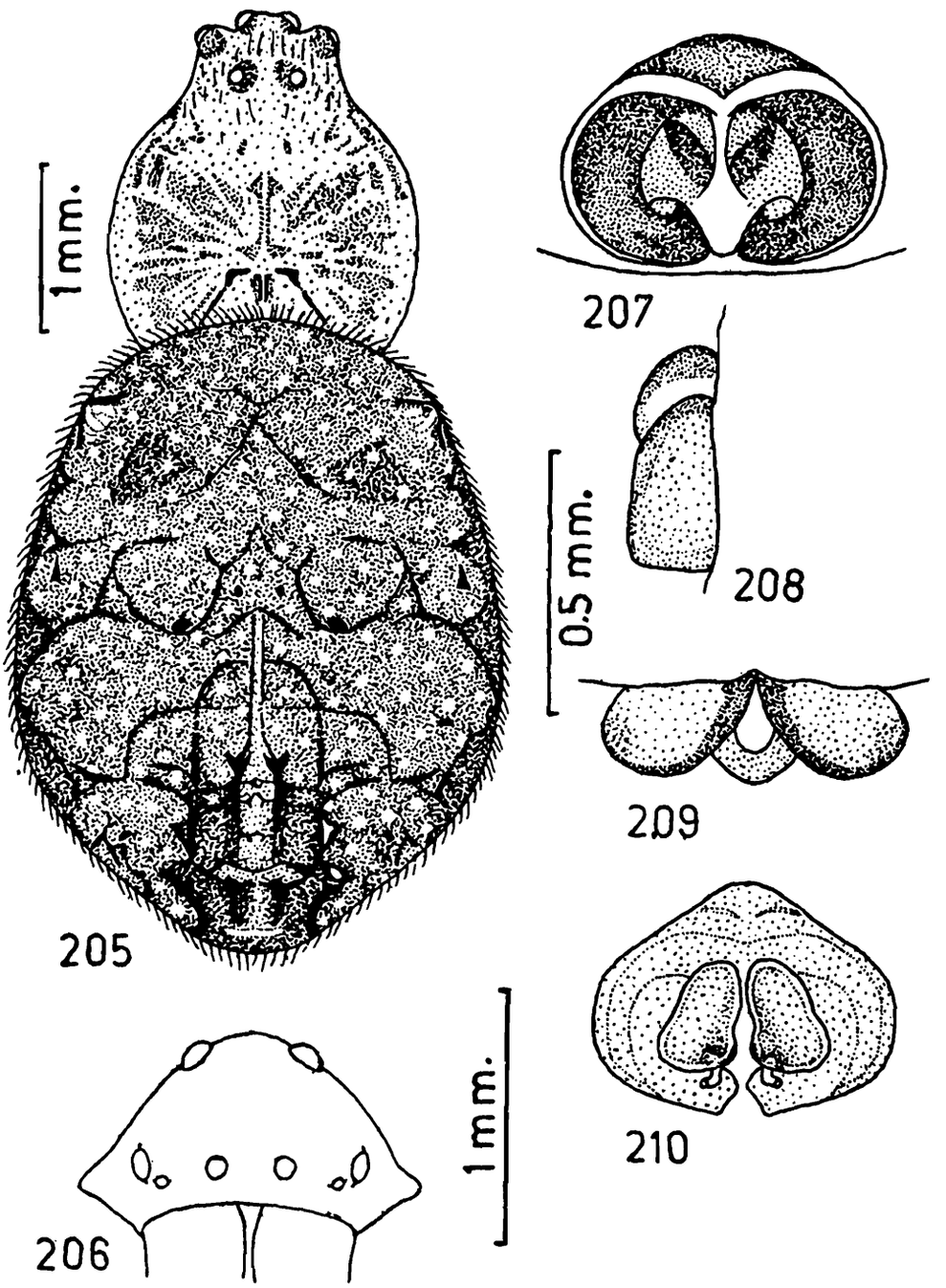
26. **Gea corbetti** sp. nov.

(Figs. 205-210)

General : Cephalothorax light brown, legs yellowish brown, abdomen greyish with chalk white spots. Total length 5.60 mm. Carapace 2.10 mm. long, 1.80 mm. wide ; abdomen 3.70 mm. long, 2.90 mm. wide.

Cephalothorax : Larger than wide, narrowing in front, clothed with hairs ; cephalic region lighter in colour and high up at the posterior median eye portion ; thoracic region provided with blackish shades and a longitudinal groove as in text-fig. 205. Ocular quad much longer than wide and slightly wider behind than in front as in text-figs. 205 & 206 ; posterior medians situated on prominent black rings as in text-fig. 205 ; anterior lateral eyes much smaller than posterior laterals as in text-fig. 206 ; eyes of anterior row equally spaced as in text-fig. 206 ; anterior row of eyes slightly procurved as seen from in front as in text-fig. 206 and posterior row strongly procurved as seen from above as in text-fig. 205. Sternum heart-shaped, pointed behind, dark brownish with a median longitudinal chalk white patch, laterally three pairs light brown ridges, clothed with hairs ; labium wider than long, pale with deep brown proximal portion ; maxillae broad, yellowish, provided with distinct scopulae. Chelicerae small and weak, yellowish, having small boss. Legs moderately long, yellowish with indistinct brownish patches, clothed with hairs and spines, femur I provided with indistinct longitudinal patch on ventral side.

Abdomen : Roughly pentagonal, having one pair of small humps anteriorly on the dorsum as in text-fig. 205, broadest behind the middle, clothed with hairs. Dorsum of abdomen greyish with numerous scattered chalk white small spots and some brownish lines as in text-fig. 205. Ventral side having a broad median brown patch, laterally guarded by chalk white patches between epigastric



FIGS. 205-210. *Gea corbetti* sp.nov.

205. Dorsal view of female, legs omitted.
206. Front view of face of female.
207. Epigyne, ventral view.
208. Epigyne, lateral view.
209. Epigyne, posterior view.
210. Internal genitalia, dorsal view.

furrow and spinnerets. Epigyne with thin median septum as in text-fig. 207-209. Internal genitalia as in text-fig. 210.

Holotype : Female, *paratype* fourteen females in spirit, deposited in Z.S.I., Calcutta, Regd. No. 4938-39/18.

Type-locality : Corbett National Park, Dhikala, Dist. Pauri, U.P., India. Coll. *Asket Singh*, 1.12.1971.

Discussion : This species having some similarities with *Gea heptagon* (Hentz) but differs as follows : (i) Abdomen is provided with one pair of humps anteriorly on the dorsum, but in *heptagon* three pairs of humps or tubercles are present. (ii) Epigyne with large semicircular opening on each side and a distinct but thin median septum, in *heptagon* epigynal openings are not semicircular and the median septum is thick and broad. (iii) Anteriorly the epigyne is convex, but in *heptagon* it is concave. (iv) Ducts of spermatheca are very short, but in *heptagon* ducts are long and bent upward.

Genus 7. Argiope Audouin

1826. *Argyope* Audouin, *in* Savigny, *Descriptions de l'Egypte.*, 1(4) : 121.
1829. *Argyopes* : Latreille, *Les Arachnides, Regne Animal*, 4 : 248.
1895. *Argiope* : Simon, *Hist. Nat. Araign.*, 1(4) : 769.
1900. *Argyope* : Pocock, *Fauna Brit. India, Arachn.*, : 220.
1903. *Metargyope* : F. O. P. Cambridge, *Biologia cent.-am. (Zool)*, 2 : 451.
1921. *Argiope* : Gravely, *Rec. Indian Mus.*, 22 : 412.
1935. *Argiope* : Dyal, *Bull. Zool. Panjab Univ.*, 1 : 189.
1951. *Argiope* : Sinha, *Rec. Indian Mus.*, 49 : 71.
1960. *Argiope* : Yaginuma, *Spiders of Japan, in colour.* : 60.
1968. *Argiope* : Levi, *Bull. Mus. comp. Zool. Harv.*, 136(9) : 328.
1970. *Argiope* : Tikader, *Rec. zool. Surv. India*, 64(1-4) : 27.
1971. *Argiope* : Chrysanthus, *Zool. Verh. Leiden*, 113 : 9.

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 lobata* (Thorell)

Distribution : Tropical and temperate countries of the world.

Key to the species of the genus **Argiope** Audouin

1. Abdomen provided with a caudal process.....2
   Abdomen not provided with any caudal process.....3

2. No lateral lobes on the abdomen ; coxae and trochanter or 3rd and 4th legs unspined ; epigyne provided with a broad conspicuous rim and median epigynal septum much broad (Figs. 212 & 213).....*lalita*
   Three pairs of conspicuous lateral lobes on the abdomen ; coxae and trochanter or 3rd and 4th legs spined ; epigyne not provided with any rim and median epigynal septum rather thin (Figs. 216 & 217).....*arcuata*

3. Abdomen neither pentagonal nor oval, but having inconspicuous lateral lobes (Fig. 219) ; median epigynal septum thin as seen from ventral side (Fig. 220).....*shillongensis*
   Abdomen oval or pentagonal with no lateral lobes ; median epigynal septum not thin as seen from ventral side.....4

4. Abdomen oval.....5
   Abdomen pentagonal.....7

5. Abdomen broadly oval and conspicuously truncated anteriorly (Fig. 223) ; dorsum provided with black transverse stripes and forming a net work on the posterior half (Fig. 223).....*aemula*
   Abdomen elongated oval with no truncation anteriorly, dorsum with no net work of black stripes.....6

6. Abdomen anteriorly blunt (Fig. 227) ; dorsum with a median longitudinal portion clothed with silky pubescence and some yellowish patches (Fig. 227).....*catenulata*

Abdomen not blunt anteriorly ; dorsum with no pubescence portion and yellow patches, but nine distinct transverse brown stripes (Fig. 231).....*pradhani*

7. Abdomen broadest at the middle (Fig. 235) ; median epigynal septum very broad as seen from ventral side (Fig. 236).....*kalimpongensis*
Abdomen broadest, more posteriorly than middle ; median epigynal septum not broad.....8

8. Anterior edge of the epigyne provided with a broad and conspicuous lip (Fig. 240) ; median epigynal septum abruptly wide posteriorly (Fig. 240).....*anasuja*
Anterior edge of the epigyne provided with very thin and inconspicuous lip (Fig. 244) ; median epigynal septum gradually wider posteriorly (Fig. 244).....*pulchella*

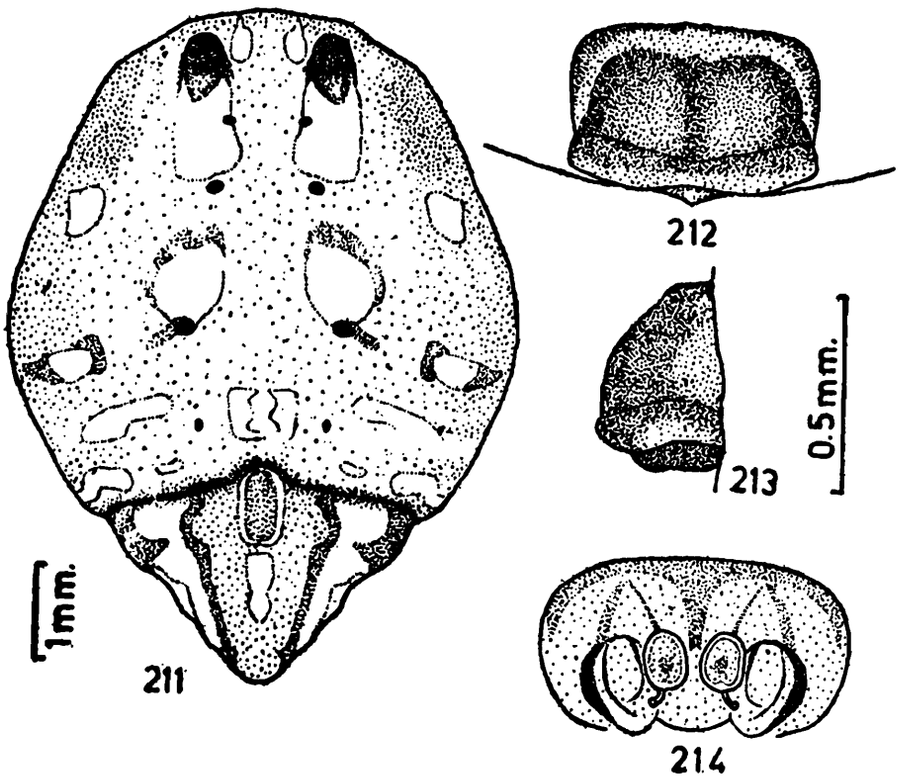
27. **Argiope lalita** Sherriffs

(Figs. 211-214)

1928. *Argiope lalita* Sherriffs, *Ann. Mag. nat. Hist.*, (10)2(8) : 186.
1951. *Argiope lalita* : Sinha, *Rec. Indian Mus.*, 49 : 74.

General : Cephalothorax, legs and abdomen dark brownish. Total length 9.30 mm. Carapace 3.40 mm. long, 2.80 mm. wide, abdomen 7.40 mm. long, 5.50 mm. wide.

Cephalothorax : Nearly as long as wide, narrowing in front, clothed with white pubescence ; cephalic region slightly elevated than thoracic region. Ocular quad as long as wide, much wider behind than in front, posterior medians slightly larger than the anterior medians ; posterior medians encircled by black rings ; anterior row of eyes slightly recurved as seen from in front but posterior row slightly procurved as seen from above ; lateral eyes close and situated on a moderately prominent tubercle. Sternum heart-shaped, pointed behind, brownish in colour, clothed with pubescence and hairs, provided with a median chalk white patch ; labium as long as wide, dark brown with pale distal border ; maxillae broad, roughly pentagonal, dark brown with pale outer margins, provided with distinct scopulae. Chelicerae small and



FIGS. 211-214. *Argiope lalita* Sherriffs
211. Dorsal view of abdomen of female.
212. Epigyne, ventral view.
213. Epigyne, lateral view.
214. Internal genitalia, dorsal view.

weak, brownish, provided with rudimentary boss. Legs moderately long and moderately strong, proximal ends of femora with pale patches, tibiae with irregular pale patches, clothed with pubescence, hairs and spines.

Abdomen : Oval, but pointed posteriorly as a caudal process as in text-fig. 211, clothed with pubescence and hairs. Dorsum of abdomen provided with a pair of small humps at the anterior end and decorated with chalk white patches as in text-fig. 211. Five pairs of sigillae on the dorsum. Ventral side of abdomen with a pair of longitudinal chalk white bands extending from epigastric furrow to beyond the spinnerets. Epigyne as in text-figs. 212 & 213. Internal genitalia as in text-fig. 214.

Distribution: INDIA: Shimoga, Karnataka; Salt Lake, Calcutta, West Bengal.

Remarks: Since author could not get the type-specimen, the description and illustrations have been based on authenticated identified specimen, deposited at Z.S.I., Calcutta, Regd. No. 2334/18.

28. **Argiope arcuata** Simon

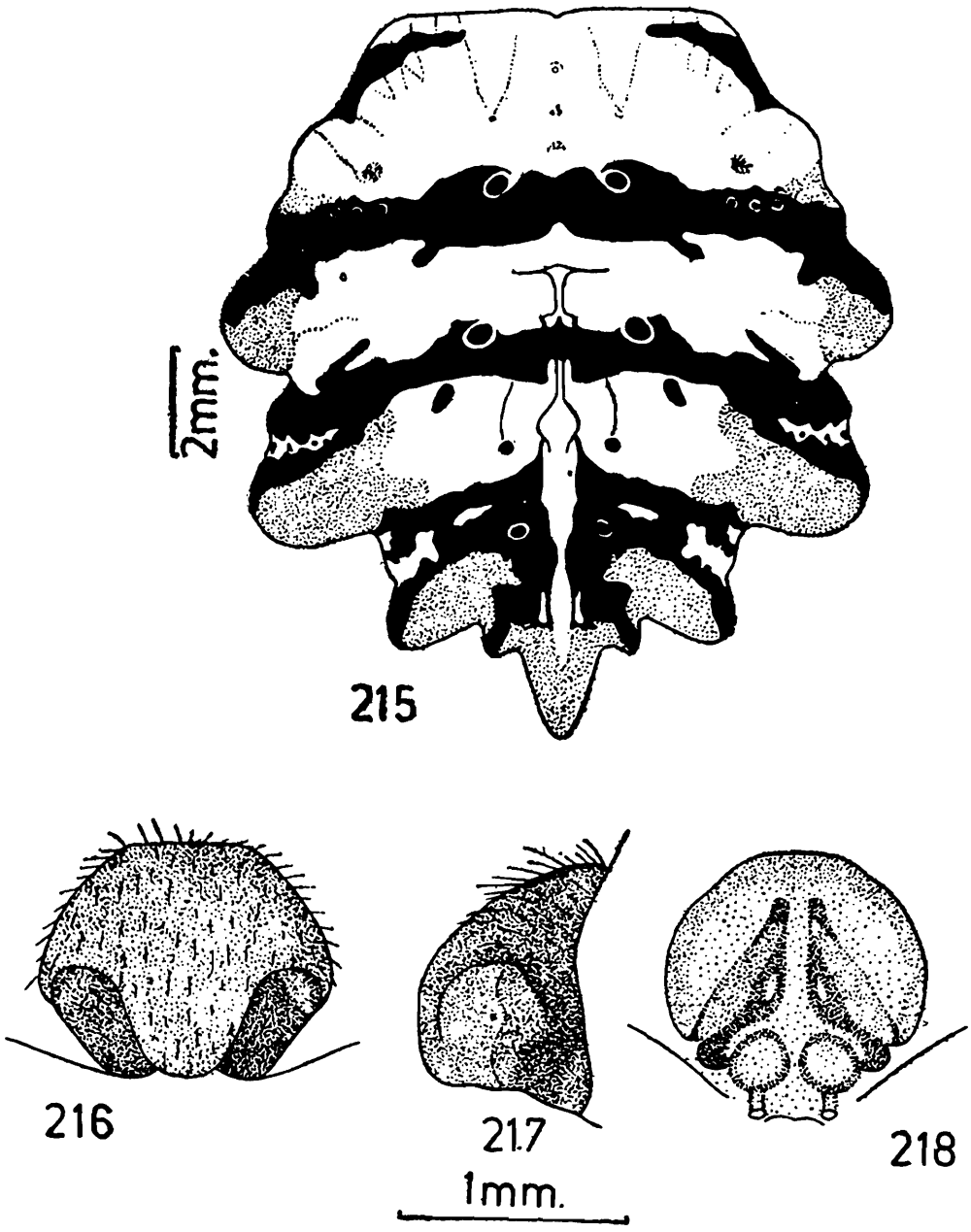
(Figs. 215-218)

1884. *Argyope arcuata* Simon, *Annali. Mus. civ. Genova,* **20** : 343.
1887. *Argyope arcuata* : Thorell, *Annali. Mus. civ. Genova,* **25** : 160.
1900. *Argyope arcuata* : Pocock, *Fauna Brit. India, Arachn.,* : 220
1951. *Argiope arcuata* : Sinha, *Rec. Indian Mus.,* **49** : 72.
1963. *Argiope arcuata* : Tikader, *J. Univ. Poona, Sci. & Tech.,* **24** : 40.

General : Cephalothorax greyish, legs olive brownish, abdomen greyish white. Total length 19.10 mm. Carapace 7.50 mm. long, 5.70 mm. wide ; abdomen 13.40 mm. long, 12.70 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, clothed with thick layer of silky white pubescence ; cephalic region slightly elevated than thoracic region. Ocular quad much longer than wide and slightly wider behind than in front ; both the median eyes subequal in size ; posterior medians encircled by black rings ; laterals close and each situated on tubercle ; anterior laterals smaller than the posterior laterals ; anterior row of eyes procurved as seen from above. Sternum heart-shaped, pointed behind, clothed with pubescence and hairs, brownish in colour, provided with a median yellowish patch having lateral elongations ; labium wider than long, brownish with pale distal border ; maxillae roughly pentagonal, brownish with pale outer margins, provided with distinct scopulae. Chelicerae small and weak, yellowish olive in colour, provided with rudimentary boss. Legs long and strong, clothed with spines and hairs ; 3rd coxa, trochanter, femur and 4th femur spinulose.

Abdomen : Broad, provided with three pairs of large lateral lobes and one median tail like lobe at the posterior end as in text-fig. 215, clothed with silver white pubescence. Dorsum of abdomen greyish white with transverse black patches as in text-fig. 215 ; provided with four pairs of conspicuous sigilla. Ventral side dirty brown in colour, provided with a U-shaped yellowish



FIGS. 215-218. *Argiope arcuata* Simon
215. Dorsal view of abdomen of female.
216. Epigyne, ventral view.
217. Epigyne, lateral view.
218. Internal genitalia, dorsal view.

patch extending from epigastric furrow to beyond the spinnerets. Epigyne as in text-figs. 216 & 217. Internal genitalia as in text-fig. 218.

Distribution: INDIA: Tamil Nadu; Bangalore, Karnataka; Poona, Eastern Region of Maharashtra, Maharashtra ; Chota

Nagpur, Chakradharpur, Bihar ; Madhya Pradesh ; Kachh, Rajasthan, BURMA : Minhla, ARABIA.

Remarks : The description and illustrations are based on identified specimen, deposited at Z.S.I., Calcutta, Regd. No. 2715/18.

29. **Argiope shillongensis** Sinha

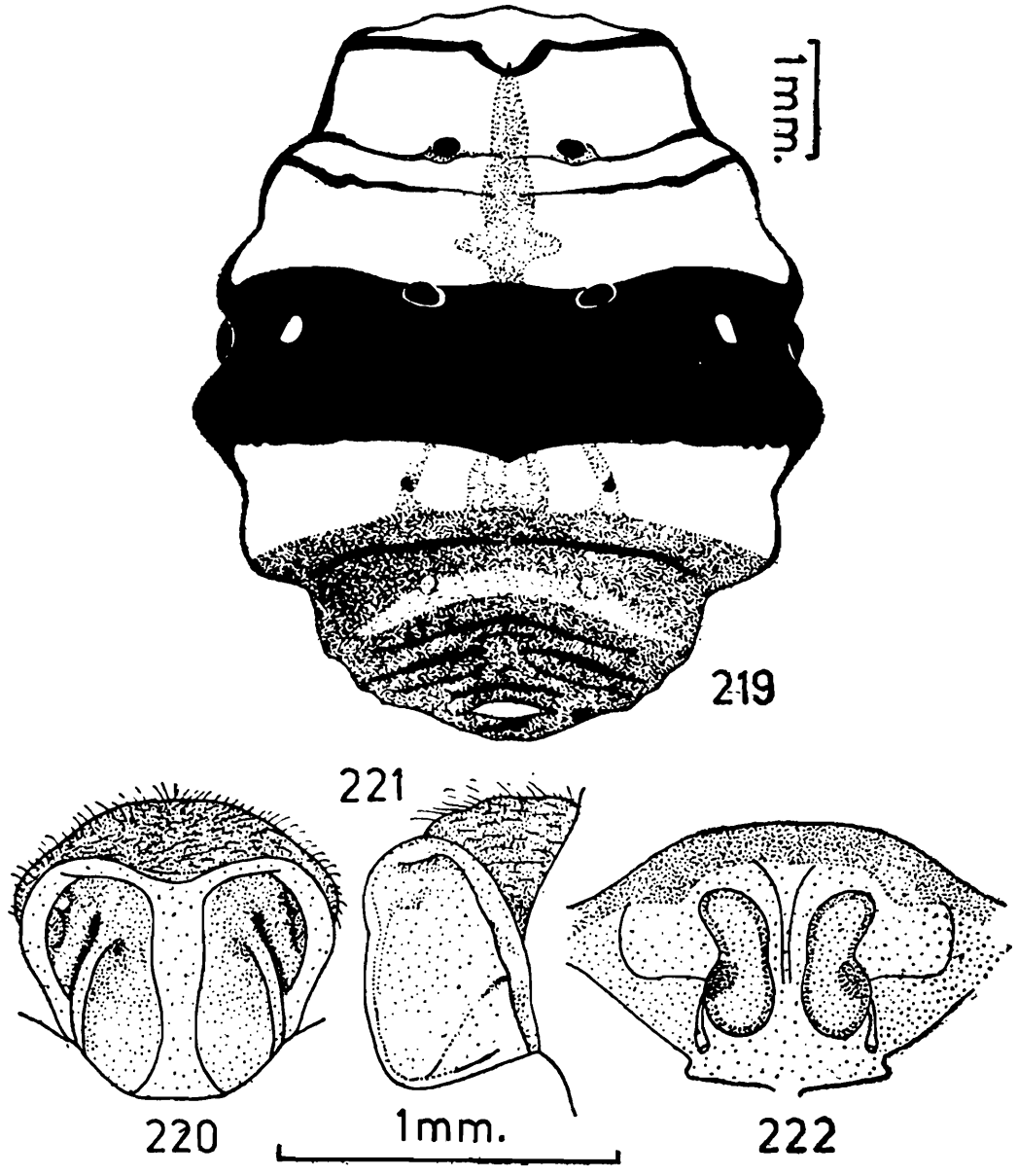
(Figs. 219-222)

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

General : Cephalothorax and legs light brownish yellow in colour, abdomen chalk white with blackish brown bands. Total length 10.20 mm. Carapace 4.70 mm. long, 3.90 mm. wide ; abdomen 6.30 mm. long, 5.40 mm. wide.

Cephalothorax : Slightly longer than wide, narrowing in front, provided with some yellow patches, clothed with thick layer of greyish pubescence ; cephalic region slightly elevated than thoracic region. Ocular quad much longer than wide and slightly wider behind than in front ; both anterior and posterior medians subequal in size ; posterior medians encircled by black rings ; laterals close and both situated on a prominent tubercle ; anterior laterals smaller than the posterior laterals ; anterior row of eyes procurved as seen from in front but posterior row strongly procurved as seen from above. Sternum heart-shaped, pointed behind, provided with a median broad chalk white patch with blackish brown sides ; labium wider than long, yellowish with blackish brown base ; maxillae broad, yellowish with blackish brown base, provided with distinct scopulae. Chelicerae small and weak, yellowish brown, having inconspicuous boss. Legs long and strong, clothed with hairs and spines.

Abdomen : Longer than wide, truncated anteriorly, overlapping in front on the cephalothorax, clothed with hairs. Dorsum of abdomen marked with a few broad transverse blackish brown bands, alternating with chalk white streak as in text-fig. 219.



FIGS. 219-222. *Argiope shillongensis* Sinha
219. Dorsal view of abdomen of female
220. Epigyne, ventral view.
221. Epigyne, lateral view.
222. Internal genitalia, dorsal view.

Three pairs of distinct sigilla on the dorsum, provided with a median longitudinal greyish marking as in text-fig. 219. Ventral side blackish brown, provided with a pair of yellowish white longitudinal bands, extending from epigastric furrow to the posterior end of abdomen. Epigyne as in text-fiigs. 220 & 221. Internal genitalia as in text-fig. 222.

Distribution: INDIA: Shillong, Meghalaya; Palta, 24 Parganas, West Bengal.

Remarks : Description and illustrations have been made on the basis of Holotype female, deposited at Z.S.I., Calcutta, Regd. No. 2277/18.

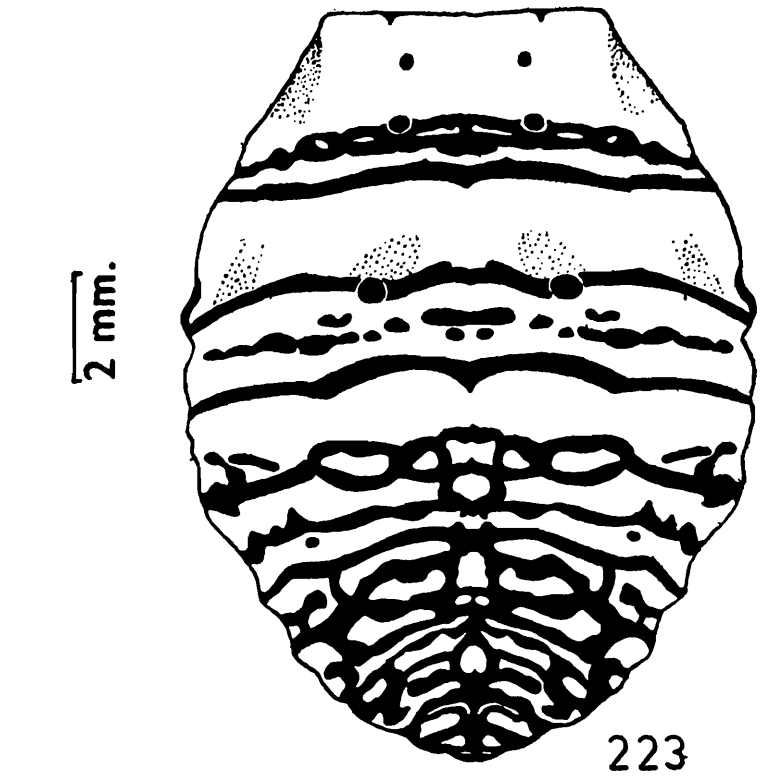
30. **Argiope aemula** (Walckenaer)

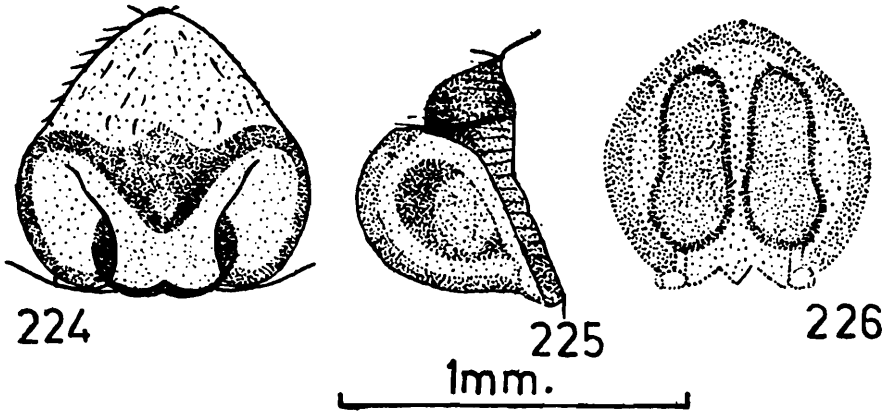
(Figs. 223-226)

1841. *Epeira aemula* Walckenaer, *Hist. Nat. Ins. Apt.*, 2 : 118.
1857. *Epeira (Argyopes) striata* : Doleschall, *Natuurw. Tijdschr. Ned. Indie.*, 13 : 415.
1871. *Argiope magnifica* : L. Koch, *Arachn. Austral.*, 1(1) : 27.
1877. *Argiope aemula* : Thorell, *Annali. Mus. civ. Genova*, 25 : 164.
1891. *Argiope trivittata* : Karsch, *Berl. ent. Z.*, 36(2) : 280.
1900. *Argyope aemula* : Pocock, *Fauna Brit. India, Arachn.*, : 223.
1970. *Argiope aemula* : Tikader, *Rec. zool. Surv. India*, 64(1-4) : 29.

General: Cephalothorax yellowish brown, legs deep brown, abdomen greyish white. Total length 19.40 mm. Carapace 7.00 mm. long, 6.40 mm. wide; abdomen 14.00 mm. long, 11.00 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, clothed with thick white pubescence; cephalothorax provided with irregular yellowish patches ; cephalic region slightly elevated than thoracic region. Ocular quad much longer than wide and wider behind than in front ; both anterior and posterior median eyes subequal in size ; posterior medians encircled by black rings ; lateral eyes close and both situated on a prominent tubercle ; anterior lateral smaller than posterior lateral ; anterior row of eyes procurved as seen from in front, but posterior row strongly procurved as seen from above. Sternum heart-shaped, pointed behind, clothed with pubescence and hairs, blackish brown in colour, provided with a median yellowish white patch having lateral elongations ; labium longer than wide, yellowish in colour ; maxillae roughly pentangular, yellowish with blackish brown proximal part, provided with distinct scopulae. Chelicerae small and weak, reddish brown in colour, provided with rudimentary boss. Legs long and strong, clothed with spines and hairs ; femur of all legs provided with yellow patches on the ventral side.





FIGS. 223-226. *Argiope aemula* (Walckenaer)
223. Dorsal view of abdomen of female.
224. Epigyne, ventral view.
225. Epigyne, lateral view.
226. Internal genitalia, dorsal view.

Abdomen : Broadly oval, slightly truncated in front, longer than wide, overlapping anteriorly on the cepahlothorax, clothed with hairs. Dorsum of abdomen greyish white with black stripes, forming a net work as in text-fig. 223. Ventral side blackish

brown provided with a pair of yellow longitudinal stripes running from epigastric furrow to beyond the spinnerets. Epigyne as in text-figs. 224 & 225. Internal genitalia as in text-fig. 226.

Distribution: INDIA: Trivandrum, Nilgiri Hills, Tamil Nadu; Eastern Region of Maharashtra, Poona, Maharashtra ; Darjeeling, West Bengal ; Gujarat ; Andaman & Nicobar Islands. SRI LANKA : Trincomali, Punduloya. BURMA : Rangoon, Tharrawaddy, Bhamo. INDO AND AUSTRO-MALAYSIA.

Remarks : Due to lack of type-specimen, the description and illustrations are made on the basis of a specimen collected from Darjeeling, West Bengal and deposited at Zoological Survey of India, Western Regional Station, Poona. Regd. No. Ar/322.

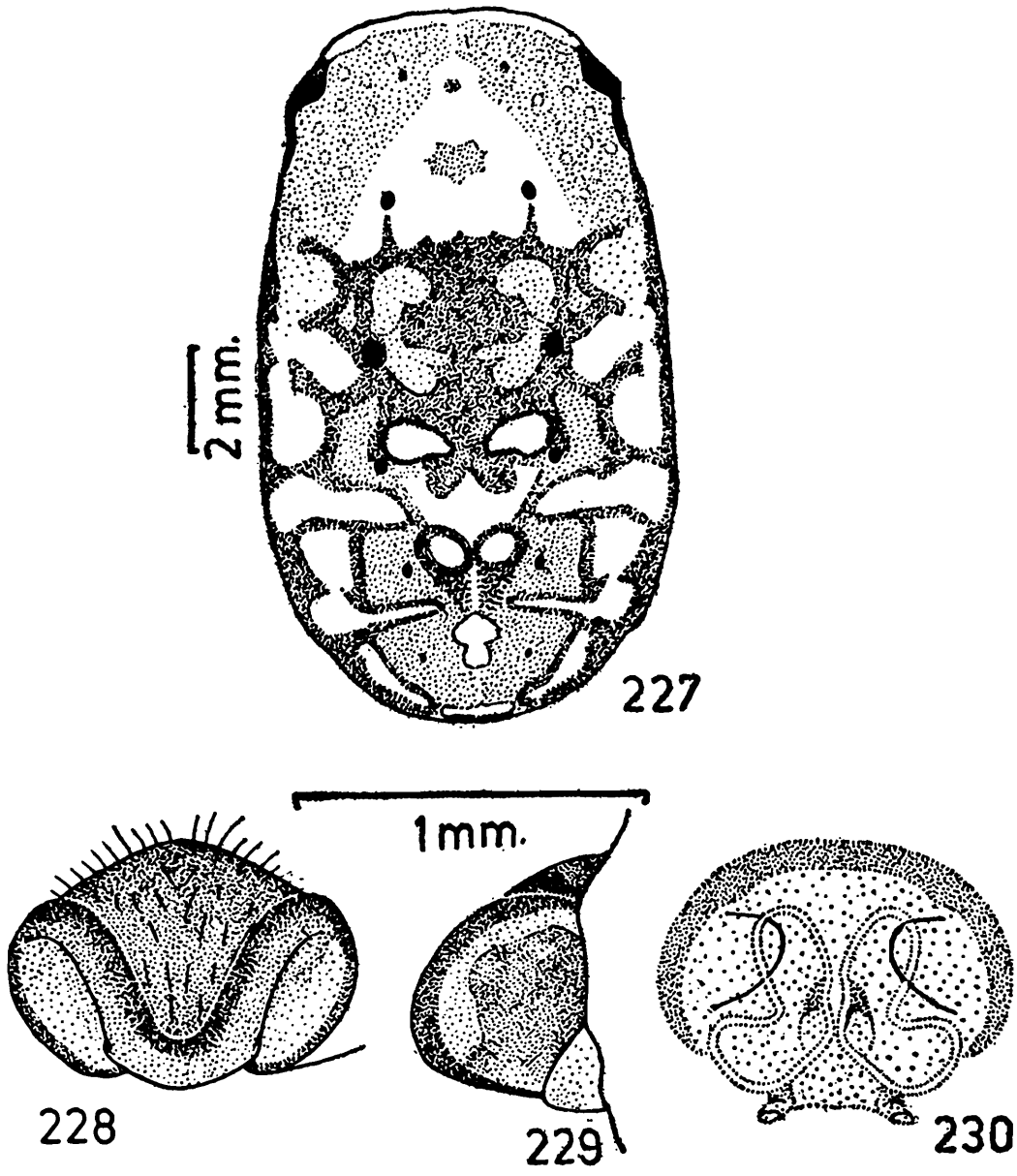
31. **Argiope catenulata** (Doleschall)

(Figs. 227-230)

1859. *Epeira catenulata* Doleschall, *Act. Soc. Ind. Neerl.*, 5 : 30.
1859. *Argiope opulenta* : Thorell, *Oefv. Svensk. Vet. Ak. Forh.*, 16 : 299.
1869. *Epeira (Argyopes) stellata* : Stoliczka, *J. Asiat. Soc. Beng.*, 38(2) : 234.
1882. *Prorous chelifer* : Hasselt, *in* Weth, *Midd. Sumatra, Aran.*, : 24.
1886. *Argiope pelewensis* : Keyserling, *Arachn. Austral.*, 2 : 136.
1890. *Argiope chelifer* : Thorell, *Annali. Mus. civ. Genova*, 28 : 90.
1900. *Argyope catenulata* : Pocock, *Fauna Brit. India, Arachn.*, : 223.
1931. *Argiope catenulata* : Kolosvary, *Arach. Zool. Ital.*, 16 : 1071.
1951. *Argiope catenulata* : Sinha, *Rec. Indian Mus.*, 49 : 74.

General : Cephalothorax and legs brownish, abdomen yellowish brown. Total length 18.40 mm. Carapace 6.60 mm. long, 5.00 mm. wide ; abdomen 13.20 mm. long, 7.50 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, clothed with thick layer of white pubescence ; cephalic region slightly elevated than thoracic region ; provided with a yellow patch in the middle at the junction of head and thorax. Ocular quad much longer than wide and slightly wider behind than in front ; both the median eyes subequal in size ; posterior medians encircled by black rings ; lateral eyes close and situated on a prominent tubercle ; anterior lateral smaller than the posterior lateral ;



FIGS. 227-230. *Argiope catenulata* (Doleschall)
227. Dorsal view of abdomen of female.
228. Epigyne, ventral view.
229. Epigyne, lateral view.
230. Internal genitalia, dorsal view.

anterior row of eyes procurved as seen from in front, but posterior row strongly procurved as seen from above. Sternum heart-shaped, pointed behind, clothed with pubescence and hairs, blackish brown, provided with a broad median longitudinal yellow patch ; labium slightly wider than long, yellowish ; maxillae broad yellowish with blackish distal portion, provided with distinct scopulae. Chelicerae small and weak, brownish, provided with rudimentary boss. Legs

long and strong, femora I, II dark brown, each with incomplete yellow ring at the distal ends, femora III, IV pale in colour with no yellow rings, tibiae of the legs having two complete yellow rings.

Abdomen : Elongated oval, depressed, blunt anteriorly and moderately overlapping on the cephalothorax, clothed with pubescence and hairs. Dorsum of abdomen ornamented with transverse yellow stripes and patches, frequently interrupted in the middle by transverse yellow incomplete bands, five pairs of distinct sigilla on the dorsum as in text-fig. 227. Mid-longitudinal portion of the dorsum clothed with a continuous coating of silky pubescence forming a band, broad anteriorly and narrowed posteriorly. Ventral side of abdomen provided with a pair of longitudinal yellowish patch running from the epigastric furrow to beyond the spinnerets. Epigyne as in text-figs. 228 & 229. Internal genitalia as in text-fig. 230.

Distribution : INDIA : Salt lake, Sunderbans, West Bengal ; Wagra Karoon, A.P. ; Andaman & Nicobar Islands. BURMA : Tharrawaddy, Moulmein. SRI LANKA : Peradeniya, INDO AND AUSTRO-MALAYSIA.

Remarks : The description and illustrations habe been prepared on the basis of authenticated identified specimen, deposited at Z.S.I., Calcutta, Regd. No. 2375/18.

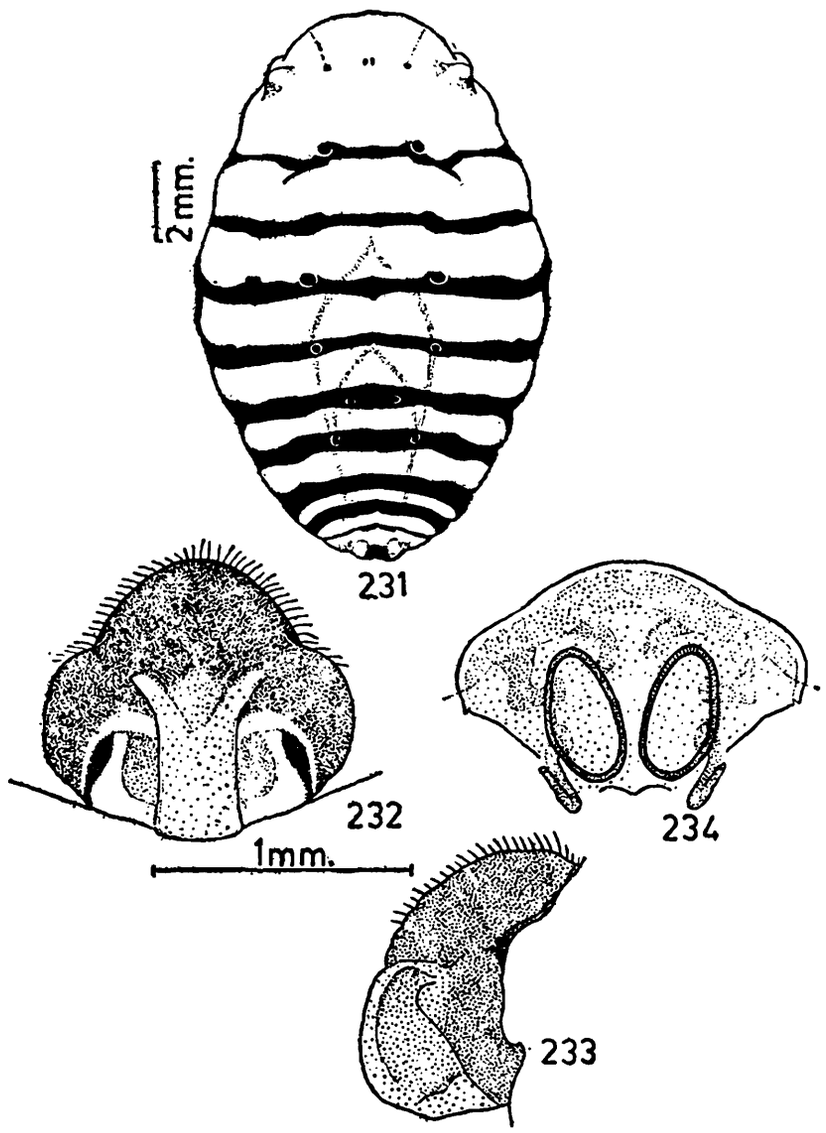
32. **Argiope pradhani** Sinha

(Figs. 231-234)

1951. *Argiope pradhani* Sinha, *Rec. Indian Mus.*, **49** : 76.

General : Cephalothorax and legs yellowish brown, abdomen greyish white. Total length 18.80 mm. Carapace 6.40 mm. long, 4.90 mm. wide ; abdomen 13.80 mm. long, 8.90 mm. wide.

Cephalothorax : Slightly longer than wide, narrowing in front, provided with brownish patches, clothed with thick layer of silky white pubescence and hairs ; cephalic region slightly elevated than thoracic region. Ocular quad much longer than wide and slightly



FIGS. 231-234. *Argiope pradhani* Sinha
231. Dorsal view of abdomen of female.
232. Epigyne, ventral view.
233. Epigyne, lateral view.
234. Internal genitalia, dorsal view.

wider behind than in front ; both anterior and posterior median eyes subequal in size ; posterior medians encircled by black rings ; laterals close and both situated on a prominent tubercle ; anterior laterals smaller than the posterior laterals ; anterior row of eyes procurved as seen from in front but posterior row strongly procurved as seen from above. Sternum heart-shaped, pointed behind, blackish brown in colour, provided with a median yellowish longitudinal patch and two pairs of small yellow spots laterally, clothed with hairs and pubescence ; labium wider than long, deep

brown with pale distal border ; maxillae provided with distinct scopulae. Chelicerae small and weak, yellowish brown, provided with rudimentary boss. Legs long and strong, clothed with hairs and spines, all the segments, except tarsus and metatarsus, banded with yellow and brown transverse bands.

Abdomen : Elongated oval, broadest in the middle, longer than wide, overlapping anteriorly on the cephalothorax, clothed with hairs. Dorsum of abdomen provided with nine brown transverse bands as in text-fig. 231 provided with four pairs of distinct sigilla. Ventral side dirty brown with irregular yellowish patches, provided with one pair yellowish longitudinal bands extending from the anterior of the epigyne backwards upto the extremity of the abdomen. Epigyne as in text-figs. 232 & 233. Internal genitalia as in text-fig. 234.

Distribution: INDIA: Shillong, Jaintia hills, Meghalaya; Assam. PAKISTAN : Bank of Kabul River, Peshawar.

Remarks : The illustrations and description are based on one paratype of the species, deposited at Z.S.I., Calcutta, Regd. No. 2290/18.

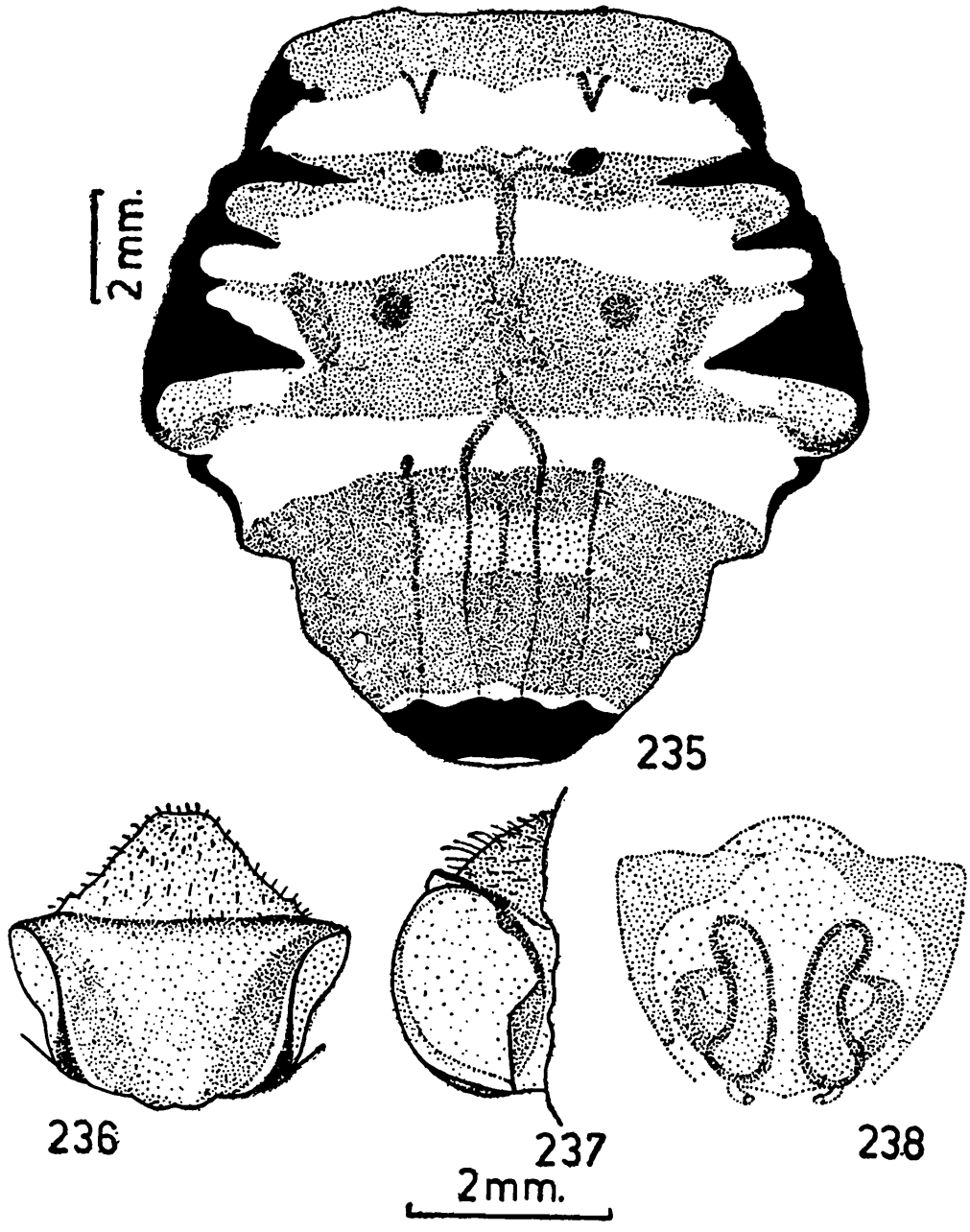
33. **Argiope kalimpongensis** Sinha

(Figs. 235-238)

1951. *Argiope kalimpongensis* Sinha, *Rec. Indian Mus.*, **49** : 77.
1970. *Argiope sikkimensis* : Tikader, *Rec. zool. Surv. India*, **64**(1-4) : 28.

General : Cephalothorax and legs reddish brown, abdomen brownish yellow. Total length 21.20 mm. Carapace 8.80 mm. long, 7.10 mm. wide ; abdomen 13.40 mm. long, 13.20 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, clothed with thick layer of greyish pubescence ; cephalic region slightly elevated than thoracic region ; provided with a pair of small yellow patch situated posteriorly to the cephalic region. Ocular quad much longer than wide, wider behind than in front ; both the median eyes subequal in size ; posterior medians encircled by black rings ; laterals close and situated on a prominent tubercle ;



FIGS. 235-238. *Argiope kalimpongensis* Sinha
235. Dorsal view of abdomen of female.
236. Epigyne, ventral view.
237. Epigyne, lateral view.
238. Internal genitalia, dorsal view.

anterior lateral smaller than the posterior lateral ; anterior row of eyes procurved and seen from in front, but posterior row strongly procurved as seen from above. Sternum heart-shaped, pointed behind, clothed with pubescence and hairs, reddish brown, provided with a broad median longitudinal yellow patch ; labium as

long as wide, yellowish ; maxillae roughly pentagonal, yellowish brown, provided with distinct scopulae. Chelicerae small and weak, yellowish brown, provided with inconspicuous boss. Legs long and strong and clothed with dense layer of hairs and spines.

Abdomen: Pentagonal, truncated broadly in front and moderately overlapping on the cephalothorax, clothed with small hairs. Dorsum of abdomen provided with yellow, brown and dark brown transverse bands and patches as in text-fig. 235 ; having five pairs of sigilla as in text-fig. 235. Ventral side of abdomen provided with a pair of longitudinal yellow stripes from epigastric furrow to the posterior end of abdomen. Epigyne having a broad median septum as in text-fig. 236. Internal genitalia as in text-fig. 238.

Distribution : INDIA : Kalimpong, Lebong, Pashok, Ghumti, Darjeeling, West Bengal ; Sibsagar, Assam ; Rongli, East Sikkim, Sikkim.

Remarks : The description and illustrations are based on authenticated identified specimen collected from Kalimpong, Darjeeling and deposited at Z.S.I., Calcutta, Regd. No. 3437/18. During the studies author have examined *Argiope sikkimensis* Tikader and found that it is a synonym to *Argiope kalimpongensis* Sinha.

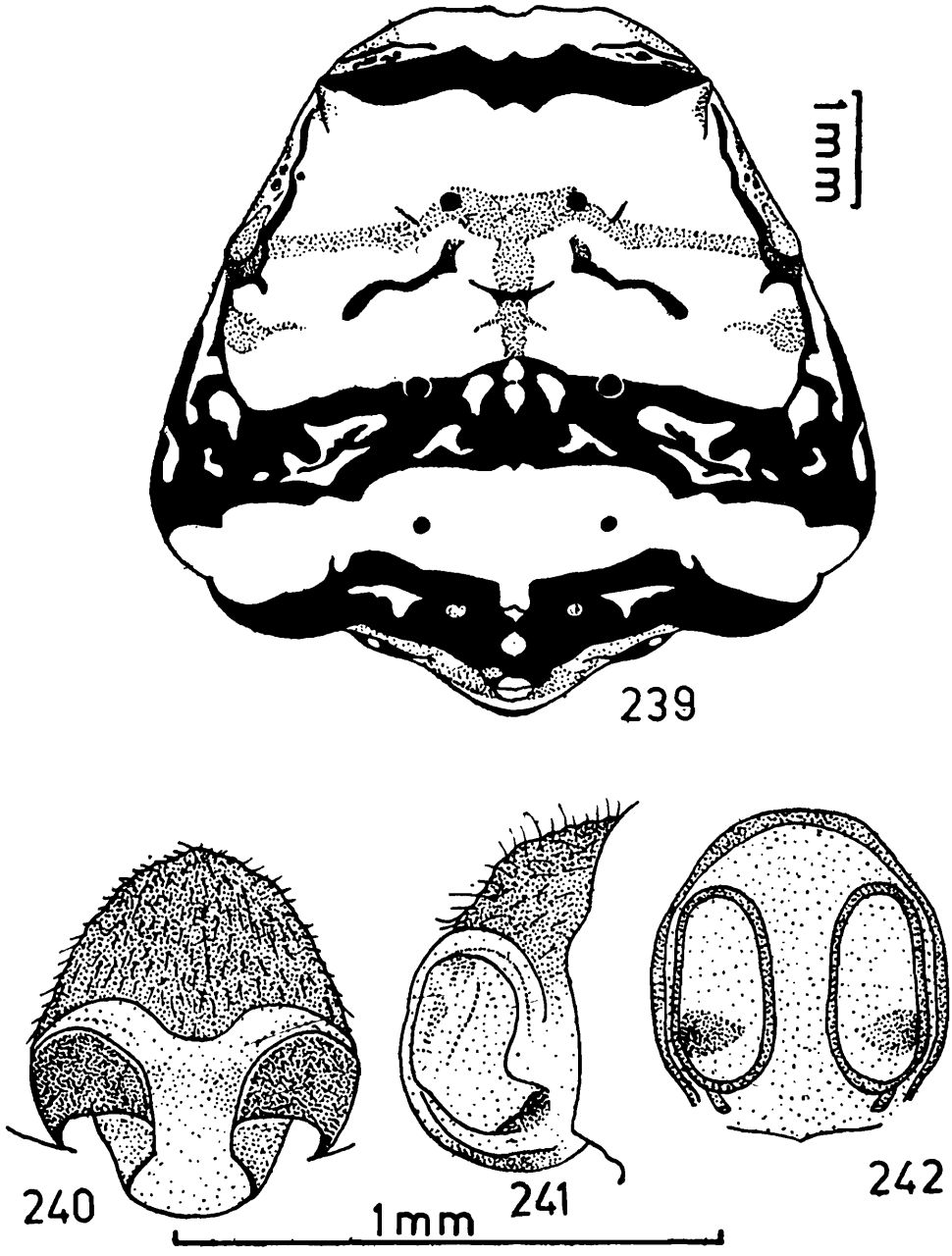
34. **Argiope anasuja** Thorell

(Figs. 239-242)

1887. *Argyope anasuja* Thorell, *Annali. Mus. civ. Genova*, **25** : 162.
1900. *Argyope anasuja* : Pocock, *Fauna Brit. India, Arachn.*, : 222.
1921. *Argiope anasuja* : Gravely, *Rec. Indian Mus.*, **22**(4) : 412.
1951. *Argiope anasuja* : Sinha, *Rec. Indian Mus.*, **49** : 74.

General : Cephalothorax and legs greyish brown, abdomen chalk whitish. Total length 9.30 mm. Carapace 3.70 mm. long, 3.40 mm. wide ; abdomen 6.00 mm. long, 6.30 mm. wide.

Cephalothorax : Slightly longer than wide, narrowing in front, clothed with thick layer of greyish pubescence and hairs ; cephalic



FIGS. 239-242. *Argiope anasuja* Thorell
239. Dorsal view of abdomen of female.
240. Epigyne, ventral view.
241. Epigyne, lateral view.
242. Internal genitalia, dorsal view.

region slightly elevated than thoracic region. Ocular quad much longer than wide and slightly wider behind than in front ; both the median eyes subequal in size ; posterior medians encircled by black rings ; laterals close and situated on a prominent tubercle ; anterior lateral smaller than the posterior lateral ; anterior row

of eyes procurved as seen from in front but posterior row strongly procurved as seen from above. Sternum heart-shaped, pointed behind, clothed with pubescence and hairs, provided with a median large chalk white patch with brownish sides ; labium as long as wide, yellowish ; maxilae broad, dark brown with pale outer margin, provided with distinct scopulae. Chelicerae small and weak, brownish with inconspicuous boss. Legs long and strong clothed with hairs and spines ; femora of all legs yellowish dorsally, other segments with indistinct yellow and brown bands.

Abdomen : Pentagonal, slightly wider than long, broadest posteriorly beyond the middle as in text-fig. 239, clothed with hairs and pubescence. Dorsum chalk white with transverse brown bands and three pairs of distinct sigilla as in text-fig. 239. Ventral side dark brown with a pair of longitudinal chalk white patches from epigastric furrow to beyond the spinnerets. Epigyne as in text-figs. 240 & 241. Internal genitalia as in text-fig. 242.

Distribution : INDIA : Ramnadpuram, Chingleput, Ootacamund, Tuticorin, Tamil Nadu ; Bangalore, Karnataka ; Nasik, Maharashtra ; Barkuda Islands (Cilka Lake), Orissa ; Chota Nagpur, Chakradharpur, Bihar ; Calcutta, West Bengal. SRI LANKA : Colomboo. PAKISTAN : Karachi.

Remarks : Description and illustrations have been made on the basis of authenticated identified specimen, deposited at Z.S.I., Calcutta, Regd. No. 2383/18.

35. **Argiope pulchella** Thorell

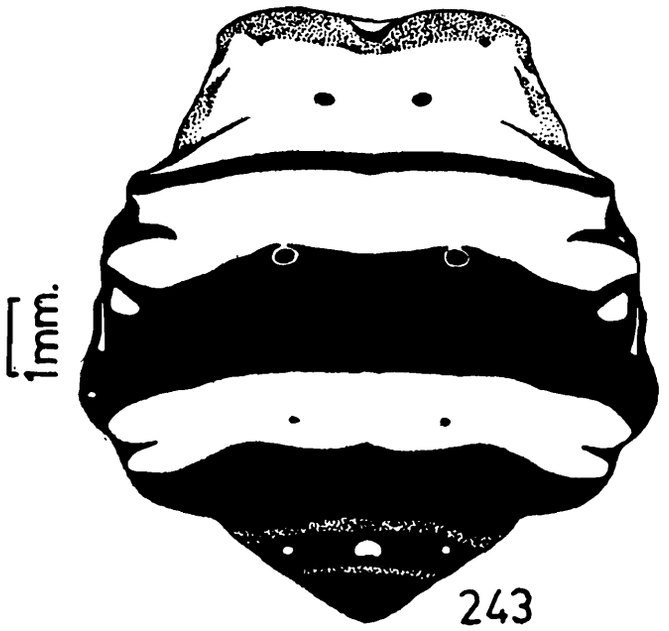
(Figs. 243-246)

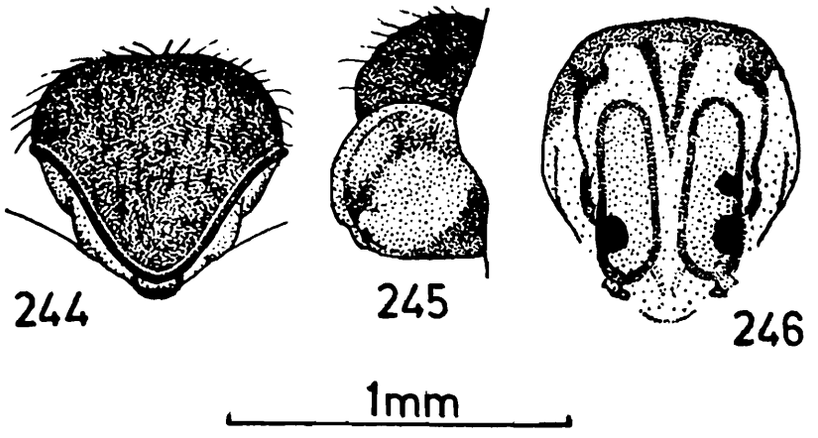
1881. *Argyope pulchella* Thorell, *Annali. Mus. civ. Genova,* **18** : 74.
1884. *Argyope pulchella* : Simon, *Annali. Mus. civ. Genova,* **20** : 346.
1900. *Argyope pulchella* : Pocock, *Fauna Brit. India, Arachn.,* : 221.
1921. *Argiope pulchella* : Gravely, *Rec. Indian Mus.,* **22**(4) : 412.
1935. *Argiope pulchella* : Dyal, *Bull. Zool. Punjab Univ.,* **1** : 90.
1951. *Argiope pulchella* : Sinha, *Rec. Indian Mus.,* **49** : 73.
1970. *Argiope pulchella* : Tikader, *Rec. zool. Surv. India,* **64**(1-4) : 27.
1975. *Argiope pulchella* : Patel, *Vidya, J. Gujarat Univ.,* **18**(1) : 154.

General : Cephalothorax and legs yellowish brown, abdomen

yellowish white. Total length 11.40 mm. Carapace 4.50 mm. long, 3.90 mm. wide ; abdomen 7.70 mm. long, 7.50 mm. wide.

Cephalothorax : Slightly longer than wide, narrowing in front, clothed with thick layer of silky white pubescence ; cephalic region slightly elevated than thoracic region. Ocular quad much longer than wide and wider behind than in front ; both anterior and





FIGS. 243-246. *Argiope pulchella* Thorell

243. Dorsal view of abdomen of female.
244. Epigyne, ventral view.
245. Epigyne, lateral view.
246. Internal genitalia, dorsal view.

posterior median eyes subequal in size ; posterior medians encircled by black rings ; lateral eyes close and both situated on a very prominent tubercle ; anterior lateral smaller than the posterior lateral ; anterior row of eyes procurved as seen from in front, but posterior row strongly procurved as seen from above. Sternum heart-shaped, pointed behind, brown in colour, provided with a large chalk white patch, clothed with hairs and pubescence ; labium as long as wide, yellowish in colour ; maxillae roundish in shape, yellowish with dark brown proximal part, provided with distinct scopulae. Chelicerae small and weak brownish in colour, provided with rudimentary boss. Legs long and strong, clothed with spines and hairs ; and segments provided with alternative brown and yellow patches.

Abdomen : Pentagonal, truncated in front, slightly longer than wide, broadest posteriorly beyond the middle, overlapping anteriorly on the cephalothorax, clothed with hairs and pubescence. Dorsum of abdomen white with deep brown transverse patches and stripes ; three pairs of conspicuous sigilla present on the dorsum as in text-fig. 243. Ventral side dark brownish having a pair chalk white longitudinal paches extending from epigastric furrow to beyond the spinnerets. Epigyme as in text-figs. 244 & 245. Internal genitalia as in text-fig. 246.

Distribution : INDIA : Andaman and Laccadive Islands ; Palta, 24 Parganas, Kalimpong, Darjeeling, West Bengal ; Madhya Pradesh ; Orissa ; Assam ; Poona, Maharashtra ; Tamil Nadu. BURMA : Rangoon, Tharrawaddy, Moulmein, Pegu. MALAYA PENINSULA.

Remarks: The description and illustrations have been prepared on the basis of authenticated identified specimen, deposited at Z.S.I., Calcutta, Regd. No. 3384/18.

Genus 8. **Caerostris** Thorell

1868. *Caerostris* Thorell, *Eug. Resa, Arachn.*, : 3.

1895. *Caerostris* : Simon, *Hist. Nat Araign.*, 1(4) : 834.

1900. *Caerostris* : Pocock, *Fauna Brit. India, Arachn.*, : 230.

1970. *Caerostris* : Tikader, *Rec. zool. Surv. India*, 64(1-4) : 34.

Characters : Carapace with cephalic region strongly elevated and thoracic region low, armed with a transverse row of six large tubercles, two on the summit and two on each side. Ocular quad wider than long, narrower in front ; lateral eyes small, equal, close and situated on an angular tubercle on each side. Legs short, strong and stout, tibiae and metatarsi flat dorso-ventrally, and strongly grooved. Abdomen large, high in front and irregularly tuberculate.

Type-species : *Caerostris mitralis* (Vinson)

Distribution : Tropical Africa, Madagascar, Asia.

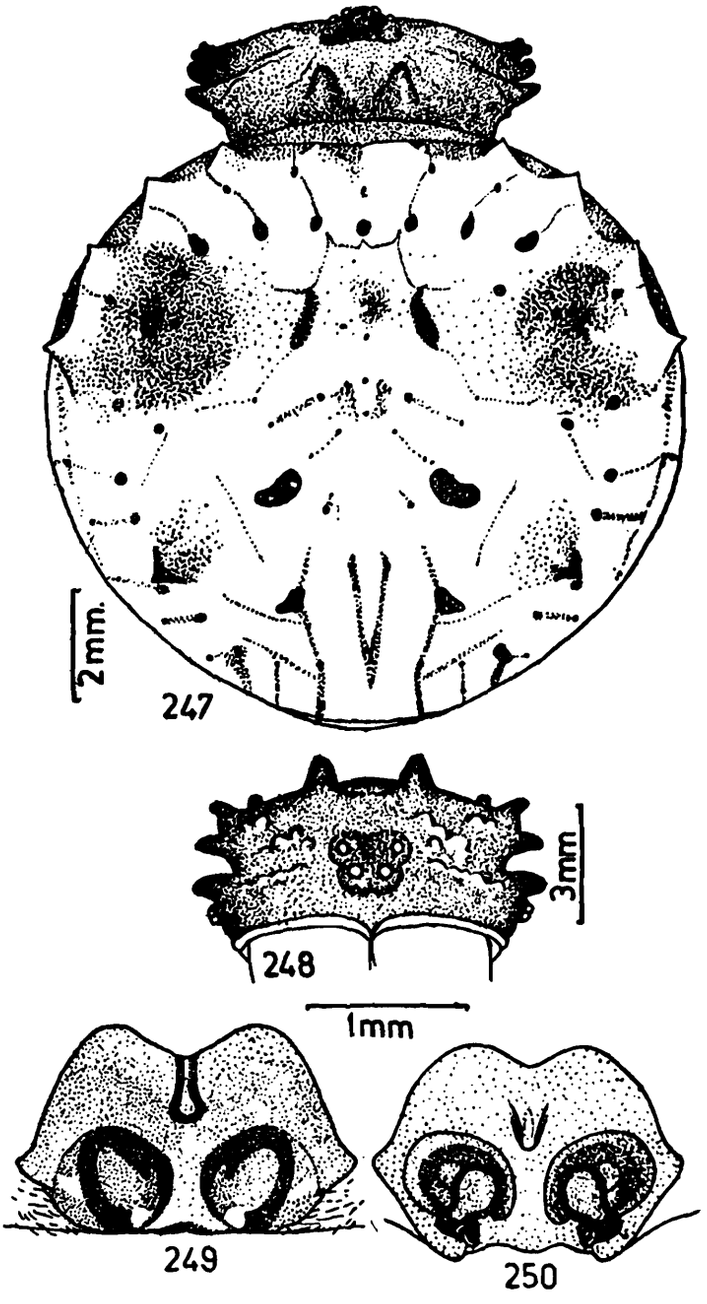
36. **Caerostris paradoxa** (Doleschall)

(Figs. 247-250)

1859. *Epeira paradoxa* Doleschall, *Act. Soc. Ind. Neerl.*, 5 : 37.
1879. *Caerostris paradoxa* : Butler, *Proc. zool. Soc. Lond.*, : 732.
1895. *Caerostris paradoxa* : Thorell, *The Spiders of Burma*, : 207.
1896. *Caerostris paradoxa* : Workman, *Malays. Spid.*, : 25.
1900. *Caerostris paradoxa* : Pocock, *Fauna Brit. India, Arachn.*, : 231.

General : Cephalothorax reddish brown, legs greyish brown above mid reddish brown ventrally, abdomen yellowish. Total length 19.30 mm. Carapace 5.00 mm. long, 9.60 mm. wide ; abdomen 16.20 mm. long, 17.20 mm. wide.

Cephalothorax : Slightly wider than long, un-uniform, tubercular, provided with two large conical horn like tubercles in the middle and other three pairs of transversely directed and laterally placed tubercles as in text-figs. 247 & 248 ; thickly clothed with white pubescence. Ocular quad situated on an elevation, forming a trapezium, nearly twice wider behind than in front as in text-figs. 247 & 248 ; anterior median eyes slightly larger than posterior medians ; lateral eyes small, equal, close and situated on a prominent large angular tubercle as in text-fig. 248 ; both rows of eyes procurved as seen from in front as in text-fig. 248. Sternum heart-shaped, narrowing behind with two tubercles, light reddish brown, clothed with hairs ; labium nearly as long as wide, reddish brown with pale distal margin ; maxillae slightly elongated, broad distally, yellowish brown, provided with distinct



Figs. 247-250. *Caerostris paradoxa* (Doleschall)

247. Dorsal view of female, legs omitted.

248. Front view of face of female.

249. Epigyne, ventral view.

250. Internal genitalia, dorsal view.

scopulae. Chelicerae very strong and stout, reddish brown, having moderate boss. Legs short, stout with patellae, tibiae and metatarsi dorso-ventrally depressed ; clothed with greyish pubes-

cence and hairs ; palpal, patellae, tibiae and metatarsi also depressed as in legs.

Abdomen : Large, globular, very high anteriorly, yellowish, clothed with yellow pubescence and tubercles as in text-fig. 248. Dorsum of abdomen having a few paired small but pointed tubercles, of which one pair very large and prominent, a single median tubercle between the large pair of tubercles as in text-fig. 248 ; a few pairs of red coloured sigilla and greyish lines present on the dorsum. Ventral side pale yellow. Epigyne plate like each external opening provided with a horn like projection as in text-fig. 249. Internal genitalia as in text-fig. 250.

Distribution : BURMA : Tharrawaddy, Rangoon, Tunghoo. SRI LANKA : Trincomali, Punduloya. INDONESIA : Java : MADAGASCAR. MALAYSIA : Perak.

Remarks : Since author could not get the type-specimen of this species the description and illustrations are based on authenticated identified specimen, deposited at Z.S.I., Calcutta, Regd. No. 8576/9.

Genus 9. **Ordgarius** Keyserling

1886. *Ordgarius* Keyserling, *Die Spinnen Australiens*, 2 : 114.
1894. *Notocentris* : Thorell, *Bih. svenska Vetensk Akad. Handl.*, 20(4) : 48.
1895. *Ordgarius* : Simon, *Hist. Nat. Araign.*, 1(4) : 885.
1900. *Ordgarius* : Pocock, *Fauna Brit. India, Arachn.*, : 230.
1960. *Ordgarius* : Yaginuma, *Spiders of Japan, in colour*, : 63.
1965. *Ordgarius* : Tikader, *Proc. Indian Acad. Sci.*, 62(2) : 92.

Characters : Carapace convex, upper side armed with a few symmetrically placed tooth like tubercles. Abdomen very large, wider than long, widely rounded laterally and tuberculate dorsally, tubercles povided with tufts of long hairs.

Type-species : *Ordgarius monostrosus* Keyserling

Distribution : INDIA, AUSTRALIA and JAPAN.

37. **Ordgarius sexspinosus** (Thorell)

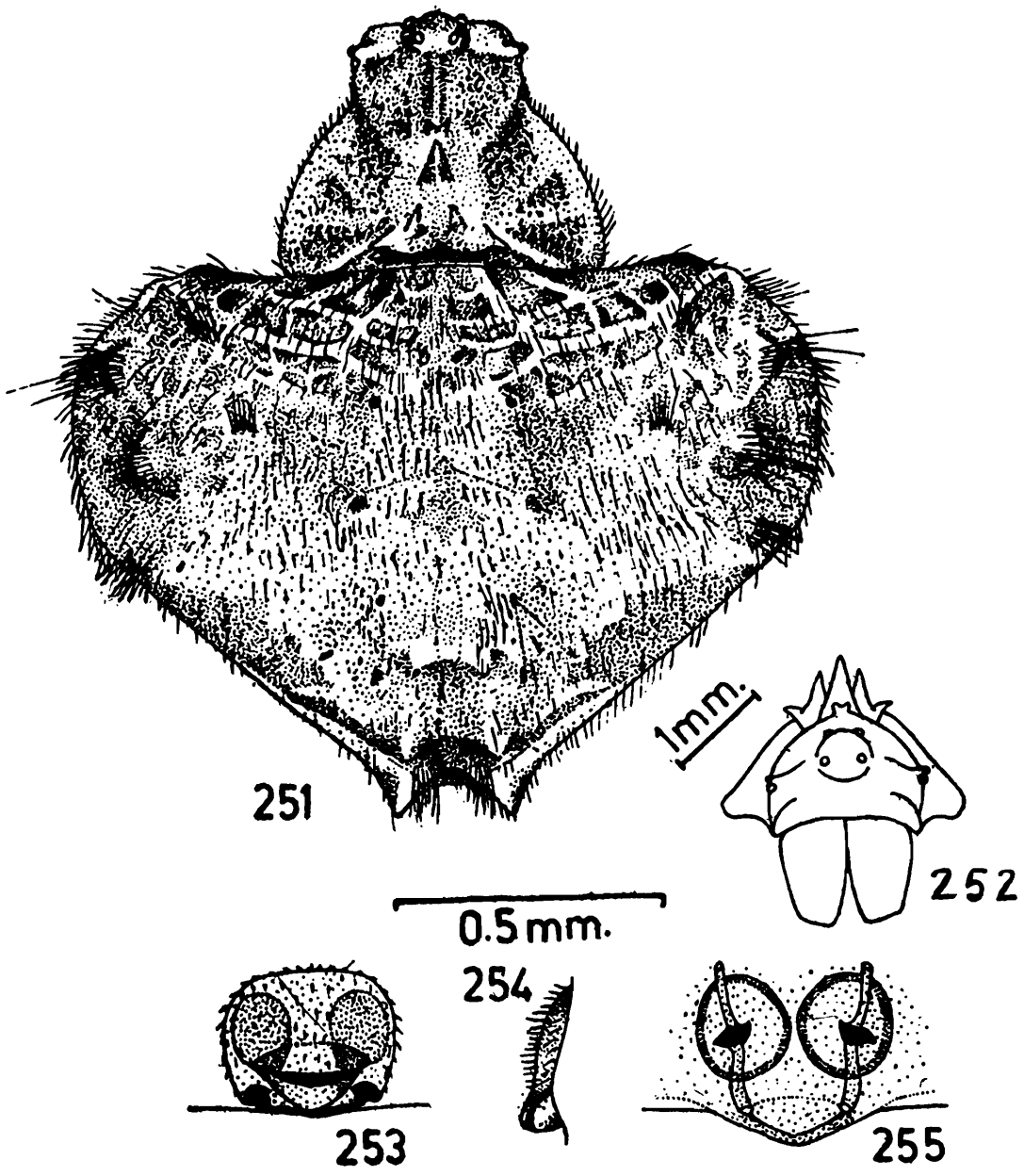
(Figs. 251-255)

1894. *Notocentria sexspinosus* Thorell, *Bik. svenska. Vetensk. Akad. Handl.,* 20(4) : 48.
1896. *Caerostris cuspidatus* : Workman, *Malays. Spid.,* : 26.
1900. *Ordgarius sexspinosus* : Pocock, *Fauna Brit. India, Arachn.,* : 230.
1963. *Cladomelea mundhva* : Tikader, *Proc. Indian Acad. Sci.,* 57(2) : 97.

General : Cephalothorax yellowish with brownish patches, legs pale yellowish with light brown patches, abdomen pale yellow. Total length 7.35 mm. Carapace 3.20 mm. long, 3.10 mm. wide ; abdomen 4.85 mm. long, 7.25 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, clothed with dense pubescence and hairs ; cephalic region strongly elevated than thoracic region and armed with a large, single, median and three pairs pointed horn-like tubercles as in text-figs. 251 & 252; ocular quad of cephalic region elevated and projected as in text-figs. 251 & 252. Ocular quad wider than long and slightly wider in front than behind as in text-figs. 251 & 252 ; both median eyes sub-equal in size ; lateral eyes close, anterior laterals slightly larger than posterior laterals and situated on prominent tubercles ; anterior row of eyes procurved as seen from in front and posterior row strongly recurved as seen from above as in text-figs. 251 & 252. Sternum heart-shaped, narrow but blunt posteriorly, yellowish, clothed with hairs ; labium longer than wide, yellowish in colour ; maxillae broad, pale yellowish, provided with distinct scopulae. Chelicerae weak, pale yellowish with no boss. Legs moderately strong, clothed with fine long hairs ; femur I provided with one black patch on antero-lateral side.

Abdomen : Wider than long, narrowing behind, overlapping on the cephalothorax, clothed with long, fine, dense hairs. Dorsum of abdomen provided with a few tubercles, some very conspicuous ; tubercles provided with tuft of long, fine hairs as in text-fig. 251. Some blackish patches and yellowish broad lines present anteriorly on the dorsum as in text-fig. 251. Ventral side pale yellowish. Epigyne having a small, thick and blunt



FIGS. 251-255. *Ordgarius sexspinosus* (Thorell)
251. Dorsal view of female, legs omitted.
252. Front view of face of female.
253. Epigyne, ventral view.
254. Epigyne, lateral view.
255. Internal genitalia, posterior view.

scape as in text-figs. 253 & 254. Internal genitalia as in text-fig. 255.

Distribution : INDIA : Mundhva village, National Chemical Laboratory Compound, Poona, Maharashtra. BURMA : Tharrawaddy. MALAYSIA : Singapore. JAPAN.

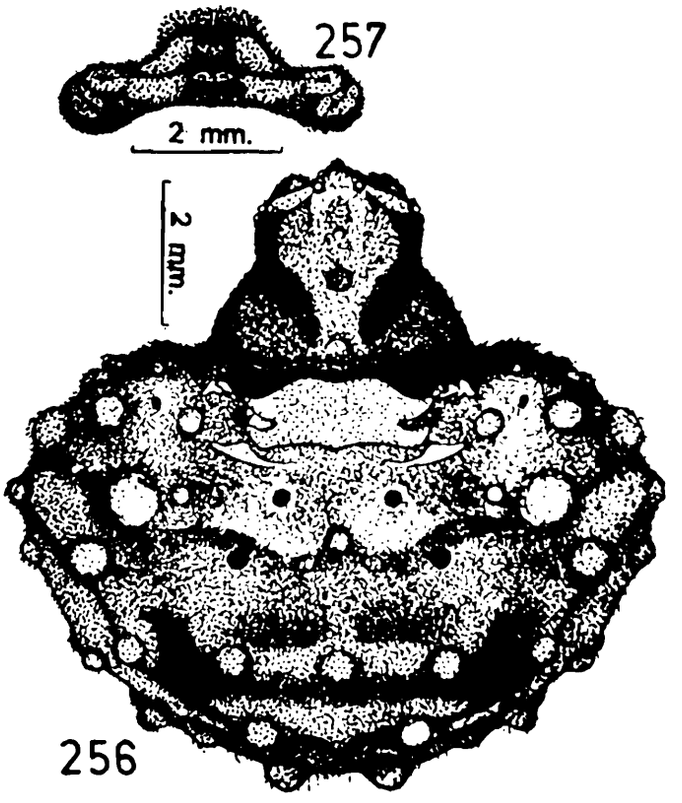
Remarks : After studied the species of *Cladomelea mundhva* Tikader. Holotype is deposited in Z.S.I., Calcutta, Regd. No. 2980/18, as well as named specimen of *Ordgarius sexspinosus* (Thorell). Author found *C. mundhva* is a synonym of *O. sexspinosus* (Thorell). Description and illustrations are based on above mentioned specimen No. 2980/18.

38. **Ordgarius hobsoni** (O. P. Cambridge)

(Figs. 256-257)

1877. *Cyrtarachne hobsoni* O. P. Cambridge, *Proc.zool.Soc.Lond.*, : 562.
1895. *Ordgarius hobsoni* : Simon, *Hist. Nat. Araign.*, 1(4) : 885.
1900. *Ordgarius hobsoni* : Pocock, *Fauna Brit. India, Arachn.*, : 230.
1965. *Ordgarius hobsoni* : Tikader, *Proc. Indian Acad. Sci.*, 62(2) : 92.

General : Cephalothorax dull brown, legs yellowish, abdomen light brownish. Total length 8.50 mm. Carapace 3.50 mm. long, 3.80 mm. wide ; abdomen 6.00 mm. long, 9.20 mm. wide.



FIGS. 256-257. *Ordgarius hobsoni* (O. P. Cambridge)
256. Dorsal view of female, legs omitted.
257. Epigyne, ventral view.

Cephalothorax : Slightly wider than long, clothed with pubescence ; carapace armed behind with a pair of smaller tubercles and a large median conical tubercle, in front of it one small median tubercle present. Ocular quad as long as wide and situated on a little elevation as in text-fig. 256 ; lateral eyes subequal and close. Legs clothed with hairs but no spines, segments provided with dark brown transverse bands.

Abdomen : Wider than long, clothed with hairs, provided with numerous blunt rounded tubercles as in text-fig. 256. Dorsum of abdomen provided with a large median conspicuous yellow patch anteriorly. Epigyne without any scape as in text-fig. 257.

Distribution : INDIA: Bombay, Poona, Maharashtra. SRI LANKA: Punduloya.

Genus **10. Cyrtarachne** Thorell

1868. *Cyrtarachne* Thorell, *Eug. Resa, Arachn.*, : 10.
1878. *Dema* : Karsch, *Z. ges. Naturw.*, **51** : 801.
1895. *Cyrtarachne* : Simon, *Hist. Nat. Araign.*, **1**(4) : 880.
1900. *Cyrtarachne* : Pocock, *Fauna Brit. India, Arachn.*, : 228.
1960. *Cyrtarachne* : Yaginuma, *Spiders of Japan, in colour*, : 61.
1960. *Cyrtarachne* : Tikader, *J. Bombay nat. Hist. Soc.*, **57**(3) : 547.

Characters : Carapace convex and unarmed. Ocular quad usually slightly wider than long ; lateral eyes contiguous and subequal in size, not situated on prominent tubercles. Abdomen large, strongly convex dorsally and wider than long ; integument leathery and provided with large sigilla.

Type species: *Cyrtarachne qrubei* (Keyserling)

Distribution: ASIA, AFRICA and AUSTRALIA.

Key to the species of the **Cyrtarachne** Thorell

1. Abdomen not smooth, having numerous distinct tubercles.....2
   Abdomen smooth, having no distinct tubercles.....3

2. Abdomen provided with two pairs of large, conical, lateral tubercles (Fig. 256); epigynal scape with thin rim (Figs. 259 & 260).....*biswamoyi*
Abdomen not provided with any large, lateral tubercles (Fig. 262); epigynal scape with broad rim (Figs. 263 & 264).....*bengalensis*

3. Epigyne having distinct scape.....4
Epigyne having no scape or indistinct scape with broad rim.....5

4. Abdomen with large, smooth, convex, indistinct prominences having chocolate coloured patches (Fig. 266); scape broad and blunt (Figs. 267 & 268).....*inequalis*
Abdomen with large smooth, convex, indistinct prominences having greenish patches (Fig. 270); scape thin and narrow (Figs. 271 & 272).....*raniceps*

5. Abdomen provided with large sigilla each surrounded by black patches (Fig. 274); epigynal scape absent (Fig. 275).....*gravelyi*
Abdomen provided with large sigilla, but not surrounded by black patches; indistinct epigynal scape with thick rim.....6

6. Abdomen not exceeding one and half times wider than long.....7
Abdomen exceeding one and half to more than twice wider than long.....8

7. Abdomen blackish with no light coloured patches on the dorsum (Fig 277).....*promilai*
Abdomen greyish with dark, white and yellow patches on the dorsum (Fig. 281).....*sundari*

8. Abdomen more than twice wider than long (Fig. 285); greenish patches anteriorly on the dorsum of abdomen (Fig. 285); epigynal openings are visible from both ventral and lateral views (Figs. 286 & 287).....*schmidi*
Abdomen slightly less than twice wider than long (Fig. 289); light brownish patches on the dorsum of abdomen (Fig. 289); epigynal openings are not visible from ventral and lateral views (Figs. 290 & 291).....*avimerdaria*

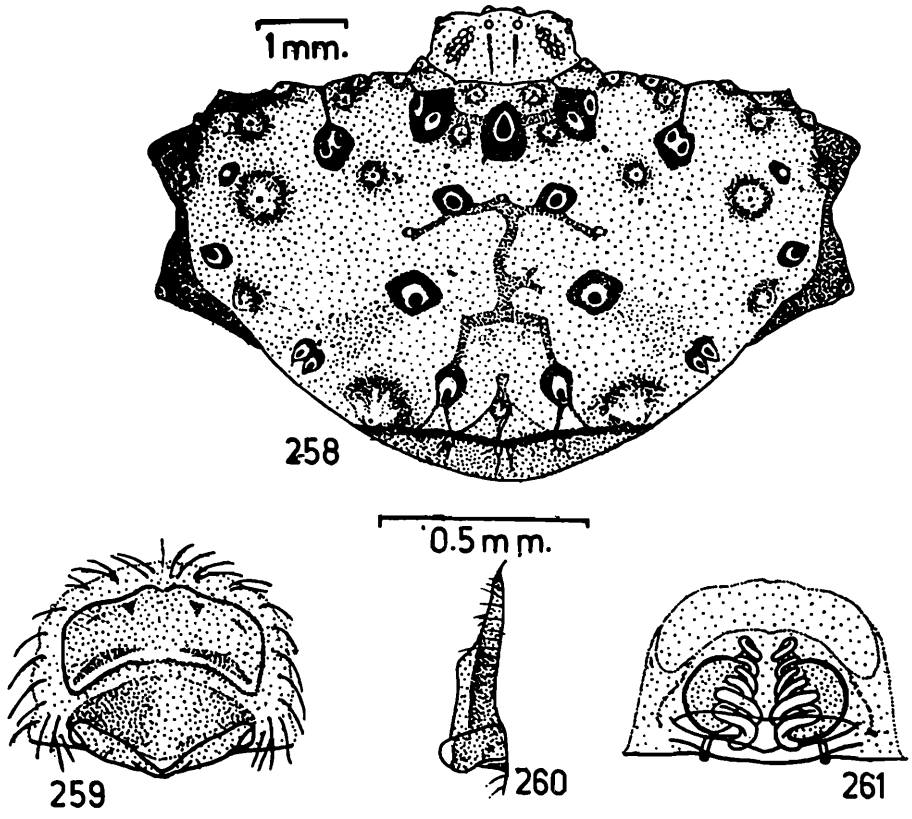
39. Cyrtarachne biswamoyi Tikader

(Figs. 258-261)

1960. *Cyrtarachne biswamoyi* Tikader, *J. Bombay nat. Hist. Soc.*, 57(3) : 554.

General : Cephalothorax and legs brownish, abdomen greyish brown. Total length 5.25 mm. Carapace 1.30 mm. long, 1.70 mm. wide ; abdomen 4.35 mm. long, 8.00 mm. wide.

Cephalothorax : Convex, scarcely clothed with hairs, two longitudinal lines running behind the posterior medians. Ocular quad nearly as long as wide, slightly wider in front than behind as in text-fig. 258 ; median eyes equal in size ; laterals slightly smaller than medians and equal in size, close and not situated on prominent tubercles ; both rows of eyes recurved as in text-



FIGS. 258-261. *Cyrtarachne biswamoyi* Tikader
258. Dorsal view of female, legs omitted.
259. Epigyne, ventral view.
260. Epigyne, lateral view.
261. Internal genitalia, ventral view.

fig. 258. Sternum heart-shaped, narrowing behind, deep brown in colour, clothed with hairs ; labium wider than long, deep brown with pale distal margin ; maxillae broad, light brownish, provided with distinct scopulae. Chelicerae small but strong and stout, brownish, having moderate boss. Legs short, moderately strong, clothed with hairs ; femer I, tuberculate on prolateral surface ; tibiae I, II tuberculate on dorsal surface.

Abdomen : Large, convex, having small blunt tubercles, strongly overlapping on the cephalothorax, more than one and half times wider than long, as in text-fig. 258. Dorsum of abdomen provided with large, conspicuous sigilla and some mid-longitudinal lines as in text-fig. 258. Two pairs of lateral and one pair of dorsal large tubercles as in text-fig. 258. Ventral side provided with a large black patch from epigastric furrow to posterior extremities beyond the spinnerets. Epigyne having a rather thin rim like structure instead of distinct scape as in text-fig. 259 & 260. Internal genitalia shows complicated spiral ducts open posteriorly of the epigyne as in text-fig. 261.

Distribution : INDIA: Muki (*Type-locality*) Balaghat, M.P.

Remarks : Illustrations and description are based on the Holotype, deposited in Z.S.I., Calcutta, Regd. No. 2537/18.

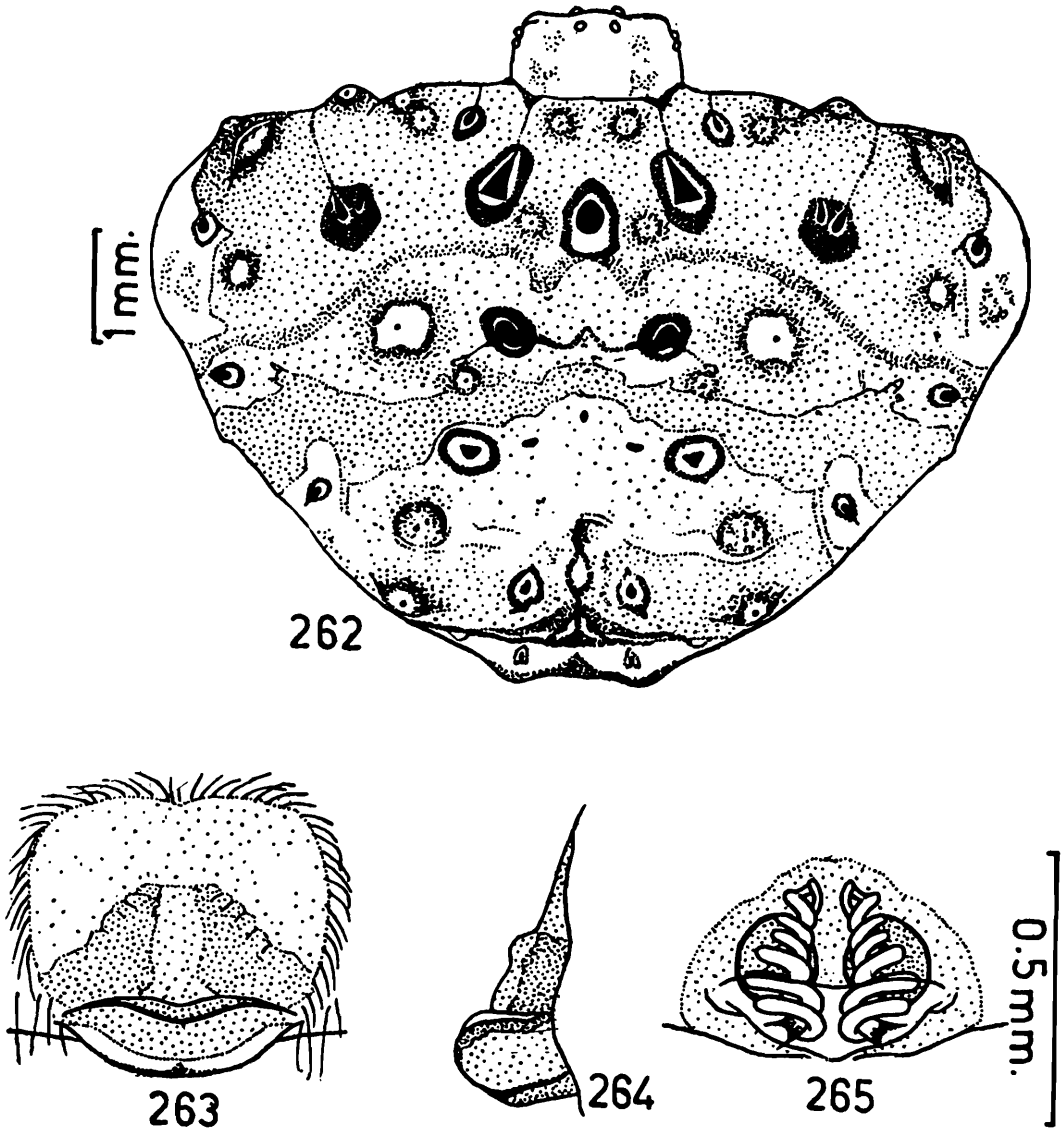
40. **Cyrtarachne bengalensis** Tikader

(Figs. 262-265)

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

General : Cephalothorax deep brown, legs brownish, abdomen greyish with white patches. Total length 5.80 mm. Carapace 1.30 mm. long, 1.60 mm. wide ; abdomen 5.00 mm. long, 7.70 mm. wide.

Cephalothorax : Moderately convex, scarcely clothed with hairs. Ocular quad slightly wider than long, anteriorly and posteriorly same in width as in text-fig. 262 ; anterior medians slightly larger than posterior medians ; laterals smaller than



FIGS. 262-265. *Cyrtarachne bengalensis* Tikader

262. Dorsal view of female, legs omitted.
263. Epigyne, ventral view.
264. Epigyne, lateral view.
265. Internal genitalia, ventral view.

medians, equal in size and not situated on prominent tubercles ; both rows of eyes recurved as in text-fig. 262. Sternum heart-shaped, narrowing behind, brownish ; maxillae broad, brownish, provided with distinct scopulae. Chelicerae small but strong and stout, yellowish brown, provided with moderate boss. Legs short, moderately strong, clothed with hairs ; tibia I provided with a few tubercles on dorsal side.

Abdomen : Large, convex, provided with small blunt tubercles

strongly overlapping on the cephalothorax, nearly one and half times wider than long as in text-fig. 262. Dorsum of abdomen having with large, conspicuous sigilla ; broadest part provided with white patches laterally as in text-fig. 262. Ventral side of abdomen dirty brownish. Epigyne provided with a broad, thick rim like structure as in text-figs. 263 & 264. Internal genitalia shows complicated spiral ducts, open posteriorly of the epigyne as in text-fig. 265.

Distribution : INDIA : Sibpur Botanical garden (*Type-locality*), Howrah, West Bengal.

Remarks : Illustrations and description are based on Holotype, deposited at Z.S.I., Calcutta, Regd. No. 2528/18.

41. **Cyrtarachne inequalis** Thorell

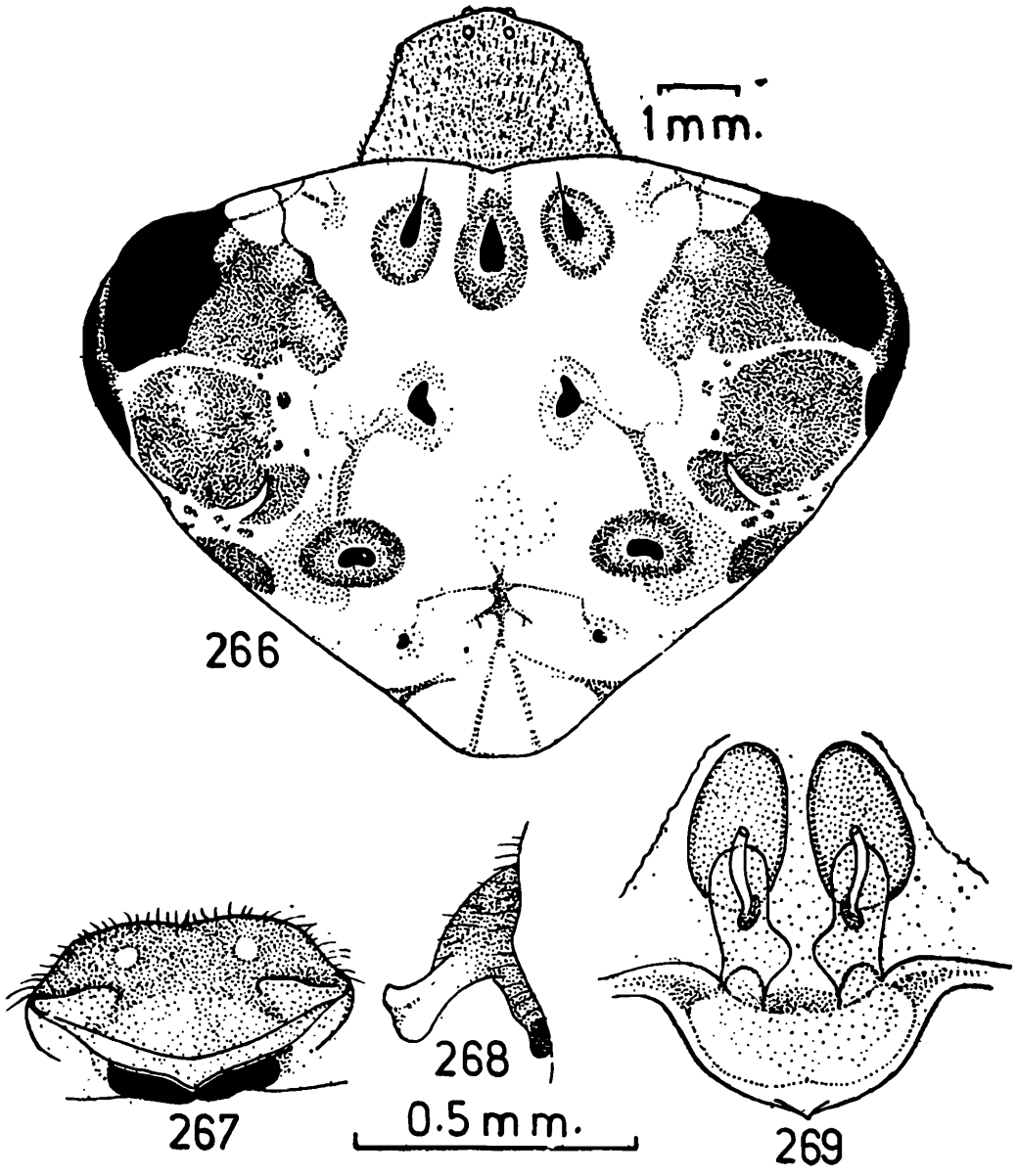
(Figs. 266-269)

1895. *Cyrtarachne inequalis* Thorell, *Spiders of Burma*, : 201.
1900. *Cyrtarachne inequalis* : Pocock, *Fauna Brit. India, Arachn.*, : 229.
1960. *Cyrtarachne inequalis* : Tikader, *J. Bombay nat. Hist. Soc.*, 57(3):548.

General : Cephalothorax and legs chocolate coloured, abdomen chalk white with light yellow shade and chocolate coloured patches. Total length 9.30 mm. Carapace 3.00 mm. long, 3.30 mm. wide ; abdomen 7.30 mm. long, 10.60 mm. wide.

Cephalothorax : Convex, clothed with hairs and pubescence. Ocular quad very narrowly wider than long but anteriorly and posteriorly same in width as in text-fig. 266 ; median eyes subequal in size ; laterals smaller than medians and subequal in size not situated on prominent tubercles ; both rows of eyes recurved as in text-fig. 266. Sternum heart- shaped, pointed behind, light brownish, clothed with hairs ; labium wider than long, yellowish with pale distal margin ; maxillae broad, yellowish, provided with distinct scopulae. Chelicerae strong and stout, yellowish, with small boss. Legs short but moderately stout, clothed with hairs.

Abdomen : Very large, nearly triangular, strongly overlapping on the cephalothorax as in text-fig. 266 ; broader than long and



Figs. 266-269. *Cyrtarachne inequalis* Thorell

266. Dorsal view of female, legs omitted.

267. Epigyne, ventral view.

268. Epigyne, lateral view.

269. Internal genitalia, posterior view.

broadest anteriorly ; integument leathery. Dorsum of abdomen provided with a pair of lateral smooth prominences, having chocolate coloured patches as in text-fig. 266 ; a few very distinct, large sigilla on the dorsum. Ventral side having a broad, median black patch in between epigastric furrow and spinnerets. Epigyne provided with a broad, thin, nearly, triangular scape,

pointed upwards at the tip as in text-figs. 267 & 268. Internal genitalia as in text-fig. 269.

Distribution : INDIA: Howrah, West Bengal ; Balaghat, M.P. ; Assam. BURMA : Tounghoo, Tharrawaddy.

Remarks : Since author could not get the type-specimen ; the description and illustrations are based on authenticated identified specimen, deposited in Zoological Survey of India, Western Regional Station, Poona, Regd. No. Ar/61.

42. **Cyrtarachne raniceps** Pocock

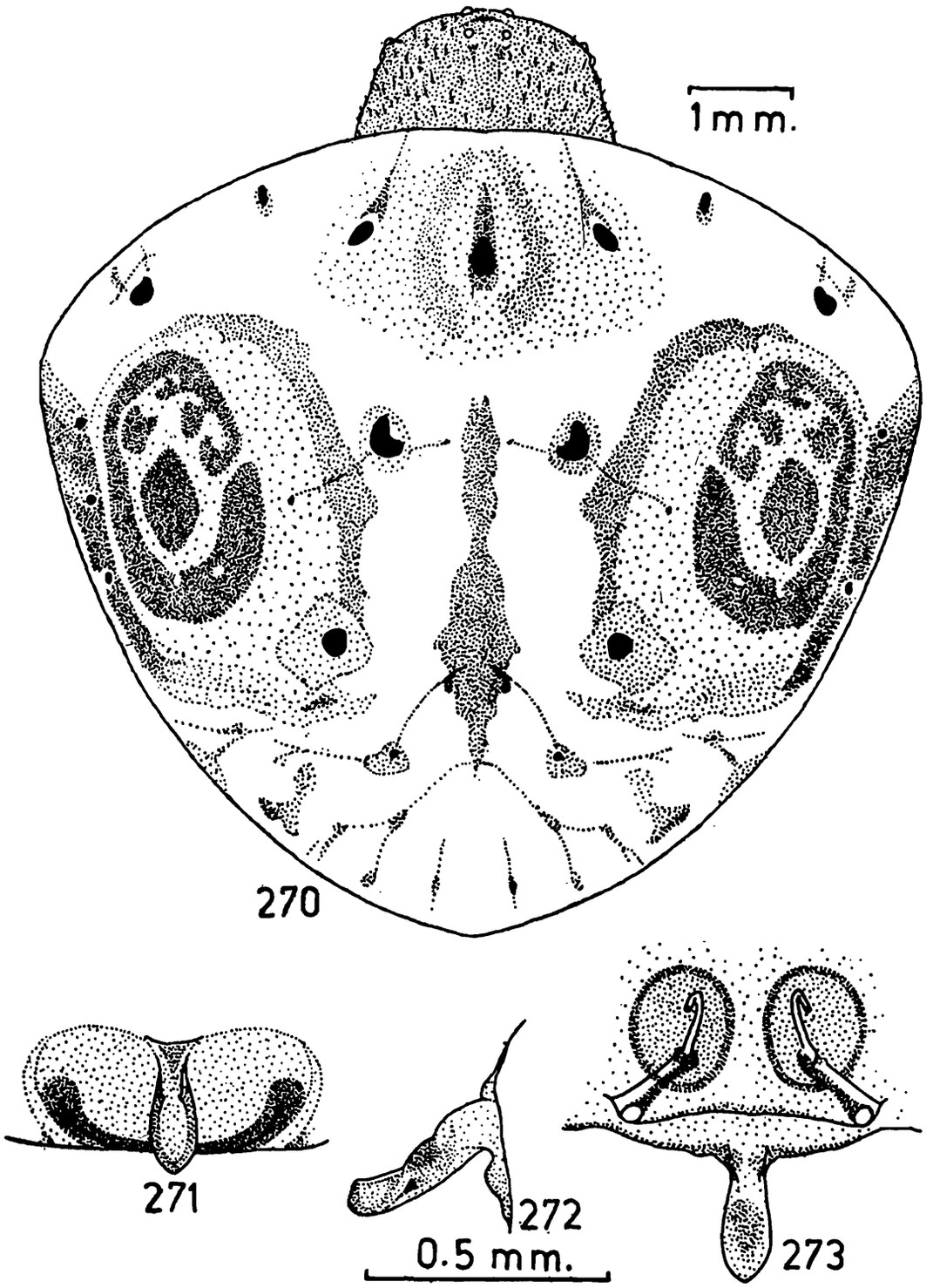
(Figs. 270-273)

1900. *Cyrtarachne raniceps* Pocock, *Fauna Brit. India, Arachn.*, : 229.
1960. *Cyrtarachne raniceps* : Tikader, *J. Bombay nat. Hist. Soc.*, 57(3) : 550.

General : Cephalothorax and legs yellowish brown, abdomen pale with olive green and brownish patches. Total length 9.00 mm. Carapace 2.10 mm. long, 260 mm. long ; abdomen 7.80 mm. long, 8.70 mm. wide.

Cephalothorax : Moderately convex, scarcely clothed with hairs and pubescence. Ocular quad very narrowly wider than long but anteriorly and posteriorly same in width as in text-fig. 270 ; median eyes subequal in size ; laterals smaller than medians and subequal in size, close and not situated on prominent tubercle ; both rows of eyes recurved as in text-fig. 270. Sternum heart-shaped, pointed behind, yellowish, clothed with hairs ; labium wider than long, yellowish with pale distal margin ; maxillae broad, yellowish, having small boss. Legs short but moderately stout, clothed with hairs.

Abdomen : Very large, nearly triangular, strongly overlapping on the cephalothorax as in text-fig. 270 ; broader than long and broadest anteriorly, integument leathery. Dorsum of abdomen having a pair of smooth lateral prominences, provided with olive-green and yellowish patches as in text-fig. 270 ; a few very prominent sigilla and some brownish patches and lines. Ventral



FIGS. 270-273. *Cyrtarachne raniceps* Pocock

270. Dorsal view of female, legs omitted.

271. Epigyne, ventral view.

272. Epigyne, lateral view.

273. Internal genitalia, posterior view.

side of abdomen provided with a broad, median black patch in between epigastric furrow and spinnerets. Epigyne having a thin, narrow scape as in text-fig. 271 & 272. Internal genitalia as in text-fig. 273.

Distribution : INDIA: West Bengal ; Chikmangalur, Karnataka. SRI LANKA.

Remarks : The description and illustrations are made on the basis of authenticated identified specimen, deposited in Zoological Survey of India, Western Regional Station, Poona, Regd. No. Ar/19.

43. **Cyrtarachne gravelyi** Tikader

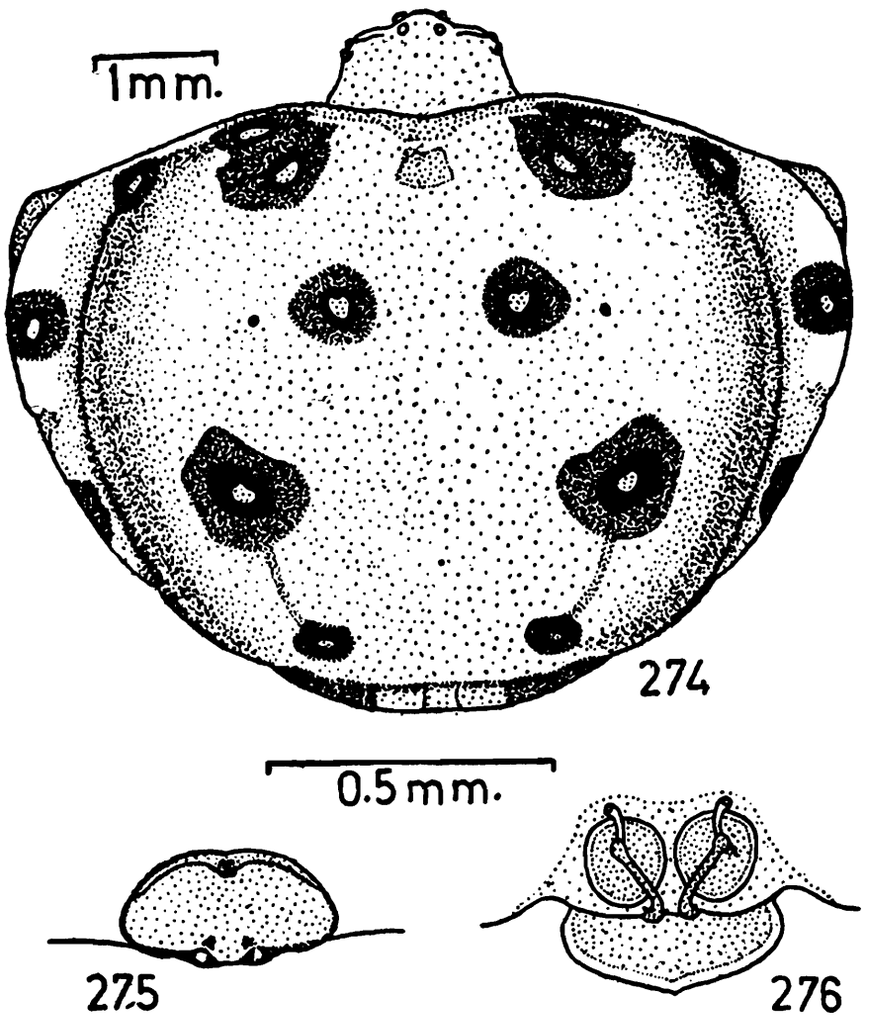
(Figs. 274-276)

1960. *Cyrtarachne gravelyi* Tikader, *J. Bombay nat. Hist. Soc.*, 57(3) : 553.

General : Cephalothorax and legs pale yellowish, abdomen greyish yellow with black patches. Total length 5.70 mm. Carapace 1.40 mm. long, 1.60 mm. wide ; abdomen 4.90 mm. long, 7.20 mm. wide.

Cephalothorax : Moderately convex, scarcely clothed with hairs and pubescence. Ocular quad slightly wider than long but anteriorly and posteriorly same in width as in text-fig. 274 ; median eyes equal in size ; laterals smaller than medians and subequals, close and not situated on prominent tubercles; both rows of eyes recurved as in text-fig. 274. Sternum heart-shaped, narrowing behind, yellowish brown, clothed with hairs; labium wider than long, yellowish with pale distal margin; maxillae broad, yellowish with white patches, provided with distinct scopulae. Chelicerae strong and stout, pale yellowish provided with small boss. Legs short, moderately strong, clothed with hairs and a few spines.

Abdomen : Very large, highly convex, srongly overlapping on cephalothorax, much wider than long as in text-fig. 274. Dorsum of abdomen provided with a few pairs of large and conspicuous sigilla surrounded by black patches and white patches at broadest



Figs. 274-276. *Cyrtarachne gravelyi* Tikader
274. Dorsal view of female, legs omitted.
275. Epigyne, ventral view.
276. Internal genitalia, posterior view.

parts as in text-fig. 274. Ventral side of abdomen provided with a large black patch in between epigastric furrow and spinnerets; posterior border of abdomen white. Epigyne simple, little bulged capsule like with no scape as in text-fig. 275. Internal genitalia shows simple structure, ducts open straightly at the posterior end of epigyne as in text-fig. 176.

Distribution : India : Pashok (*Type-locality*) Darjeeling, West Bengal.

Remarks: Description and illustrations are based on Holotype, deposited at Z.S.I., Calcutta, Regd. No. 2529/18.

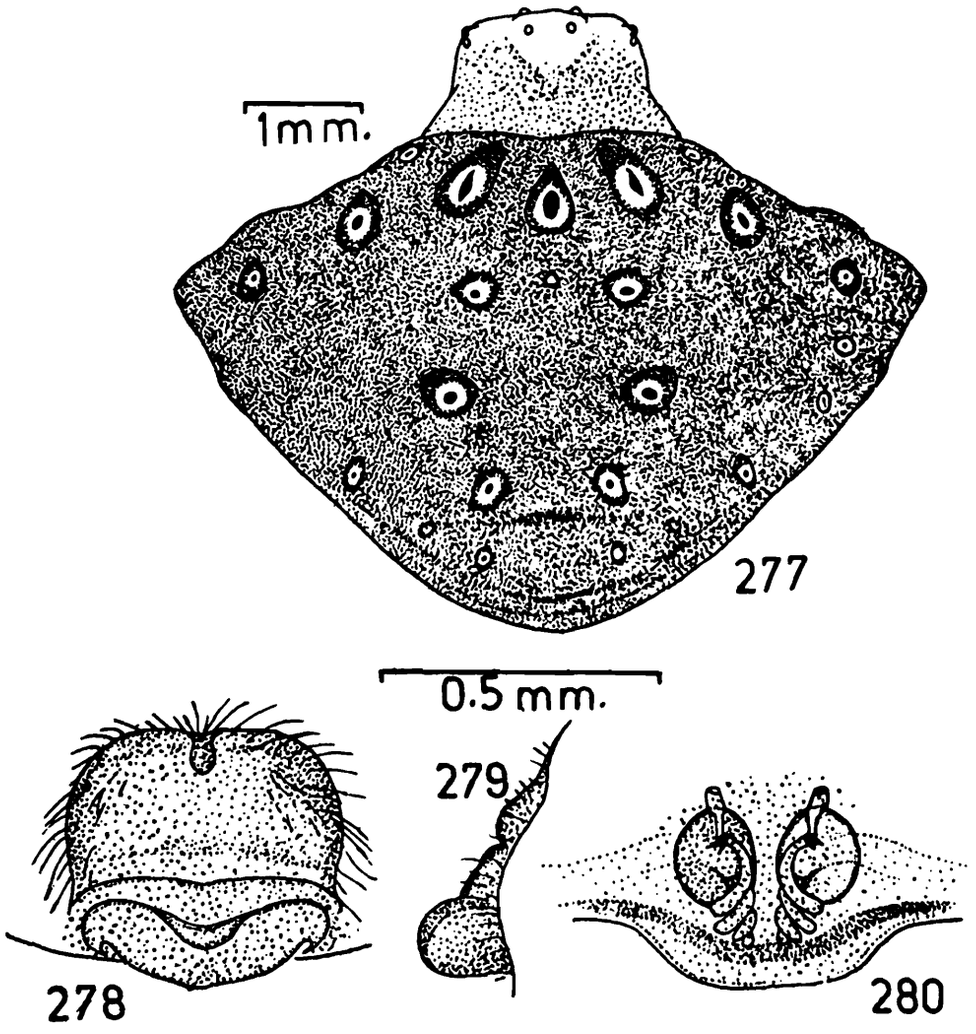
44. **Cyrtarachne promilai** Tikader

(Figs. 277-280)

1963. *Cyrtarachne promilai* Tikader, *J. Bombay nat. Hist. Soc.*, 60(1) : 274.

General: Cephalothorax light brownish, legs yellowish, abdomen blackish. Total length 5.10 mm. Carapace 1.65 mm. long, 2.20 mm. wide; abdomen 4.05 mm. long, 6.30 mm. wide.

Cephalothorax: Convex, scarcely clothed with hairs. Ocular quad slightly wider than long, anteriorly slightly wider than be-



FIGS. 277-280. *Cyrtarachne promilai* Tikader

277. Dorsal view of female, legs omitted.
278. Epigyne, ventral view.
279. Epigyne, lateral view.
280. Internal genitalia, posterior view.

hind as in text-fig. 277 ; median eyes equal in size ; laterals subequal to the medians, close and not situated on prominent tubercles; both rows of eyes recurved as in text-fig. 277. Sternum heart-shaped, narrowing behind, brownish in colour, clothed with hairs; labium wider than long, brownish with pale distal border; maxillae broad, yellowish brown with pale patches, provided with distinct scopulae. Chelicerae short but strong and stout, yellowish, having moderate boss. Legs short, moderately strong, clothed with hairs; femur I tuberculate on prolateral surface.

Abdomen: Large, broadly sub-triangular in shape, strongly overlapping on the cephalothorax, nearly one and half times wider than long as in text-fig. 277. Dorsum of abdomen provided with large conspicuous sigilla as in text-fig. 277. Epigyne provided with a broad, thick rim like structure as in text-figs. 278 & 279. Internal genitalia show complecated spiral ducts open posteriorly of the epigyne as in text-fig. 280.

Distribution: INDIA: Poona (*Type-locality*), Maharashtra.

Remarks: Description and illustrations are made on the basis of Holotype, deposited at Z.S.I., Calcutta, Regd. No. 2984/18.

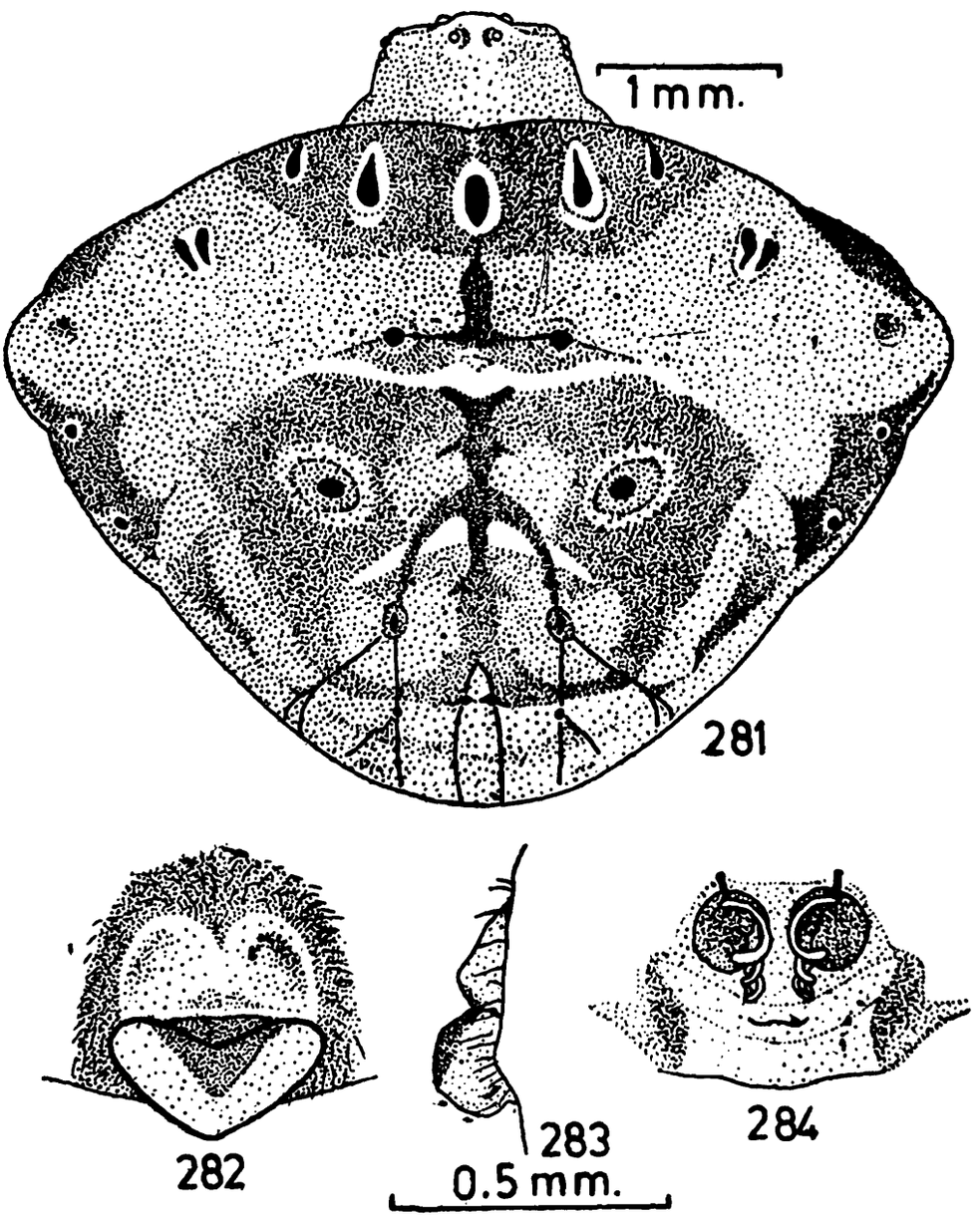
45. **Cyrtarachne sundari** Tikader

(Figs. 281-284)

1963. *Cyrtarachne sundari* Tikader, *J. Bombay nat. Hist. Soc.*, 60(1) : 271.

General: Cephalothorax deep brownish, legs yellowish brown, abdomen greyish with dark, white and yellow patches. Total length 4.30 mm. Carapace 1.10 mm. long, 1.40 mm. wide; abdomen 3.70 mm. long, 5.20 mm. wide.

Cephalothorax: Convex, scarcely clothed with hairs. Ocular quad wider in front than behind as in text-fig. 281, slightly longer than wide ; anterior median eyes slightly larger than posterior medians; laterals subequal to the medians in size, close and not situated on prominent tubercles; both rows of eyes recurved as in text-fig. 281. Sternum triangular, narrowing behind, blackish brown in colour, clothed with hairs; labium wider than long, brownish with pale distal border ; maxillae



FIGS. 281-284. *Cyrtarachne sundari* Tikader
281. Dorsal view of female, legs omitted.
282. Epigyne, ventral view.
283. Epigyne, lateral view.
284. Internal genitalia, posterior view.

broad, pale yellowish, provided with distinct scopulae. Chelicerae small but strong and stout, yellowish brown, having moderate boss. Legs short, moderately strong; femur I provided with two tubercles on the prolateral surface.

Abdomen : Large, convex, strongly overlapping on the carapace,

much wider than long as in text-fig. 281. Dorsum of abdomen provided with large, conspicuous sigilla and dark, white and yellowish patches and some brownish lines as in text-fig. 281. Ventral side of abdomen having a large black patch from epigastric furrow to beyond the spinnerets. Epigyne provided with a broad and thick rim structure as in text-figs. 282 & 283. Internal genitalia shows less complicated spiral ducts of spermathecae, those open posteriorly of the epigyne as in text-fig. 284.

Distribution: INDIA: Poona (*Type-locality*) Maharashtra.

Remarks: Description and illustrations are based on Holotype, deposited at Z.S.I., Calcutta, Regd. No. 2983/18.

46. **Cyrtarachne schmidi** Tikader

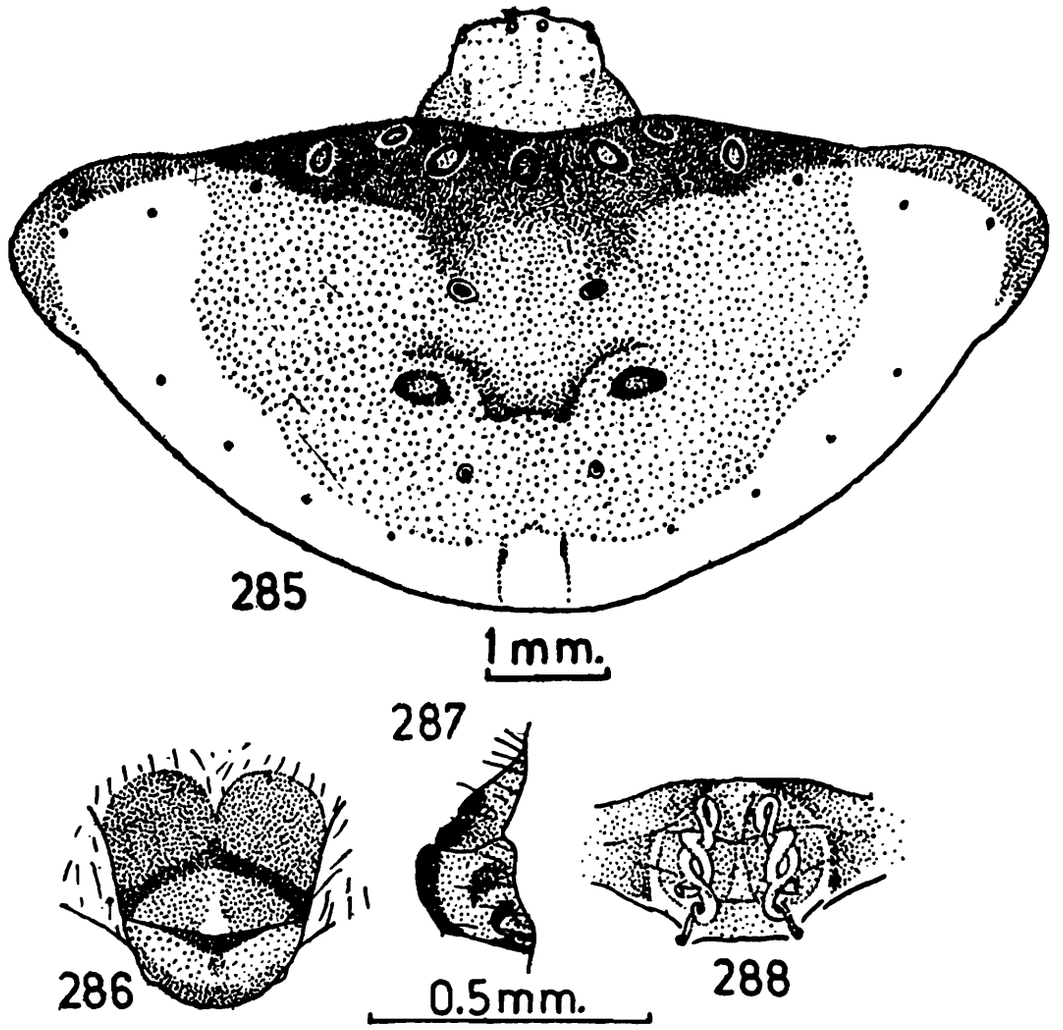
(Figs. 285-288)

1963. *Cyrtarachne schmidi* Tikader, *J. Bombay nat. Hist. Soc.*, 60(1) : 271.

General: Cephalothorax light brownish yellow, legs light brownish, abdomen light greenish. Total length 4.80 mm. Carapace 1.60 mm. long, 1.80 mm. wide; abdomen 3.90 mm. long, 8.65 mm. wide.

Cephalothorax: Moderately convex, scarcely clothed with hair. Ocular quad slightly longer than wide, anteriorly and posteriorly same in width as in text-fig. 285 ; median eyes equal in size ; laterals smaller than medians and subequal, close and not situated on prominent tubercles ; both rows of eyes recurved as in text-fig. 285. Sternum heart-shaped, narrowing behind, light brownish, clothed with hair; labium wider than long, brownish; maxillae broad, brownish provided with distinct scopulae. Chelicerae small but strong and stout, yellowish, provided with moderate boss. Legs short, moderately strong, clothed with hair ; femur I provided with two small tubercles with large strong and stout hair on the pro-lateral side.

Abdomen: Large, more than twice wider than long. Dorsum of abdomen light greenish but anteriorly dark greenish, lateral and posterior sides white; provided with a few conspicuous sigilla as in text-fig. 285. Ventral side of abdomen greenish



FIGS. 285-288. *Cyrtarachne schmidi* Tikader
285. Dorsal view of female, legs omitted.
286. Epigyne, ventral view.
287. Epigyne, lateral view.
288. Internal genitalia, ventral view.

with pale outer border. Epigyne bulged capsule like, provided with a wide, thick rim like structure instead of scape as in text-fig. 286 & 287. Internal genitalia shows complicated structure, spermathecal ducts spiral and open posteriorly of the epigyne as in text-fig. 288.

Distribution: INDIA: Amatulla (*Type-locality*), Dist. Kameng, Arunachal.

Remarks: Illustrations and description based on Holotype, deposited at Z.S.I., Calcutta, Regd. No. 2982/18.

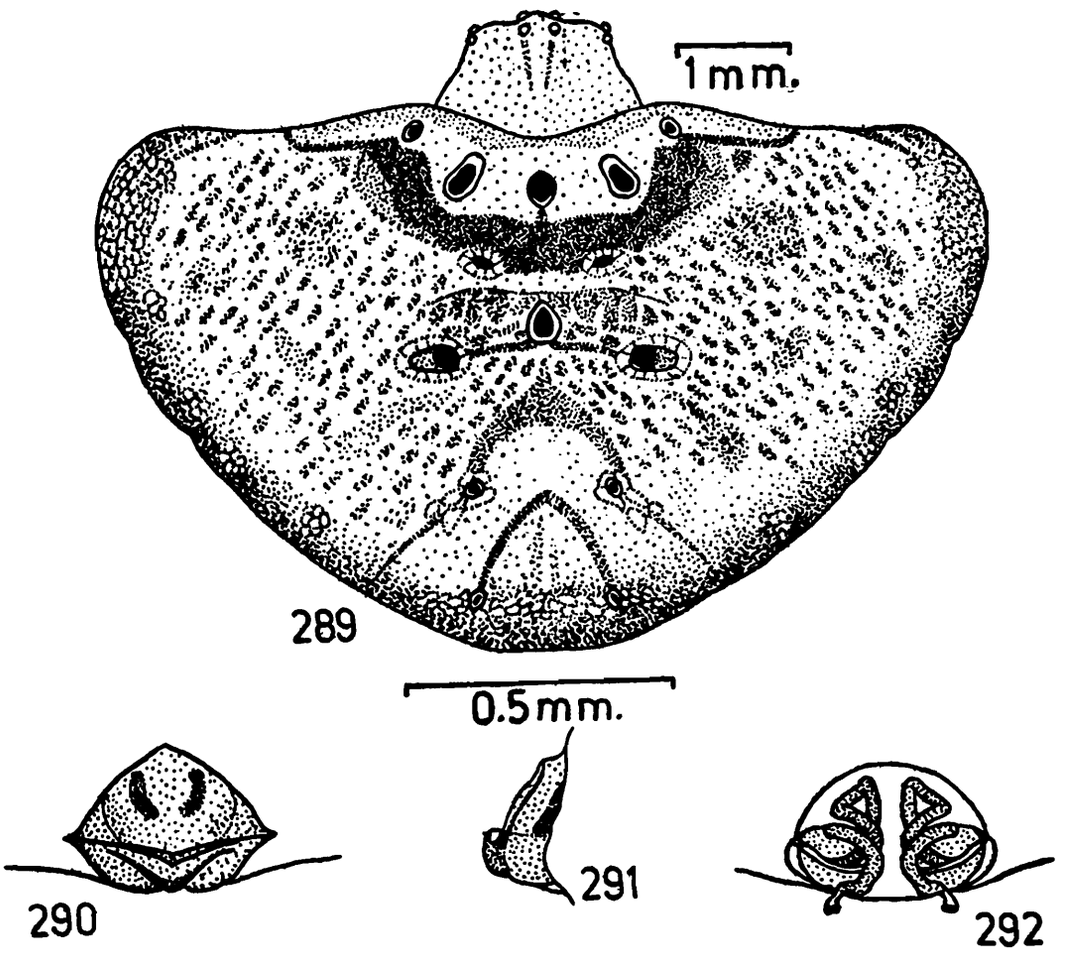
47. Cyrtarachne avimerdaria Tikader

(Figs. 289-292)

1963. *Cyrtarachne avimerdaria* Tikader, *J. Bombay nat. Hist. Soc.*, 60(1) : 269.

General: Cephalothorax yellowish brown, legs brownish, abdomen light brownish grey. Total length 5.60 mm. Carapace 1.65 mm. long, 1.80 mm. wide; abdomen 4.50 mm. long, 7.90 mm. wide.

Cephalothorax: Convex, scarcely clothed with hair. Ocular quad forming a square as in text-fig. 289, posterior medians



FIGS. 289-292. *Cyrtarachne avimerdaria* Tikader
289. Dorsal view of female, legs omitted.
290. Epigyne, ventral view.
291. Epigyne, lateral view.
292. Internal genitalia, ventral view.

slightly larger than anterior medians and surrounded by black rings; laterals slightly smaller than medians, equal in size, close and not situated on prominent tubercles; both rows of eyes recurved as in text-fig. 289. Sternum heart-shaped, narrowing but blunt behind, brownish, clothed with hair; labium wider than long, brownish; maxillae broad, brownish, provided with distinct scopulae. Chelicerae small but strong and stout, yellowish, provided with moderate boss. Legs short, moderately strong, clothed with hairs; femur I tuberculate, tubercles with long hairs, on the prolateral surface.

Abdomen : Large, strongly overlapping on the cephalothorax, more than one and half times wider than long as in text-fig. 289. Dorsum of abdomen provided with large, conspicuous sigilla and some greenish and white patches as in text-fig. 289. Ventral side greyish yellow. Epigyne having a broad and moderately thick rim like structure as in text-fig. 290 & 291. Internal genitalia shows complicated spiral ducts of spermathecae, each opens posterior to the epigyne as in text-fig. 292.

Distribution: INDIA: Cherrapunji (*Type-locality*), Meghalaya.

Remarks: Description and illustrations based on Holotype, deposited in Z.S.I., Calcutta, Regd. No. 2981/18.

Genus 11. **Pasilobus** Simon

1895. *Pasilobus* Simon, *Hist. Nat. Araign.*, 1(4) : 881.
1960. *Pasilobus* : Yaginuma : *Spiders of Japan, in Colour*, : 64.
1963. *Pasilobus* : Tikader, *Proc. Indian Acad. Soc.*, 57(2) : 96.

Characters: Carapace wider than long, slightly depressed behind the eyes and lightly covered by stout, lanceolate hairs. Ocular quad nearly square; lateral eyes close. Legs short and rather slender; patellae, tibiae and metatarsi flat. Abdomen large, nearly more than twice as broad as long, roughly truncated and often angled on both anterior and posterior sides, dorsum provided with low and coarse tubercles.

Type-species: *Pasilobus bufoninus* Simon

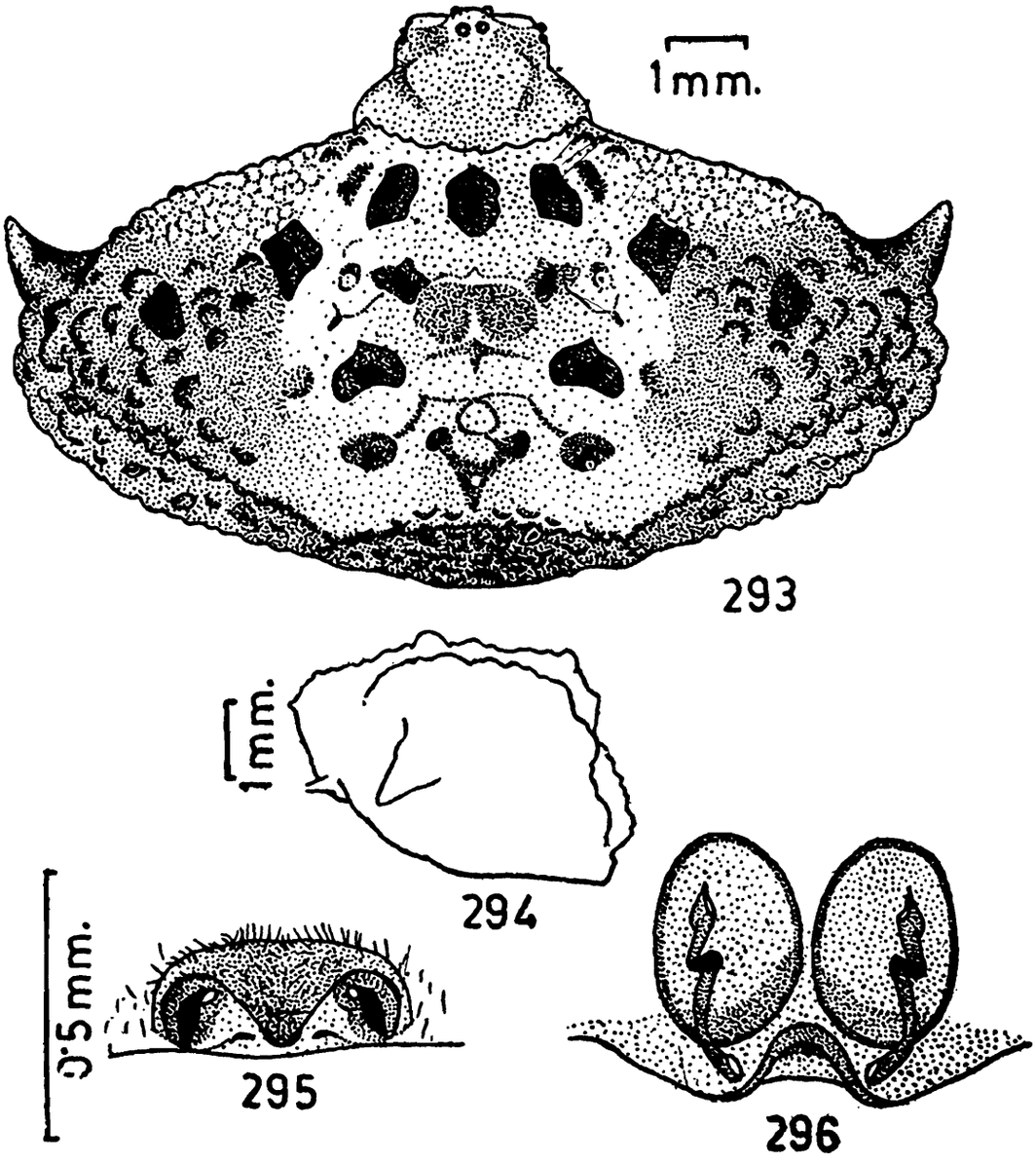
Distribution : INDIA, JAPAN, MALAYSIA, MOLUCCA.

48. **Pasilobus kotigeharus** Tikader

(Figs. 293-296)

1963. *Pasilobus kotigeharus* Tikader, *Proc. Indian Acad. Sci.*, 57(2) : 96.

General: Cephalothorax and legs deep brown, abdomen greyish with white and brownish patches. Total length 7.50 mm.



FIGS. 293-296. *Pasilobus ketigeharus* Tikader

293. Dorsal view of female, legs omitted.
294. Lateral view of abdomen of female.
295. Epigyne, ventral view.
296. Internal genitalia, posterior view.

Carapace 2.60 mm. long, 3.10 mm. wide; abdomen 5.60 mm. long, 12.10 wide.

Cephalothorax: Wider than long, very broad posteriorly scarcely clothed with white pubescence and hairs; cephalic region blunt anteriorly, having a ridge in front of lateral eyes as in text-fig. 293. Ocular quad forms square and situated on an elevation as in text-fig. 293; anterior median eyes slightly larger than posterior medians; posterior median situated on prominent ring like base on each side as in text-fig. 293; laterals subequal in size and close; both rows of eyes recurved as in text-fig. 293. Sternum heart-shaped, narrowing posteriorly with blunt tip, deep brown, clothed with hair; labium wider than long, brownish with pale distal margin; maxillae broad, brown with yellow outer borders, provided with distinct scopulae. Chelicerae small but stout, brownish, having small boss. Legs short and stout, clothed with pubescence and hairs; prolateral surface of femur I provided with irregular tubercles.

Abdomen: Large, more than twice wider than long, moderately overlapping on the carapace, provided with numerous small blunt tubercles as in text-figs. 293 & 294. Dorsum of abdomen having one pair of large, conical anteriorly projecting humps in front of middle as in text-fig. 293 & 294; also having large, distinct deep brown sigilla as in text-fig. 293. Ventral side greyish, non tuberculate. Epigyne instead of scape having a median depression gradually narrowing posteriorly as in text-fig. 295 & 296. Internal genitalia as in text-fig. 296.

Distribution: INDIA: Kotigehar (*Type-locality*), Dist. Chikmagalur, Karnataka.

Remarks: Description and illustrations are based on the Holotype, deposited in Z.S.I., Calcutta, Regd. No. 2979/18.

Genus 12. **Chorizopes** O. P. Cambridge

1870. *Chorizopes* O. P. Cambridge, *Proc. zool. Soc. Lond.*, : 737.

1873. *Chorizopes* : Thorell, *Nova Acta R. Soc. Scient. upsal.*, 7(3) : 600.

1895. *Chorizopes* : Simon, *Hist. Nat. Araign.*, 1(4) : 922.

1960. *Chorizopes* : Yaginuma, *Spiders of Japan, in colour,* : 68.

1965. *Chorizopes* : Tikader, *Proc. Indian Acad. Sci.*, 62(2) : 94.

1973. *Chorizopes* : Sadana & Kaur, *Entomologist's mon. Mag.*, 109 : 162.

Characters: Carapace often broadest anteriorly with highly convex and roundish cephalic region, thoracic region descending sharply behind and low. Ocular quad forms a trapezium, slightly wider behind than in front. Labium transversely triangular; maxillae short, broad, converging towards inside. Sternum triangular, posteriorly tapering but tip is blunt, coxa IV subcontiguous. Legs short and slender. Abdomen overlapping anteriorly on the carapace and provided with a few paired or unpaired conical or blunt tubercles. Epigyne without or with a short blunt scape.

Type-species: Chorizopes frontalis O.P. Cambridge.

Distribution: INDIA, BURMA, JAPAN.

Key to the species of the genus **Chorizopes** O.P. Cambridge

1. Abdomen provided with three pairs of lateral tubercles; epigyne having scape like process.....2
   Abdomen provided with one pair of lateral tubercles; epigyne plate like without any scape.....3

2. Carapace slightly broader in cephalic region (Fig. 246); lateral eyes not close (Fig. 297); abdomen broadest posteriorly (Fig. 297); epigynal scape broad and blunt (Figs. 299 & 300).....*khanjanes*
   Carapace slightly broader in thoracic region (Fig. 302); lateral eyes close (Fig. 302); abdomen broadest anteriorly (Fig. 302); epigynal scape narrow and rather pointed (Figs. 305 & 306).....*bengalensis*

3. Carapace distinctly broad in cephalic region (Fig. 308); cephalic region provided with one pair of pale patches (Fig. 308); median eyes are remarkably small (Fig. 308); lateral tubercles of abdomen distinct (Fig. 308).....*anjanes*

Carapace slightly broad in thoracic region (Fig. 312) ; cephalic region having no pale patch ; median eyes are moderate (Fig. 312); lateral tubercles of abdomen less distinct (Fig. 312).....*calciope*

49. **Chorizopes khanjanes** Tikader

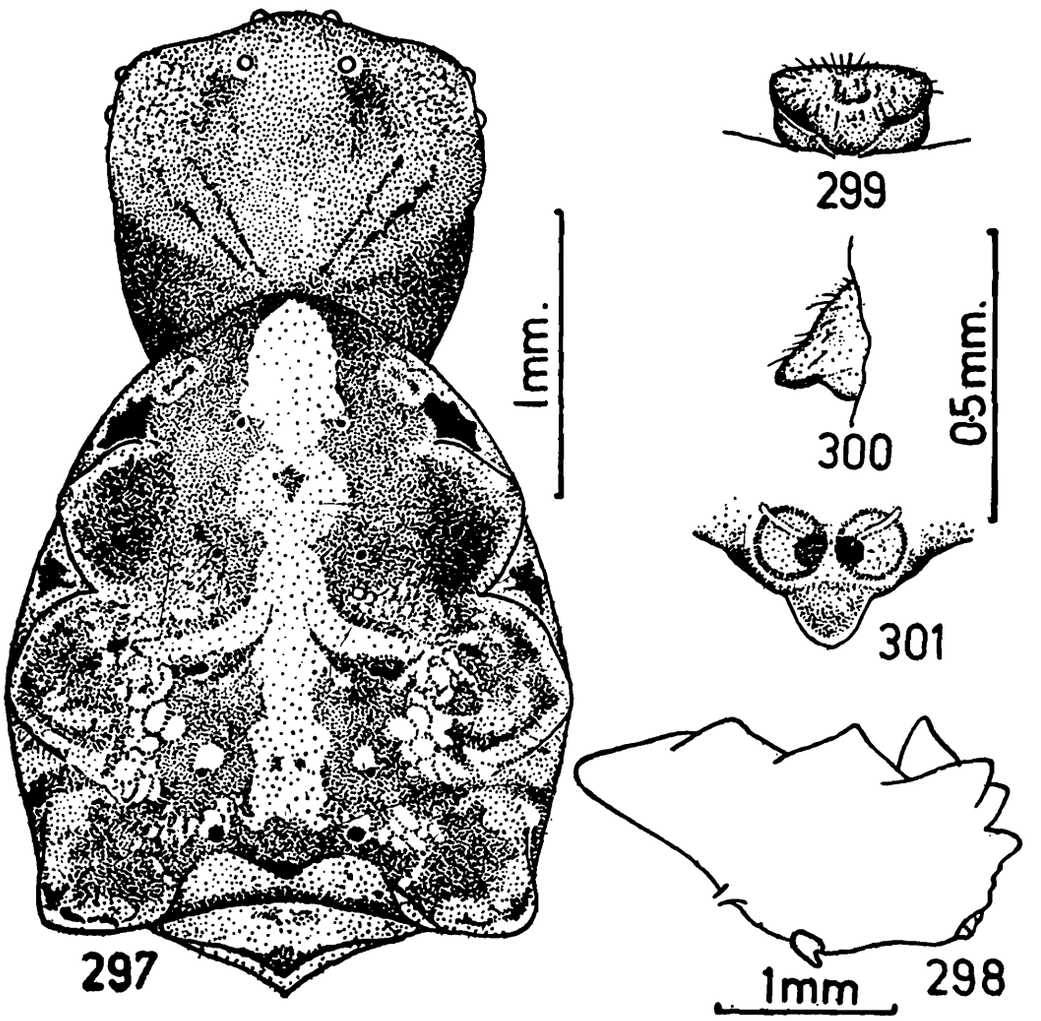
(Figs. 297-301)

1965. *Chorizopes khanjanes* Tikader, *Proc. Indian Acad. Sci.*, 62(2) : 95.

General: Cephalothorax blackish brown, legs yellowish with brownish bands, abdomen greyish with blackish and yellowish patches. Total length 3.40 mm. Carapace 1.30 mm. long, 1.30 mm. wide; abdomen 2.35 mm. long, 2.00 mm. wide.

Cephalothorax: Longer than wide, roundish and broadest anteriorly, clothed with white hair; cephalic region roundish, convex and much elevated than thoracic region. Ocular quad forming a trapezium, wider behind than long as in text-fig. 297; eyes pearly white; anterior median eyes slightly larger than posterior median eyes; lateral eyes subequal in size, separated a little; both rows of eyes strongly recurved as in text-fig. 297. Sternum triangular, pointed behind, light brown in colour with a median large orange yellowish patch and some dark brown patches, clothed with hair; labium wider than long, pale in colour; maxillae much broader than long, brownish with pale inner margin, provided with distinct scopulae. Chelicerae very strong and stout, brownish, clothed with hairs, having distinct boss. Legs moderately strong, segments with brownish transverse bands, clothed with hairs.

Abdomen: Longer than wide, clothed with hairs, provided with three pairs of prominent lateral tubercles and three vertically arranged caudal processes as in text-figs. 297 & 298. Dorsum of abdomen having five pairs of sigilla and decorated with blackish and yellowish patches forming a pattern as in text-fig. 297. Ventral side dirty brown in colour with yellowish and blackish patches. Epigyne provided with a broad and stout scape as in text-figs. 299 & 300. Internal genitalia as in text-fig. 301.



FIGS. 297-301. *Chorizopes khanjanes* Tikader

297. Dorsal view of female, legs omitted
298. Lateral view of abdomen of female.
299. Epigyne, ventral view.
300. Epigyne, lateral view.
301. Internal genitalia, posterior view.

Distribution: INDIA: Poona, (*Type-locality*) Maharashtra.

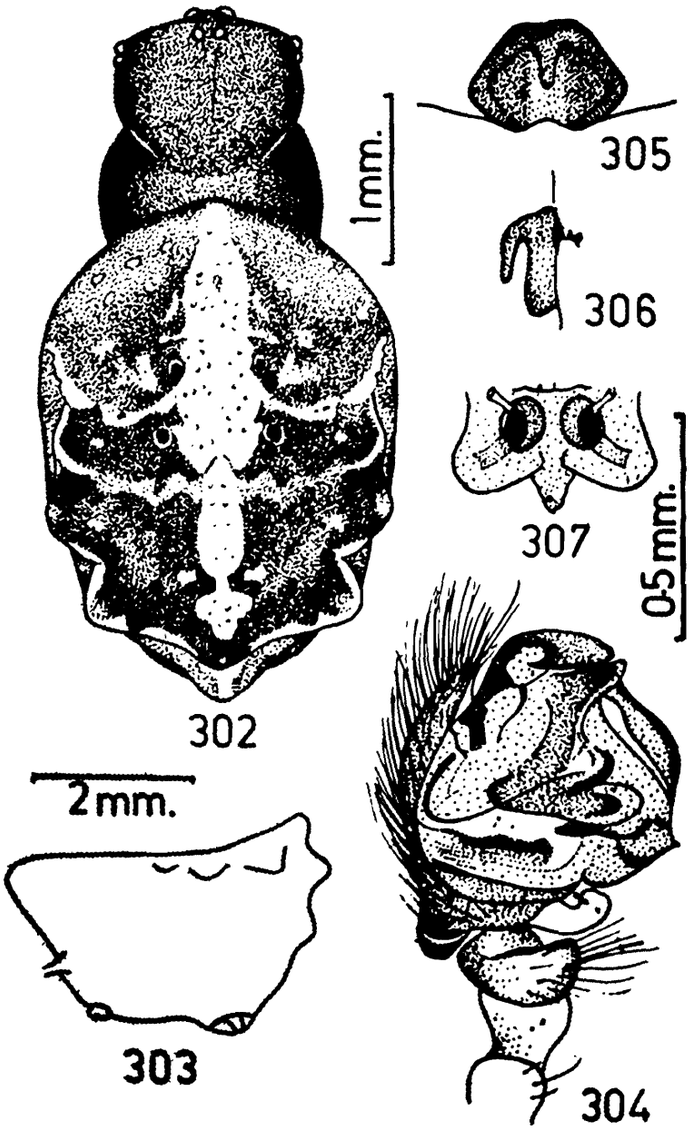
Remarks: Description and illustrations are based on identified specimen after compared with the Holotype, deposited at Z.S.I., Calcutta (Regd. No. 3217/18); which is collected from Poona, Maharashtra, India.

50. **Chorizopes bengalensis** Tikader

(Figs. 302-307)

1975. *Chorizopes bengalensis* Tikader, *Proc. Indian Acad. Sci.*, 81(4) : 148,

General: Cephalothorax dark brown, legs yellowish with blackish brown patches and bands, abdomen brownish with chalk white and black patches. Total length 4.10 mm. Carapace 1.40 mm. long, 1.35 mm. wide; abdomen 3.00 mm. long, 2.15 mm. wide.



FIGS. 302-307. *Chorizopes bengalensis* Tikader

302. Dorsal view of female, legs omitted.
303. Lateral view of abdomen of female.
304. Mesal view of left male palp.
305. Epigyne, ventral view.
306. Epigyne, lateral view.
307. Internal genitalia, posterior view.

Cephalothorax: Longer than wide, truncated anteriorly, clothed with grey pubescence; cephalic region roundish, highly convex and elevated than thoracic portion, cephalic region lighter in colour. Ocular quad nearly square as in text-fig. 302; eyes pearly white with light greenish shade; median eyes subequal in size; posterior medians encircled by black rings; lateral eyes subequal in size and close; both rows of eyes recurved as in text-fig. 302. Sternum heart-shaped, pointed behind, blackish, clothed with grey pubescence; labium slightly wider than long, dark brown with pale distal margin; maxillae broad, brown with dark patches and pale inner margins, provided with distinct scopulae. Chelicerae strong and stout, dark brown, anterior margin of fang furrow provided with a row of stong hair; chelicerae having indistinct boss. Legs strong, clothed with hair; femora I and II having blackish brown complete transverse bands. Male palp as in text-fig. 304.

Abdomen: Longer than wide, clothed with grey hair, slightly concave, provided with three lateral blunt tubercles and posterior end having three vertically arranged caudal process as in text-figs. 302 & 303. Oorsum of abdomen provided with a distinct mid-longitudinal chalk white patch, some small black and chalk white patches and spots also present as in text-fig. 302; four pairs of distinct sigilla arranged mid-longitudinally. Ventral side with a median broad black patch in between epigastric fold and spinnerets, also provided with scattered chalk white spots and patches. Epigyne having a thin and narrow scape as in text-figs. 305 & 306. Internal genitalia as in text-fig. 307.

Distribution: INDIA: Darjeeling, (*Type-locality*) West Bengal.

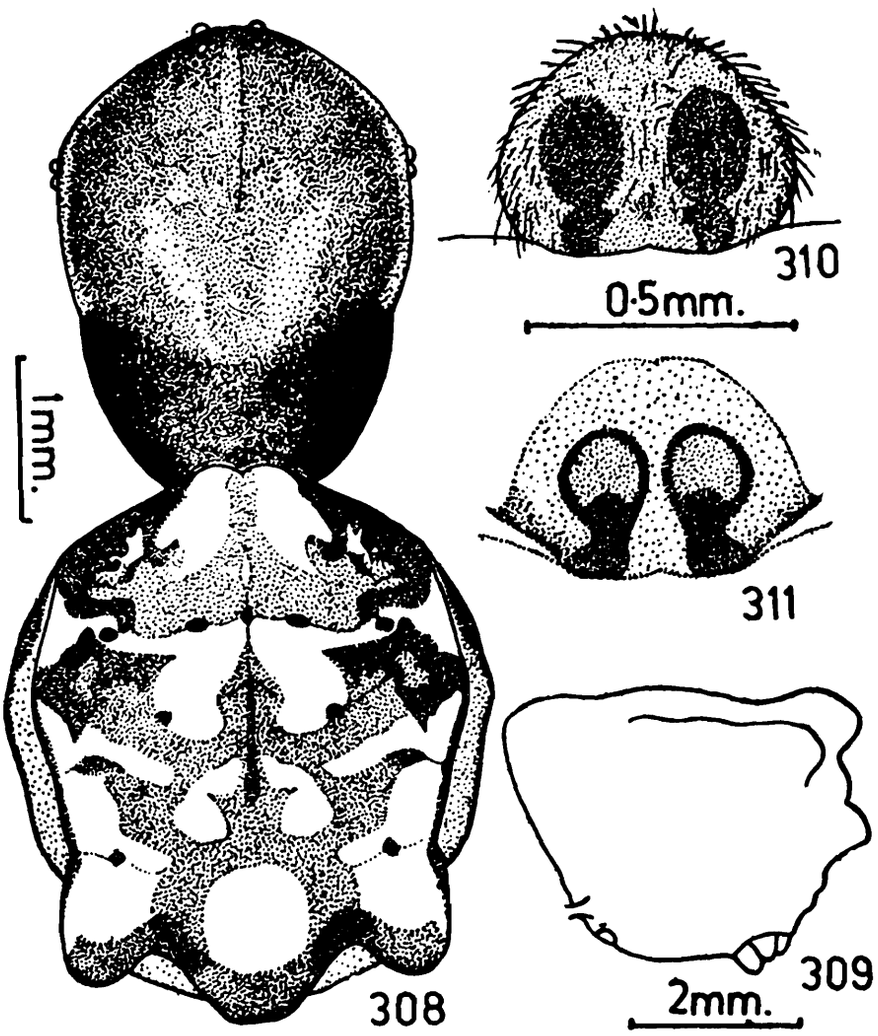
Remarks: Descriptions and illustrations are based on one *Paratype* and one *allotype*, deposited in Z.S.I., Calcutta, Regd. No. 5070/18. and 5072/18.

51. **Chorizopes anjanes** Tikader

(Figs. 308-311)

1965. *Chorizopes anjanes* Tikader, *Proc. Indian Acad. Sci.*, 62(2) : 94.

General: Cephalothorax black, legs yellowish with brownish



FIGS. 308-311. *Chorizopes anjanes* Tikader
308. Dorsal view of female, legs omitted.
309. Lateral view of abdomen of female.
310. Epigyne, ventral view.
311. Internal genitalia, dorsal view.

patches, abdomen greyish yellow with brownish black patches. Total length 6.20 mm. Carapace 2.90 mm. long, 2.25 mm. wide; abdomen 3.35 mm. long, 3.05 mm. wide.

Cephalothorax: Longer than wide, roundish and broadest anteriorly, clothed with pubescence; cephalic region roundish, highly convex and much elevated than thoracic region, one pair of light brown patches at the posterior part of cephalic region as in text-fig. 308. Ocular quad nearly as long as wide in front and eyes pearly white, anterior median eyes slightly larger than

posterior medians; lateral eyes sub-equal in size and close; both rows of eyes strongly recurved as in text-fig. 308. Sternum heart-shaped, pointed behind, blackish brown in colour, clothed with pubescence; labium slightly wider than long, dark brown in colour with pale distal margin; maxillae broad, light brown in colour with pale tips, provided with distinct scopulae. Chelicerae very strong and stout, dark brown, clothed with grey pubescence, anterior margin of fang furrow having a row of strong hairs, provided with indistinct boss. Legs moderately strong, segments with brownish patches, clothed with hairs.

Abdomen: Slightly longer than wide, clothed with grey hairs, provided with one pair of lateral tubercles and posterior end having two vertically arranged blunt caudal processes as in text-figs. 308 & 309. Dorsum of abdomen having five pairs of sigillae and some black patches as in text-fig. 308. Ventral side dirty brown in colour. Epigyne plate like as in text-fig. 310. Internal genitalia as in text-fig. 311.

Distribution: INDIA: Poona, (*Type-locality*) Maharashtra; Napad, Gujarat.

Remarks : Description and illustrations are based on Holotype specimen, deposited in Z.S.I., Calcutta Regd. No. 3215/18.

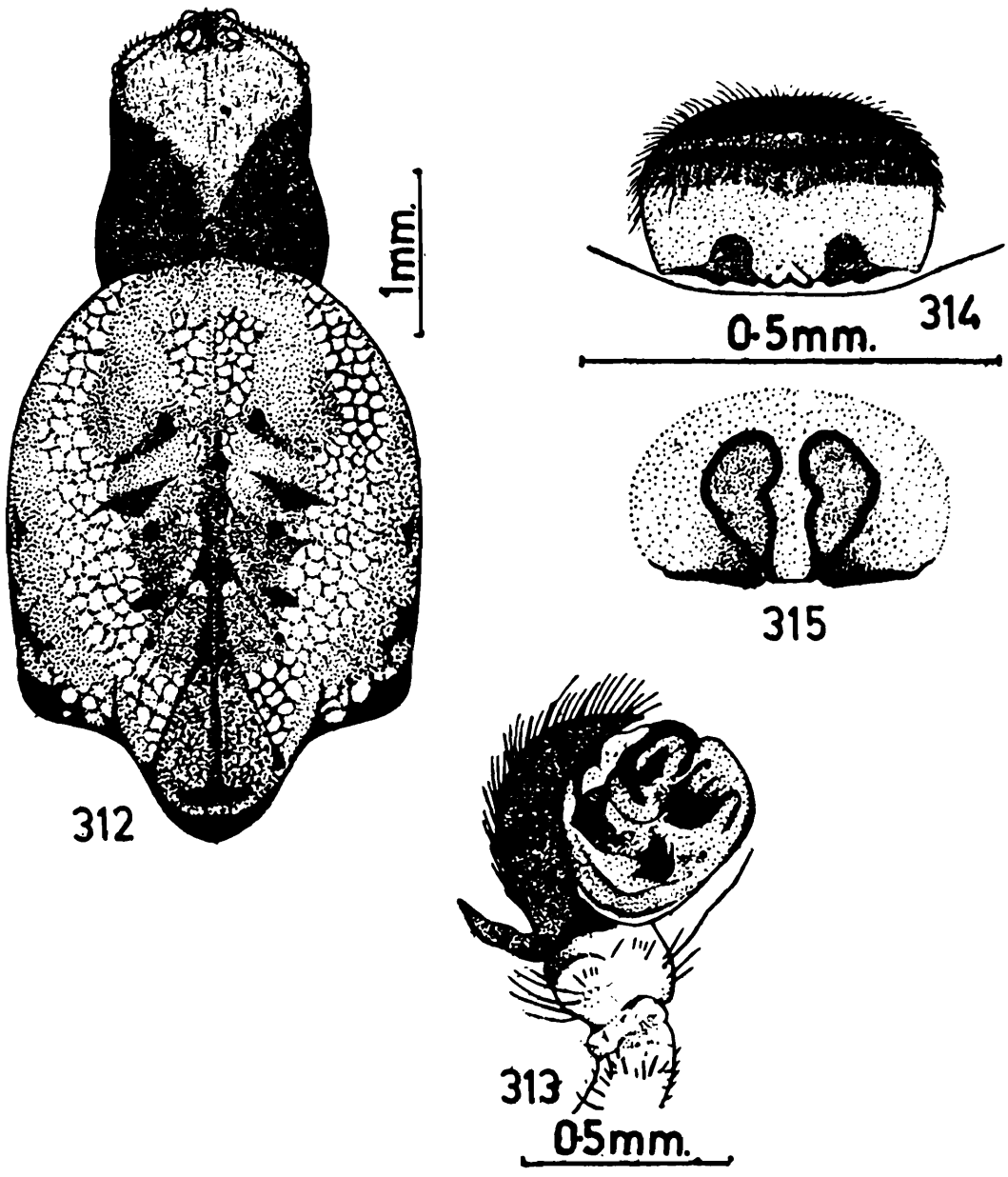
52. **Chorizopes calciope** (Simon)

(Figs. 312-315)

1895. *Araneus calciope* Simon, *Hist. Nat. Araign.*, 1(4) : 823.

General: Cephalothorax dark brown, legs yellowish abdomen greyish brown. Total length 5.00 mm. Carapace 2.10 mm. long, 1.40 mm. wide; abdomen 3.50 mm. long, 2.40 mm. wide.

Cephalothorax: Longer than wide, roundish in front, clothed with pubescence; cephalic region roundish, convex and much elevated than thoracic region and lighter in colour as in text-fig. 312. Ocular quad nearly as long as wide in front and slightly wider behind than in front as in text-fig. 312.; eyes pearly white; median eyes subequal in size and posterior medians



FIGS. 312-315. *Chorizopes calciope* (Simon)
312. Dorsal view of female, legs omitted.
313. Mesal view of left male palp.
314. Epigyne, ventral view.
315. Internal genitalia, dorsal view.

situated on prominent base; lateral eyes subequal in size and close; both rows of eyes strongly recurved as in text-fig. 312. Sternum heart-shaped, pointed behind, dark brown in colour, clothed with pubescence; labium slightly longer than wide; dark brown with pale outer distal margin; maxillae broad, light brown with blackish patches, provided with distinct scopulae. Chelicerae

strong and stout, yellowish brown. Legs moderately strong, clothed with hairs, femora I, II provided with black transverse bands at distal ends; each tibia having a black longitudinal stripe on dorsal side. Male palp as in text-fig. 313.

Abdomen: Longer than wide, clothed with grey hair, provided with one pair of lateral blunt tubercles and one caudal tubercle as in text-fig. 312. Dorsum of abdomen having four pairs of sigilla arranged mid-longitudinally; a mid-longitudinal broad greyish brown patch with chalk white patches laterally, extending all along the length as in text-fig. 312. Ventral side provided with a median blackish patch laterally guarded with one chalk white patch on each side in between the epigastric furrow and the spinnerets. Epigyne plate like as in text-fig. 314. Internal genitalia as in text-fig. 315.

Distribution: INDIA: Kodaikanal, (*Type-locality*), Tamil Nadu.

Remarks: This species was placed in the genus *Araneus*; author found that this should be included in the genus *Chorizopes* since the characters are tallied with the said genus. Description and illustrations are based on the type-specimens of female and male, deposited at M.N.H.N., Paris, Regd. No. 2.596.

Genus 13. **Poltys** C. L. Koch

1843. *Poltys* C. L. Koch, *Die Arachniden*, **10** : 97.
1859. *Pleuromma* : Doleschall, *Act. Soc. Ind. Neerl.*, 5(5) : 44.
1862. *Cyphagogus* : Gunther, *Ann. Mag. nat. Hist.*, **10**(3) : 1-2.
1871. *Mastigosoma* : Ausserer, *Verh. zool.-bot. Ges. Wien*, **21** : 817.
1900. *Poltys* : Pocock, *Fauna Brit. India, Arachn.*, : 235.
1951. *Poltys* : Sinha, *Rec. Indian Mus.*, **49** : 87.
1960. *Poltys* : Yaginuma, *Spiders of Japan, in colour.* : 65.
1971. *Poltys* : Chrysanthus, *Zool. verh. Leiden*, **113** : 36.

Characters: Carapace with cephalic region prominent, and having a projection elevated in front. Ocular quad square or a little wider in front than behind; lateral eyes widely separated, the posterior lateral eyes remote from the anterior one. Legs I, II long with tibiae and metatarsi flat, curved and spinulose.

Abdomen large, high anteriorly and usually provided with irregular tubercles.

Type-species: *Poltys illepidus* C. L. Koch.

Distribution: Asia, Africa and Australia.

53. **Poltys bhabanii** (Tikader)

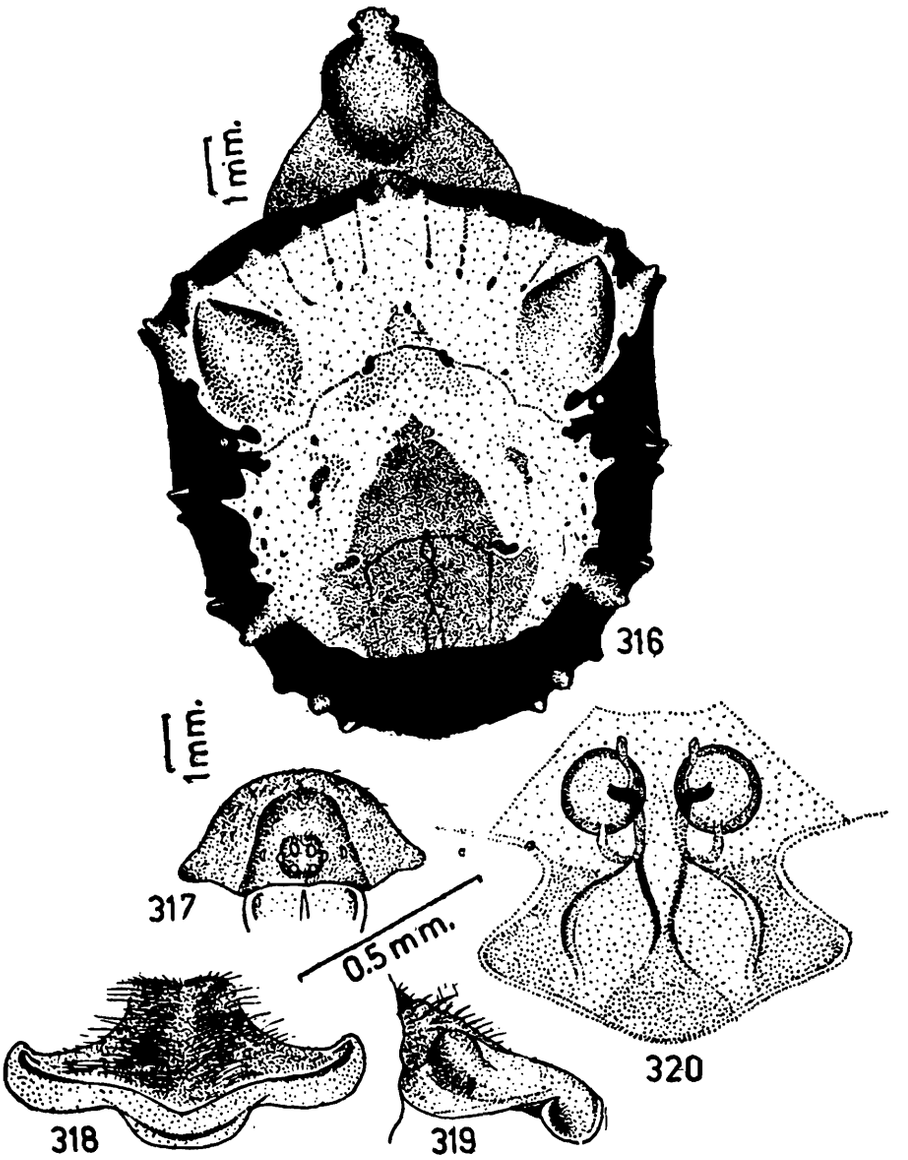
(Figs. 316-320)

1970. *Caerostris bhabanii* Tikader, *Rec. zool. Surv. India*, 64(1-4) : 34.

General: Cephalothorax deep brown, legs dark brown, abdomen blackish with large yellowish patch. Total length 12.80 mm. Carapace 4.70 mm. long, 4.65 mm. wide; abdomen 10.00 mm. long, 8.80 mm. wide.

Cephalothorax: Slightly longer than wide, clothed with greyish pubescence; cephalic region prominent with elevated, conical and anteriorly projecting ocular region as in text-fig. 316; median cephalic region yellowish in colour. Ocular quad longer than wide, anteriorly and posteriorly same in width as in text-fig. 317; posterior median eyes slightly oval in shape as in text-fig. 317; laterals widely separated from each other as in text-fig. 317; anterior laterals close to the ocular quad and situated on a cephalic projection of carapace and posterior laterals placed at the sides of the cephalic regions in text-figs. 316 & 317. Sternum heart-shaped, narrowing behind, dark brownish, clothed with greyish pubescence and brownish hair; labium wider than long, brownish with white distal borded; maxillae broad, brownish with white inner margins, provided with distinct scopulae. Chelicerae moderately strong, yellowish dark brown, having prominent boss as in text-fig. 317. Legs moderately long and strong, clothed with pubescence, hairs and spines; patellae and tibiae I & II dorsally flattened; tibiae I & II curved and spinulae on prolateral surface; metatarsi I & II also spinulose as in tibiae and slightly curved.

Abdomen: Large spherical, high in front, provided with small and large irregular tubercles as in text-fig. 316. Dorsum of



FIGS. 316-320. *Poltys bhabanii* (Tikader)
316. Dorsal view of female, legs omitted.
317. Front view of face of female.
318. Epigyne, ventral view.
319. Epigyne, lateral view.
320. Internal genitalia, posterior view.

abdomen blackish with a median large yellow patch having greyish mid-posterior region as in text-fig. 316. One pair of very prominent large anteriorly directed shoulder humps as in text-fig. 316, also provided with a few small but distinct sigilla. Ventral side dark coloured. Epigyne having a trilobed large scape as in text-fig. 318. Epigynal openings large and not in

grooves placed on the underside of the scape as in text-fig. 319. Internal genitalia as in text-fig. 320.

Distribution: INDIA, Nayabazar, (*Type-locality*), Sikkim.

Remarks: This species was placed in the genus *Caerostris* as a new species. After careful studied author found this species should be placed in the genus *Poltys*. Description and illustrations are based on Holotype, deposited in Z.S.I., Calcutta, Regd. No. 3214/18.

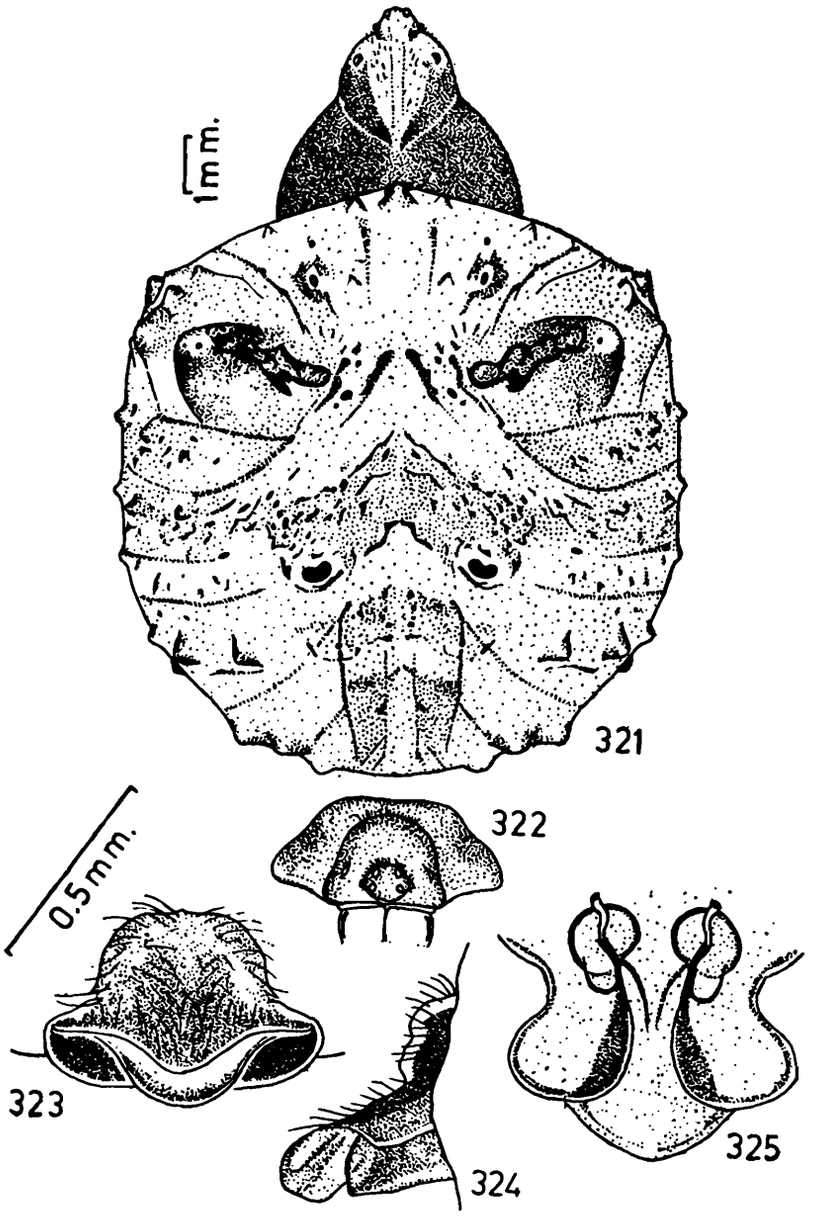
54. **Poltys nagpurensis** sp. nov.

(Figs. 321-325)

General: Cephalothorax dark brown, legs and abdomen yellowish. Total length 13.40 mm. Carapace 5.00 mm. long, 4.30 mm. wide; abdomen 10.35 mm. long, 9.80 mm. wide.

Cephalothorax: Slightly longer than wide, clothed with greyish pubescence; cephalic region prominent with elevated, conical and anteriorly projecting ocular region as in text-figs. 321 & 322; median cephalic region orange coloured. Ocular quad wider than long, narrower behind than in front as in text-fig. 322; posterior median eyes slightly oval in shape as in text-fig 322; laterals widely separated from each other; anterior laterals close to the ocular quad and situated on ocular projection of cephalic region and posterior laterals placed at the sides of the cephalic region as in text-figs. 321 & 322. Sternum heart-shaped, narrowing behind, brownish yellow, clothed with greyish pubescence and brown hair; labium wider than long, brownish with white distal border; maxillae broad, brownish with white inner margins, provided with distinct scopulae. Chelicerae moderately strong dark brown with yellow patches, having distinct boss as in text-fig. 322. Legs moderately long and strong, clothed with pubescence, hair and spines; patellae and tibiae I & II dorsally flattened, tibiae I & II curved and spinulose on pro-lateral surface; metatarsi I & II also spinulose as in tibiae and slightly curved; femur I brownish with black patches, rest femora brownish with black patches only on the dorsal surface and ventrally yellowish.

Abdomen: Large, high up anteriorly, having many small and large irregular tubercles. Dorsum of abdomen yellowish with



FIGS. 321-325. *Poltys nagpurensis* sp.nov.
321. Dorsal view of female, legs omitted.
322. Front view of face of female.
323. Epigyne, ventral view.
324. Epigyne, lateral view.
325. Internal genitalia, posterior view.

some black specks and greyish lines as in text-fig. 321; one pair of prominent large shoulder humps placed anteriorly as in text-fig. 321; also provided with small but distinct sigilla. Ventral side provided with a large circular black patch around the pedicle, including the epigastric furrow. Epigyne provided with a large trilobed scape as in text-fig. 323. Epigynal openings

into the grooves on both sides on the under side of the scape as in text-fig. 324. Internal genitalia as in text-fig. 325.

Holotype: Female in spirit, deposited in Z.S.I. Calcutta, Regd. No. 4940/18.

Type-locality: Kachari Swanga, Nagpur, Maharashtra, India. coll. *U. A. Gajbe*, 30.10. 1973.

Discussion: This species is closely related with *Poltys bhabanii* (Tikader) but differs as follows: (i) Ocular quad narrowing behind than in front but in *bhabanii* it is same in width both anteriorly and posteriorly. (ii) Anterior projection of cephalic region is smaller than that of *bhabanii*. (iii) Epigyne with a lateral fold on the under surface of the scape but no such fold in *bhabanii*. (iv) Epigyne opens into a wide cavity without any fold on each side but in *bhabanii* it opens into a narrow cavity partly covered with a lateral fold on each side.

Genus 14. **Cyrtophora** Simon

1864. *Cyrtophora* Simon, *Hist. Nat. des Araign.*, **I** : 261.
1890. *Euetria* : Thorell, *Annali. Mus. civ. Genova*, **28** : 109.
1893. *Hentzia* : Mac Cook, *Amer. Spid.*, **3** : 244.
1921. *Cyrtophora* : Gravely, *Rec. Indian Mus.*, **22**(4) : 413.
1935. *Cyrtophora* : Dyal, *Bull. Zool. Punjab Univ.*, **1** : 174.
1951. *Cyrtophora* : Sinha, *Rec. Indian Mus.*, **49** : 84.
1960. *Cyrtophora* : Chrysanthus, *Nova Guinea, (Zool.)*, **10**(3) : 25.
1960. *Cyrtophora* : Yaginuma, *Spiders of Japan, in colour*, : 65.
1962. *Cyrtophora* : Tikader, *J. Linn. Soc.*, **44**(300) : 561.
1971. *Cyrtophora* : Chrysanthus, *Zool. Verh. Leiden*, **113** : 19.

Characters: Carapace nearly flat with long cephalic region. Ocular quad a little longer than wide; lateral eyes equal and slightly separated from each other. Legs moderately long and stout. Abdomen very high anteriorly and provided with paired tubercles.

Type-species: *Cyrtophora citricola* (Forskal).

Distribution: Tropical & sub-tropical countries of the world.

Key to the species of the genus **Cyrtophora** Simon

1. Abdomen provided with one pair of humps.....2
   Abdomen provided with two or three pairs of humps.....4

2. Abdomen oval (Fig. 326); dorsum of abdomen decorated with numerous small white spots and no black patches (Fig. 326); carapace uniformly blackish (Fig. 326).....*moluccensis*
   Abdomen sub-oval or elongated ; dorsum of abdomen decorated with blackish patches ; carapace not uniformly blackish.....3

3. Abdomen suboval (Fig. 331) ; carapace having blackish patches laterally as well as mid-longitudinally (Fig. 331) ; epigyne with no distinct median septum (Figs. 333 & 334).....*bidenta*
   Abdomen elongated (Fig. 336); carapace not having blackish patches (Fig. 336); epigyne provided with a distinct median septum (Figs. 338 & 339).....*feae*

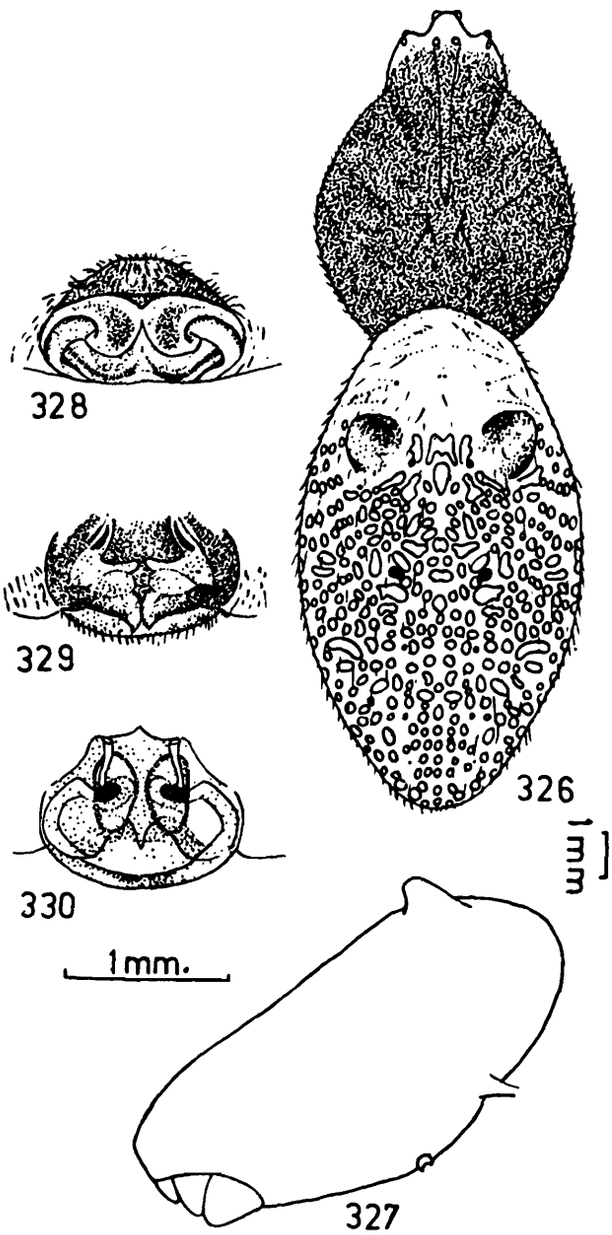
4. Abdomen provided with two pairs of humps and one median caudal hump (Figs. 341 & 342); abdomen not high up anteriorly (Fig. 342) ; epigyne provided with a broad rim (Fig. 343).....*cicatrosa*
   Abdomen provided with three pairs of humps, of which caudal pair bifurcate the abdomen posteriorly (Fig. 346) ; abdomen high up anteriorly (Fig. 347); epigyne provided with a narrow rim (Fig. 348).....*citricola*

55. **Cyrtophora moluccensis** (Doleschall)

(Figs. 326-330)

1857. *Epeira moluccensis* Doleschall, *Natuurw.Tijdschr.Ned.Indië*, **13**: 418.
1900. *Araneus moluccensis* : Pocock, *Fauna Brit. India, Arachn.*, : 226.
1951. *Cyrtophora moluccensis* : Sinha, *Rec. Indian Mus.*, **49** : 85.
1962. *Cyrtophora moluccensis* : Tikader, *J. Linn. Soc.*, **44**(300) : 562.

General: Cephalothorax and legs blackish, abdomen greyish with white spots. Total length 17.60 mm. Carapace 7.50 mm. long, 5.80 mm. wide; abdomen 11.20 mm. long, 6.40 mm. wide.



FIGS. 326-330. *Cyrtophora moluccensis* (Doleschall)
326. Dorsal view of female, legs omitted.
327. Lateral view of abdomen of female.
328. Epigyne, ventral view.
329. Epigyne, posterior view.
330. Internal genitalia, posterior view.

Cephalothorax: Longer than wide, narrowing in front, nearly flat, clothed with thick layer of white pubescence, thoracic region rather circular as in text-fig. 326. Ocular quad as wide in front as in behind and longer than wide as is text-fig. 326; all the eyes subequal in size and encircled by black rings; lateral eyes

close and situated on prominent tubercles, anterior row of eyes strongly recurved but posterior row straight as in text-fig. 326. Sternum heart-shaped, narrowing behind, olive brown, having a mid-longitudinal white stripe from anterior end to the middle, clothed with pubsecence and hair, labium wider than long, olive greenish brown with pale distal border; maxillae broad, brownish and pale inner margins, having distinct scopulae. Chelicerae small and rather weak, provided with small boss. Legs long and strong, clothed with pubescence and hair; coxae yellowish, each with a transverse olive greenish brown patch ventrally.

Abdomen: Oval, clothed with white pubescence and brownish hair. Dorsum of abdomen provided with one pair of distinct but blunt humps as in text-figs. 326 & 327; decorated with numerous white spots and four pairs of sigilla as in text-fig. 326. Ventral side light olive greenish brown, four pairs of small spots and one pair of white longitudinal stripes between epigastric furrow and spinnerets; three pairs of chalk white spots around the spinnerets. Epigyne having a median septum instead of scape, broad posteriorly and form a pouch like structure on each side as in text-figs. 328 & 329. Internal genitalia as in text-fig. 330.

Distribution: INDIA: Darjeeling, West Bengal; Rongli, Sikkim; Balaghat, M.P.; Trivandrum, Nilgiri Hills, Kerala; Coorg, Karnataka; Andaman and Nicobar Islands. NEPAL: Soondrijal. BURMA: Tharrawaddy, Rangoon, Moulmein. SRI LANKA: Keller. AUSTRO-MALAYSIA.

Remarks: Since the type-specimen was not available, the description and illustrations are made on the basis of authenticated identified specimen, depsoited in Z.S.I., Calcutta, Regd. No. 2925/18.

56. **Cyrtophora bidenta** Tikader

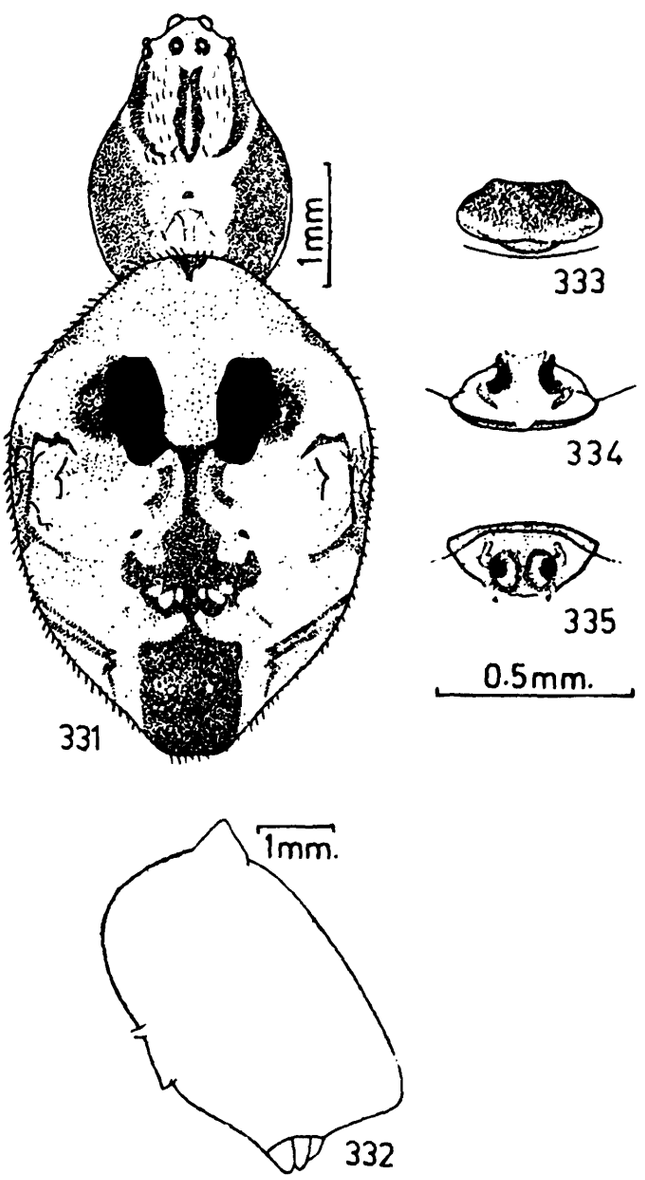
(Figs. 331-335)

1970. *Cyrtophora bidenta* Tikader, *Rec. zool. Surv. India*, **63**(1-4) ; 32.

General: Cephalothorax and legs greenish yellow, abdomen greyish with white and black patches. Total length 5.90 mm.

Carapace 2.20 mm. long, 1.65 mm. wide; abdomen 4.00 mm. long, 2.90 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, provided with blackish patches as in text-fig. 331, clothed with pubescence and hair; cephalic region slightly elevated than



FIGS. 331-335. *Cyrtophora bidenta* Tikader

331. Dorsal view of female, legs omitted.
332. Lateral view of abdomen of female.
333. Epigyne, ventral view.
334. Epigyne, posterior view.
335. Internal genitalia, dorsal view.

thoracic region. Ocular quad as wide in front as behind and longer than wide as in text-fig. 331; all the eyes encircled by black rings as in text-fig. 331; anterior median eyes larger than posterior medians; laterals close and situated on prominent, black tubercles; both rows of eyes recurved but posterior row very narrowly recurved as in text-fig. 331. Sternum heart-shaped, tapering behind, rather convex, blackish with two median pale patches, clothed with hairs; labium wider than long, blackish with pale distal mergin; maxillae broad, brownish with pale patches on inner tips, provided with distinct scopulae. Chelicerae long but weak, yellowish, having moderate boss. Legs long, clothed with hair and spines; metatarsi and tarsi light brownish.

Abdomen: High up anteriorly, longer than wide, slightly overlapping on the carapace as in text-figs. 331 & 332. Dorsum of abdomen provided with one pair of conical humps as in text-figs. 331 & 332; mid-longitudinally black patches and other designs as in text-fig. 331. Ventral side dirty brown, a mid-longitudinal broad black patch guarded laterally by white stripes in between epigastric furrow and spinnerets, four spots around spinnerets. Epigyne provided with a distinct rim transversely as in text-figs. 333 & 334. Internal genitalia as in text-fig. 335.

Distribution: INDIA: Sikkim (*Type-locality*).

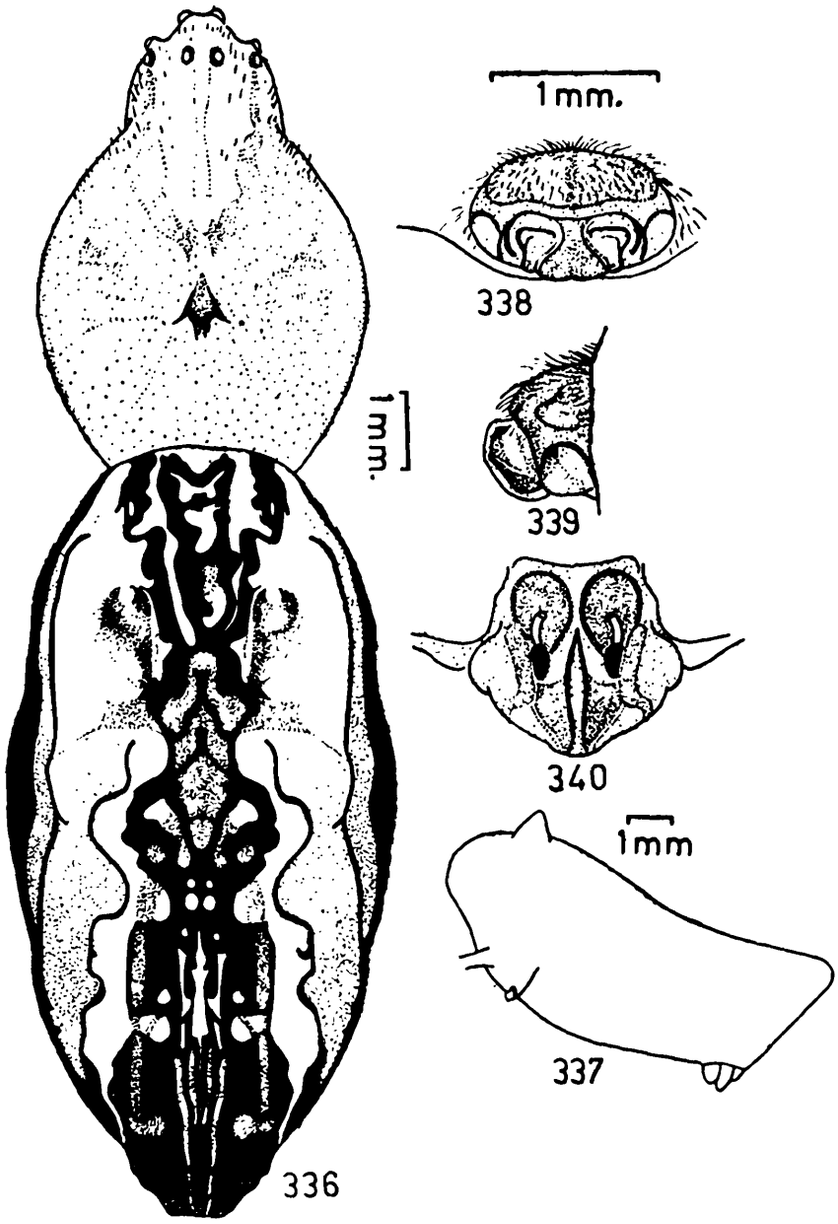
Remarks: The description and illustrations were made on the basis of Holotype, deposited in Z.S.I., Calcutta, Regd. No. 2319/18.

57. **Cyrtophora feae** (Thorell)

(Figs. 336-340)

1887. *Araneus feae* Thorell, *Annali. Mus. civ. Genova*, 25 : 173.
1900. *Araneus feae* : Pocock, *Fauna Brit. India, Arachn.*, : 226.
1962. *Cyrtophora feae* : Tikader, *J. Linn. Soc.*, 44(300) : 562.

General: Cephalothorax and legs pale yellowish, abdomen greyish with white and blackish patches. Total length 15.20 mm. Carapace 6.20 mm. long, 4.20 mm. wide; abdomen 9.60 mm. long, 5.00 mm. wide.



FIGS. 336-340. *Cyrtophora feae* (Thorell)
336. Dorsal view of female, legs omitted.
337. Lateral view of abdomen of female.
338. Epigyne, ventral view.
339. Epigyne, lateral view.
340. Internal genitalia, posterior view.

Cephalothorax: Longer than wide, narrowing anteriorly, flat, clothed with pubescence and hair; thoracic region having a distinct longitudinal fovea as in text-fig. 336. Ocular quad longer than wide and anteriorly and posteriorly same in width as in text-fig. 336; all the eyes encircled by black rings; anterior median

eyes larger than posterior medians; laterals close and situated on prominent tubercles; anterior laterals slightly smaller than posterior laterals; anterior row of eyes strongly recurved but posterior row nearly straight as in text-fig. 336. Sternum heart-shaped, pointed behind, brownish with a mid-longitudinal chalk white band, clothed with pubescence and hair; labium wider than long, blackish brown with pale distal margin; maxillae slightly elongated, blackish brown with pale inner border, provided with distinct scopulae. Chelicerae weak, brownish, provided with moderate boss. Legs long and moderately strong, clothed with pubescence and strong hair; femora with longitudinal brownish stripes on the dorsal side.

Abdomen: Elongated, posterior region slightly upward directed, very narrowly overlapping on the carapace as in text-fig. 336. Dorsum of abdomen decorated with black, white and greyish patches and lines and provided with a small conical humps as in text-fig. 337; ventral side greyish brown, one pair of longitudinal chalk white stripes in between epigastric furrow and spinnerets. Epigyne provided with a distinct median septum broad posteriorly as in text-figs. 338 & 339. Internal genitalia as in text-fig. 340.

Distribution: INDIA: West Bengal. BURMA: Tharrawaddy, Rangoon, Bhamo.

Remarks: Description and illustrations are based on authenticated identified specimen, deposited in Z.S.I., Calcutta, Regd. No. 2456/18.

58. **Cyrtophora cicatrosa** (Stoliczka)

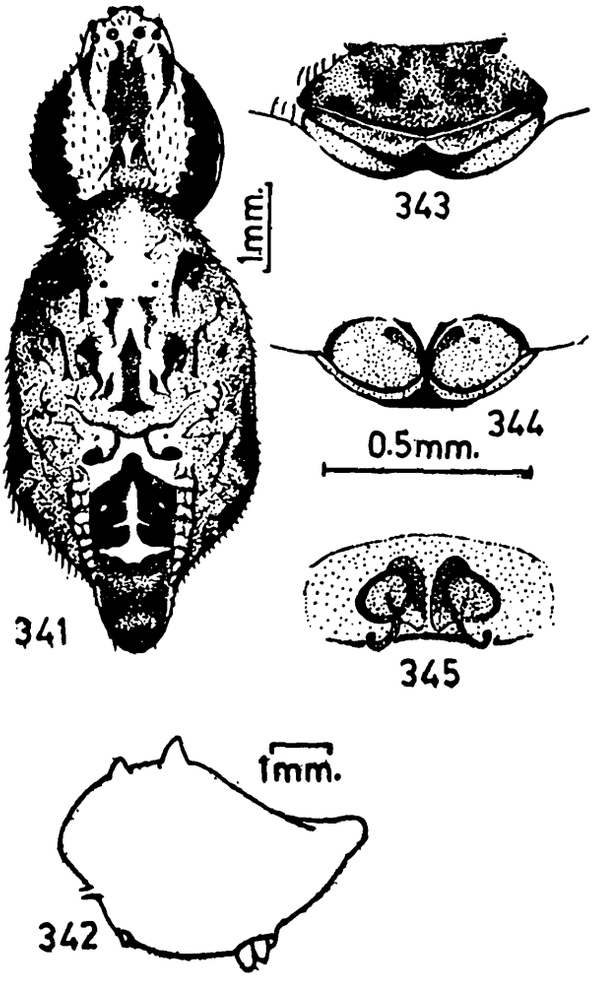
(Figs. 341-345)

1869. *Epeira (Nephila) cicatrosa* Stoliizka, *J. Asiat. Soc. Beng.*, **33** : 242.
1878. *Epeira salebrosa* : Thorell, *Annali. Mus. civ. Genova*, **13** : 48.
1891. *Meta adspersata* : Karsch, *Berl. ent. Z.*, **36**(2) : 284.
1900. *Araneus cicatrosus* : Pocock, *Fauna Brit. India, Arachn.*, : 226.
1921. *Cyrtophora cicatrosa* : Gravely, *Rec. Indian Mus.*, **22**(4) : 413.
1935. *Cyrtophora cicatrosus* : Dyal, *Bull. Zool. Punjab Univ.*, **1** : 175.
1951. *Cyrtophora cicatrosa* : Sinha, *Rec. Indian Mus.*, **49** : 85.
1960. *Cyrtophora cicatrosa* : Chrysanthus, *Nova Guinea, (Zool.)*, **10**(3): 28.

1962. *Cyrtophora cicatrosa* : Tikader, *J. Linn. Soc.*, 44(300) : 563.
1975. *Cyrtophora cicatrosa* : Patel, *Vidya, J. Gujarat Univ.*, 18(1) : 155.

General: Cephalothorax and legs pale yellowish with blackish patches and stripes, abdomen greyish white with black patches. Total length 7.10 mm. Carapace 2.10 mm. long, 2.10 mm. wide; abdomen 5.10 mm. long, 2.80 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, very broad and rounded posteriorly, a mid-longitudinal and two lateral, black patches as in text-fig. 341, clothed with hairs, thoracic region provided with a deep trifid fovea. Ocular quad



FIGS. 341-345. *Cyrtophora cicatrosa* (Stoliczka)
341. Dorsal view of female, legs omitted.
342. Lateral view of abdomen of female.
343. Epigyne, ventral view.
344. Epigyne, posterior view.
345. Internal genitalia, dorsal view.

longer than wide, slightly narrower in front as in text-fig. 341, anterior median eyes larger than posterior medians; posterior medians encircled by black rings; lateral eyes subequal in size, a little away from each other and situated on prominent tubercles; anterior row of eyes strongly recurved but posterior row very slightly recurved as in text-fig. 341. Sternum triangular, pointed behind, blackish in colour with a mid-longitudinal thin chalk white stripe, clothed with hair; labium wider than long, blackish with pale distal margin; maxillae broad, blackish brown with pale outer margins. Chelicerae moderately strong, clothed with hair and spines; femora, I, II provided with longitudinal black stripes; rest segments with numerous small black spots.

Abdomen: High up anteriorly, clothed with pubescence. Dorsum of abdomen provided with two pairs of small black, conical tubercles anteriorly and a blunt caudal tubercle posteriorly as in text-figs. 341 & 342; black and chalk white patches on the dorsum. Ventral side with a pair of longitudinal chalk white lines and three pairs of small chalk white spots in between epigastric furrow and spinnerets; one pair of chalk white stripes from behind the spinnerets to the tip of the caudal hump. Epigyne as in text-figs. 343 & 344. Internal genitalia as in text-fig. 345.

Distribution: INDIA: Chingleput, Tamil Nadu; Nasik, Poona, Maharashtra; Calcutta, West Bengal; Allahabad, U.P.; Karanataka; Punjab; Gujarat; Andaman and Nicobar Islands. BURMA: Tharrawaddy, Moulmein. NEW GUINEA. PAKISTAN. AUSTRO-MALAYSIA.

Remarks: Since type-specimen was not available, the description and illustrations were made on the basis of specimen collected from Poona, Maharashtra, India.

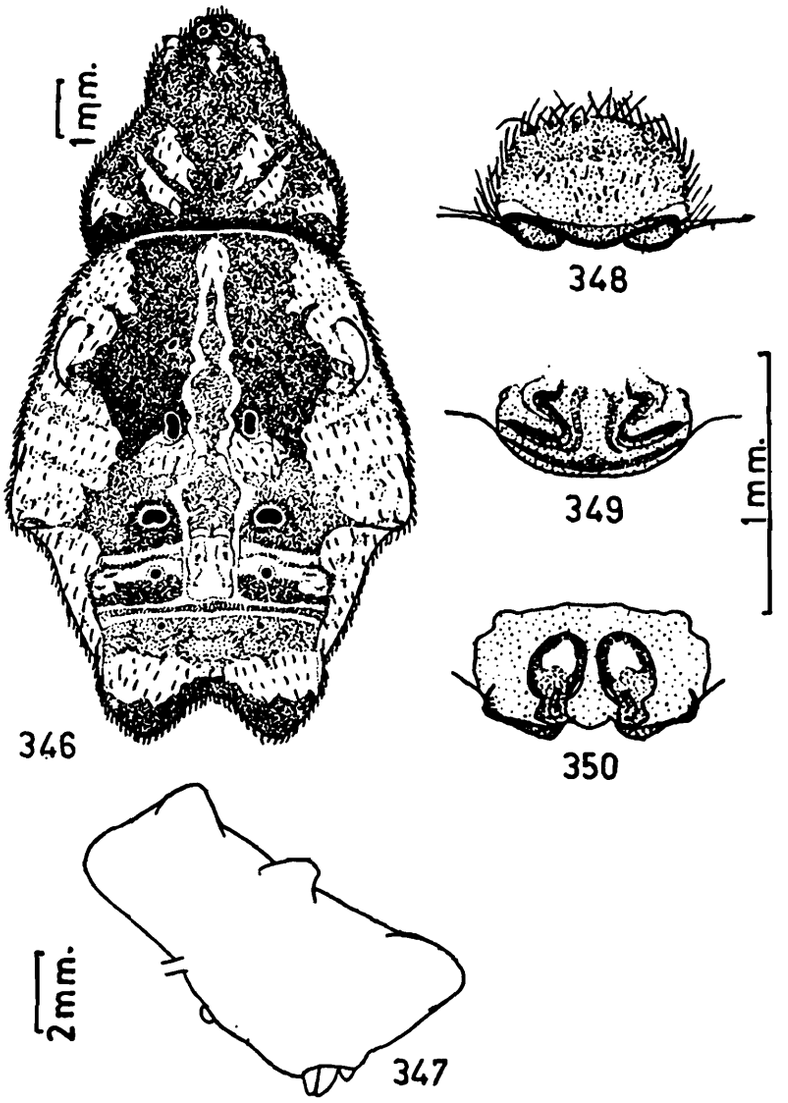
59. **Cyrtophora citricola** (Forskal)

(Figs. 346-350)

1775. *Aranea citricola* Forskal, *Descriptions animalium*, : 86.
1895. *Epeira citricola* : Thorell, *Spiders of Burma*, : 172.
1896. *Cyrtophora citricola* : Workman, *Malays. Spid.*, : 32.

1900. *Araneus citricola* : Pocock, *Fauna Brit. India, Arachn.*, : 226.
1935. *Cyrtophora citricola* : Dyal, *Bull. Zool. Punjab Univ.*, 1 : 174.
1951. *Cyrtophora citricola* : Sinha, *Rec. Indian Mus.*, 49 : 85.
1962. *Cyrtophora citricola* : Tikader, *J. Linn. Soc.*, 44(300) : 562.
1975. *Cyrtophora citricola* : Patel, *Vidya, J. Gujarat Univ.*, 18(1) : 155.

General: Cephalothorax and legs brownish with yellowish patches, abdomen greyish with yellow and brown, patches, colour



FIGS. 346-350. *Cyrtophora citricola* (Forskal)

346. Dorsal view of female, legs omitted.
347. Lateral view of abdomen of female.
348. Epigyne, ventral view.
349. Epigyne, posterior view.
350. Interial genitalia, dorsal view

of the body highly variable. Total length 11.80 mm. Carapace 5.00 mm. long, 4.60 mm. wide; abdomen 8.10 mm. long, 7.00 mm. wide.

Cephalothorx: Slightly longer than wide, narrowing anteriorly, very broad posteriorly, densely clothed with grey pubescence, thoracic region provided with a fovea trifid posteriorly. Ocular quad forming a trapezium situated on an elevation, longer than wide, wider in front than behind as in text-fig. 346; anterior median eyes larger than posterior medians; lateral eyes subequal in size, a little away from each other and situated on prominent tubercles; both rows of eyes strongly recurved as in text-fig. 346. Sternum triangular, very pointed behind. The coxae IV very close, light orange yellowish in colour, clothed with hairs; labium wider than long, dark brown with pale, inner margin, provided with distinct scopulae. Chelicerae strong, distinctly swollen before the base, provided with prominent boss. Legs short, strong and stout, densely clothed with pubescence, hair and spines.

Abdomen: High up anteriorly and strongly overlapping on the cephalothorax, thickly clothed with pubescence and hair. Dorsum of abdomen provided with one pair of shoulder humps, one pair of lateral humps at the middle and one pair bifid caudal humps as in text-fig. 346 & 347. A broad greyish brown patch all along the length on the dorsum and five pairs of distinct sigilla arranged mid-longitudinally, laterally greyish yellow as in text-fig. 346. Epigyne provided with a very broad and small scape with prominent rim as in text-fig. 348. External openings at the posterior end of epigyne as in text-fig 349. Internal genitalia as in text-fig. 350.

Distribution: INDIA: Bangalore, Karnataka; Chingleput, Tamil Nadu; Poona, Maharashtra, Calcutta, West Bengal; Assam; M. P.; Punjab; Rajasthan; Gujarat. BURMA: Rangoon, Tharrawaddy. SRI LANKA. AUSTRALIA. MADAGASCAR. MALAYSIA. EGYPT. AFRICA. EUROPE.

Remarks: Illustrations and description are based on the specimen collected from Poona, Maharashtra, India.

Genus 15. **Cyclosa** Menge

1866. *Cyclosa* Menge, *Schrift. Nat. Ges. Danzig (N.F.)*, 1 : 73.
1895. *Cyclosa* : Simon, *Hist. Nao. Araign.*, 1(4) : 783.
1921. *Cyclosa* : Gravely, *Rec. Indian Mus.*, 22(4) : 413.
1935. *Cyclosa* : Dyal, *Bull. Zool. Punjab Univ.*, 1 : 191.
1951. *Cyclosa* : Sinha, *Rec. Indian Mus.*, 49 : 86.
1955. *Parazygia* : Caporiacco, *Acta biol. venez.*, 1 : 345.
1960. *Cyclosa* : Yaginuma, *Spiders of Japan, in colour*, : 67.
1963. *Cyclosa* : Tikader, *J. Univ. Poona, Sci. Tech.*, 24 : 45.
1971. *Cyclosa* : Chrysanthus, *Zool. Verh. Leiden*, 113 : 21.
1977. *Cyclosa* : Levi, *Bull. Mus. comp. Zool. Harv.*, 148(3) : 73.

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 unpairer. Epigyne having a small, weak scape which may be straight, wrinkle, bent, pointed or circular.

Type-species: *Cyclosa conica* (Pallas)

Distribution: Cosmopolitan.

Key to the species of the genus **Cyclosa** Menge

1. Abdomen having paired tubercles ; median caudal tubercle may or may not present.....2
   Abdomen having no paired tubercles (Figs. 351 & 352) ; long blunt caudal tubercle (Figs. 351 & 352).....*bifida*

2. Abdomen very short, nearly globular ; epigyne with scape.....3
   Abdomen rather elongated ; epigyne may or may not provided with scape.....4

3. One pair of prominent tubercles present anteriorly (Figs. 356 & 357); no caudal tubercles (Figs. 356 & 357); epigyne provided with a thin broad scape (Figs. 358 & 359); a distinct median bulge on the under side of the scape (Fig. 359)..... *mulmeinensis*
One pair of less prominent, tubercles present anteriorly (Figs. 361 & 362); two median caudal tubercles arranged vertically (Figs. 361 & 362); epigyne having thin narrow scape (Figs. 364 & 365); no median bulge on the underside of the scape (Fig. 365)..... *fissicauda*

4. Caudal tubercle may or may not bifurcated; epigyne with no scape but a bulging structure..... 5
Caudal tubercle not bifurcated; epigyne with prominent scape, often bent..... 6

5. Caudal tubercle bifurcated (Fig. 367); two pairs of distinct tubercles on the posterior half of abdomen (Figs. 367 & 368); base of the epigyne large and prominent (Fig. 369)..... *moonduensis*
Caudal tubercle not bifurcated (Fig. 372); one pair of less distinct tubercles at the posterior part of abdomen (Figs. 372 & 373); base of the epigyne small and less prominent (Fig. 374)..... *confraga*

6. Abdomen having a median tubercle at the anterior end, bent upward..... 7
Abdomen with no median tubercles at the anterior end..... 8

7. One pair of distinct tubercles at the base of the caudal tubercle (Figs. 377 & 378); Scape of the epigyne with a contraction (Fig. 379); narrow tip of the scape bent nearly at right angle to the base (Fig. 380)..... *spirifera*
Two pairs of distinct tubercles, one at the middle of abdomen, other at the base of the middle of abdomen, other at the base of the caudal tubercle (Figs. 382 & 383); scape of the epigyne with no contraction (Fig. 385); narrow tip of the scape slightly bent (Fig. 386)..... *hexatuberculata*

8. Abdomen with no paired tubercles anteriorly on the dorsum but one pair of tubercles at the base of the caudal tubercle ; scape of the epigyne long and thick ; tip of the scape narrow.....9
Abdomen with one pair of small tubercles placed anteriorly on the dorsum but no paired tubercles at the base of the caudal tubercle (Figs. 388 & 389); scape of the epigyne short and thin (Figs. 391 & 392); tip of the scape broad (Fig. 391).....*neilensis*

9. Caudal tubercle short and blunt (Figs. 394 & 395); bent tip of the scape rather long (Figs. 397 & 398).....*insulana*
Caudal tubercle long and pointed (Figs. 399 & 400); bent tip of the scape very short (Figs. 401 & 402).....*simoni*

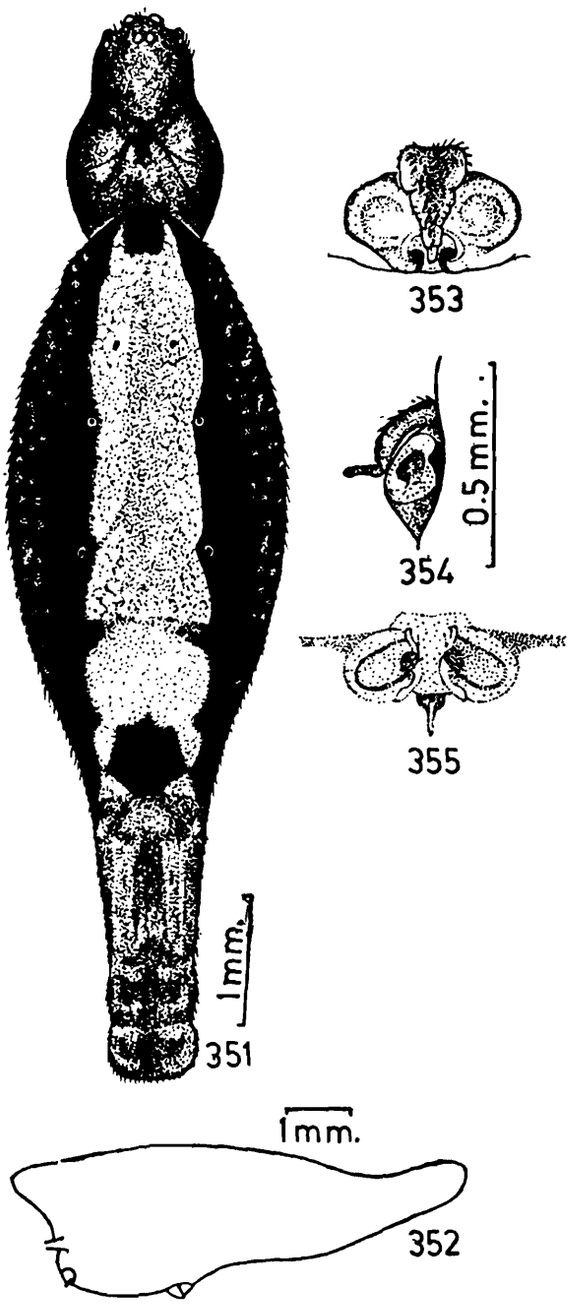
60. **Cyclosa bifida** (Doleschall)

(Figs. 351-355)

1859. *Epeira bifida* Doleschall, *Act. Soc. India Neerl.*, 5 : 38.
1877. *Epeira macrura* : Thorell, *Annali. Mus. civ. Genova*, 10 : 402.
1878. *Epeira bifida* : Thorell, *Annali. Mus. civ. Genova*, 13 : 73.
1895. *Cyclosa bifida* : Simon, *Hist. Nat. Araign.*, 1(4) : 779.
1896. *Epeira bifida* : Workman, *Malays. Spid.*, : 33.
1911. *Cyclosa macrura* : Strand, *Abh. senckenbg. naturforsch. Ges.*, 34(1) : 149.
1971. *Cyclosa bifida* : Chrysanthus, *Zool. Verh. Leiden.*, 113 : 21.

General: Cephalothorax blackish brown, legs yellowish with blackish patches, abdomen blackish with silvery and greyish patches. Total length 8.20 mm. Carapace 1.75 mm. long, 1.20 mm. wide; abdomen 6.70 mm. long, 2.20 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with hair; cephalic region distinctly separated from thoracic region by cephalic grooves; thoracic fovea circular pit like. Ocular quad slightly longer than wide as in front and very narrow behind as in text-fig. 315; eyes peraly white; both the median eyes subequal in size; posterior medians very close and encircled by black rings; lateral eyes subequal in size, close and situated on prominent tubercles; both rows of eyes recurved as



FIGS. 351-355. *Cyclosa bifida* (Doleschall)
351. Dorsal view of female, legs omitted.
352. Lateral view of abdomen of female.
353. Epigyne, ventral view.
354. Epigyne, lateral view.
355. Interial genitalia, posterior view.

in text-fig. 315. Sternum heart-shaped, pointed behind, blackish in colour, clothed with hair; labium nearly as long as wide, blackish with pale distal margin; maxillae broad, blackish, provided with distinct scopulae. Chelicerae moderate, blackish

brown, provided with distinct boss. Legs moderately long, clothed with spines and hair; yellowish femora with blackish patches at distal ends.

Abdomen: Elongated, with a blunt long caudal process as in text-figs. 351 & 352. Dorsum of abdomen having one pair of longitudinal silvery patches extending from anterior end to the base of the caudal process as in text-fig. 351, three pairs of distinct sigilla, arranged mid-longitudinally. Ventral side blackish and provided with greyish patches. Epigyne provided with a conspicuous scape having a narrow tip, bent as in text-figs. 353 & 354. Internal genitalia as in text-fig. 355.

Distribution: INDIA: Ligship, Sikkim; Shillong, Meghalaya. SRI LANKA. NEW GUINEA. MALAYSIA.

Remarks: Due to lack of type-specimen, the description and illustrations are based on one identified specimen, collected from Shillong, Meghalaya.

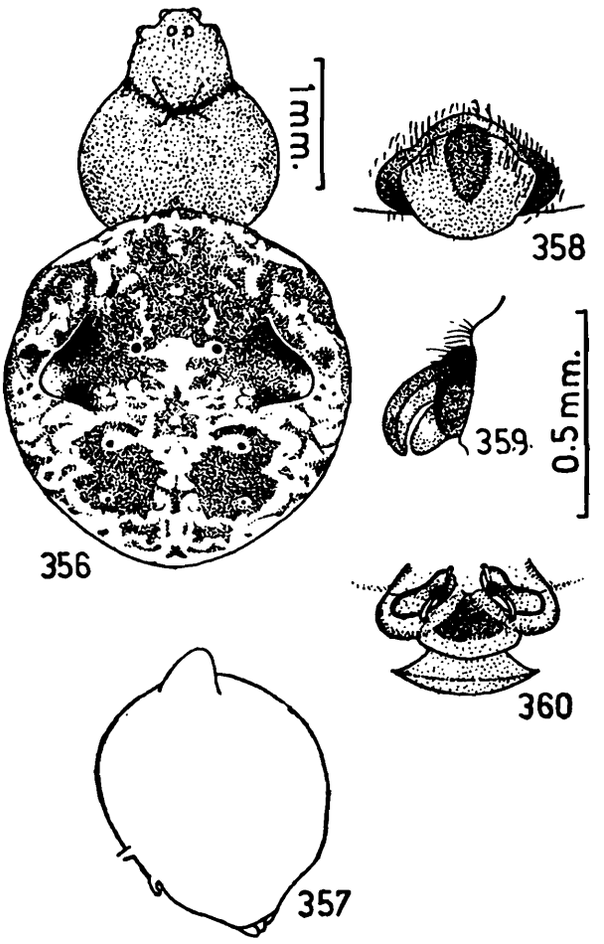
61. **Cyclosa mulmeinensis** (Thorell)

(Figs. 356-360)

1887. *Epeira mulmeinensis* Thorell, *Annali. Mus. civ. Genova*, 25 : 221.
1896. *Epeira mulmeinensis* : Workman, *Malaysian Spiders*, : 37.
1909. *Cyclosa mulmeinensis* : Simon, *Bull. scient, Fr. Belg.*, 42 : 104.
1963. *Cyclosa mulmeinensis* : Tikader, *J. Univ. Poona, Sci. & Tech.*, 24 : 46.

General: Cephalothorax deep brown, legs yellowish brown, abdomen blackish yellow. Total length 4.25 mm. Carapace 1.70 mm. long, 1.60 mm. wide; abdomen 2.75 mm. long, 2.70 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with hair; cephalic region distinctly separated from thoracic region by cephalic grooves; thoracic fovea shallow and circular. Ocular quad wider in front than behind and slightly longer than wide; eyes pearly white; anterior median eyes slightly larger than posterior medians; posterior medians very close, nearly touching and encircled by black rings as in text-fig. 356; lateral eyes



FIGS. 356-360. *Cyclosa mulmeinensis* (Thorell)
356. Dorsal view of female, legs omitted.
357. Lateral view of abdomen of female.
358. Epigyne, ventral view.
359. Epigyne, lateral view.
360. Internal genitalia, posterior view.

subequal in size, close and situated on prominent tubercles; both rows of eyes recurved as in text-fig. 356. Sternum heart-shaped, pointed behind, dark brown with some chalk white patches, clothed with hair; labium wider than longer, dark brown with pale distal margin; maxillae broad, dark brown provided with distinct scopulae. Chelicerae moderately strong, light brown, having distinct boss. Legs moderately long, clothed with hair and spines; femora I, II, IV yellowish with dark brown bands distally; femora III yellowish with no band.

Abdomen: Globular, nearly as long as wide, high up in the middle, provided with one pair of distinct humps in the middle

of the dorsum as in text-figs. 356 & 357; clothed with hair. Dorsum decorated with yellowish and blackish patches and three pairs of distinct sigilla arranged mid-longitudinally as in text-fig. 356. Ventral side of abdomen provided with one pair of chalk white quotation marks in between the epigastric furrow and the spinnerets. Epigyne provided with a rounded scape as in text-fig. 358. Internal genitalia as in text-fig. 360.

Distribution: INDIA: Mundhva village, Poona, Maharashtra; MALAYSIA: Singapore. BURMA. MALACCA. ARABIA. AFRICA.

Remarks: The description and illustrations are based on the authenticated identified specimen deposited at Zoological Survey of India, Western Regional Station, Poona; Regd. No. Ar./39.

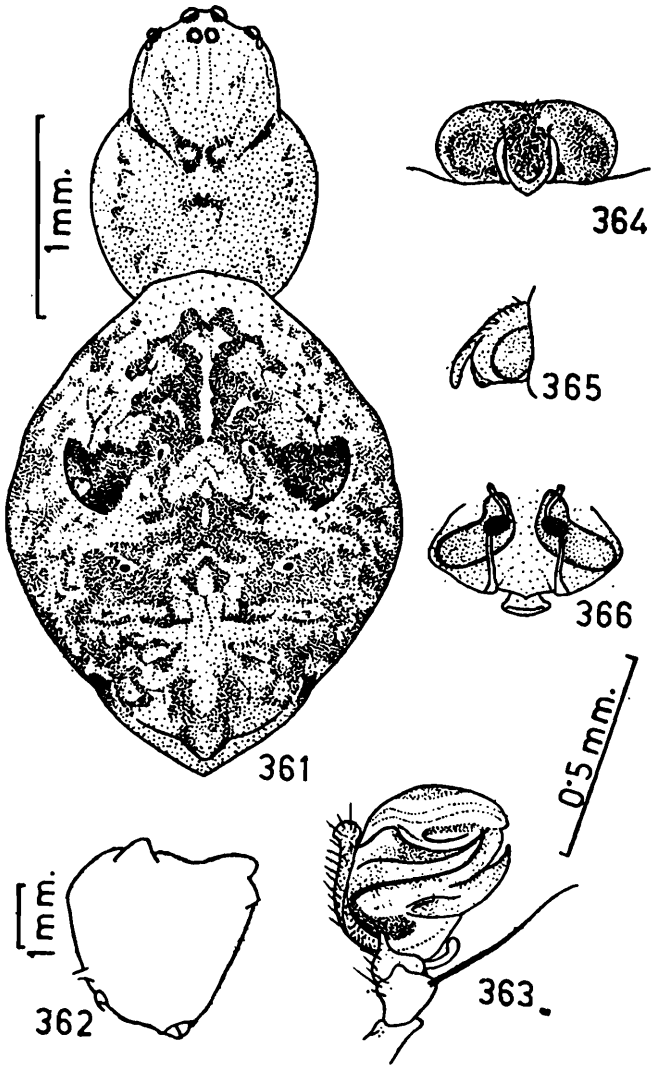
62. **Cyclosa fissicauda** Simon

(Figs. 361-366)

1889. *Cyclosa fissicauda* Simon, *J. Asiat. Soc. Beng.*, **58** : 338.

General: Cephalothorax dark brown, legs yellowish, abdomen greyish brown with black and chalk white patches. Total length 3.70 mm. Carapace 1.40 mm. long, 1.20 mm. wide; abdomen 2.40 mm. long, 2.00 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with hair; cephalic region distinctly separated from thoracic region by cephalic grooves; cephalic region with one pair of small light brown patches at the posterior end as in text-fig. 361, thoracic fovea shallow pit like. Ocular quad forming a trapezium, wider in front than behind as in text-fig. 361; eyes pearly white; median eyes subequal in size; posterior medians close, nearly touching and encircled by black rings; lateral eyes subequal in size, close and situated on prominent tubercles; both rows of eyes recurved as in text-fig. 361. Sternum heart-shaped, pointed behind, provided with chalk white patches and blackish outer borders, clothed with hair; labium slightly wider than long, brownish with pale distal margin; maxillae broad, brownish, provided with distinct boss. Legs moderately long, clothed with spines and hair; femora I, IV with dark brown complete trans-



Figs. 361-366. *Cyclosa fissicauda* Simon
361. Dorsal view of female, legs omitted.
362. Lateral view of abdomen of female.
363. Mesal view of left male palp.
364. Epigyne, ventral view.
365. Epigyne, lateral view.
366. Interial genitalia, posterior view.

verse bands, other segments with brownish patches. Male palp as in text-fig. 363.

Abdomen: Globular, provided with one pair distinct mid-dorsal humps and two caudal humps arranged vertically as in text-figs. 361 & 362; clothed with hair. Dorsum of abdomen decorated with blackish and chalk white patches and three pairs of distinct sigilla as in text-fig. 361. Ventral side brownish yellow,

blackish patches in the middle, one pair chalk white quotation provided with a thin transparent scape as in text-figs. 364 & 365. Internal genitalia as in text-fig. 366.

Distribution: INDIA: Rongli, Ligship, Sikkim.

Remarks: Description and illustrations are based on identified female and male specimens collected from Rongli, Sikkim, after comparing those with the authenticated identified specimens, deposited at Z.S.I., Calcutta, Regd. No. 3563/10.

63. **Cyclosa moonduensis** Tikader

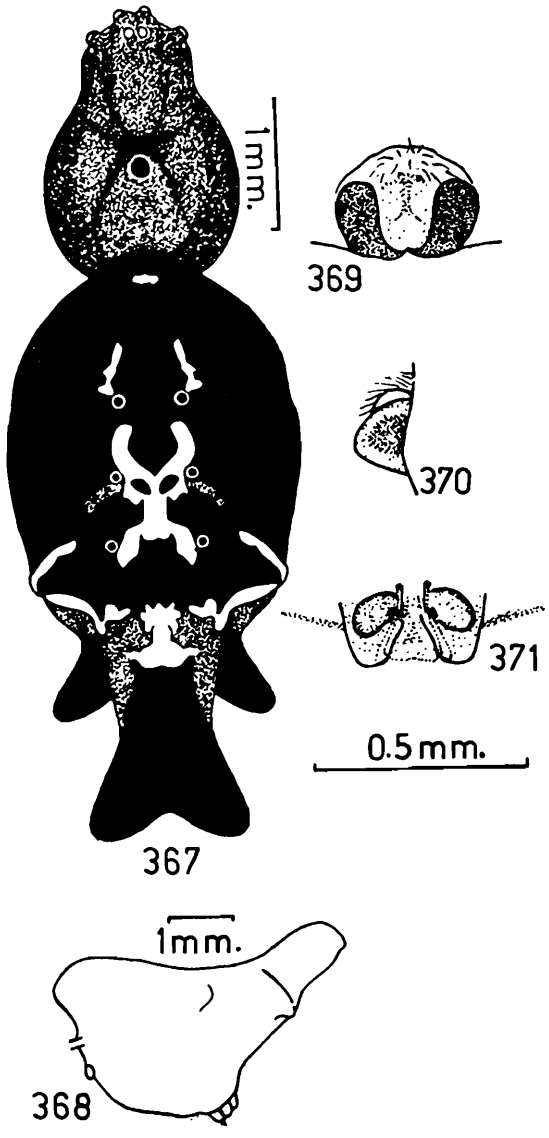
(Figs. 367-371)

1963. *Cyclosa moonduensis* Tikader, *J. Univ. Poona, Sci. & Tech.*, **24** : 46.

General: Cephalothorax and legs blackish brown, abdomen dark black. Total length 6.00 mm. Carapace 2.00 mm. long, 1.50 mm. wide; abdomen 4.25 mm. long, 2.30 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with hair; cephalic region distinctly separated from thorax by cephalic grooves; thoracic fovea circular pit like. Ocular quad forming a trapezium, wider in front than behind as in text-fig. 367; eyes pearly white; anterior medians larger than posterior medians; posterior medians very close, nearly touching and encircled by black rings as in text- fig. 367; lateral eyes subequal in size, close and situated on prominent tubercles; both rows of eyes recurved as in text-fig. 367. Sternum heart-shaped, pointed behind, blackish in colour, clothed with hair; labium slightly wider than long, blackish with pale distal margin; maxillae broad, blackish, provided with distinct scopulae. Chelicerae small with some blackish shades, having distinct boss. Legs moderately long, femora I, II completely black, but femora III & IV provided with one transverse distinct yellowish band on each; other segments with yellow and brownish bands; clothed with hair and spines.

Abdomen: Elongated, provided with one biforked caudal hump and two pairs of lateral humps, of which posterior one conspicuous as in text-fig. 367 & 368. Dorsum of abdomen



Figs. 367-371. *Cyclosa moonduensis* Tikader

367. Dorsal view of female, legs omitted.
368. Lateral view of abdomen of female.
369. Epigyne, ventral view.
370. Epigyne, lateral view.
371. Internal genitalia, posterior view.

provided with four pairs of sigilla, arranged mid-longitudinally and some silvery spots and patches as in text-fig. 367. Ventral side having one pair of silvery bracket shaped patches in between epigastric furrow and spinnerets and some other silvery patches. Epigyne with no scape but a bulge like structure as in text-figs. 369 & 370. Internal genitalia as in text-fig. 371.

Distribution: INDIA: Ahmednagar, Mundhva village, (*Type-locality*) Poona, Mahatashtra.

Remarks: Description and illustrations have been prepared on the basis of specimen collected from Katraj ghat, Poona, Maharashtra which was identified by the author.

64. **Cyclosa confraga** (Thorell)

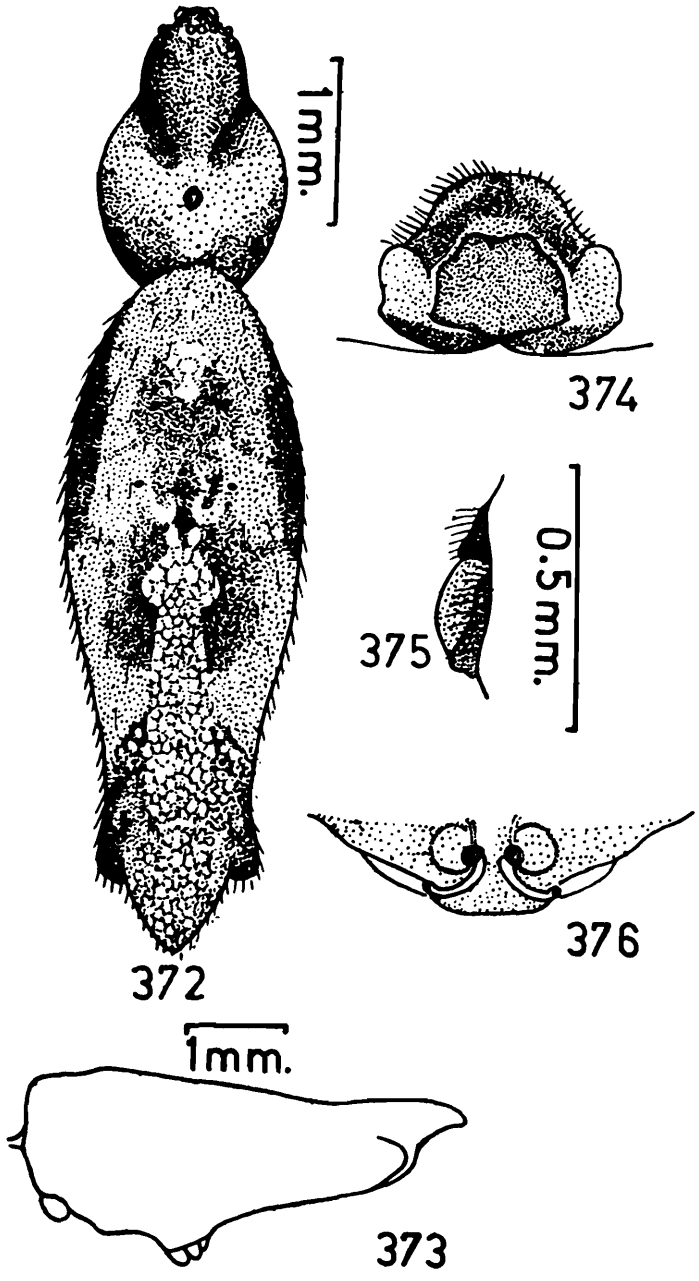
(Figs. 372-376)

1892. *Epeira confraga* Thorell, *Bull. Soc. ent. Ital.*, 24 : 239.
1896. *Epeira confraga* : Workman, *Malaysian Spiders*, : 34.
1909. *Cyclosa confraga* : Simon, *Bull. scient. Fr. Belg.*, 42 : 104.
1935. *Cyclosa confraga* : Dyal, *Bull. Zool. Punjab Univ.*, 1 : 191.
1963. *Cyclosa confraga* : Tikader, *J. Univ. Poona, Sci. & Tech.*, 24 : 45.

*General*s Cephalothorax light brownish yellow, legs yellowish, abdomen greyish with chalk white and black patches. Total length 5.60 mm. Carapace 1.65 mm. long, 1.15 mm. wide; abdomen 4.10 mm. long, 1.40 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with hair; cephalic region light brownish in colour and distinctly separated from thorax by cephalic grooves; thoracic fovea circular pit like. Ocular quad wider in front than behind and slightly longer than wide; eyes pearly white; anterior median eyes larger than posterior medians; posterior medians very close, nealy touching and encircled by black rings as in text-fig. 372; lateral eyes subequal in size, close and situated on prominent tubercles; both rows of eyes recurved as text-fig. 372. Sternum heart shaped, pointed behind, chalk white with some brownish patches laterally, clothed with hair; labium nearly as long as wide, light brownish with pale distal margin; maxillae broad, yellowish, provided with distinct scopule. Chelicerae small, yellowish brown, provided with distinct boss. Legs moderately long, yellowish with some indistinct brown patches; clothed with hair and spines.

Abdomen: Elongated, provided with a distinct pointed caudal hump and two lateral humps posteriorly as in text-figs. 372 & 373. Dorsum of abdomen provided with four pairs of distinct sigilla, arranged mid-longitudinally and some black and chalk



FIGS. 372-376. *Cyclosa confraga* (Thorell)
372. Dorsal view of female, legs omitted.
373. Lateral view of abdomen of female.
374. Epigyne, ventral view.
375. Epigyne, lateral view.
376. Internal genitalia, posterior view.

white patches as in text-fig. 372. Ventral side provided with a median broad blackish patch guarded by one pair of chalk white patches extending from epigastric furrow to spinnerets. Epigyne with no scape but a broad bulging structure as in text-figs. 374 & 375. Internal genitalia as in text-fig. 376.

Distribution: INDIA: Ballabhvidyanagar, Gujarat; Poona, Maharashtra; Karnataka; Assam; Sikkim. BURMA. MALAYSIA.

Remarks: Description and illustrations are based on one specimen collected from Ballabhvidyanagar, Gujarat India.

65. **Cyclosa spirifera** Simon

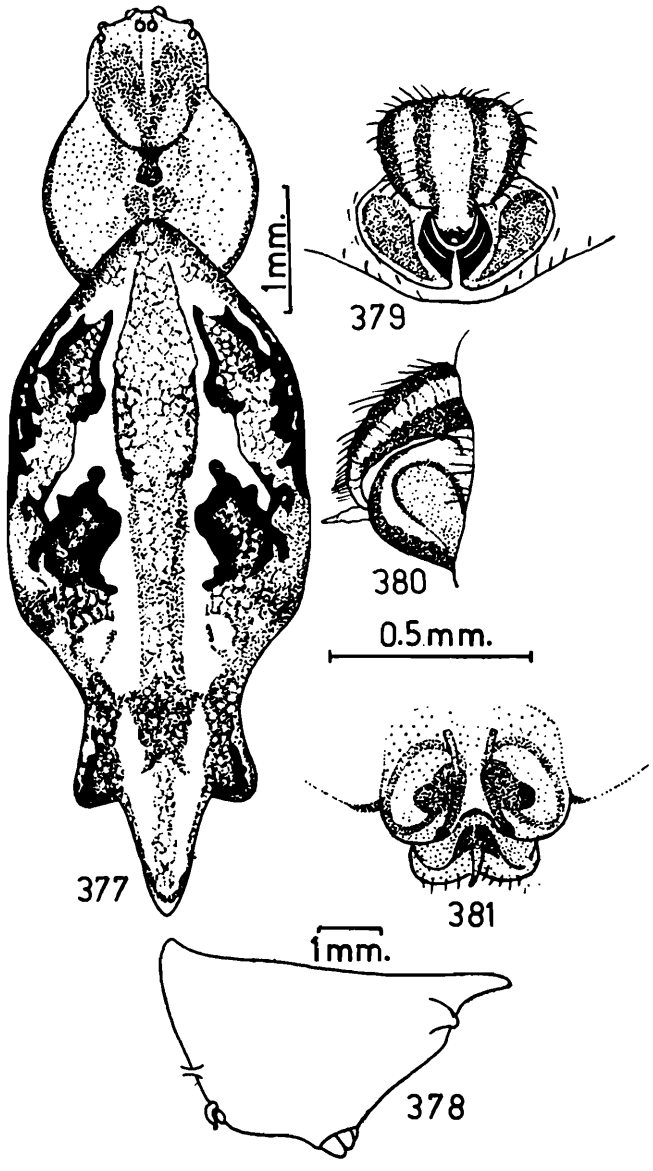
(Figs. 377-381)

1889. *Cyclosa spirifera* Simon, *J. Asiat. Soc. Beng.*, **58** : 337.

General: Cephalothorax brownish yellow with dark brown patches, legs yellowish with brownish patches and bands, abdomen brownish yellow with silvery and blackish patches. Total length 7.10 mm. Carapace 2.20 mm. long, 1.65 mm. wide; abdomen 5.40 mm. long, 2.35 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with scanty hair; cephalic region distinctly separated from thoracic region by cephalic grooves; thoracic fovea shallow and circular pit like. Ocular quad longer than wide as in front and very narrow behind as in text-fig. 377; eyes pearly white; median eyes subequal; posterior medians very close, nearly touching and encircled by black rings; lateral eyes equal in size, close and situated on moderately prominent tubercles; both rows of eyes recurved as in text-fig. 377. Sternum heart-shaped, pointed behind, brownish with chalk white patches at the periphery, clothed with hair; labium slightly wider than long, brownish with pale distal margin; maxillae broad, brownish yellow and provided with distinct scopulae. Chelicerae small, yellowish with blackish patches, having distinct boss. Legs moderately long, clothed with hair and spines; segments with distinct transverse brown bands.

Abdomen: Long, provided with two median humps, of which one anteriorly placed and bent upward and other one at the caudal end, slightly bent downward as in text-fig. 326, one pair of lateral humps situated at the base of the caudal hump as in text-figs. 377 & 378. Dorsum of abdomen decorated with blackish, silvery and brownish patches and lines as in text-



FIGS. 377-381. *Cyclosa spirifera* Simon
377. Dorsal view of female, legs omitted.
378. Lateral view of abdomen of female.
379. Epigyne, ventral view.
380. Epigyne, lateral view.
381. Internal genitalia, posterior view.

fig. 377. Ventral side provided with a silvery butterfly profile mark in between epigastric furrow and spinnerets. Epigyne having a prominent, wrinkle scape with small, narrow, bent tip as in text-figs. 379 & 380; scape with a deep constriction anteriorly as in text-fig. 379. Internal genitalia as in text-fig. 381.

Distribution: INDIA: Joansar, Thadyar.

Remarks: Description and illustrations are based on type-specimen, deposited in Z.S.I., Calcutta, Regd. No. 3562/10.

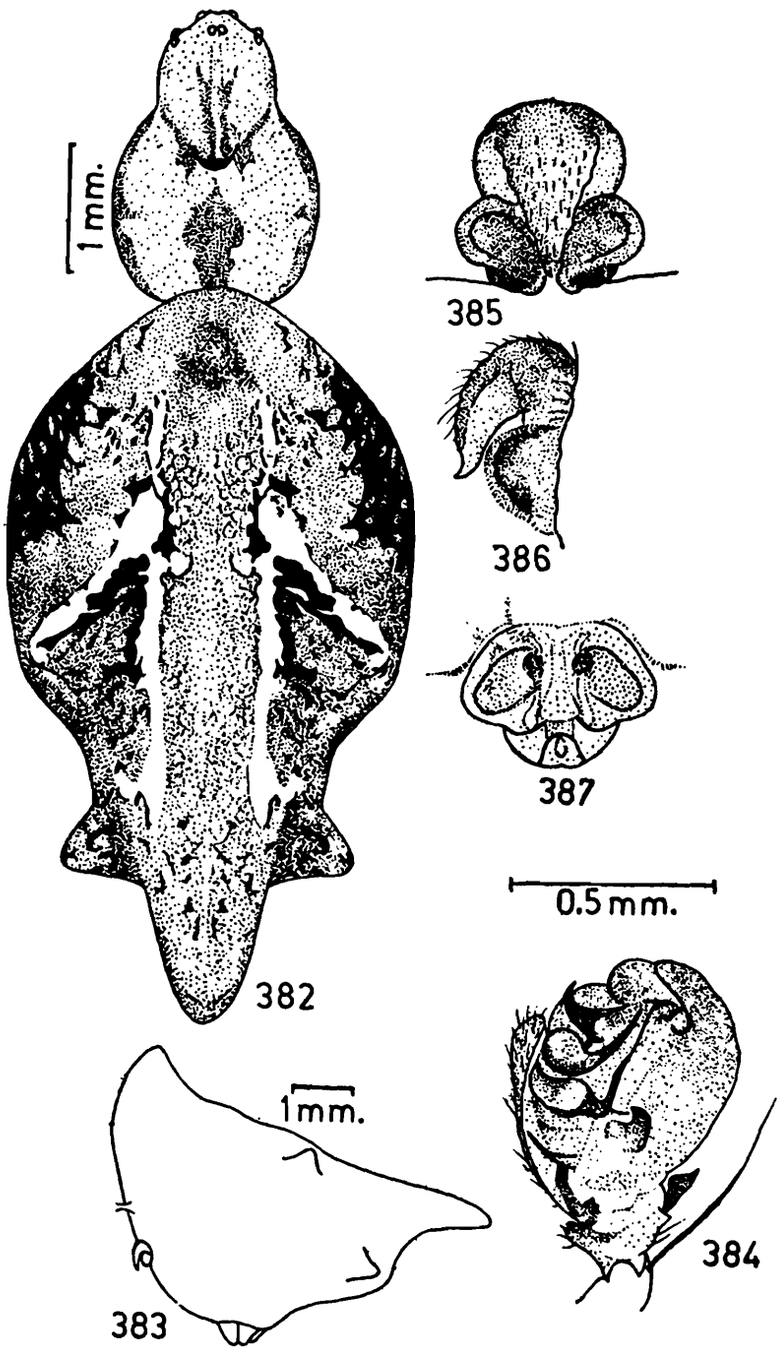
66. **Cyclosa hexatuberculata** sp. nov.

(Figs. 382-387)

General: Cephalothorax yellowish with some blackish patches, legs yellowish with blackish brown bands, abdomen yellowish brown with silvery and blackish patches. Total length 7.70 mm. Carapace 2.25 mm. long, 1.65 mm. wide; abdomen 5.60 mm. long, 3.20 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with scanty hair; cephalic region distinctly separated from thoracic region by cephalic grooves; thoracic fovea circular pit like. Ocular quad longer than wide as in front and very narrow behind as in text-fig. 382; eyes pearly white; anterior median eyes slightly larger than posterior medians; posterior medians very close, nearly touching and encircled by black rings; lateral eyes subequal, close and situated on moderately prominent tubercles; both rows of eyes recurved as in text-fig. 382. Sternum heart-shaped, pointed behind, blackish brown with chalk white patches at the periphery, clothed with hair; labium slightly wider than long, blackish with yellowish distally; maxillae broad, yellowish, provided with distinct scopulae. Chelicerae moderate yellowish, provided with distinct boss. Legs moderately long, clothed with spines and hair; segments with distinct transverse brown bands. Male palp as in text-fig. 384.

Abdomen: Long, provided with two median humps, of which one anteriorly placed and bent upward and other one at the caudal end bent downward as in text-fig. 382, two pairs of conspicuous lateral humps situated at the middle and below the base of the caudal hump as in text-figs. 382 &383. Dorsum of abdomen provided with some blackish, brownish and silvery patches and lines as in text-fig. 382. Ventral side having a pair of silvery quotation marks in between epigastric furrow and spinnerets. Epigyne provided with a prominent cone shaped scape as in text-fig. 385. Internal genitalia as in text-fig. 387.



FIGS. 382-387. *Cyclosa hexatuberculata* sp.nov.

382. Dorsal view of female, legs omitted.
383. Lateral view of abdomen of female.
384. Mesal view of left male palp.
385. Epigyne, ventral view.
386. Epigyne, lateral view.
387. Internal genitalia, posterior view.

Holotype: Female, *paratype* six females, *allotype* one male in spirit, deposited in Z.S.I., Calcutta, Regd. No. 4941-43/18.

Type-locality: Botanical Survey of India compound, Poona, Maharashtra, India. Coll. *Animesh Bal*, 24.2.1978.

Discussion: This species very close to *Cyclosa spirifera* Simon but differs as follows: (i) Two pairs of very prominent lateral humps on abdomen, but in *spirifera* only one pair of lateral humps. (ii) Anterior median hump very prominent and large, but it is small in *spirifera*. (iii) Scape of epigyne very broad posteriorly and gradually narrowing anteriorly without any constriction, but in *spirifera* scape abruptly narrow anteriorly after a prominent constriction.

67. **Cyclosa neilensis** Tikader

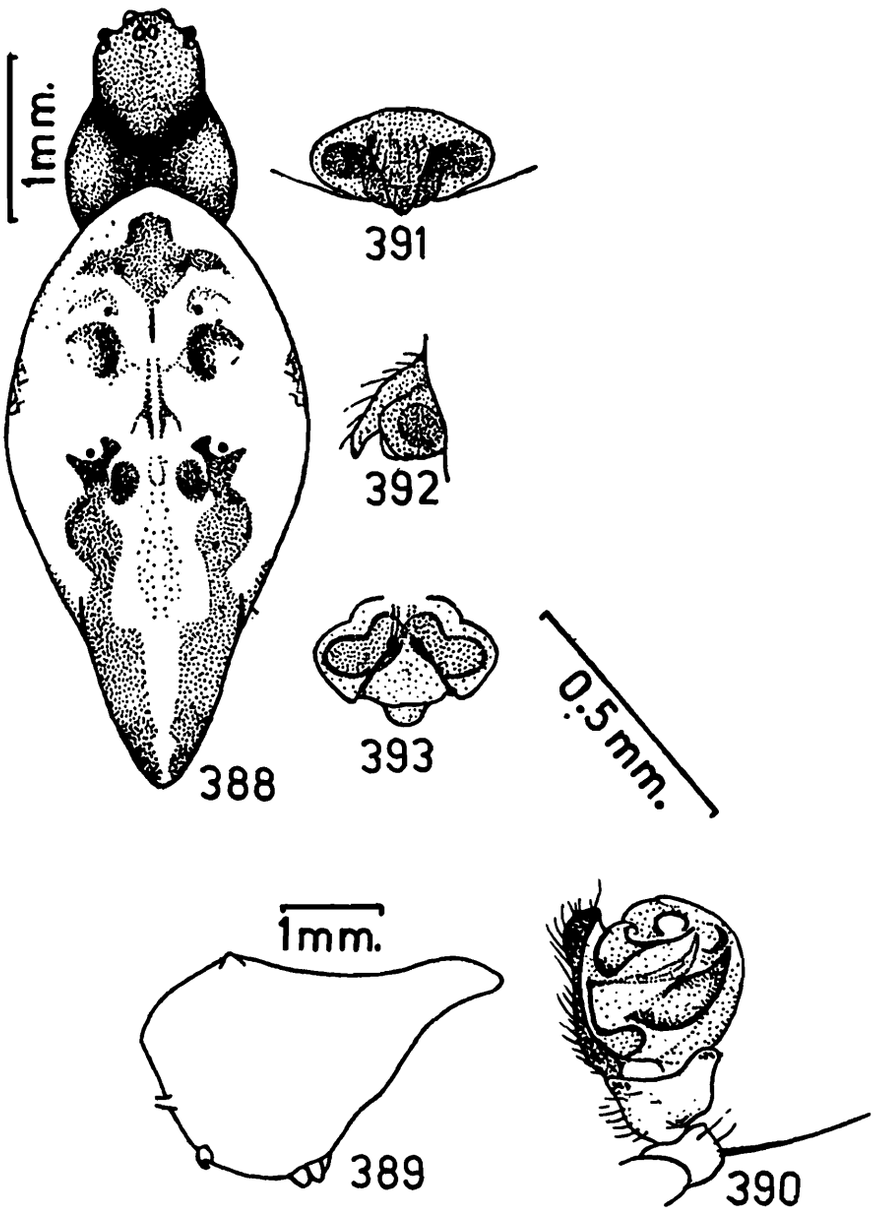
(Figs. 388-393)

1977. *Cyclosa neilensis* Tikader, *Rec. zool. Surv. India*, **72** : 179.

General: Cephalothorax yellowish brown, legs yellowish abdomen chalk white with some dark patches. Total length 4.50 mm. Carapace 1.30 mm. long, 1.00 mm. wide; abdomen 3.50 mm. long, 1.70 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with hair; cephalic region distinctly separated from thoracic region by cephalic grooves; thoracic fovea indistinctly transverse. Ocular quad slightly longer than wide as in front and very narrow posteriorly as in text-fig. 388; eyes pearly white; anterior median eyes slightly larger than posterior medians; posterior medians very close, nearly touching and encircled by black rings as in text-fig. 388; lateral eyes subequal in size, close and situated on prominent tubercles; both rows of eyes recurved as in text-fig. 388. Sternum heart-shaped, pointed, chalk white, clothed with hair; labium slightly wider than long, brownish with pale distal margin; maxillae broad, light brown with pale inner margin, provided with distinct scopulae. Chelicerae moderate, yellowish, having distinct boss. Legs moderately long, clothed with spines and hair; distal ends of segments with indistinct brown patches. Male palp as in text-fig. 390.

Abdomen: Elongated, cone shaped posteriorly, provided with



FIGS. 388-393. *Cyclosa neilensis* Tikader

388. Dorsal view of female, legs omitted.
389. Lateral view of abdomen of female.
390. Mesal view of left male palp.
391. Epigyne, ventral view.
392. Epigyne, lateral view.
393. Internal genitalia, posterior view.

one caudal process and one pair of small lateral humps at the anterior to the middle as in text-figs. 388 & 389. Dorsum of abdomen chalk white with some indistinct dark patches as in text-fig. 388 and three pairs of distinct sigilla arranged mid-longitudinally. Ventral side, greyish with a broad chalk white

patch in between epigastric furrow and spinnerets. Epigyne with a small, thin, nearly transparent scape as in text-figs. 391 & 392. Internal genitalia as in text-fig. 393.

Distribution: INDIA: Neil Island, (*Type-locality*) Andaman.

Remarks: Illustrations and description are based on one paratype female deposited in Z.S.I., Calcutta. Regd. No. 5067/18.

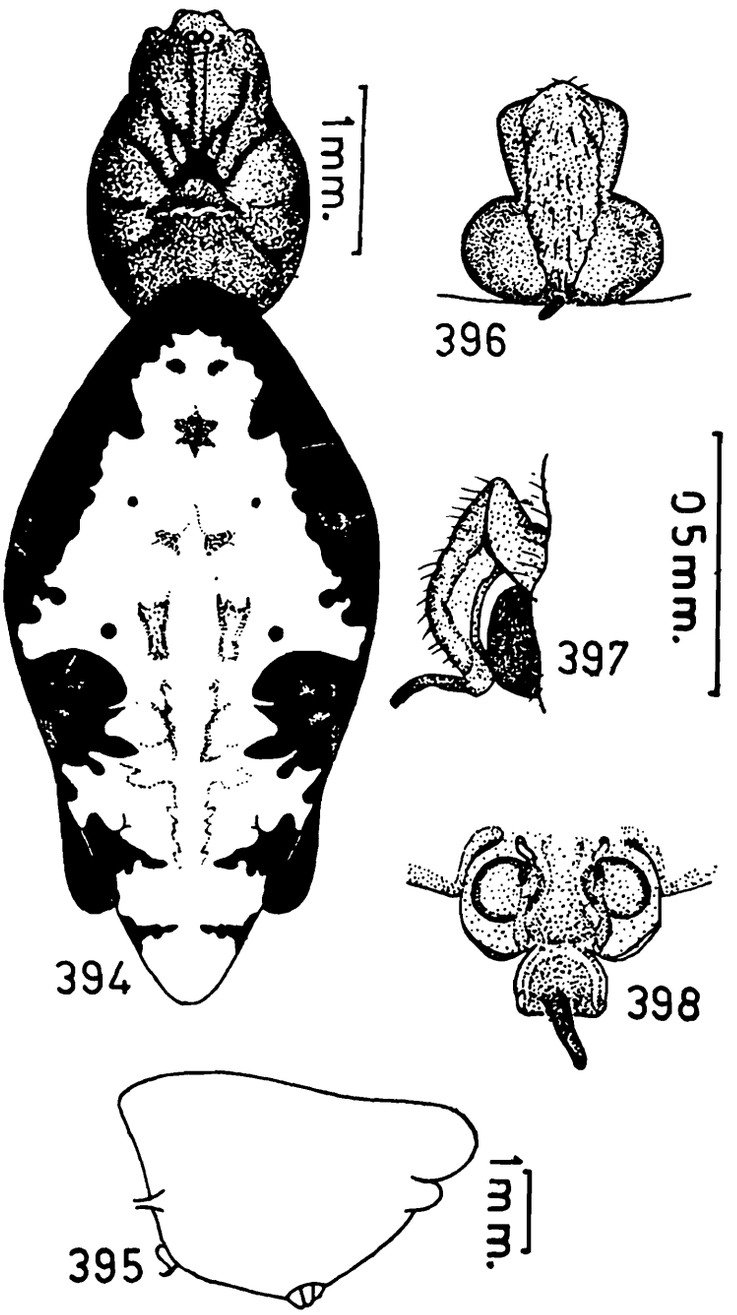
68. **Cyclosa insulana** (Costa)

(Figs. 394-398)

1834. *Epeira insulana* Costa, *Ann. Zool.*, : 65.
1841. *Epeira anseripes* : Walckenaer, *Hist. Nat. Ins. Apt.*, **2** : 146.
1846. *Epeira trituberculata* : Lucas, *Explor. Sci. Alger. Zool. 1 Arachn.*, : 248.
1874. *Cyrtophora trituberculata* : Simon, *Arachn. de France*, **1** : 43.
1892. *Cyclosa insulana* : Thorell, *Ann. Mag. nat. Hist.*, **9**(6): 232.
1938. *Cyclosa insulana* : Roewer, *Mem. Mus. Hist. nat. Belg.* (*Hors. Ser.*), **3**(19) : 37.
1961. *Cyclosa insulana* : Chrysanthus, *Nova Guinea*, (*Zool.*), **10** : 199.
1977. *Cyclosa insulana* : Levi, *Bull. Mus. comp. Zool. Harv.*, **148**(3) : 81.

General: Cephalothorax blackish brown legs yellowish with blackish patches, abdomen blackish with silvery patch. Total length 5.85 mm. Carapace 1.90 mm. long, 1.35 mm. wide; abdomen 4.30 mm. long, 2.25 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with hair; cephalic region distinctly separated from thoracic region by cephalic grooves; thoracic fovea transverse. Ocular quad nearly as long as wide in front and very narrow behind as in text-fig. 394; eyes pearly white; anterior median eyes slightly smaller than posterior medians; posterior medians very close and encircled by black rings; lateral eyes subequal in size, close and situated on prominent tubercles; both rows of eyes recurved as in text-fig. 394. Sternum heart-shaped, pointed behind, blackish in colour with some indistinct pale patches at the periphery, clothed with hair; labium nearly as long as wide, blackish with pale distal margin; maxillae broad, blackish with pale outer borders, provided with distinct scopulae. Chelicerae



FIGS. 394-398. *Cyclosa insulana* (Costa)

394. Dorsal view of female, legs omitted.
395. Lateral view of abdomen of female.
396. Epigyne, ventral view.
397. Epigyne, lateral view.
398. Internal genitalia, posterior view.

moderate, blackish, provided with spines and hair; femora yellowish with black patches distally.

Abdomen: Rhombic shaped, broadest just in front of the middle, provided with one median blunt caudal hump and a paired blunt lateral humps posteriorly as in text-figs. 394 & 395. Dorsum of abdomen having a broad median silver patch with black borders as in text-fig. 394; three pairs of distinct sigilla arranged mid-longitudinally. Ventral side blackish, provided with a pair of chalk white quotation marks, one on each side in between epigastric furrow and spinnerets. Epigyne provided with a long scape, tip of which very narrow and bent as in text-figs. 396 & 397. Internal genitalia as in text-fig. 398.

Distribution: INDIA: Kuppa Valley, Meghalaya; Ligship, Sikkim.

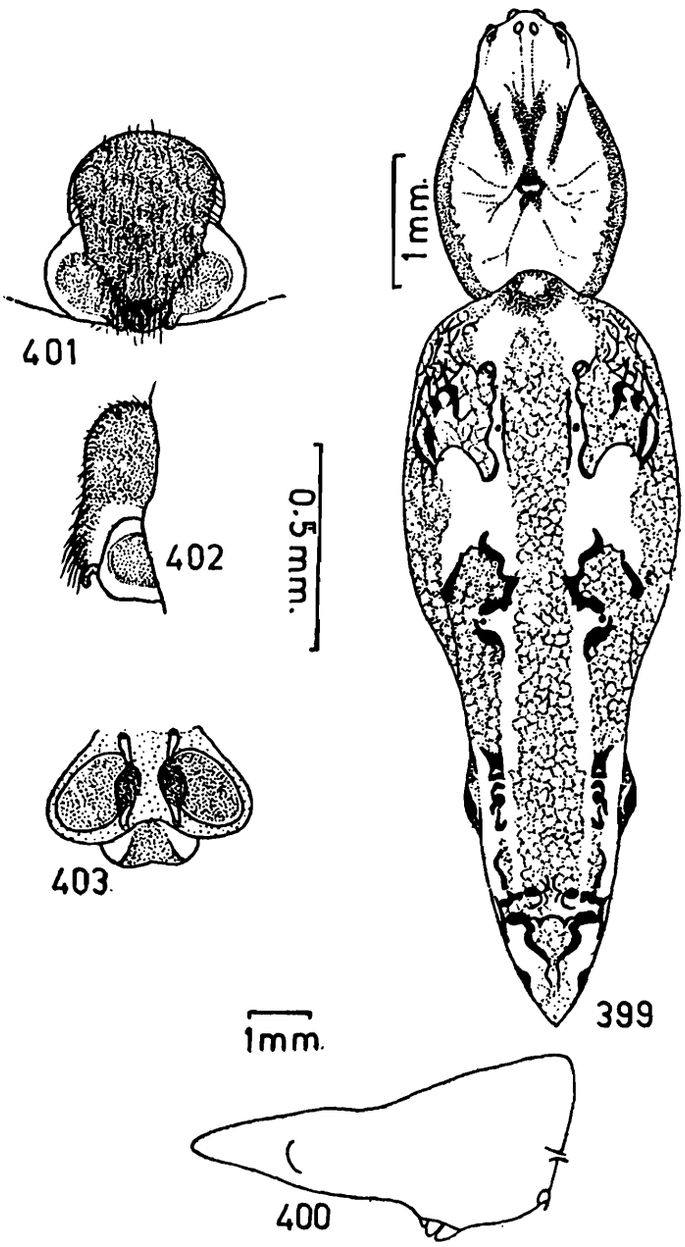
Remarks: Due to lack of type-specimen the discription and illustrations are based on one identified specimen, collected from Kuppa Valley, Meghalaya.

69. **Cyclosa simoni** sp. nov.

(Figs. 399-403)

General: Cephalothorax and legs yellowish with brownish patches, abdomen greyish with silvery white and blackish patches. Total length 7.65 mm. Carapace 2.25 mm. long, 1.40 mm. wide; abdomen 5.65 mm. long, 2.10 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with hair; cephalic region distinctly separated from thoracic region by cephalic grooves; thoracic region having brown patches laterally on each side as in text-fig. 399; thoracic fovea shallow. Ocular quad forming a trapezium, wider in front than behind as in text-fig. 399; eyes pearly white; anterior median eyes slightly larger than posterior medians; posterior medians very close, nearly touching and encircled by black rings; lateral eyes subequal in size, close and situated on prominent tubercles; both rows of eyes recurved as in text-fig. 399. Sternum heart-shaped, pointed behind, light brownish with chalk white patches; labium nearly as long as wide, brownish with pale distal margins; maxillae broad brownish with pale margins, provided with distinct scopulae. Chelicerae moderate, yellowish brown provided with



FIGS. 399-403. *Cyclosa simoni* sp.nov.
399. Dorsal view of female, legs omitted.
400. Lateral view of abdomen of female.
401. Epigyne, ventral view.
402. Epigyne, lateral view.
403. Internal genitalia, posterior view.

distinct boss. Legs moderately long, clothed with spines and hair; segments with indistinct brownish patches and bands.

Abdomen: Elongated, provided with one antero-median hump, one pointed caudal hump and one pair of small lateral humps

as in text-figs. 399 & 400; clothed with hair. Dorsum of abdomen decorated with silvery white, greyish and blackish patches and lines as in text-fig. 348. Ventral side greyish with indistinct chalk white and blackish patches. Epigyne provided with a broad and thick scape with pointed tip as in text-figs. 401 & 402. Internal genitalia as in text-fig. 403.

Holotype: Female in spirit, deposited in Z.S.I., Calcutta, Regd. No. 4944/18.

Type-locality: Nayabazar, West Sikkim, Sikkim, India. Coll. *B. K. Tikader*, 22.9.1959.

Discussion: This species having similarities with *Cyclosa confraga* (Thorell) but diflers as follows: (i) Abdomen having one antero-median hump on the dorsum, but in *confraga* it is absent. (ii) Epigyne is provided with a distinct thick scape with a small but narrow tip, but in *confraga* epigyne with no scape but a broad bulging. (iii) Internal anatomy of genitalia is different in both the species.

Genus 16. **Larinia** Simon

1874. *Larinia* Simon, *Ar. Fr.*, 1 : 115.
1970. *Larinia* : Grasshoff, *Senckenberg. biol.*, 51(3-4): 220-225.
1972. *Drexelia* : Kaston, *How to know the spiders,* : 153.
1975. *Larinia* : Patel, *Oriental Ins.*, 9(1): 111.
1975. *Larinia* : Levi, *Bull. Mus. comp. Zool. Harv.*, 147(3): 102.

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.

Type-species: *Larinia lineata* (Lucas)

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

70. **Larinia chloris** (Audouin)

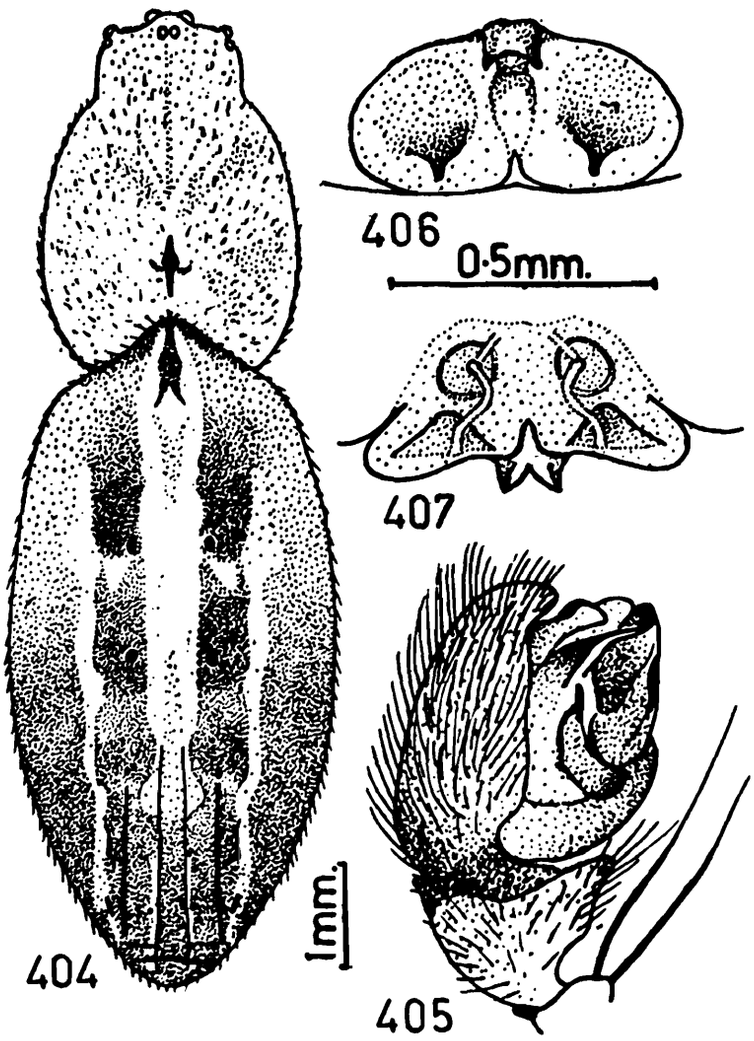
(Figs. 404-407)

1825. *Epeira chloris* Audouin, *Descr. de l'Egrpte*, 22 : 347.
1872. *Argiope epeiroides* : O. P. Cambridge, *Proc. zool. Soc. Lond.*, : 301.
1906. *Larinia chloris* : Simon, *S. B. Ak. Wiss. Wien.*, 115(1) : 1163.
1911. *Larinia epeiroides* : Petrunkevitch, *Bull. Am. Mus. nat. Hist.*, 29 : 353.
1937. *Larinia chloris* : Bodenheimer, *Mém. Inst. Egypte*, 33 : 238.
1970. *Larinia chloris* : Grasshoff : *Senckenberg. biol.*, 51(3-4) : 222-224.

General: Cephalothorax brownish yellow, legs yellowish, abdomen greyish brown. Total length 9.40 mm. Carapace 3.55 mm. long, 2.50 mm. wide; abdomen 6.50 mm. long, 3.20 mm. wide.

Cephalothorax: Nearly one and half times longer than wide; narrowing in front, clothed with pubescence and hair; cephalic region not clearly distinct from thoracic region, one double line running just behind the posterior median eyes and ends before the deep longitudinal thoracic furrow as in text-fig. 404. Ocular quad forming a trapezium, more than three times wider in front than behind as in text-fig. 404; anterior medians much larger than posterior medians as in text-fig. 404; posterior medians closely situated; laterals subequal, closed and situated on distinct tubercles; both rows of eyes recurved, but posterior row very narrowly recurved than anterior row as in text-fig. 404. Sternum rather elongated, heart-shaped, pointed behind, light dark shades with pale median area, clothed with hair; labium as long as wide, brownish with pale distal border; maxillae slightly longer than broad, yellowish, provided with distinct scopulae. Chelicerae strong and stout yellowish, provided with distinct boss; anterior margin of each chelicera armed with four teeth. Legs long and slender, clothed with hair and spines. Male palp as in text-fig. 405.

Abdomen: Elongated, slightly more than two times longer than wide, pointed anteriorly over the carapace as in text-fig. 404, clothed with pubescence and hair. Dorsum of abdomen greyish brown, more dark posteriorly, provided with a mid-longitudinal pale line and two sub-median pale lines one on each side as in text-fig. 404, posteriorly having some black lines and patches. Ventral side provided with a mid-longitudinal white patch



FIGS. 404-407. *Larinia chloris* (Audouin)
404. Dorsal view of female, legs omitted.
405. Mesal view of left male palp.
406. Epigyne, ventral view.
407. Internal genitalia, posterior view.

guarded by black lines running from epigastric furrow to spinnerets. Epigyne having a small scape with concave tip as in text-fig. 406 & 407. Internal genitalia as in text-fig. 407.

Distribution: INDIA: Poona, Maharashtra. LIBIYA. SYRIA. EGYPT. ISRAEL. UGANDA.

Remarks: Description and illustrations are based on specimen collected from Poona, identified by me and Dr. H. W. Levi, Harvard University, kindly conformed the identification.

71. **Larinia phtisica** (L. Koch)

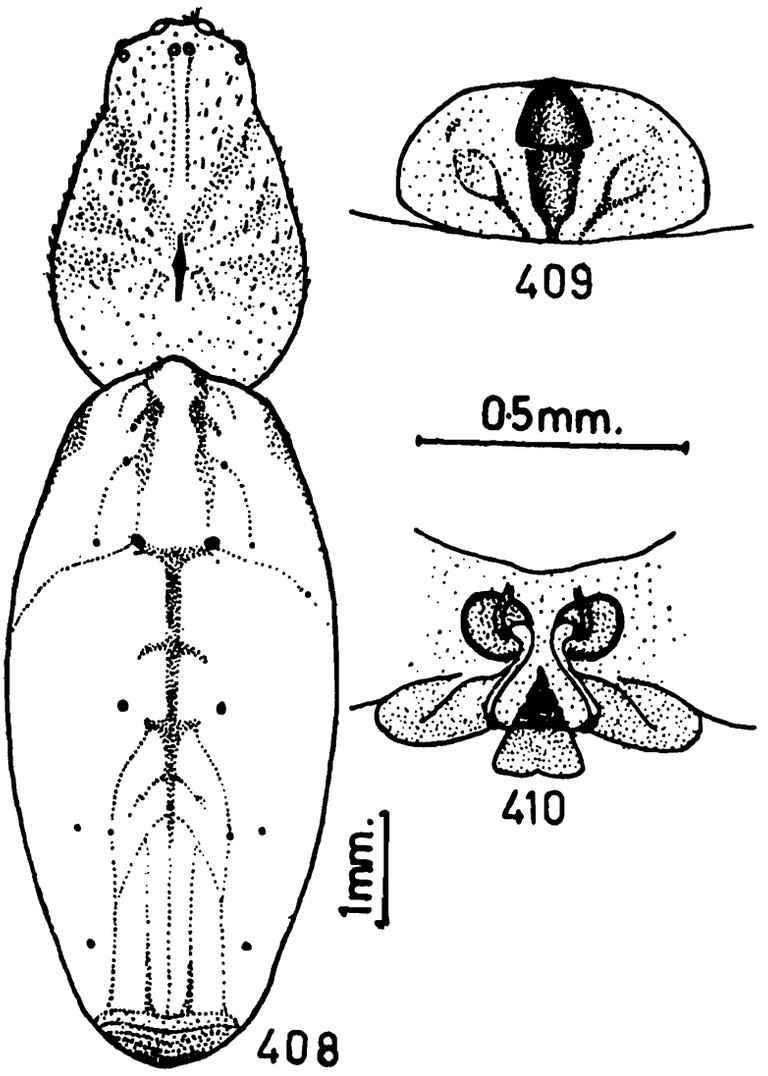
(Figs. 408-410)

1871. *Epeira phtisica* L. Koch, *Die Arachniden Australians*, 1(1) : 193.
1878. *Lipocrea phtisica* : Thorell, *Annali. Mus. civ. Genova*, 13 : 6.
1887. *Epeira phtisica* : Keyserling, *Die Arachniden Australiens*, 2 : 171.
1887. *Larinia phtisica* : Simon, *Annls. Soc. ent. Fr.*, 7(6) : 186.
1900. *Araneus phtisica* : Hogg, *Proc. Soc. Victoria (N.S.)*, 13(1) : 74.
1911. *Larinia phtisica* : Rainbow, *Rec. Aust. Mus.*, 9(2) : 181.
1970. *Larinia phtisica* : Grasshoff, *Senckenberg. biol.*, 51(3-4) : 224-225.
1975. *Larinia chhagani* : Patel, *Oriental Ins.*, 9(1) : 113-116.

General: Cephalothorax, light brownish, legs and abdomen light yellowish white. Total length 10.15 mm. Carapace 3.60 mm. long, 2.45 mm. wide; abdomen 6.90 mm. long, 3.20 mm. wide.

Cephalothorax: Nearly one and half times longer than wide, narrowing in front, clothed with pubescence and hair, cephalic region not sharply distinct from thoracic region; behind the posterior median eyes a double line running and ends before the deep longitudinal thoracic furrow as in text-fig. 408. Ocular quad forming a trapezium much wider in front than behind as in text-fig. 408; anterior medians much larger than posterior medians as in text-fig. 408; posterior medians closely situated; laterals subequal, close and situated on distinct tubercles; both rows of eyes recurved, but posterior row slightly recurved than that of anterior row as in text-fig. 408. Sternum rather elongated, heart-shaped, pointed behind, yellowish brown, clothed with hair; labium as long as wide, brownish with pale distal border; maxillae slightly longer than broad, yellowish provided with distinct scopulae. Chelicerae strong and stout, yellowish, provided with distinct boss; anterior margin of each chelicera armed with four teeth. Legs long and slender, clothed with hair and spines.

Abdomen: Elongated, longer than wide, pointed anteriorly over the carapace as in text-fig. 408, clothed with pubescence and hair. Dorsum of abdomen light yellowish white, provided with some greyish lines and a double rows of black spots as in text-fig. 408. Ventral side provided with a mid-longitudinal white patch guarded by black patches in between epigastric



Figs. 408-410. *Larinia phtisica* (L. Koch)
408. Dorsal view of female, legs omitted.
409. Epigyne, ventral view.
410. Internal genitalia, posterior view.

furrow to spinnerets. Epigyne provided with a small scape, blunt distally as in text-fig. 409. Internal genitalia as in text-fig. 410.

Distribution: India: Calcutta, West Bengal; Ahmedabad, Gujarat. Australia. New Guinea.

Remarks: Due to lack of type-specimen the description and illustrations have been made on the basis of specimen collected from Calcutta and identified by me and kindly confirmed the identification by Dr. H. W. Levi, Harvard University, U.S.A.

Genus 17. **Arachnura** Vinson

1863. *Arachnura* Vinson, *Aran. Reun.*, : 287.
1863. *Hapaloehroto* : Keyserling, *Sitz. Ber. Isis Dresden*, : 82.
1895. *Arachnura* : Simon, *Hist. Nat. Araign.*, 1(4) : 777.
1960. *Arachnura* : Yaginuma, *Spiders of Japan, in colour*, : 66.
1970. *Arachnura* : Tikader, *Rec. zool. Surv. India*, 63(1-4) : 30.

Characters: Carapace rather long with cephalic region, narrower anteriorly. Ocular quad longer than wide; lateral eyes not contiguous. Legs short and robust, without spine but armed with rigid setae. Abdomen elongated, with prominent shoulder humps and posteriorly tapering tail like with tubercles.

Type-species: *Arachnura scorpionides* Vinson

Distribution: Tropical Asia and Africa, Malaysia, New Zealand.

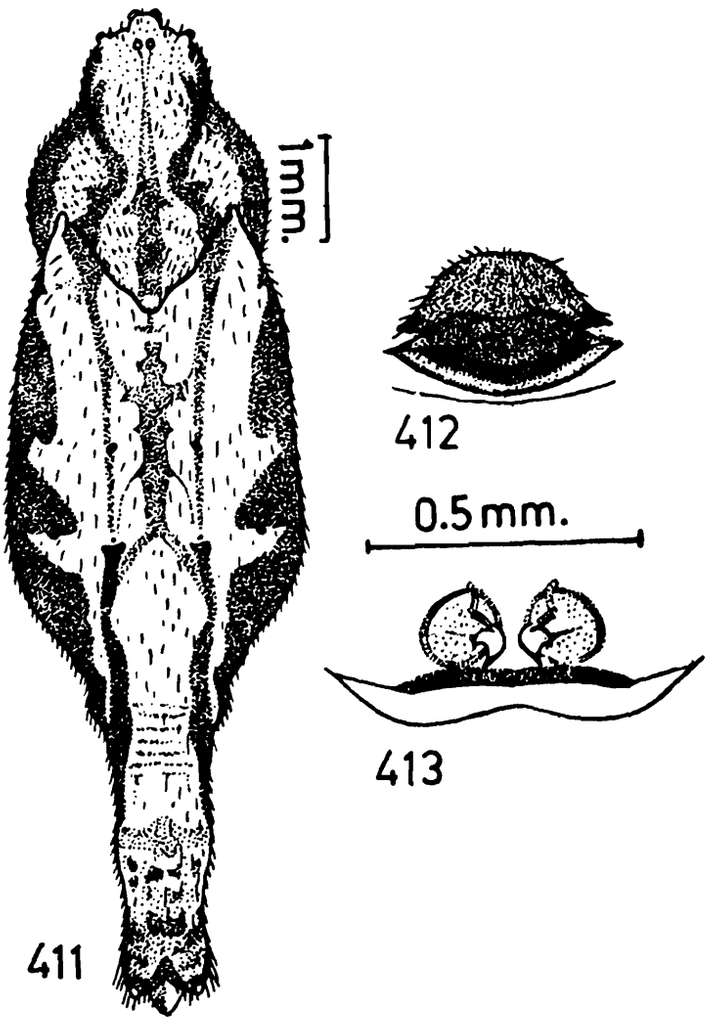
72. **Arachnura angura** Tikader

(Figs. 411-413)

1970. *Arachnura angura* Tikader, *Rec. zool. Surv. India*, 63(1-4) : 30.

General: Cephalothorax and legs yellowish with brownish patches, abdomen greyish with white and brown patches. Total length 9.30 mm. Carapace 2.90 mm. long, 2.25 mm. wide; abdomen 6.45 mm. long, 2.70 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, a mid-longitudinal brown line from behind the ocular quad to the posterior end and other brown patches as in text-fig. 411; clothed with hair. Ocular quad much longer than wide and wider in front than behind as in text-fig. 411; anterior medians larger than posterior medains; laterals equal in size, situated on distinct tubercles, separated from each other as in text-fig. 411, both rows of eyes recurved but posterior row very narrowly recurved as in text-fig. 411. Sternum heart-shaped, narrowing behind, yellowish with some dark shades, clothed with hairs; labium wider than long, yellowish with pale distal margin; maxillae



FIGS. 411-413. *Arachnura angura* Tikader
411. Dorsal view of female, legs omitted.
412. Epigyne, ventral view.
413. Internal genitalia, posterior view.

broad, yellowish with pale inner margin, provided with distinct scopulae. Chelicerae weak, yellowish, provided with moderate boss. Legs rather short and stout, clothed with pubescence and hairs; dorsal side of femur II light brownish.

Abdomen: Elongated, provided with two very prominent shoulder humps, thus anterior end bifurcated and gradually tepering posteriorly, forms a tail like process which extends far beyond the spinnerets with two knob like tubercles having white tips as in text-fig. 411. Dorsum of abdomen brownish laterally and a pair of sub-median light greenish lines from the shoulder humps to the posterior end, broad white patches as in text-fig. 411.

Ventral side dirty brown. Epigyne with a ridge posteriorly as in text-fig. 412. Internal genitalia as in text-fig. 413.

Distribution: INDIA: Gazing, (*Type-locality*) Sikkim.

Remarks: Description and illustrations are based on Holotype female, deposited at Z.S.I., Calcutta, Regd. No. 3212/18.

Genus 18. **Parawixia** F.O.P. Cambridge

1904. *Parawixia* F. O. P. Cambridge, *Biologia. cent. am. (Zool)*, 2 : 487.
1951. *Parawixia* : Strand, *Arach. Naturg.*, 81(A2) : 134.
1936. *Parawixia* : Chamberlin & Ive, *Bull. Univ. Utah Biol.*, 27(5) : 52.

Characters: Carapace with cephalic region bulging behind the ocular area, also having numerous granules. Anterior row of eyes procurved as seen from in front. Abdomen provided with paired and unpaired humps; one pair of very prominent shoulder humps are present but no anterior median hump. Epigyne with swelled base and short beak like unwrinkled scape.

Type-species: *Parawixia destricta* (O. P. Cambridge).

Distribution: SOUTH AMERICA, MEXICO, INDIA, JAPAN, MALAYSIA.

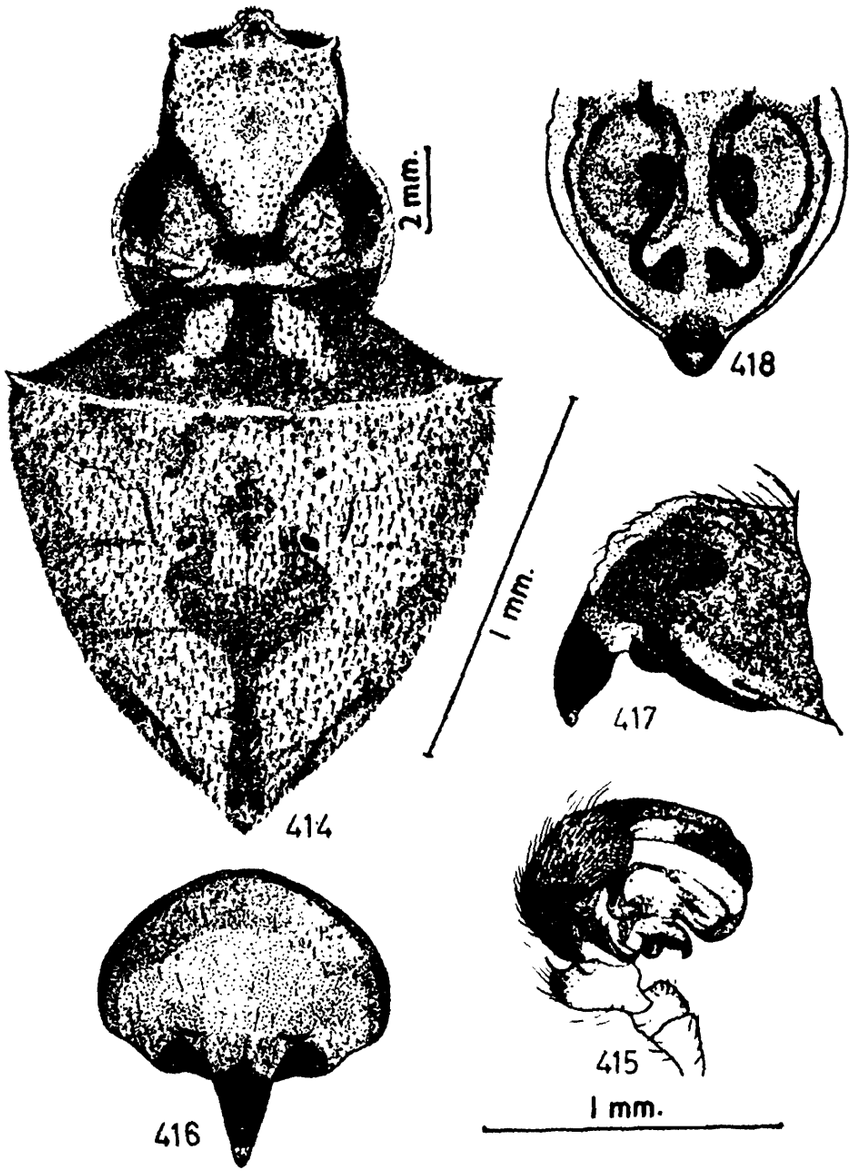
73. **Parawixia dehaanii** (Doleschall)

(Figs. 414-418)

1859. *Epeira dehaanii Doleschall, Act. Soc. Ind. Neerl.*, 5(5) : 33.
1877. *Epeira kandarensis* : Thorell, *Annali. Mus. civ. Genova*, 10 : 372.
1887. *Epeira submucronata* : Simon, *J. Asiat. Soc. Beng.*, 56(2) : 106.
1895. *Epeira dehaanii* : Thorell, *Spiders of Burma*, : 170.
1899. *Araneus dehaanii* : Simon, *Annls. Soc. ent. Belg.*, 43 : 90.
1900. *Araneus dehaanii* : Pocock, *Fauna Brit. India, Arachn.*, : 225.
1938. *Araneus dehaanii* : Roewer, *Mem. Mus. Hist. nat. Belg. (Hors. Ser.)*, 3(19) : 38.
1951. *Araneus dehaanii* : Sinha, *Rec. Indian Mus.*, 49 : 84.
1960. *Araneus dehaanii* : Chrysanthus, *Nova Guinea (Zool.)*, 10 : 31.
1970. *Araneus dehaanii* : Tikader, *Rec. zool. Surv. India*, 63(1-4) : 30.

General: Cephalothorax and legs reddish brown, abdomen dark brown. Total length 20.50 mm. Carapace 8.80 mm. long, 7.40 mm. wide; abdomen 13.70 mm. long, 12.50 mm. wide,

Cephalothorax: Longer than wide, narrowing in front, clothed with white pubescence, hairs and spines with granular bases as in text-fig. 414. Cephalic region much elevated in the middle thus forming a bulge just behind the ocular area as in text-fig. 414. Ocular quad situated on an elevation, slightly wider



FIGS. 414-418. *Parawixia dehaanii* (Doleschall)

414. Dorsal view of female, legs omitted.
415. Mesal view of left male palp.
416. Epigyne, ventral view.
417. Epigyne, lateral view.
418. Internal genitalia, posterior view.

in front than behind as in text-fig. 414. Anterior median eyes larger than the posterior medians. Both the lateral eyes nearly same in size, close and each situated on the base of horn-like tubercle. Anterior row of eyes procurved as seen from in front and posterior row recurved as seen from above. Sternum heart-shaped, pointed behind, reddish brown in colour, clothed with pubescence and hairs with granular bases. Labium slightly wider than long, dark brown with pale distal border. Maxillae strong, reddish brown with pale outer margin, provided with distinct scopulae. Chelicerae strong, reddish brown provided with moderate boss. Legs long and strong, clothed with pubescence, hairs and spines, having no bands, tarsi darker than other segments. Male palp as in text-fig. 415.

Abdomen: Triangular, longer than wide, clothed with pubescence and hairs, provided with two pointed spine like shoulder humps and one pointed tail hump at the posterior end as in text-fig. 414. Five pairs of sigilla on the dorsum arranged mid-longitudinaly. A chalk white transverse bands extending in between the two shoulder humps as in text-fig. 414. Ventral side greyish brown with indistinct dark brown patches. Epigyne provided with a stout beak like scape, bent at right angle to the base as in text-figs. 416 & 417. Internal genitalia as in text-fig. 418.

Distribution: INDIA: Karnataka; Sikkim; West Bengal. BURMA: Tharrawaddy; Bhamo; Terasserim. INDO and AUSTRO-MALAYASIA. JAVA. SUMATRA. POLYNESIA. JAPAN.

Remarks: Description and illustrations are based on a specimen collected by me from West Sikkim. Previously this species was placed in the genus *Araneus*. But I found this species should be placed in the genus *Parawixia* which is hence recorded for the first time in India.

Genus 19. **Zygeilla** F.O.P. Cambridge

1902. *Zygeilla* F. O. P. Cambridge, *Ann. Mag. nat. Hist.*, 9(7) : 15.

1964. *Zygeilla* : Gertsch, *Am. Mus. Novit.*, 2188 : 1.

1974. *Zygeilla* : Levi, *Bull. Mus. comp. Zool. Harv.*, 146(5) : 267.

1980. *Zygeilla* : Tikader & Bal, *Proc. Indian Acad. Sci.*, 89(3) : 243.

Characters: Carapace with cephalic region usually dark coloured than thoracic region and very few hairs. Anterior median eyes are larger than others. Ocular quad as long as wide in front and slightly narrower behind than in front. Abdomen oval with no humps and decorated with distinct folium on the dorsum. Epigyne variable with a posterior median depression, may or may not with scape; scape when present not wrinkled. Palpal patella of male provided with single larger spine like hair; and palpal femur lacks proximal ventral teeth; paracynbium modified and diverse.

Type-species: *Zygeilla atrica* (C. L. Koch).

Distribution: Cosmopolitan.

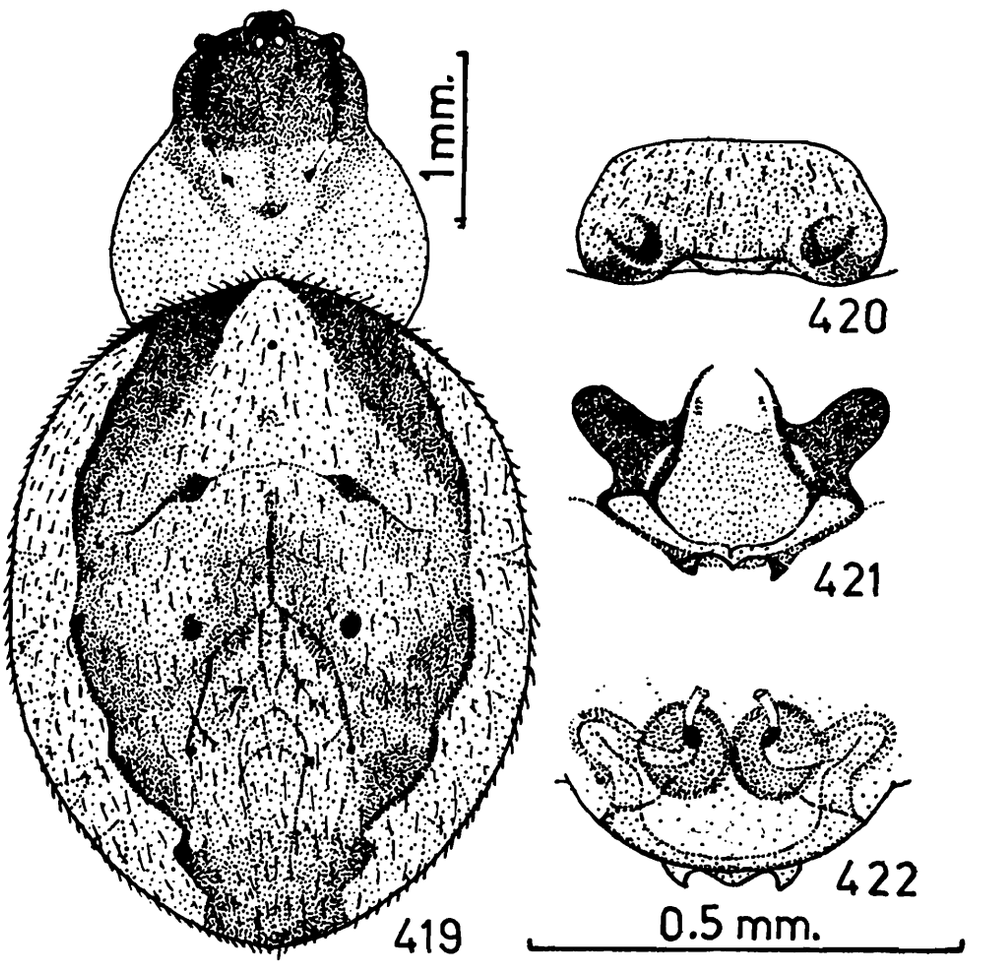
74. **Zygeilla melanocrania** (Thorell)

(Figs. 419-422)

1887. *Epeira melanocrania* Thorell, *Annali. Mus. civ. Genova*, **25** : 209.
1909. *Araneus melanocrania* : Simon, *Bull. scient. Fr. Belg.*, **42** : 108.
1935. *Araneus melanocrania* : Dyal, *Bull. Dep. Zool. Punjab Univ.*, **1** : 183.
1974. *Zygeilla melanocrania* : Levi, *Bull.Mus.comp.Zool.Harv.*, **146**(5) : 282.
1980. *Zygeilia melanocrania* : Tikader & Bal, *Proc. Indian Acad. Sci.*, **89**(3) : 243-245.

General: Cephalic region dark brown with some black patches and thoracic region yellowish in colour, legs pale in colour, abdomen whitish with black markings forming a folium. Total length 5.50 mm. Carapace 2.10 mm. long, 1.90 mm. wide; abdomen 3.95 mm. long, 3.15 mm. wide.

Cephalothorax: Longer than wide, narrowing in front; cephalic region with very few hairs and darker in colour than thoracic region as in text-fig. 419. Ocular quad slightly longer than wide and wider in front than behind as in text-fig. 419; anterior median eyes larger than posterior medians; laterals are sub-equal in size, close and situated on prominent tubercles; both rows of eyes recurved but posterior row very narrowly recurved as in text-fig. 419. Sternum heart-shaped, pointed behind, pale yellowish with no markings, clothed with hairs, labium slightly wider than long, light brownish with pale distal end; maxillae broad,



FIGS. 419-422. *Zygeilla melanocrania* (Thorell)

419. Dorsal view of female, legs omitted.

420. Epigyne, ventral view.

421. Epigyne, posterior view.

422. Internal genitalia, posterior view.

light brownish yellow and provided with distinct scopulae. Chelicerae moderately strong, deep brownish, provided with distinct boss. Legs moderately long and strong, clothed with hairs and spines.

Abdomen: Oval, longer than wide with no humps and clothed with hairs as in text-fig. 419. Dorsum of abdomen having a distinct folium composed of black and white patches as in text-fig. 419. Ventral side with white pigmentation. Epigyne with no scape, having semicircular openings on the ventral side as in text-figs. 420 & 421. Internal genitalia as in text-fig. 422.

Distribution: INDIA: Barkuda Island (Chilka Lake), Orissa. PAKISTAN: Model Town, Lahore. BURMA.

Remarks: Description and illustrations are based on authenticated identified specimen deposited at Zoological Survey of India, Calcutta, Regd. No. 2825/H².

75. **Zygeilla indica** Tikedar & Bal

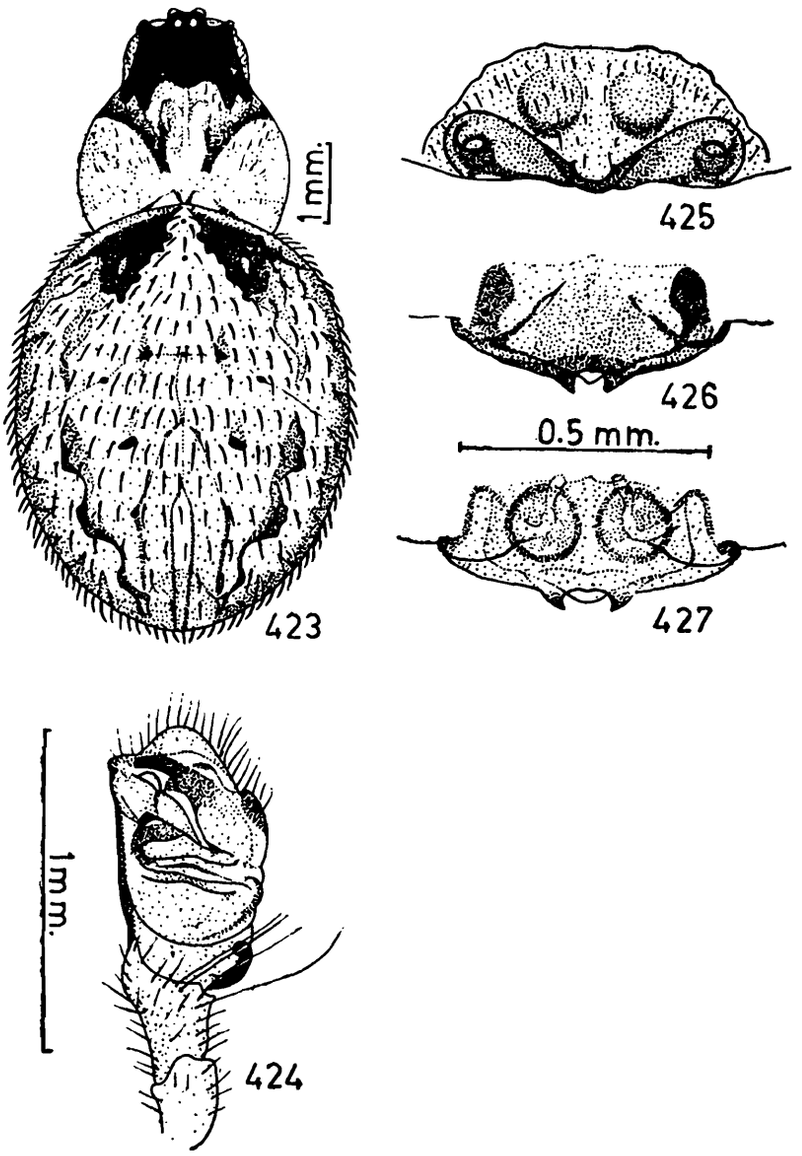
(Figs. 423-427)

1980. *Zygeilla indica* Tikader & Bal, *Proc.Indian Acad.Sci.*, 89(3) : 243-246.

General: Cephalic region blackish brown and thoracic region yellowish in colour, legs yellowish with some brownish patches, abdomen whitish with light brownish tint and some black markings forming a folium. Total length 7.80 mm. Carapace 3.20 mm. long, 2.70 mm. wide; abdomen 5.40 mm. long, 4.35 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, cephalic region with very few hairs and more darker in colour than thoracic region. Ocular quad nearly as long as wide and wider in front than behind as in text-fig. 423; anterior median eyes larger than posterior medians and laterals subequal in size and situated on prominent tubercles; both rows of eyes recurved but posterior row very narrowly recurved as in text-fig. 423. Sternum heart-shaped, pointed behind, yellowish brown in colour with no markings, clothed with hairs; labium slightly wider than long, pale brown in colour; maxillae broad, pale brown in colour and provided with distinct scopulae. Chelicerae moderately strong, blackish brown in colour, having distinct boss. Legs moderately long and strong, clothed with hairs and spines, distal ends of femora with dark brown patches on the dorsal surface. Male palp as in text-fig. 424.

Abdomen: Oval, longer than wide with no humps and clothed with hairs as in text-fig. 423. Dorsum of abdomen having a distinct folium composed of black and pale patches and small lines at the periphery as in text-fig. 423. Ventral side with white, pigmentation in between epigastric furrow and the spinnerets.



FIGS. 423-427. *Zygeilla indica* Tikader & Bal

423. Dorsal view of female, legs omitted.
424. Ventral view of left male palp.
425. Epigyne, ventral view.
426. Epigyne, posterior view.
427. Internal genitalia, posterior view.

Epigyne with no scape, having spiral openings on the ventral side as in text-fig. 425. Internal genitalia as in text-fig. 427.

Distribution: INDIA: Poona (*Type-locality*), Maharashtra.

Remarks: Description and illustrations are based on type specimens deposited in the Z.S.I., Calcutta, Regd. No. 4945-47/18.

Genus 20. Araneus Clerck

1757. *Araneus* Clerk, *Argn. Suec.*, : 15.
1758. *Aranea* : Linnaeus, *Systema Naturae*, 10 : 619.
1805. *Epeira* : Walckenaer, *Tableau des Araneides*, : 53.
1837. *Atea* : C. L. Koch, *Uebersicht des Arachnidensystems*, 1 : 3.
1864. *Neopora* : Simon, *Hist. Nat. des. Araign.*, ed. I : 261.
1893. *Burgessia* : McCook, *Amer. Spid.*, 3 : 182.
1895. *Araneus* : Simon, *Hist. Nat. Araign.*, 1(4) : 829.
1900. *Araneus* : Pocock, *Fauna Brit. India, Arachn.*, : 227.
1921. *Araneus* : Gravely, *Rec. Indian Mus.*, 22(4) : 414.
1935. *Araneus* : Dyal, *Bull. Deb. Zool. Punjab Univ.*, 1 : 177.
1951. *Conepeira* : Archer, *Am. Mus. Novlt.*, 1487 : 12.
1960. *Araneus* : Yaginuma, *Spiders of Japan, in colour*, : 51-55.
1960. *Araneus* : Chrysanthus, *Nova Guinea (Zool.)*, 10(3) : 30.
1970. *Araneus* : Tikader, *Rec. zool. Surv. India*, 63(1-4) : 30.
1971. *Araneus* : Levi, *Bull. Mus. comp. Zool. Harv.*, 141(4) : 131.
1973. *Araneus* : Levi, *Bull. Mus. comp. Zool. Harv.*, 145(9) : 473.

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 into the grooves at the base. Palpus of male with a large terminal apophysis, palpal patella with two strong, long and curved spines.

Type-species: *Araneus angulatus* Clerck.

Distribution: Cosmopolitan.

Key to the species of the genus Araneus Clerck

1. Abdomen provided with one pair of shoulder humps.....2

Abdomen not provided with any shoulder humps.....7

2. Shoulder humps very low and small (Fig. 428) ; one pair of chalk white large spots surrounded by black rings on the dorsum (Fig. 428).....*bilunifer*
Shoulder humps otherwise ; no paired chalk white spots on the dorsum.....3

3. Abdomen globular ; epigyne with long wrinkled scape.....4
Abdomen not globular ; epigyne with long wrinkled or short unwrinkled scape.....5

4. Shoulder humps broad and blunt (Fig. 432) ; epigynal scape not distinctly bent outwards at the middle (Fig. 434).....*pahalgaonensis*
Shoulder humps pointed (Fig. 436) ; epigynal scape conspicuously bent outwards at the middle (Fig. 438).....*anantnagensis*

5. Abdomen with a white transverse band between the shoulder humps ; shoulder humps less distinct ; epigyne without any horn like projections.....6
Abdomen with no white transverse band between the shoulder humps ; shoulder humps very prominent and high (Fig. 440) ; epigyne with one pair of horn like projections (Figs. 441 & 442).....*panchganiensis*

6. Epigynum with long, slender, wrinkled scape (Figs. 445 & 446) ; carapace densely clothed with hairs (Fig. 444).....*himalayaensis*
Epigyne with short, thick, unwrinkled scape (Figs. 449 & 450) ; carapace less hairy (Fig. 448).....*bituberculatus*

7. Abdomen oval or suboval with no tubercles at the posterior end ; epigynal scape short, wrinkled and thin.....8
Abdomen not oval, or suboval but narrower anteriorly than posteriorly, two pairs of small black tubercles at the posterior end (Fig. 453) ; epigynal scape short but unwrinkled and thick (Figs. 454 & 456).....*mitifica*

8. Abdomen oval (Fig. 458) ; epigynal scape bent outwards (Fig. 460).....*nympha*
Abdomen suboval (Fig. 462) ; epigynal scape not bent outwards (Fig. 464).....*cucurbitinus*

76. **Araneus bilunifer** Pocock

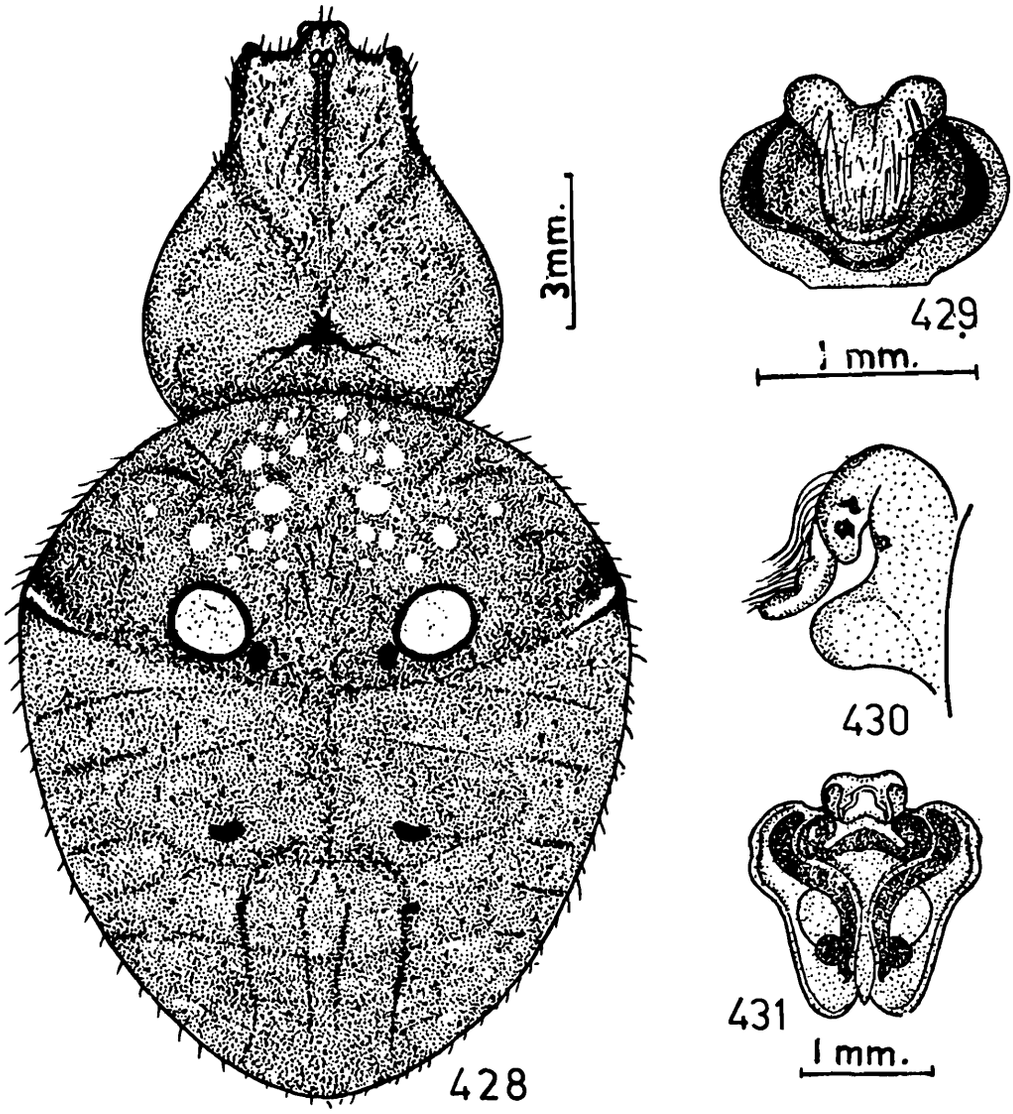
(Figs. 428-431)

1900. *Araneus bilunifer* Pocock, *Fauna Brit. India, Arachn.*, : 227.
1975. *Araneus bilunifer* : Patel, *Vidya, J. Gujarat Univ.*, **18**(1) : 162.

General: Carapace and legs light brownish, abdomen yellowish grey. Total length 21.50 mm. Carapace 8.50 mm. long, 7.20 mm. wide; abdomen 14.00 mm. long, 12.00 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with pubescence and hairs. Thoracic region provided with a conspicuous transverse groove. Ocular quad longer than wide and much wider in front than behind as in text-fig. 428. Anterior median eyes larger than the posterior medians. Lateral eyes close and each situated on a tubercle. Both the rows of eyes recurved but anterior row strongly recurved as in text-fig. 428. Sternum heart-shaped, pointed behind, dark brown, clothed with pubescence and hairs, mid-longitudinally provided with a broad black band. Labium wider than long, brown with pale distal border. Maxillae nearly pentangular, brown with pale outer margin, provided with distinct scopulae. Chelicerae strong, brown, provided with medium boss. Legs long and strong, distal ends of all segments having dark brown bands, clothed with pubescence, hairs and spines.

Abdomen: Sub-oval, longer than wide, clothed with pubescence and hairs, provided with two small, low shoulder humps and one pair of conspicuous chalk white large spots, margined by black rings on the dorsum as in text-fig. 428. Three pairs of sigilla arranged mid-longitudinally on the dorsum. A few chalk white patches present anteriorly on the dorsum of the abdomen. Ventral side provided with a large brown patch guarded laterally by a pair of chalk white dumble shaped patches in between the epigastric furrow and the spinnerets. Epigyne provided with a short, broad and bent scape as in text-figs. 429 & 430. Internal genitalia as in text-fig. 431.



FIGS. 428-431. *Araneus bilunifer* Pocock

428. Dorsal view of female, legs omitted.

429. Epigyne, ventral view.

430. Epigyne, lateral view.

431. Internal genitalia, posterior view.

Distribution: INDIA: Chingleput, Tamil Nadu; Vallabh Vidyanagar, Napad, Gujarat.

Remarks: Description and illustrations are based on the type-specimen of Pocock, deposited at B.M. (N.H.), London, Regd. No. 1899, 1.11.12.

77. **Araneus pahalgaonensis** Tikader & Bal

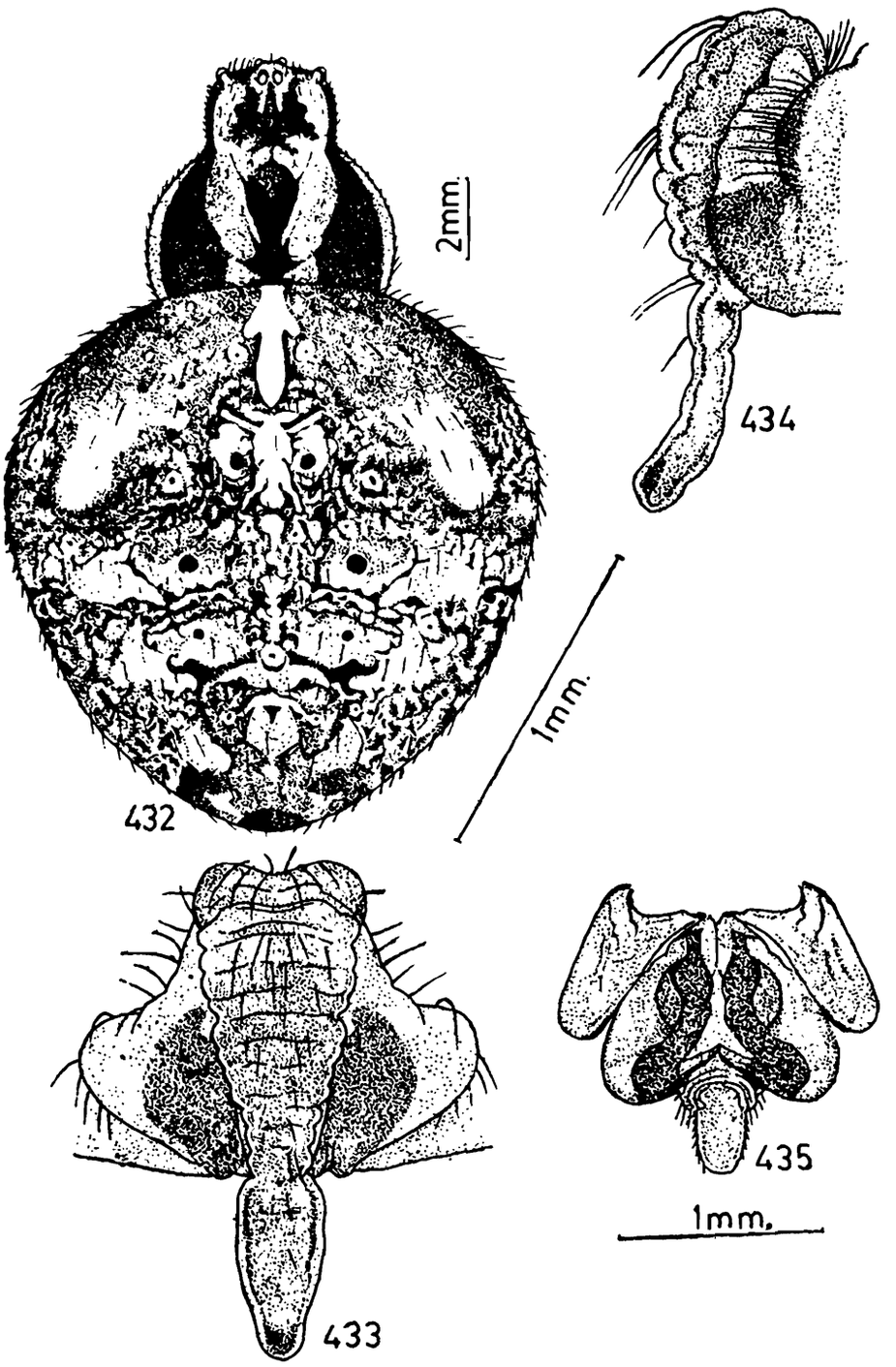
(Figs. 432-435)

1981. *Araneus pahalgaonensis* Tikader & Bal, *Rec. zool. Surv. India, occ Pap.*, 24 : 44.

General: Cephalothorax and legs yellowish brown, abdomen olive yellowish. Total length 19.70 mm. Carapace 7.30 mm. long, 6.00 mm. wide; abdomen 13.30 mm. long, 13.00 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with pubescence and hairs, provided with a median and two lateral longitudinal black patches extending all along the length as in text-fig. 432. Thoracic region having a distinct transverse groove. Ocular quad longer than wide and wider in front than behind as in text-fig. 432. 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 anterior row as in text-fig. 432. Sternum heart-shaped, pointed behind, black in colour, clothed with hairs. Labium nearly as long as wide, black with yellowish distal border. Maxillae nearly pentangular, black with yellowish outer margin, provided with distinct scopulae. Chelicerae strong, yellowish with black patches, provided with inconspicuous boss. Legs long and strong, yellowish provided with distinct transverse black bands, distal ends of femora of all legs brownish with longitudinal blackish lines dorsally, patellae of all legs light brown with blackish patches, clothed with pubescence, hairs and spines.

Abdomen: Globular, slightly longer than wide, clothed with pubescence and hairs, provided with two blunt shoulder humps as in text-fig. 432. Mid-dorsum provided with six pairs of sigilla arranged longitudinally. Dorsum provided with olive green and chalk white patches as in text-fig. 432. Ventral side of abdomen having a large black patch extending from epigastric furrow to spinnerets, guarded laterally by one dumble shaped chalk white patch on each side. Epigyne provided with a long wrinkled scape and a pair of large basal lamellae as in text-figs. 433 & 434. Internal genitalia as in text-fig. 435.



FIGS. 432-435. *Araneus pahalgaonensis* Tikader & Bal
432. Dorsal view of female, legs omitted.
433. Epigyne, ventral view.
434. Epigyne, lateral view.
435. Internal genitalia, posterior view.

Distribution: INDIA: Pahalgaon (*Type-yocality*), Jammu and Kashmir.

Remarks: Description and illustrations are based on the type specimen, deposited in the Z.S.I., Calcutta, Regd. No. 4948/18.

78. **Araneus anantnagensis** Tikader & Bal

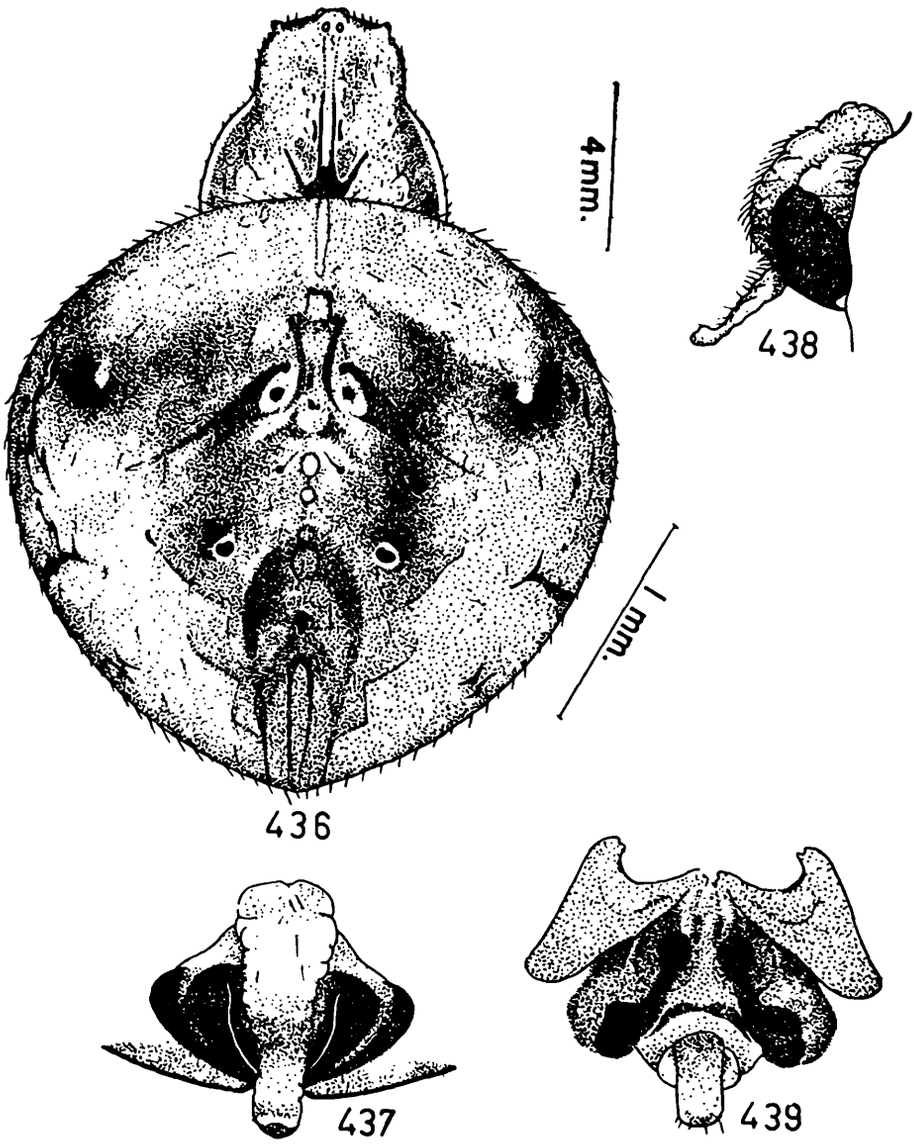
(Figs. 436-439)

1981. *Araneus anantnagensis* Tikader & Bal, *Rec. zool. Surv. India, occ. Pap.*, 24 : 46.

General: Cephalothorax and abdomen light brown, legs yellowish brown. Total length 18.40 mm. Carapace 6.30 mm. long, 5.80 mm. wide; abdomen 13.70 mm. long, 14.30 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with pubescence and hairs, provided with one median and two lateral longitudinal dark brown patches, extending from the base to the anterior margin of the carapace as in text-fig. 436. Thoracic region provided with transverse groove. Ocular quad longer than wide and wider in front than behind as in text-fig. 436. Anterior median eyes smaller than the posterior medians. Posterior medians encircled by black rings. Lateral eyes close and each situated on a tubercle. Both rows of eyes recurved but posterior row less recurved than the anterior row. Sternum heart-shaped, pointed behind, black in colour, clothed with hairs. Labium wider than long, black with white distal margin. Maxillae roughly pentangular in shape, dark brown with pale outer margin, provided with distinct scopulae. Chelicerae strong, yellowish brown in colour with inconspicuous boss. Legs long and strong, yellowish brown, provided with indistinct transcerse brown bands, patellae of all legs light brown in colour, clothed with thick pubescence, hairs and spines.

Abdomen: Globular, slightly wider than long, clothed with pubescence and hairs, provided with two shoulder humps with pointed tips as in text-fig. 436. Six pairs of sigilla arranged mid-longitudinally on the dorsum. Dorsum having some dirty chalk white and light brown patches as in text-fig. 436. Ventral side of abdomen provided with dark brown spots, but mid-ventral with a black broad longitudinal patch extending from epigastric furrow to the base of the spinnerets, laterally guarded by one



FIGS. 436-439. *Araneus anatnagensis* Tikader & Bal

436. Dorsal view of female, legs omitted.

437. Epigyne, ventral view.

438. Epigyne, lateral view.

439. Internal genitalia, posterior view.

dumble shaped chalk white patch on each side. Epigyne provided with a long and wrinkled scape, but at the middle portion and a pair of basal lamellae as in text-figs. 437-438. Internal genitalia as in text-fig. 439.

Distribution: INDIA: Batkut, Anantnag (*Type-locality*), Jammu and Kashmir.

Remarks: Description and illustrations are based on the type specimen, deposited in the Z.S.I., Calcutta. Regd. No. 4949/18.

79. **Araneus pachganiensis** Tikader & Bal

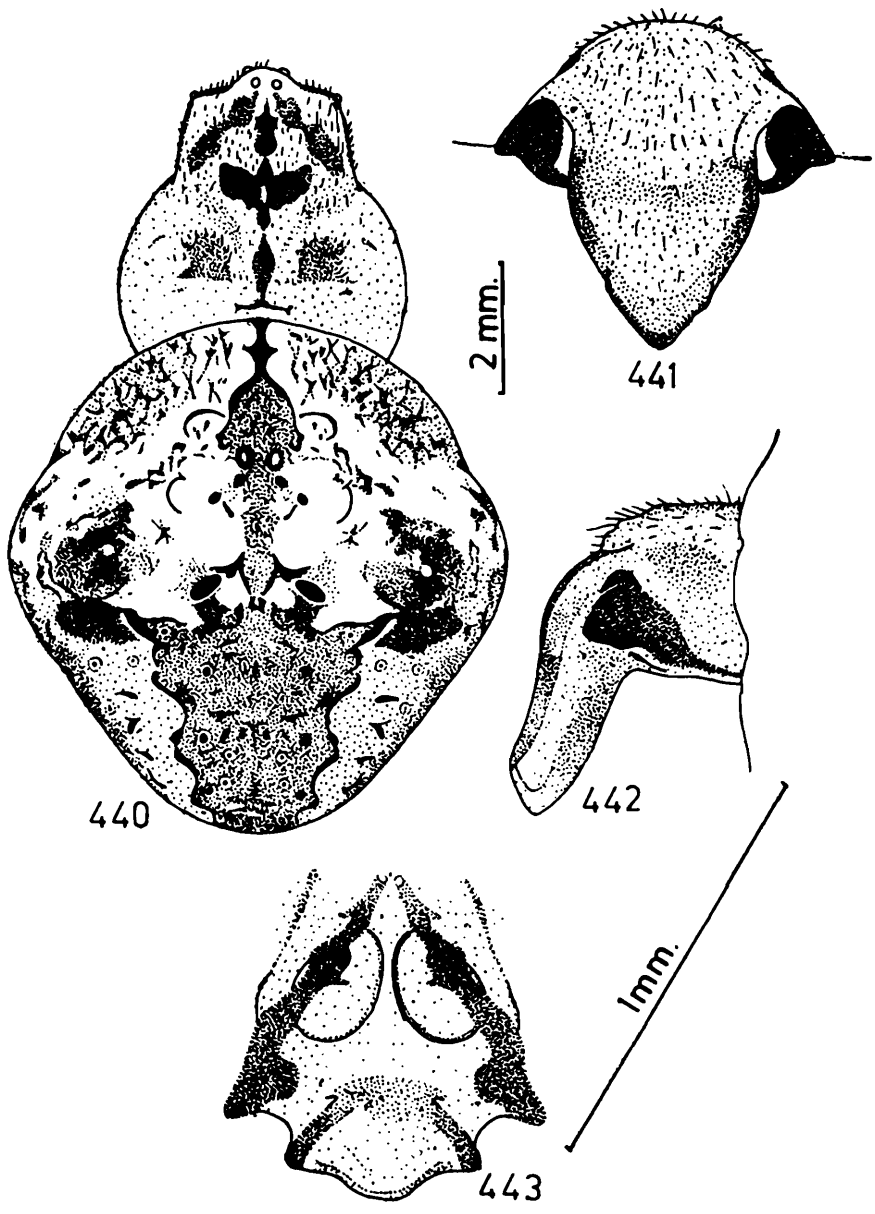
(Figs. 440-443)

1981. *Araneus pachganiensis* Tikader & Bal, *Rec. zool. Surv. India, occ. Pap.*, 24 : 48.

General: Cephalothorax and legs yellowish, abdomen brownish yellow. Total length 11.60 mm. Carapace 5.00 mm. long, 4.40 mm. wide; abdomen 7.80 mm. long, 7.70 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, provided with blackish brown patches as in text-fig. 440, clothed with pubescence and hairs. Cephalic region darker in colour. Thoracic region yellowish and provided with a distinct transverse groove. Ocular quad as in text-fig. 440. Anterior median eyes larger than the posterior medians. Posterior median eyes encircled by black ring. Lateral eyes close and each situated on a tubercle. Both the rows of eyes strongly recurved, sternum heart-shaped, pointed behind clothed with pubescence and hair, provided with a broad yellowish patch in the middle. Labium wider than long, deep brown with pale distal border. Maxillae strong, roundish, brown with pale outer margin, provided with distinct scopulae. Chelicerae strong, dark brown, provided with inconspicuous boss. Legs long and strong, clothed with pubescence, hairs and spines, yellowish with distinct transverse bands, femora of all legs having with two dark brown transverse bands.

Abdomen: Nearly sub-triangular, slightly longer than wide, clothed with pubescence and hairs. Dorsum provided with two very conspicuous shoulder humps and dark brown patches forming a folium as in text-fig. 440. Six pairs of sigilla arranged mid-longitudinally on the dorsum. On the ventral side a large black patch in between the epigastric furrow and the spinnerets. One pair of chalk white bars arranged transversely just adjacent to the epigastric fold and one pair of chalk white spots towards the spinnerets. Epigyne provided with very strong traingular scape with narrow tip, and one pair of pointed horn-like projections at



FIGS. 440-443. *Araneus panchgaiiensis* Tikader & Bal
440. Dorsal view of female, legs omitted.
441. Epigyne, ventral view.
442. Epigyne, lateral view.
443. Internal genitalia, posterior view.

the openings as in text-fig. 441 scape provided with distinct dorsal depression. Internal genitalia as in text-fig. 443.

Distribution: INDIA: Panchgani (*Type-locality*), Satara, Maharashtra.

Remarks: Description and illustrations are based on type specimen, deposited in the Z.S.I., Calcutta. Regd. No. 4950-51/18.

80. **Araneus himalayaensis** Tikader

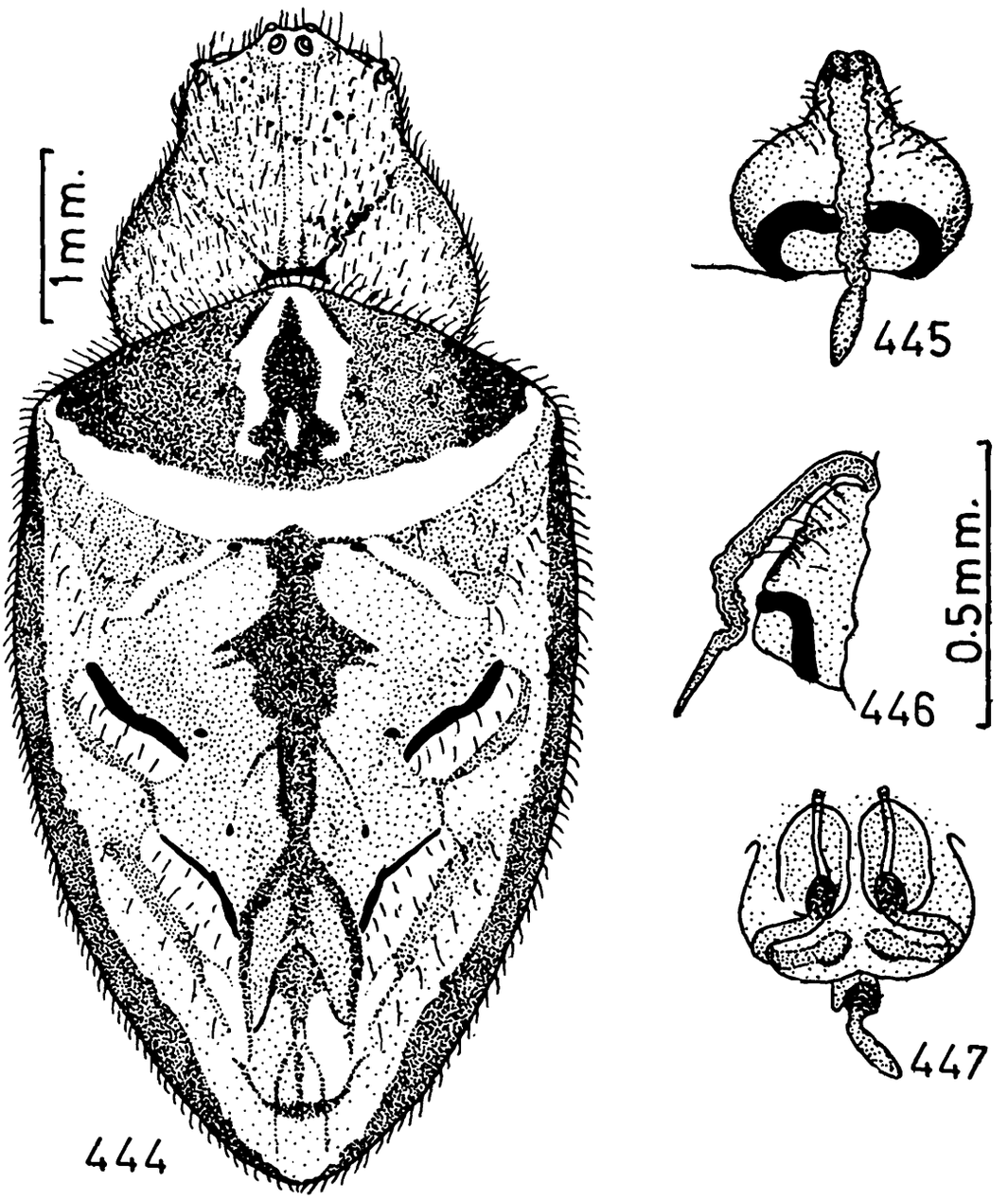
(Figs. 444-447)

1975. *Araneus himalayaensis* Tikader, *Proc. Indian Acad. Sci.*, 81(4) : 145-146.

General: Cephalothorax light yellowish brown, legs yellowish brown with dark patches and shades, abdomen greyish white with black patches. Total length 6.60 mm. Carapace 2.10 mm. long, 2.20 mm. wide; abdomen 5.20 mm. long, 3.25 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, thickly clothed with white pubescence and hairs as in text-fig. 444, laterally provided with dark shades; thoracic region having a transverse groove. Ocular quad forming a trapezium, wider in front than long and narrower behind, as in text-fig. 444, posteior median eyes larger than anterior medians; posterior medians subequal in size, close and situated on moderately prominent tubercles; both rows of eyes recurved but anterior row strongly recurved as in text-fig. 444. Sternum heart-shaped, pointed behind, black, clothed with white hairs. Labium wider than long, black with pale distal borders. Maxillae broad, dark brown with yellowish patches, provided with distinct scopulae. Chelicerae deep brown, strong and provided with distinct boss. Legs moderately long and strong, clothed with hairs and spines, provided with indistinct dark patches and shades.

Abdomen: Elongated triangular, provided with a pair of shoulder humps as in text-fig. 444, longer than wide, provided with an indistinct pattern composed of black, grey white and brownish patches and lines as in text-fig. 444, laterally blackish, having five pairs of sigilla arranged mid-longitudinally. Ventral side greyish brown, provided with a broad larger black patch in between epigastric furrow and spinnerets, guarded by an inverted U-shaped chalk white marking; three pairs of chalk white spots around the spinnerets; a chalk white line extending from behind the spinnerets to the posterior end of abdomen. Epigyne provided with a bulb like base and a long, narrow, wrinkle scape which bends at the middle as in text-figs. 445 & 446. Internal genitalia as in text-fig. 447.



FIGS. 444-447. *Araneus himalayaensis* Tikader
444. Dorsal view of female, legs omitted.
445. Epigyne, ventral view.
446. Epigyne, lateral view.
447. Internal genitalia, posterior view.

Distribution: INDIA: Darjeeling, (*Type-locality*) West Bengal.

Remarks: Description and illustrations are made on the basis of one of the paratypes deposited in the Z.S.I., Calcutta. Regd. No. 5060/18.

81. Araneus bituberculatus (Walckenaer)

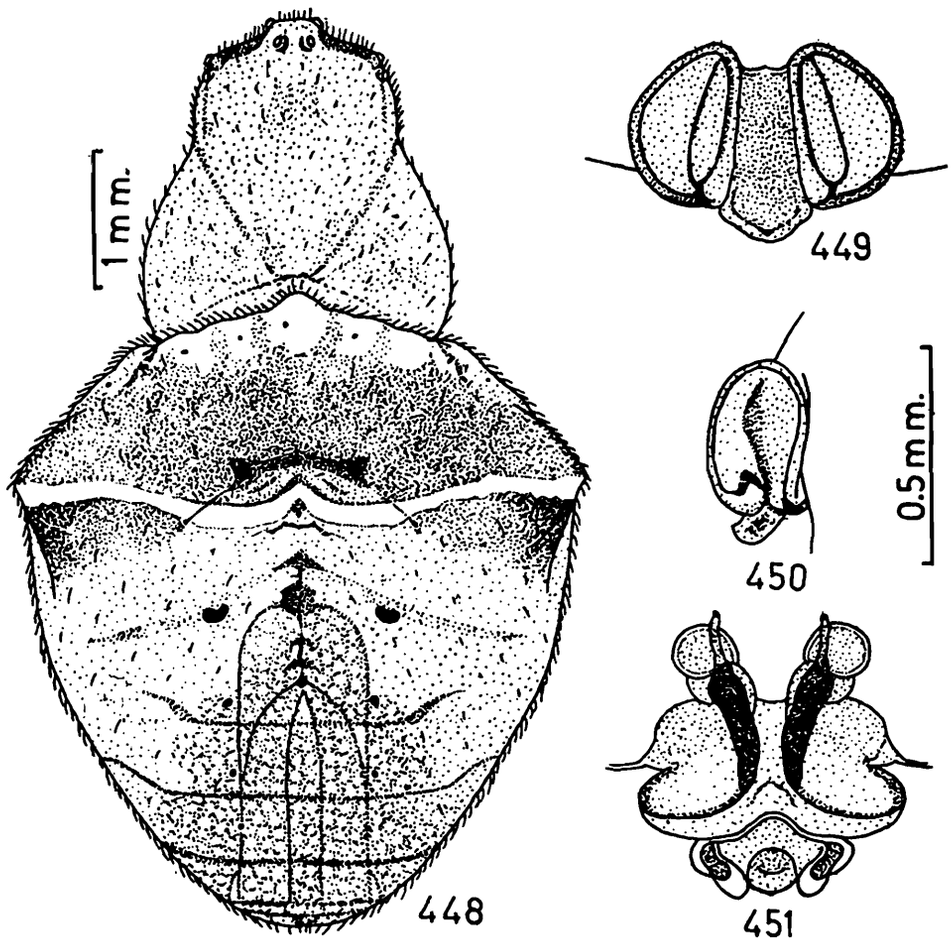
(Figs. 448-451)

1802. *Aranea bituberculata* Walckenaer, *Faun. Paris*, 2 : 191.
1804. *Aranea alboarcuata* : Panzer, *Syst. Nomencl.*, : 4.
1845. *Epeira dromedaria* : C. L. Koch, *Die Arachniden*, 11 : 98.
1866. *Epeira bicornis* : Menge, *Schrift. Nat. Ges. Danzig (N.F.)*, 1 : 66.
1901. *Epeira ullrich* : Bosenberg, *Dic Spinn. Deut. Zool.*, 13(1) : 28.
1909. *Araneus dromedarius* : Jackson, *Trans. nat. Hist. Soc. Northumb.*, 3(2) : 424.
1929. *Araneus bituberculatus* : Simon, *Arachn. de France*, 6(3) : 699.
1931. *Araneus bituberculatus* : Wichle, *Tierwelt, Dtl.*, 23 : 61.

General: Carapace light yellowish brown, legs greyish yellow, abdomen greyish brown. Total length 6.60 mm. Carapace 2.45 mm. long, 2.25 mm. wide; abdomen 4.60 mm. long, 4.00 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with greyish pubescence and hairs; thoracic region provided with a conspicuous transverse groove and darker in colour than cephalic region. Ocular quad wider in front than behind as in text-fig. 448 and slightly longer than wide; median eyes subequal in size; lateral eyes also subequal in size, close and situated on black tubercles; posterior median eyes encircled by black rings; both rows of eyes recurved as in text-fig. 448. Sternum heart-shaped, pointed behind, greyish yellow with some indistinct pale patches, clothed with pubescence and hairs. Labium slightly longer than wide, yellowish with pale outer distal margin. Maxillae broad, yellowish with distinct scopulae. Chelicerae moderately strong, yellowish brown, having median boss. Legs long and strong, greyish yellow, clothed with hairs and spines.

Abdomen: Triangular, longer than wide, clothed with pubescence and hairs as in text-fig. 448. Dorsum provided with two prominent pointed shoulder humps and a transverse chalk white band in between the humps as in text-fig. 448. Five pairs of distinct sigilla, arrange mid-longitudinally on the dorsum and some mid dorsal lines as in text-fig. 448. Ventral side of abdomen greyish brown with a broad median chalk white patch in between epigastric furrow and spinnerets. Epigyne provided with a



FIGS. 448-451. *Araneus bituberculatus* (Walckenaer)

448. Dorsal view of female, legs omitted.

449. Epigyne, ventral view.

450. Epigyne, lateral view.

451. Internal genitalia, posterior view.

small and thin scape having two conspicuous ridges as in text-figs. 449 & 450. Internal genitalia as in text-fig. 451.

Distribution: INDIA: Siripur, Salen, West Bengal; Manali, Himachal Pradesh. GREAT BRITAIN: Burnham Beeches, Buckinghamshire.

Remarks: Since I could not get the type-specimen, the description and illustrations were made on the basis of one of the identified speciments collected by Dr. B. H. Patel from Manali, Himachal Pradesh.

82. Araneus mitifica (Simon)

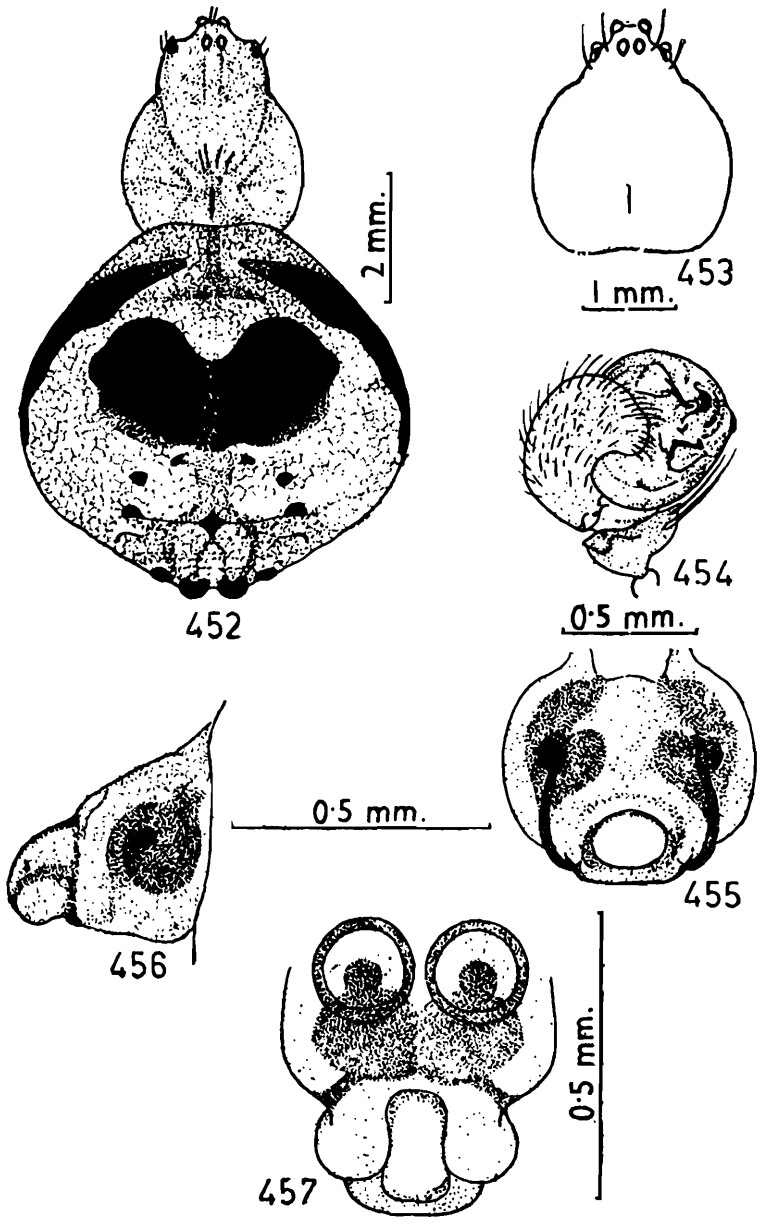
(Figs. 452-457)

1886. *Epeira mitifica* Simon, *Act. Soc. linn. Bordeaux*, **40** : 150.
1887. *Epeira mitifica* : Thorell, *Annali. Mus. civ. Genova*, **25** : 187.
1896. *Epeira mitifica* : Workman, *Malays. Spid.*, : 39.
1906. *Araneus mitifica* : Bosenberg & Strand, *Abh. senckenb. naturforsch. Ges.*, **39**(1-2) : 22.
1935. *Zilla nawazi* : Dyal, *Bull. Dep. Zool. Punjab Univ.*, **1** : 186.
1939. *Araneus mitifica* : Satio, *Satio Ho-no Kai Mus. Res. Bull.*, **18** : 19.
1963. *Araneus mitifica* : Tikader, *J. Univ. Poona, Sci. & Tech.*, **24** : 43.

General: Cephalothorax and legs yellowish; abdomen silver white dorsally and greenish ventrally. Total length 9.00 mm. Carapace 3.60 mm. long, 2.80 mm. wide; abdomen 5.80 mm. long, 6.00 mm. wide.

Cephalothorax: Longer than wide, narrowing in front clothed with pubescence and hairs. Thoracic region provided with an indistinct transverse groove. Ocular quad longer than wide and wider in front than behind as in text-fig. 452. Anterior median eyes larger than the posterior median eyes. Posterior median eyes encircled by black rings. Lateral eyes close and each situated on black tubercle. Both rows of eyes recurved but anterior row more recurved than the posterior row as in text-fig. 452. Sternum heart-shaped, pointed behind, yellowish, clothed with black spine like long hairs. Labium wider than long, yellowish. Maxillae strong, nearly square in shape, yellowish, provided with distinct scopulae. Chelicerae strong, yellowish, provided with moderate boss. Legs long and moderately strong, yellowish, distal ends of metatarsi and tarsi with dark brown transverse bands; clothed with pubescence, hairs and black spines. Male palp is in text-fig. 454.

Abdomen: Nearly globular but slightly narrow anterior than posteriorly, wider than long, clothed with pubescence as in text-fig. 452. Dorsum provided with a pair of wing shaped large median black patch and two lateral black patches as in text-fig. 452 also having an abrupt slopping at the $\frac{2}{3}$rd region towards posterior end. Two pairs of small but distinct tubercles at the posterior end of the abdomen as in text-fig. 452. Ventral side of



FIGS. 452-457. *Araneus mitifica* (Simon)

452. Dorsal view of female, legs omitted.
453. Dorsal view of cephalothorax of male, legs omitted.
454. Dorso-lateral view of left male palp.
455. Epigyne, ventral view.
456. Epigyne, lateral view.
457. Internal genitalia, posterior view.

abdomen greenish with no white or black patch. Epigyne provided with very short, thick and unwrinkled scape as in text-figs. 455 & 456, lateral groove present as in text-fig. 455. Internal genitalia as in text-fig. 456.

Distribution: INDIA: Poona, Maharashtra, Karnataka; West Bengal. PAKISTAN: Lahore, Panjab. BANGLADESH. BURMA. MALAYSIA.

Remarks: Description and illustrations have been made on the basis of female and male specimens collected from Poona, Maharashtra.

83. **Araneus nympha** Simon

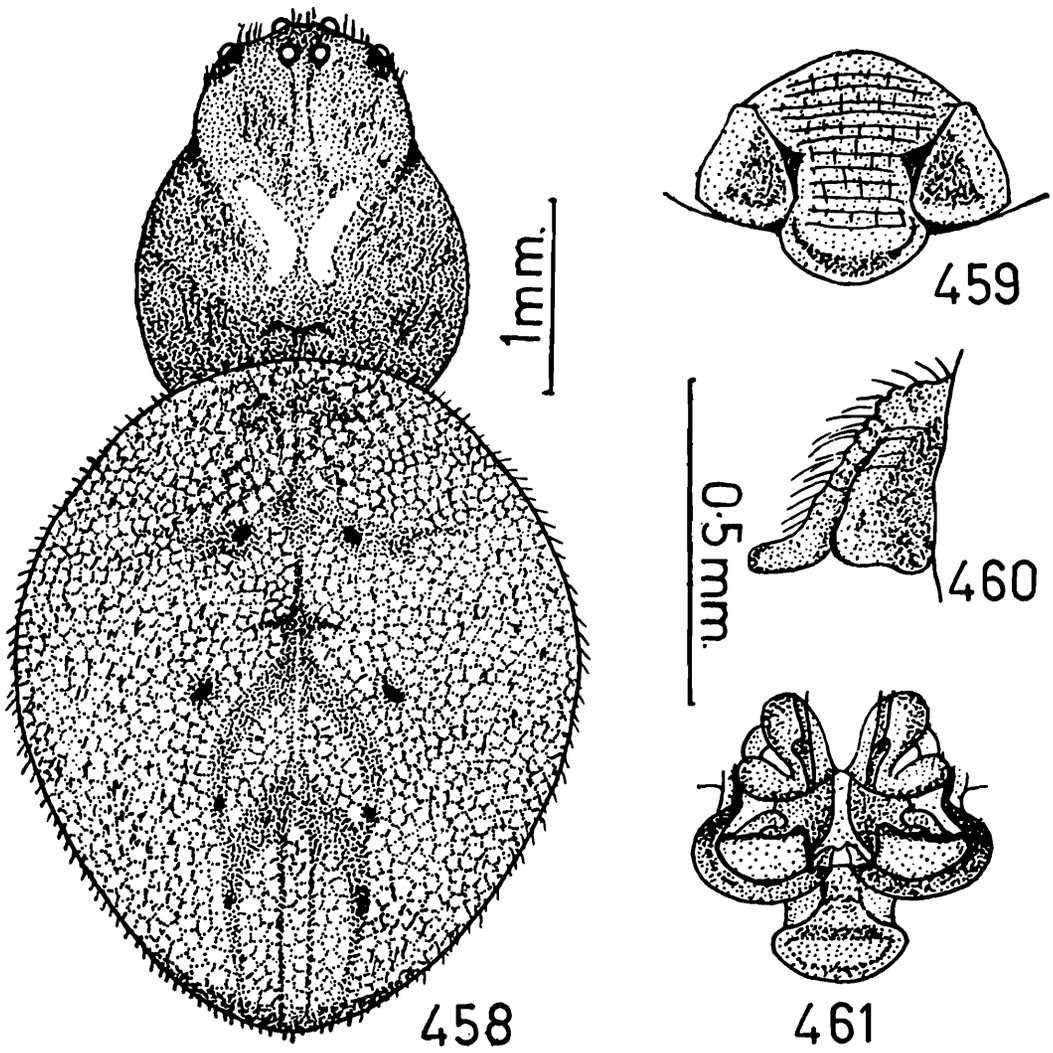
(Figs. 458-461)

1889. *Araneus nympha* Simon, *J. Asiat. Soc. Beng.*, 58 : 339.
1935. *Araneus nympha* : Dyal, *Bull. Zool. Punjab Univ.*, 1 : 182.

General: Cephalothorax and legs brownish yellow, abdomen chalk white. Total length 5.20 mm. Carapace 2.20 mm. long, 1.70 mm. wide; abdomen 3.50 mm. long, 2.90 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with pubescence and hairs. Cephalic region provided with a white X-shaped patch as in text-fig. 458. Thoracic region provided with indistinct transverse groove. Ocular quad longer than wide and wider in front than behind as in text-fig. 458. Anterior median eyes slightly smaller than the posterior medians. Posterior medians encircled by deep brown rings. Lateral eyes close and each situated on a tubercle. Both the rows of eyes recurved as in text-fig. 458. Sternum heart-shaped, pointed behind, brown in colour, clothed with pubescence and hairs. Labium as long as wide, brown with pale outer margin, provided with distinct scopulae. Chelicerae moderately strong, yellowish, provided with medium boss. Legs moderately long and thin, brownish yellow with indistinct bands, clothed with pubescence, hairs and spines.

Abdomen: Oval, longer than wide, clothed with pubescence and hairs. Dorsum chalk white with some greyish lines, provided with four pairs of sigilla arranged mid-longitudinally as in text-fig. 458. Ventral side of abdomen greyish with a pair of chalk white longitudinal bars in between the epigastric furrow and the spinnerets. Epigyne provided with a broad and wrinkled scape as in text-figs. 459 & 460, basal lamellae inconspicuous. Internal genitalia as in text-fig. 461.



FIGS. 458-461. *Araneus nympha* Simon
458. Dorsal view of female, legs omitted.
459. Epigyne, ventral view.
460. Epigyne, lateral view.
461. Internal genitalia, posterior view.

Distribution: INDIA: Himalaya. PAKISTAN: Gol Bagh, Lahore, Punjab.

Remarks: Illustrations and description are based on type-specimen, deposited at M.N.H.N., Paris, Regd. No. 10649 B 2639.

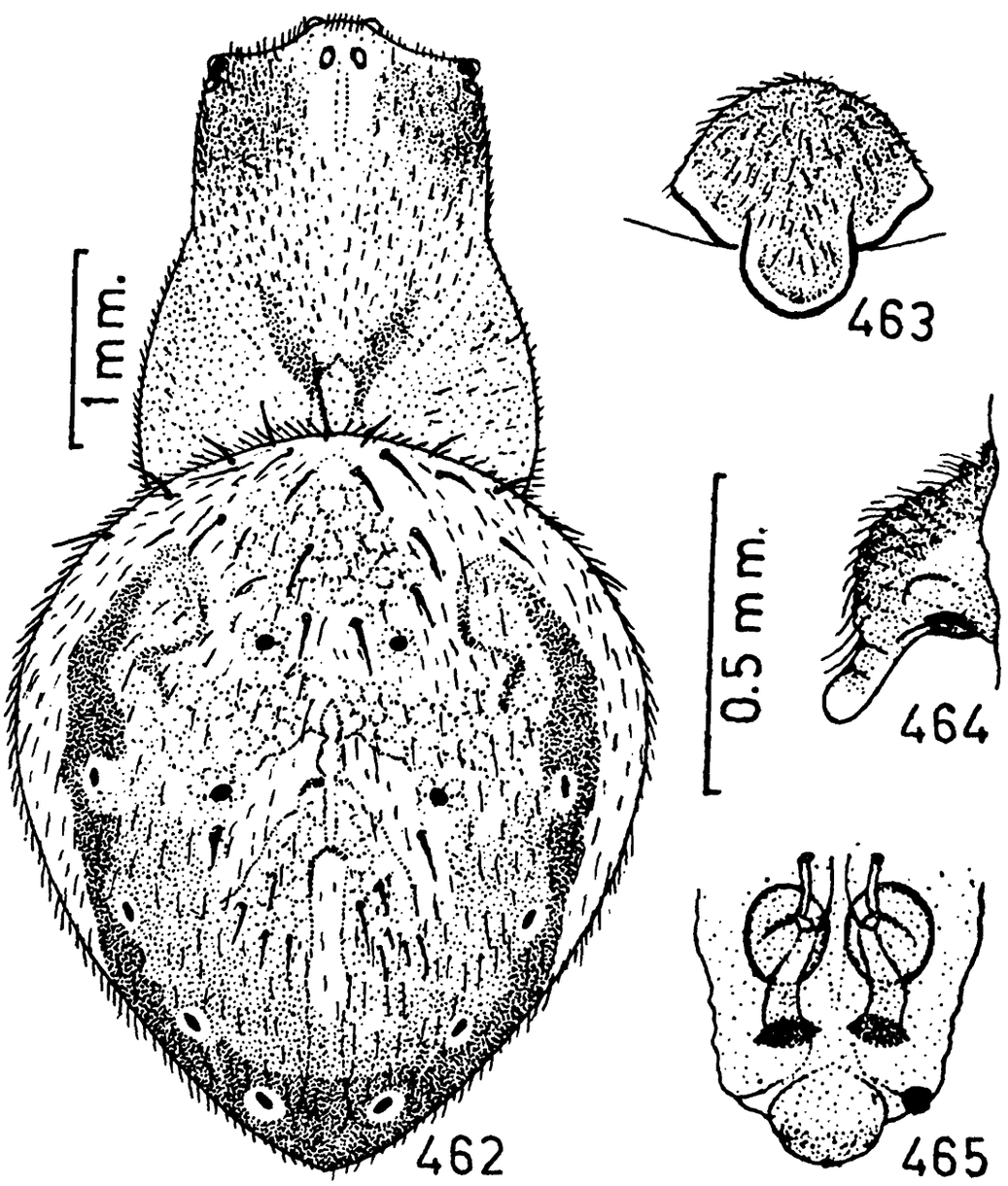
84. **Araneus cucurbitinus** Clerck

(Figs. 462-465)

1757. *Araneus cucurbitinus* Clerck, *Avan. Suec.*, : 44
1758. *Araneua cucurbitina* : Linnaeus, *Syst. Nat.*, **10** : 620.

1881. *Epeira cucurbitina* : O. P. Cambridge, *Proc. Dorset. nat. Hist. antia. Fld. Club*, 2 : 259.
1891. *Epeira cucurbitina* : Chyzer & Kulezynski, *Araneae Hungariae*, 1 : 131.
1929. *Araneus cucurbitinus* : Simon, *Arachn. de France*, 6(3) : 695.
1952. *Araneus cucurbitinus* : Millidge & Locket, *Proc. Linn. Soc. Lond.*, 163(1) : 65.

General: Carapace and legs yellowish, abdomen greyish with



FIGS. 462-465. *Araneus cucurbitinus* Clerk
462. Dorsal view of female, legs omitted.
463. Epigyne, ventral view.
464. Epigyne, lateral view.
465. Internal genitalia, posterior view.

light greenish shades. Total length 5.80 mm. Carapace 2.55 mm. long, 2.10 mm, wide; abdomen 3.70 mm. long, 3.25 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with pubescence and hairs; cephalic region elevated than thoracic region and posteriorly having a faint greenish patch; thoracic region provided with a distinct transverse groove. Ocular quad nearly as long as wide and wider in front than behind as in text-fig. 462; eyes situated on black spots; both median eyes subequal in size; posterior medians pearly white; lateral eyes subequal in size; both rows of eyes recurved as in text-fig. 462. Sternum heart-shaped, pointed behind, brownish with pale median area, clothed with pubescence and hairs. Labium slightly wider than long, brownish in colour with pale distal margin. Maxillae broad, yellowish, provided with distinct scopulae. Chelicerae strong, yellowish, having distinct boss. Legs moderately long and stout, clothed with hairs and spines.

Abdomen: Oval, longer than wide, clothed with pubescence and strong spines as in text-fig. 462. Dorsum of abdomen having light greenish shades, two pairs of distinct sigilla mid-dorsally and four pairs of black spots arranged laterally as in text-fig. 462. Ventral side with a median uniform light greenish area in between the epigastric fold and the spinnerets. Epigyne provided with a wrinkled body and small scape as in text-figs. 463 & 464. Internal genitalia as in text-fig. 465.

Distribution: INDIA: Risha Colony, Shillong, Meghalaya. GREAT BRITAIN: all over the British Island.

Remarks: Due to lack of type-material the description and illustrations are based on one of the specimens collected from Risha Colony, Shillong, Meghalaya.

Genus 21. **Neoscona** Simon

1864. *Neoscona* Simon, *Hist. nat. des Aragin.*, I : 261.

1924. *Chinestela* : Chamberlin, *Proc. U.S. natn. Mus.*, 63(13) : 20.

1926. *Cubanella* : Franganillo, *Bollan. Soc. ent. Esp.*, 9 : 69.

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

1951. *Firovixia* : Archer, *Am. Mus. Novit.*, **1487** : 34.
1960. *Neoscona* : Yaginuma, *Spiders of Japan, in colour*, : 56-57.
1971. *Neoscona* : Levi, *Bull. Mus. Comp. Zool.*, **141**(8) : 465.

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 patella of male provided with two strong, curved and long spines; cymbium of male palp broad but it is rather narrow strip like in *Araneus*.

Type-species: *Neoscona anabesca* (Walckenaer)

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

Key to the species of the genus **Neoscona** Simon

1. Abdomen triangular or sub-triangular..... ..2
   Abdomen not triangular or sub-triangular.....7

2. Abdomen triangular (Fig. 466) ; epigynal scape short, broad and triangular (Fig. 467).....*nautica*
   Abdomen sub-triangular, epigynal scape long, narrow.....3

3. Epigynal scape without constriction at the bending point.....4
   Epigynal scape with constriction either at the bending point or at the middle of scape.....5

4. Epigynal scape not at right angle to the base (Fig. 472) ; lateral lobes conspicuous and rounded (Figs. 471 & 472).....*chrysanthusi*

Epigynal scape right angle to the base (Fig. 476) ; lateral lobes inconspicuous (Figs. 475 & 476)..... *bengalensis*

5. Cephalic region provided with a conspicuous dark brown "V" shaped patch (Fig. 478) ; epigynal scape with a deep constriction (Fig. 480)..... *mukerjei*
Cephalic region not having any 'V' shaped patch : epigynal scape without a deep constriction.....6

6. Lateral lobes of epigyne very distinct and horn like and visible from ventral side of abdomen (Fig. 503)..... *rumpfi*
Lateral lobes of epigyne indistinct and blunt and not visible from ventral side of abdomen (Fig. 507)..... *lugubris*

7. Abdomen elliptical or otherwise, provided with a median caudal hump ; epigynal scape triangular or tongue like with no lateral lobes.....8
Abdomen oval, suboval or barrel shaped ; no caudal hump ; epigynal scape not traingular or tongue lige ; and provided with prominent lateral lobes.....12

8. Abdomen elliptical ; epigynal scape traiangular with lateral lobes.....9
Abdomen otherwise and provided with median caudal hump ; epigynal scape tongue like with no lateral lobes.....10

9. Abdomen rather tepering at both anterior and posterior ends (Fig. 510) ; femora, patella and tibiae of the legs I, II & III provided with longitudinal lines on ventral and lateral sides ; epigynal scape thin and having indistinct narrow rim (Figs. 512 & 513) ; genital openings laterally placed, not underneath the scape (Fig. 513)..... *molemensis*
Abdomen roundish at both anterior and posterior ends (Fig. 515) ; distal ends of tarsi having brown bands ; epigynal scape rather thick with distinct rim (Figs. 517 & 518) ; genital openings placed underneath the scape (Fig. 519)..... *elliptica*

10. Four pairs of sigilla on the dorsum of abdomen (Fig. 520) ; caudal hump with a large black spot (Fig. 520)..... *excelsus*
Three pairs of sigilla on the dorsum of abdomen ; caudal hump without black spot.....11

11. Abdomen cone shaped posteriorly (Fig. 525) ; caudal hump much elongated and extended beyond the spinnerets ; anterior chamber of spermatheca large and overlapping on the posterior chamber (Fig. 528)..... *laglaizei*
Abdomen nearly pentangular (Fig. 529) ; caudal hump short (Fig. 529) ; anterior chamber of spermatheca small and not overlapping on the posterior chamber (Fig. 532)..... *poonaensis*

12. Epigynal scape with one pair of lateral lobes.....13
Epigynal scape with two pairs of lateral lobes.....14

13. Sternum uniformly black, epigynal scape provided with prominent, wide rim and without constriction (Fig. 535)..... *singhagadensis*
Sternum dark brown with longitudinal white band ; epigynal scape with no prominent rim, constriction present behind the lateral lobe (Fig. 540)..... *theis*

14. Dorsal side of abdomen provided with mid-longitudinal pale patch.....15
Dorsal side of abdomen not provided with mid-longitudinal pale patch.....16

15. Carapace provided with two lateral and one median longitudinal brown patches (Fig. 543) ; first pair of lateral lobes of epigyne conspicuous and second pair of lateral lobes truncated anteriorly (Fig. 544)..... *shillongensis*
Carapace without any longitudinal patch (Fig. 547) ; first pair of lateral lobes of epigyne inconspicuous and second pair of lateral lobes not truncated anteriorly (Fig. 548)..... *odites*

16. Carapace provided with a conspicuous 'V' shaped brown mark (Fig. 551) ; epigynal scape bent at right angle to the base (Fig. 553) lateral lobes inconspicuous (Fig. 554)..... *pavida*

Carapace without 'V' shaped mark but with two longitudinal rows of irregular pale patches (Fig. 555) ; epigynal scape not bent at right angle to the base (Fig. 559) ; lateral lobes conspicuous (Fig. 560).....*achine*

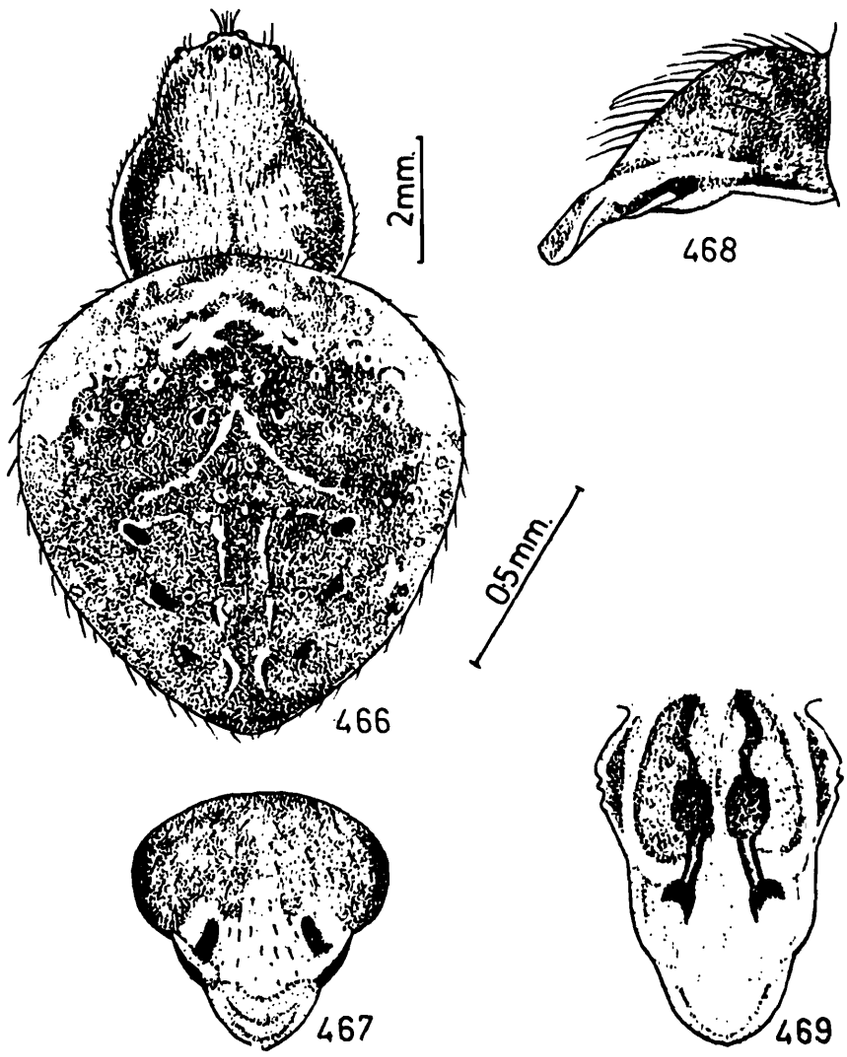
85. **Neoscona nautica** (L. Koch)

(Figs. 466-469)

1875. *Epeira nautica* L. Koch. *Aegypt. Abyssin Arachn. Jickeli.* : 17.
1877. *Epeira pullata* : Thorell, *Annali. Mus. civ. Genova*, **10** : 385.
1885. *Epeira volucripes* : Keyserling, *Verh. zool. bot. Ges. Wein*, **34** : 528.
1900. *Araneus nauticus* : Pocock, *Fauna Brit. India, Arachn.*, : 228.
1904. *Neoscona volucripes* : F.O.P. Cambridge, *Biologia. cent. am.*, **2** : 473.
1907. *Araneus nauticus* : Simon, *Annali. Mus. civ. Genova*, **43** : 290.
1930. *Neoscona nautica* : Petrunkevitch, *Trans. Conn. Acad. Arts. Sci.*, **30** : 320.
1971. *Neoscona nautica* : Levi, *Bull. Mus. comp. Zool. Harv.*, **141(8)** : 489.

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

Cephalothorax: Longer than wide, narrowing in front, clothed with grey pubescence and hairs; provided with mid-longitudinal light band extending from posterior end to the base of the ocular quad; lateral side of cephalic region having a row of fringed hairs as in text-fig. 466, thoracic region provided with a distinct longitudinal groove. Ocular quad longer than wide and wider in front than behind as in text-fig. 466; anterior median eyes larger than posterior medians and posterior medians encircled by black rings; laterals close and each situated on a tubercle; both rows of eyes recurved but anterior row more recurved than the posterior row as in text-fig. 466. Sternum heart-shaped, pointed behind, dark brown in colour, clothed with fine pubescence and provided with a median longitudinal chalk white band. Labium wider than long, dark brown in colour with pale distal margin. Maxillae broad, roundish, dark brown with pale outer margin with distinct scopulae. Chelicerae strong, dark brown, provided with moderate boss. Legs long and strong, with pale transverse bands, clothed with pubescence, hairs and spines.



Figs. 466-469. *Neoscona nautica* (L. Koch)
466. Dorsal view of female, legs omitted.
467. Epigyne, ventral view.
468. Epigyne, lateral view.
469. Internal genitalia, posterior view.

Abdomen: Nearly triangular, posteriorly narrow; clothed with pubescence and hairs, overlapping on the carapace. Dorsum greenish brown in colour, provided with many scattered black spots and chalk white patches forming an indistinct pattern as in text-fig. 466. Six pairs of sigilla arranged mid-longitudinally, ventral side with a broad longitudinal greenish brown patch guarded laterally by a pair of conspicuous dumble shaped chalk white bars. Epigyne with a short, broad and triangular scape as in text-fig. 467; scape provided with a pair of inconspicuous

lateral lobes and without any constriction as in text-fig. 468. Internal genitalia as in text-fig. 469.

Distribution: INDIA: Poona, East Khandesh, Maharashtra; Darjeeling, West Bengal; Rajkot, Gujarat; Rilbong, Shillong, Meghalaya. BURMA: Rangoon, Tharrawaddy, Bhamo. PAKISTAN: Karachi. NORTH AMERICA.

Remarks: Description and illustrations are based on one specimen identified by author and confirmed by Dr. H. W. Levi, Harvard University, U.S.A., and the specimen was collected from Jasdan, Rajkot, Gujarat.

86. **Neoscona chrysanthusi** Tikader & Bal

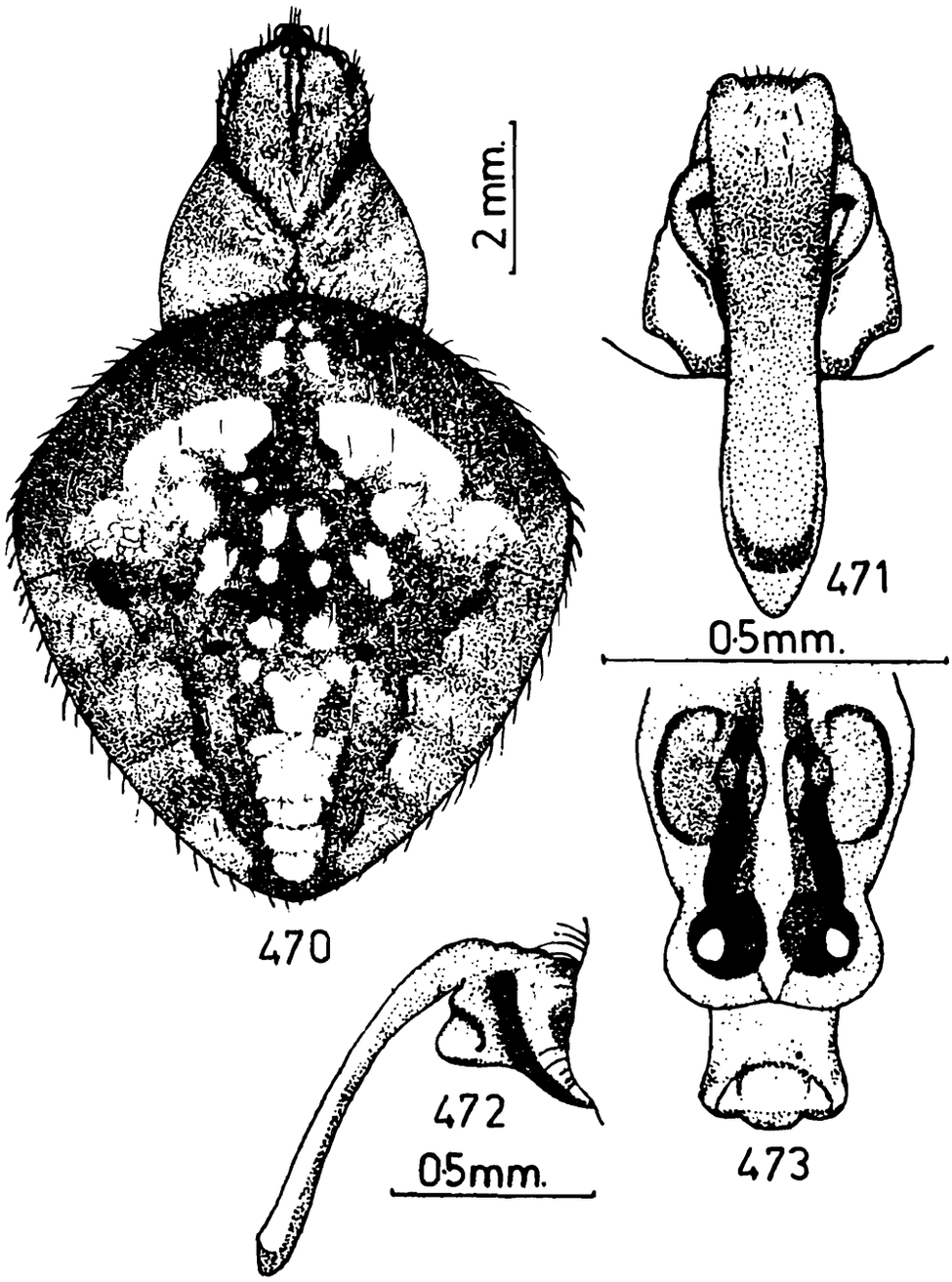
(Figs. 470-473)

1981. *Neoscona chrysanthusi* Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.*, **24** : 13.

General: Cephalothorax and legs light brown in colour, abdomen greyish with chalk white patches. Total length 11.60 mm. Carapace 4.70 mm. long, 3.80 mm. wide; abdomen 8.20 mm. long, 7.40 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with pubescence and hairs; thoracic region provided with a longitudinal groove. Ocular quad slightly longer than wide and wider in front than behind as in text-fig. 470; anterior median eyes larger than posterior medians; posterior medians encircled by black rings; laterals close and each situated on a black tubercle; both rows of eyes recurved as in text-fig. 470. Sternum heart-shaped, pointed behind, clothed with pubescence and hairs, light brown in colour, provided with a median longitudinal pale patch. Labium nearly as long as wide, light brown and distal margin pale. Maxillae light brown with pale outer boarder, provided with distinct scopulae. Chelicerae moderately strong, light brown, provided with indistinct boss. Legs long and moderately strong, clothed with pubescence and spines; femora light coloured; tarsi and metatarsi with indistinct transverse brown bands.

Abdomen: Sub-triangular, longer than wide, clothed with



FIGS. 470-473. *Neoscona chrysanthusi* Tikader & Bal
470. Dorsal view of female, legs omitted.
471. Epigyne, ventral view.
472. Epigyne, lateral view.
473. Internal genitalia, posterior view.

pubescence and hairs. Dorsum of abdomen provided with some chalk-white patches and black oblique marks as in text-fig. 470. Six pairs of sigilla arranged mid-longitudinally on the dorsum. Ventral side greyish yellow in colour; a pair of chalk white spots

present in between the epigastric furrow and the spinnerets. Epigynal scape long, thin and narrow, provided with a pair of rounded lateral lobes as in text-figs. 471 & 472. Internal genitalia as in text-fig. 473.

Distribution: INDIA: Mangan, (*Type-locality*), near Singhik, Bhutan, and foot-hill of Eastern Himalaya.

Remarks: Description and illustrations are made on the basis of type specimen deposited in the Z.S.I. Calcutta. Regd. No. 4952/18.

87. **Neoscona bengalensis** Tikader & Bal

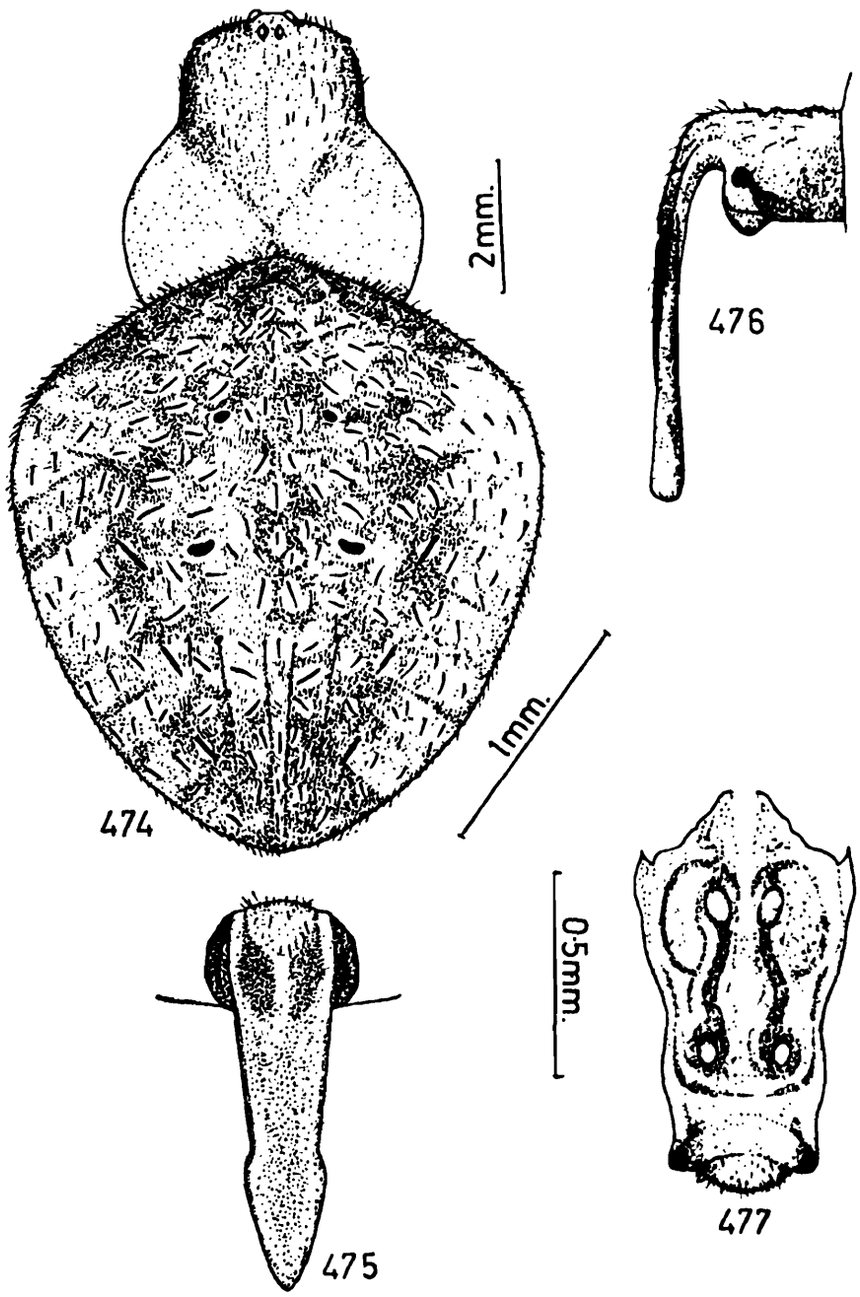
(Figs. 474-477)

1981. *Neoscona bengalensis* Tikader & Bal, *Rec. zool. Surv. India, occ. Pap.*, **24** : 15.
1981. *Neoscona bengalensis* Tikader & Biswas, *Rec. zool. Surv. India, Occ. Pap.*, **30** : 24.

General: Cephalothorax reddish brown, legs light brown, abdomen dirty brown. Total length 12.70 mm. Carapace 5.00 mm. long, 4.40 mm. wide; abdomen 9.00 mm. long, 7.90 mm. wide.

Cephalothorax: Longer than wide, narrower in front, clothed with hairs; cephalic region slightly elevated; thoracic region provided with longitudinal groove. Ocular quad longer than wide and wider in front than behind as in text-fig. 474. Anterior median eyes considerably larger than the posterior medians; posterior encircled by black rings; lateral eyes close and each situated on a black tubercle. Both rows of eyes recurved as in text-fig. 474. Sternum heart-shaped, pointed behind, brown, clothed with hairs and spines, provided with mid-longitudinal pale bar. Labium nearly as long as wide, brown, clothed with spine like hairs, distal end pale in colour and provided with prominent scopulae. Chelicerae very strong, clothed with thick hairs and spines.

Abdomen: Sub-triangular, longer than wide, much wider in front than behind, clothed with hairs. Five pairs of sigilla arranged mid-longitudinally on the dorsum. Dorsum of abdomen



Figs. 474-477. *Neoscona bengalensis* Tikader & Bal
474. Dorsal view of female, legs omitted.
475. Epigyne, ventral view.
476. Epigyne, lateral view.
477. Internal genitalia, posterior view.

decorated with minute chalk-white spots, each with deep brown short line as in text-fig. 474. Ventral side of abdomen brown, but provided with a mid-ventral dark brown broad longitudinal patch extending from epigastric furrow to the spinnerets. One

pair of chalk white spots present anterior to the spinnerets. Epigynal scape thin, long and narrow and bent at right angle to the base of epigyne; one pair of inconspicuous lateral lobes as in text-figs. 475 & 476. Internal genitalia as in text-fig. 477.

Distribution: INDIA: Jadavpur (*Type-locality*), Calcutta, West Bengal.

Remarks: Description and illustrations are based on type specimen, deposited in the Z.S.I. Calcutta. Regd. No. 4953/18.

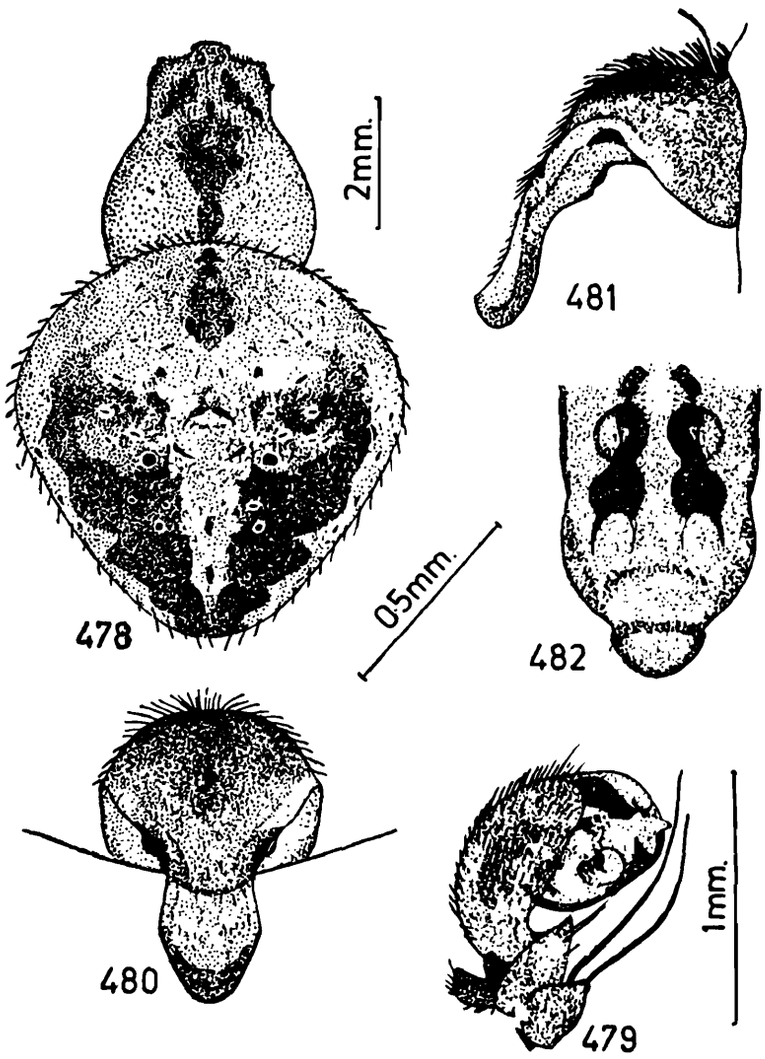
88. **Neoscona mukerjei** Tikader

(Figs. 478-500)

1980. *Neoscona mukerjei* Tikader, *Proc. Indian Acad. Sci.*, 89(3) : 247.
1981. *Neoscona mukerjei* : Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.*, 24 : 17.

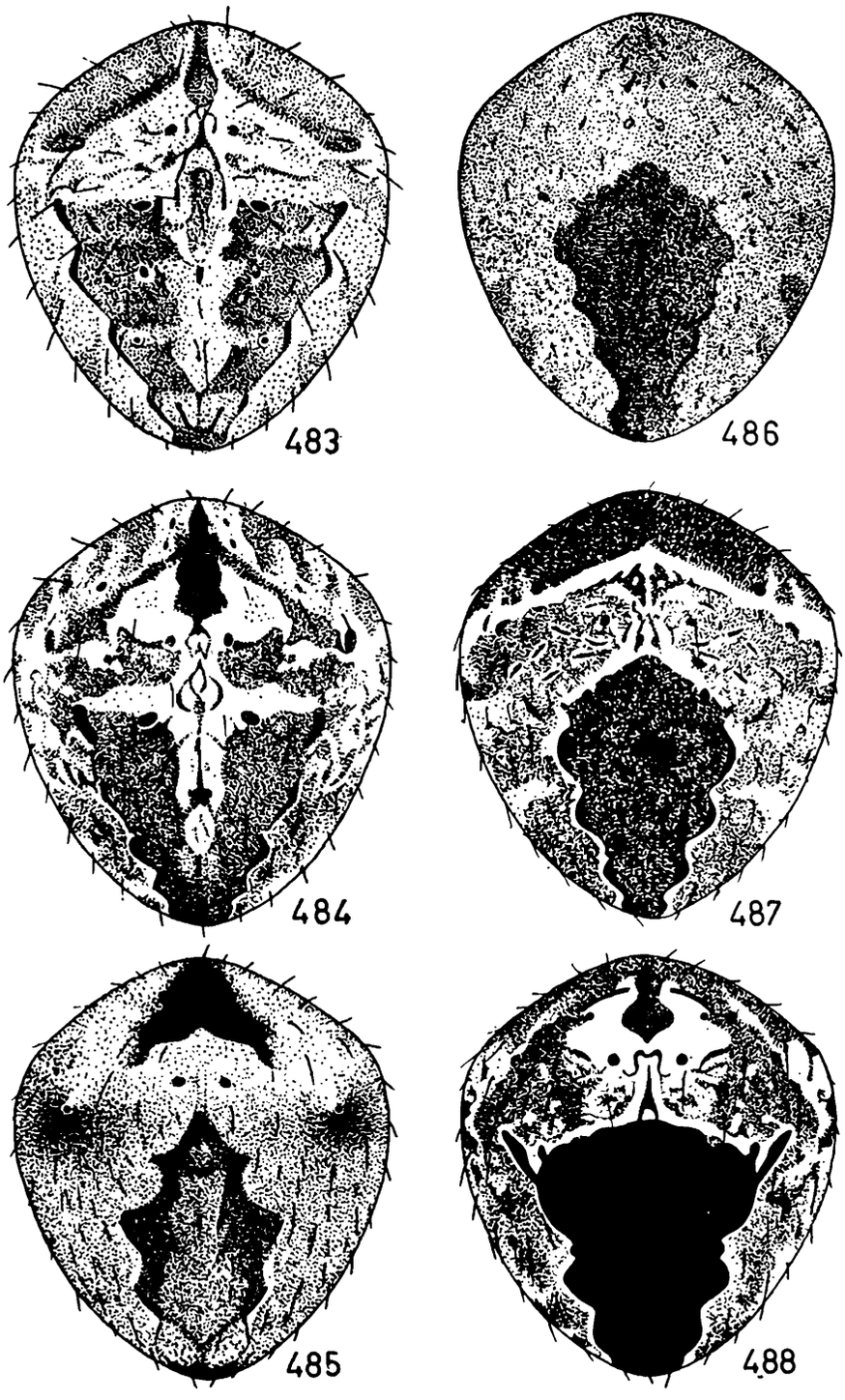
General: Cephalothorax and legs yellowish, abdomen dark brown with greyish patches. Total length 9.20 mm. Carapace 4.00 mm. long, 3.30 mm. wide; abdomen 6.20 mm. long, 6.00 mm. wide.

Cephalothorax: Longer than wide and narrower in front, clothed with pubescence and hairs; cephalic region provided with conspicuous 'V' shaped dark brown patches as in text-fig. 478. Thoracic region provided with a deep longitudinal groove. Anterior median eyes slightly larger than posterior medians, encircled by black ring. Lateral eyes close and each situated on a tubercle. Ocular quad wider in front than behind and both rows of eyes recurved as in text-fig. 478. Sternum heart-shaped, pointed behind, having a median longitudinal white band. Labium wider than long, dark brown, distal margin pale coloured. Maxillae broad and nearly roundish, yellowish with some dark brown patches at the proximal protion and provided with distinct scopulae. Chelicerae strong, yellowish and provided with moderate boss. Legs long and strong, clothed with pubescence and spines; distal ends of all segments except coxa and trochanter, provided with dark brown transverse bands. Male palp as in text-fig. 479.



FIGS. 478-482. *Neoscona mukerjei* Tikader
478. Dorsal view of female, legs omitted.
479. Dorso-lateral view of left male palp.
480. Epigyne, ventral view.
481. Epigyne, lateral view.
482. Internal genitalia, posterior view.

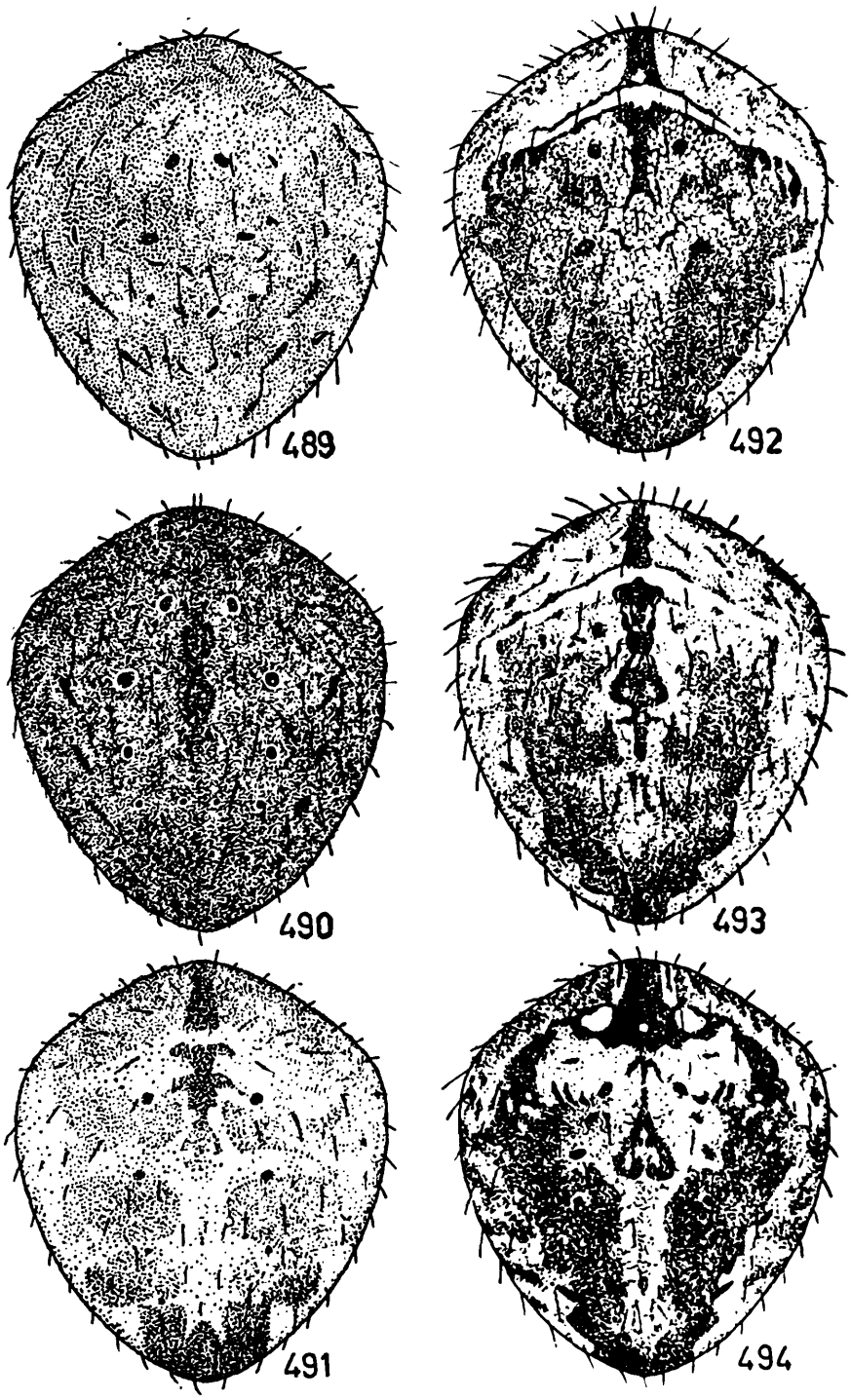
Abdomen: Sub-triangular, slightly longer than wide, tapering posteriorly and clothed with grey pubescence and hairs. Dorsum of abdomen provided with a club shaped greyish white patch, arranged longitudinally as in text-fig. 478. Five pairs of sigilla mid-longitudinally on the dorsum. Ventral side brownish-grey but having a broad mid-ventral dark brown patch in between the epigastric furrow and the spinnerets, and guarded laterally by a pair of dumble shaped chalk white bars. Epigyne provided with a moderately long scape, provided with a deep con-



Figs. 483-488. Different abdominal colour pattern of *Neoscona mukerjei* Tikader.

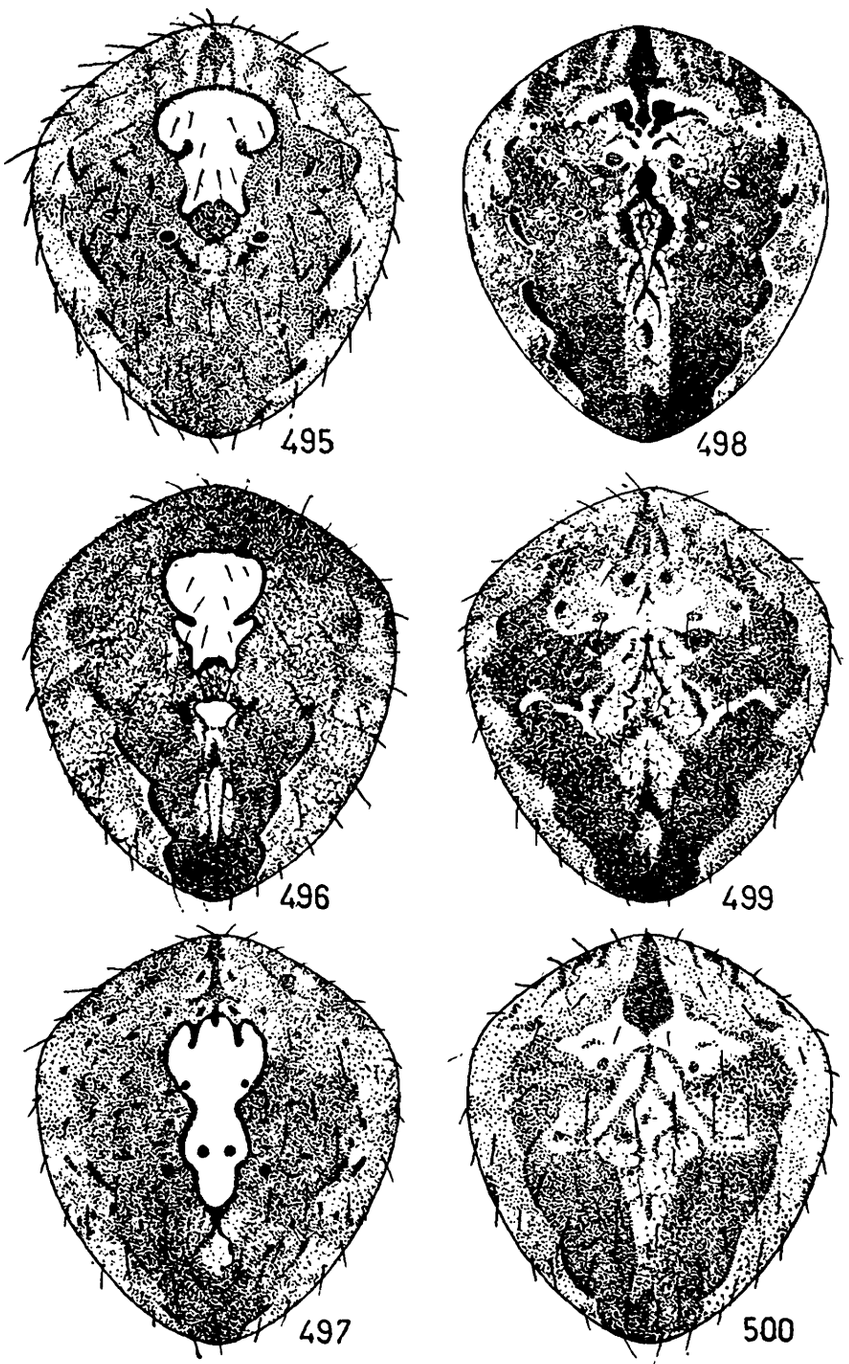
striction and a pair of indistinct lateral lobes as in text-fig. 480. Internal genitalia as in text-fig. 482.

Distribution: India: Poona, (*Type-locality*) Maharashtra, West Bengal.



FIGS. 489-494. Different abdominal colour pattern of *Neoscona mukerjei* Tikader.

Remaks: Descriptions and illustrations are made on the basis of *holotype* female and *allotype* male, deposited in the Z.S.I., Calcutta, Regd. No. 4954/18, 4956/18.



FIGS. 495-500. Different abdominal colour pattern of *Neoscona mukerjei* Tikader.

Intraspecific Colour Variation

The intraspecific colour variation is not uncommon in the spider population. During extensive collection of spiders in and around the Poona city, the present author has collected more

than three hundred specimens of the species *Neoscona mukerjei*. During the study of this material author has come across eighteen different colour patterns of this spider. A detailed study of the internal genitalia as well as epigyne of all different colour varieties revealed that all are of the same species because their epigyne and internal genitalia are identical which are the most important specific characters of spiders.

Relatively very little work has been done on the study of variation in the colour pattern of spiders in India. However Kapur (1957) reported colour variation in Coccinellidae found in Lahore. Kapur (1962) recorded geographical colour variation in three species of ladybird beetles.

There are many factors associated with colour variation in animals, such as (a) altitude, latitude and longitude, (b) climate, (c) rainfall, surrounding vegetation, etc.

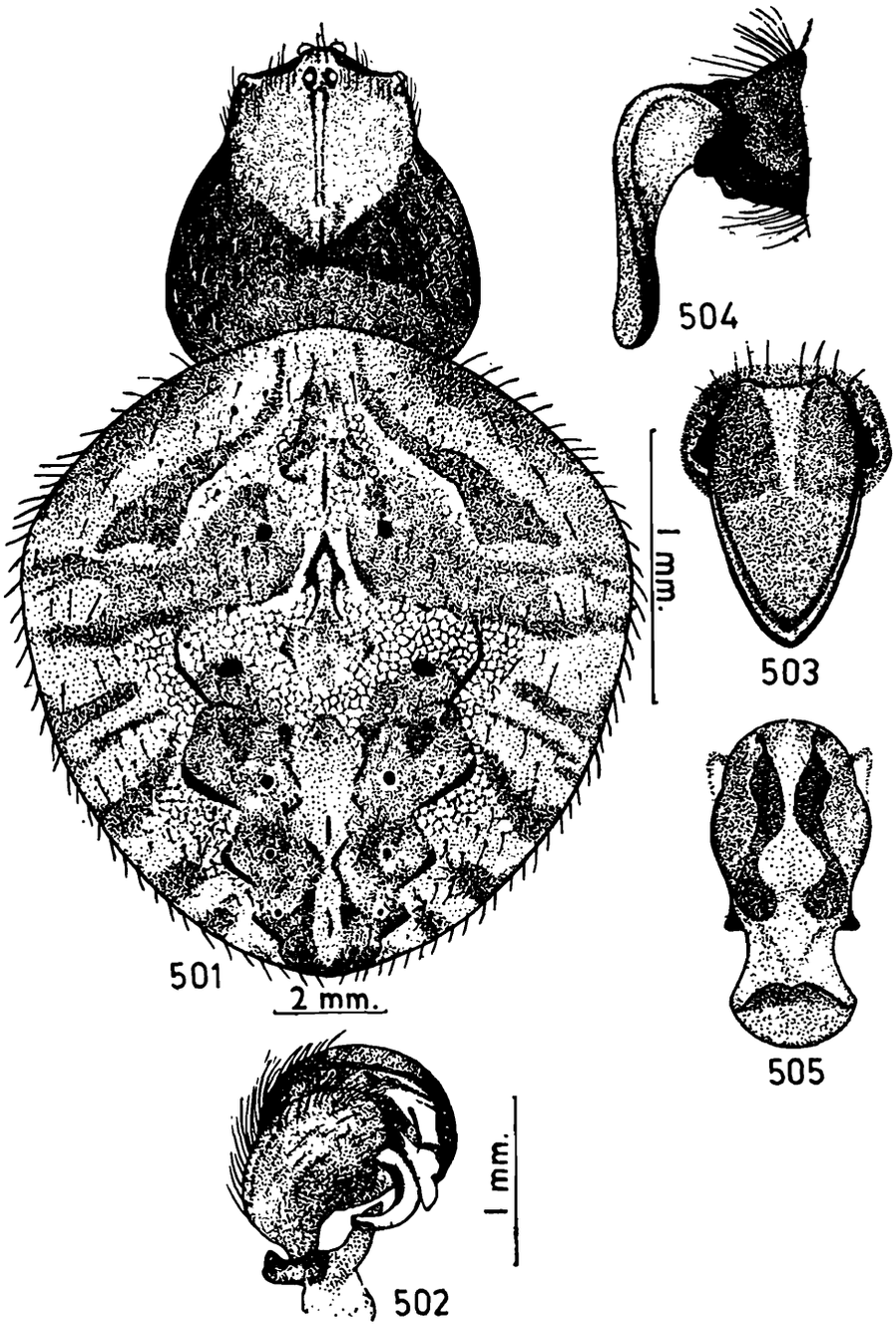
But in the case of *Neoscona mukerjei* all colour variations are noticed in the same population of the same locality. Rainbow (1898) pointed out that spiders could change their colour according to the colour of the flower where they hide for hunting insect prey. In the present study it has been observed that the colour pattern of abdomen of all the specimens of *N. mukerjei* examined, matches well with the environment of the spider (Figs. 483-500). This spider hatches just at the beginning of rainy season and matures within 2/3 months' time and after the rainy season it lays its eggs with a cocoon which lie on the ground with debris till the next rainy season.

89. **Neoscona rumpfi** (Thorell)

(Figs. 501-505)

1887. *Araneus rumpfi* Thorell, *Annal. Mus. civ. Genova*, **13** : 296.
1900. *Araneus rumpfi* : Pocock, *Fauna Brit. India, Arachn.*, : 228.
1981. *Neoscona rumpfi* : Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.*, 24 : 18.

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



FIGS. 501-505. *Neoscona rumpfi* (Thorell).
501. Dorsal view of female, legs omitted.
502. Dorso-lateral view of left male palp.
503. Epigyne, ventral view.
504. Epigyne,, lateral view.
505. Internal genitalia, posterior view.

Cephalothorax: Longer than wide, narrower in front, clothed with pubescence and hairs; cephalic region slightly high and light brown in colour; thoracic region dark brown and provided

with a deep longitudinal groove. Ocular quad longer than wide and wider in front than behind as in text-fig. 501. Anterior median eyes larger than the posterior medians. Lateral eyes close and each situated on a tubercle. Both rows of eyes recurved as in text-fig. 501. Sternum heart-shaped, pointed behind, light brown in colour with mid-longitudinal white broad band, clothed with pubescence and hairs. Labium wider than long, brown with pale distal end. Maxillae broad, provided with distinct scopulae. Chelicerae strong, yellowish brown, provided with prominent boss. Legs long and very strong, yellowish in colour, distal ends of segments with distinct transverse bands; femora I, II reddish brown in colour. Male palp as in text-fig. 502.

Abdomen: Sub-triangular, longer than wide, clothed with pubescence and some long grey hairs. Dorsum of abdomen provided with an indistinct pattern, marked with white and greyish brown patches and oblique black markings as in text-fig. 501. Six pairs of sigilla arranged mid-longitudinally on the dorsum. Ventral side dirty-brown in colour with a broad mid-ventral black patch in between epigastric furrow and spinnerets; anterior and lateral sides of the black patch guarded by conspicuous chalk white patches. Epigynal scape with constriction at the bending point and provided with a pair of conspicuous horn like lateral lobes as in text-figs. 503 & 504; ventral side of the epigynum provided with a median bulge as in text-fig. 504. Internal genitalia as in text-fig. 505.

Distribution: INDIA: Chingleput, Ootacamund, Tamil Nadu; Bangalore, Karnataka; Wagar Karoor, A.P.; Poona, Maharashtra; Orissa. SRI LANKA: Punduloya, Trincomali. BURMA: Rangoon, Tharrawaddy, Bhamo. PAKISTAN: Karachi. INDO and AUSTRO-MALAYSIA.

Remarks: Illustrations and description are based on type-specimens of female and male, deposited at B. M. (N.H), London, Regd. No. 1899. 12.5.71.

90. **Neoscona lugubris** (Walckenaer)

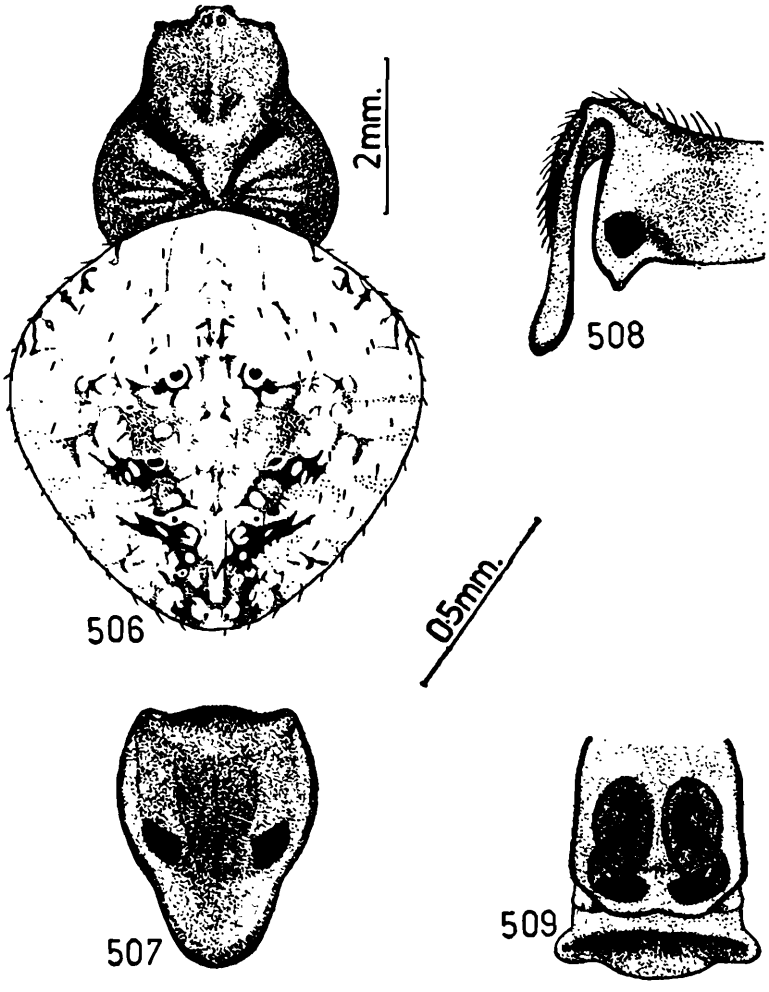
(Figs. 506-509)

1841. *Epeira lugubris* Walckenaer, *Hist. Nat. Ins. Apt.*, 2 : 34.

1960. *Araneus lugubris* : Chrysanthus, *Nova Guinea (Zool)*, **10**(3) : 36.
1975. *Araneus lugubris* : Patel, "Vidya", *J. Gujarat Univ.*, **18**(1) : 160.
1981. *Neoscona lugubris* : Tikader & Bal. *Rec. zool. Surv. India, Occ. Pap.*, **24** : 20.

General: Cephalothorax and legs light yellowish brown, abdomen chalk white. Total length 9.90 mm. Carapace 4.00 mm. long, 3.90 mm. wide; abdomen 6.80 mm. long, 6.60 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, cephalic region clothed with pubescence and a few hairs; thoracic region provided with a distinct longitudinal groove. Ocular quad longer than wide, wider in front than behind as in text-fig. 506. Anterior



FIGS. 506-509. *Neoscona lugubris* (Walckenaer)
506. Dorsal view of female, legs omitted.
507. Epigyne, ventral view.
508. Epigyne, lateral view.
509. Internal genitalia, posterior view.

median eyes larger than posterior medians, posterior median eyes encircled by black ring. Lateral eyes close and each situated on a tubercle. Both rows of eyes moderately recurved as in text-fig. 506. Sternum heart-shaped, pointed behind, clothed with pubescence and hairs, pale coloured, provided with a longitudinal median chalk white band. Labium nearly as long as wide, light yellowish brown in colour with pale distal margin. Maxillae broad and nearly roundish, light yellowish brown, provided with distinct scopulae. Chelicerae moderately strong, light yellowish brown with moderate boss. Legs long and moderately strong, clothed with pubescence and long hairs.

Abdomen: Sub-triangular, slightly longer than wide, tapering behind, clothed with pubescence and grey hairs. Dorsum of abdomen provided with light greenish indistinct pattern as in text-fig. 506. Five pairs of sigilla arranged mid-longitudinally on the dorsum. Ventral side uniformly light coloured but having a mid-ventral broad chalk white band in between epigastric furrow and spinnerets. Epigynal scape very thin and broad, having a constriction at the bending point of the scape as in text-figs. 507 & 508; scape provided with a pair of lateral lobes, which are not seen from ventral view, and placed at the base of the epigyne; a median bulge present on the ventral side of the base as in text-fig. 508. Internal genitalia as in text-fig. 509.

Distribution: INDIA: Poona, Maharashtra; Dangs, Gujarat. AUSTRO-MALAYSIA. SOUTH NEW GUINEA. JAPAN. CHINA.

Remarks: As author could not get the type material, the description and illustrations have been made on the basis of one specimen collected by author from Satara, Maharashtra.

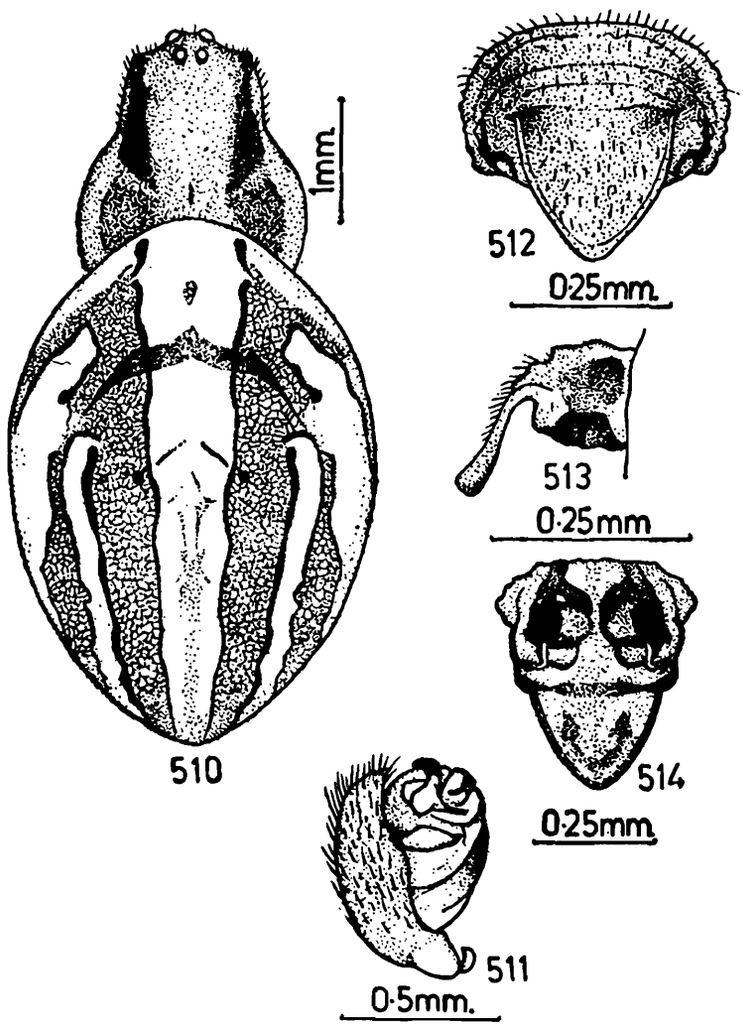
91. **Neoscona molemensis** Tikader & Bal

(Figs. 510-514)

1981. *Neoscona molemensis* Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.*, **24** : 22.

General: Cephalothorax and legs yellowish brown, abdomen brownish white. Total length 5.80 mm. Carapace 2.20 mm. long, 1.80 mm. wide; abdomen 4.30 mm. long, 3.10 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with pubescence and hairs; cephalic region slightly high, provided with two lateral longitudinal brown patches; thoracic region provided with a deep longitudinal groove. Ocular quad nearly as long as wide and little wider in front than behind as in text-fig. 510; anterior median eyes slightly larger than posterior medians; posterior medians encircled by black ring; lateral eyes close; both rows of eyes recurved but anterior row more recurved than posterior row as in text-fig. 510. Sternum heart-shaped, pointed behind, dark brown, provided with a mid-longitudinal



FIGS. 510-514. *Neoscona molemensis* Tikader & Bal

510. Dorsal view of female, legs omitted.
511. Mesal view of left male palp.
512. Epigyne, ventral view.
513. Epigyne, lateral view.
514. Internal genitalia, posterior view.

white band. Labium wider than long, dark brown and pale distal margin. Maxillae broad, nearly as long as wide, proximal end provided with scopulae. Chelicerae strong, dark brown, having moderate boss. Legs long and moderately strong, clothed with hairs and spines; ventral side of femora and tibiae of all legs except III, provided with conspicuous longitudinal black lines. Male palp as in text-fig. 511.

Abdomen: Nearly elliptical, longer than wide, clothed with pubescence and hairs, strongly overlapping on the cephalothorax as in text-fig. 510. On the dorsum of abdomen a conspicuous mid-longitudinal chalk white broad band extending from base to end; also accompanied with two pairs of lateral chalk white bands, of which one pair placed a little away from the anterior end and the other pair from middle of the dorsum as in text-fig. 510. These bands are margined by reddish brown lines. Two pairs of sigilla present on the dorsum. Ventral side greyish brown, having indistinct white patches; mid-ventral region of abdomen provided with a broad dark bar, anteriorly and posteriorly guarded by chalk white patches. Scape of the epigyne thin and nearly triangular, one pair of lateral lobes situated at the base of the scape as in text-figs. 512 & 513. Internal genitalia as in text-fig. 514.

Distribution: INDIA: Molem, (*Type-locality*) Goa.

Remarks: Description and illustrations have been made on the bases of type-specimen, deposited in the Z.S.I. Calcutta. Regd. No. 4957/18.

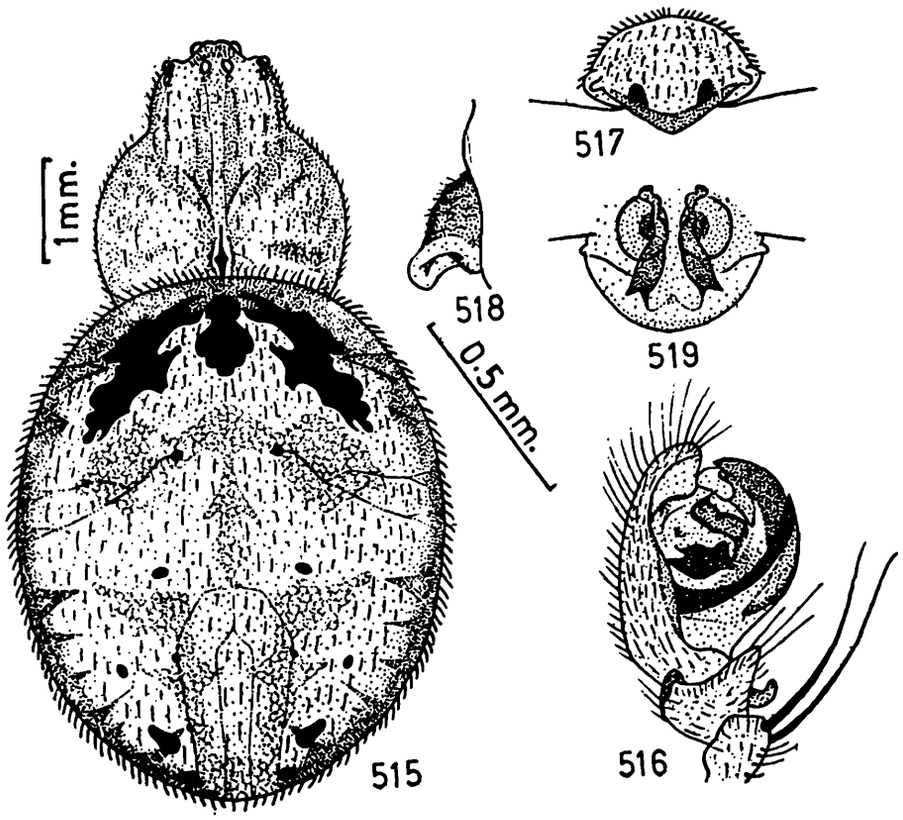
92. **Neoscona elliptica** Tikader & Bal

(Figs. 515-519)

1981. *Neoscona elliptica* Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.*, **24** : 24.

General: Cephalothorax and legs light yellowish, abdomen light brown. Total length 7.37 mm. Carapace 2.65 mm. long, 2.50 mm. wide, abdomen 5.10 mm. long, 4.20 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed



FIGS. 515-519. *Neoscona elliptica* Tikader & Bal
515. Dorsal view of female, legs omitted.
516. Mesal view of left male palp.
517. Epigyne, ventral view.
518. Epigyne, lateral view.
519. Internal genitalia, posterior view.

with pubescence and hairs; thoracic region more lighter in colour and provided with a distinct longitudinal groove; mid-longitudinal portion of carapace rather darker as in text-fig. 515. Ocular quad slightly longer than wide as in front; wider in front than behind as in text-fig. 515; eyes pearly white, except the anterior medians; posterior median eyes slightly larger than posterior medians; posterior median eyes encircled by black rings; lateral eyes close and subequal in size; both rows of eyes recurved as in text-fig. 515. Sternum heart-shaped, pointed behind, light greenish yellow with median pale area, clothed with hairs. Labium slightly wider than long, brownish in colour with pale distal margin. Maxillae broad, yellowish, provided with distinct scopulae. Chelicerae strong, yellowish brown, provided with distinct boss. Legs moderately long and strong, clothed with hairs and spines, light

yellowish in colour, only distal end of tarsi having brown bands. Male palp as in text-fig. 516.

Abdomen: Elliptical, roundish at both ends, longer than wide, clothed with pubescence and hairs as in text-fig. 515. Dorsum of abdomen with yellowish brown in the middle and a few blackish spots and patches as in text-fig. 515; lateral sides rather deep brownish with some brown inwards lines and four pairs of distinct sigilla arranged mid-longitudinally as in text-fig. 515. Ventral side deep brown in colour with a median broad darker patch guarded by a pair of chalk white patches in between epigastric furrow and spinnerets. Epigyne having a very short, broad, triangular scape and one pair of indistinct lateral lobes as in text-figs. 517 & 518. Internal genitalia as in text-fig. 519.

Distribution: INDIA: Koregaon Park, (*Type-locality*) Poona, Maharashtra.

Remarks: Description and illustrations are made on the basis of type specimen, deposited in the Z.S.I. Calcutta. Regd. No. 4960/18.

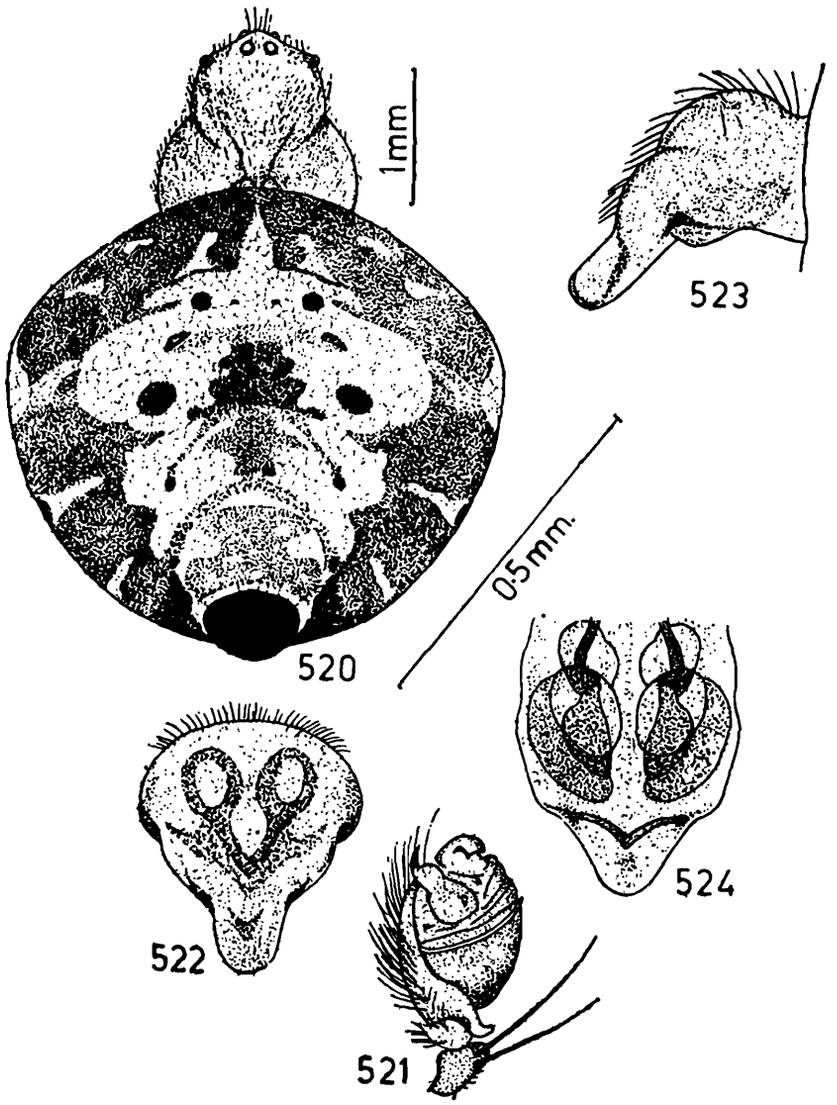
93. **Neoscona excelsus** (Simon)

(Figs. 520-524)

1889. *Glyptogona excelsus* Simon, *J. Asiat. Soc. Beng.*, **58** : 337.
1896. *Epeira excelsa* : Bank, *Jl.N.Y ent, Soc.*, **4** : 90.
1906. *Araneus excelsus* : Simon, *Annls Soc. ent Fr.*, **75** : 283.
1936. *Araneus excelsus* : Dyal, *Bull. Dep. Zool. Punjab Univ.*, **1** : 179.
1981. *Neoscona excelsus* : Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.*, **24** : 25.

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

Cephalothorax: Slightly longer than wide, narrowing in front, clothed with white pubescence. Cephalic region distinctly elevated with an inconspicuous groove. Ocular quad slightly longer than wide forming a rectangular and situated on an elevation as in text-fig. 520. Anterior median eyes slightly smaller than the



FIGS. 520-524. *Neoscona excelsus* (Simon)
520. Dorsal view of female, legs omitted.
521. Mesal view of left male palp.
522. Epigyne, ventral view.
523. Epigyne, lateral view.
524. Internal genitalia, posterior view.

posterior median eyes. Posterior median eyes encircled by black ring. Lateral eyes close and each situated on a tubercle. Both rows of eyes strongly recurved. Sternum herat-shaped brownish in colour, pointed behind, clothed with white pubescence and hair. Labium wider than long, crescent shaped, brown in colour with pale distal border. Maxillae strong and nearly square shaped, brown with pale outer margin, provided with distinct scopulae. Chelicerae moderately strong and yellowish brown, provided with

moderate boss. Legs moderately long and thin, clothed with pubescence, hairs and spines, femora of all legs dark brown, patellae and tibiae yellowish on the dorsal side. Male palp as in text-fig. 521.

Abdomen: Slightly wider than long, globular, clothed with white pubescence. Abdomen provided with a tail like hump with black tip at the posterior end as in text-fig. 520. Dorsum provided with a chalk white patch forming a folium as in text-fig. 520. Four pairs of sigilla arranged mid-longitudinally on the dorsal side. Ventral side blackish brown, provided with a pair of large conspicuous chalk-white spot in between the epigastric furrow and the spinnerets. Epigyne provided with a short and broad scape as in text-figs. 522 & 523. Internal genitalia as in text-fig. 524.

Distribution: INDIA: Poona, Mahableshwar, Maharashtra, Rajkot, Gujarat; Chhota Nagpur, Bihar; Eastern Himalaya, Kalimpong, West Bengal; PAKISTAN: Rawalpindi.

Remarks: Description and illustrations have been drawn from the specimen deposited in the Museum National d' Histoire Naturelle, Paris. Regd. No. 1146.

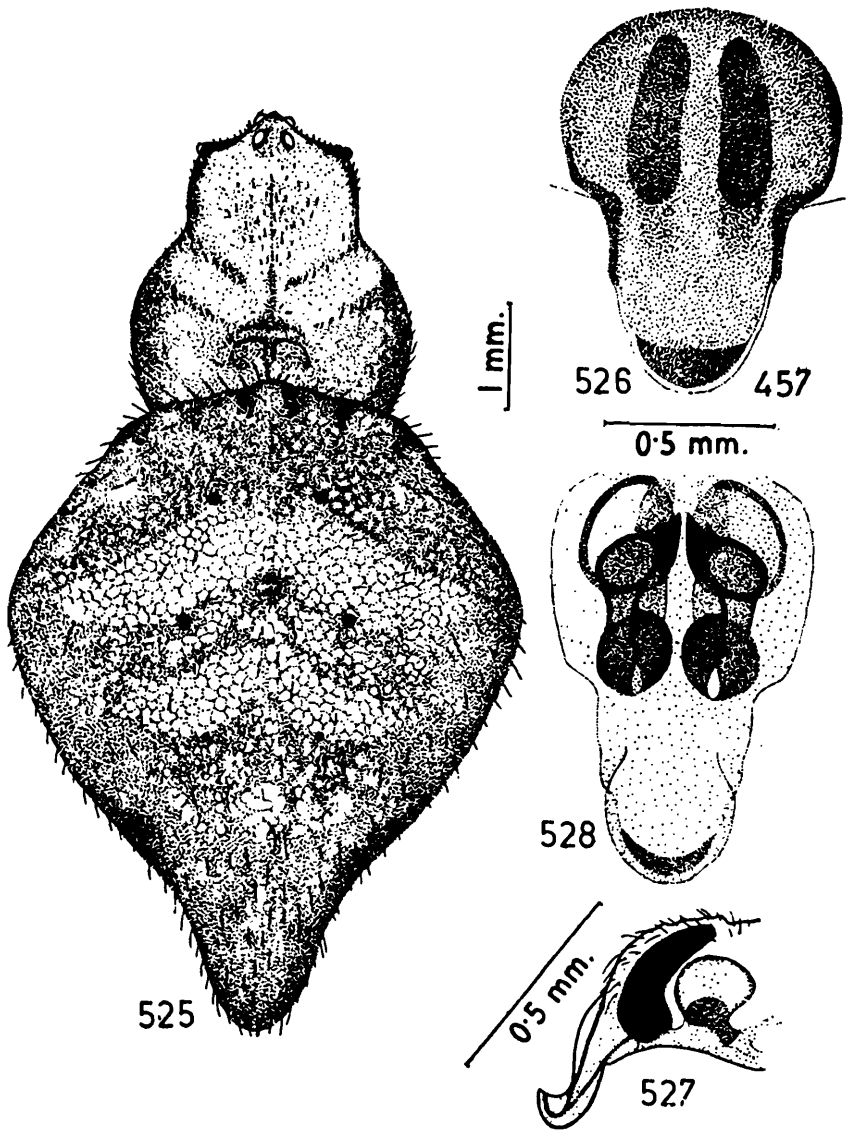
94. **Neoscona laglaizei** (Simon)

(Figs. 525-528)

1877. *Epeira laglaizei* Simon, *Annls. Soc. ent. Fr.*, 7(5) : 77.
1890. *Epeira laglaizei* : Thorell, *Annali. Mus. civ. Genova*, **28** : 167.
1896. *Epeira laglaizei* : Workman, *Malayasian spiders*, 41.
1900. *Araneus laglaizei* : Pocock, *Fauna Brit. India, Arachn.*, : 224.
1935. *Araneus laglaizei* : Dyal, *Bull. Dep. Zool. Punjab Univ.*, **1** : 181.
1960. *Araneus laglaizei* : Chrysanthus, *Nova Guinea (Zool.)*, **10**(3) : 39.
1975. *Araneus laglaizei* : Patel, 'Vidya', *J. Gujarat Univ.*, **18**(1) : 158.
1981. *Neoscona laglaizei* : Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.*, **24** : 27.

General: Cephalothorax and legs yellowish, abdomen yellowish grey. Total length 8.60 mm. Carapace 3.20 mm. long, 2.70 mm. wide; abdomen 6.10 mm. long, 4.80 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, yellowish



FIGS. 525-528. *Neoscona laglaizei* (Simon)
525. Dorsal view of female, legs omitted.
526. Epigyne, ventral view.
527. Internal genitalia, lateral view.
528. Internal genitalia, posterior view.

with very light brown patches as in text-fig. 525, clothed with pubescence and hairs. Ocular quad as long as wide and provided with an elevation as in text-fig. 525. Both the median eyes nearly same in size. Lateral eyes close and each situated on a tubercle. Both the rows of eyes recurved. Sternum heart-shaped, pointed behind, yellowish brown in colour, colthed with hairs. Labium wider than long, crescent shaped, yellowish brown with pale distal border. Maxillae almost square, strong, yellowish

brown with pale outer margin, provided with distinct scopulae. Chelicerae moderately strong, yellowish brown and provided with medium boss. Legs long and moderately strong, covered with pubescence and hairs, distal portion of femora brownish.

Abdomen: Posteriorly cone shaped, yellowish grey with chalk white patches, clothed with pubescence. Dorsum of abdomen provided with a distinct long tail like hump at the posterior end and three pairs of sigilla arranged mid-longitudinally as in text-fig. 525. Ventral side provided with a large dark brown patch, and two pairs of chalk white patches, one pair near the epigastric furrow and other pair near the spinnerets. Epigyne with a broad scape as in text-fig. 526, tip of the scape bent and directed upward as in text-fig. 527. Internal genitalia as in text-figs. 527 & 528.

Distribution: INDIA: Ootacamund, Jaunsar, Thadyar 2500 ft. SRI LANKA: Perandeniya, Trincomali, BURMA: Tounghnoo, Tharrawaddy, Rangoon, Tenasserim. JAVA. INDO AND AUSTRO-MALAYASIA.

Remarks: The description and illustrations have been made on the basis of one of the type specimen, deposited in the Museum National d' Histoire Naturelle paris, Regd, No. 3138.

95. **Neoscona poonaensis** Tikader & Bal

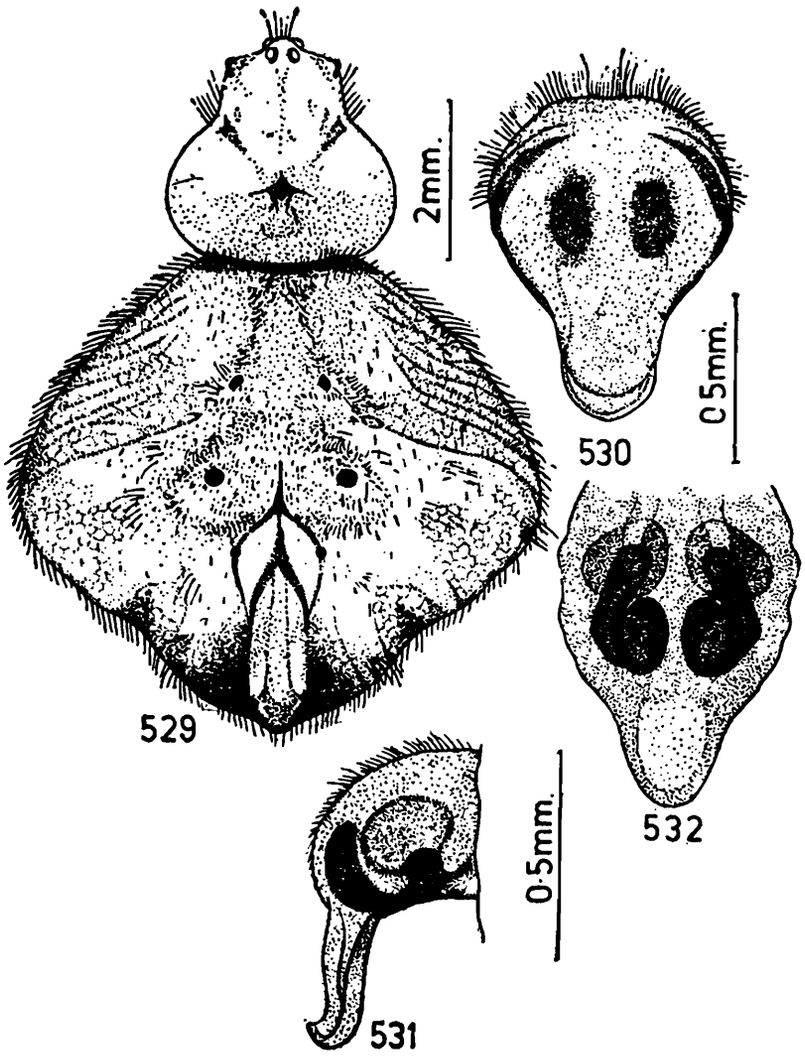
(Figs. 529-532)

1981. *Neoscona poonaensis* Tikader & Bal, *Rec. zool. Surv. India. occ. Pap.*, **24** : 29.

1981. *Neoscona poonaensis* : Tikader & Biswas, *Rec. zool. Surv., India, Occ. Pap.*, **30** : 22.

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

Cephalothorax: Slightly longer than wide, narrowing in front, yellowish with brown patches as in text-fig. 529, clothed with pubescence and hairs. Thoracic region provided with an in-



FIGS. 529-532. *Neoscona poonaensis* Tikader & Bal
529. Dorsal view of female, legs omitted.
530. Epigyne, ventral view.
531. Internal genitalia, lateral view.
532. Internal genitalia, posterior view.

distinct groove. Ocular quad as long as wide and situated on an elevation as in text-fig. 529. Both the median eyes nearly same in size. Lateral eyes close and each situated on a tubercle. Both row of eyes recurved. Sternum heart-shaped, pointed behint, dark brown in colour, clothed with hairs. Labium wider than long, crescent shaped, dark brown with pale distal border. Maxillae almost square, strong, dark brown with pale outer margin, provided with distinct scopulae. Chelicerae moderately strong, yellowish and provided with medium boss. Legs long and moderately strong, covered with pubescence and hairs, distal ends

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

Abdomen: Nearly pentangular in shape, yellowish grey with chalk white patches and dark brown lines, clothed with pubescence and irregular tufts of hairs present on the dorsum of abdomen as in text-fig. 529. Dorsum of abdomen provided with a distinct elongated tail like hump at the posterior end and three pairs of sigilla arranged mid-longitudinally as in text-fig. 529. Ventral side provided with a large star shaped black patch, and one pair of chalk white dumble shaped patches in between the epigastric furrow and the spinnerets Epigyne with a broad scape as in text-fig 530, tip of the scape directed slightly upward as in text-fig. 531. Internal genitalia as in text-figs. 531 & 532.

Distribution: INDIA: Poona, (*Type-locality*) Maharashtra; West Bengal.

Remarks: Descriptions and illustrations are made on the basis of Holotype female, deposited in the Z.S.I. Calcutta. Regd. No. 5064/18.

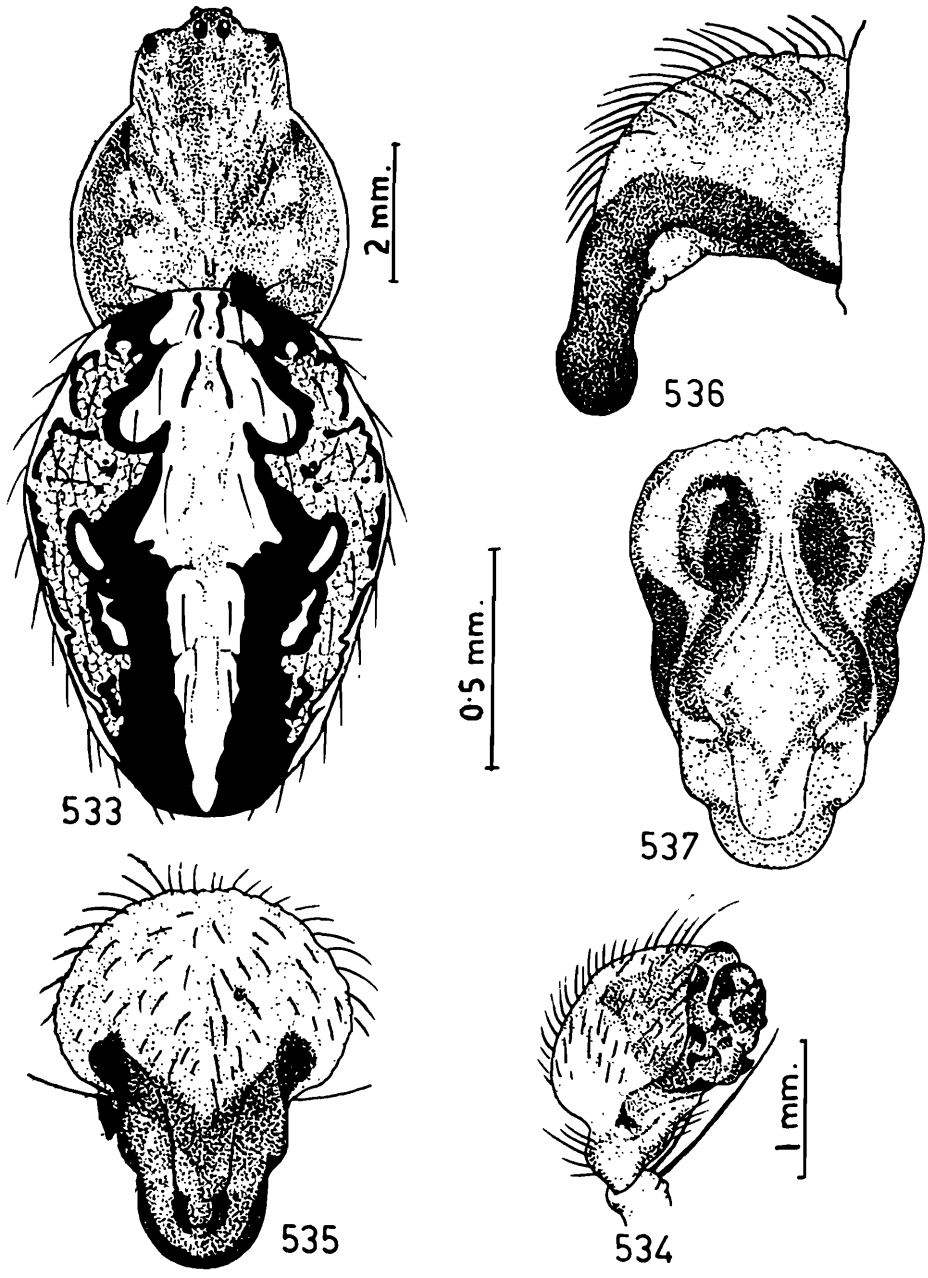
96. **Neoscona sinhagadensis** (Tikader)

(Figs. 533-537)

1975. *Araneus sinhagadensis* Tikader, *Proc. Indian Acad. Sci.*, 81(4): 146.
1981. *Neoscona sinhagadensis* : Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.*, 24 : 30.

General: Cephalothorax and legs yellowish brown, abdomen yellowish white. Total length 12.00 mm. Carapace 5.50 mm. long, 4.30 mm. wide; abdomen 8.00 mm. long, 5.40 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with grey pubescence and hairs; provided with two lateral and one median longitudinal dark brown streaks on the carapace; thoracic region provided with a deep longitudinal groove. Ocular quad slightly longer than wide and a little wider in front than behind as in text-fig. 533. Both the median eyes subequal in size, posterior medians encircled by black rings as in text-fig. 533;



FIGS. 533-537. *Neoscona sinhagadensis* (Tikader)
533. Dorsal view of female, legs omitted.
534. Dorso-lateral view of left male palp.
535. Epigyne, ventral view.
536. Epigyne, lateral view.
537. Internal genitalia, posterior view.

lateral eyes close and each situated on a black tubercle; both rows of eyes recurved but anterior row strongly recurved. Sternum heart-shaped, pointed behind, black in colour, clothed with pubescence and hairs. Labium wider than long, dark brown with

pale distal border. Maxillae nearly round in shape, dark brown with pale outer margin, provided with distinct scopulae. Chelicerae strong, brownish yellow, provided with moderate boss. Legs long and strong, clothed with hairs and spines. Male palp as in text-fig. 534.

Abdomen: Nearly barrel shaped, longer than wide, narrowing behind, clothed with fine hairs; anteriorly overlapping on the carapace. Dorsum of abdomen decorated with chalk white, black and yellowish brown patches and mid-longitudinally provided with a conspicuous chalk white band margined with black markings as in text-fig. 533. Ventral side of abdomen decorated with chalk white and deep brown patches; mid-longitudinally having a dark brown broad patch in between the epigastric furrow and the spinnerets, which is guarded laterally by chalk white patches, one on each side. Scape of the epigyne tongue like, short, thick, strong and without constriction and provided with prominent rim and a pair of distinct lateral lobes as in text-figs. 535 & 536. Internal genitalia as in text-fig. 537.

Distribution: INDIA: Sinhagad Fort, (*Type-locality*) Poona, Maharashtra.

Remarks: Description and illustrations are based on one paratype female and one allotype male, deposited in the Z.S.I. Calcutta. Regd. No. 5962-3/18. This species was placed in the genus *Araneus* but author found it is of the genus *Neoscona* since the characters have tallied with the genus *Neoscona*.

97. **Neoscona theis** (Walckenaer)

(Figs. 538-542)

1841. *Epeira theis* Walckenaer, *Hist. Nat Ins. Apt.*, **2** : 53.
1847. *Epeira mangareva* : Walckenaer, *Hist. Nat. Ins. Apt.*, **4** : 469.
1869. *Epeira braminica* : Stoliczka, *J. Asiat. Soc. Beng.*, **38**(2) : 238.
1877. *Epeira theisis* : Thorell, *Annali. Mus. civ. Genova*, **10** : 390.
1897. *Epeira obscura* : Rainbow, *Mem. Aust. Mus.*, **3**(2) : 116.
1904. *Neoscona theisi* : F.O.P. Cambridge, *Biologia.Oent-am.Aran.*, 2 : 470.
1911. *Araneus theisi* : Merian, *Zool. Jb. (Syst.)*, **31**(2) : 213.
1939. *Araneus theisi* : Saito, *Saito Ho-onKai Mus. Res. Bull.*, **18** : 22.
1960. *Araneus theisi* : Chrysanthus, *Nova Guinea (Zool.)*, **10** : 39.

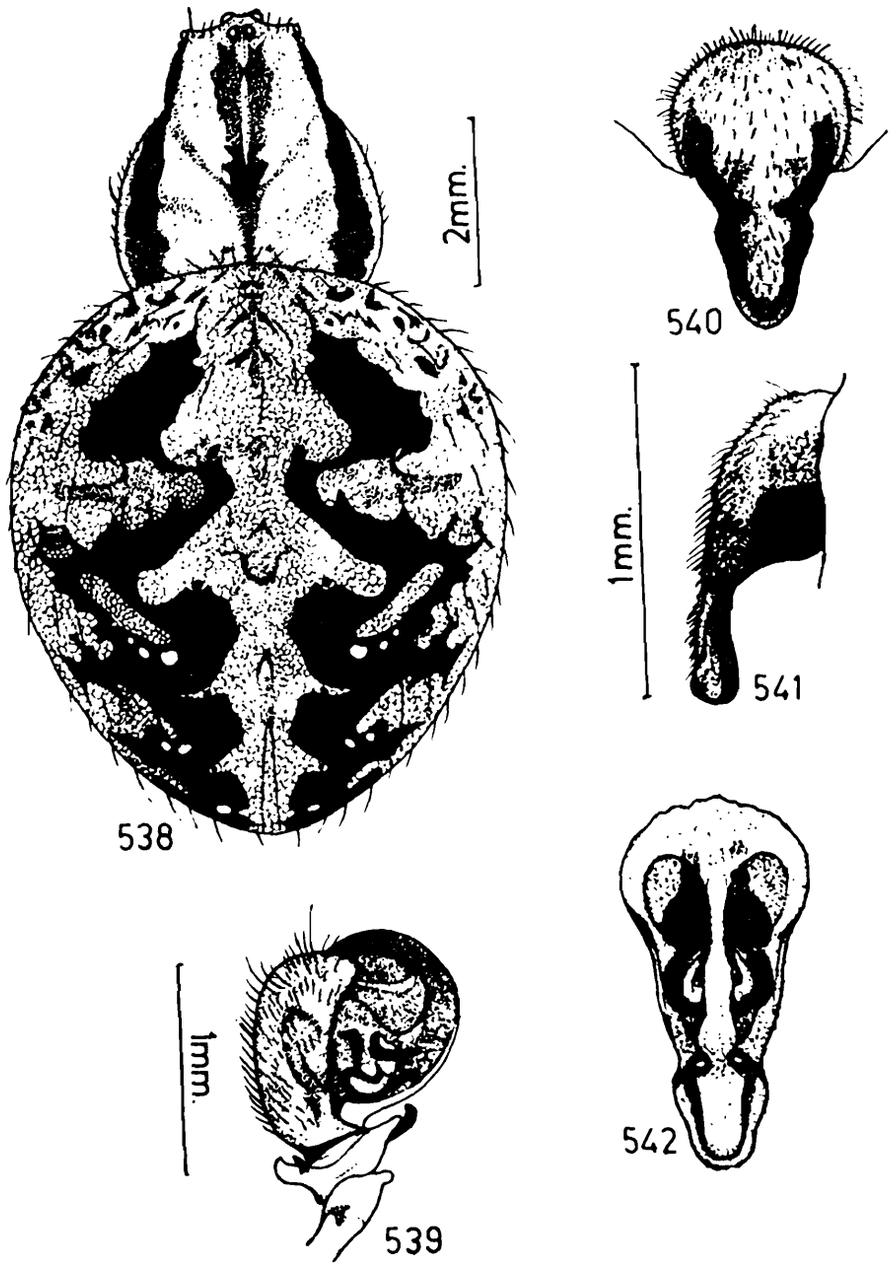
1975. *Araneus theisi* : Patel, "Vidya", *J. Gujarat Univ.*, 18(1) : 158.
1981. *Neoscona theisi* : Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.*, 24 : 32.

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

Cephalothorax: Longer than wide, narrowing in front, clothed with pubescence and hairs, provided with two laterals and one median longitudinal dark brown bands; thoracic region provided with distinct longitudinal groove. Ocular quad longer than wide and wider in front than behind as in text-fig. 538. Anterior median eyes larger than posterior medians; lateral eyes close; both rows of eyes slightly recurved as in text-fig. 538. Sternum heart-shaped, pointed behind, clothed with pubescence and hairs, dark brown, provided with a conspicuous mid-longitudinal bar. Labium wider than long, dark brown. Maxillae longer than wide, dark brown in colour but anterior border pale, distal end provided with scopulae. Chelicerae strong, light brown with prominent boss. Legs long and strong, clothed with hairs and spines, provided with transverse black bands. Male palp as in text-fig. 539.

Abdomen: Sub-oval, longer than wide, anterior end wider than posterior end, clothed with pubescence and hairs, overlapping on the cephalothorax. Dorsum of abdomen provided with a conspicuous mid-longitudinal chalk white bar having four pairs of lateral projections as in text-fig. 538. lateral sides of this bar guarded by deep brown or black patches as in text-fig. 538. Four pairs of sigilla present on the dorsum, arranged mid-longitudinally. Ventral side light brownish, mid-ventrally having a deep brown broad patch in between epigastric furrow and the spinnerets, lateral sides of this patch guarded by chalk white patches. Scape of the epigyne provided with prominent rim and a constriction at the middle; one pair of lateral lobes present as in text-figs. 540 & 541. Internal genitalia as in text-fig 542.

Distribution: INDIA: Poona, Maharashtra; Orissa; Gujarat; West Bengal. Guam, (*type-locality*) Mariana Island, SOUTH NEW GUINEA.



FIGS. 538-542. *Neoscona theis* (Walckenaer)

538. Dorsal view of female, legs omitted.

539. Mesal view of left male palp.

540. Epigyne, ventral view.

541. Epigyne, lateral view.

542. Internal genitalia, posterior view.

Remarks: Since author could not get the type-specimen the description and illustrations are based on female and male specimens collected from Cuttack, Orissa.

98. **Neoscona shillongensis** Tikader & Bal.

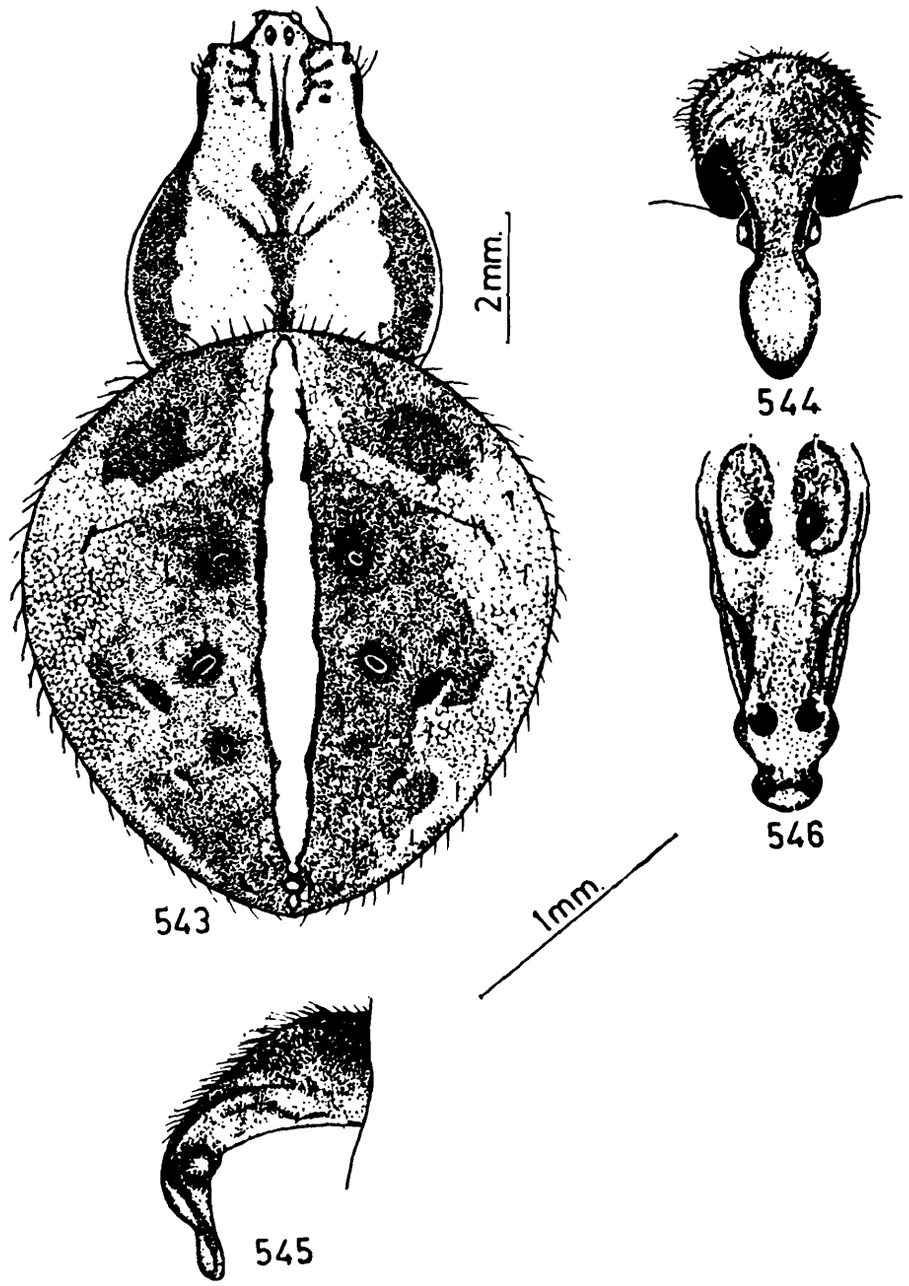
(Figs. 543-546)

1981. *Neoscona shillongensis* Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.*, 24 : 34.

General: Cephalothorax, legs and abdomen brown. Total length 13.70 mm. Carapace 5.90 mm. long, 4.80 mm. wide; abdomen 9.00 mm. long, 8.20 mm. wide.

Cephalothorax: Longer than wide, narrowing in front and clothed with pubescence and hairs; cephalic region slightly high and thoracic region provided with a longitudinal groove; carapace provided with two lateral and one median longitudinal dark brown patches as in text-fig. 543. Ocular quad longer than wide and much wider in front than behind as in text-fig. 543; anterior median eyes much larger than posterior medians, posterior medians encircled by black rings; lateral eyes close and each situated on a tubercle; both rows of eyes recurved but anterior row strongly recurved as in text-fig. 543. Sternum heart-shaped, pointed behind, deep brown, clothed with pubescence and hairs, provided with an inconspicuous mid-longitudinal pale band. Labium wider than long and dark brown. Maxillae broad, nearly as long as wide, distal border provided with distinct scopulae. Chelicerae strong, brownish yellow, provided with moderate boss. Legs long and strong, clothed with hairs and spines; distal end of femora and tibiae of all legs provided with transverse dark brown bands.

Abdomen: Nearly oval, longer than wide, wider in front than behind and clothed with pubescence and hairs; mid-dorsally provided with a very conspicuous longitudinal chalk white bar extending all along the length, lateral sides of this bar margined by dark brown lines as in text-fig. 543. Anterior and lateral sides of dorsum provided with dirty chalk white irregular patches; five pairs of sigilla arranged mid-longitudinally on the dorsum. Ventral side brownish, mid-ventral region provided with a broad dark brown patch guarded laterally by chalk white dumble shaped markings in between epigastric furrow and spinnerets. Scape of the epigynum long and stout, provided with a constriction and bent downwards, having two pairs of lateral lobes,



FIGS. 543-546. *Neoscona shillongensis* Tikader & Bal
543. Dorsal view of female, legs omitted.
544. Epigyne, ventral view.
545. Epigyne, lateral view.
546. Internal genitalia, posterior view.

second pair of lobes truncated anteriorly as in text-figs. 544 & 545: Internal genitalia as in text-fig. 546.

Distribution: INDIA: Shillong, (*Type-locality*) Meghalaya.

Remarks: Description and illustrations are made on the bases of type specimen, deposited in the Z.S.I. Calcutta. Regd. No. 4963-64/18.

99. **Neoscona odites** (Simon)

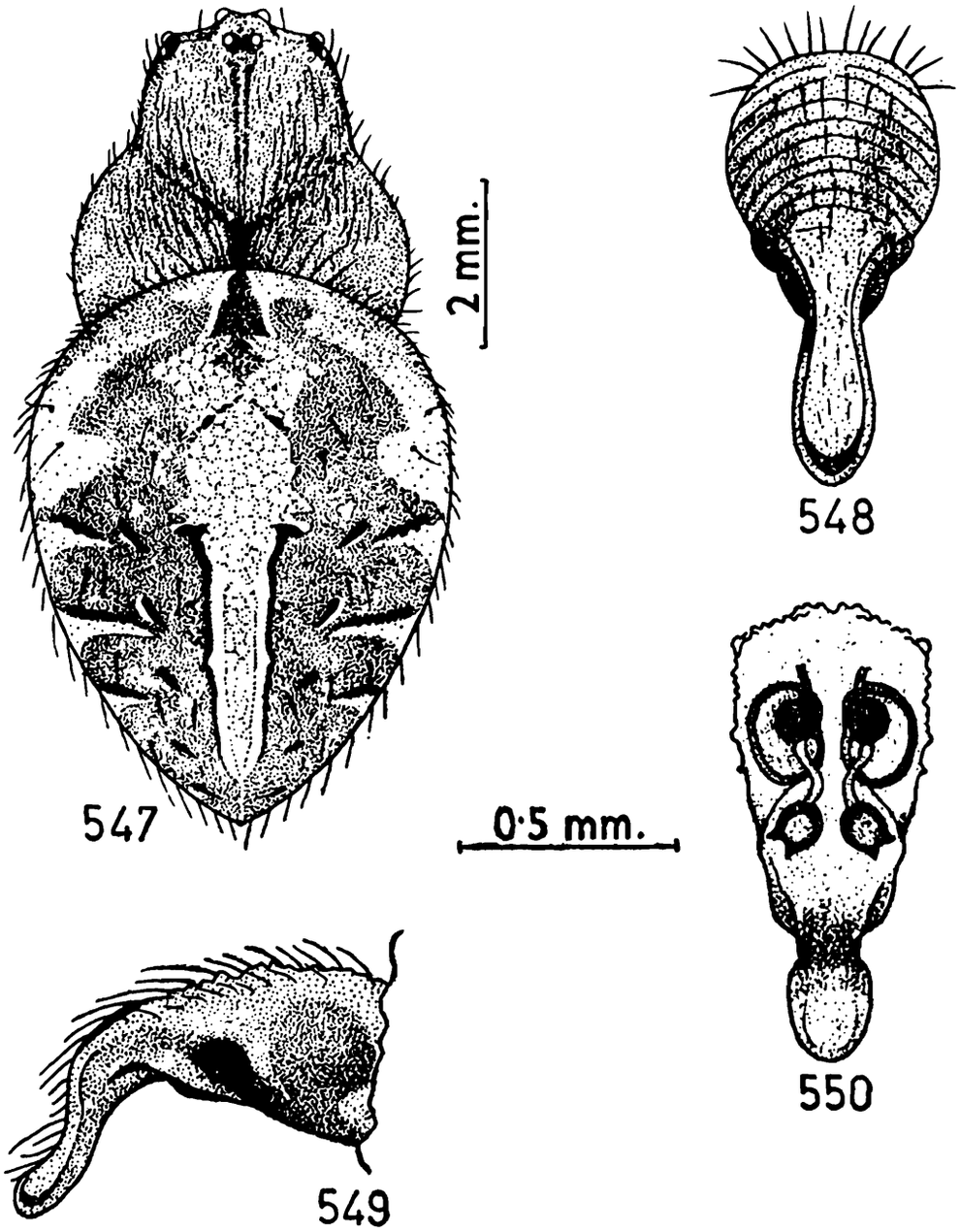
(Figs. 547-550)

1906. *Araneus odites* Simon, *Annls. Soc. ent. Fr.*, **75** : 308.
1981. *Neoscona odites* : Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.*, **24** : 36.

General: Cephalothorax and legs reddish brown, abdomen light brown in colour. Total length 9.75 mm. Carapace 4.50 mm. long, 4.00 mm. wide; abdomen 6.70 mm. long, 5.10 mm. wide.

Cephalothorax: Longer than wide, narrower in front, clothed with grey pubescence and hairs; thoracic region provided with a deep longitudinal groove. Ocular quad longer than wide and wider in front than behind as in text-fig. 547; median eyes subequal; eyes encircled by conspicuous black rings except the anterior medians as in text-fig. 547; lateral eyes close and each situated on a tubercle; both rows of eyes recurved but anterior row more recurved than posterior row. Sternum heart-shaped, pointed behind, clothed with pubescence and hairs; middle provided with a longitudinal chalk white bar. Labium broad, dark brown, having a yellowish distal border. Maxillae dark brown with pale outer border and provided with distinct scopulae. Chelicerae moderately strong, yellowish brown and provided with boss. Legs long and strong, clothed with fine hairs and spines; distal ends of all segments, except coxa and trochanter, provided with brown transverse bands.

Abdomen: Oval, tapering posteriorly, clothed with pubescence and hairs, anteriorly overlapping the cephalothorax. Dorsum of abdomen provided with a mid-dorsal conspicuous chalk white longitudinal dagger shaped bar extending from anterior to posterior ends as in text-fig. 547. Four pairs of sigilla arranged mid-longitudinally on the dorsum. Ventral side of abdomen provided with a large dark brown patch which is guarded laterally by a pair of dumble shaped white markings, one on each side; one pair of small chalk white spots present near the base of the



FIGS. 547-550. *Neoscona odites* (Simon)
547. Dorsal view of female, legs omitted.
548. Epigyne, ventral view.
549. Epigyne, lateral view.
550. Internal genitalia, posterior view.

spinnerets Epigyne provided with a scape having a narrow tip, two pairs of lateral lobes as in text-figs. 548 & 549. Internal genitalia as in text-fig. 550.

Distribution: INDIA: Himalaya (Simon); Linsoka, Sikkim; Assam.

Remarks: Illustrations and description are based on type-specimen of Simon, deposited at M.N.H.N., Paris, Regd. No. 6499 B. 2551. Previously it was placed in the genus *Araneus* but author found it should be placed in the genus *Neoscona.*

100. **Neoscona pavida** (Simon)

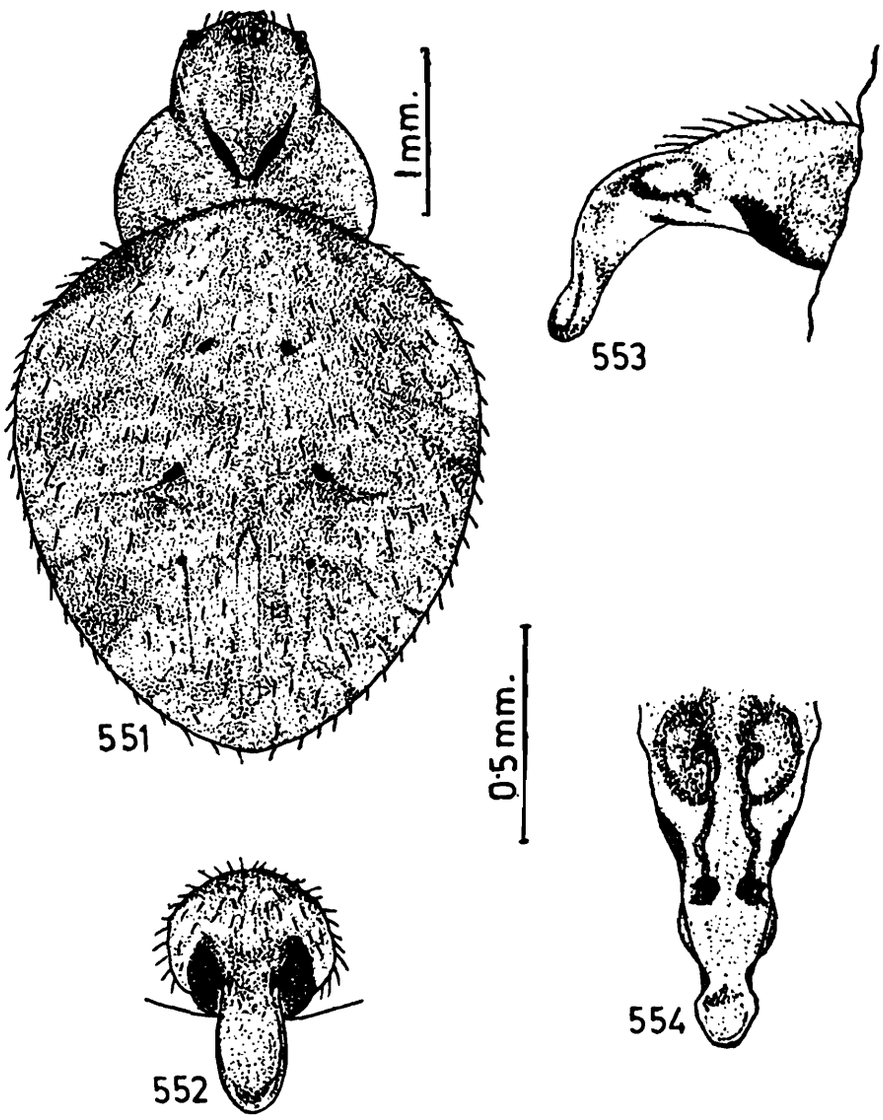
(Figs. 551-554)

1906. *Araneus pavida* Simon, *Annls. Soc. ent. Fr.*, 75 : 309.
1935. *Araneus pavidus* : Dyal, *Bull. Dep. Zool. Punjab Univ.*, 1 : 184.
1981. *Neoscona pavida* : Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.*, 24 : 38.

General: Cephalothorax and legs brownish yellow, abdomen brown. Total length 9.20 mm. Carapace 3.40 mm. long, 3.20 mm. wide; abdomen 6.90 mm. long, 5.80 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, clothed with fine hairs; cephalic region; thoracic region provided with longitudinal deep groove; base of cephalic region provided with a 'V' shaped brown marking as in text-fig. 551. Ocular quad longer than wide and wider in front than behind as in text-fig. 551; anterior median eyes slightly larger than posterior medians; lateral eyes close and each situated on a minute tubercle; both rows of eyes recurved but posterior row less recurved than the anterior row. Sternum heart-shaped, pointed behind, light brown, clothed with hairs. Labium nearly pentangular, anterior margin pale in colour. Maxillae nearly as long as wide, clothed with spine like hairs, distal end pale and provided with distinct scopulae. Legs long and strong, clothed with hairs and spines, provided with transverse brown bands.

Abdomen: Nearly oval, clothed with black and grey hairs, anterior portion wider than behind as in text-fig. 551. Dorsum of abdomen provided with four pairs of sigilla arranged mid-longitudinally. Ventral side brown in colour, midventrally having a longitudinal brown patch, laterally guarded by a pair of dumble shaped bar. Epigyne with a scape provided with a constriction nearly at the middle and two pairs of lateral lobes as in text-figs. 552 & 553. Internal genitalia as in text-fig. 554.



FIGS. 551-554. *Neoscona pavida* (Simon)
551. Dorsal view of female, legs omitted.
552. Epigyne, ventral view.
553. Epigyne, lateral view.
554. Internal genitalia, posterior view.

Distribution: INDIA: Darjeeling, Pashok (Simon), West Bengal. PAKISTAN: Lahore.

Remarks: Illustrations and description are based on type-specimen of Simon, deposited at M.N.H.N., Paris, Regd. No. 11562 B 2551. This species was included in the genus *Araneus* but author found it is of the genus *Neoscona* as it tallies the characters of the said genus.

101. **Neoscona achine** (Simon)

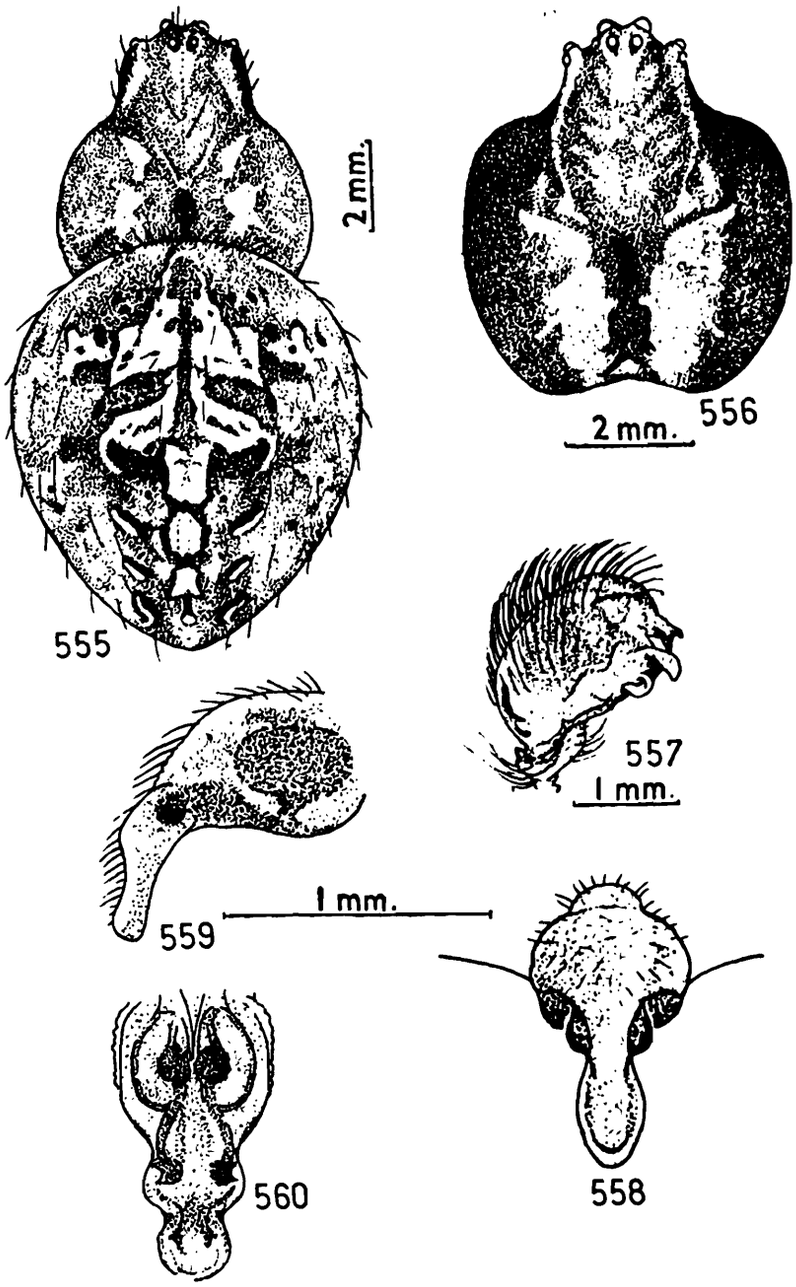
(Figs. 555-560)

1906. *Araneus achine* Simon, *Annls. Soc. ent. Fr.*, 75 : 309.
1981. *Neoscona achine* : Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.*, 24 : 39.

General: Cephalothorax dark brown, legs yellowish brown, abdomen dark brown. Total length 14.00 mm. Carapace 6.70 mm. long, 5.80 mm. wide; abdomen 9.20 mm. long, 7.80 mm. wide.

Cephalothorax: Longer than wide, narrower in front clothed with pubescence and hairs; cephalothorax provided with two rows of longitudinally arranged light yellowish irregular patches as in text-fig. 555. Ocular quad longer than wide and wider in front than behind as in text-fig. 555; anterior median eyes larger than posterior medians; lateral eyes close and each situated on a tubercle; both rows of eyes recurved but anterior row strongly recurved than posterior row as in text-figs. 555 & 556. Sternum heart-shaped, pointed behind, dark brown in colour, provided with a median longitudinal white band. Labium wider than long, dark brown and distal end pale yellowish. Maxillae broad, dark brown with pale yellowish outer margin and provided with distinct scopulae. Chelicerae strong, dark brown provided with moderate boss. Legs long and strong; clothed with fine hairs and spines, provided with dark brown transverse bands. Male palp as in text-fig. 557.

Abdomen: Nearly oval, longer than wide, clothed with fine pubescence and hairs, overlapping the cephalothorax anteriorly. Dorsum of abdomen dark brown, provided with light yellowish conspicuous longitudinal patches forming a pattern which is extending from anterior to posterior end of abdomen as in text-fig. 555. Ventral side dark brown or black end provided with a pair of transversely arranged conspicuous white spots. Epigyne with a scape, having distinct constriction and two pairs of lateral lobes, of which first pair of lateral lobe large with rounded margin as in text-figs. 558 & 559. Internal genitalia as in text-fig. 560.



FIGS. 555-560. *Neoscona achine* (Simon)

555. Dorsal view of female, legs omitted.
556. Dorsal view of cephalothorax of male, legs omitted.
557. Dorso-lateral view of left male palp.
558. Epigyne, ventral view.
559. Epigyne, lateral view.
560. Internal genitalia, posterior view.

Distribution: INDIA: Himalaya (Simon); Tenmaila Camp, Sikkim; Assam.

Remarks: Description and illustrations have been made on the basis of type specimen of Simon, deposited at M.N.H.N., Paris, Regd. No. 21732 B 2551. This species was placed in the genus *Araneus* by original author but it should be in the genus *Neoscona* since it tallies with the characters of the said genus.

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THE FAUNA OF INDIA

SPIDERS : ARANEAE
Vol. II

Part 2

FAMILY
GNAPHOSIDAE

By

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Zoological Survey of India

AUTHOR'S PREFACE

More than ninety years have passed since the study of Indian spiders was first taken up by the European Arachnologists. Although spiders are extremely abundant in our country, our knowledge on spider fauna is extremely fragmentary.

About eighty years ago Pocock (1900) has written a volume on Arachnida in the fauna of British India series, in which he stated "The spider group contains a vast number of species and is still very imperfectly known so imperfectly that no satisfactory account of it can at present be given" Pocock in his "*Fauna of British India, Arachnida*", volume has dealt with spiders which are common and conspicuous. Apart from Scorpions, Uropygi, Amblypygi, Solifugae he recorded about two hundred species of spiders from India, Burma and Ceylon (Sri Lanka). Many common and well known families like Gnaphosidae were not reported from India.

Since attaining the independance of our country, it has been felt that detailed fauna of all groups of animals should be prepared. Recently the Joint Reviewing Committee of Zoological Survey of India and Botanical Survey of India has recommended to the Government of India that the fauna of India volumes should be written by the specialists of the various groups. During my twenty-five years research experience on spider taxonomy, I also felt that a lot of confusion still exists in this group and a revised fauna series of this interesting group of animals should be prepared. Accordingly I was asked to write the Fauna of India volume on spiders. In this project I have published the first volume on spiders in the year 1980.

The present part deals with eightynine species, contained in twentyone genera of the family Gnaphosidae. Of these, fourteen species are new to science. A detailed account of morphology, characters of taxonomic importance and key to the families of Indian spiders have been given. As far as possible keys for

identification of genera and species of the family Gnaphosidae as well as the diagrams of each species have been provided.

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10th March, 1982
Dol Purnima

B. K. TIKADER

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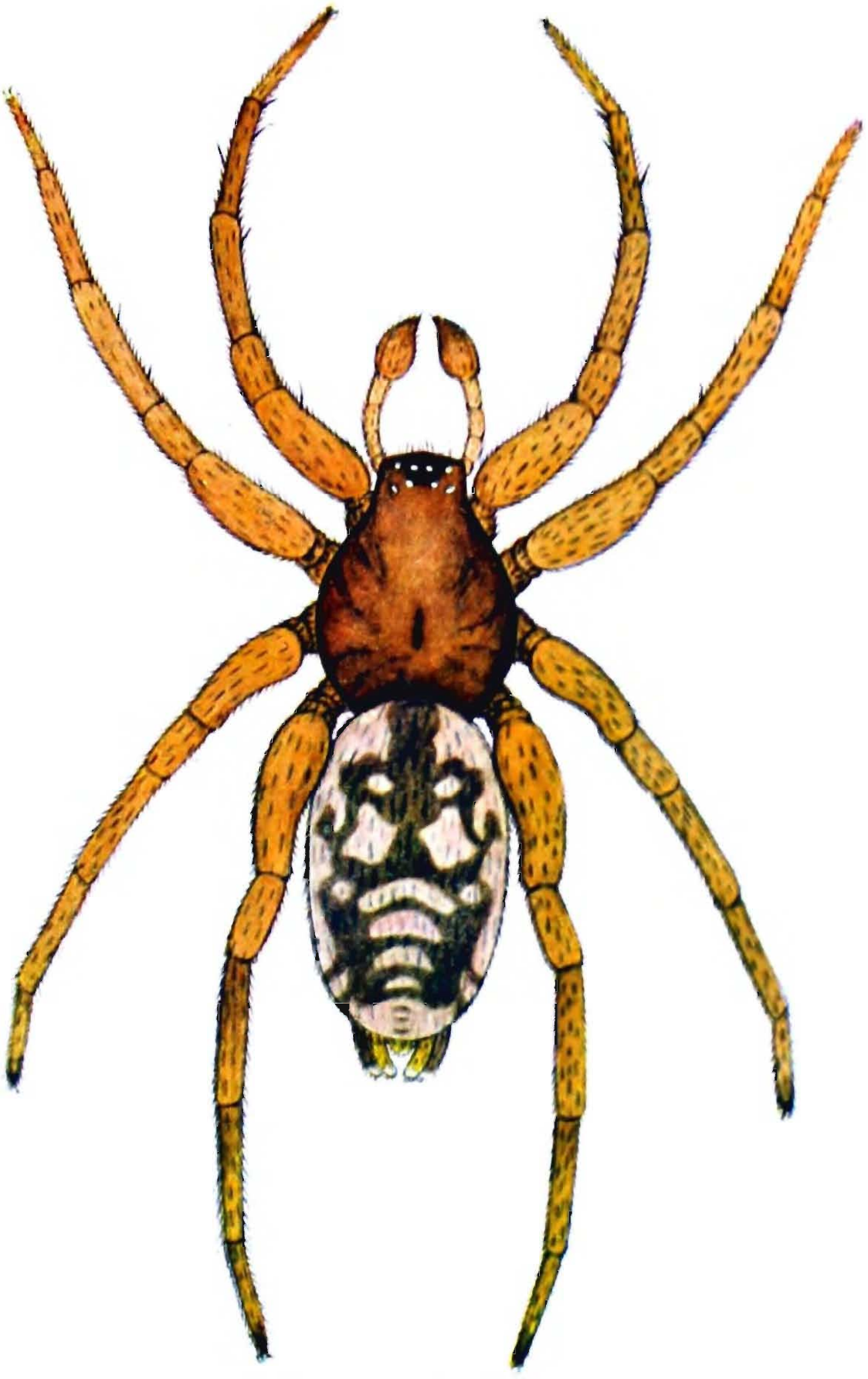
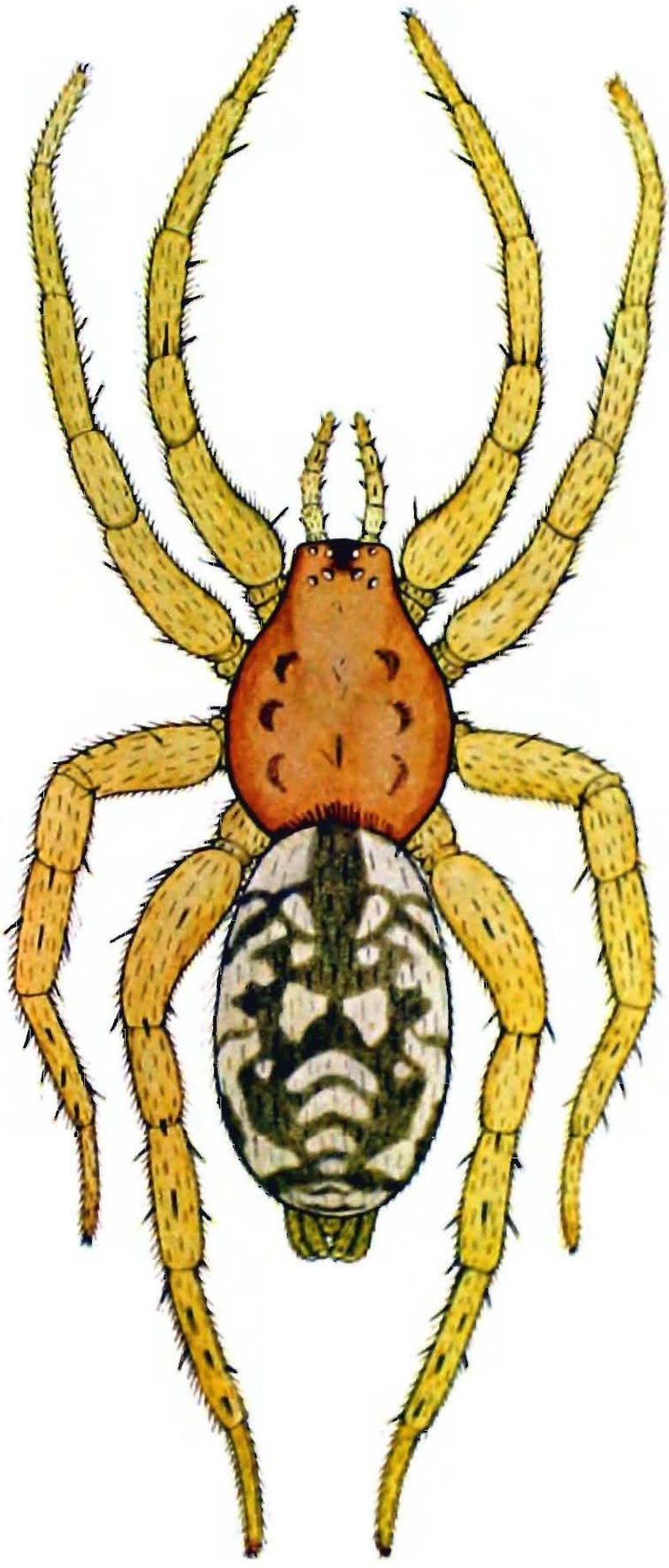


Gnaphosa Poonaensis Tikader (male)



Gnaphosa Poonaensis Tikader (female)

Habitat, Food and Feeding Habits of Gnaphosid Spiders

In general the gnaphosid spiders are found everywhere and can be easily seen running on the greassy land as well as on rocky ground and are strictly ground dwellers. Their body colour is brown and dull, so that they are inconspicuous on the ground and the collector notices them only when the spiders are disturbed the ground vibration or unturned the stones and they run inside the grass and hide under stones. Gnaphosid spiders occupy a variety of habitat from sea-shore to the high mountains, according to the specific requirements *viz* availability of food, humidity, temperature etc. Most of the gnaphosid spiders are nocturnal. Though the gnaphosid spiders in general do not spin webs, but some are seen to build the small tubular retreats, just under side of the stones bounders where they stayed at day time and some prey is caught on the web, they come outside of the stone hole and caught, kill and suck the insects prey.

Most of gnaphosids are found under stones or bark on in moss. A few like on the leaves of plants which they roll like the clubionids or at the most they spin an irregular retreat at the time of oviposition. Some of the species that live under stones make a silken sac within which they live and in which the egg-sac is made.

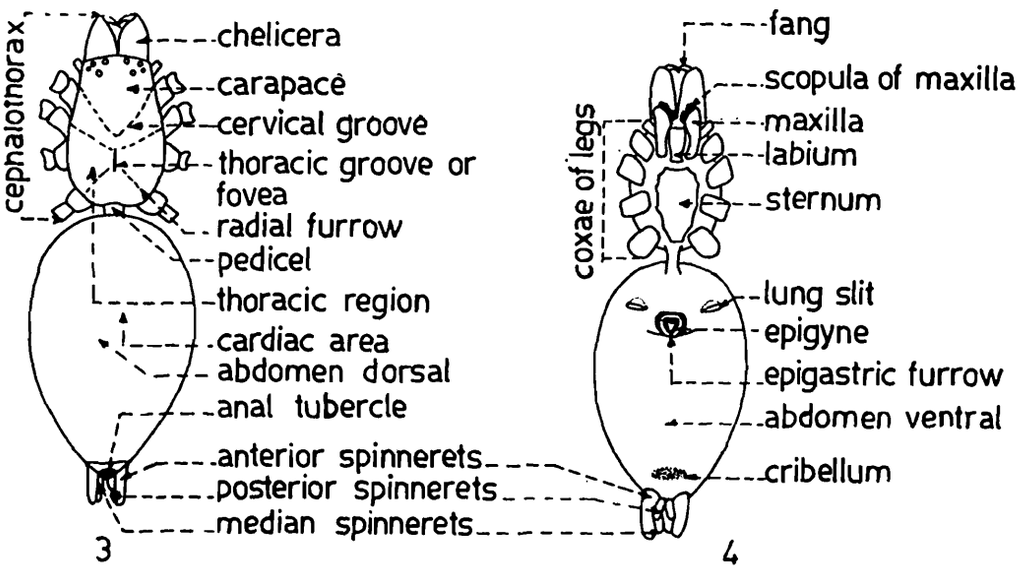
The chief food of gnaphosid spiders are insects. These spiders feed on a variety of insects like Diptera, Small Lepidoptera, Dictyoptera, Hymenoptera, Coleptera, Collembola, Dermaptera, etc. They may even consume the young spiders of their own species as well as of different species showing cannibalism. Usually these spiders feed in the night. Gnaphosids chase their prey, catch and bite them to inject the poison through the fangs and narcotise them. Then they suck the juices of the body of the prey. The chitinised remains of the insects can be seen on the ground or under stones of some gnaphosid species which inhabit there.

The family Gnaphosidae is distributed throughout Indian subcontinent as well as all over the world.

Morphology and General Taxonomic Characters of Spiders

(Figs. 3-16)

The body of the spider is divisible into a distinctive *cephalothorax* and *abdomen,* joined, together by a narrow *pedicel.* The *cephalothorax* is covered dorsally by a hard sclorotic shield, the *carapace*, and ventrally by the sternum as in text-figs. 3 & 4. The anterior margin of sternum articulates movably with the *labium.* With few exceptions there is a deep transverse groove, forming a kind of hinge, between the sternum and the labium. The legs are articulated in the pleural membrane between the lateral edges of the *carapace* and *sternum.* On the cephalic region are present six to eight simple eyes. The eyes are generally



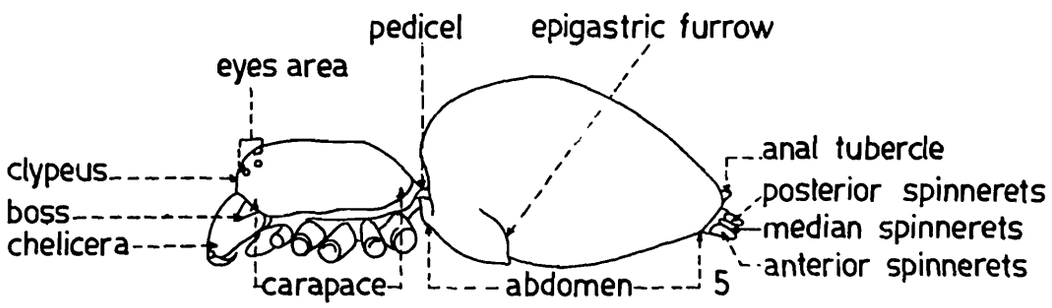


Fig. 3. Dorsal view of a typical spider showing different parts, legs omitted.

Fig. 4. Ventral view of a typical spider showing different parts, legs omitted.

Fig. 5. Lateral view of a typical spider showing different parts, legs omitted.

of two kinds, *viz.*, black or *diurnal* and white or *nocturnal* eyes. When only one type is present, the condition is described as *homogeneous*, in contrast to the *heterogeneous*, when both the types are present. The eyes are usually arranged in a double row, *viz.*, the *anterior row* and the *posterior row*. Each row usually contains four eyes. The eye row is described as *recurved*, when the concavity of the curve is directed backward, and as *procurved* when the concavity is turned forward as in text-fig. 11. According to their position, the eyes are described as the *anterior medians*, the *posterior medians*, the *anterior laterals* and the *posterior laterals*. The cephalic area, occupied by the eyes, is known as *ocular area*. The area margined by the four median eyes is termed *ocular quad*. The area between the anterior row of eyes and the base of chelicerae is the *clypeus*. The space between the anterior median eyes and the margin of clypeus represents the *width of clypeus*. There is often a depression in the middle of the thorax, called thoracic *groove* or *fovea* as in text-fig. 3.

The *chelicerae* are the first pair of appendages of the cephalothorax. Each chelicera bears a curved *fang* at its apex. The inner surface of chelicera may be finely denticulate and may also have a groove, into which the fang can be closed when not in use. This groove may also be armed with tooth on each side; the outer row of these teeth is described as *promargin* and the inner row as *retromargin*. There are sometimes long stout hairs on the promargin to constitute the so-called *fang-scopulae*, as in text-fig. 7.

The pedipalps are the second pair of appendages. The palp proper is composed of six segments, *viz.*, *coxa*, *trochanter*, *femur*, *patella*, *tibia* and *tarsus* as in text-fig. 6. In females the tarsus is simple and may or may not be with a single claw. In mature males the tarsus of palp is modified to carry a more or less complicated copulatory organ. Generally the tibia, sometimes also the patella constitute *apophysis* (which may be of different shapes in different species) which is of important taxonomic value. In many spider the tarsus has a bowl-shaped cavity on its ventral surface and is called *cymbium*. In many groups mature males are provided with an appendage, the *paracymbium*.

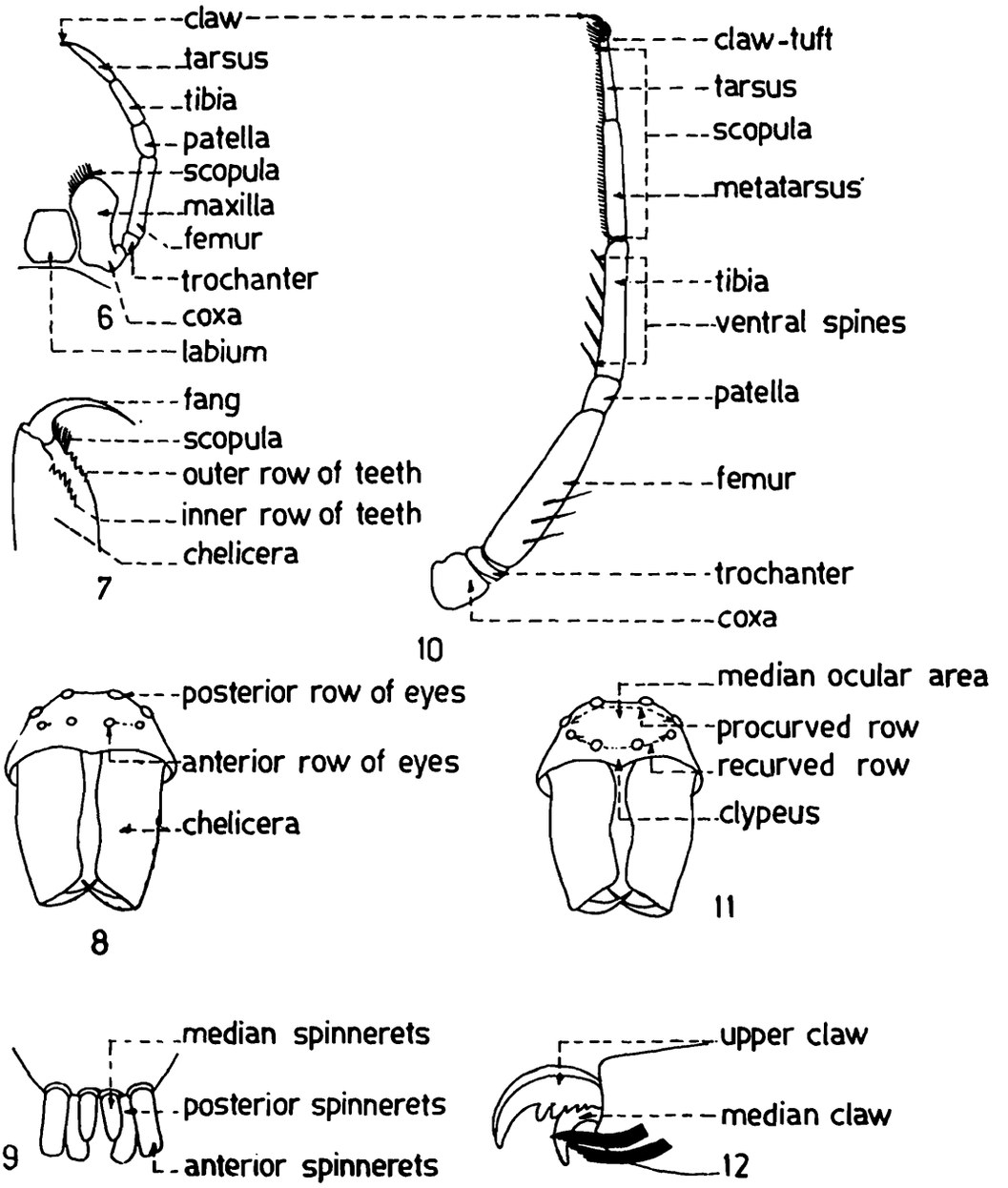


FIG. 6. Labium, maxilla and pedipalp of female showing different parts.

FIG. 7. Inner view of chelicera showing different parts.

FIG. 8. Face, front view of a typical spider showing eyes.

FIG. 9. Ventral view of spinnerets.

FIG. 10. Lateral view of a leg, showing different parts.

FIG. 11. Face, front view of a typical spider.

FIG. 12. Claw showing different parts.

The structure of mature male palp is very important for generic or specific identification of spiders. The complicated palpal organ has many parts, but that is a matter beyond the scope of

this fauna. There are four pairs of legs designated I, II, III and IV respectively. Each leg is composed of seven segments, *viz., coxa, trochanter, femur, patella, tibia, metatarsus* and *tarsus* as in text-fig. 10. The legs are variously clothed with spines, spinules, bristles and hairs of various types. The tarsus ends are provided with two or three claws. A characteristic tuft of hairs called *claw-tuft* is sometimes found just above the claw. In the Gnaphosidae there are dense rows of hairs called *leg-scopulae* below the metatarsi and tarsi as in text-fig. 10. Spines on the dorsal sides of legs are distinguished as *dorsal spines* and those on the ventral side as *ventral spines* as in text-fig. 10.

The abdomen is produced posteriorly into a conical *anal tubercle* and bears three pairs of spinnerets ventrally, *viz.,* the first or the *anterior pair,* the second or the *median* and the third or the *posterior pair* of spinnerets as in text-fig. 9. In a number of families there is present in front of the anterior (ventral) spinnerets a seive-like plate, called the *cribellum.* The special type of silk emitted from this organ is combed by the *calamistrum* borne on metatarsus IV. In many families of spiders which do not possess the cribellum a conical appendage called the *colulus,* lies between the bases of the anterior spinnerets.

The ventral surface of abdomen is provided with one or two pairs of lung-books, followed by one or two paired spiracles. The female genital opening is the *vulva* or *epigyne,* with a transverse fold, known as *epigastric furrow* as in text-fig. 4.

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

Morphology

Some of the cuticular morphological features of the Gnaphosidae, pertinent to the present study, are summarized below. The terminology used in topological, and homologies with other groups of arthropods have not been clearly established. Some new terminology was proposed by Schick (1965). For fuller reference to the terminologies of the male palp and female

genitalia, reference may be made to the excellent works of Comstock (1910) and Gering (1953).

The body of a spider is divisible into a cephalothorax and abdomen joined together by a narrow pedicel.

Cephalothorax

The cephalothorax can be divided into three regions, the clypeus, the disc, and bilateral allata. The clypeus is the area that lies between the cephalic margin of the cephalothorax and the anterior median eyes, terminating laterally near the level of the posterior lateral eyes.

The disc is a broad and elongated median region that extends from the levels of the anterior median eyes to thoracic suture or fovea. The disc can be subdivided into: (1) Prodiscus, the anterior portion lying the ocular area (2) Mesodiscus, the intermediate and the longest portion delineated cephalad by the posterior median eyes, caudad by the metadiscus and laterad by the cervical groove or, when the groove is not developed, by

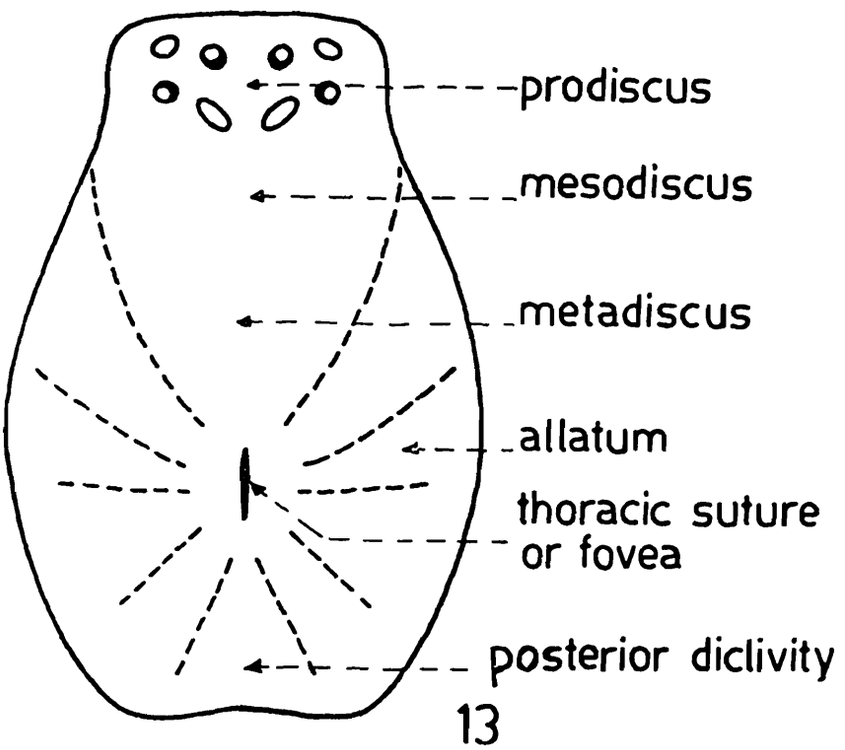


FIG. 13. Cephalothorax of *Drassodes himalayensis* Tikader & Gajbe, dorsal view showing differtnt parts.

a narrow stripe through setae or by difference in coloration of the allatum, and (3) Metadiscus, the posterior portion developed as a usually distinct slightly high portion. The allatum is lateral and caudal to the disc and it may be unpigmented, mottled or have a lateral or mesial pigmented stripe (Fig. 13).

Eyes

Oriental Gnaphosidae have eight eyes, arranged in two transverse rows of four eyes each, an anterior row and a posterior row. The eyes are designated in pairs: anterior median eyes (AME), anterior lateral eyes (ALE), posterior median eyes (PME) and posterior lateral eyes (PLE). When the lateral eyes in a row of eyes are situated posteriorly when compared to the median eyes that row is termed as "recurved" and when the lateral eyes are situated anterior to the median eyes, that row is termed as "procurved"

Male Genitalia

The male genitalia in spiders are usually referred to the palpus or palp which is the intromittent organ. The primary reproductive opening, the gonopore, is situated in the epigastric furrow. The mature male spider spins a small sheet of web upon which it deposits a drop of semen, passed out through the gonopore. The genital bulb, contained in the distal end of the palpus, is a complexly developed but essentially hollow, bulb-like structure. It is placed in contact with the semen, and the fluid passes into the hollow internal part (the receptaculum seminis) to be stored until copulation. At the time of copulation the tip of the genital bulb is inserted into the female genital orifice and the semen is ejected.

The palpus consists of seven segments (coxa, trochanter, femur, patella, tibia, tarsus and pretarsus), but only the three terminal segments (also rarely the fourth, the patella) are modified to take part in copulation. There is a progressive increase in specialization distally in these three or four segments, the pretarsus being the most specialized.

The *cymbium* is the tarsal segment of the palpus specialized for the reception of the genital bulb. There are several structural

modifications of the cymbium for this purpose. The *alveolus* is a ventral depression, which receives the basal and middle divisions of the genital bulb. Although usually described as a cup-like depression, the *alveolus* is actually a ringed depression to the inner margin of which is joined the basal hematodoch (the membranous basal portion of the genital bulb). Generally it is formed as a shallow, membranous, tatacular groove developed peripherally along the distal end usually on the retrolateral margins of the alveolus.

The genital bulb is the terminal segment of the palpus. It is a hollow organ, with external elaborations. The genital bulb is divided into three divisions: (1) Basal division, (2) Middle division, (3) Apical division (after Comstock 1910).

Basal Division: The basal hematodocha is sclerotized basally to form a somewhat triangular sclerite, the petiole, the base of which articulates or is partially fused with the inner margin of

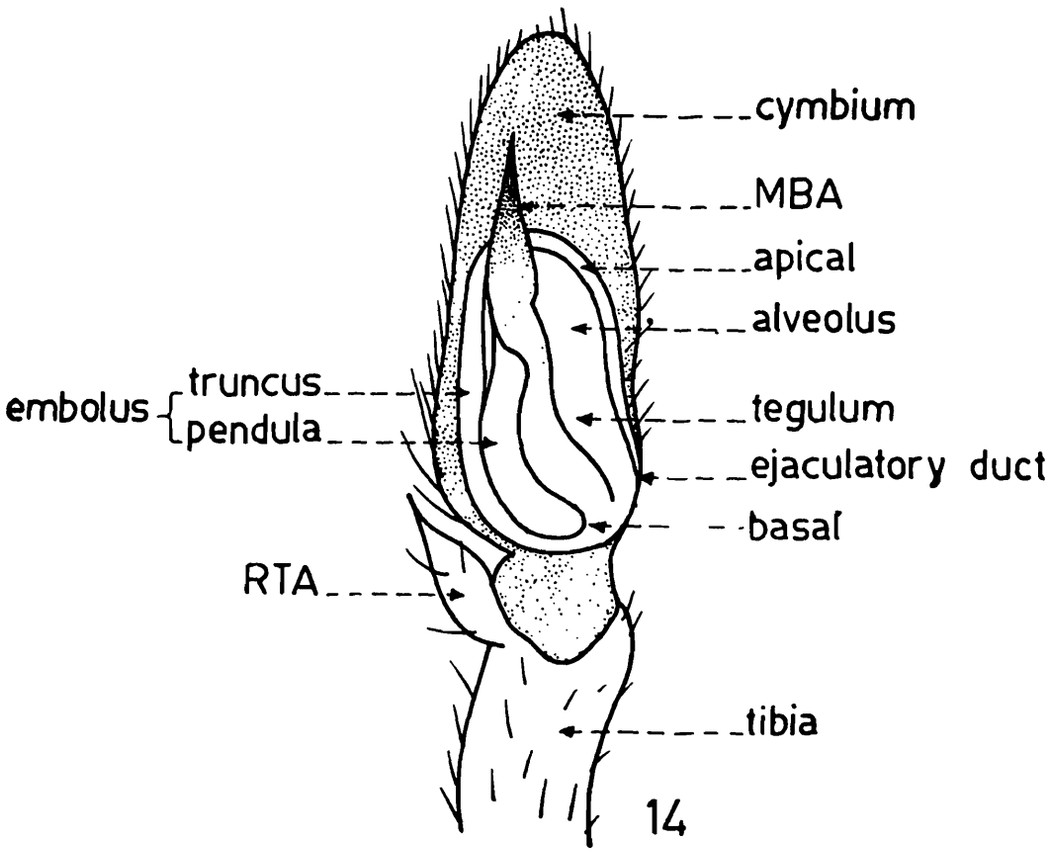


FIG. 14. Male palp of *Drassodes himalayensis* Tikader & Gajbe showing different parts.

the alveolus. The *subtegulum* is a comma-shaped sclerite of which the bulbous apical end articulates with the tegulum.

Middle Division: The tegulum, a discoidal sclerite, is the main portion of the middle division. The tegulum may bear apophysis, a conductor or other structures.

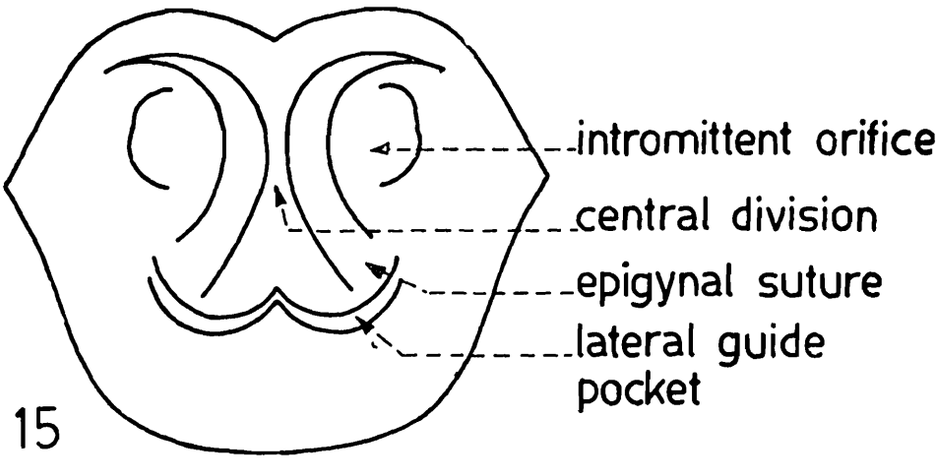
Apical Division: The conductor and the embolic subdivision comprise the apical division of the bulb (Comstock 1910). The conductor is a distal membranous or sclerotized outgrowth of the tegulum which accommodates the apical portion of the embolus. The emoblic sub-division consists of the embolus in the Gnaphosidae. The embolus is the actual intromittent part of the genital bulb (Fig. 14).

Female Genitalia

The term female genitalia refers to both an external epigyne and a pair of longitudinal internal canals which are invaginations of the epigynal integument. The epigyne is a poorly to well-defined, median, sclerotized area developed about the intromittent orifices on the venter of the abdomen cephalad of the epigastric furrow and may bear structures of which some, at least, serve to accommodate the male palpus during copulation. Each internal canal is divided into an anterior receptaculum and a posterior fertilization tube. The anterior end of the internal epigyne opens into the epigynum or epigyne as the intromittent orifice and the posterior end into the vagina (Comstock 1910).

Epigynum or Epigyne: Several types of structures, perhaps, serve as guides for the male palpus. The guide pocket is a concavity overlain by a sclerotized plate, the hood; the guide pocket may be antemedial on the epigyne and unpaired or bilaterally paired. The median septum, if any, is a raised medio-longitudinal structure; cephalad the rim of the septum may curve laterad, forming the arch of the median septum. In some cases a basin like depression, the atrium, is formed in the epigyne, and the surrounding rim may serve as a palpal guide. Often the median septum divides the epigyne into bilateral atria.

The receptaculum is usually sub-divided transversely into a morphologically, anterior intromittent division and a posterior



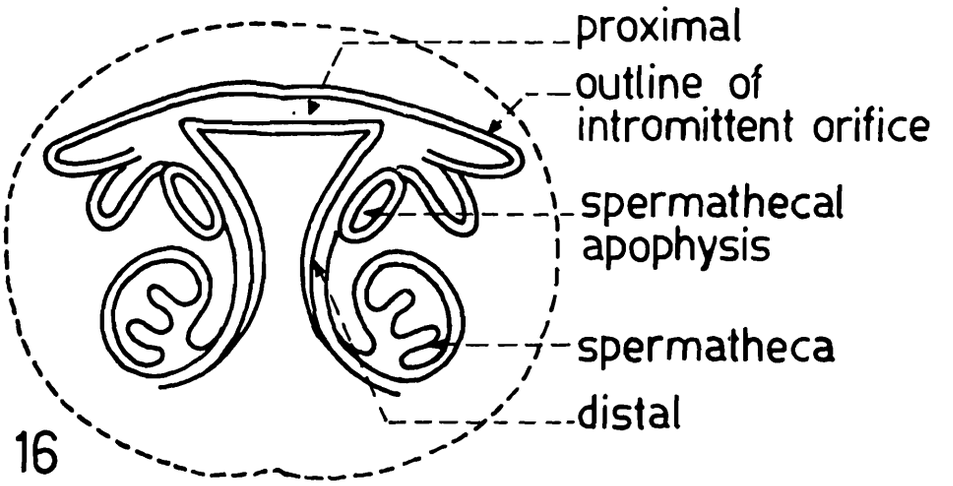


FIG. 15. Epigyne of *Drassodes himalayensis* Tikader & Gajbe showing different parts.

FIG. 16. Internal genitalia of *Drassodes himalayensis* Tikader & Gajbe, showing different parts.

spermatheca. These are functional sub-divisions and may not be homologous in the different groups. In relation to the designation of directions along the axis of the receptaculum the term 'proximal' refers to a direction towards the intromittent orifice, and the term 'distal' to the direction towards the fertilization canal orifice (Figs. 15, 16).

Morphometric Measurements

The measurements were taken by the help of objective micrometer scale using camera lucida (Tube-type). The objective micro-meter which is marked for 1 mm. is placed under bino-

cular at the same height as that of the specimen (1 mm. mark comes in focus only at that height). But in doing this, the adjustment knobs of the binoculars are not moved. Micrometer scale is placed on two plastycene balls and pressed down till it comes in focus. This 1 mm. is noted with the camera lucida on paper, and this scale shows the measurement.

FAMILY : GNAPHOSIDAE

(Gna-phos'i-dae)

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1905. *Drassidae* : Simon, *Annls. Soc. ent Fr.*, 74 : 168-170.
1922. *Gnaphosidae* : Chamberlin, *Proc. biol. Soc. Wash.*, 35 : 145-172.
1934. *Gnaphosidae* : Caporiacco, *Memorie. Soc. ent. ital.*, 13 : 126-142.
1951. *Gnaphosidae* : Locket & Millidge, *British Spiders*, 1 : 95-123.
1962. *Gnaphosidae* : Tikader, *Proc. First All India Congress of Zoology*, (1959) : 570-573.
1973. *Gnaphosidae* : Tikader, *Proc. Indian Acad. Sci.*, 77(5) : 186-189.
1973. *Gnaphosidae* : Ubick & Roth, *Amer. Arachnology*, 9 : 1-12.
1975. *Gnaphosidae* : Platnick & Shadab, *Bull.Am.Mus.nat.Hist.*, 155 : 1-66.
1977. *Gnaphosidae* : Tikader, *Rec. zool. Surv. India*, 72(1-4) : 186-189.

Type-genus: *Gnaphosa* Latreille.

Distribution: All over the world.

Originally the family Gnaphosidae was a part of the family Drassidae. Pocock (1884) proposed to replace Drassidae when *Drassus* was shown to be an objective junior synonym of *Gnaphosa*. The gnaphosidae family formerly known as Drassidae are those spiders which have eight eyes, heterogenous, arranged in two rows. In these spiders the cephalic part is not sharply set off from the thoracic, the cephalothorax is hardly elevated. The chelicerae have a boss and scopula and the margins of the cheliceral fang furrow are oblique and usually armed. The teeth may be considerably reduced in size to minute denticles, or a single denticle, or the inner margin may have a keeled lamina in place of teeth. The labium is longer than broad, with maxillae converging more or less and provided with scopulae. Usually the maxillae have an oblique or transverse depression. The posterior coxae are more or less separated by the sternum. The legs are generally spinose and the tarsi furnished with scopulae, two claws, and claw tufts. Legs formula 4123. The claws are similar

and pectinate in a single row. The abdomen is oval and usually rather flattened and in some males provided with a dorsal scutum on the abdomen. Many species are uniformly coloured, more often dark than light and without markings. Some species have a striking or colourful pattern of lines or spots. The anterior spinnerets are cylindrical, longer and more heavily sclerotized than the posterior and widely separated.

Most gnaphosids are found under stones or bark or in moss. A few live on the leaves of plants which they roll like the clubionids or at the most they spin an irregular retreat at the time of oviposition. Some of the species that live under stones make a silken sac within which they live and in which the egg-sac is made.

Key to the genera of the family **Gnaphosidae**

(Figs. 17-78)

1. Inner margin of cheliceral fang furrow with a keeled lamina.....2

   Inner margin of cheliceral fang furrow smooth, or with one or more distinct teeth or denticles.....4

2. Inner margin of chelicera with a wide serrated lamina (Fig. 59). Posterior row of eyes much longer than the anterior, with the medians nearer to each other than to the laterals (Fig. 17). Maxillae rounded (Fig. 38).....**Gnaphosa**

   Inner margin of chelicera without serrated lamina. Posterior row of eyes slightly longer than the anterior, with the medians nearer to the laterals than to each other. Maxillae not rounded.....3

3. Inner margin of chelicera with two or three translucent laminae (Fig. 60). Posterior median eyes rectangular in shape (Fig. 18). Labium and maxillae (Fig. 39).....**Eilica**

   Inner margin of chelicera with a broad keel or a narrow lamina (Fig. 61). Posterior median eyes oval in shape (Fig. 19). Labium and maxillae (Fig. 40).....**Callilepis**

4. Carapace with no fovea. Anterior spinnerets close to each other. Spiders clothed with squamiform hairs. Labium and maxillae (Fig. 41)..... **Micaria**

   Carapace with a fovea. Anterior spinnerets well apart from each other. Spiders not clothed with squamiform hairs..... 5

5. Chelicera remarkably narrow, bearing no teeth, but provided with an angular projection apically inside (Fig. 63). Labium and maxillae (Fig. 42)..... **Phaeocedus**

   Chelicera remarkably broad, bearing teeth, without any angular projection apically inside..... 6

6. Posterior row of eyes very strongly procurved, as nearly semicircular..... 7

   Posterior row of eyes not strongly procurved..... 8

7. Inner margin of furrow of chelicera with one tooth. Bulb of palpus of male with a stout median apophysis. Labium and maxillae (Fig. 43)..... **Scopodes**

   Inner margin of furrow of chelicera without tooth. Bulb of palpus of male simple, with no true apophysis. Labium and maxillae (Fig. 44)..... **Megamyrmecion**

8. Eyes of posterior row nearly equal in size and equidistant from each other. Labium and maxillae (Fig. 45)..... **Scotophaeus**

   Eyes of posterior row not equal in size and not equidistant from each other..... 9

9. Tibia IV with two or more median dorsal spines..... 10

   Tibia IV with a single median dorsal spine or with none..... 14

10. Posterior median eyes much larger than the posterior laterals and closer to laterals than to each other. Inner margin of chelicera without tooth. Labium and maxillae (Fig. 46)..... **Liodrassus**

    Posterior median eyes not much larger than the posterior laterals and closer to each other than to posterior laterals. Inner margin of chelicera with tooth or teeth..... 11

11. Inner margin of furrow of chelicera with a single tooth. Labium and maxillae (Fig. 47).....**Geodrassus**

Inner margin of furrow of chelicera with two or three teeth.....12

12. Eye rows widely separated ; posterior median eyes much nearer to each other than to the laterals. Labium and maxillae (Fig. 48).....**Drassodes**

Eye rows close together ; posterior median eyes otherwise. Labium and maxillae different.....13

13. Eye rows close together but equidistantly separated with each other ; posterior median eyes well separated, being only a little further from the laterals than from each other. Labium and maxillae (Fig. 49).....**Sosticus**

Eye rows close together but less separated at the lateral sides as the posterior row slightly procurved to the straight anterior row ; posterior median eyes are equidistant to the laterals. Labium and maxillae (Fig. 50).....**Talanites**

FIG. 17. Cephalothorax of the genus *Gnaphosa*, showing shape and position of eyes.

FIG. 18. Cephalothorax of the genus *Eilica*, showing shape and position of eyes.

FIG. 19. Cephalothorax of the genus *Callilepis*, showing shape and position of eyes.

FIG. 20. Cephalothorax of the genus *Micaria*, showing shape and position of eyes.

FIG. 21. Cephalothorax of the genus *Phaeocedus*, showing shape and position of eyes.

FIG. 22. Cephalothorax of the genus *Scopodes*, showing shape and position of eyes.

FIG. 23. Cephalothorax of the genus *Megamyrmecion*, showing shape and position of eyes.

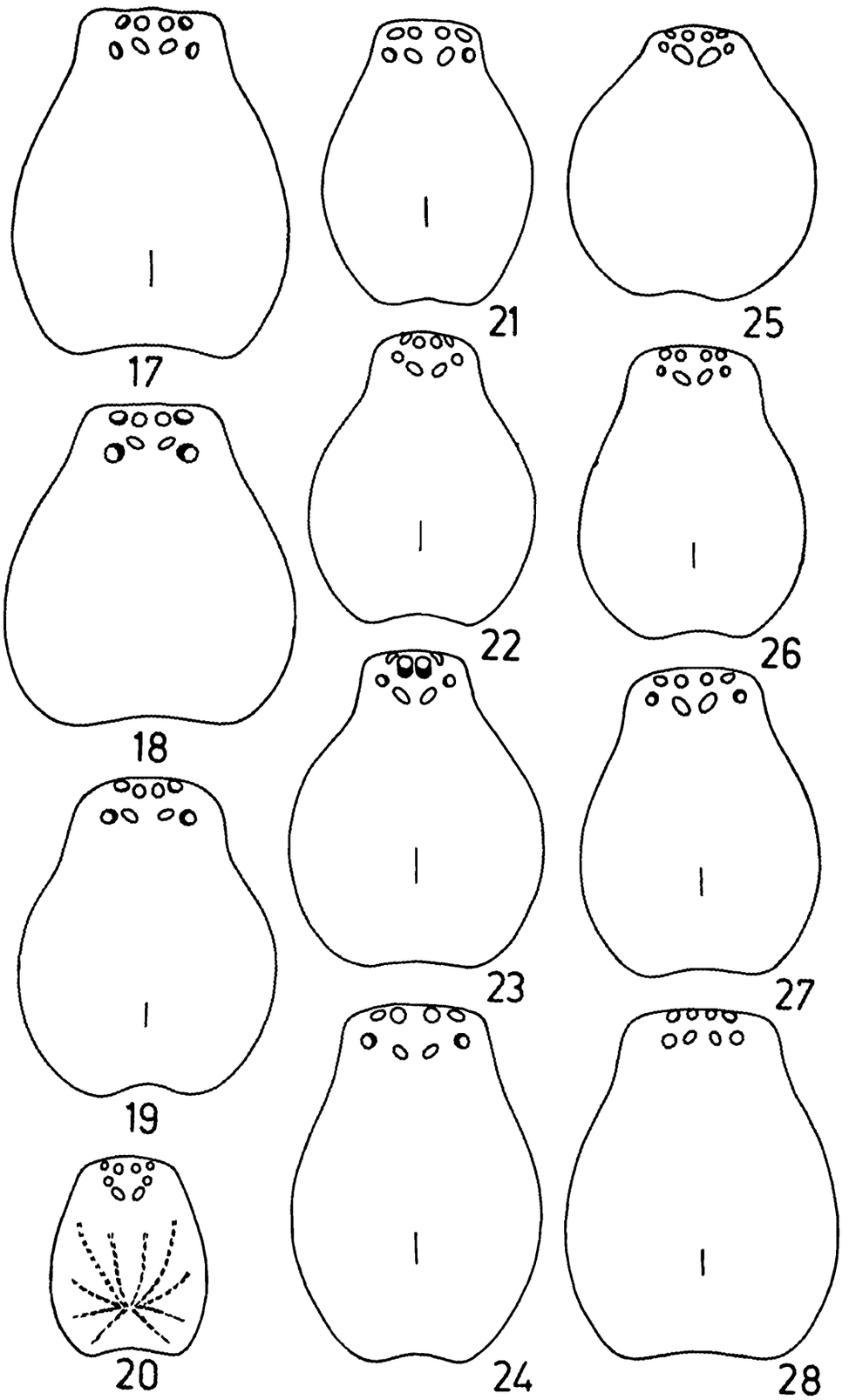
FIG. 24. Cephalothorax of the genus *Scotophaeus*, showing shape and position of eyes.

FIG. 25. Cephalothorax of the genus *Liodrassus*, showing shape and position of eyes.

FIG. 26. Cephalothorax of the genus *Geodrassus*, showing shape and position of eyes.

FIG. 27. Cephalothorax of the genus *Drassodes*, showing shape and position of eyes.

FIG. 28. Cephalothorax of the genus *Sosticus*, showing shape and position of eyes.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14. Upper margin of furrow of chelicera unarmed, or provided with a keel, or with three teeth, rarely more ; the lower margin unarmed or with but a single tooth, bulb of male palpus with no apophyses, at most with one or several small teeth near base of embolus.....15

Upper margin of furrow of chelicera with three to six distinct teeth, the lower margin provided with two or three, or rarely with only one ; bulb of male palpus with one or more apophyses.....18

15. Posterior row of eyes more or less recurved.....16

Posterior row of eyes more or less procurved, or sometimes straight.....17

16. Tibia III with a median dorsal spine ; carapace without distinct median furrow. Labium and maxillae (Fig. 51).....**Sergiolus**

Tibia III with no median dorsal spine ; carapace with a distinct median furrow. Labium and maxillae (Fig. 52).....**Poecilochroa**

17. Lower margin of furrow chelicera smooth without any tooth ; anterior median eyes usually obviously smaller than the laterals. Posterior median eyes slightly larger than the laterals. Labium and maxillae (Fig. 53).....**Nodocion**

FIG. 29. Cephalothorax of the genus *Talanites*, showing shape and position of eyes.

FIG. 30. Cephalothorax of the genus *Sergiolus*, showing shape and position of eyes.

FIG. 31. Cephalothorax of the genus *Poecilochroa*, showing shape and position of eyes.

FIG. 32. Cephalothorax of the genus *Nodocion*, showing shape and position of eyes.

FIG. 33. Cephalothorax of the genus *Herpyllus*, showing shape and position of eyes.

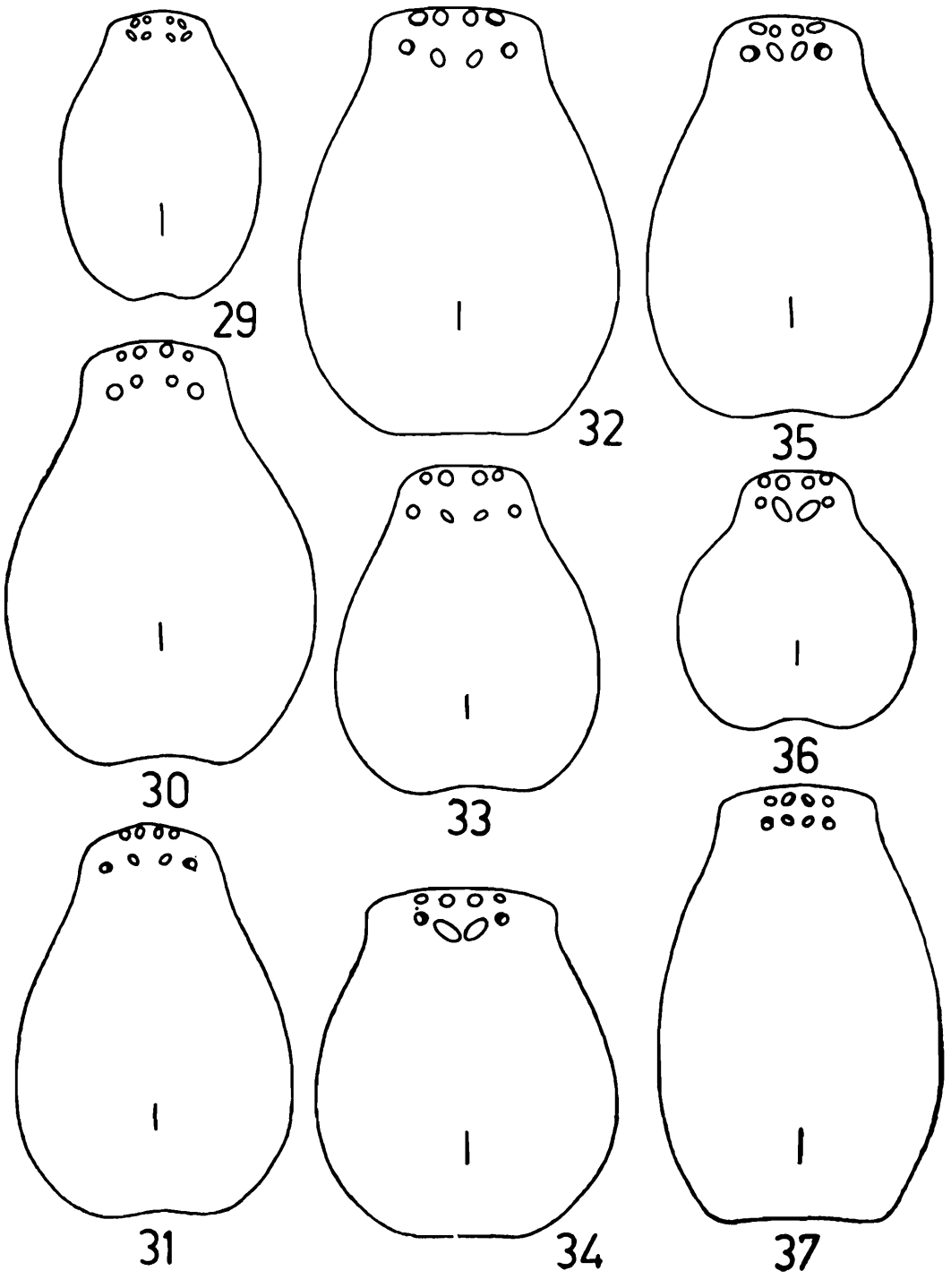
FIG. 34. Cephalothorax of the genus *Haplodrassus*, showing shape and position of eyes.

FIG. 35. Cephalothorax of the genus *Zelotes*, showing shape and position of eyes.

FIG. 36. Cephalothorax of the genus *Drassyllus*, showing shape and position of eyes.

FIG. 37. Cephalothorax of the genus *Scotophinus*, showing shape and position of eyes.

Lower margin of furrow of chelicera with one tooth or nodule ; anterior median eyes usually as larger as or larger than the laterals. Posterior median eyes always well separated from each other and smaller than or at most as large as the laterals. Labium and maxillae (Fig. 54).....**Herpyllus**



18. Upper margin of furrow of chelicera with three teeth, the lower margin provided with two, all well developed. Posterior median eyes large and oblique, typically close together but well separated from the laterals. Labium and maxillae (Fig. 55).....**Haplodrassus**

Upper margin of furrow of chelicera provided with four to six teeth, the lower margin provided with two to three small teeth or nodules, or rarely the upper margin armed with only three weak teeth and the lower margin with only one. Posterior medians are different. Labium and maxillae otherwise.....19

19. Posterior row of eyes straight or slightly procurved; the eyes are equidistant; the medians are small or slightly larger than the laterals. Labium and maxillae (Fig. 56).....**Zelotes**

Posterior row of eyes otherwise; the eyes are differently arranged; the median eyes are otherwise. Labium and maxillae different.....20

20. Posterior row of eyes procurved; posterior medians are very close with each other; Posterior medians larger than the posterior laterals. Labium and maxillae (Fig. 57).....**Drassyllus**

FIG. 38. Labium and maxillae of the genus *Gnaphosa*, showing shape and position.

FIG. 39. Labium and maxillae of the genus *Eilica*, showing shape and position.

FIG. 40. Labium and maxillae of the genus *Callilepis*, showing shape and position.

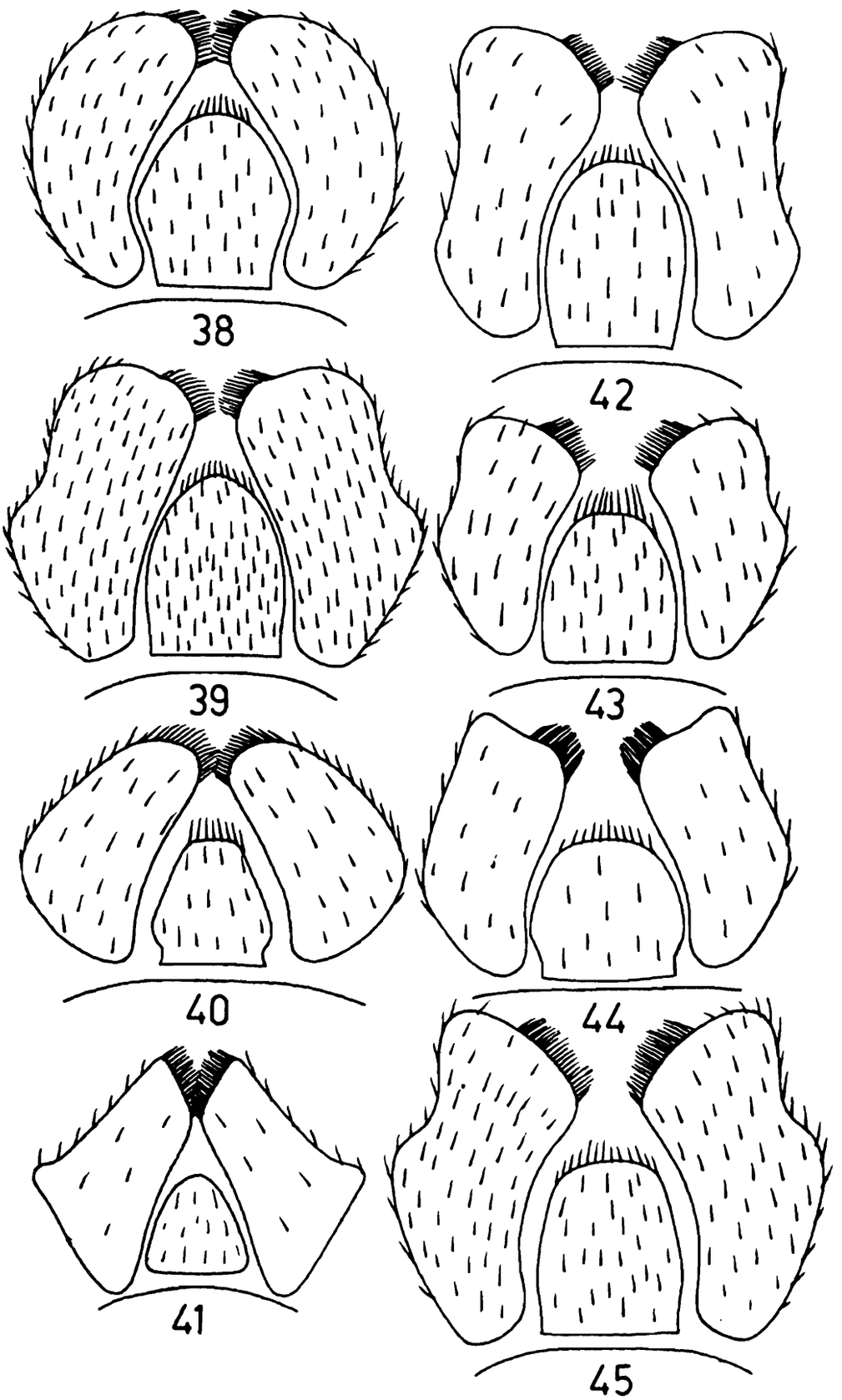
FIG. 41. Labium and maxillae of the genus *Micaria*, showing shape and position.

FIG. 42. Labium and maxillae of the genus *Phaeocedus*, showing shape and position.

FIG. 43. Labium and maxillae of the genus *Scopodes*, showing shape and position.

FIG. 44. Labium and maxillae of the genus *Megamyrmecion*, shape and position.

FIG. 45. Labium and maxillae of the genus *Scotophaeus*, showing shape and position.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Posterior row of eyes slightly recurved; posterior medians considerably separated from each other; Posterior medians slightly smaller than the posterior laterals. Labium and maxillae (Fig. 58).....**Scotophinus**

FIG. 46. Labium and maxillae of the genus *Liodrassus*, showing shape and position.

FIG. 47. Labium and maxillae of the genus *Geodrassus*, showing shape and position.

FIG. 48. Labium and maxillae of the genus *Drassodes*, showing shape and position.

FIG. 49. Labium and maxillae of the genus *Sosticus*, showing shape and position.

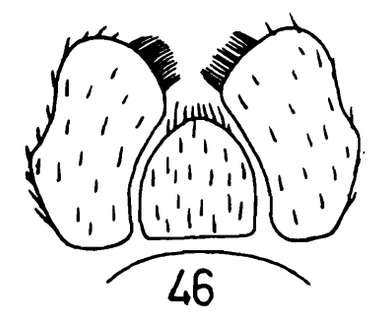
FIG. 50. Labium and maxillae of the genus *Talanites*, showing shape and position.

FIG. 51. Labium and maxillae of the genus *Sergiolus*, showing shape and position.

FIG. 52. Labium and maxillae of the genus *Poecilochroa*, showing shape and position.

FIG. 53. Labium and maxillae of the genus *Nodocion*, showing shape and position.

FIG. 54. Labium and maxillae of the genus *Herpyllus*, showing shape and position.



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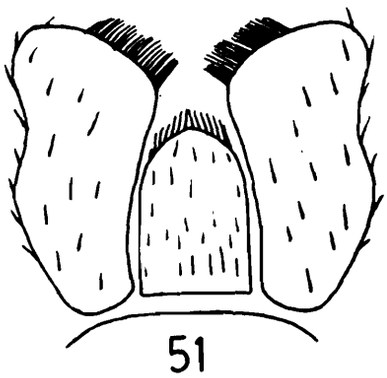

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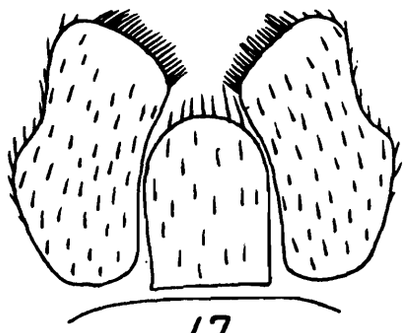

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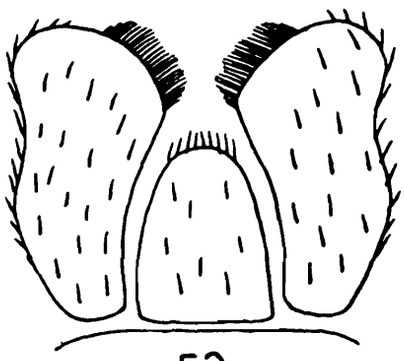

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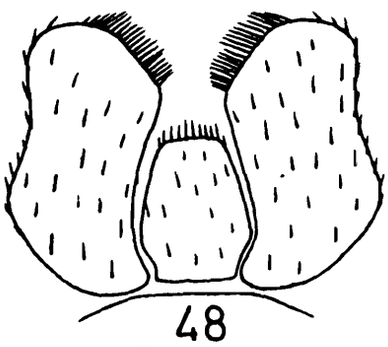

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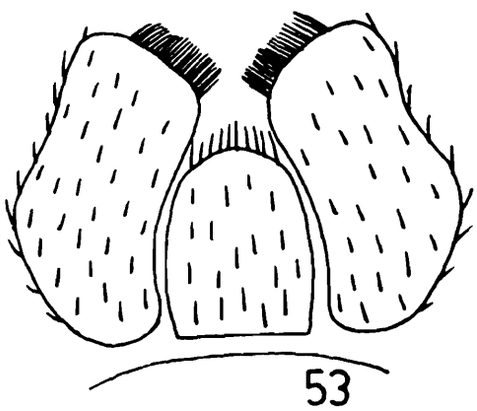

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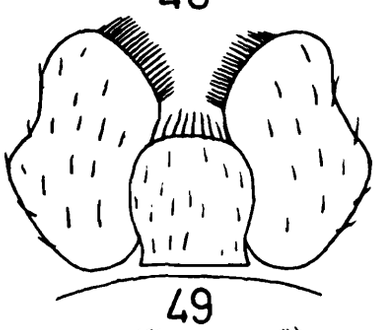

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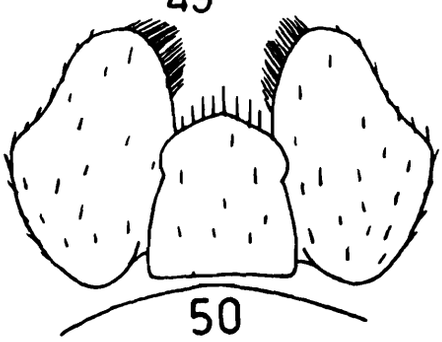

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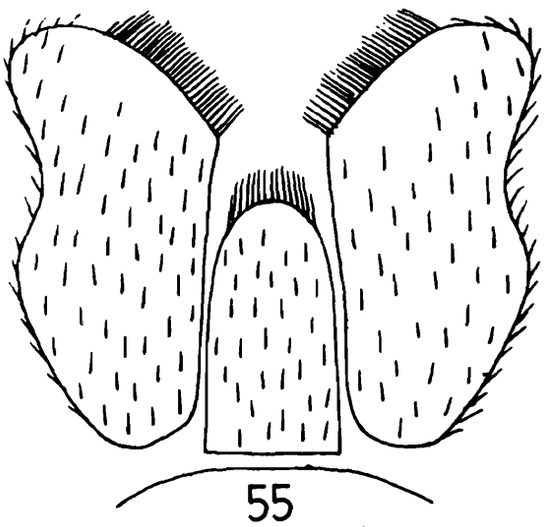

FIG. 55. Labium and maxillae of the genus *Haplodrassus*, showing shape and position.

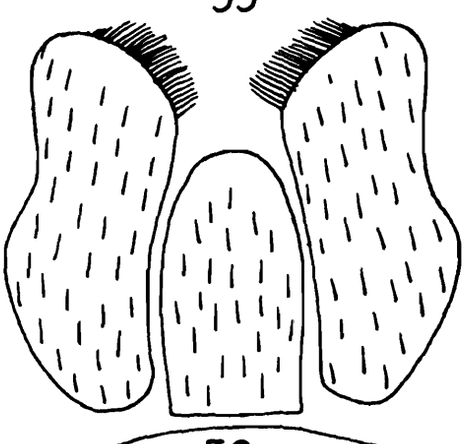

FIG. 56. Labium and maxillae of the genus *Zelotes*, showing shape and position.

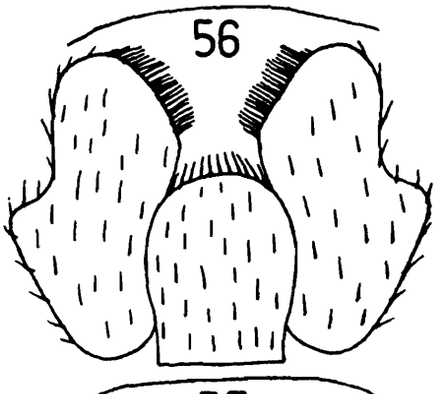

FIG. 57. Labium and maxillae of the genus *Drassyllus*, showing s hape and position.

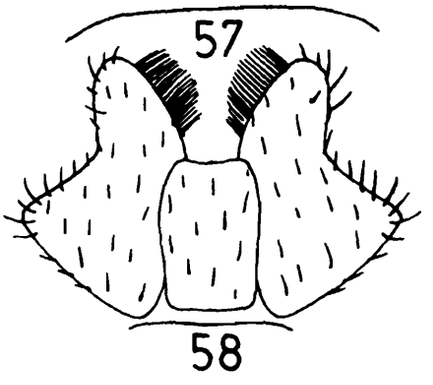

FIG. 58. Labium and maxillae of the genus *Scotophinus*, showing shape and position.

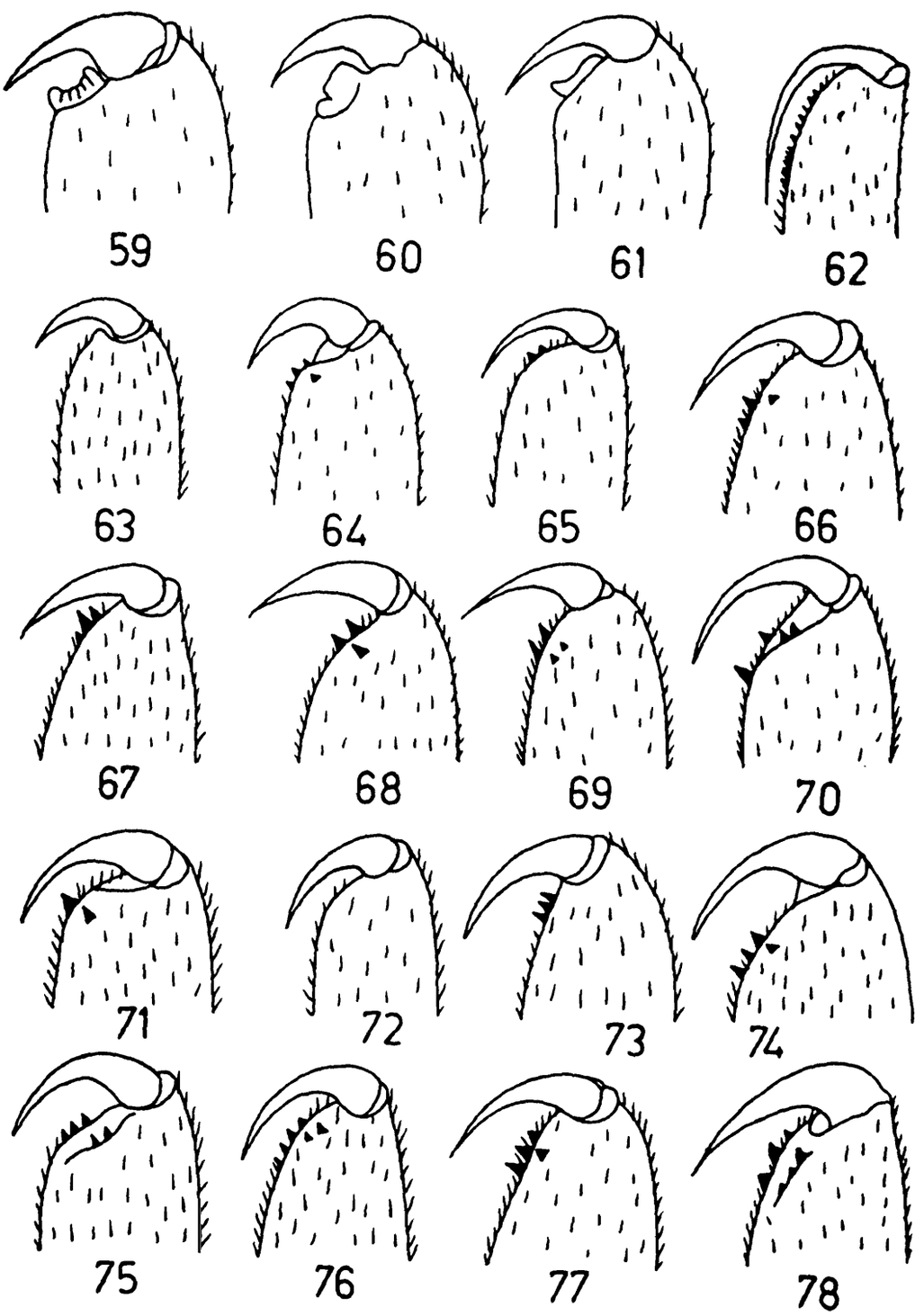
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FIG. 59. Chelicera of the genus *Gnaphosa*, showing shape and position of teeth.

FIG. 60. Chelicera of the genus *Eilica*, showing shape and position of teeth.

FIG. 61. Chelicera of the genus *Callilepis*, showing shape and position of teeth.

FIG. 62. Chelicera of the genus *Micaria*, showing shape and position of teeth.

FIG. 63. Chelicera of the genus *Phaeocedus*, showing shape and position of teeth.

FIG. 64. Chelicera of the genus *Scopodes*, showing shape and position of teeth.

FIG. 65. Chelicera of the genus *Megamyrmecion*, showing shape and position of teeth.

FIG. 66. Chelicera of the genus *Scotophaeus*, showing shape and position of teeth.

FIG. 67. Chelicera of the genus *Liodrassus*, showing shape and position of teeth.

FIG. 68. Chelicera of the genus *Geodrassus*, showing shape and position of teeth.

FIG. 69. Chelicera of the genus *Drassodes*, showing shape and position of teeth.

FIG. 70. Chelicera of the genus *Sosticus*, showing shape and position of teeth.

FIG. 71. Chelicera of the genus *Sergiolus*, showing shape and position of teeth.

FIG. 72. Chelicera of the genus *Poecilochroa*, showing shape and position of teeth.

FIG. 73. Chelicera of the genus *Nodocion*, showing shape and position of teeth.

FIG. 74. Chelicera of the genus *Herpyllus*, showing shape and position of teeth.

FIG. 75. Chelicera of the genus *Haplodrassus*, showing shape and position of teeth.

FIG. 76. Chelicera of the genus *Zelotes*, showing shape and position of teeth.

FIG. 77. Chelicera of the genus *Drassyllus*, showing shape and position of teeth.

FIG. 78. Chelicera of the genus *Scotophinus*, showing shape and position of teeth.

Genus 1. **Gnaphosa** Latreille

1804. *Gnaphosa* Latreille, *Nouv. Dict. Hist. Nat.*, 24 : 134.
1868. *Gnaphosa* : Thorell, *Ofve. Kgl. Veten. Akad. Forh.*, 25 : 379.
1933. *Cylphosa* : Chamberlin, *Am. Mus. Novit.*, 631 : 7.
1948. *Gnaphosa* : Kaston, *Bull. Conn. St. geol. nat. Hist. Surv.*, 70 : 1-87.
1934. *Gnaphosa* : Caporiacco, *Memorie. Soc. ent. ital.*, 13 : 139.
1966. *Gnaphosa* : Tikader, *Rec. Indian Mus.*, 59(4) : 439.
1975. *Gnaphosa* : Platnick & Shadab, *Bull. Am. Mus. nat. Hist.*, 155 : 1-66.

Characters: Cepahlothorax nearly oval and broader in front, not attenuated. Pattern of widening streaks diverging from short fovea. Anterior row of eyes procurved (as seen from in front) occupying one-third to one-half width of head. Posterior row considerably longer than anterior row and rather strongly recurved, medians irregular in outline, larger than laterals and farther from each other. Sternum oval, pointed behind. Chelicerae not very strong, vertical, bearing numerous long bristles which form a scopula on inner part of apical surface. Inner margin provided with a prominent chitinous ridge, whose edge is concave and serrated. Outer margin with two teeth. Maxillae and labium shorter than that of *Drassodes*. Legs uniform in colour as carapace. Tibiae I and II with one to two ventral spines; metatarsi I and II with two to four ventral spines. Abdomen black or deep brown, with generally six faint marks or impressions dorsally. Male palp with a strong single tibial apophysis.

Type-species: *Gnaphosa lucifuga* (Walckenaer).

Distribution: EUROPE, ASIA, AFRICA AND AMERICA.

Key to species of the genus **Gnaphosa** Latreille

1. Dorsum of abdomen provided with white patches.....2
   Dorsum of abdomen not provided with any white patch.....4

2. Dorsum of abdomen provided with a dagger shaped white patch at the anterior end upto the middle (Fig. 79) ; abdomen having with tufts of hairs (Fig. 79) ; labium very small, nearly one third the length of maxillae (Fig. 81).....*kailana*

Dorsum of abdomen provided with white patches otherwise ; abdomen not having tufts of hairs ; labium more than half the length of maxillae.....3

3. Dorsum of abdomen provided with chevrons like white patches at the posterior end (Fig. 83) ; carapace having with tufts of hairs (Fig. 83) ; anterior pair of spinnerets provided with three conspicuous spigots (Fig. 87).....*poonaensis*

Dorsum of abdomen provided with many white spots all over (Fig. 90) ; carapace not having with tufts of hairs (Fig. 90) ; anterior pair of spinnerets provided with four conspicuous spigots (Fig. 95).....*pauriensis*

4. Carapace without any V-shaped dark coloured marking (Fig. 96) ; labium pale brown in colour, provided with a depression at the distal end.....*harpax*

Carapace with V-shaped dark markings ; labium otherwise.....5

5. Posterior row of eyes slightly recurved (Fig. 99) ; abdomen elliptical in shape (Fig. 99) ; labium not touching the maxillae (Fig. 100).....*jodhpurensis*

Posterior row of eyes strongly recurved (Fig. 105) ; abdomen pear shaped, narrow anteriorly (Fig. 105) ; labium touching the maxillae (Fig. 107).....*stoliczkae*

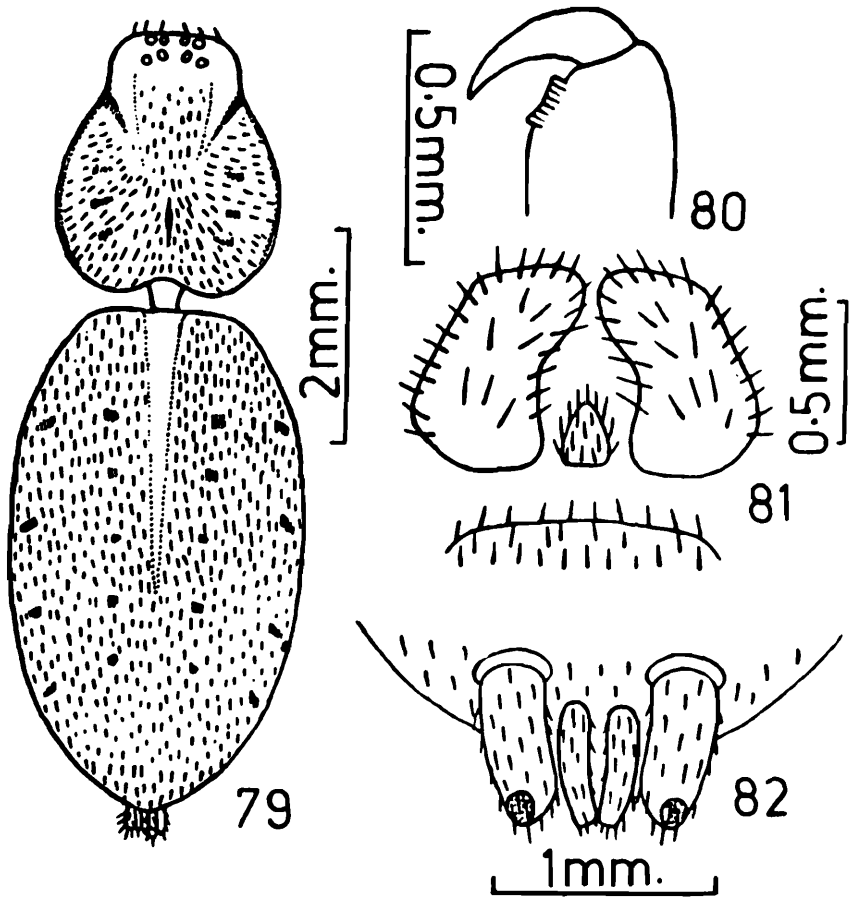
1. **Gnaphosa kailana** Tikader

(Figs. 79-82)

1966. *Gnaphosa kailana* Tikader, *Rec. Indian Mus.*, 59(4) : 438.

General: Cephalothorax brown, legs and clypeus lighter than cephalothorax; abdomen dirty white. Total length 8.30 mm. Carapace 2.90 mm. long, 2.20 mm. wide; abdomen 5.30 mm. long, 3.30 mm. wide.

Cephalothorax: Heart-shaped, relatively broad in front, convex with a fovea, clothed with spine-like hairs and a brown narrow



FIGS. 79-82. *Gnaphosa kailana* Tikader
79. Dorsal view of female, legs omitted.
80. Right chelicera.
81. Labium and maxillae.
82. Spinnerets.

line encircling almost the entire border of cephalothorax, the tufts of dark brownish hairs, three on each side. Eyes viewed from front—anterior row of eyes slightly procurved, anterior median eyes slightly smaller and darker than the anterior laterals; the posterior row recurved and longer than the anterior row, posterior medians white with irregular outline, slightly larger than the laterals and further away from each other than from laterals. Clypeus narrow, margin bearing spines, directed forward. Sternum oval, pointed behind, densely clothed with spiny hairs. Labium and maxillae as in text-fig. 81. Inner margin of chelicera provided with a keel-like as in text-fig. 80. Legs long, stout, with spiny-hairs and strong spines interspersed; I and IV legs longer than others, tibia I with two pairs of ventral spines and

a single spine in between the former, metatarsi I and II with two pairs of ventral spines. Scopulae extend upto the base of metatarsi I and II.

Abdomen: Elliptical, covered with hairs, a dagger-shaped line more white than the ground colour of abdomen, this line extends from the base of the anterior mid-dorsal to the middle of abdomen; several irregular tufts of dark brown hairs on the middle of abdomen. Ventral surface uniform less white than dorsal side, clothed with hairs. Spinnerets as in text-fig. 82.

Type-locality: Kailana desert afforestation, *ca.* eleven km. West of Jodhpur, Rajasthan, INDIA. *Holotype* female, *paratype* two females in spirit, deposited in Z. S. I., Calcutta. Regd. No. 2491/18.

Distribution: INDIA: Rajasthan, Punjab.

Remarks: Description and illustrations based on *holotype* female.

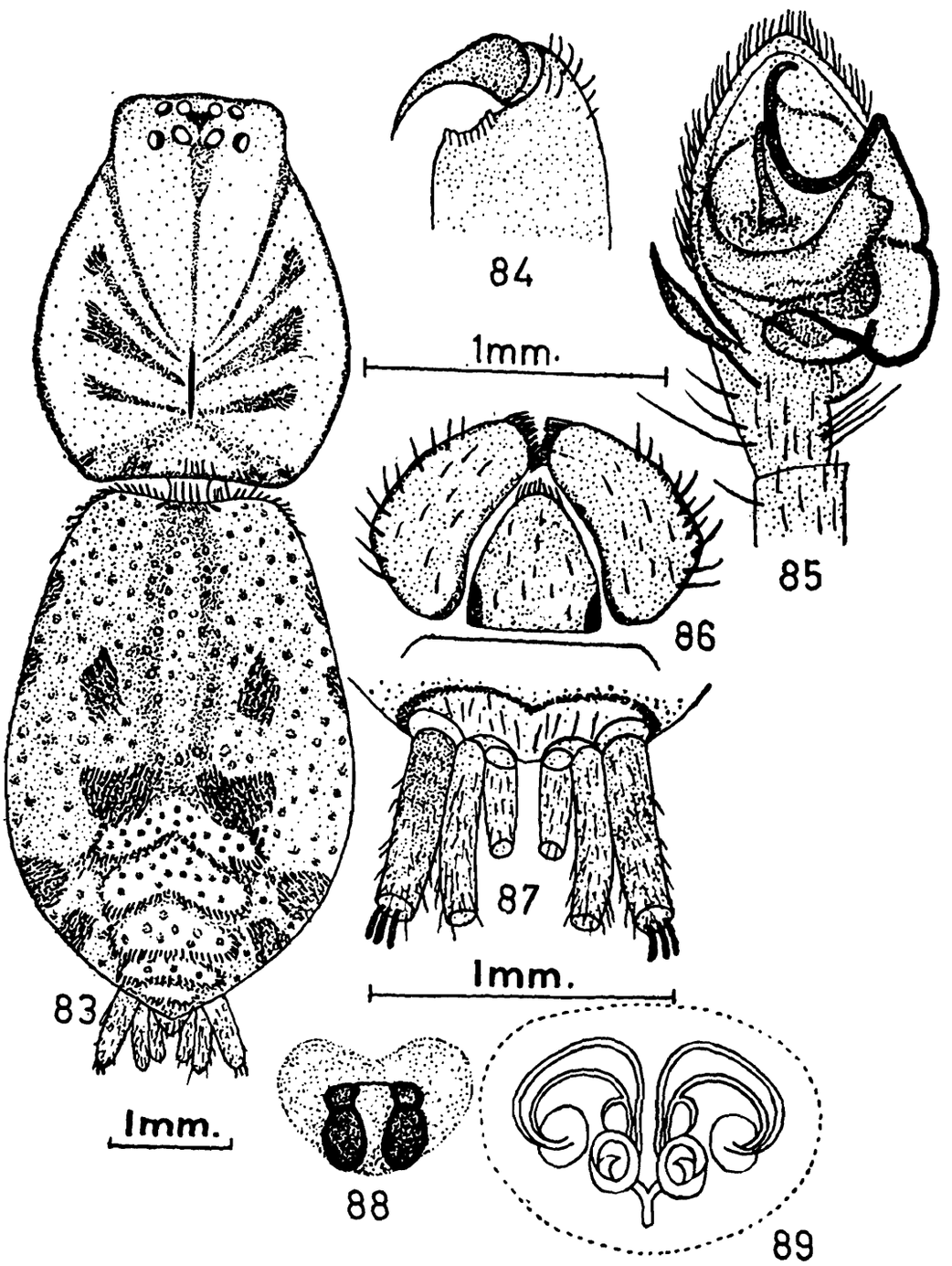
2. **Gnaphosa poonaensis** Tikader

(Figs. 83-89)

1973. *Gnaphosa poonaensis* Tikader, *Proc. Indian Acad. Sci.*, 77(5) : 188.

General: Cephalothorax and legs reddish-green, abdomen brownish-green. Total length 7.80 mm. Carapace 3.20 mm. long, 2.60 mm. wide; abdomen 4.40 mm. long, 2.80 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, slightly convex, posterior middle provided with a conspicuous fovea, clothed with fine hairs and a deep brown narrow line encircling almost the entire border of cephalothorax, the tufts of dark brownish hairs on the cephalothorax as in text-fig. 83. Eyes pearly white except the anterior median. Anterior row of eyes slightly procurved (as seen from in front); medians more or less equal in size to laterals and slightly closer to laterals than to each other. Posterior row of eyes slightly recurved and slightly longer than the anterior row of eyes. Posterior median eyes conspicuously silvery white in colour, oval, slightly larger



FIGS. 83-89. *Gnaphosa poonaensis* Tikader

83. Dorsal view of male, legs omitted.
84. Left chelicera.
85. Right palp of male, ventral view.
86. Labi ım and maxillae.
87. Spinnerets.
88. Epigyne.
89. Internal genitalia.

than the laterals and closer to laterals than to each other. Sternum heart-shaped, pointed behind, clothed with hairs. Labium and maxillae as in text-fig. 86. Chelicerae vertical, strong, inner margin provided with chitinous ridge as in text-fig. 84. Legs relatively long, stout, clothed with hairs and some spines. Legs formula 4132. Male same in colour as female but slightly smaller than the female, male palp as in text-fig. 85.

Abdomen: Nearly elliptical, clothed with brown hairs and posterior half of abdomen provided with a whitish chevrons as in text-fig. 83. Ventral side lighter than the dorsal. Epigyne as in text-fig. 88. Spinnerets very prominent, anterior spinnerets cylindrical, longer than others and provided with three spigots as in text-fig. 87.

Type-locality: Mukundnagar colony, Poona, Maharashtra, INDIA. *Holotype* male in spirit, deposited at Z.S.I., Calcutta. Regd. No. 4986/18.

Distribution: INDIA: Maharashtra, Poona; Rajasthan, Jodhpur; Uttar Pradesh, Saharanpur; Himachal Pradesh, Kulu.

Remarks: Description and illustrations are based on *Holotype* male. The epigyne have been drawn from a female specimen collected afterwards. Female and male specimens were collected from Poona and colour illustration of male and female are given on the front page.

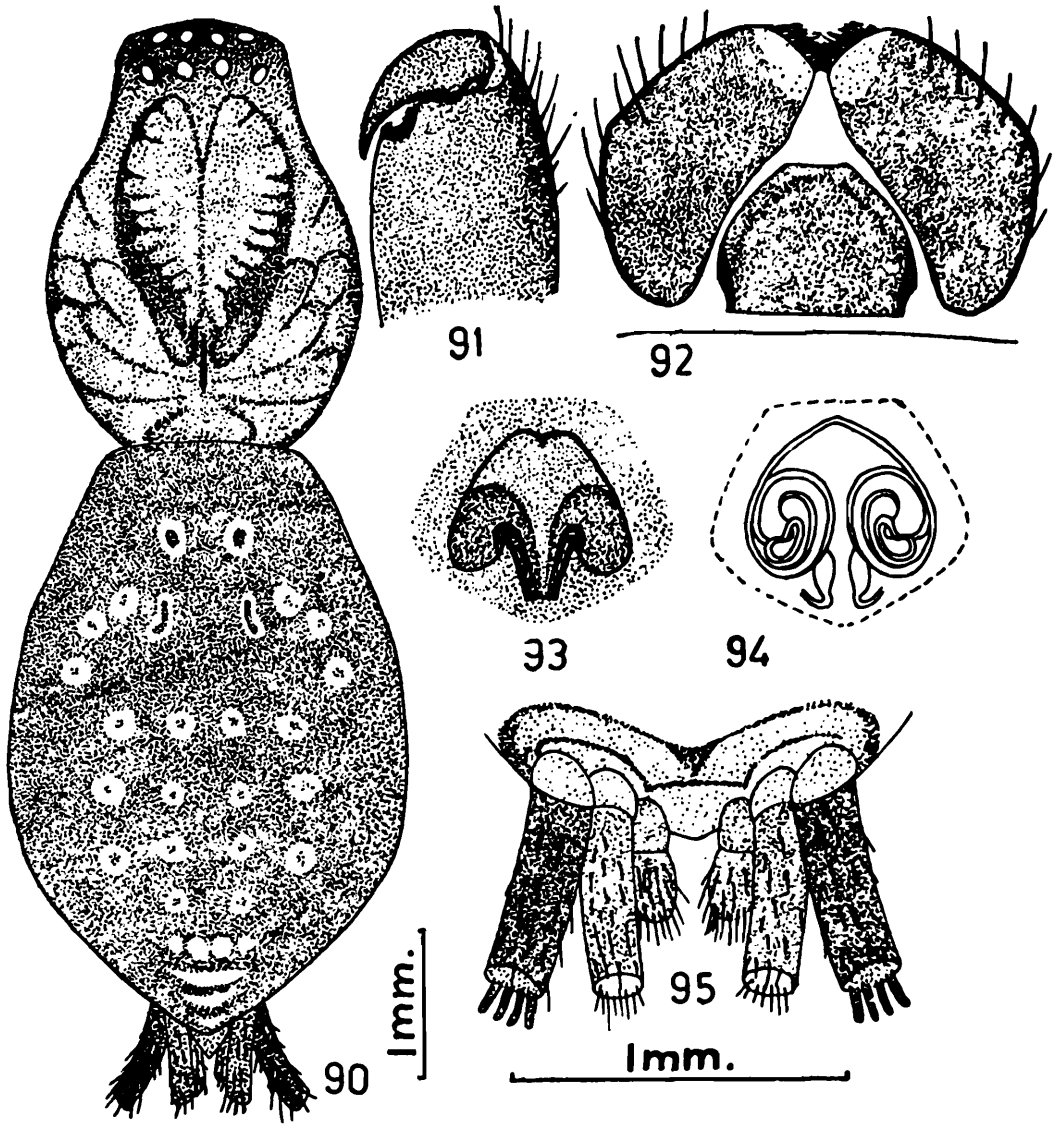
3. **Gnaphosa pauriensis** Tikader & Gajbe

(Figs. 90-95)

1977. *Gnaphosa pauriensis* Tikader & Gajbe, *Rec. zool. Surv. India*, **73** (1-4) : 44.

General: Cephalothorax and legs deep brown; abdomen brownish black. Total length 7.00 mm. Carapace 3.00 mm. long, 2.10 mm. wide; abdomen 4.20 mm. long, 2.60 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, slightly convex, posterior middle provided with a conspicuous fovea with a V-shaped conspicuous brown marking starting from fovea,



FIGS. 90-95. *Gnaphosa pauriensis* Tikader & Gajbe
80. Dorsal view of female, legs omitted.
91. Left chelicera.
92. Labium and maxillae
93. Epigyne.
94. Internal genitalia.
95. Spinnerets.

clothed with fine hairs. Anterior row of eyes slightly procurved (as seen from in front); medians more or less equal in size to laterals and slightly closer to laterals than to each other. Posterior row of eyes slightly recurved and longer than anterior row of eyes. Posterior median eyes conspicuously silvery white in colour, oval, larger than the laterals and slightly close to each other than to the adjacent laterals. Sternum heart-shaped, pointed

behind, clothed with hairs. Labium and maxillae as in text-fig. 92. Chelicera vertical, not strong, inner margin provided with chitinous ridge as in text-fig. 91. Legs relatively long, stout, clothed with hairs and spines. Legs formula 4123.

Abdomen: Nearly elliptical, clothed with hairs and provided with some rounded chalk-white spots as in text-fig. 90. Ventral side lighter than the dorsal. Epigyne as in text-fig. 93 and interal genitalia as in text-fig. 94. Spinnerets very prominent, anterior spinnerets cylidrical, slightly longer and darker in colour than other as in text-fig. 95.

Type-locality: Bhagwan Shrinagar, Dist. Pauri, U.P., INDIA. *Holotype* female, *paratype* five females in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 4987-8/18.

Remarks: Description and illustrations are based on *Holotype* female.

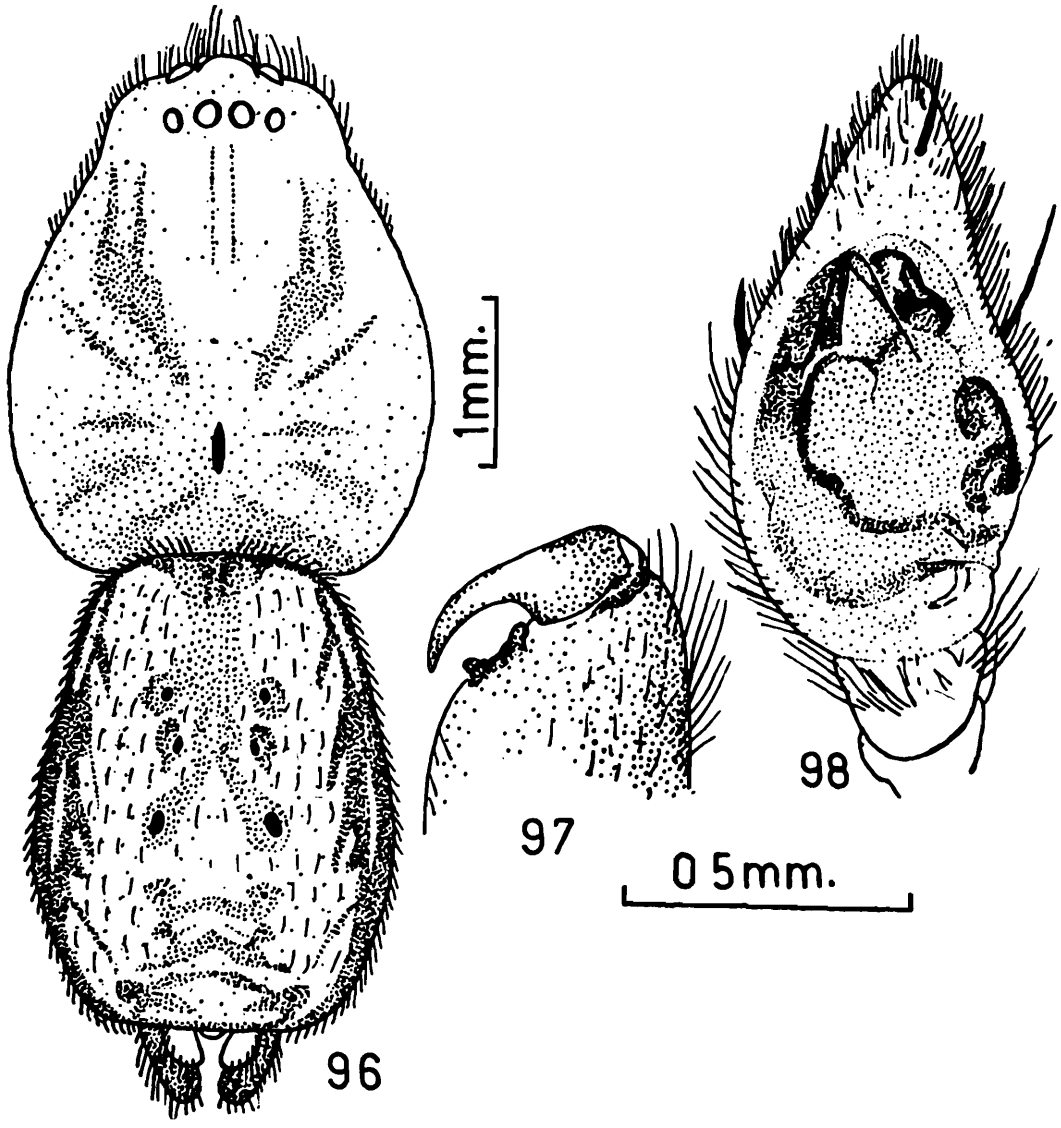
4. **Gnaphosa harpax** O. P. Cambridge

(Figs. 96-98)

1874. *Gnaphosa harpax* O. P. Cambridge, *Proc. zool. Soc. Lond.*, : 371.
1921. *Nomisia harpax* : Dalmas, *Annls. Soc. eat. Fr.*, **89** : 295.
1954. *Nomisia harpax* : Roewar, *Katalog dar Araneae*, Abt.a, : 374.

General: Cephalothorax brownish, legs yellowish brown, abdomen yellowish. Total length 5.80 mm. Carapace 3.15 mm. long, 2.55 mm. wide; abdomen 2.80 mm. long, 2.10 mm. wide.

Cephalothorax: Longer than wide, blunt in front, clothed with pubescence and hairs; cephalic region scarcely higher than thoracic region; thoracic region having with a fine and distinct longitudinal furrow as in text-fig. 96, eyes pearly white except the milky white posterior medians; anterior median eyes smallest and smaller than posterior medians; lateral eyes equal in size; anterior row of eyes procurved as seen from in front, and posterior row slightly recurved as seen from above as in text-fig. 96. Ocular quad slightly wider behind than in front and much longer than wide as in text-fig. 96. Sternum heart-shaped, narrowing posteriorly, pale in colour, clothed with hairs. Maxillae kidney



FIGS. 96-98. *Gnaphosa harpax* O. P. Cambridge
96. Dorsal view of male, legs omitted.
97. Left chelicera.
98. Male pedipalp, ventral view.

shaped, slightly narrower distally pale brown in colour with white distal ends. Labium longer than wide, pale brown in colour, distal end with a small depression. Chelicerae weak, light brown in colour, without any boss. Legs long and moderately strong, ventral side thickly clothed with hairs. Male palp as in text-fig. 98.

Abdomen: Barrel shaped, clothed with hairs, six pairs of sigilla on the dorsum as in text-fig. 96; lateral side with some dark patches. Ventral side pale, one pair of longitudinal dark

lines in between epigastric furrow and spinnerets. Anterior pair of spinnerets largest, middle pair smallest and hidden below the posterior pair as seen from above.

Type-locality: Bombay, Maharashtra, INDIA. *Holotype* male, in spirit, deposited in the collection of Oxford Museum, Oxford, Regd. No. (Bottle No. 249, tube No. 144).

Distribution: INDIA: Bombay, Maharashtra.

Remarks: Description and illustrations have been made on the basis of one male type specimen which is deposited in the University of Oxford, Oxford (Bottle No. 249, Tube No. 144).

5. **Gnaphosa jodhpurensis** Tikader & Gajbe

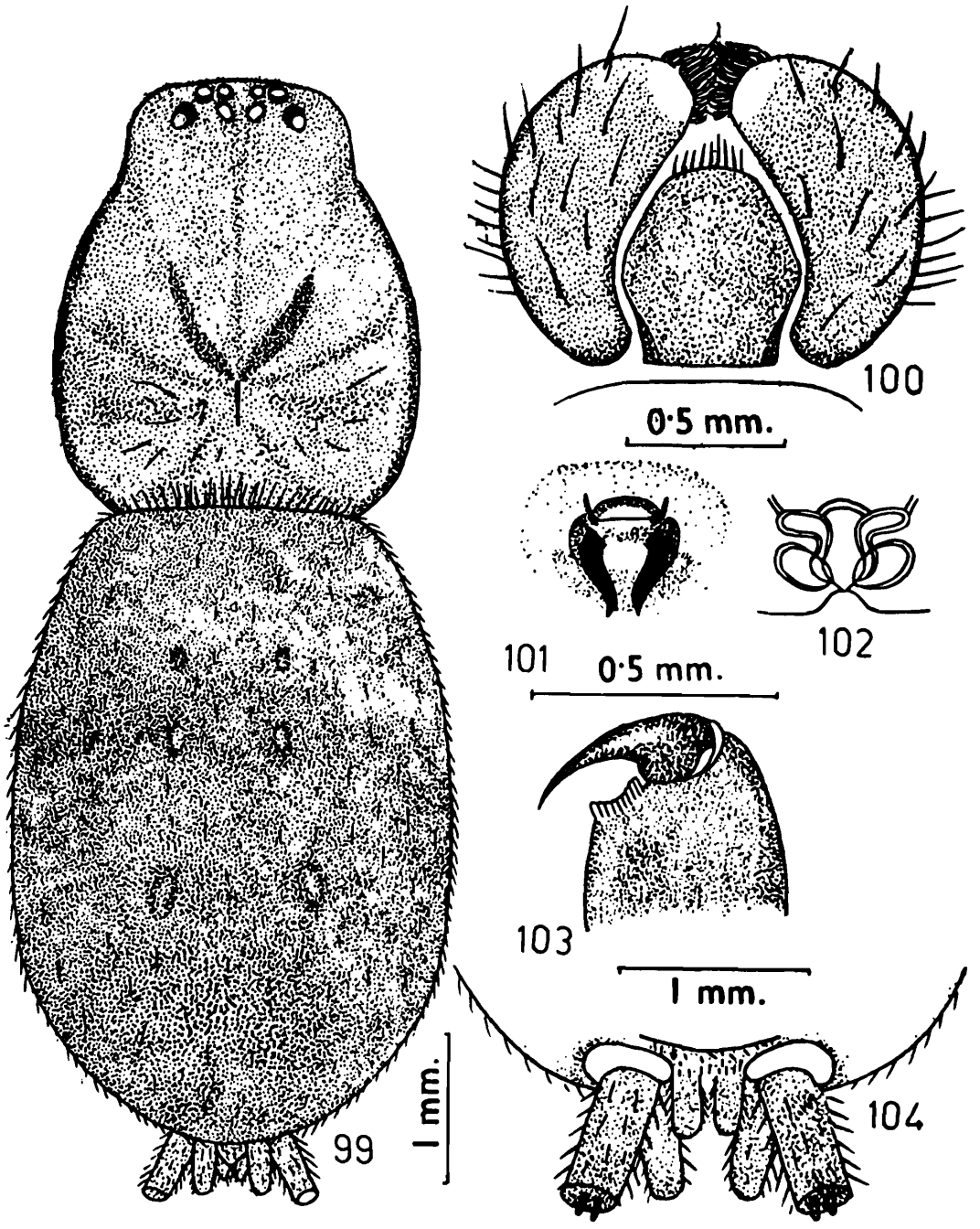
(Figs. 99-104)

1977. *Gnaphosa jodhpurensis* Tikader & Gajbe, *Rec. zool. Surv. India*, **73**(1-4) : 45.

General: Cephalothorax and legs brownish green, abdomen brown. Total length 8.50 mm. Carapace 3.50 mm. long, 3.00 mm. wide; abdomen 5.10 mm. long, 3.20 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, slightly convex, posterior middle provided with a conspicuous fovea and V-shaped brown patch starting from fovea; clothed with fine hairs as in text-fig. 99. Anterior row of eyes slightly procurved (as seen from in front); medians smaller than laterals and little closer to laterals than to each other. Posterior row of eyes slightly recurved and longer than the anterior row of eyes. Posterior median eyes conspicuously silvery white in colour, oval, larger than the laterals and close to each other than to the adjacent laterals. Sternum heart-shaped, pointed behind, clothed with fine hairs. Labium and maxillae as in text-fig. 100. Chelicerae vertical, not strong, inner margin provided with a chitinous ridge as in text-fig. 103. Legs relatively long, stout, clothed with hairs and spines. Legs formula 4123.

Abdomen: Nearly elliptical, clothed with hairs. Ventral side lighter than the dorsal. Epigyne as in text-fig. 101 and internal



FIGS. 99-104. *Gnaphosa jodhpurensis* Tikader & Gajbe
99. Dorsal view of female, legs omitted.
100. Labium and maxillae.
101. Epigyne.
102. Internal genitalia.
103. Left chelicera.
104. Spinnerets.

genitalia as in text-fig. 102. Spinnerets very prominent, anterior spinnerets cylindrical, slightly longer and dark in colour than others as in text-fig. 104.

Type-locality: Sardar Samand, Dist. Jodhpur, Rajasthan, INDIA. *Holotype* female, *paratype* one female in spirit, deposited in the Z.S.I., Calcutta, Regd. No. 4989/18, 4990/18.

Distribution: Known only from type-locality.

Remaks: Description and illustrations are based on *Holotype* female.

6. **Gnaphosa stoliczkae** O. P. Cambridge

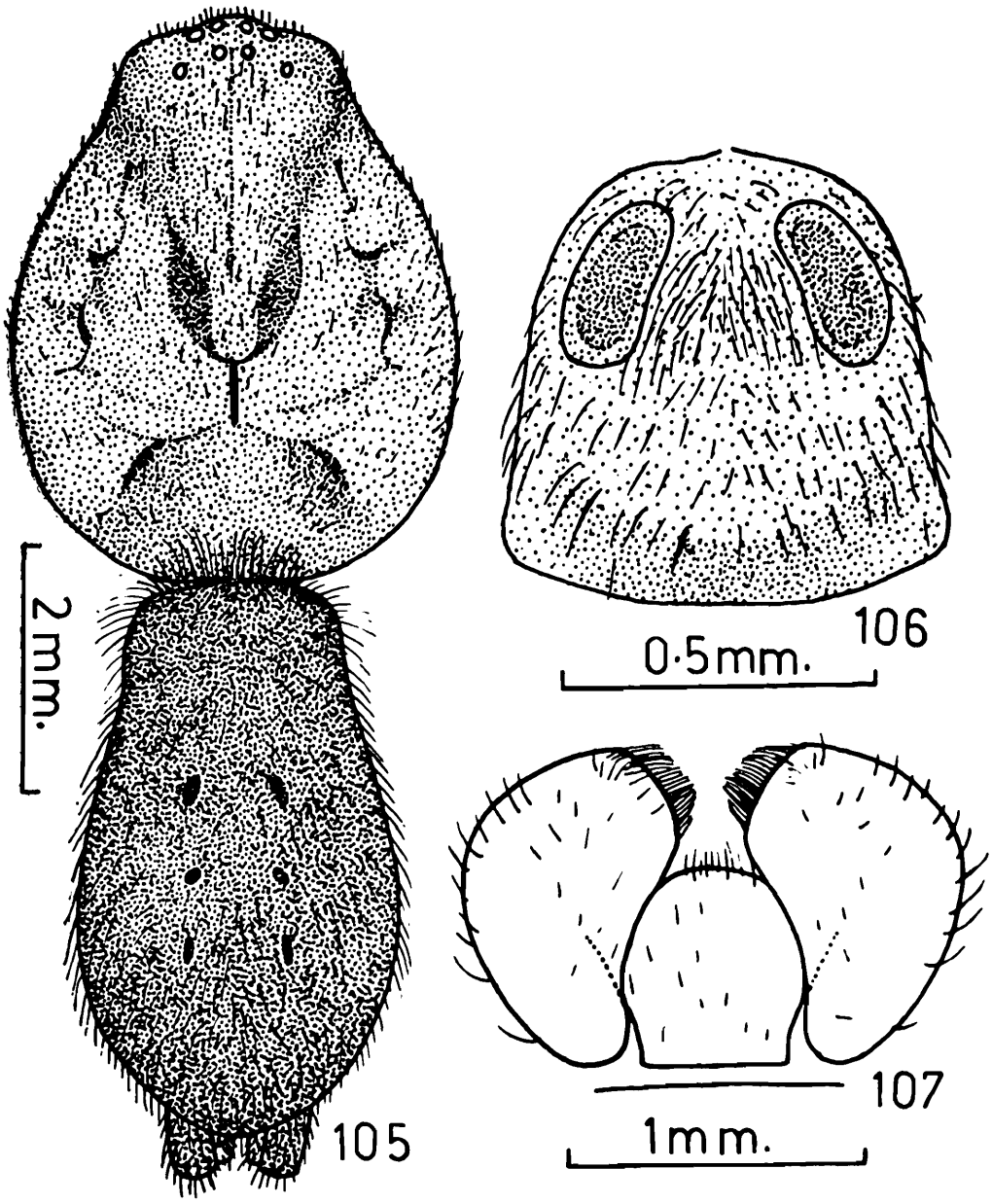
(Figs. 105-107)

1885. *Gnaphosa stoliczkae* O. P. Cambridge, *Sci. Res. Soc. Yarkan Miss. Aran.*, : 16.
1936. *Gnaphosa stoliczkae* : Schenkel, *Ark. Zool.*, 29(A, 1) : 259.

General: Cephalothorax reddish brown, legs brownish with light reddish shades, abdomen olive greenish. Total length 10.40 mm. Carapace 4.75 mm. long, 3.85 mm. wide; abdomen 4.70 mm. long, 2.70 mm. wide.

Cephalothorax: Longer than wide, clothed with pubescence and hairs; thoracic region roundish, provided with a fine longitudinal fovea; cephalic region with a 'V' shaped dark coloured patch at the posterior end but in front of thoracic fovea as in text-fig. 105. Both the median eyes pearly white; others light yellowish; posterior medians slightly larger than anterior medians; lateral subequal in size; anterior row of eyes slightly procurved as seen from in front and posterior row strongly recurved as seen from above as in text-fig. 105. Ocular quad longer than wide as in text-fig. 105. Sternum oval with tapering posteriorly, clothed with hairs and pubescence, reddish in colour. Maxillae bean shaped, distal ends covering, distal ends provided with distinct scopulae, reddish in colour. Labium longer than wide, reddish brown in colour. Legs long and strong, clothed with hairs and spines.

Abdomen: Longer than wide as in text-fig. 105, clothed with large hairs, olive greenish in colour; provided with three pairs of sigilla on the dorsum as in text-fig. 105; anterior end clothed with very long curved stout hairs as in text-fig. 105. Ventral



FIGS. 105-107. *Gnaphosa stoliczkae* O. P. Cambridge
105. Dorsal view of female, legs omitted.
106. Epigyne.
107. Labium and maxillae.

side with light coloured in between epigastric furrow and spinnerets. Epigyne simple and plate-like as in text-fig. 106. Since the abdomen was highly dried it was not possible to study the internal genitalia of the type specimen.

Type-locality: Bombay, Maharashtra, INDIA. *Holotype* male in spirit, deposited in the Collection of Oxford Museum, Oxford. Regd. No. (Bottle No. 249, the tube No. 144).

Distribution: INDIA: Kashmir, Baltistan. AFGHANISTAN: Pamir. Turkey.

Remarks: Description and illustrations have been made on the basis of female type specimen, deposited in the Museo Zoologico Della Specola, Italia (Regd. No. is not mentioned).

Genus 2. **Eilica** Keyserling

1891. *Eilica* Keyserling, *Dic. Spinn. Amer.*, **3** : 29.
1954. *Eilica* : Roewer, *Ketalog der Araneae, Brussels*, **2** : 421.
1956. *Eilica* : Bonnet, *Bibliographia araneorum, Toulouse*, **2**(3): 1649.
1975. *Eilica* : Platnick, *Am. Mus. Novit.*, **2578** : 1-19.
1976. *Eilica* : Tikader & Gajbe, *Bull. Brit. Arach. Soc.*, **3**(9) : 252.

Characters: Carapace oval, cephalic region not elevated. Anterior row of eyes slightly procurved, posterior row of eyes recurved. Posterior median eyes irregularly rectangular, other eyes circular. Median ocular quadrangle wider behind than in front. Clypeus height equal to diameter of anterior median eyes. Chelicerae each with two or three translucent laminae on inner margin produced anteriorly in front of carapace. Maxillae long, strongly convergent; anterior edge with lateral keel. Abdomen light brown to black, longer than wide, with shiny scutum in males.

Type-species: *Eilica modesta* Keyserling.

Distribution: SOUTH-EASTERN BRAZIL, NORTH-EASTERN ARGENTINA AND URUGUAY, SOUTH AMERICA; INDIA.

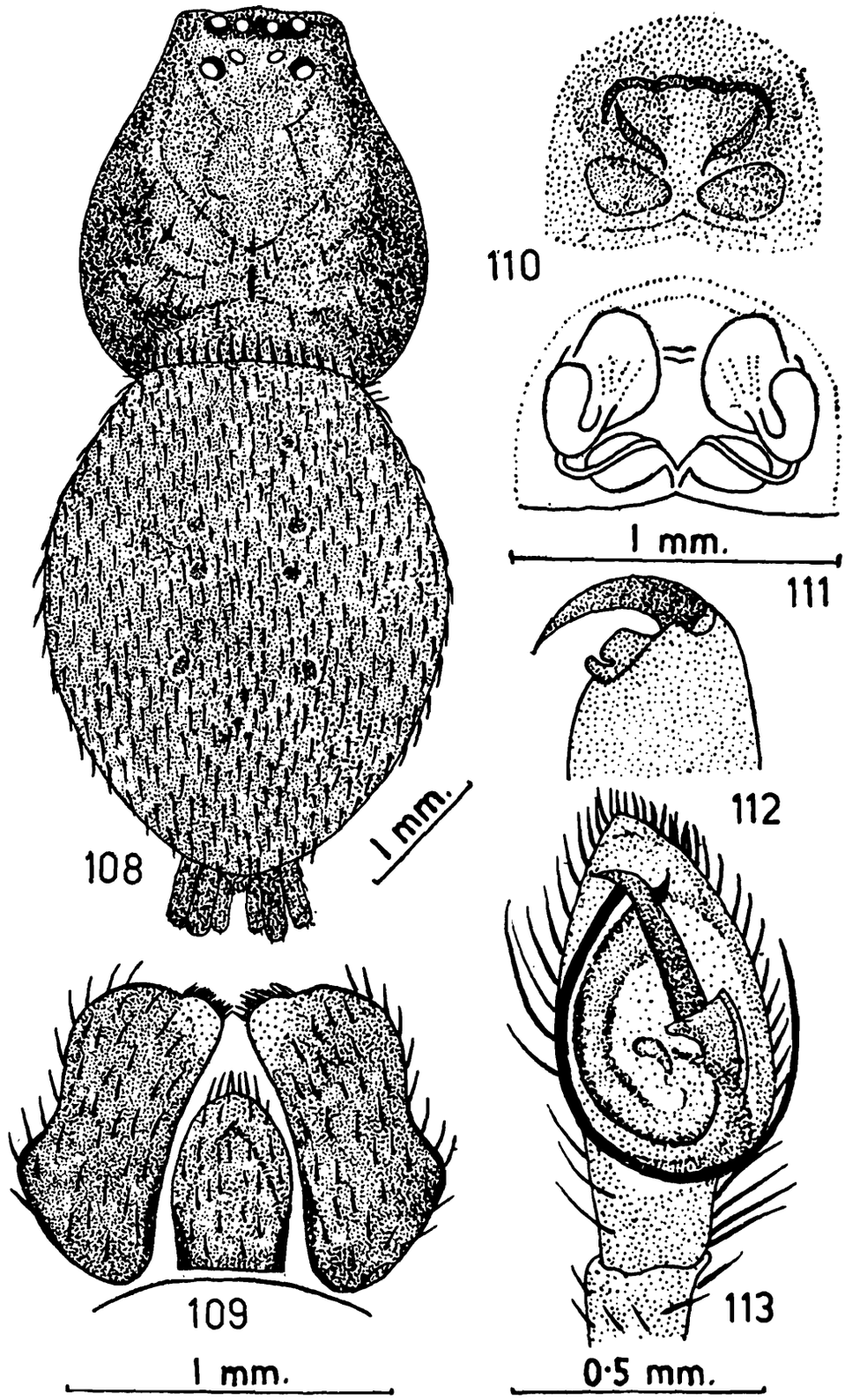
7. **Eilica tikaderi** Platnick

(Figs. 108-113)

1975. *Eilica tikaderi* Plantick, *Bull. Brit. Arach. Soc.*, **3**(7) : 189.

General: Cephalothorax dark brown with black reticulations; legs light brown with femora darkest; abdomen uniformly dark grey. Total length 6.40 mm. Carapace 3.80 mm. long, 2.50 mm. wide; abdomen 3.90 mm. long, 3.00 mm. wide.

Cephalothorax: Longer than wide, oval, narrowing in front,



FIGS. 108-113. *Eilica tikaderi* Platnick
108. Dorsal view of female, legs omitted.
109. Labium and maxillae.
110. Epigyne.
111. Internal genitalia.
112. Left chelicera.
113. Right male palp, ventral view.

flattered, posterior middle provided with a conspicuous short fovea, clothed with hairs. Eyes pearly white except the anterior medians; posterior row of eyes longer than the anterior row. Anterior row of eyes slightly procurved (as seen from in front), circular, medians slightly smaller than the adjacent laterals and little closer to laterals than to each other. Posterior row of eyes slightly recurved, medians rectangular, smaller than the adjacent circular lateral eyes and little closer to adjacent laterals than to each other. Median ocular area longer than wide and wider behind than in front. Clypeus height is equal to diameter of the anterior median eyes. Chelicerae each with two translucent laminae which are contigulous, and fused at their base as in text-fig. 112. Maxillae long, strongly, convergent, labium elongate, clothed with hairs, shape as in text-fig. 109. Sternum rounded, pointed behind clothed with hairs. Legs strong, clothed with hairs and some spines. Legs formula 4123.

Abdomen: Longer than wide, widest at middle and then narrowing posteriorly, clothed with hairs and provided with three pairs of lighter spots as in text-fig. 108. Ventral side lighter than the dorsal. Epigyne with transverse anterior margin invaginated medially, curved posteriorly at sides; V-shaped bar situated anteriorly, broken at base as in text-fig. 110. Spermathecae with basal ducts divided into wide median and narrow lateral portions, small dorsal lobe, and large ventral lobe as in text-fig. 111. Spinnerets prominent, anterior spinnerets widely separated, posterior spinnerets same in size as in the anterior spinnerets.

Type-locality: Pashan, Poona, Maharashtra, INDIA. *Holotype* female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 5053/18.

Distribution: Pashan, Rajbag, Loni, Dist. Poona, Maharashtra, INDIA.

Remarks: This is the first species of this genus recorded from India by Dr. P. I. Platnick, New York on the basis of my collection. Description and illustrations are based on *Holotype* female and male specimen subsiquently I have collected from type locality.

8. **Eilica platnicki** Tikader & Gajbe

(Figs. 114-119)

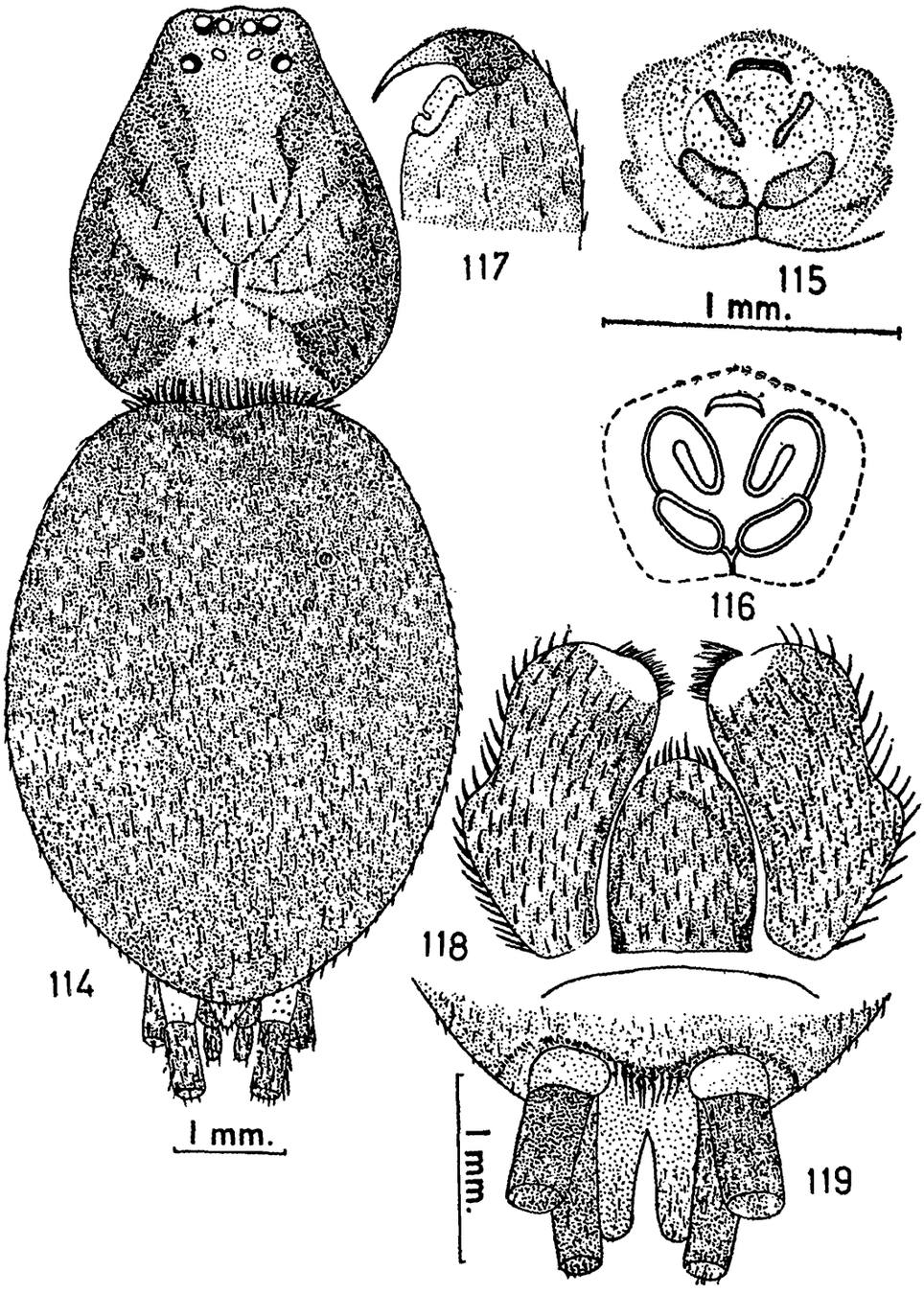
1976. *Eilica platnicki* Tikader & Gajbe, *Bull. Brit. Arach. Soc.*, 3(9) : 252-253.

General: Cephalothorax dark brown with black reticulations; legs light brown; abdomen uniformly dark grey. Total length 9.00 mm. Carapace 3.50 mm. long, 3.00 mm. wide; abdomen 5.50 mm. long, 4.00 mm. wide.

Cephalothorax: Longer than wide, oval, narrowing in front, flattened, posterior middle provided with a conspicuous fovea, clothed with hairs. Eyes pearly white except the anterior medians; posterior row of eyes longer than the anterior row. Anterior row of eyes slightly procurved (as seen from in front), circular, medians slightly smaller than the adjacent laterals and little closer to laterals than to each other. Posterior row of eyes slightly recurved, medians elliptical, smaller than the adjacent circular, lateral eyes are little closer to adjacent laterals than to each other. Median ocular area longer than wide and wider behind than in front. Chelicerae each with two translucent laminae which are contigulous, dissimilar in size and fused at their base as in text-fig. 117. Maxillae long, strongly convergent, labium elongate, clothed with hairs, shape as in text-fig. 118. Sternum rounded, pointed behind, clothed with hairs. Legs strong, clothed with hairs and some spines, Legs formula 4123.

Abdomen: Longer than wide, widest at middle and then narrowing posteriorly, clothed with hairs and provided with three pairs of lighter spots as in text-fig. 114. Ventral side same in colour as dorsal. Epigyne with transverse anterior margin invaginated medially, curved posteriorly at sides, as in text-fig. 115 and internal genitalia as in text-fig. 116. Spinnerets prominent, anterior spinnerets widely separated, posterior spinnerets longer than others as in text-fig. 119.

Type-locality: Vishrantwadi, Poona, Maharashtra, INDIA. *Holotype.* female and *paratype* two females in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 5054/18, 5055/18.



FIGS. 114-119. *Eilica platnicki* Tikader & Gajbe

114. Dorsal view of female, legs omitted.
115. Epigyne.
116. Internal genitalia.
117. Left chelicera.
118. Labium and maxillae.
119. Spinnerets.

Distribution: Known only from type locality.

Remarks: Description and illustrations are made on the basis of *Holotype* female.

Genus 3. **Callilepis** Westring

1874. *Callilepis* Westring, *Goteborgs. K. Vetensk-o. Vitterh Samh. Handl.*, **14** : 43.

1983. *Callilepis* : Simon, *Hist. Nat. Araign.*, **1**(2) : 251-488.

1975. *Callilepis* : Platnick, *Amr. Mus. Novit.*, **2573** : 1-32.

Characters: Posterior row of eyes a little longer than the anterior row and straight or only slightly recurved. The eyes nearly equidistant or the medians little further from each other than from the laterals. The posterior lateral eyes fairly larger than the posterior median eyes. Sternum short, stout, much wider than length of endites. The lower margin of the furrow of the chelicerae armed with a broad keel or a narrow lamina, without serrated edge.

Type-species: *Callilepis nocturna* (Linnaeus).

Distribution: EUROPE, ARABIA, ETHIOPIA, AFRICA, AUSTRALIA, AMERICA, INDIA.

Key to species of the genus **Callilepis** Westring

1. Posterior row of eyes straight.....2
   Posterior row of eyes not straight but recurved.....3

2. Abdomen provided with rounded white spots all over (Fig. 120) ; labium notched at the base (Fig. 123).....*rukminiae*
   Abdomen provided with brownish patches like a face of human being (Fig. 127) ; labium smooth at the base (Fig. 130).....*rajasthanicus*

3. Abdomen narrow posteriorly (Fig. 133) ; dorsum of abdomen provided with light chevrons (Fig. 133) ; labium notched at the base (Fig. 136).....*lambai*

Abdomen narrow anteriorly (Fig. 139); dorsum of abdomen provided with pale patches on the posterior half (Fig. 139); labium smooth at the base (Fig. 143).....*chakanensis*

9. **Callilepis rukminiae** Tikader & Gajbe

(Figs. 120-126)

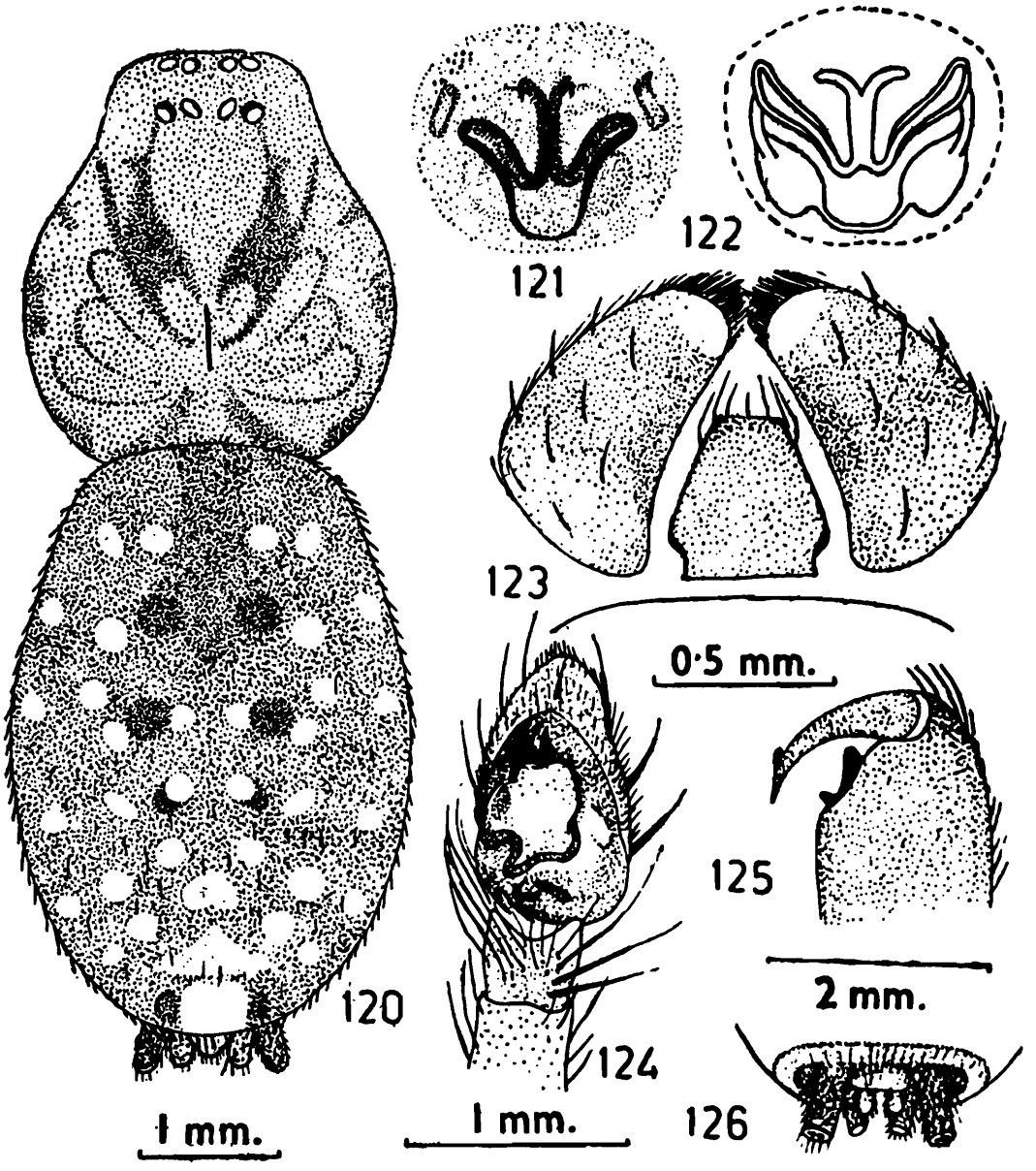
1977. *Callilepis rukminiae* Tikader & Gajbe, *Rec. zool. Surv. India*, **73** (1-4) : 49.

General: Cephalothorax and legs brownish, abdomen brownish-black. Total length 7.20 mm. Carapace 3.00 mm. long, 2.60 mm. wide; abdomen 4.40 mm. long, 3.00 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, slightly convex, posterior middle provided with a conspicuous fovea and V-shaped brown patch starting from fovea; clothed with fine hairs. Anterior row of eyes procurved (as seen from in front); medians smaller than the laterals and little closer to laterals than to each other. Posterior row of eyes recurved and slightly longer than the anterior row of eyes. Posterior median eyes conspicuously silvery white in colour, oval, smaller than the laterals and little close to laterals than to each other. Sternum heart-shaped, pointed behind, clothed with fine hairs. Labium and maxillae as in text-fig. 123. Chelicerae vertical, not strong, inner margin provided with a narrow lamina without serrated ridge as in text-fig. 125. Legs relatively long, stout, clothed with hairs and spines. Legs formula 4123. Male same in colour as female but slightly larger than the female, male palp as in text-fig. 124.

Abdomen: Nearly elliptical, clothed with hairs and some round whitish spots as in text-fig. 120. Ventral side lighter than the dorsal. Epigyne as in text-fig. 121 and Internal genitalia as in text-fig. 122. Spinnerets very prominent, anterior spinnerets cylindrical, slightly longer and darker in colour than others as in text-fig. 126.

Type-locality: Katraj, near Poona, Maharashtra, INDIA. *Holotype* female, *paratype* one immature female, *allotype* one male in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 5020-2/18.



FIGS. 120-126. *Callilepis rukminiae* Tikader & Gajbe
120. Dorsal view of female, legs omitted.
121. Epigyne.
122. Internal genitalia.
123. Labium and maxillae.
124. Right male palp, ventral view.
125. Left chelicera.
126. Spinnerets.

Distribution: Known only from type locality.

Remarks: Description and illustrations are based on *Holotype* female and *allotype* male.

10. **Callilepis rajasthanicus** Tikader & Gajbe

(Figs. 127-132)

1977. *Callilepis rajasthanicus* Tikader & Gajbe, *Rec. zool. Surv. India.* 73(1-4) : 47.

General: Cephalothorax, abdomen and legs light brownish-green. Total length 4.80 mm. Carapace 2.20 mm. long, 1.80 mm. wide; abdomen 2.80 mm. long, 2.20 mm. wide.

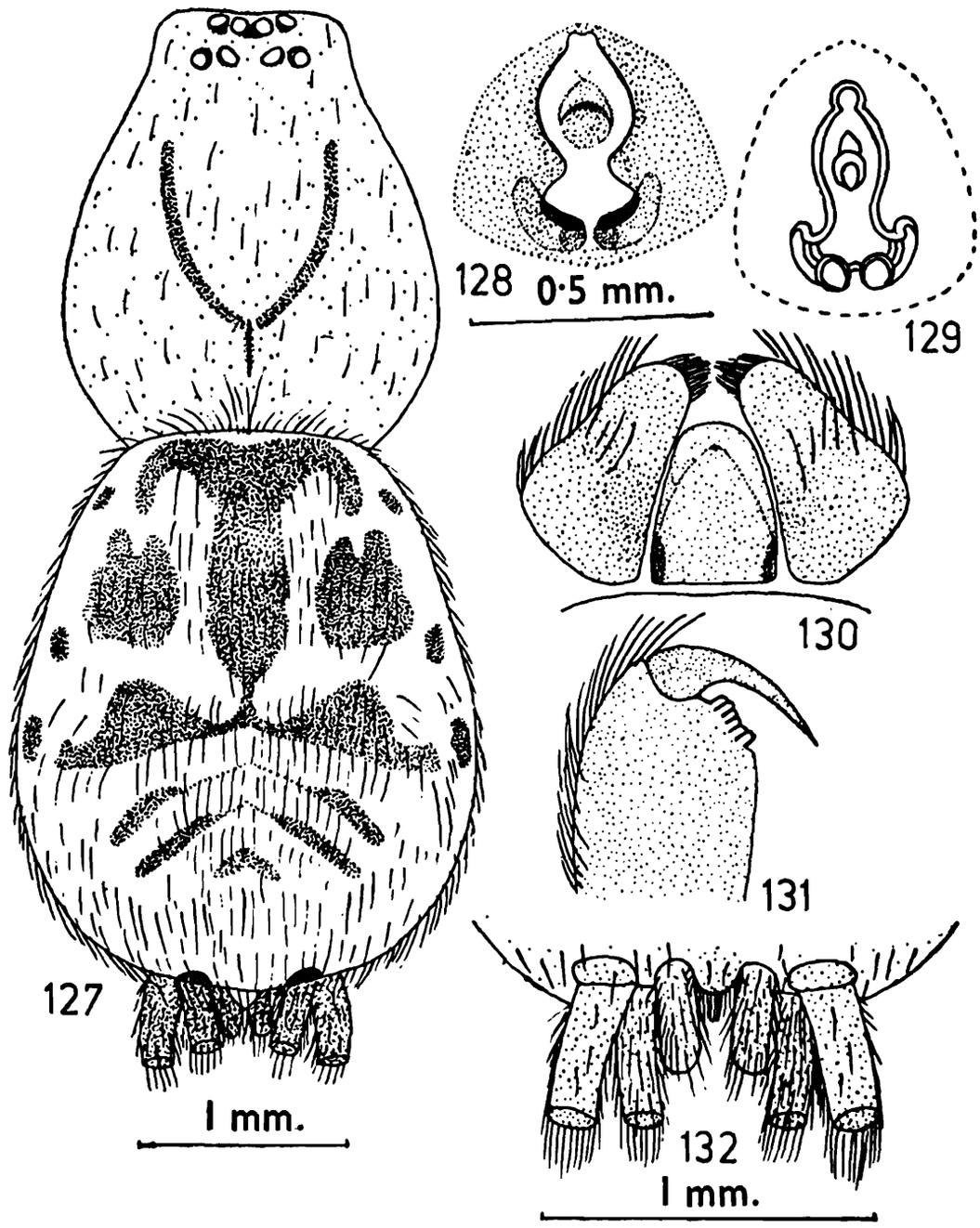
Cephalothorax: Longer than wide, narrowing in front, slightly convex, posterior middle provided with a inconspicuous fovea with a U-shaped conspicuous brown marking starting from fovea, clothed with fine hairs. Anterior row of eyes slightly procurved (as seen from in front); medians slightly smaller than the laterals and little closer to laterals than to each other. Posterior row of eyes slightly recurved and slightly longer than anterior row of eyes. Posterior median eyes conspicuously silvery white in colour, oval, smaller than the laterals and closer to laterals than to each other. Sternum heart-shaped, pointed behind, clothed with fine hairs. Labium and maxillae as in text-fig. 130. Chelicerae vertical, not strong, inner margin provided with a narrow lamina without serrated ridge as in text-fig. 131. Legs relatively long, stout, clothed with hairs and spines. Legs formula 4123.

Abdomen: Nearly elliptical, clothed with hairs and provided with some deep brownish patches as in text-fig. 127. Ventral side lighter than the dorsal. Epigyne as in text-fig. 128 and internal genitalia as in text-fig. 129. Spinnerets very prominent as in text-fig. 132.

Type-locality: Salawas village, Dist. Jodhpur, Rajasthan, INDIA. *Holotype* female in spirit, deposited in the Z.S.I. Calcutta. Regd. No. 5019/18.

Distribution: Known only from type-locality.

Remarks: Description and illustrations are based on the *Holotype* female.



FIGS. 127-132. *Callilepis rajasthanicus* Tikader & Gajbe

127. Dorsal view of female, legs omitted.

128. Epigyne.

129. Internal genitalia.

130. Labium and maxillae.

131. Right chelicera.

132. Spinnerets.

11. **Callilepis lambai** Tikader & Gajbe

(Figs. 133-138)

1977. *Callilepis lambai* Tikader & Gajbe, *Rec. zool. Surv. India*, 73 (1-4) : 50.

General: Cephalothorax and legs brownish-green, abdomen brown. Total length 8.00 mm. Carapace 2.80 mm. long, 2.20 mm. wide; abdomen 5.00 mm. long, 3.20 mm. wide.

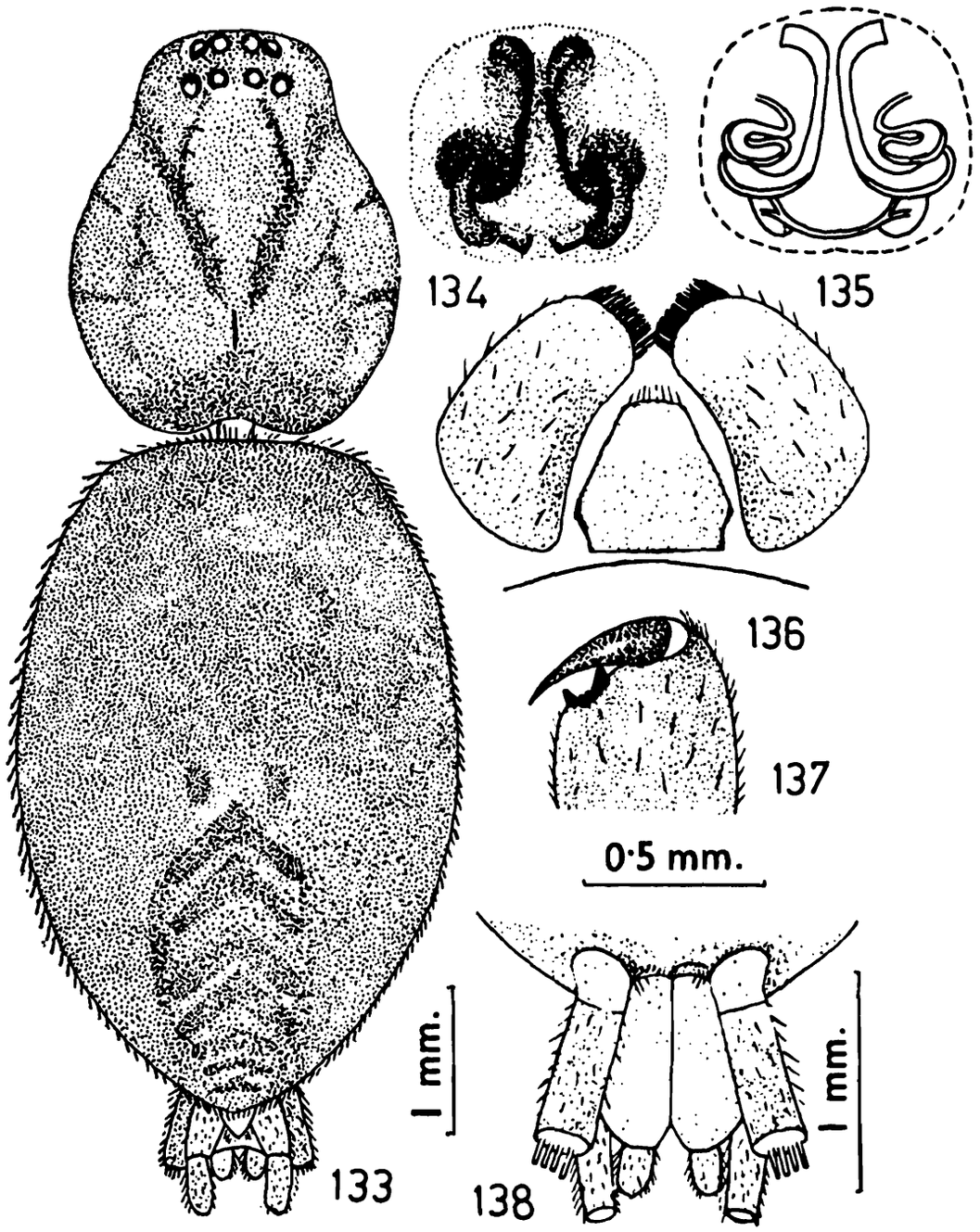
Cephalothorax: Longer than wide, narrowing in front, slightly convex, posterior middle provided with a conspicuous fovea and V-shaped brown patch starting from fovea; clothed with fine hairs. Anterior row of eyes slightly procurved (as seen from in front); medians more or less equal in size to laterals and closer to laterals than to each other. Posterior row of eyes slightly recurved and slightly longer than anterior row of eyes. Posterior median eyes conspicuously silvery white, oval, smaller than the laterals and little close to laterals than to each other. Sternum heart-shaped, pointed behind and clothed with hairs. Labium and maxillae as in text-fig. 136. Chelicerae vertical, not strong, inner margin provided with a narrow lamina without serrated ridge as in text-fig. 137. Legs relatively long, stout, clothed with hairs and spines. Legs formula 4123.

Abdomen: Nearly elliptical, clothed with hairs, dorsally, posterior half provided with light chevrons as in text-fig. 133. Ventral side lighter than the dorsal. Epigyne as in text-fig. 134 and internal genitalia as in text-fig. 135. Spinnerets very prominent, anterior spinnerets cylindrical and darker than others as in text-fig. 138.

Type-locality: Kudgiri, Dist. Shimoga, Karnataka, INDIA. *Holotype* female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 5023/18.

Distribution: So far only known from type-locality.

Reramks: Description and illustrations are based on *Holotype* female.



FIGS. 133-138. *Callilepis lambai* Tikader & Gajbe

133. Dorsal view of female, legs omitted.

134. Epigyne.

135. Internal genitalia.

136. Labium and maxillae.

137. Left chelicera.

138. Spinnerets.

12. **Callilepis chakanensis** sp.nov.

(Figs. 139-144)

Genaral: Cephalothorax and legs brown, abdomen deep brown. Total length 6.40 mm. Carapace 2.80 mm. long, 2.00 mm. wide, abdomen 3.50 mm. long, 2.10 mm. wide.

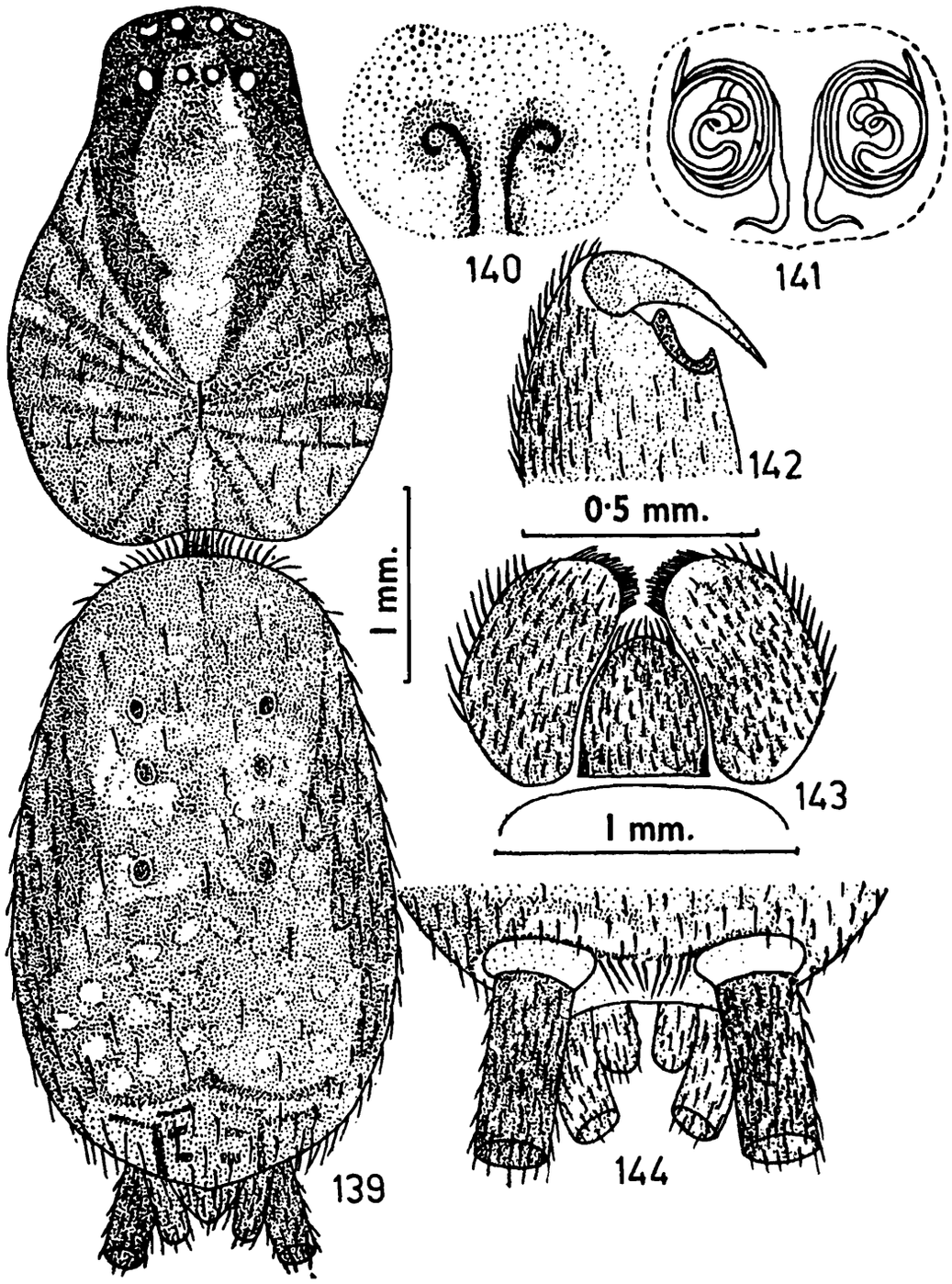
Cephalothorax: Longer than wide, narrowing in front, convex, posterior middle provided with a conspicuous fovea and V-shaped deep brown patch starting from fovea, clothed with pubescence and some spine like hairs. Anterior row of eyes slightly procurved (as seen from in front); medians smaller than the laterals and closer to laterals than to each other. Posterior row of eyes slightly recurved and nearly as long as the anterior row. Posterior median eyes conspicuously silvery white, oval, smaller than the laterals and little closer to each other than to laterals. Sternum heart-shaped, pointed behind and clothed with hairs. Labium and maxillae as in text-fig. 142. Chelicerae vertical, not strong, inner margin provided with a narrow lamina without serrated ridge as in text-fig. 142. Legs relatively long, stout, clothed with hairs and spines. Legs formula 4123.

Abdomen: Nearly elliptical, clothed with pubescence and some spine-like hairs, dorsally provided with three pairs of sigilla and posterior half with some light spots as in text-fig. 139. Ventral side lighter than the dorsal. Epigyne as in text-fig 140 and internal genitalia as in text-fig. 141. Spinnerets very prominent, anterior spinnerets cylindrical, darker and larger than others as in text-fig. 144.

Type-specimens: *Holotype* female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 5024/18.

Type-locality: Chakan, Dist. Poona, Maharashtra, INDIA. 3. vii. 1976. Coll. *Dr. K. Reddiah.*

Discussion: This species resembles *Callilepis lambai* Tikader & Gajbe but differs from it as follows: (i) Posterior row of eyes as long as the anterior row but in *C. lambai* posterior row of eyes slightly longer than the anterior row. (ii) Posterior median eyes



FIGS 139-144. *Callilepis chakanensis* sp.nov.

139. Dorsal view of female, legs omitted
140. Epigyne.
141. Internal genitalia.
142. Right chelicera.
143. Labium and maxillae.
144. Spinnerets.

closer to each other than to the posterior laterals but in *C. lambai* posterior median eyes closer to posterior laterals than to each other. (iii) Posterior half of abdomen provided with light spots but in *C. lambai* posterior half provided with light chevrons. (iv) Epigyne and internal genitalia also structurally different.

Genus 4. **Micaria** Westring

1851. *Micaria* Westring, *Goteborgs. K. Vetensk.-o. Vitterh. Samh. Handl.*, 2 : 47.

1948. *Micaria* : Kaston, *Bull. Conn. St. geol. nat, Hist. Surv.*, 70 : 399-404.

1951. *Micaria* : Locket & Millidge, *British Spiders*, 1 : 118-123.

Characters: Cephalothorax oval, attenuated somewhat in the region of head; having no fovea (a distinctive character of the genus). Carapace more or less covered with small squamiform light hairs, set more thickly along lines radiating from foveal area. Eyes occupying about half breadth of head, as seen from above. Anterior row of eyes rather strongly procurved (as seen from in front), close to each other; medians smaller than laterals. Posterior row slightly longer than anterior and procurved; medians oblong in shape, usually farther from each other than from adjacent laterals. Medians and laterals are sub-equal. Sternum oval, pointed behind and projecting a little between coxae IV set somewhat apart. Chelicerae vertical, rather small with one minute tooth on inner margin. Legs relatively long, femora especially I and II, characteristically thicker and deeper in colour than other segments, which are long and slender. Scopulae consist of double rows of evenly spaced, short spatulate spines extending to mid-point or to base of metatarsus I and II in males, and on the tibiae in females. Abdomen longer than wide and narrow. Anterior spinnerets set only a little apart from one another, about as long as posterior pair; medians only slightly shorter though more slender.

Type-species: *Micaria fulgens* Walck.

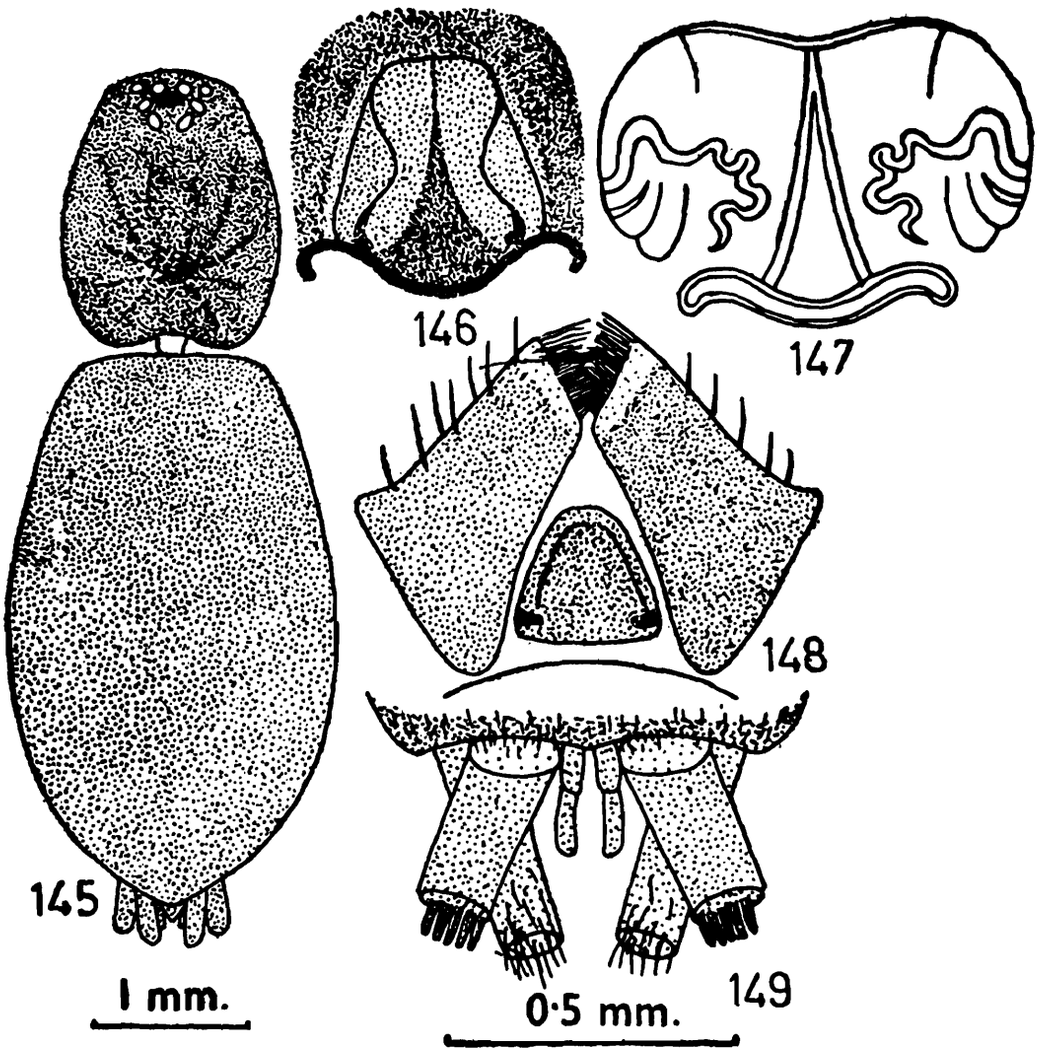
Distribution: EUROPE; ASIA, PHILIPPINES, HOLLAND; AMERICA.

13. **Micaria saharanpurensis** sp.nov.

(Figs. 145-149)

General: Cephalothorax and legs reddish, abdomen light reddish-green. Total length 5.40 mm. Carapace 1.80 mm. long, 1.40 mm. wide; abdomen 3.50 mm. long, 2.10 mm wide.

Cephalothorax: Cephalothorax oval, attenuated somewhat in the region of head; having no fovea. Carapace more or less



FIGS. 145-149. *Micaria saharanpurtnsis* sp.nov.

145. Dorsal view of female, legs omitted.
146. Epigyne.
147. Internal genitalia.
148. Labium and maxillae.
149. Spinnerets.

covered with small squamiform light hairs, set more thickly along with radiating from foveal area as in text-fig. 145. Eyes occupying about half breadth of head as seen from above. Anterior row of eyes slightly procurved (as seen from in front), medians more or less equal in size to laterals and close to laterals than to each other. Posterior row of eyes slightly longer than anterior, subequal and strongly procurved, posterior median eyes oblong in shape, farther from each other than from adjacent laterals. Sternum oval, pointed behind, projecting a little between coxae IV which are set somewhat apart. Maxillae and labium as in text-fig. 148. Chelicerae vertical, small with one minute tooth on inner margin. Legs relatively long, clothed with hairs.

Abdomen: Longer than wide, narrowing behind, covered with pubescence. Ventral side lighter than dorsal. Epigyne as in text-fig. 145. Spinnerets prominent, anterior spinnerets set a little apart from one another, about as long posterior pairs; medians much shorter and slender as in text-fig. 149. Epigyne and internal genitalia as in text-figs. 146 & 147.

Type-specimen: *Holotype* female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 5056/18.

Type-locality: Khara, Dist. Saharanpur, U.P., INDIA. 3.ii.1972. Coll. *R. N. Chopra.*

Discussion: This species resembles *Micaria pulicaria* (Sundevall) but differs as follows: (i) Abdomen uniform but in *M. pulicaria* abdomen provided with two transverse light lines. (ii) Epigyne and internal genitalia also structurally different.

Genus 5. **Phaeocedus** Simon

1893. *Phaeocedus* Simon, *Hist. Nat. Araign.*, 1(2) : 370.
1951. *Phaeocedus* : Locket & Millidge, *British spider*, 1 : 106.
1964. *Phaeocedus* : Tikader, *Rec. Indian Mus.*, 59(3) : 262.
1977. *Phaeocedus* : Tikader, *Rec. zool. Surv. India*, 72(1-4) : 187.

Characters: Carapace slightly narrowed in front. Eyes of anterior row straight (as seen from in front), eyes equal. Posterior row straight, slightly longer than anterior medians irregular in

shape, very slightly larger than the laterals and further from them than from each other. Sternum oval and narrow posteriorly. Chelicerae vertical noticiably long and narrow, convex at base, bearing no teeth, but with an angular projection apically inside. Tibia II sometimes with an apical prolateral spines.

Type-species: *Phaeocedus braccatus* Koch.

Distribution: EUROPE, INDIA, NEPAL.

Key to species of the genus **Phaeocedus** Simon

1. Abdomen on the dorsum provided with deep brown chevrons (Fig. 150) ; labium triangular in shape (Fig. 151) ; anterior end of carapace remarkably narrow (Fig. 150).....*mosambaensis*

   Abdomen on the dorsum not provided with any deep brown chevron like markings ; labium not triangular ; anterior end of carapace otherwise.....2

2. Posterior median eyes roundish in shape ; labium truncated at the distal end (Fig. 155) ; cephalothorax roughly elongated (Fig. 154).....*nicobarensis*

   Posterior median eyes irregular in shape ; labium convex at the distal end (Fig. 161) ; cephalothorax roughly roundish (Fig. 159).....*poonaensis*

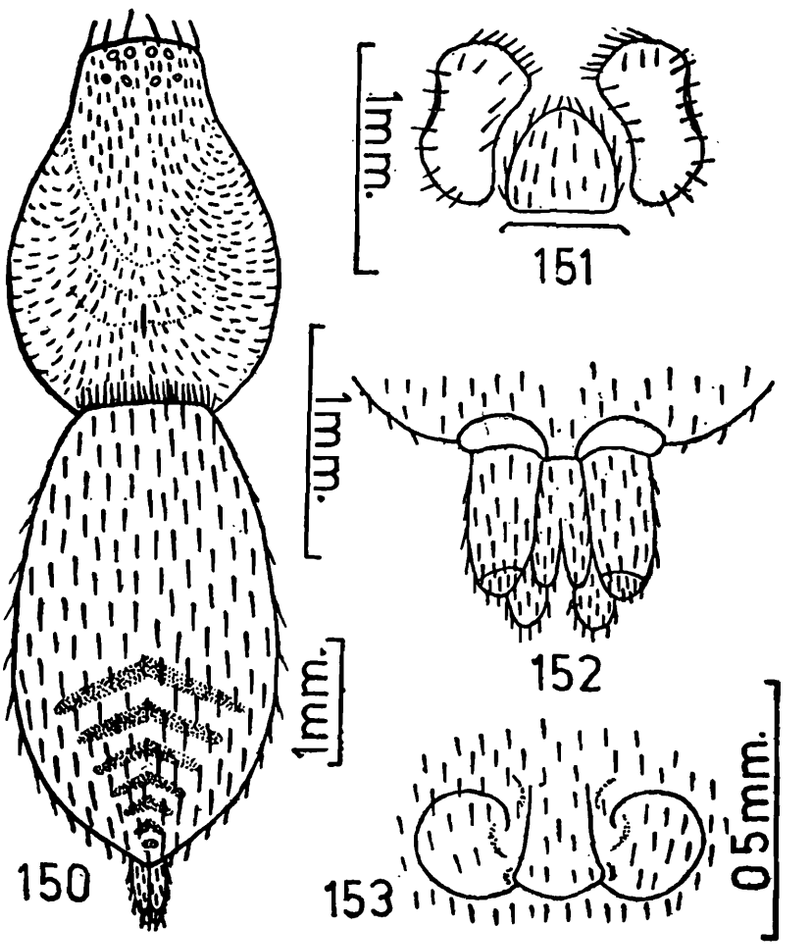
14. **Phaeocedus mosambaensis** Tikader

(Figs. 150-153)

1964. *Phaeocedus mosambaensis* Tikader, *Rec. Indian Mus.*, 59(3) : 262.

General: Cephalothorax and legs light reddish brown, abdomen dark brown. Total length 6.60 mm. Carapace 3.00 mm. long, 2.30 mm. wide; abdomen 3.70 mm. long, 2.40 mm. wide.

Cephalothorax: Longer than wide, slightly narrowed in front; clothed with fine hairs, convex with a fovea. Eyes anterior row straight (as seen from in front) and equal. Posterior row straight, slightly longer than anterior, medians irregular in shape, slightly larger than laterals and further from them than from each other. Clypeus moderate, margin bearing spines, directed



FIGS. 150-153. *Phaeocedus mosambaensis* Tikader

150. Dorsal view of female, legs omitted.
151. Labium and maxillae.
152. Spinnerets.
153. Epigyne.

forward. Sternum oval and narrowed behind. Maxillae and labium as seen in text-fig. 150. Legs long, stout, clothed with hairs and a few long spines, metatarsi I and II with one pair of ventral spines. Scopulae extend upto the base of metatarsi I and II.

Abdomen: Nearly oval, clothed with fine hairs, posterior half with deep-brown chevrons. Ventral surface uniform deep-brown. Spinnerets and epigyne as seen in text-figs. 152 & 153.

Type-locality: Near Mosamba lake, ca. 4,600 m. Central Himalaya, NEPAL. *Holotype* female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 2486/18.

Distribution: Known only from type-locality.

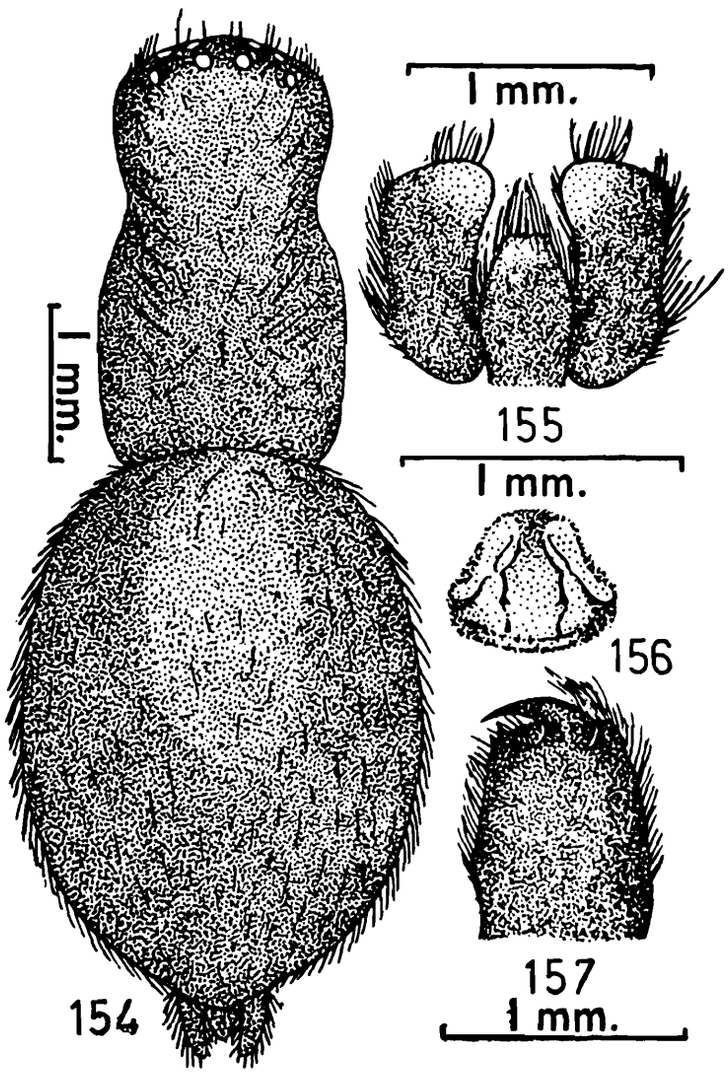
Remarks: Description and illustrations are on the basis of *Holotype* female.

15. **Phaeocedus nicobarensis** Tikader

(Figs. 154-157)

1977. *Phaeocedus nicobarensis* Tikader, *Rec. zool. Surv. India*, 72(1-4) : 187.

General: Cephalothorax and chelicerae reddish brown, legs



FIGS. 154-157. *Phaeocedus nicobarensis* Tikader

154. Dorsal view of female, legs omitted.
155. Labium and maxillae.
156. Epigyne.
157. Chelicera.

pale greenish, abdomen light brown. Total length 6.30 mm. Carapace 2.80 mm. long, 1.60 mm. wide; abdomen 3.60 mm. long, 2.50 mm. wide.

Cephalothorax: Longer than wide, clothed with hairs, cephalic region high and convex, slightly broader in front, centre with a minute fovea, posterior lateral sides of cephalothorax with two inconspicuous brown lines as in text-fig. 154. Eyes pearly white, anterior row straight, anterior eyes larger than the anterior medians, posterior row also straight but slightly longer than the anterior row; middle eyes slightly larger than the laterals. Ocular quad longer than wide narrowing in front. Chelicerae vertical noticeably long and narrow, convex at base, bearing no teeth, but with an angular projection apically inside. Sternum oval, clothed with hairs, pointed behind. Maxillae and labium as in text-fig. 151. Legs long, stout, clothed with hairs and a few spines. Metatarsi I and II with three pairs of ventral spines.

Abdomen: Oval, clothed with fine hairs, ventral side more lighter than dorsal. Epigyne as in text-fig. 156.

Type-locality: Keating point, Car-Nicobar, INDIA. *Holotype* female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 4991-2/18.

Distribution: So far only known from type-locality.

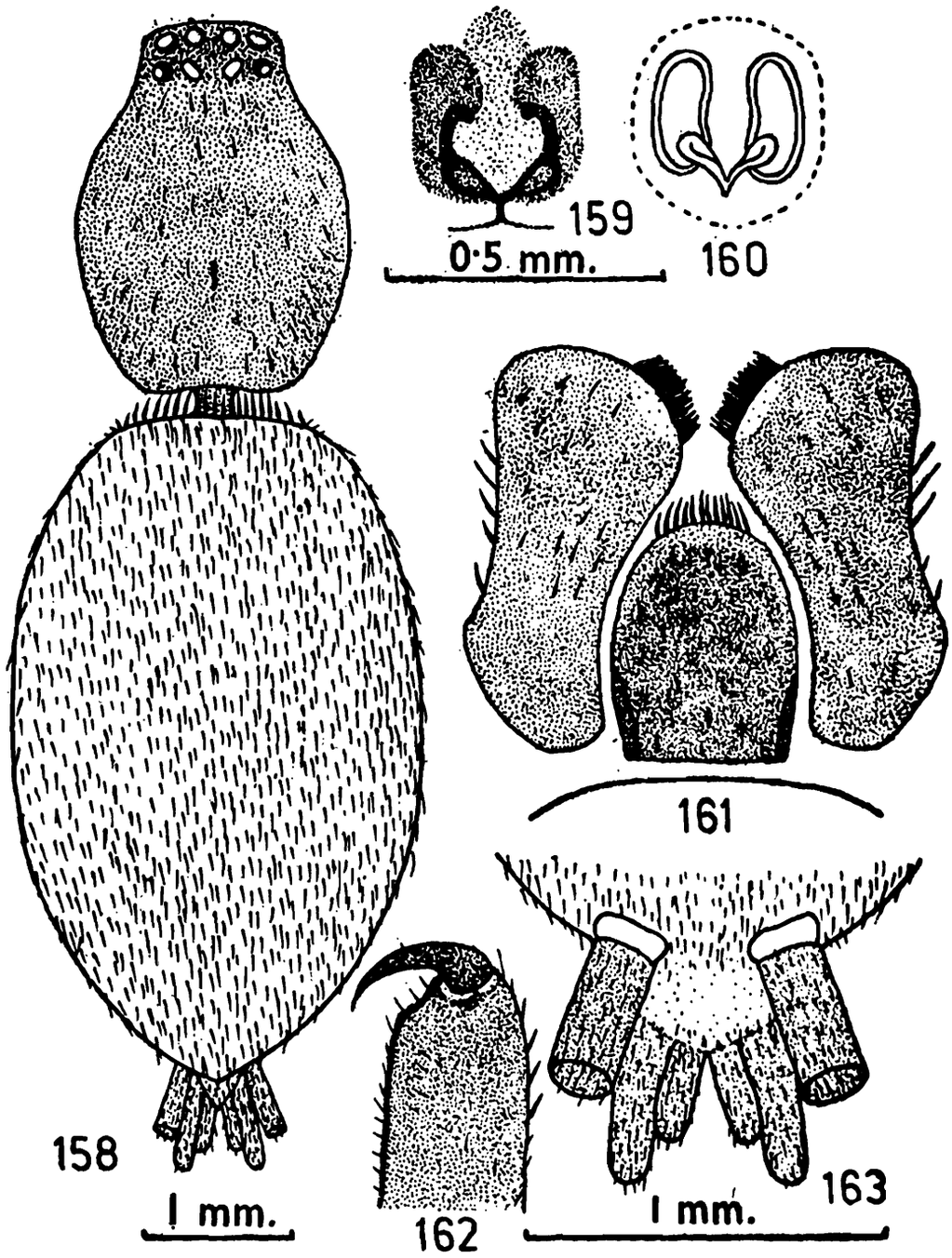
Remarks: Description and illustrations are based on *Holotype* female.

16. **Phaeocedus poonaensis** sp.nov.

(Figs. 158-163)

General: Cephalothorax and legs light red, abdomen light green. Total length 7.50 mm. Carapace 2.60 mm. long, 1.90 mm. wide; abdomen 4.70 mm. long, 2.80 mm. wide.

Cephalothorax: Longer than wide, slightly narrow in front; clothed with fine hairs, convex, posterior middle provided with an inconspicuous short fovea. Eyes pearly white except anterior



FIGS. 158-163. *Phaeocedus poonaensis* sp.nov.
158. Dorsal view of female, legs omitted.
159. Epigyne.
160. Internal genitalia.
161. Labium and maxillae.
162. Left chelicera.
163. Spinnerets.

medians. Anterior row of eyes straight (as seen from in front), medians slightly larger than the laterals and slightly closer to

laterals than to each other. Posterior row straight, medians irregular in shape, slightly larger than laterals and slightly closer to adjacent laterals than to each other. Clypeus moderate, margin bearing spines directed forward. Sternum oval, narrow posteriorly, clothed with long black hairs. Labium and maxillae as in text-fig. 161. Chelicerae vertical, long and narrow, convex at base, bearing no teeth, but with an angular projection apically inside as in text-fig. 162. Legs relatively long, stout, clothed with hairs and a few spines, tibia II with an apical prolateral spine. Scopulae extend upto the base of metatarsi I and II.

Abdomen: Longer than wide, oval, narrowing behind, clothed with fine hairs. Ventral side same in colour as dorsal. Epigyne as in text-fig. 159 and internal genitalia as in text-fig. 160. Spinnerets prominent as in text-fig. 163.

Type-specimen: *Holotype* female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 4993/18.

Type-locality: Sakal Nagar near Poona University, Poona, Maharashtra, INDIA. 22.iii.1975. Coll. *U. A. Gajbe.*

Discussion: This species resembles *Phaeocedus mosambaensis* Tikader but differs from it as follows: (i) Abdomen uniform but in *P. mosambaensis* posterior half of abdomen with deep brown chevrons. (ii) Epigyne and internal genitalia also structurally different.

Genus 6. **Scopodes** Chamberlin

1922. *Scopodes* Chamberlin, *Proc. biol. Soc. Wash.*, 35 : 156.
1940. *Scopodes* : Comstock, *The Spider Book*, New York, : 328.

Characters: The cephalothorax is ovate and much narrow in front. The anterior row of eyes are close together in a strongly procurved line, the anterior medians are larger than the anterior laterals. The posterior row of eyes are very strongly procurved in a semicircular line which is more or less equal or slightly longer than the anterior line. The chelicerae are of moderate size, the inner margin is armed with a single, minute tooth. The

spinnerets are comparatively long. The bulb of the male palpus has a stout median apophysis.

Type-species: *Scopodes catharius* Chamberlin.

Distribution: CLAREMONT, AMERICA, INDIA.

Key to species of the genus **Scopodes** Chamberlin

1. Abdomen oval in shape (Fig. 164) ; dorsum of abdomen provided with small white spots, and a few large strong hairs (Fig. 164) ; outer margin of chelicera armed with three teeth..... *maitraiae*

   Abdomen elliptical in shape ; dorsum of abdomen with no white spots and no large hairs ; outer margin of chelicera armed with less than three teeth..... 2

2. Carapace provided with some spine like hairs at the posterior end (Fig. 170) ; abdomen having with a V-shaped brown patch on the dorsum at the posterior end (Fig. 170) ; outer margin of chelicera armed single large tooth..... *kuljitae*

   Carapace not provided with any spine like hairs at the posterior end ; abdomen without any V-shaped brown patch (Fig. 175) ; outer margin of chelicera armed with two large teeth..... *pritiae*

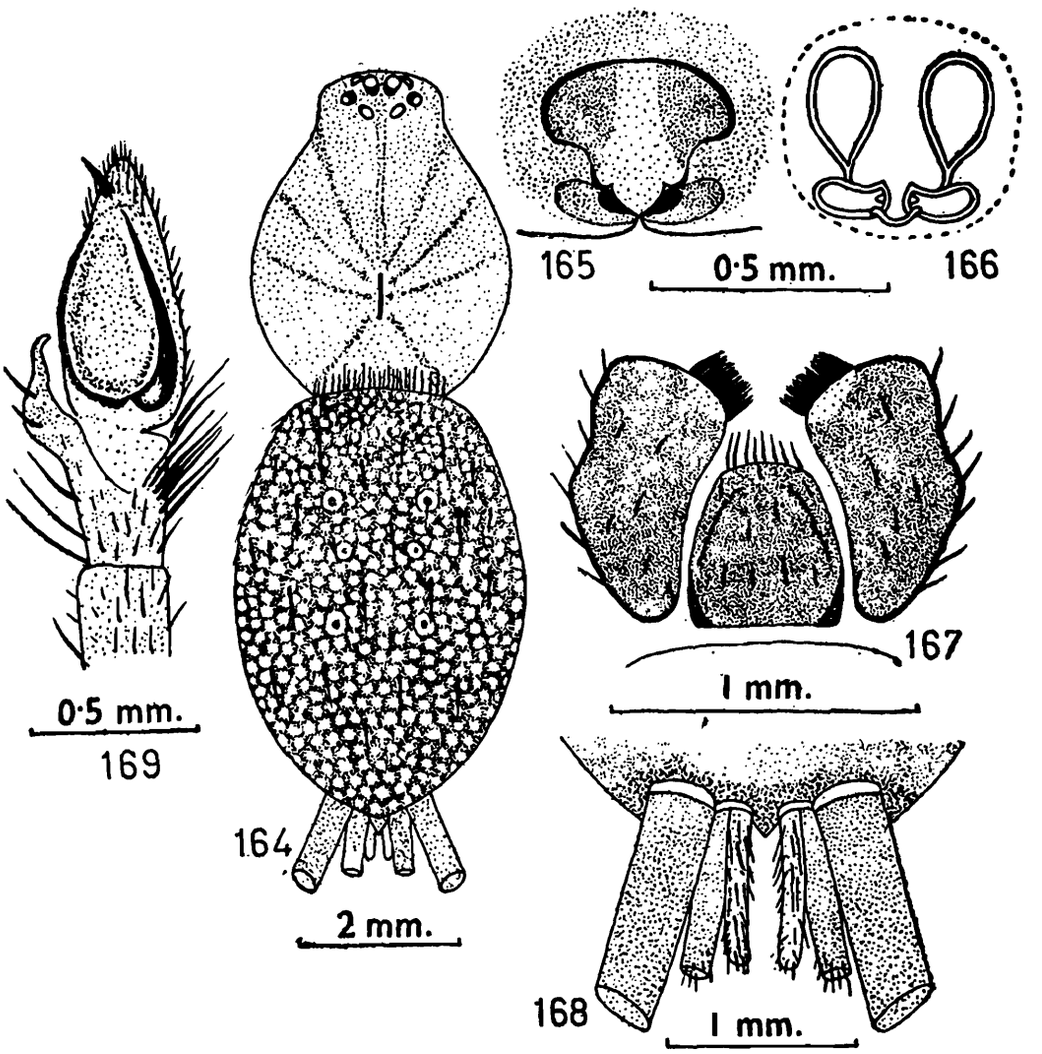
17. **Scopodes maitraiae** Tikader & Gajbe

(Figs. 164-169)

1977. *Scopodes maitraiae* Tikader & Gajbe, *Rec. zool Surv. India*, 73(1-4) : 14.

General: Cephalothorax and legs reddish green, abdomen brown. Total length 9.80 mm. Carapace 4.20 mm. long, 3.20 mm. wide; abdomen 5.80 mm. long, 3.80 mm. wide.

Cephalothorax: Longer than wide, convex, narrow in front, cephalic region slightly high, posterior middle provided with a conspicuous fovea and clothed with fine hairs. Eyes of anterior



FIGS. 164-169. *Scopodes maitraiae* Tikader & Gajbe
164. Dorsal view of abdomen, legs omitted.
165. Epigyne.
166. Internal genitalia.
167. Labium and maxillae.
168. Spinnerets.
169. Right male palp, ventral veiw.

row slightly procurved, anterior medians circular, black and much larger than laterals. Posterior row of eyes slightly longer than the anterior row, procurved, more or less equal and equidistant from each other, posterior medians silvery white, elliptical in shape. Clypeus narrow. Sternum oval, pointed behind and clothed with hairs. Labium longer than wide, not contiguous with the maxillae. Anterior margin of maxillae provided with conspicuous scopulae as in text-fig. 167. Chelicerae vertical, inner margin with

one tooth and outer margin with three small teeth. Legs relatively long and strong, clothed with spines and hair, legs IV longer than others, scopulae extend upto the base of metatarsi I and II. The colour and size of male almost like female, male palp as in text-fig. 169.

Abdomen: Longer than wide, oval, narrowed behind, clothed with fine and some long hairs and provided with small whitish spots as in text-fig. 164. Ventral side lighter than the dorsal. Epigyne as in text-fig. 165 and internal genitalia as in text-fig. 166. Spinnerets very prominent, anterior spinnerets cylindrical and longer than others as in text-fig. 168.

Type-locality: Kopargaon, Dist. Ahmednagar, Maharashtra, INDIA. *Holotype* female, *paratype* seven females and *allotype* six males in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 5008-10/18.

Distribution: Ahmednagar and Poona District, Maharashtra, INDIA.

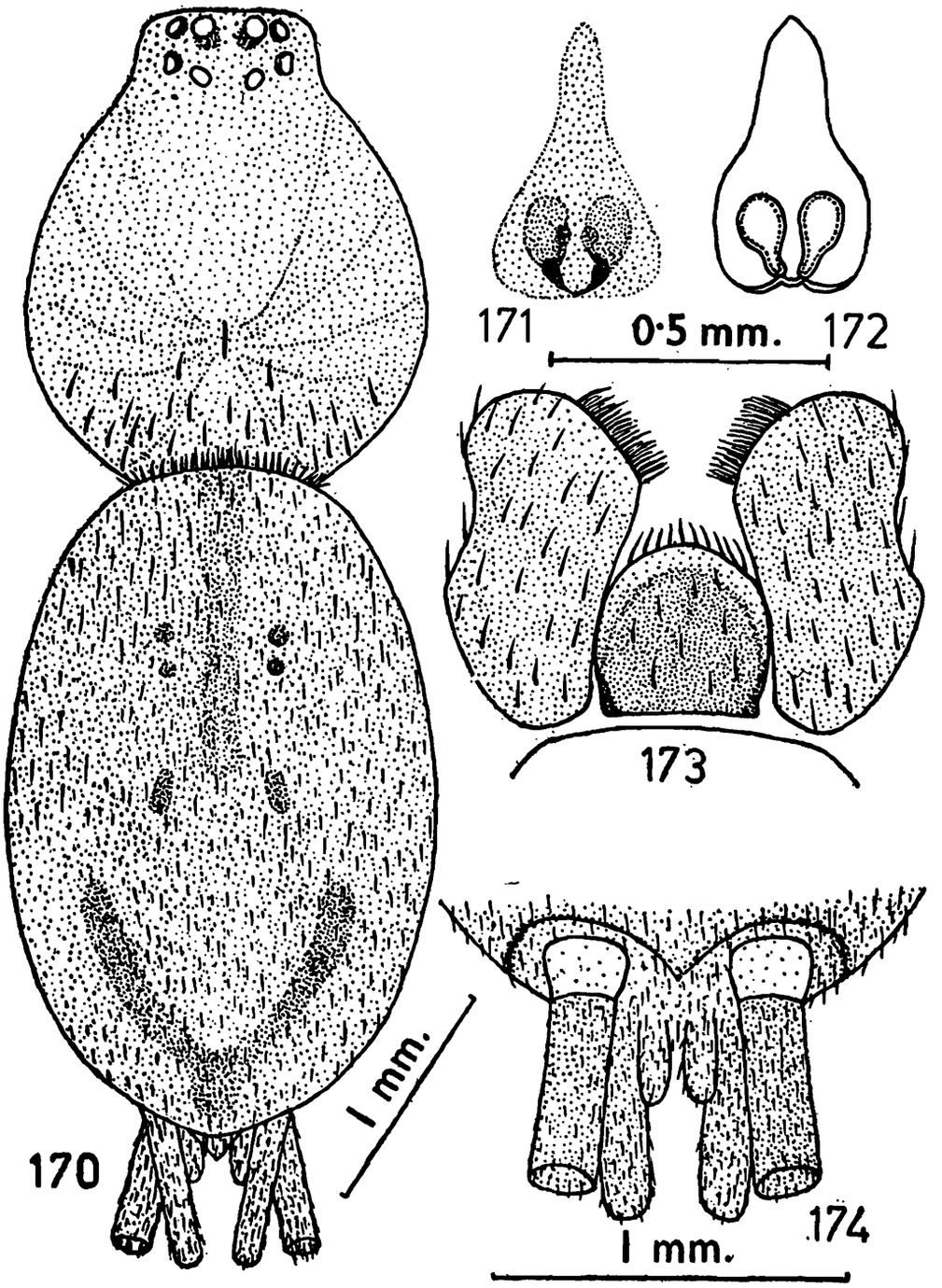
Remarks: Description and illustrations are based on *Holotype* and *allotype.*

18. **Scopodes kuljitae** sp.nov.

(Figs. 170-174)

General: Cephalothorax and legs light reddish-green, abdomen light brownish-green. Total length 5.30 mm. Carapace 2.20 mm. long, 1.90 mm. wide; abdomen 3.20 mm. long, 2.00 mm. wide.

Cephalothorax: Longer than wide, convex, much narrow in front, cephalic region slightly high, clothed with pubescence and some spine like hairs at the posterior end. Posterior middle of cephalothorax provided with a conspicuous fovea. Anterior row of eyes slightly procurved (as seen from in front), medians circular, black, larger than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes as long as anterior row, strongly procurved and semicircular. Posterior medians silvery white, elliptical in shape, same in size to the



FIGS. 170-174. *Scopodes kuljitae* sp.nov.
170. Dorsal view of female, legs omitted.
171. Epigyne.
172. Internal genitalia.
173. Labium and maxillae.
174. Spinnerets.

adjacent laterals and more or less equally spaced. Clypeus narrow. Sternum oval, pointed, clothed with fine hairs. Labium

longer than wide, anterior margin of maxillae provided with conspicuous scopulae, shape as in text-fig. 173. Chelicerae vertical, small, inner margin provided with one minute tooth and outer margin with one larger tooth. Legs relatively long and strong, clothed with spines and hairs. Scopulae extend upto the base of metatarsi I and II and upto tarsi III and IV Legs formula 4123.

Abdomen: Longer than wide, nearly elliptical, narrowing posteriorly, clothed with fine hairs. Dorsum anteriorly provided with a deep brown mid-dorsal deep brown patch and posteriorly V-shaped deep brown patch as in text-fig 170. Ventral side lighter than the dorsal. Epigyne as in text-fig. 171 and internal genitalia as in text-fig. 172. Spinnerets very prominent, anterior spinnerets widely separated, cylindrical, posterior spinnerets slightly longer than the anterior spinnerets as in text-fig. 174.

Type-specimen: *Holotype* female, *paratype* one female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 5013-4/18.

Type-locality: Naykal village near Ratnagiri, Dist. Ratnagiri, Maharashtra, INDIA. Coll. *Dr. G. M. Yazdani*, 19.i.1974. *paratype*: Panambur near Mangalore, Karnataka, INDIA. 7.ii.1964. Coll. *Dr. B. K. Tikader.*

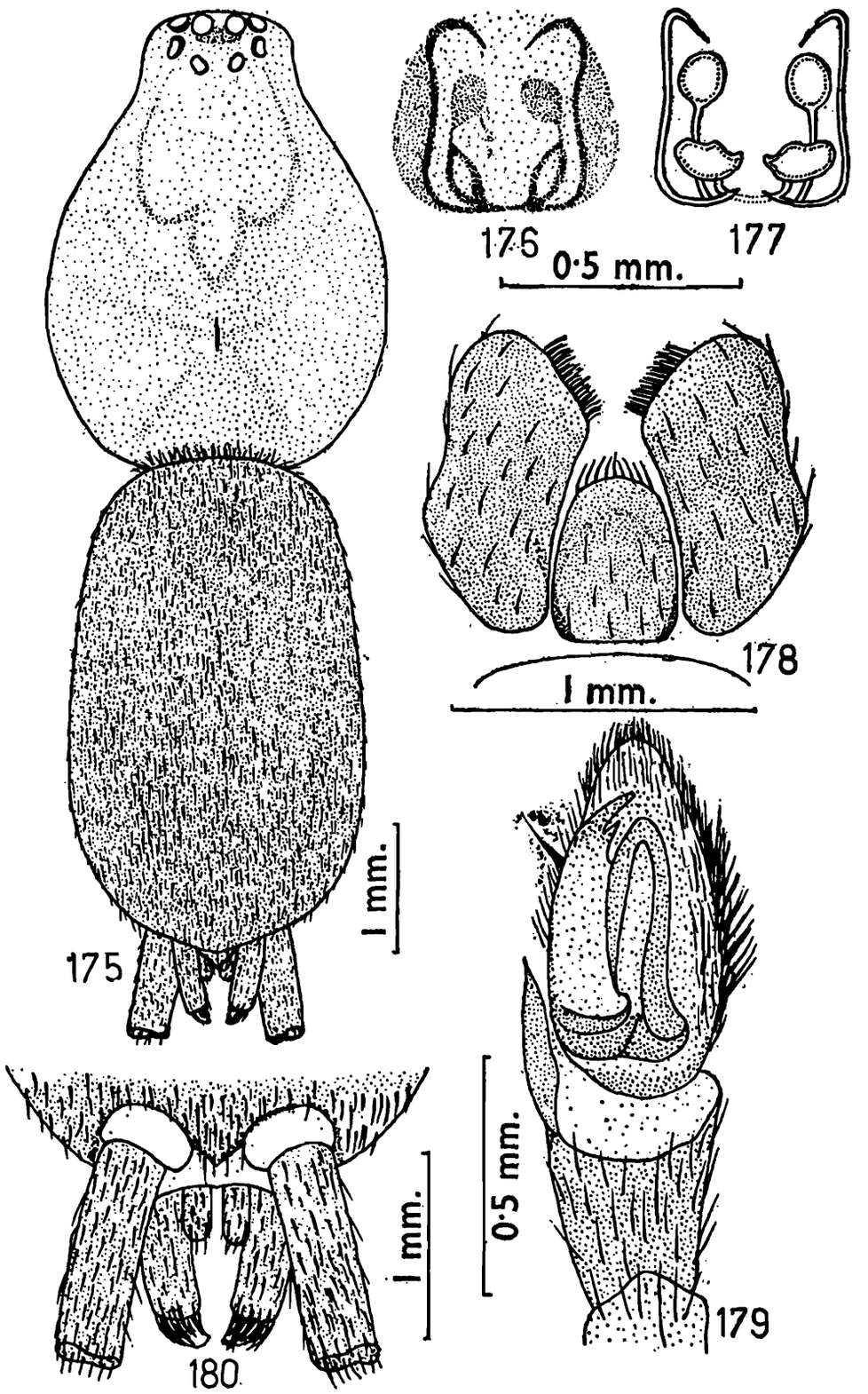
Discussion: This species resembles *Scopodes pritiae* sp. nov. but differs from it as follows: (i) Abdomen provided with hairs and some deep brown patches but in *S. pritiae* abdomen thickly clothed with mousy hairs and without patches. (ii) Epigyne also structurally different.

19. **Scopodes pritiae** sp.nov.

(Figs. 175-180)

General: Cephalothorax and legs reddish-green, abdomen brown. Total length 8.00 mm. Carapace 3.90 mm. long, 2.90 mm. wide; abdomen 4.20 mm. long, 2.50 mm. wide.

Cephalothorax: Longer than wide, convex, much narrow in front, cephalic region slightly high, clothed with pubescence,



FIGS. 175-180. *Scopodes pritiae* sp.nov.
175. Dorsal view of female, legs omitted.
176. Epigyne.
177. Internal genitalia.
178. Labium and maxillae.
179. Right male palp, ventral view.
180. Spinnerets.

posterior middle of cephalothorax provided with a conspicuous fovea. Anterior row of eyes slightly procurved (as seen from in front), anterior medians circular, black, larger than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes slightly longer than the anterior row, strongly procurved and semicircular. Posterior medians silvery white, elliptical in shape, slightly smaller than the adjacent laterals and equally spaced. Clypeus narrow. Sternum oval, pointed behind and clothed with hairs. Labium longer than wide, anterior margin of maxillae provided with conspicuous scopulae, shape as in text-fig. 178. Chelicerae vertical, small, inner margin provided with one minute tooth and outer margin with two larger teeth. Legs relatively long and strong, clothed with spines and hairs. Scopulae extend upto the base of metatarsi I and II and upto tarsi III and IV The colour and size of male almost like female, male palp as in text-fig. 179. Legs formula 4123.

Abdomen: Longer than wide, elliptical, thickly clothed with mousy hairs as in text-fig. 175. Ventral side lighter than the dorsal. Epigyne as in text-fig. 176 and internal genitalia as in text-fig. 177. Spinnerets relatively long, anterior spinnerets widely separated, cylindrical and longer than others as in text-fig. 180.

Type-specimen: *Holotype* female, *allotype* two males in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 5011-2/18.

Type-locality: Bhaja cave near Karla, Dist. Poona, Maharashtra, INDIA. Coll. *Dr. B. K. Tikader,* 5.11.1963.

Discussion: This species closely resembles *Scopodes maitraiae* sp. nov. but differs from it as follows: (i) Outer margin of chelicera provided with two teeth but in *S. maitraiae* outer margin of chelicerae provided with three teeth. (ii) Abdomen elliptical but in *S. maitraiae* abdomen narrowing behind. (iii) Epigyne, vulva and male palp also structurally different.

Genus 7. **Megamyrmecion** Reuss

1834. *Megamyrmecion* Reuss, *Zool. Miscell. Mus. Ar.*, : 217.
1893. *Megamyrmecion* : Simon, *Hist. Nat. Araign.*, 1(2) : 369.
1922. *Megamyrmecion* : Chamberlin, *Proc. biol. Soc. Wash.*, **35** : 155.
1940. *Megamyrmecion* : Comstock, *The Spider Book*, New York, : 327.

Characters: The cephalothorax is ovate and much narrow in front. The anterior row of eyes are close together in a strongly procurved line, the anterior medians are larger than the anterior laterals. The posterior row of eyes are very strongly procurved in a semicircular line which is more or less equal or slightly longer than the anterior line. The chelicerae are of moderate size, with the inner margin of the furrow unarmed, and with two minute teeth on the outer margin. The spinnerets are comparatively long. Bulb of palpus of male simple, with no true apophysis.

Type-species: *Megamyrmecion caudatum* Reuss.

Distribution: AFRICA, AMERICA, INDIA.

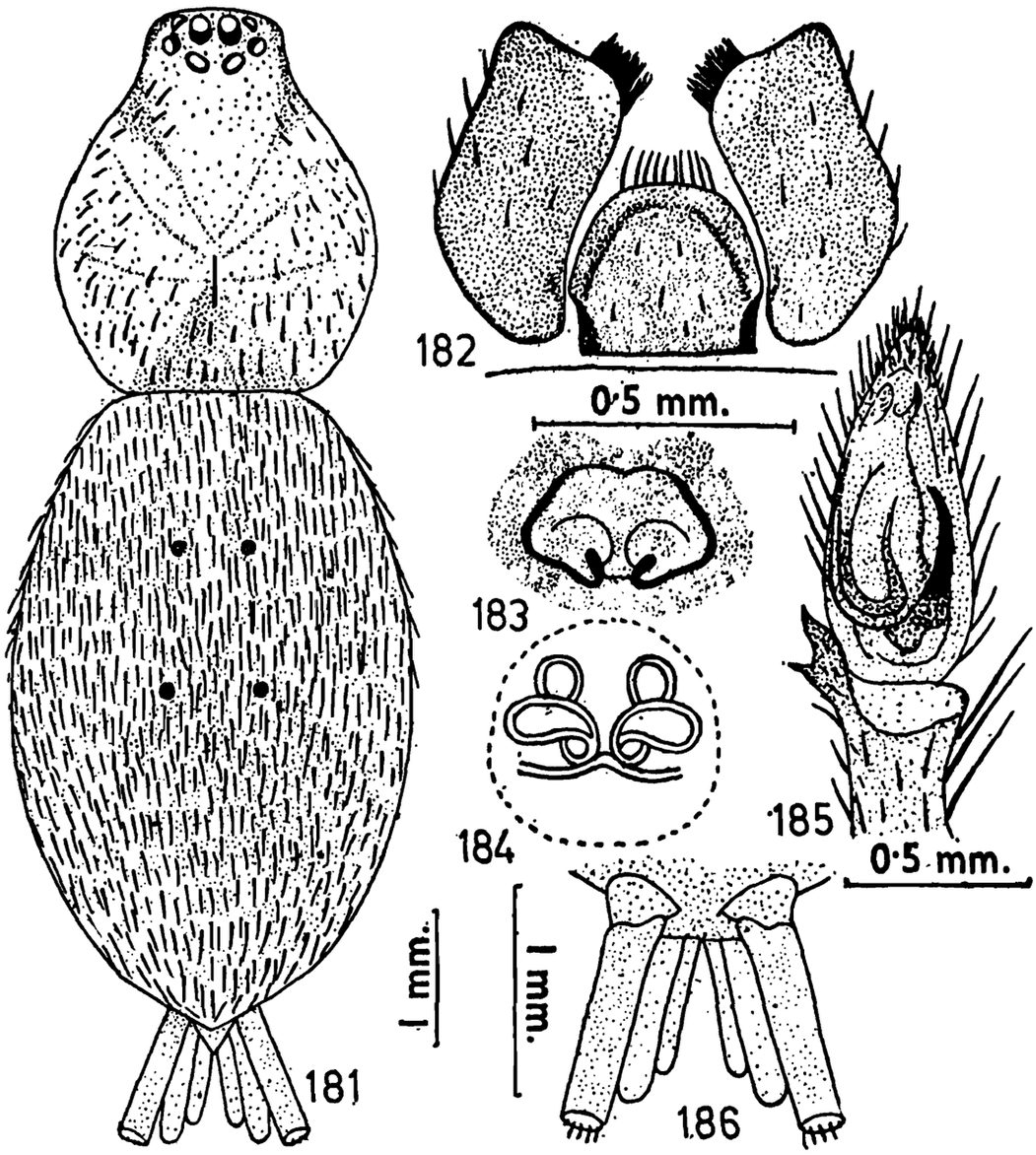
20. **Megamyrmecion ashae** Tikader & Gajbe

(Figs. 181-186)

1977. *Megamyrmecion ashae* Tikader & Gajbe, *Rec. zool. Surv. India*, **73**(1-4) : 16.

Genaral: Cephalothorax, abdomen and legs light brownish-green. Total length 7.80 mm. Carapace 3.00 mm. long, 2.40 mm. wide; abdomen 5.00 mm. long, 3.00 mm. wide.

Cephalothorax: Longer than wide, convex, narrow in front, cephalic region slightly high, posterior middle provided with a conspicuous fovea and clothed with fine hairs as in text-fig. 181. Eyes of anterior row procurved, anterior medians circular, black and larger than laterals, laterals elliptical in shape. Posterior row of eyes slightly longer than the anterior row, strongly procurved, more or less equal and equidistant from each other, posterior medians silvery white, elliptical in shape. Clypeus narrow. Sternum oval, pointed behind and clothed with fine hairs. Labium longer than wide and not contiguous with the maxillae. Anterior margin of maxillae provided with conspicuous scopulae as in text-fig. 182. Chelicerae vertical, inner margin without tooth but outer margin with two small teeth. Legs relatively long and strong, clothed with spines and hairs, legs IV longer than others and scopulae extend upto the base of



FIGS. 181-186. *Megamyrmecion ashae* Tikader & Gajbe
181. Dorsal view of female, legs omitted.
182. Labium and maxillae.
183. Epigyne.
184. Internal genitalia.
185. Right male palp, ventral view.
186. Spinnerets.

metatarsi I and II. The colour and size of male almost like female, male palp as in text-fig. 185.

Abdomen: More or less elliptical in shape, narrowed behind, clothed with pubescence. Ventral side lighter in colour than dorsal. Epigyne as in text-fig. 183 and internal genitalia as in

text-fig. 184. Spinnerets very prominent, anterior spinnerets cylindrical and longer than others as in text-fig. 186.

Type-locality: Range Hill, Poona, Maharashtra, INDIA. *Holotype* female, *paratype* two females and *allotype* one male in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 5015-7/18.

Distribution: Known only from type locality.

Remarks: Description and illustrations are based on *Holotype* female and *allotype* male.

Genus 8. **Scotophaeus** Simon

1893. *Scotophaeus* Simon, *Hist. Nat. Araign.*, 1(2) : 371.
1934. *Scotophaeus* : Caporiacco, *Memorie. Soc. ent. ital.*, 13 : 133.
1951. *Scotophaeus* : Locket & Millidge, *British spiders*, 1 : 104.
1962. *Scotophaeus* : Tikader, *Proc. First All India Cong., Zoology*, : 571.
1966. *Scotophaeus* : Tikader, *Rec. Indian Mus.*, 59(4) : 440.

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

Type-species: *Scotophaeus quadripunctatus* Latreille.

Distribution: Oriental and Temperate regions of the world.

Key to species of the genus **Scotophaeus** Simon

1. Abdomen provided with white patch.....2
   Abdomen not provided with any white patch.....3

2. Cephalic region provided with a pair of pale patches (Fig. 187) ; posterior row of eyes very slightly procurved (Fig. 187) ; white patches placed at nearly middle on the dorsum of abdomen (Fig. 187).....*madalasae*
   Cephalic region not provided with any pale patch ; posterior row of eyes strongly procurved (Fig. 192) ; triangular white patch at the anterior end on the dorsum of abdomen.....*rajasthanus*

3. Posterior row of eyes strongly procurved (Fig. 195) ; labium triangular in shape (Fig. 196); labium less than half the length of maxillae (Fig. 196).....*domesticus*
Posterior row of eyes slightly procurved ; labium not triangular ; labium more than half the length of maxilla.....4

4. Cephalothorax reddish brown ; abdomen elliptical with anteriorly a little blunt and reddish brown in colour (Fig. 198).....*poonaensis*
Cephalothorax light brownish green ; abdomen oval in shape and dark brown in colour (Fig. 203).....*simlaensis*

21. **Scotophaeus madalasae** Tikader & Gajbe

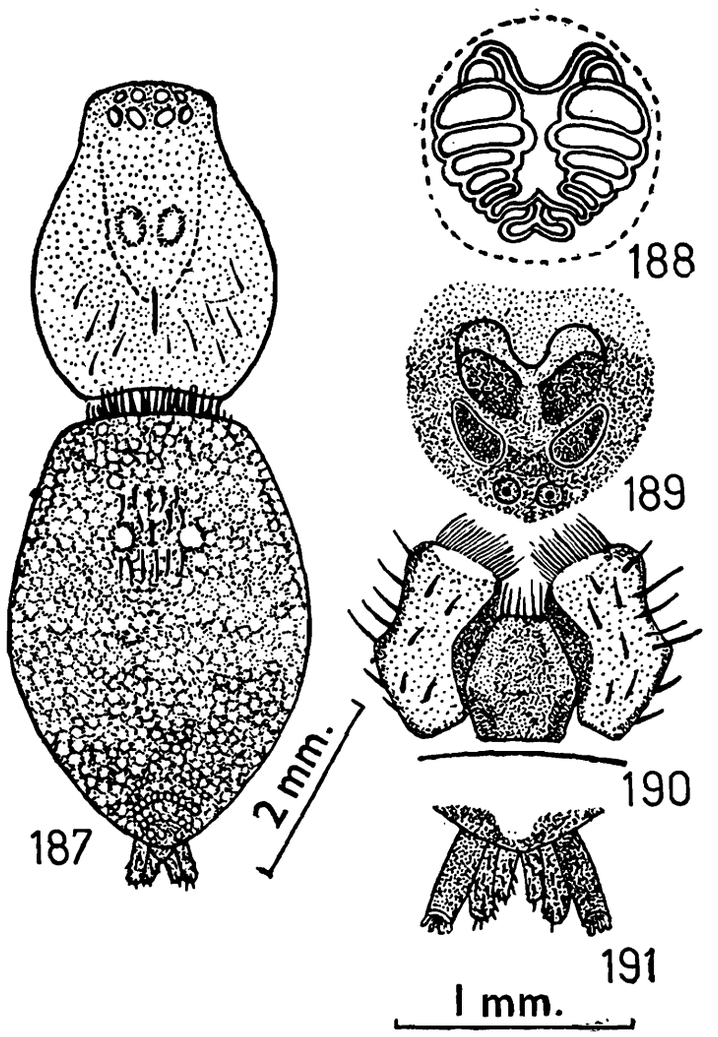
(Figs. 187-191)

1977. *Scotophaeus madalasae* Tikader & Gajbe, *Rec. zool. Surv. India*, 73(1-4) : 18.

General: Cephalothorax and legs reddish green, abdomen brown. Total length 8.00 mm. Carapace 3.10 mm. long, 2.50 mm. wide; abdomen 4.80 mm. long, 3.10 mm. wide.

Cephalothorax: Longer than wide, convex, narrow in front; cephalic region slightly high, centre provided with a conspicuous fovea and clothed with fine hairs. Eyes of anterior row slightly procurved (as seen from in front), anterior medians circular, black and slightly larger than laterals. Posterior row of eyes slightly longer than the anterior row, procurved, more or less equal and equidistant from each other. Posterior medians silvery white; elliptical in shape. Clypeus narrow. Sternum oval, slightly pointed behind, clothed with hairs. Labium nearly triangular and almost contiguous with hairs. Labium nearly triangular and almost contiguous with the maxillae. Anterior margin of maxillae provided with conspicuous scopulae as in text-fig. 190. Chelicerae vertical, inner and outer margin with three small teeth each. Legs strong, clothed with spines and hairs, legs IV longer than others, scopulae extend upto the base of metatarsi I and II.

Abdomen: More or less elliptical, slightly narrowed behind,



FIGS. 187-191. *Scotophaeus madalasae* Tikader & Gajbe
187. Dorsal view of female, legs omitted.
188. Internal genitalia.
189. Epigyne.
190. Labium and maxillae.
191. Spinnerets.

clothed with pubescence. Dorsum provided with two white patches nearly at the middle as in text-fig. 187. Ventral side lighter than the dorsal. Epigyne as in text-fig. 189 and internal genitalia as in text-fig. 188. Spinnerets very prominent as in text-fig. 191.

Type-locality: Harsil, Dist. Uttar Kashi, U.P. INDIA. *Holotype* female, *paratype* one female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 5003-4/18.

Distribution: Uttar Kashi and Chamba districts, U.P. INDIA.

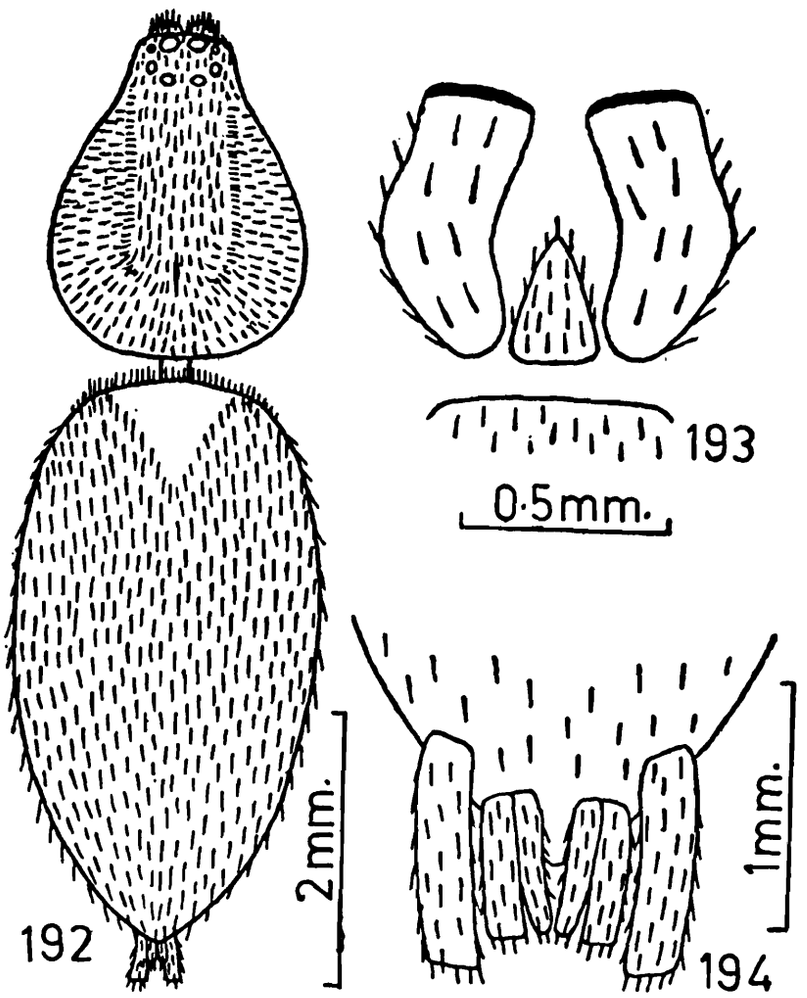
Remarks: Description and illustrations are based on the *Holotype* female.

22. **Scotophaeus rajasthanus** Tikader

(Figs. 192-194)

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

General: Cephalothorax, legs and clypeus brown; abdomen dark brown. Total length 6.60 mm. Carapace 2.30 mm. long, 1.90 mm. wide; abdomen 3.90 mm. long, 2.20 mm. wide.



FIGS. 192-194. *Scotophaeus rajasthanus* Tikader
192. Dorsal view of female, legs omitted.
193. Labium and maxillae.
194. Spinnerets.

Cephalothorax: Narrowed in front, convex, with a conspicuous fovea, clothed with fine hairs. Eyes viewed from front: anterior row slightly procurved; anterior medians considerably larger than the laterals and black. Posterior row slightly longer than the anterior row and procurved; eyes posterior row more or less equal and equidistant of each other, the posterior median white, the two laterals moderately dark. Clypeus narrow. Sternum oval, slightly pointed behind, clothed with hairs. Labium triangular and almost contiguous with the maxillae, as in text-fig. 193. Chelicerae vertical, margin without tooth. Legs long, spined, legs longer than others. Scopulae extend upto the base of metatarsi I and II.

Abdomen: More or less, elliptical, narrowed behind, clothed with fine pubescence, mid-anteriorly with an obscure white patch; ventral surface darker than the dorsal, with small widely placed white dots.

Type-locality: Merta city, Dist. Nagaur, Rajasthan, INDIA. *Holotype* female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 2492/18.

Distribution: Known only from the type-locality.

Remarks: Description and illustrations are on the basis of *Holotype* female.

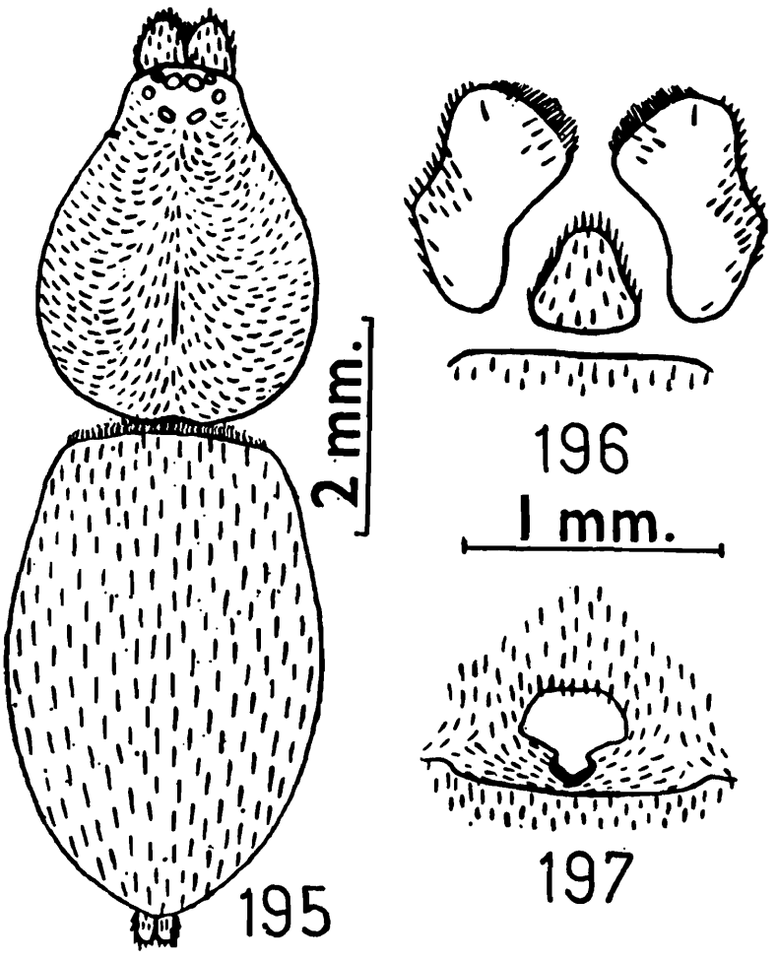
23. **Scotophaeus domesticus** Tikader

(Figs. 195-197)

1962. *Scotophaeus domesticus* Tikader, *Proc. All India Cong. Zoology.* : 570.

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

Cephalothorax: Cephalothorax narrowing in front, clothed with hairs, a fovea on the thorax. Eyes unequal and not equidistant; anterior row slightly procurved (as seen from in front), anterior medians larger than the laterals and dark in colour, posterior row longer and strongly procurved, posterior median eyes



FIGS. 195-197. *Scotophaeus domesticus* Tikader
195. Dorsal view of female, legs omitted.
196. Labium and maxillae.
197. Epigyne.

irregular in shape and silvery white in colour. Legs clothed with hairs and a few black stiff spines on tibiae and femora; tibiae I and II with three unpaired ventral spines; metatarsi I and II with one pair of ventral spines near the base. Scopulae profusely hairy; reaching nearly up to the base of metatarsi in I and II legs (and up to) tarsi in III and IV Labium triangular and not contiguous with maxillae as in text-fig. 196. Sternum oval.

Abdomen: Light brown to grey, nearly oval, densely clothed with fine pubescence. Epigyne as in text-fig. 197.

Type-locality: Dhakuria (Calcutta), West Bengal, INDIA. *Holotype* female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 2512/18.

Distribution: Known from only type locality.

Remarks: Description and illustrations are based on *Holotype* female.

24. **Scotophaeus poonaensis** sp.nov.

(Figs. 198-202)

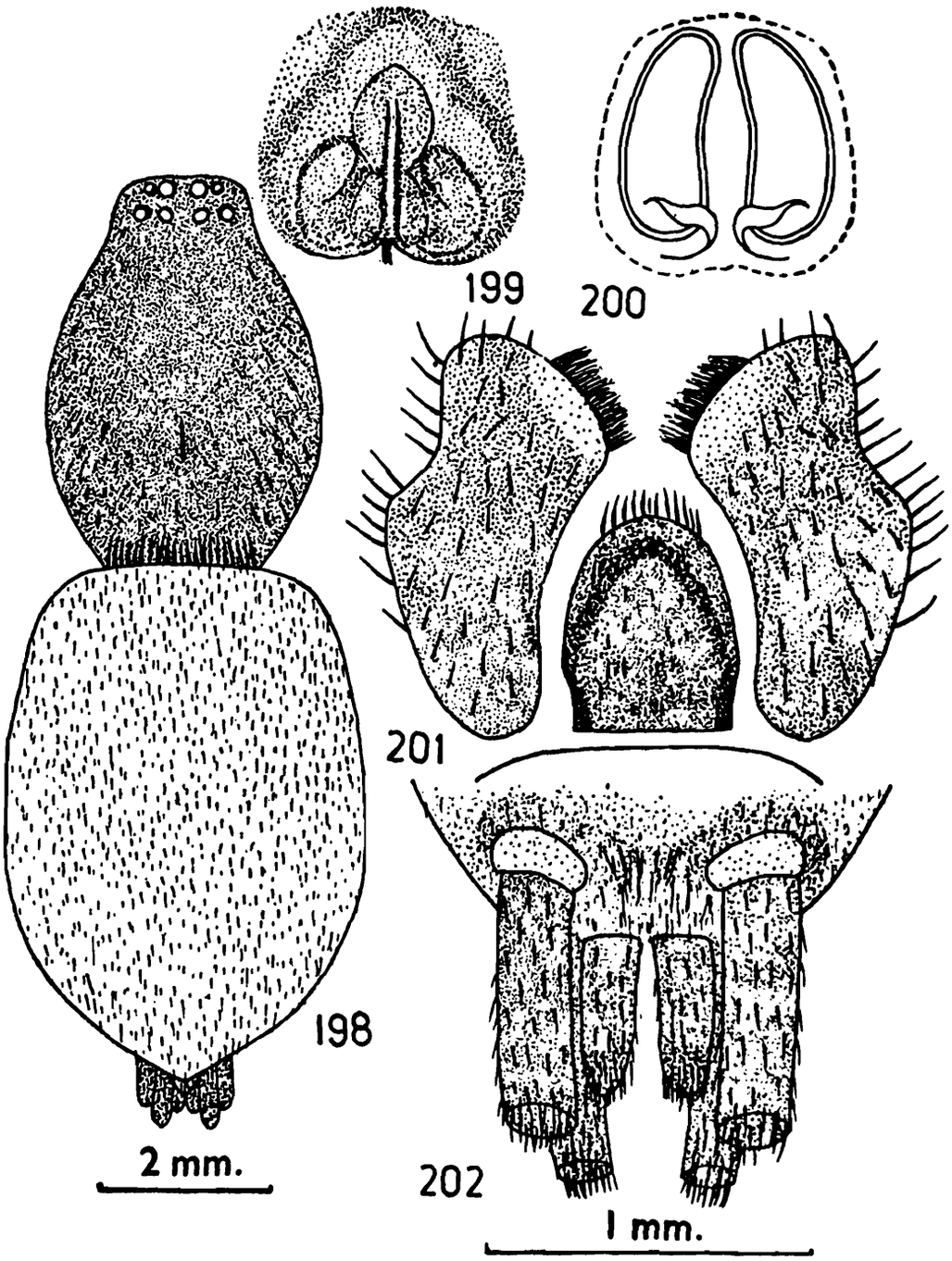
General: Cephalothorax reddish-brown, legs reddish-green, abdomen light brownish-green. Total length 10.80 mm. Carapace 4.80 mm. long, 3.40 mm. wide, abdomen 6.20 mm. long, 4.20 mm. wide.

Cephalothorax: Longer than wide, convex, narrow in front, clothed with pubescence, posterior middle provided with an conspicuous fovea. Eyes of anterior row slightly procurved (as seen from in front); anterior medians circular, black, larger than laterals, and closer to the adjacent laterals than to each other. Posterior row of eyes slightly longer than the anterior row, procurved, more or less equal and equidistant from each other. Posterior medians silvery white, elliptical in shape as in text-fig. 198. Clypeus narrow. Sternum nearly elliptical, pointed behind, clothed with hairs. Labium nearly triangular, longer than wide, anterior margin of maxillae provided with conspicuous scopulae as in text-fig. 201. Chelicerae moderately strong, vertical, inner margin with one minute tooth and outer margin with three teeth. Legs relatively long and strong, clothed with hairs and some spines, scopulae extend upto the base of metatarsi I and II. Legs formula 4123.

Abdomen: Longer than wide, more or less elliptical, slightly narrowed behind, clothed with mousy hairs. Ventral side slightly pale in colour. Epigyne as in text-fig. 199 and internal genitalia as in text-fig. 200. Spinnerets very prominent, posterior spinnerets longer than others as in text-fig. 202.

Type-specimen: *Holotype* female, *paratype* one female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 5005-6/18.

Type-locality: Aundh, Poona, Maharashtra, INDIA. 30.v.1975, Coll. *Dr. B. K. Tikader.*



FIGS. 198-202. *Scotophaeus poonaensis* sp.nov.
198. Dorsal view of female, legs omitted.
199. Epigyne.
200. Internal genitalia.
201. Labium and maxillae.
202. Spinnerets.

Discussion: This species resembles *Scotophaeus domesticus* Tikader but differs from it as follows: (i) Posterior row of eyes equal and equidistant from each other but in *S. domesticus*

posterior eyes not equidistant. (ii) Posterior median eyes elliptical in shape but in *S. domesticus* posterior median eyes irregular in shape. (iii) Epigyne also structurally different.

25. **Scotophaeus simlaensis** sp. nov.

(Figs. 203-207)

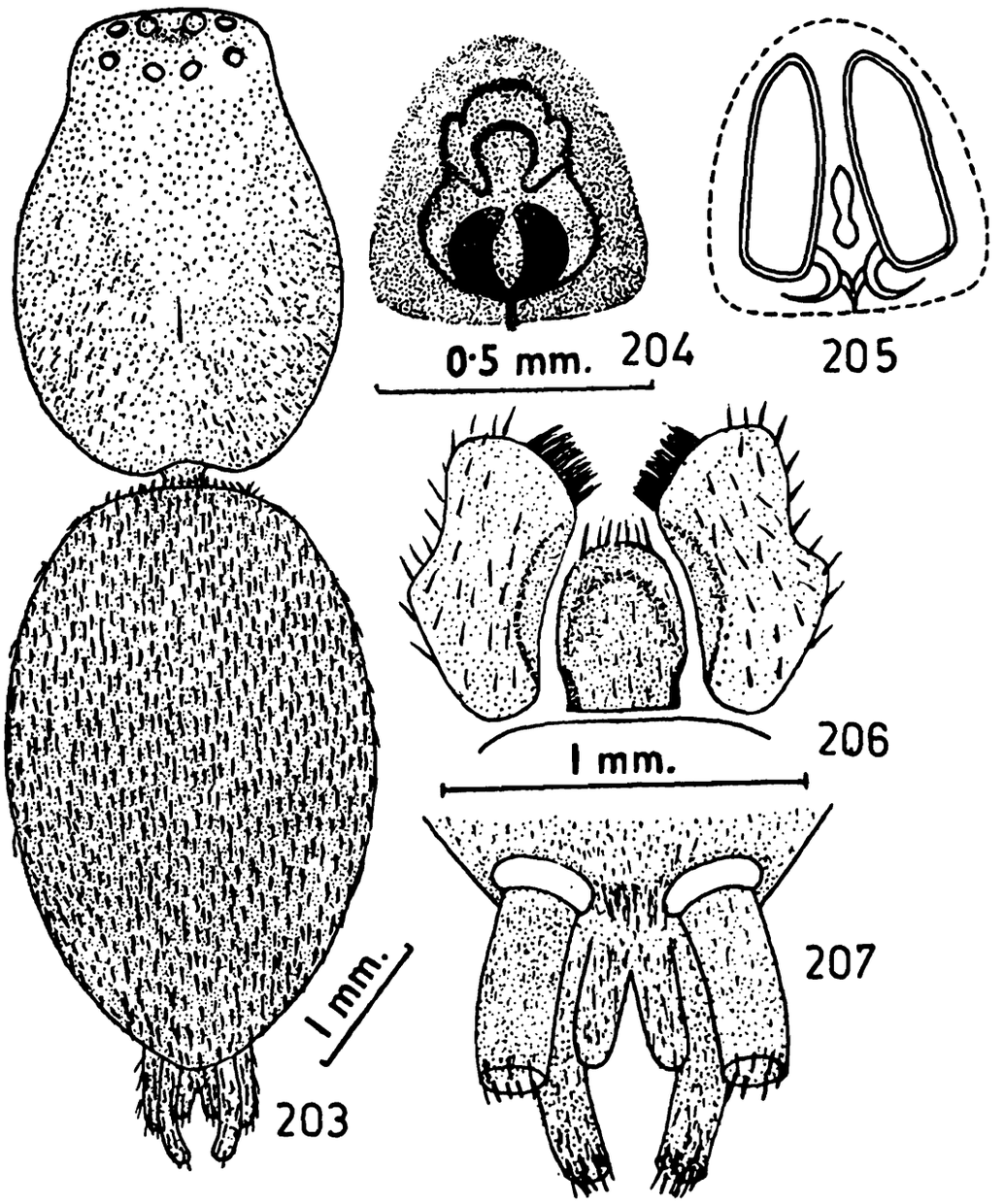
General: Cephalothorax and legs light brownish-green. Abdomen dark brown. Total length 7.50 mm. Carapace 3.40 mm. long, 2.40 mm. wide; abdomen 4.20 mm. long, 2.70 mm. wide.

Cephalothorax: Longer than wide, convex, narrow in front, clothed with pubescence, posterior middle provided with a conspicuous fovea. Eyes of anterior row slightly procurved (as seen from in front); anterior median circular, black, larger than laterals and closer to the adjacent laterals than to each other. Posterior row of eyes slightly longer than the anterior row, procurved, more or less equal and equidistant from each other. Posterior medians silvery white, elliptical in shape as in text-fig. 203. Clypeus narrow. Sternum nearly elliptical, slightly pointed behind, clothed with hairs. Labium nearly triangular, longer than wide, anterior margin of maxillae provided with conspicuous scopulae as in text-fig. 206. Chelicerae moderately strong, vertical, inner margin with one minute tooth and outer margin with five slightly larger dissimilar teeth. Legs relatively long and strong, clothed with hairs and some spines, scopulae extend upto the base of metatarsi I and II. Legs formula 4123.

Abdomen: Longer than wide, oval, slightly narrowed behind, clothed with mousy hairs. Ventral side lighter in colour than dorsal. Epigyne as in text-fig. 204 and internal genitalia as in text-fig. 205. Spinnerets very prominent, posterior spinnerets longer than others as in text-fig. 207.

Type-specimen: *Holotype* female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 5007/18.

Type-locality: Bank of Giri River, Saini, Dist. Simla, Himachal Pradesh, INDIA. 1.vii.1974. Coll. *Mahesh Chandra.*



FIGS. 203-207. *Scotophaeus simlaensis* sp.nov.
203. Dorsal view of female, legs omitted.
204. Epigyne.
205. Internal genitalia.
206. Labium and maxillae.
207. Spinnerets.

Discussion: This species resembles *Scotophaeus poonaensis* sp. nov. but differs from it as follows: (i) Cephalothorax light brownish-green but in *S. poonaensis* sp. nov. cephalothorax reddish-brown. (ii) Abdomen oval, dark brown but in *S.*

poonaensis sp. nov. abdomen elliptical, reddish brown. (iii) Epigyne also structurally different.

Genus 9. **Liodrassus** Chamberlin

1936. *Liodrassus* Chamberlin, *Am. Mus. Novit.*, **853** : 4.
1940. *Liodrassus* : Comstock, *The Spider book*, New York, : 333.
1977. *Liodrassus* : Tikader & Gajbe, *Rec. zool. Surv. India*, **73** : 20.

Characters: The cephalothorax is oval and much narrow in front. The anterior row of eyes slightly procurved, the anterior medians are larger than the laterals. The posterior row of eyes slightly procurved, close together, the median are much larger than the laterals. The inner margin of the furrow of the chelicera is completely devoid of teeth.

Type-species: *Liodrassus arizonicus* Chamberlin.

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

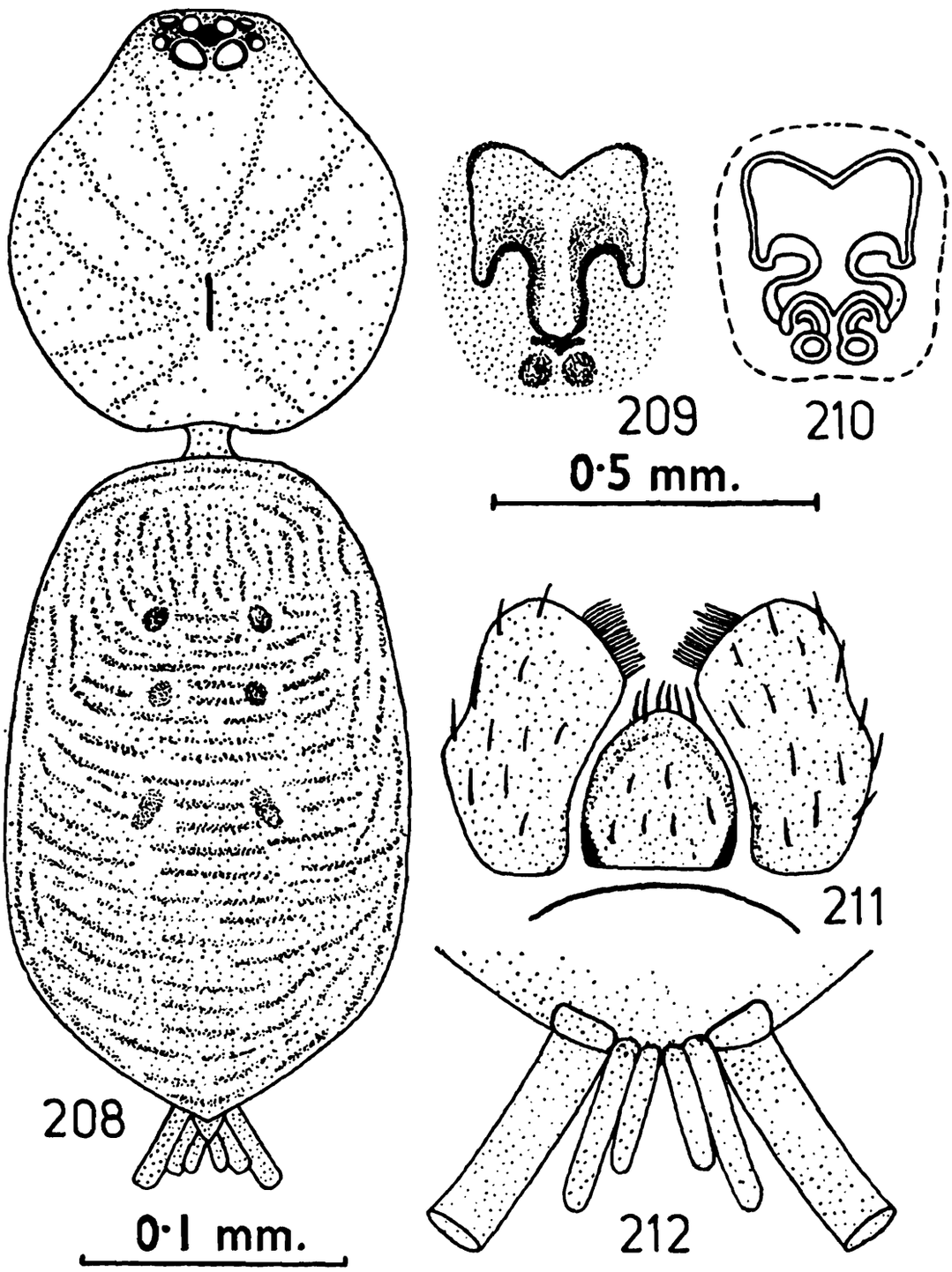
26. **Liodrassus mandae** Tikader & Gajbe

(Figs. 208-212)

1977. *Liodrassus mandae* Tikader & Gajbe, *Rec. zool. Surv. India*, **73**(1-4) : 20.

General: Cephalothorax and legs light reddish green, abdomen deep brown. Total length 4.30 mm. Carapace 1.60 mm. long, 1.50 mm. wide, abdomen 2.60 mm. long, 1.50 mm. wide.

Cephalothorax: Slightly longer than wide, convex, narrow in front, cephalic region slightly high, posterior middle provided with a inconspicuous fovea and clothed with fine hairs. Eyes of anterior row slightly procurved, anterior medians circular, black and slightly larger than laterals, laterals elliptical in shape. Posterior row of eyes slightly longer than the anterior row and procurved. Posterior medians silvery white, elliptical in shape, much larger than the posterior laterals and closer to laterals than to each other. Clypeus narrow. Sternum oval, slightly narrowed behind and clothed with hairs. Labium triangular, not contiguous with maxillae. Anterior margin of maxillae pro-



FIGS. 208-212. *Liodrassus mandae* Tikader & Gajbe

208. Dorsal view of female, legs omitted.
209. Epigyne.
210. Internal genitalia.
211. Labium and maxillae.
212. Spinnerets.

vided with scopulae as in text-fig. 211. Chelicerae vertical, inner margin without tooth but outer margin with four small teeth. Legs relatively long and strong, clothed with spines and hairs. Legs IV longer than the others, scopulae extend upto the base of metatarsi I and II.

Abdomen: More or less elliptical in shape, narrowed behind, with muscular corrugations and clothed with fine hairs as in text-fig. 208. Ventral side lighter than the dorsal. Epigyne as in text-fig. 209 and internal genitalia as in text-fig. 210. Spinnerets very prominent, anterior spinnerets cylindrical and longer than others as in text-fig. 212.

Type-locality: Bherighat, Dist. Bilaspur, Himachal Pradesh, INDIA. *Holotype* female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 5018/18.

Distribution: Known only from type-locality.

Remarks: Description and illustrations are based on the *Holotype* female.

Genus **10. Geodrassus** Chamberlin

1922. *Geodrassus* Chamberlin, *Proc. biol. Soc. Wash.*, **35** : 159.
1940. *Geodrassus* : Comstock, *The Spider Book*, New York, : 325.
1977. *Geodrassus* : Tikader & Gajbe, *Rec. zool. Surv. India*, **73** : 71.

Characters: This genus is closely allied to *Drassodes*. The lower margin of the furrow of the chelicera is armed with a single small tooth. The eyes of the anterior row are subequal in size. The palpus of the male is very short, and the tibia completely lacks an apophysis.

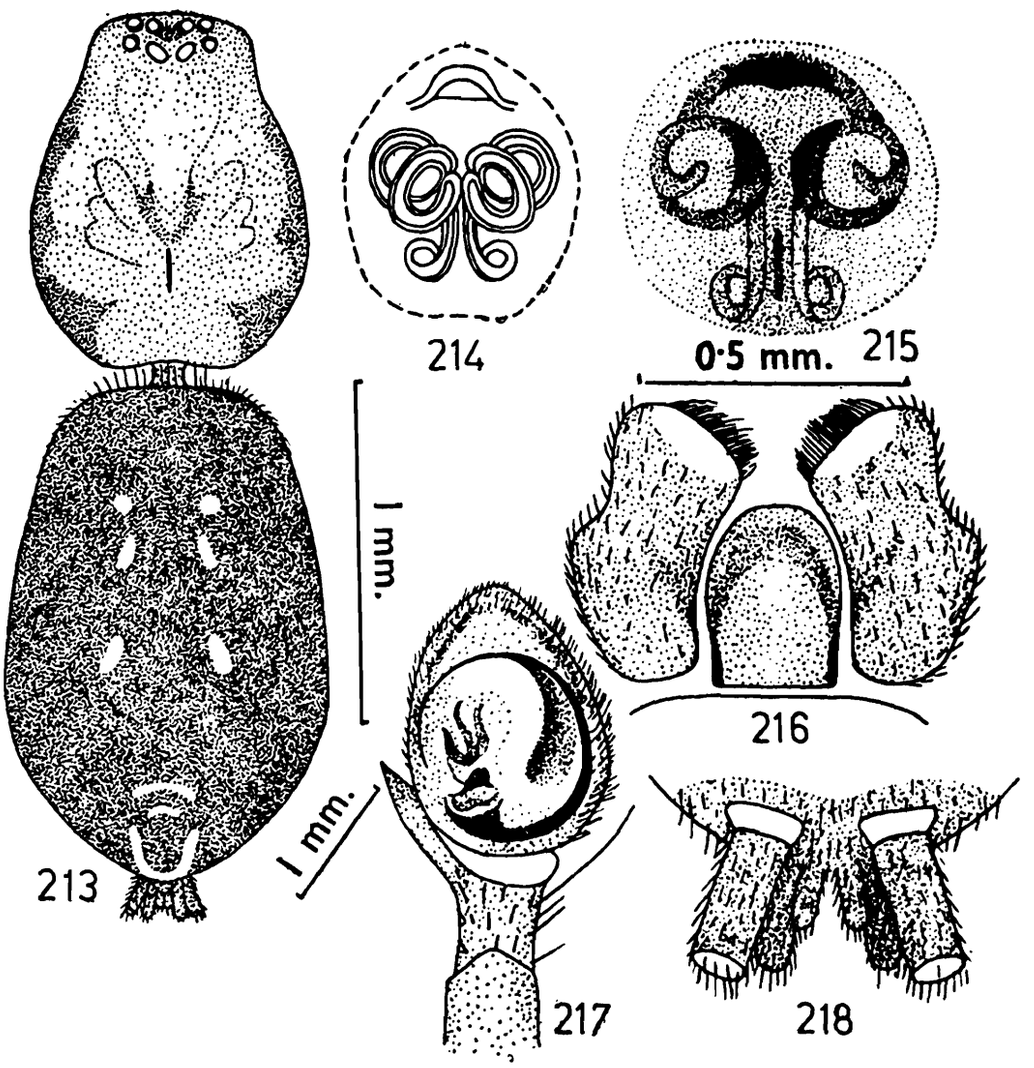
Type-species: *Geodrassus gosiutus* (Chamberlin).

Distribution: UTAH, AMERICA, INDIA.

27. **Geodrassus sirmourensis** Tikader & Gajbe

(Figs. 213-218)

1977. *Geodrassus sirmourensis* Tikader & Gajbe, *Rec. zool. Surv. India*, **73**(1-4) : 71.



FIGS. 213-218. *Geodrassus sirmourensis* Tikader & Gajbe
213. Dorsal view of female, legs omitted.
214. Internal genitalia.
215. Epigyne.
216. Labium and maxillae.
217. Right male palp, ventral view.
218. Spinnerets.

General: Cephalothorax and legs reddish-green, abdomen brown. Total length 6.50 mm. Carapace 2.50 mm. long, 2.00 mm. wide; abdomen 3.80 mm. long, 2.30 mm. wide.

Cephalothorax: Longer than wide, broad in front, clothed with fine thick black hairs, posterior middle provided with a conspicuous fovea. Pattern of radiating streaks diverge from a fovea to the sides. Eyes pearly white except anterior medians,

posterior row of eyes slightly longer than the anterior row. Anterior row of eyes procurved (as seen from in front), medians smaller than the laterals and closer to laterals than to each other. Posterior row of eyes procurved, medians oval, larger than laterals and much closer to each other than to the adjacent laterals. Chelicerae moderately strong, inner and outer margin provided with one and three teeth respectively. Sternum heart-shaped, pointed behind, clothed with fine thick hairs. Maxillae and labium reddish-green, shape as in text-fig. 216. Legs relatively long and strong, clothed with hairs and spines. Metatarsi and tarsi of I and II provided ventrally with conspicuous scopulae and tarsi with prominent claw tufts. Legs formula 4123. Male smaller than female but colouring pattern is the same, male palp as in text-fig. 217.

Abdomen: Longer than wide, nearly elliptical, clothed with thick hairs, provided with three pairs of sigilla and U-shaped white marking at the posterior end as in text-fig. 213. Ventral side lighter than the dorsal. Epigyne as in text-fig. 215 and internal genitalia as in text-fig. 214. Spinnerets prominent, anterior spinnerets cylindrical and longer than others as in text-fig. 218.

Type-locality: Renuka lake, Dist. Sirmour, Himachal Pradesh, INDIA. *Holotype* female, *paratype* one female and *allotype* one male in spirit, deposited in the Z.S.I., Calcutta, Regd. No. 4999-5001/18.

Distribution: Known only from type-locality.

Remarks: Description and illustrations are based on *holotype* female and *allotype* male.

Genus 11. **Drassodes** Westring

1851. *Drassodes* Westring, *Goteborgs. K. Vetensk.-o. Vitterh Samh. Handl.*, 2 : 25-62.

1905. *Drassodes* : Simon, *Annls. Soc. ent. Fr.*, 74 : 168.

1934. *Drassodes* : Caporiacco, *Memorie. Soc. ent. ital.*, 13 : 126.

1962. *Drassodes* : Tikader, *Proc. First Cong. Zool.*, : 570.

1964. *Drassodes* : Tikader, *Rec. Indian Mus.*, 59(3) : 261.

1975. *Drassodes* : Tikader & Gajbe, *Oriental Ins.*, 9(3) : 273-281.
1977. *Drassodes* : Tikader, *Rec. zool. Surv. India*, 72(1-4) : 186.

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

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

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

Key to species of the genus **Drassodes** Westring

1. Spiders of smaller size upto 7 mm.....2
   Spiders of bigger size, above 7 mm.....10

2. Carapace clothed with pubescence.....3
   Carapace clothed with hairs but not pubescence.....7

3. Anterior end of abdomen overalapped on the carapace.....4
   Anterior end of abdomen not overlapping on the carapace.....5

4. Posterior row of eyes straight (Fig. 219); carapace provided with some deep brown circular spots (Fig. 219); abdomen roundish oval (Fig. 219).....*phagduaensis*
   Posterior row of eyes procurved (Fig. 223); carapace not provided with any circular spots (Fig. 223); abdmen elongated oval (Fig. 223).....*carinivulvus*

5. Abdomen elliptical in shape (Fig. 226); posterior row of eyes slightly recurved as seen from above (Fig. 226).....*andamanensis*
Abdomen oval in shape; posterior row of eyes procurved as seen from above.....6

6. Antero-lateral portion of abdomen slightly angular (Fig. 230); maxilla touching with labium (Fig. 231).....*malodes*
Antero-lateral portion of abdomen roundish (Fig. 233); maxilla not touching with labium (Fig. 236).....*gangeticus*

7. Carapace provided with radial lines from the fovea.....8
Carapace not provided with any radial lines.....9

8. Abdomen oval, antero-lateral portion angular (Fig. 238); labium semi-circular, not provided with any notch (Fig. 242).....*oppenheimeri*
Abdomen elliptical, antero-lateral portion roundish (Fig. 244); labium elongated and provided with a notch at the base on either side (Fig. 245).....*sagarensis*

9. Carapace densely clothed with hairs (Fig. 250); labium roughly oval in shape (Fig. 252); anterior pair of spinnerets larger than the posterior pair (Fig. 250).....*heterophthalmus*
Carapace scarcely clothed with hairs (Fig. 253); labium semi-circular in shape (Fig. 256); anterior pair of spinnerets smaller than the posterior pair (Fig. 253).....*lubrica*

10. Abdomen posteriorly blunt, nearly truncated.....11
Abdomen not blunt posteriorly, no truncation.....13

11. Dorsum of abdomen provided with two pairs of sigilla (Fig. 257); posterior median eyes more closer to each other than to the lateral eyes (Fig. 257).....*ferrugineus*
Dorsum of abdomen provided with three pairs of sigilla; eyes of posterior row equidistant.....12

12. Anterior median eyes larger than the posterior medians (Fig. 260); sigilla roundish in shape (Fig. 260).....*luridus*

Posterior median eyes larger than the anterior medians (Fig. 264) ; sigilla elongated in shape (Fig. 264) ..... *rubicundulus*

13. Trochanter notched and tibia IV with two spines dorsally ..... *deoprayagensis*
Trochanter without any notch and tibia IV without any dorsal spine or at the most with a single spine 14

14. Tibia IV without dorsal spine and abdomen pale on the dorsum ..... *sitae*
Tibia IV with one dorsal spine and abdomen dark on the dorsum 15

15. Abdomen not overlapping on the carapace 16
Abdomen overlapping on the carapace 17

16. Abdomen elliptical (Fig. 279) ; labium semicircular and without any notch at the base (Fig. 281) ; maxillae slightly convergent distally (Fig. 281) ..... *meghalayaensis*
Abdomen oval and distinctly narrow posteriorly (Fig. 287) ; labium not semicircular and provided with notch at the base (Fig. 286) ; maxillae strongly convergent distally (Fig. 286) ..... *indraprastha*

17. Cephalic region distinctly high on cephalothorax 18
Cephalic region not distinctly high on cephalothorax 19

18. Dorsum of abdomen provided with dark brown chevrons (Fig. 288) ; anterior median eyes largest among all (Fig. 288) ; posterior row of eyes recurved as seen from above (Fig. 288) ..... *parvidens*
Dorsum of abdomen not provided with dark brown chevrons but irregular patches (Fig. 292) ; anterior median eyes smallest among all (Fig. 292) ; posterior row of eyes straight as seen from above (Fig. 292) ..... *singularis*

19. Anterior row recurved as seen from above (Fig. 296) ; posterior row of eyes straight (Fig. 296) ; both anterior pair and posterior pair of spinnerets same in length (Fig. 296) ..... *macilentus*

Anterior row either procurved or straight as seen from above ; posterior row of eyes procurved ; anterior and posterior pairs of spinnerets unequal in length.....20

20. Antero-lateral portion of abdomen slightly angular (Fig. 299) ; anterior median eyes smaller than anterior laterals (Fig. 299) ; labium without any notch at the base (Fig. 302).....*himalayensis*
Antero-laterals portion of abdomen roundish (Fig. 305) ; anterior median eyes larger than anterior laterals (Fig. 305) ; labium with notch at the base (Fig. 308).....*pashanensis*

28. **Drassodes phagduaensis** Tikader

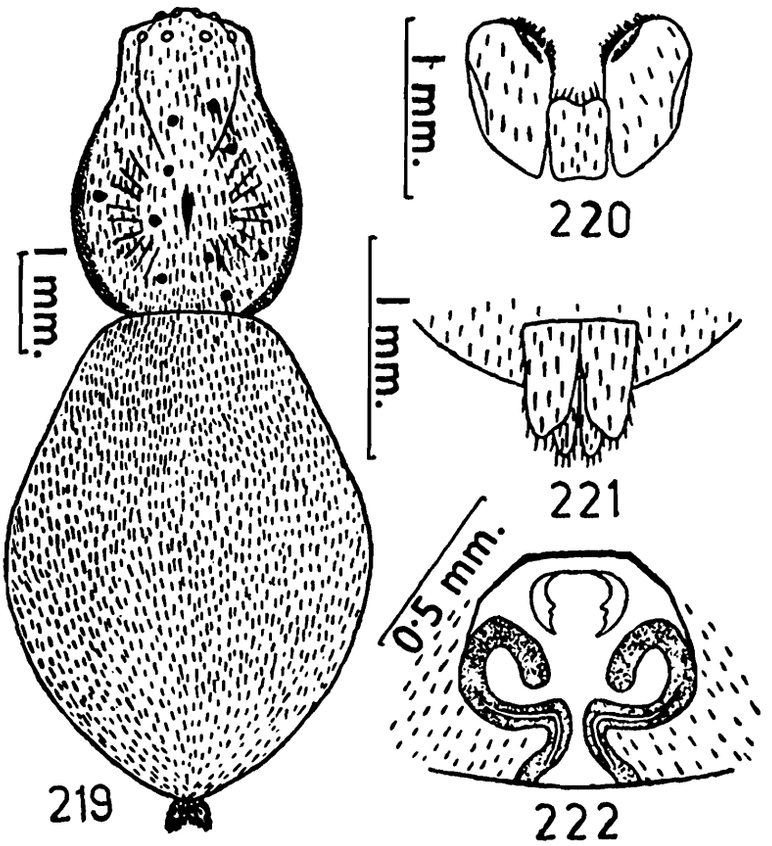
(Figs. 219-222)

1964. *Drassodes phagduaensis* Tikader, *Rec. Indian Mus.*, 59(3) : 261.

General: Cephalothorax deep yellowish-brown, legs light yellowish-brown, abdomen reddish brown. Total length 7.50 mm. Carapace 2.70 mm. long, 2.00 mm. wide; abdomen 5.10 mm. long, 3.90 mm. wide.

Cephalothorax: Heart-shaped, relatively broad in front, convex, with a fovea, clothed with fine hairs; a deep brown band encircles almost the entire margin of cephalothorax. Eyes viewed from front, anterior row slightly procurved, medians smaller than the laterals. Posterior row longer, procurved, more or less equal and equidistant. Clypeus narrow. Sternum heart-shaped pointed behind with circular deep-brown dots and with a narrow deep-brown margin. Maxillae and labium as seen in text-fig. 220. Chelicerae strong, nearly vertical, three small teeth on inner margin and four on the outer, but second, third and fourth joined at the base. Legs long, stout, clothed with hairs and a few long spines, irregular deep-brown patches on the legs, tibiae I and II with two pairs of long ventral spines. Scopulae extend nearly up to the base of metatarsi I and II, and upto the base of tarsi III and IV.

Abdomen: Oval, clothed with fine grey pubescence, slightly



FIGS. 219-222. *Drassodes phagduaensis* Tikader

219. Dorsal view of female, legs omitted.

220. Labium and maxillae.

221. Spinnerets.

222. Epigyne.

over-lapping the posterior region of cephalothorax in front. Ventral surface unifrom pale colour. Spinnerets and epigyne as seen in text-figs. 221 & 222.

Type-locality: Phagdua, *ca.* 4267 m. high, Central Himalaya, NEPAL. *Holotype* female in spirit, deposited in the Z.S.I., Calcutta, Regd. No. 2483/18.

Distribution: Known only from the type-locality.

Remarks: Description and illustrations are based on *holotype* female.

29. **Drassodes carnivulvus** Caporiacco

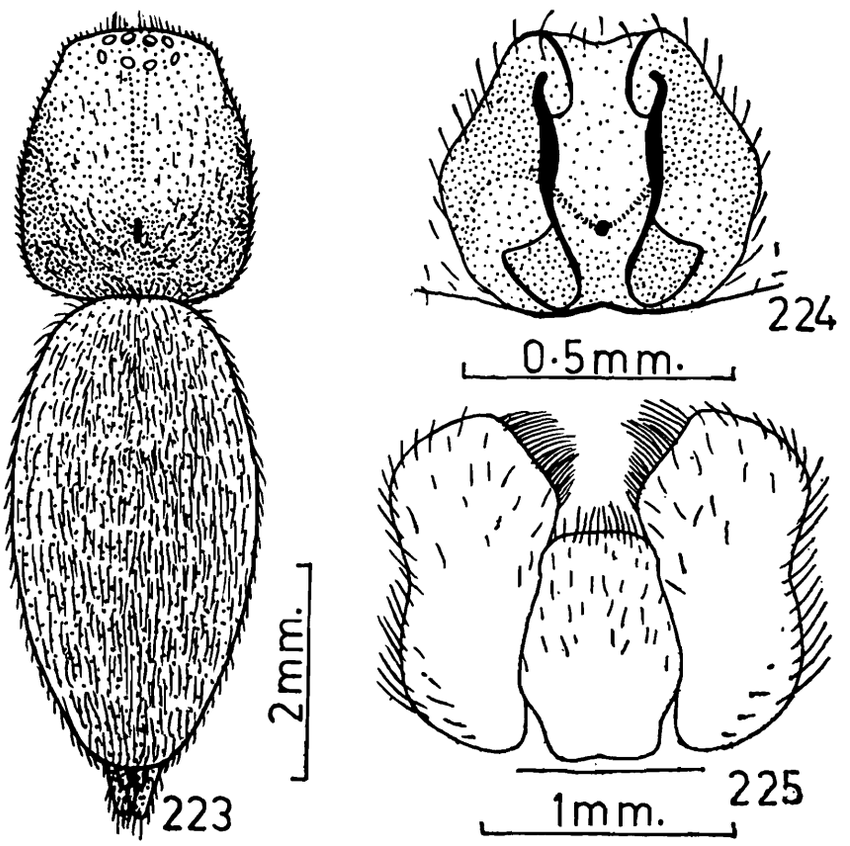
(Figs. 223-225)

1934. *Drassodes (Drassodes) carnivulvus* Caporiacco, *Memorie Soc. ent. ital.*, **13** : 128.

1954. *Drassodes carnivulvus* : Roewer, *Katalog der Araneae*, 2 Band, Abt. a, p. 385.

General: Cephalothorax dark brownish, legs yellowish brown, abdomen greyish. Total length 6.85 mm. Carapace 2.65 mm. long, 2.20 mm. wide; abdomen 4.45 mm. long, 2.35 mm. wide.

Cephalothorax: Longer than wide, blunt anteriorly, clothed with white pubescence; cephalic region large in comparison to thoracic region; thoracic region provided with a fine longitudinal fovea as in text-fig. 223. Posterior median eyes larger, others are subequal in size; anterior row of eyes procurved as seen from



FIGS. 223-225. *Drassodes carnivulvus* Caporiacco

223. Dorsal view of female, legs omitted.

224. Epigyne.

225. Labium and maxillae.

in front and posterior row also procurved as seen from above as in text-fig. 223. Sternum oval shaped, slightly tapering posteriorly, clothed with hairs, light brownish in colour. Maxillae longer than wide with a depression at the middle and convergent distally, distal ends provided with distinct scopulae. Labium longer than wide, deep brownish in colour as in text-fig. 225. Chelicerae strong with prominent boss. Legs moderately long and strong; femora III, IV provided with longitudinal dark lines on the dorsal surface.

Abdomen: Longer than wide, cone shaped with a little wide at the middle, clothed with small hairs. Epigyne as in text-fig. 224. Since the specimen heavily dried, the internal genitalia was not in studiable condition.

Type-locality: Kashmir, INDIA. *Holotype* female, in spirit, deposited in the Museo Naturale, Italia, Regd. No. Nil.

Distribution: Kashmir, INDIA.

Remarks: Description and illustrations are based on *Holotype* female, deposited in the Museo Civico Di Storia Naturale, Italia. Regd. No. nil.

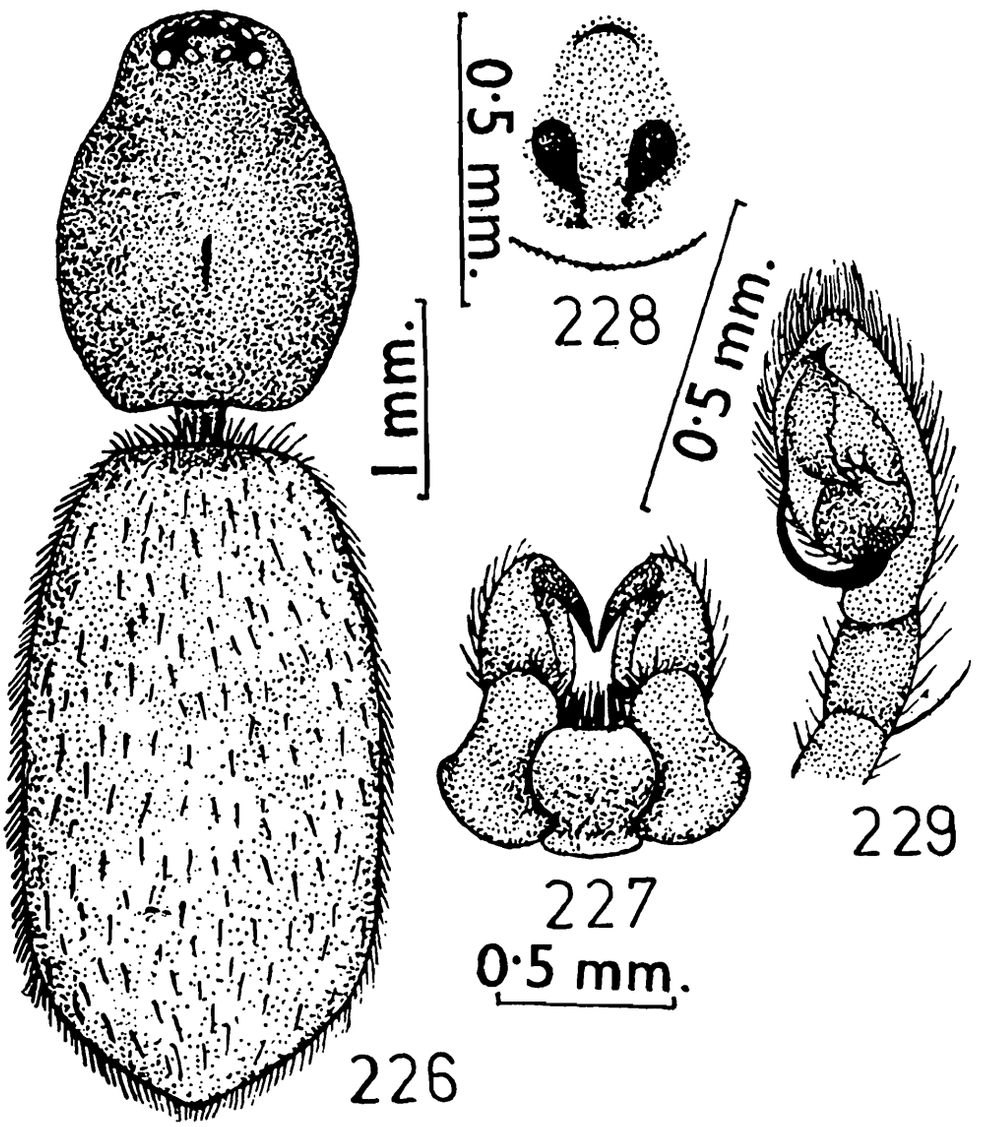
30. **Drassodes andamanensis** Tikader

(Figs. 226-229)

1977. *Drassodes asdamanensis* Tikader, *Rec. zool. Surv. India*, 72(1-4) : 186.

General: Cephalothorax and legs light reddish brown, abdomen light greenish. Total length 5.50 mm. Carapace 2.00 mm. long, 1.60 mm. wide; abdomen 3.50 mm. long, 1.90 mm. wide.

Cephalothorax: Longer than wide, broader in front, clothed with fine hairs, convex with a small fovea at the centre of cephalothorax. Eyes in two rows, anterior median dark and rest pearly white in colour and irregular in shape, both rows procurved (as seen from front) anterior medians smaller than the others, posterior row larger than anterior row. Clypeus narrow. Ocular quad slightly longer than wide. Sternum heart-



FIGS. 226-229. *Drassodes andamanensis* Tikader
226. Dorsal view of female, legs omitted.
227. Labium and maxillae.
228. Epigyne.
229. Male palp, ventral view.

shaped, pointed behind, clothed with hairs. Maxillae and labium as in text-fig. 227. Chelicerae strong, nearly vertical, two small teeth on inner margin and two slightly larger teeth on outer margin. Legs long, stout, clothed with hairs and few spines. Leg formula 4123. Male palp as in text-fig. 229.

Abdomen: Nearly oval, wider behind, clothed with fine brown pubescence, slightly overlapping the posterior region of cepha-

lothorax in front. Ventral surface uniform pale colour. Epigyne as in text-fig. 228.

Type-locality: Smith Island, near forest department camp. Andaman, INDIA. *Holotype* female and *allotype* one male in spirit, deposited in the Z.S.I., Calcutta, Regd. No. 4970-1/18.

Distribution: Known only from type-locality.

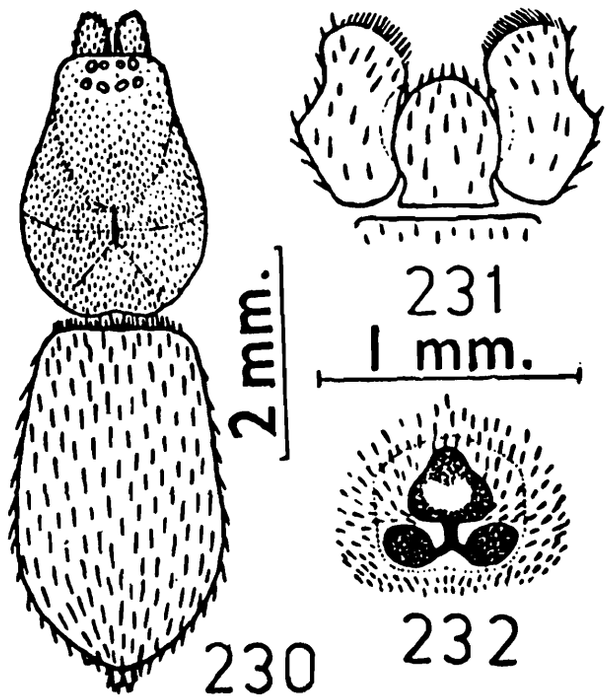
Remarks: Description and illustrations are based on the *Holotype* female and *allotype* male.

31. **Drassodes malodes** Tikader

(Figs. 230-232)

1962. *Drassodes malodes* Tikader, *Proc. All India Cong. Zool.*, : 572.

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



FIGS. 230-232. *Drassodes malodes* Tikader
230. Dorsal view of female, legs omitted.
231. Labium and maxillae.
232. Epigyne.

Cephalothorox: Longer than wide and relatively broader in front, clothed with very small hairs, with faint streaks radiating from fovea. Anterior row of eyes slightly procurved (as seen from in front), medians slightly smaller and darker than laterals and a little closer to the laterals than to each other; posterior row of eyes longer, slightly procurved, medians oval, slightly larger than laterals; all eyes white except the anterior medians. Sternum oval and pointed behind. Maxillae and labium as in text-fig 231. Legs clothed with hairs, scopulae extend nearly to the base of metatarsi in legs I and II and to the base of tarsi in legs III and IV

Abdomen: Longer than wide, nearly oval, anterolateral corner slightly angular; clothed with thick and long hairs. Epigyne as in text-fig. 232.

Type-locality: Dhakuria (Calcutta), West Bengal, INDIA. *Holotype* female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 2507/18.

Distribution: Known only from type locality.

Remarks: Description and illustrations are based on *Holotype* female.

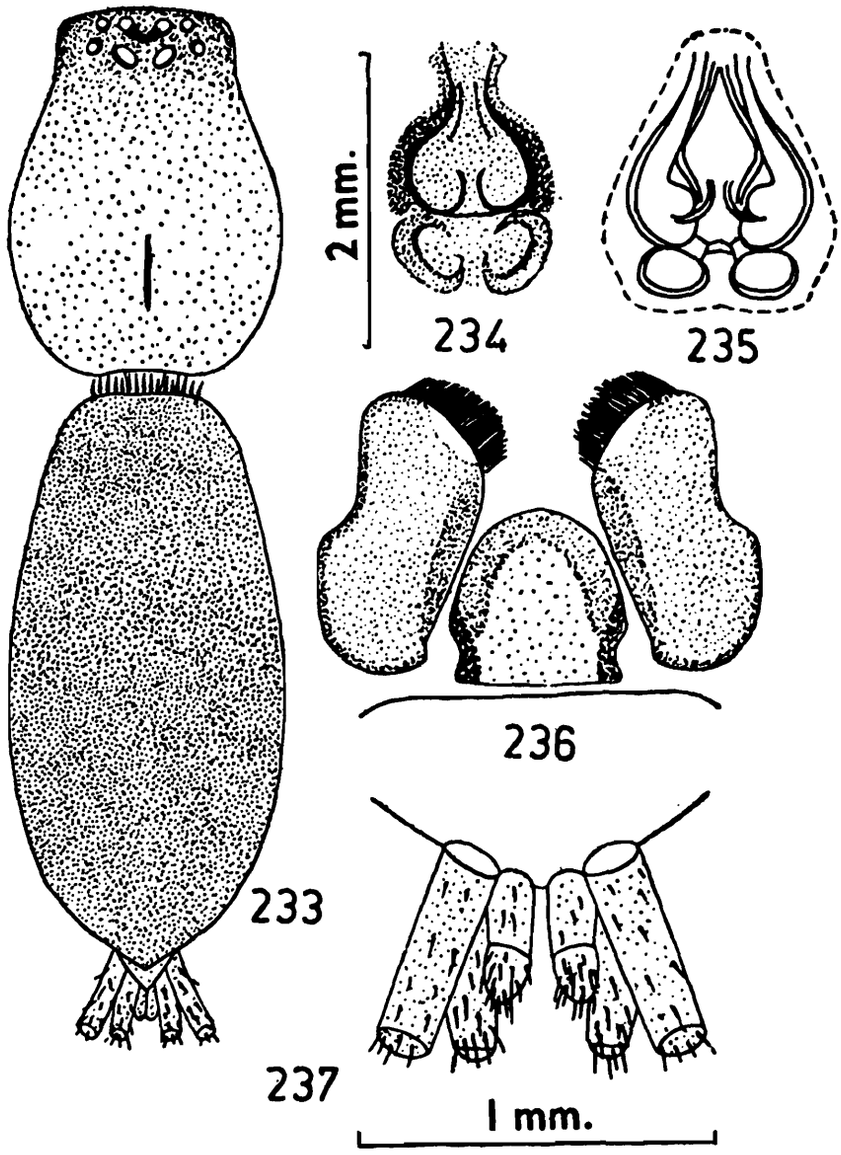
32. **Drassodes gangeticus** Tikader & Gajbe

(Figs. 233-237)

1975. *Drassodes gangeticus* Tikader & Gajbe, *Oriental Ins.*, 9(3) : 278-279.

General: Cephalothorax and legs light brownish-green, abdomen brown. Total length 6.80 mm. Carapace 2.50 mm. long, 1.90 mm. wide; abdomen 4.20 mm. long, 1.80 mm. wide.

Cephalothorax: Longer than wide, broad in front, clothed with pubescence and posterior middle provided with a conspicuous fovea. Cephalic region slightly high. Eyes pearly white except anterior medians, anterior row slightly procurved, medians and laterals nearly the same size and closer to adjacent laterals than to each other, base of anterior medians provided with deep



FIGS. 233-237. *Drassodes gangeticus* Tikader & Gajbe
233. Dorsal view of female, legs omitted.
234. Epigyne.
235. Internal genitalia.
236. Labium and maxillae.
237. Spinnerets.

brown patch. Posterior row slightly longer than the anterior row, procurved, medians oval, slightly larger than the laterals, and situated close to each other than to adjacent laterals. Chelicerae strong, inner margin provided with two small teeth and outer margin provided with two slightly bigger teeth. Sternum heart-shaped, pointed, behind, clothed with fine hairs. Maxillae and labium light brownish-green in colour, shape as

in text-fig. 236. Legs long and strong, clothed with thick hairs and spines. Metatarsi and tarsi of I and II provided ventrally with conspicuous scopulae and tarsi with claw-tufts.

Abdomen: Longer than wide, slightly narrowing behind, ventral side light brownish green, clothed with pubescence. Epigyne as in text-fig. 234 and internal genitalia as in text-fig. 235. Spinnerets prominent as in text-fig. 237.

Type-locality: Bank of River Ganges, Erkankhal, dist. Saharanpur, U.P., INDIA. *Holotype* female in spirit, deposited in the Z.S.I., Calcutta. Regd No. 4979/18.

Distribution: Only known from its type locality.

Remarks: Description and illustrations are made on the basis of *Holotype* female.

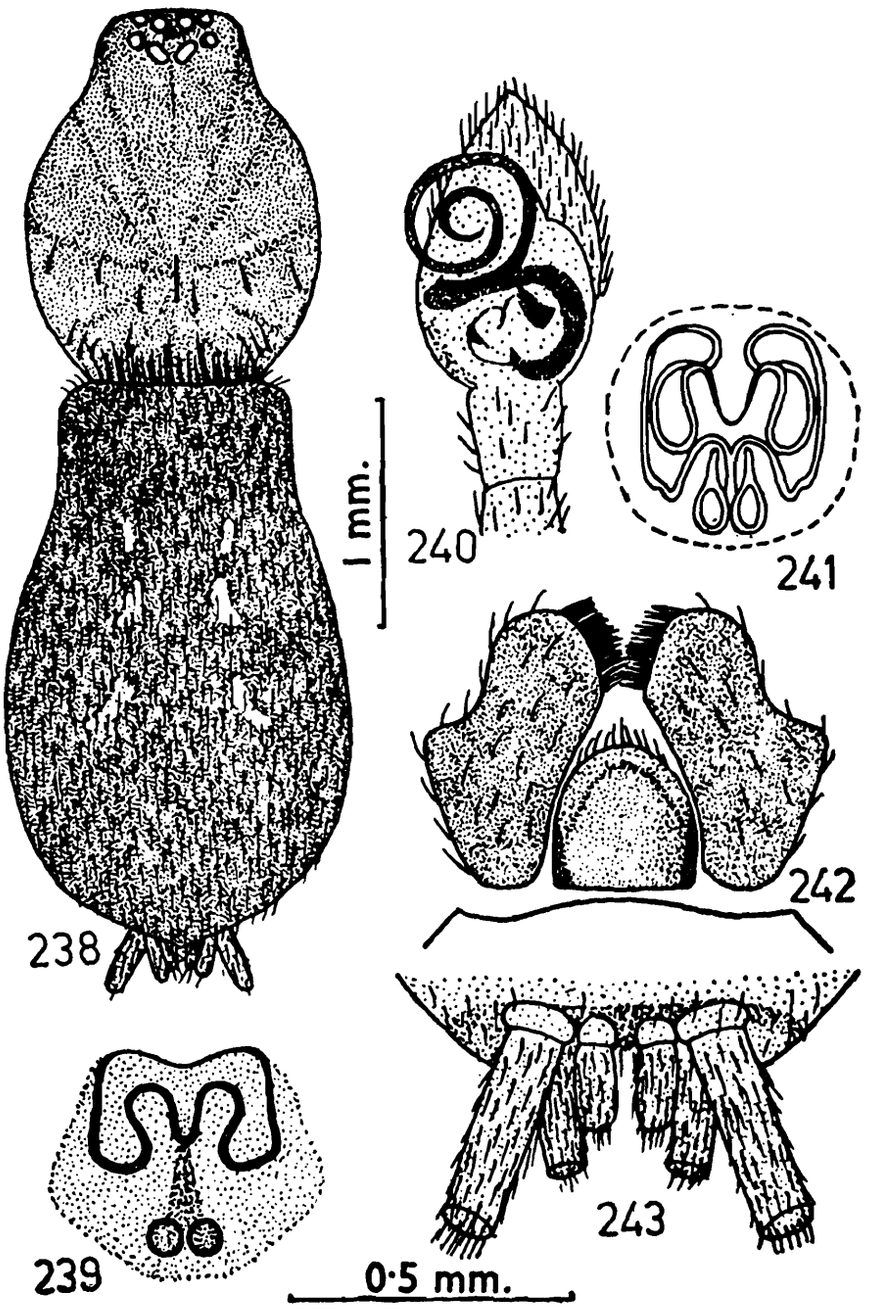
33. **Drassodes oppenheimeri** Tikader

(Figs. 238-243)

1973. *Drassodes oppenheimeri* Tikader, *Proc. India Acad. Sci.*, 77(5) : 186.

General: Cephalothorax and legs reddish-brown, abdomen deep brown. Total length 4.20 mm. Carapace 1.70 mm. long, 1.20 mm. wide; abdomen 2.60 mm. long, 1.80 mm. wide.

Cephalothorax: Longer than wide, narrow in front, clothed with pubescence and some spines, posterior middle provided with a conspicuous fovea. Cephalic region slightly high. Eyes pearly white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly procurved (as seen from in front); medians larger than the laterals and closer to laterals than to each other. Posterior row of eyes procurved, medians oval, larger than the laterals and slightly closer to laterals than to each other. Sternum heart-shaped, pointed, clothed with spine like hairs. Maxillae and labium reddish-brown, shape as in text-fig. 242. Chelicerae moderately strong, inner and outer margin provided with two minute teeth and two larger teeth respectively. Legs relatively long and strong,



FIGS. 238-243. *Drassodes oppenheimeri* Tikader
238. Dorsal view of female, legs omitted.
239. Epigyne.
240. Right male palp, ventral view.
241. Internal genitalia.
242. Labium and maxillae.
243. Spinnerets.

clothed with hairs and some spines. Legs formula 4123. Male same in colour as female but slightly larger than the female, male palp as in text-fig. 240.

Abdomen: Longer than wide, nearly oval, clothed with fine hairs and provided with three pairs of sigilla as in text-fig. 238. Anterior end of abdomen provided with conspicuous long thick hairs. Ventral side lighter than the dorsal. Epigyne as in text-fig. 239 and internal genitalia as in text-fig. 241. Spinnerets prominent as in text-fig. 243.

Type-locality: Singur Dist., Hooghly, West Bengal, INDIA. *Holotype* female, *paratype* 8 females and *allotype* 2 males in spirit, deposited in the Z.S.I., Calcutta. Regd. No 4967-9/18.

Distribution: INDIA: West Bengal; Dist. Hooghly, Singur. Maharashtra; Aurangabad, Poona: Aundh, Madhya Pradesh; Jabalpur.

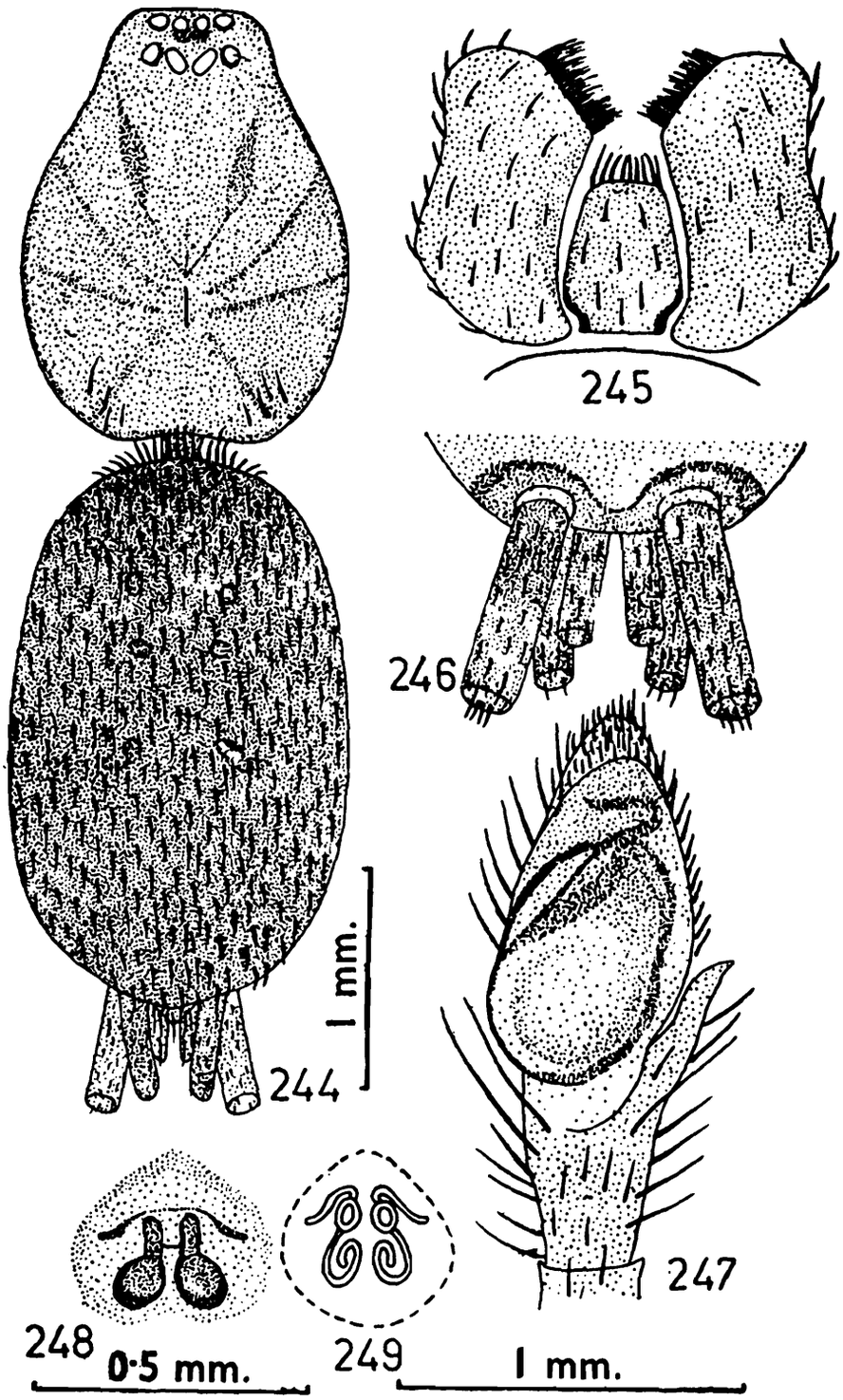
Remarks: Description and illustrations have been prepared on the basis of female and male specimens collected from Poona, Maharashtra.

34. **Drassodes sagarensis** sp.nov.

(Figs. 244-249)

General: Cephalothorax and legs reddish-green, abdomen deep brown. Total length 4.70 mm. Carapace 2.00 mm. long, 1.50 mm. wide; abdomen 2.60 mm. long, 1.60 mm. wide.

Cephalothorax: Longer than wide, narrow in front, slightly convex, posterior middle provided with a conspicuous short fovea, clothed with pubescence and some spines. Eyes pearly white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly procurved (as seen from in front), anterior medians smaller than the laterals and little closer to laterals than to each other. Posterior row of eyes procurved, medians oval and slanted, much larger than the laterals and very close to each other than to adjacent laterals. Median ocular quadrangle longer than wide and wider in front than behind. Clypeal height nearly equal to the diamenter of the anterior median eyes. Chelicerae short, vertical, inner margin provided with two teeth and outer margin with two teeth. Maxillae short, stout, labium ovate clothed with



FIGS. 244-249. *Drassodes sagarensis* sp.nov.

244. Dorsal view of female, legs omitted.
245. Labium and maxillae.
246. Spinnerets.
247. Male palp, ventral view.
248. Epigyne.
249. Internal genitalia.

hairs, shape as in text-fig. 245. Sternum heart-shaped, pointed behind, clothed with hairs and some spines. Legs formula 4123. Male same in size and colour to the female, male palp as in text-fig. 247.

Abdomen: Longer than wide, widest at middle, elliptical, clothed with hairs and three pairs of lighter spots as in text-fig. 244. Ventral side much lighter than the dorsal, clothed with pubescence. Epigyne as in text-fig. 248. Spinnerets relatively long, anterior spinnerets widely separated, longer than other and provided with spigots as in text-fig. 246. Internal genitalia as in text-fig. 249.

Type-specimen: *Holotype* female, *allotype* one male in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 4984-5/18.

Type-locality: Rest House Compound, Sagar, Mysore, INDIA. Coll. *G. Ramakrishna*,20.xii.1969.

Discussion: This species closely resembles *Drassodes oppenheimeri* Tikader, but differs from it as follows: (i) Anterior median eyes smaller than the anterior laterals but in *D. oppenheimeri* anterior median eyes slightly larger than the anterior laterals. (ii) Epigyne and male palp also structurally different.

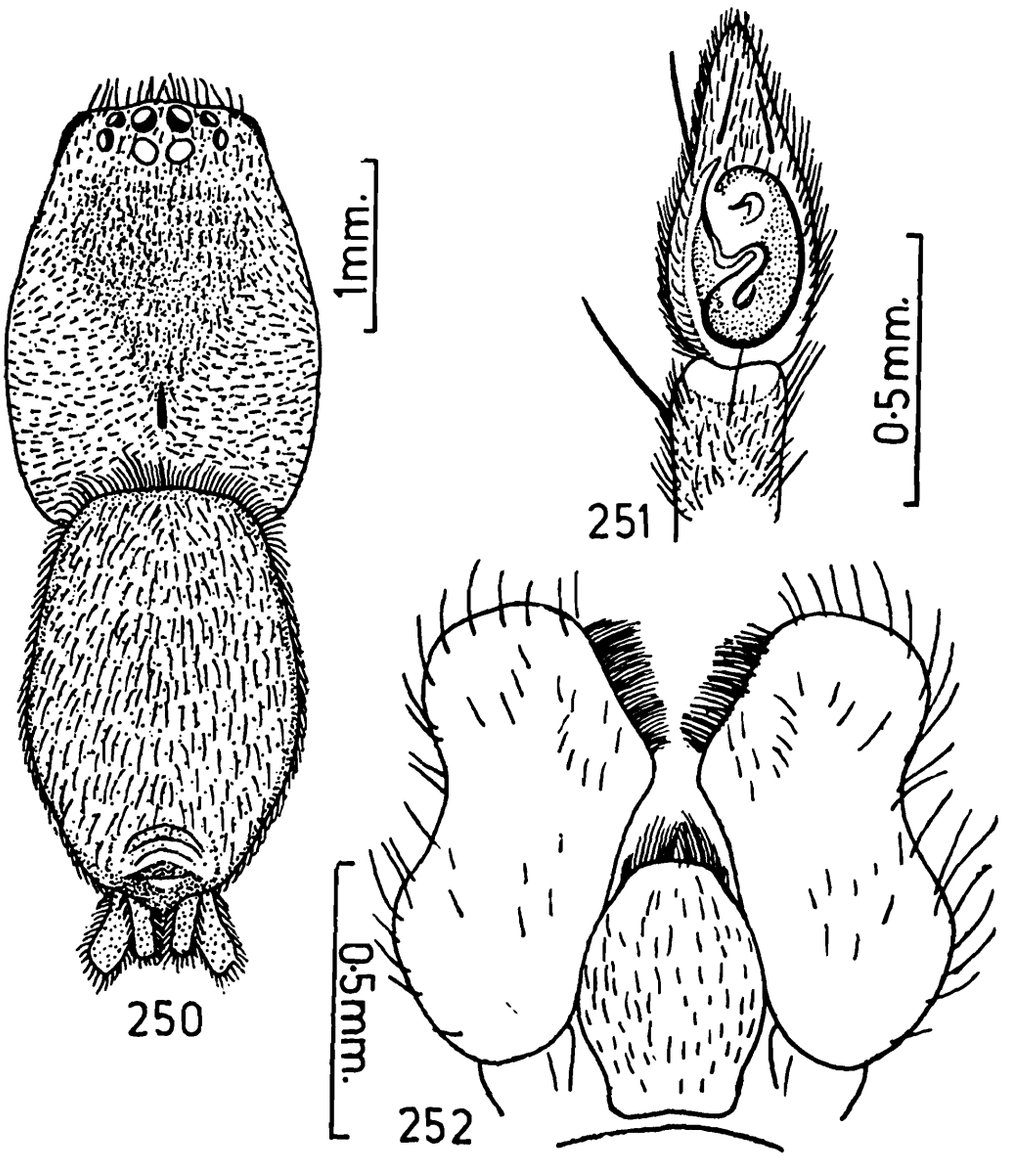
35. **Drassodes heterophthalmus** Simon

(Figs. 250-252)

1905. *Drassodes heterophthalmas* Simon, *Annls. Soc. ent. Fr.*, **74** : 168.

General: Cephalothorax and legs yellowish, abdomen yellowish brown. Total length 4.80 mm. Carapace 2.60 mm. long, 1.90 mm. wide; abdomen 2.50 mm. long, 1.65 mm. wide.

Cephalothorax: Much longer than wide, blunt anteriorly, thickly clothed with small hairs, cephalic region slightly dark coloured than thoracic region; thoracic part provided with fine but distinct longitudinal fovea as in text-fig. 250. Posterior median eyes largest; laterals subequal; anterior row of eyes pro-



FIGS. 250-252. *Drassodes heterophthalmus* Simon

250. Dorsal view of male, legs omitted.

251. Male palp, ventral view.

252. Labium and maxillae.

curved as seen from in front and posterior row also procurved as seen from above. Ocular quad same in width both in front and behind, slightly longer than wide as in text-fig. 250. Sternum oval, pale yellowish, clothed with hairs. Maxillae depressed at the middle from outside, thus distal ends rather convergent, yellowish in colour. Labium longer than wide, yellowish brown as in text-fig. 252. Chelicerae rather long and narrow, weak,

with no boss. Legs long and moderately strong, with many spines. Male palp as in text-fig. 251.

Abdomen: Roughly oval in shape, longer than wide, anterior end provided with large hairs as in text-fig. 250, clothed with thick layer of small hairs. Ventral side pale yellowish. Female unknown.

Type-locality: Bombay, Maharashtra, INDIA. *Holotype* male in spirit, deposited in the M.N.H.N. Regd. No. 22503.

Distribution: Known only from type-locality.

Remarks: Description and illustrations are based on male type specimen, deposited in the Museum National d' Histoire Naturelle, Paris. Regd. No. 22503.

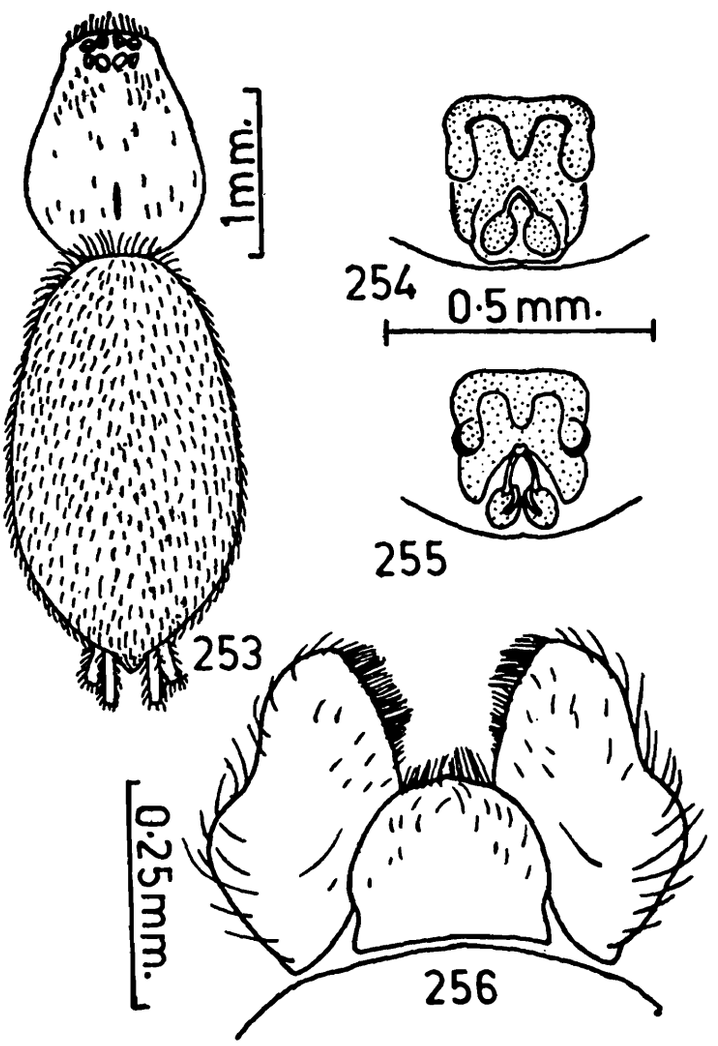
36. **Drassodes lubrica** (Simon)

(Figs. 253-256)

1905. *Mulicymnis lubrica* Simon, *Annls. Soc. ent. Fr.*, **74** : 169.
1954. *Mulicymnis lubricus* : Roewer, *Cat. der Araneae*, **2** : 427.
1957. *Camillina lubrica* : Bonnet, *Bib. Aranim*, **2**(3) : 2986.

General: Cephalothorax and legs pale yellowish, abdomen greyish yellow. Total length 3.80 mm. Carapace 1.35 mm. long, 1.10 mm. wide; abdomen 2.55 mm. long, 1.40 mm. wide.

Cephalothorax: Longer than wide, blunt in front, scarcely clothed with hairs; cephalic region rather small; thoracic region provided with a fine longitudinal fovea as in text-fig. 253. Eye region compact; posterior median eyes largest and elliptical shaped; other eyes subequal in size; anterior row of eyes procurved as seen from above as in text-fig. 253. Sternum oval in shape, pale yellowish in colour, clothed with hairs. Maxillae with a little inward bend at the middle on each, so distal ends convergent, distal ends provided with distinct scopulae, pale yellowish. Chelicerae small with small boss. Legs long and thin, clothed with hairs and spines.



FIGS. 253-256. *Drassodes lubrica* (Simon)
253. Dorsal view of female, legs omitted.
254. Epigyne.
255. Internal genitalia.
256. Labium and maxillae.

Abdomen: Elongated oval, anterior end provided with thick layer of large hairs, clothed with small hairs. Epigyne plate like as in text-fig. 254. Internal genitalia as in text-fig. 255.

Type-locality: Pondichery, Tamil Nadu, INDIA. *Holotype* female in spirit, deposited in the M.N.H.N. Regd. No. AR 1642.

Distribution: Known only from type locality.

Remarks: Description and illustrations are based on female

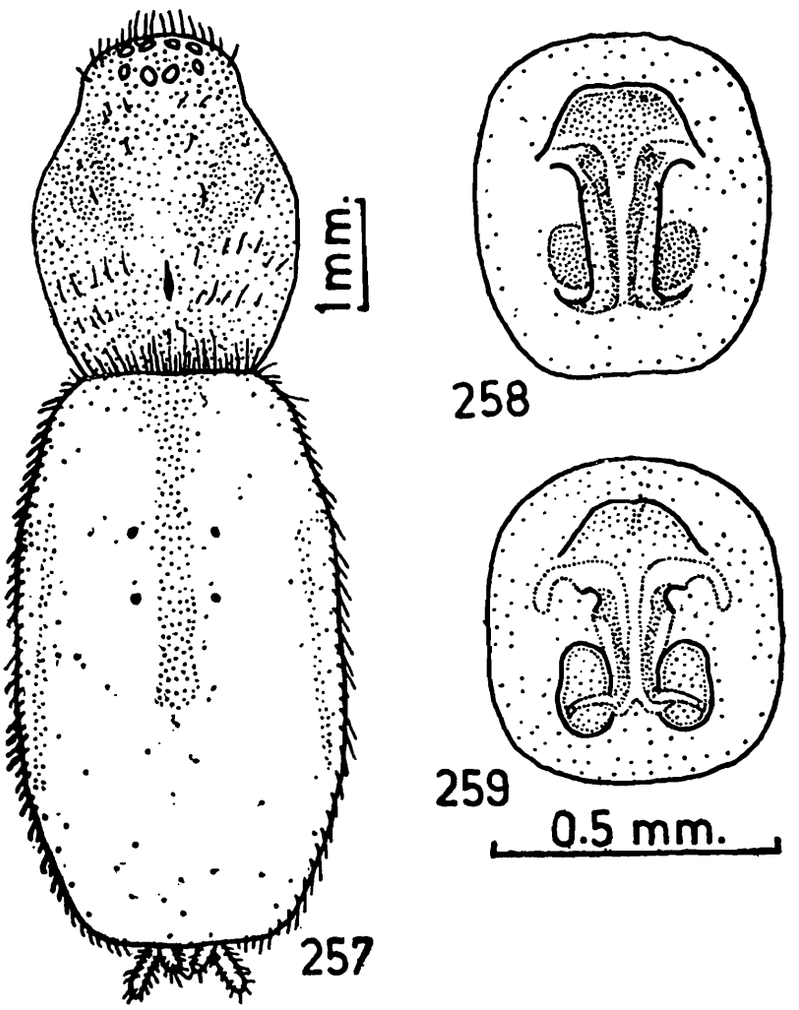
type specimen deposited in the Museum National d' Historie Naturelle, Paris. Regd. No. AR 1642.

37. **Drassodes ferrugineus** (Blackwall)

(Figs. 257-259)

1861. *Drassus ferrugineus* Blackwall, *Spid. Gr. Brit. Irel.*, 1 : 117.
1954. *Drassodes ferrugineus* : Roewer, *Katalog der Araneae*, 2 Band, Abt. a, p. 386.

General: Cephalothorax and legs light brown, abdomen white. Total length 8.44 mm. Carapace 3.20 mm. long, 3.45 mm. wide; abdomen 5.35 mm. long, 3.00 mm. wide.



FIGS. 257-259. *Drassodes ferrugineus* (Blackwall)
257. Dorsal view of female, legs omitted.
258. Epigyne.
259. Internal genitalia.

Cephalothorax: Longer than wide, blunt in front, clothed with pubescence and hairs, cephalic region slightly higher than thoracic region; thoracic region provided with a conspicuous fine longitudinal fovea as in text-fig. 257. Eyes pearly white except the anterior medians; posterior medians larger than the anterior medians; laterals subequal in size and smaller than the median eyes; anterior row of eyes recurved as seen from above; ocular quad longer than wide and as wide in front as behind. Posterior row of eyes procurved as seen from above, and slightly longer than anterior row. Sternum heart-shaped, tappering behind, yellowish brown, clothed with hairs. Maxillae yellowish brown, much longer, provided with distinct scopulae. Labium light brownish, longer than wide, distal end having a few long hairs. Chelicerae moderately strong. Legs moderately long and strong, clothed with hairs and spines; ventral side of legs thickly hairy.

Abdomen: Longer than wide, both anterior and posterior end blunt, clothed with small and larger hairs, two pairs of sigilla on the dorsum of abdomen as in text-fig. 257. Ventral side pale with no dark markings. Anterior pair of spinnerets largest as in text-fig. 257. Epigyne plate like as in text-fig. 258. Internal genitalia as in text-fig. 259.

Type-locality: Bombay, Maharashtra, INDIA. *Holotype* female in spirit, deposited in the OUM. Regd. No. 254.

Distribution: Known only from type-locality.

Remarks: Description and illustrations are based on female type specimen which is deposited in the University Museum of Oxford, Oxford. (Bottle No. 254, tube No. 140).

38. **Drassodes luridus** (O. P. Cambridge)

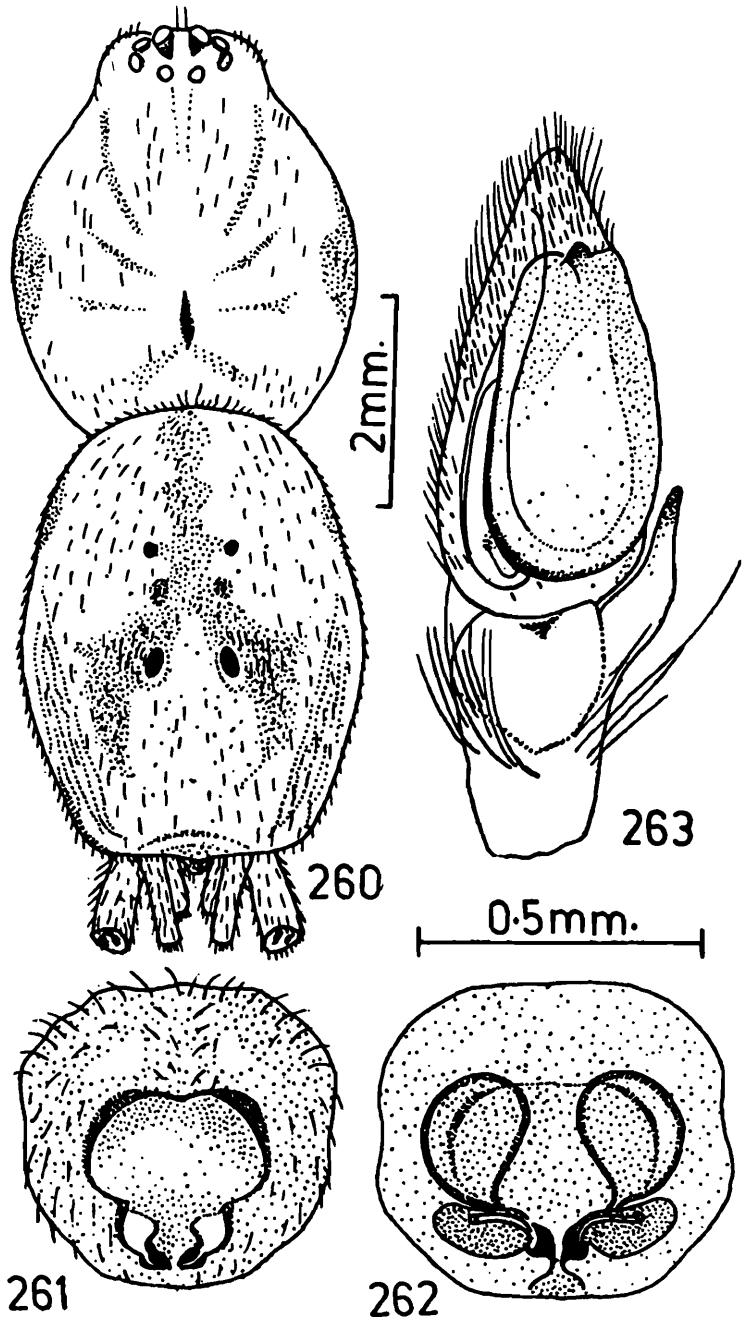
(Figs. 260-263)

1874. *Drassus luridus* O. P. Cambridge, *Proc. zool. Soc. Lond.*, : 396.
1954. *Drassodes luridus* : Roewer, *Katalog der Araneae*, 2. Band. Abt. 1, p. 396.

General: Cephalothorax and legs yellowish brown, abdomen

pale coloured. Total length 7.70 mm. Carapace 3.90 mm. long, 3.20 mm. wide; abdomen 4.20 mm. long, 3.15 mm. wide.

Cephalothorax: Longer than wide, blunt in front, clothed with pubescence and hairs; cephalic region slightly higher than thoracic region; thoracic region provided with a conspicuous



FIGS. 260-263. *Drassodes luridus* (O. P. Cambridge)
260. Dorsal view of female, legs omitted.
261. Epigyne.
262. Internal genitalia.
263. Male palp, ventral view.

fine longitudinal fovea as in text-fig. 260. Eyes pearly white except the anterior medians; anterior median eyes larger than the posterior medians; anterior laterals larger than the posterior laterals. Anterior row of eyes recurved and posterior row of eyes procurved as seen from above. Ocular quad slightly wider behind than in front and much longer than wide as in text-fig. 260. Sternum oval with slightly pointed posteriorly, light brownish, clothed with hairs. Maxillae yellowish brownish, much longer than wide with a bent on each at the middle thus converging both the distal ends, distal end with distinct scopulae. Labium light brownish, longer than wide, distal end possessing a few hairs. Chelicerae moderately strong with small boss, yellowish brown in colour. Legs moderately long and moderately strong; femur IV provided with a few large macrosetae on the dorsal surface, metatarsi and tarsi with spinulose ventrally. Male palp as in text-fig. 263.

Abdomen: Barrel shaped, nearly truncated at the posterior end, clothed with hairs, three pairs of sigilla on the dorsum of which middle pair is small and less distinct as in text-fig. 260. Ventral side pale coloured with a pair of longitudinal brown lines from epigastric furrow to the posterior end. Anterior pair of spinnerets largest as in text-fig. 260. Epigyne plate like as in text-fig. 261. Internal genitalia as in text-fig. 262.

Type-locality: Bombay, Maharashtra, INDIA. *Holotype* female, *allotype* one male in spirit, deposited in the OUM. Regd. No. 154(138).

Distribution: INDIA: Bombay, Maharashtra.

Remarks: Description and illustrations are based on one female and one male type specimens which are deposited in the University Museum of Oxford, Oxford (Bottle No. 254, tube No. 138).

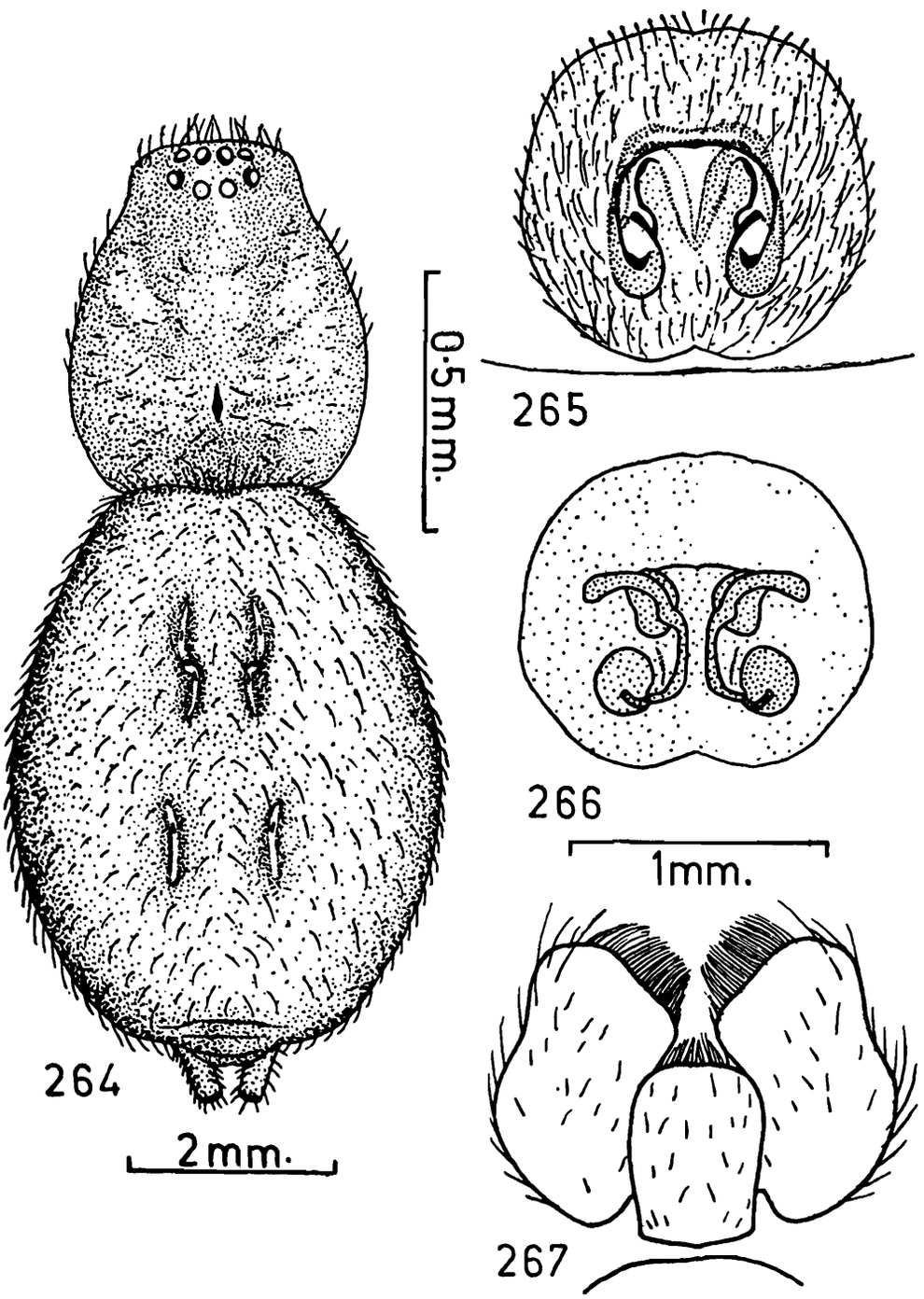
39. **Drassodes rubicundulus** Caporiacco

(Figs. 264-267)

1934. *Drassodes (Brachydrassodes) rubicundulus* Caporiacco, *Memorie. Soc. ent. ital.*, **13** : 130.

1954. *Drassodes rubicundulus* : Roewer, *Katalog der Araneae*, 2 Band, Abt. a, p. 392.

General: Cephalothorax and legs light brownish, abdomen greyish. Total length 9.00 mm. Carapace 3.65 mm. long, 3.90 mm. wide; abdomen 5.75 mm. long, 4.25 mm. wide.



FIGS. 264-267. *Drassodes rubicundulus* Caporiacco
264. Dorsal view of female, legs omitted.
265. Epigyne.
266. Internal genitalia.
267. Labium and maxillae.

Cephalothorax: Longer than wide, blunt anteriorly, clothed with hairs; cephalic region more light coloured than thoracic region, thoracic region provided with a fine longitudinal fovea as in text-fig. 264. Posterior median eyes largest of all; anterior row slightly recurved as seen from above, and posterior row distinctly procurved as seen from above, as in text-fig. 264. Ocular quad same width in front and behind and slightly longer than wide as in text-fig. 264. Sternum oval and tapering behind, light brown in colour, clothed with hairs. Maxillae longer than wide, a little twisted and slightly convergent distally, distal ends provided with distinct scopulae, light brownish in colour. Labium longer than wide, dark brownish in colour as in text-fig. 267. Chelicerae moderately strong provided with distinct boss. Legs long and strong, clothed with hairs and spines, without bands.

Abdomen: Longer than wide, posteriorly blunt, slightly wider at the middle as in text-fig. 264, no distinct sigilla on the dorsum, clothed with small hairs. Ventral side with some small black patches between epigastric furrow and spinnerets. Epigyne plate like as in text-fig. 265. Internal genitalia as in text-fig. 266.

Type-locality: Kashmir, INDIA. *Holotype* female in spirit, deposited in the MCNI. Regd. No. Nil.

Distribution: INDIA: Kashmir. PAKISTAN: Sind.

Remarks: Description and illustrations are based on *Holotype* female specimen, housed in the Museo Civico Di Storia Naturale, Italia (No Regd. number mentioned).

40. **Drassodes deoprayagensis** Tikader & Gajbe

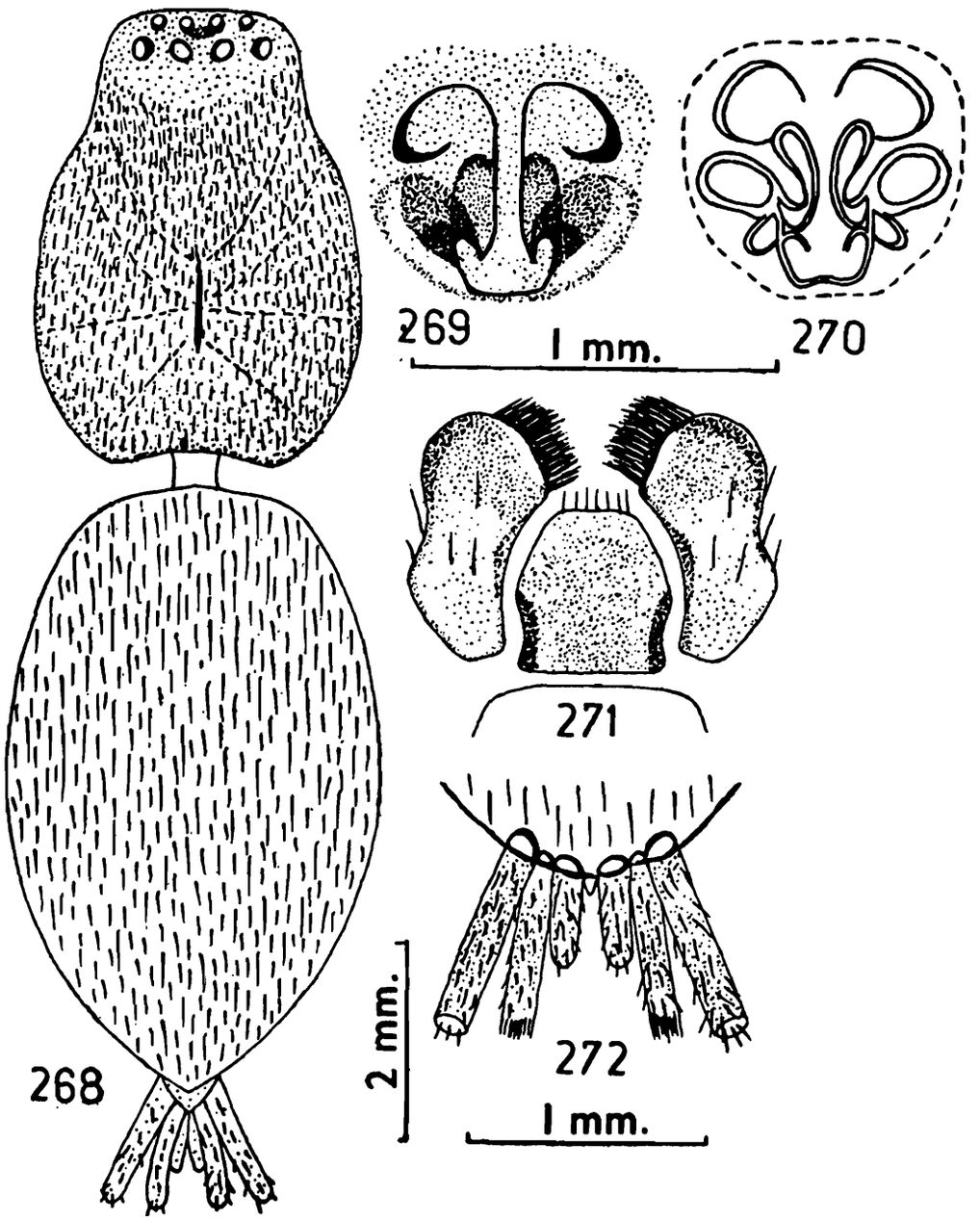
(Figs. 268-272)

1975. *Drassodes deoprayagensis* Tikader & Gajbe, *Oriental Ins.*, 9(3): 279-280.

General: Cephalothorax and legs light brownish-green, abdomen light green. Total length 11.00 mm. Carapace 4.40 mm. long, 3.30 wide; abdomen 6.30 mm. long, 3.80 mm. wide.

Cephalothorax: Longer than wide, broad in front, clothed with thick hairs and the posterior middle provided with a con-

spicuous fovea. Cephalic region slightly high. Eyes pearly white except anterior medians, anterior row slightly procurved, medians and laterals of the same size and medians are little closer to laterals than to each other. Posterior row slightly longer than



FIGS. 268-272. *Drassodes deoprayagensis* Tikader & Gajbe
268. Dorsal view of female, legs omitted.
269. Epigyne.
270. Internal genitalia.
271. Labium and maxillae.
272. Spinnerets.

the anterior row, procurved, medians oval, slightly smaller than the laterals and much close to each other than the adjacent laterals. Chelicerae strong, inner margin provided with one small tooth and other margin provided with two slightly bigger teeth. Sternum heart-shaped, pointed behind, clothed with fine hairs. Maxillae and labium light brown in colour, shape as in text-fig. 271. Legs long and strong, clothed with thick hairs and some spines. Metatarsi and tarsi of I and II provided ventrally with conspicuous scopulae and tarsi with prominent claw-tufts.

Abdomen: Longer than wide, narrowing behind, covered with thick pubescence as in text-fig. 268. Ventral side light green, clothed with pubescence. Epigyne as in text-fig. 269 and internal genitalia as in text-fig. 270. Spinnerets very prominent as in text-fig. 272.

Type-locality: Deoprayag, Dist. Tehri, U.P., INDIA. *Holotype* female, in spirit, deposited at the Z.S.I., Calcutta. Regd. No. 4980/18.

Distribution: INDIA: U.P., Deoprayag, Dist. Tehri, Himachal Pradesh; Kasoli, Dist. Solan.

Remarks: Description and illustrations have been made on the basis of one female collected from Tehri, Solan, H.P.

41. **Drassodes sitae** Tikader & Gajbe

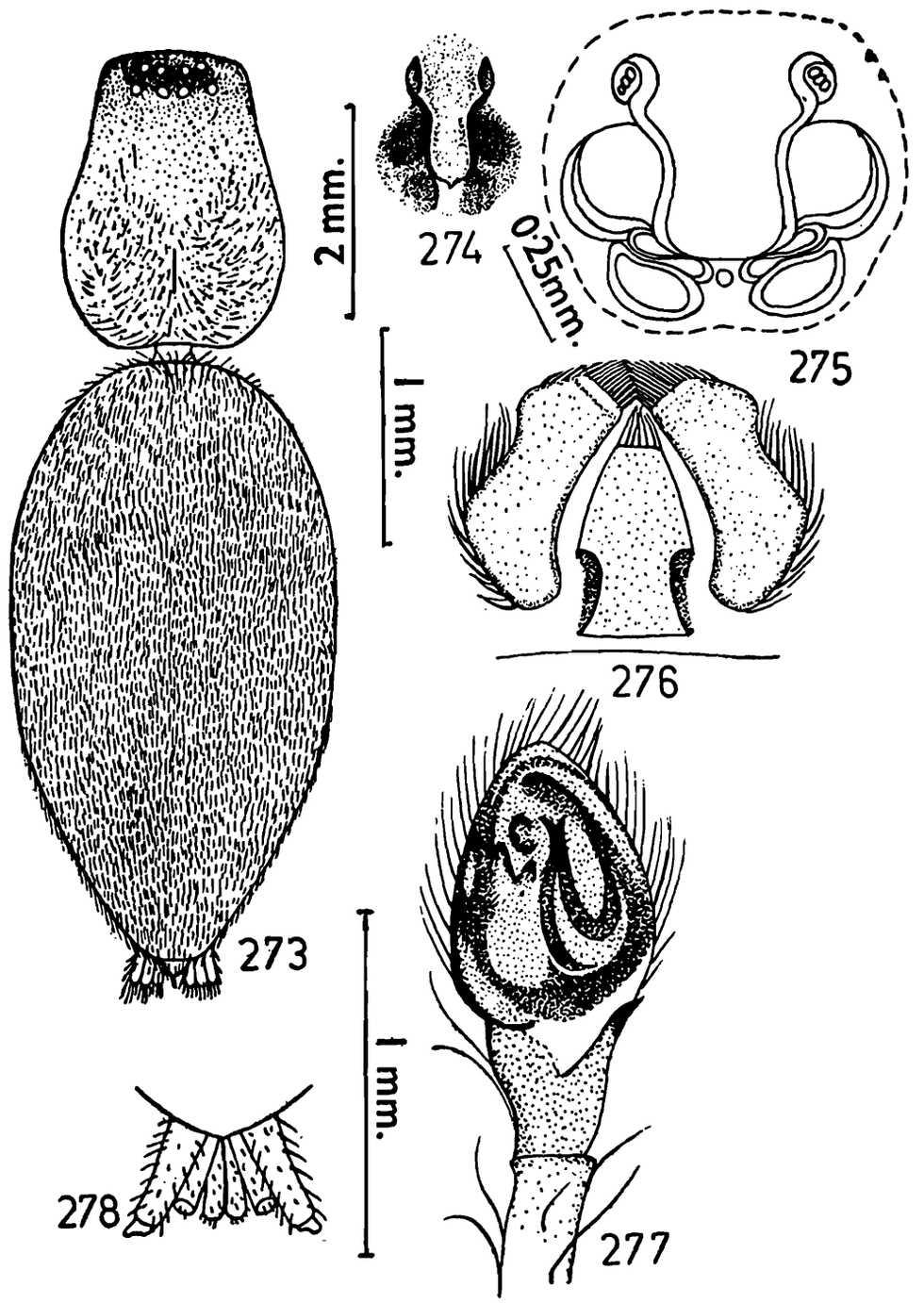
(Figs. 273-278)

1975. *Drassodes sitae* Tikader & Gajbe, *Oriental Ins.*, 9(3) : 275-276.

General: Cephalothorax and legs brownish green, abdomen light green. Total length 8.80 mm. Carapace 2.80 mm. long, 2.10 mm. wide; abdomen 5.80 mm. long, 3.00 mm. wide.

Cephalothorax: Longer than wide, broad in front, clothed with thick hairs and the posterior middle provided with a conspicuous fovea. Cephalic region slightly high and more brownish than the other parts of cephalothorax. Eyes pearly white except

anterior medians, anterior row slightly procurved, medians slightly smaller than the laterals and little closer to laterals than



FIGS. 273-278. *Drassodes sitae* Tikader & Gajbe

273. Dorsal view of female, legs omitted.
274. Epigyne.
275. Internal genitalia.
276. Labium and maxillae.
277. Male palp, ventral view.
278. Spinnerets.

to each other. Posterior row slightly longer than the anterior row, procurved, medians oval, slightly larger than the laterals and much closer to each other than to the adjacent laterals. Chelicerae strong, inner margin provided with two smaller similar teeth and outer margin also provided with two dissimilar teeth. Sternum heart-shaped, pointed behind, clothed with fine hairs. Maxillae and labium deep brown in colour, shape as in text-fig. 276. Legs long and strong, clothed with thick hairs and some spines. Metatarsi and tarsi of I and II provided ventrally with conspicuous scopulae and tarsi with prominent claw tufts. Male, colour and size almost like female, male palp as in text-fig. 277.

Abdomen: Longer than wide, narrowing behind, covered with fine thick pubescence and anterior margin provided with conspicuous long thick hairs. Ventral side pale, clothed with fine pubescence. Epigyne as in text-fig. 274 and internal genitalia as in text-fig. 275. Spinnerets very prominent as in text-fig. 278.

Type-locality: Jhala, Dist. Uttar Kashi, U.P., INDIA. *Holotype* female, *paratype* 8 females and *allotype* one male in spirit, deposited at the Z.S.I., Calcutta. Regd. No. 4975-7/18.

Distribution: INDIA: U.P., Jhala, Harsil, Dharasu, Dist. Uttar Kashi.

Remarks: Description and illustrations are made on the basis of *holotype* female and *allotype* male specimen.

42. **Drassodes meghalayaensis** Tikader & Gajbe

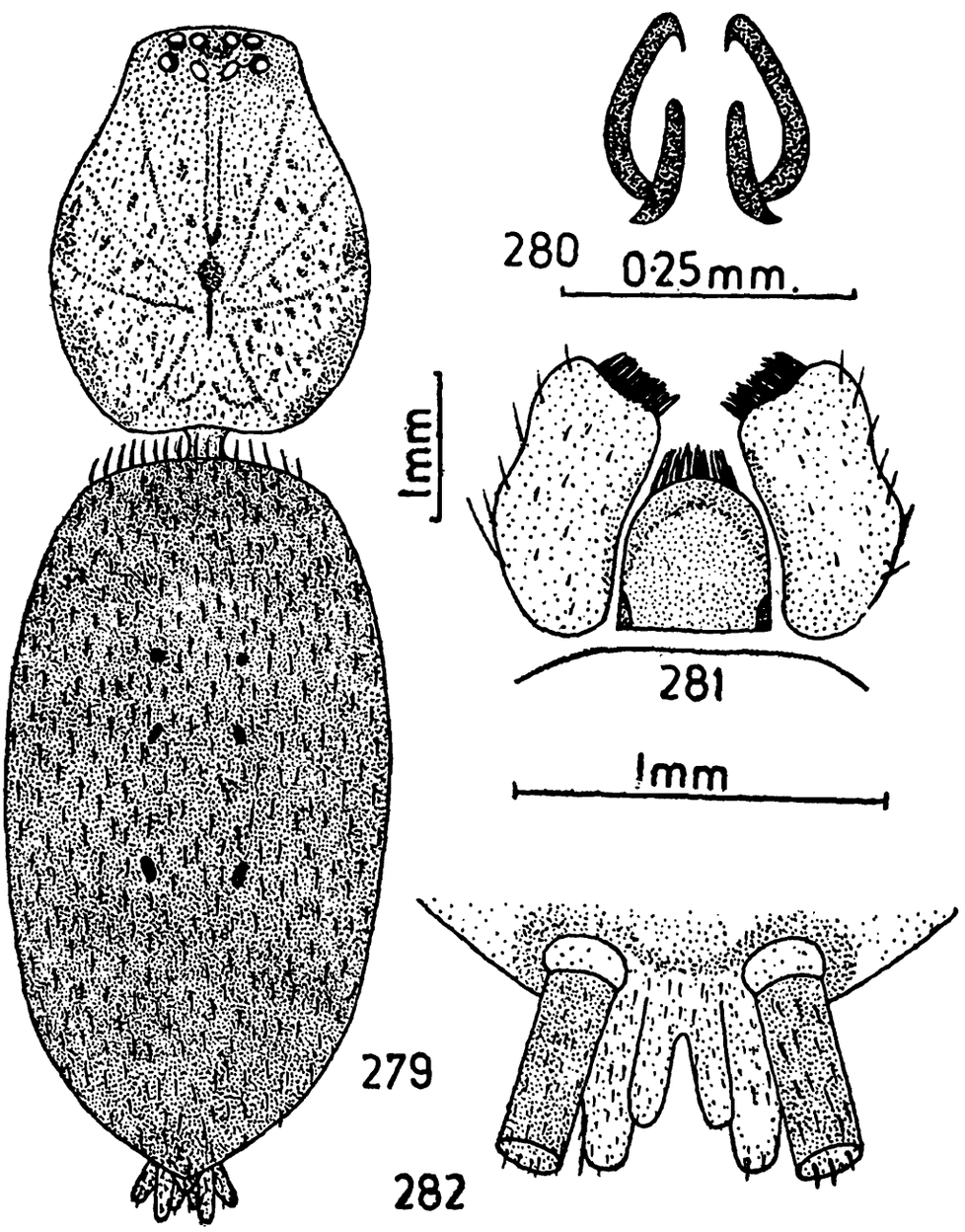
(Figs. 279-282)

1977. *Drassodes meghalayaensis* Tikader & Gajbe, *Rec. zool. Surv. India.* 73(1-4) : 66.

General: Cephalothorax and legs reddish brown, abdomen brown. Total length 8.00 mm. Carapace 2.80 mm. long, 2.10 mm. wide; abdomen 5.00 mm. long, 2.40 mm. wide.

Cephalothorax: Longer than wide, not very broad in front,

clothed with pubescence, posterior middle provided with a conspicuous fovea. A pattern of rediating streaks diverge from a short fovea to the sides. Eyes pearly white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes procurved (as seen from in front),



FIGS. 279-282. *Drassodes meghalayensis* Tikader & Gajbe
279. Dorsal view of female, legs omitted.
280. Epigyne.
281. Labium and maxillae.
282. Spinnerets.

medians slightly larger than the laterals and closer to laterals than to each other. Posterior row of eyes procurved, medians elliptical, slightly smaller than laterals and closer to each other than to adjacent laterals. Chelicerae moderately strong, inner and outer margin provided with two small teeth each. Sternum heart-shaped, pointed behind, clothed with short, black fine hairs. Maxillae and labium light reddish-green, shape as in text-fig. 281. Legs relatively long and strong, clothed with hairs and spines. Metatarsi and tarsi of I and II provided ventrally with conspicuous scopulae and tarsi with prominent claw tufts. Legs formula 4123.

Abdomen: Longer than wide, nearly elliptical, clothed with hairs and provided with three pairs of sigilla as in text-fig. 280. Spinnerets prominent, anterior spinnerets longer than others as in text-fig. 282.

Type-locality: Degrangiri, Garo Hills, Meghalaya, INDIA. *Holotype* female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 4983/18.

Distribution: Known so far from type-locality.

Remarks: Description and illustrations are on the basis of *Holotype* female.

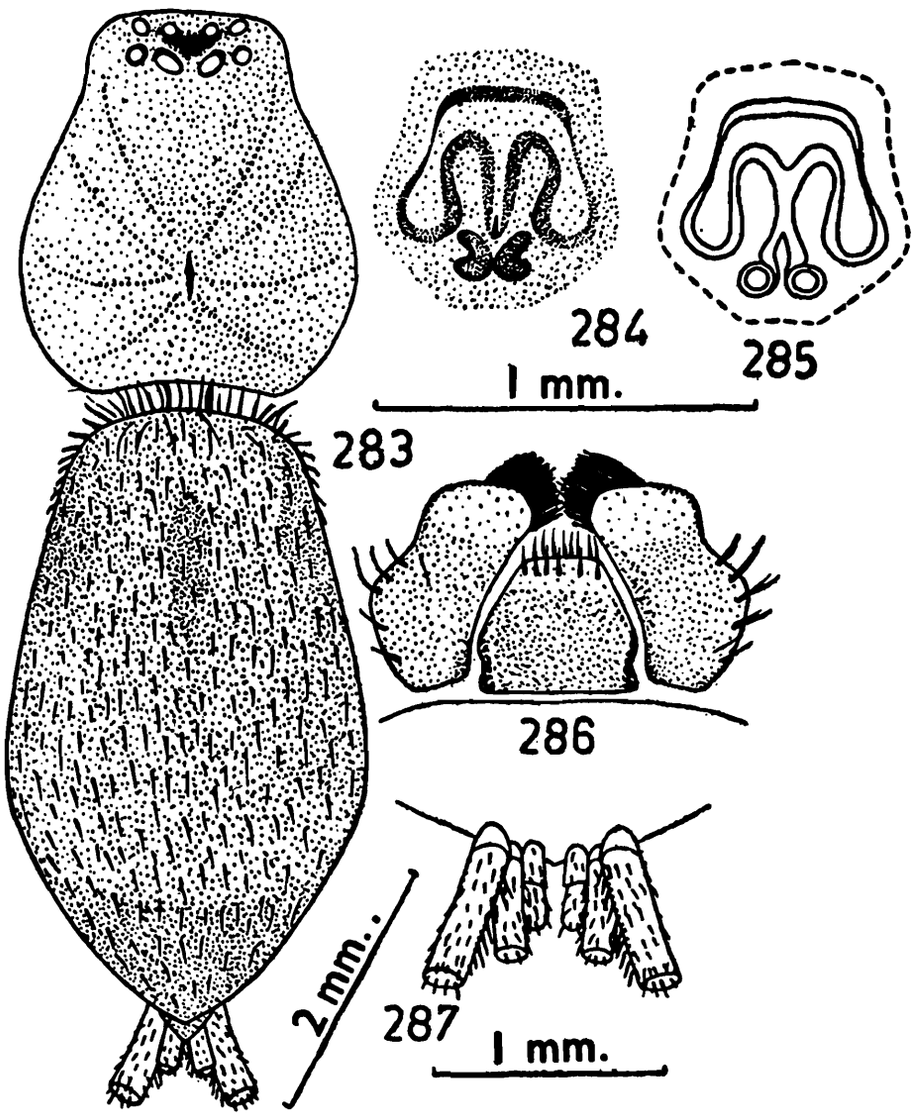
43. **Drassodes indraprastha** Tikader & Gajbe

(Figs. 283-287)

1975. *Drassodes indraprastha* Tikader & Gajbe, *Oriental Ins.*, 9(3) : 276-278.

General: Cephalothorax and legs brownish green, abdomen brown. Total length 7.50 mm. Carapace 2.80 mm. long, 2.50 mm. wide; abdomen 4.60 mm. long, 2.60 mm wide.

Cephalothorax: Longer than wide broad in front, clothed with pubescence and posterior middle provided with a conspicuous fovea. Cephalic region slightly high. Eyes pearly white except anterior medians, anterior row slightly procurved, medians and laterals nearly the same size and closer to adjacent laterals



FIGS. 283-287. *Drassodes indraprastha* Tikader & Gajbe
283. Dorsal view of female, legs omitted.
284. Epigyne.
285. Internal genitalia.
286. Labium and maxillae.
287. Spinnerets.

than to each other, base of anterior medians provided with deep brown patch. Posterior row slightly longer than anterior row, procurved, medians oval, slightly larger than the laterals and situated like a V-pattern. Chelicerae strong, inner margin provided with two very small teeth. Sternum heart-shaped, pointed behind, clothed with fine hairs. Maxillae and labium light brownish-green in colour, shape as in text-fig. 286. Legs long and strong, clothed with thick hairs and spines. Metatarsi and

tarsi of I and II provided ventrally with conspicuous scopulae and tarsi with claw tufts.

Abdomen: Longer than wide, narrowing behind, wider portion behind the middle, clothed with thick hairs. Ventral side pale, clothed with pubescence. Epigyne as in text-fig. 284. Spinnerets prominent as in text-fig. 287.

Type-locality: Bank of Sot Nadi, Amroh, Dist. Moradabad, U.P., INDIA. *Holotype* female in spirit, deposited at the Z.S.I., Calcutta. Regd. No. 4978/18.

Distribution: INDIA: Amroh, Dist. Moradabad, U.P. ; Sardar Samand, Dist. Jodhpur, Rajasthan.

Remarks: Description and illustrations are made on the basis of *Holotype* female specimen.

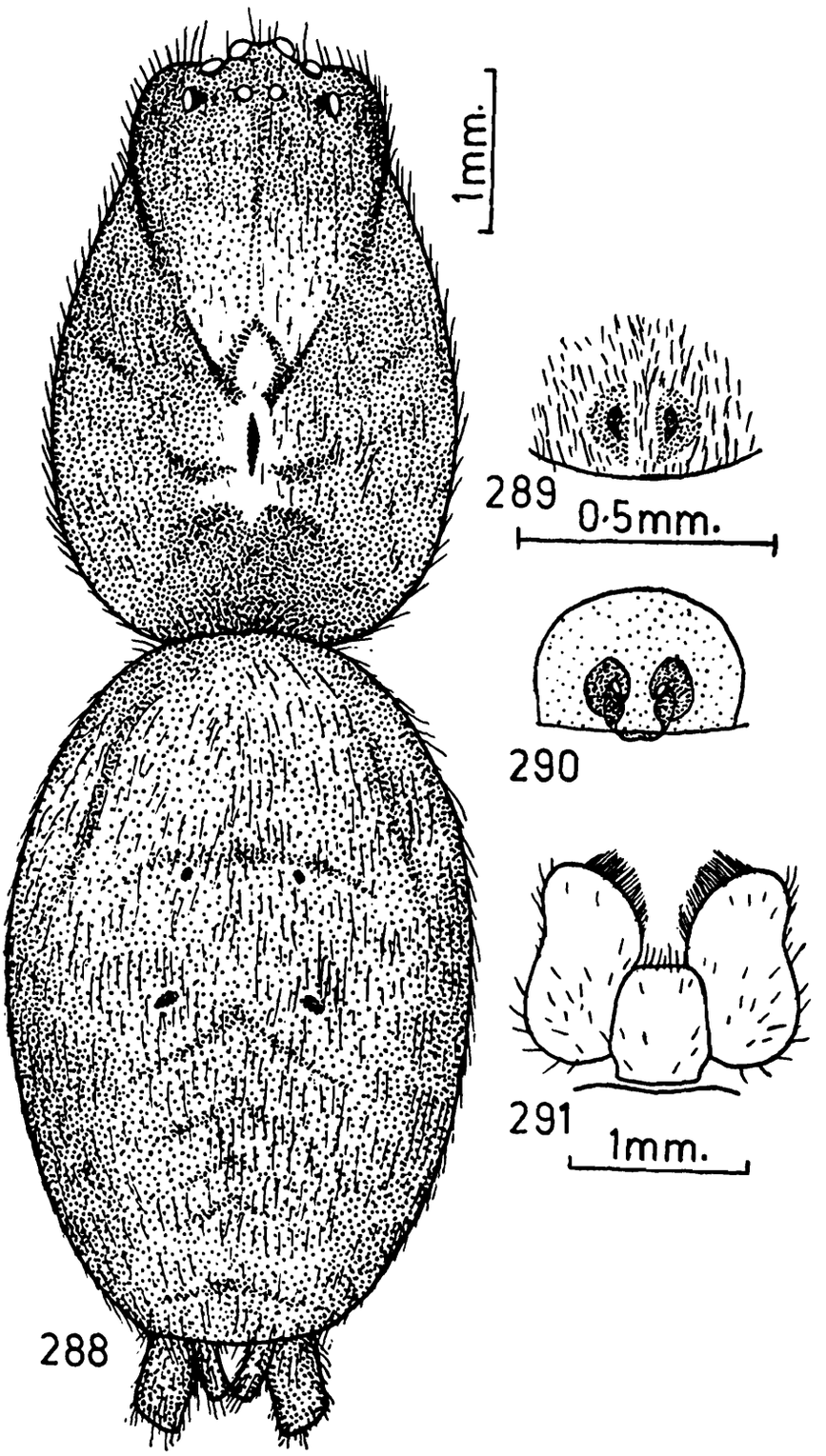
44. **Drassodes parvidens** Caporiacco

(Figs. 288-291)

1934. *Drassodes* (*Drassodes*) *parvidens* Caporiacco, *Memorie. Soc. ent. ital.*, 13 : 126.
1954. *Drassodes parvidens* : Roewer, *Katalog der Araneae*, 2 Band, Abt. a, p. 390.

General: Cephalothorax greyish yellow, legs pale yellowish, abdomen greyish. Total length 8.45 mm. Carapace 3.85 mm. long, 2.65 mm. wide; abdomen 4.65 mm. long, 3.00 mm. wide.

Cephalothorax: Longer than wide, blunt in front, clothed with pubescence and hairs; cephalic region distinctly elevated than thoracic region; thoracic region provided with a fine longitudinal fovea as in text-fig. 288. Anterior median eyes largest; lateral eyes subequal in size; anterior row of eyes slightly procurved as seen from in front and posterior row recurved as seen from above. Ocular quad slightly wider in front than behind and longer than wide as in text-fig. 288. Sternum oval, tapering posteriorly, clothed with hairs, pale yellowish. Maxillae longer than wide, spoon shaped, yellowish, distal ends not converging



FIGS. 288-291. *Drassodes parvidens* Caporiacco

288. Dorsal view of female, legs omitted.
289. Epigyne.
290. Internal genitalia.
291. Labium and maxillae.

and provided with distinct scopulae. Labium longer than wide, light brownish. Legs moderately strong and long, clothed with hairs and spines.

Abdomen: Elliptical, clothed with small hairs, two pairs of less distinct sigilla present on the dorsum as in text-fig. 288; anterior end provided with a layer of large curved hairs. Epigyne very small and plate like as in text-fig. 289 and internal genitalia as in text-fig. 290.

Type-locality: Khargil near Ladak, INDIA. *Holotype* female in spirit, deposited in MSNI. Regd. No. nil.

Distribution: INDIA: Srinagar, Khargil (near Ladakh), Jammu & Kashmir. PAKISTAN: Sind.

Remarks: Description and illustrations have been made on the basis of *Holotype* female specimen deposited in the Musco Civico Di Storia Naturale, Italia.

45. **Drassodes singularis** Caporiacco

(Figs. 292-295)

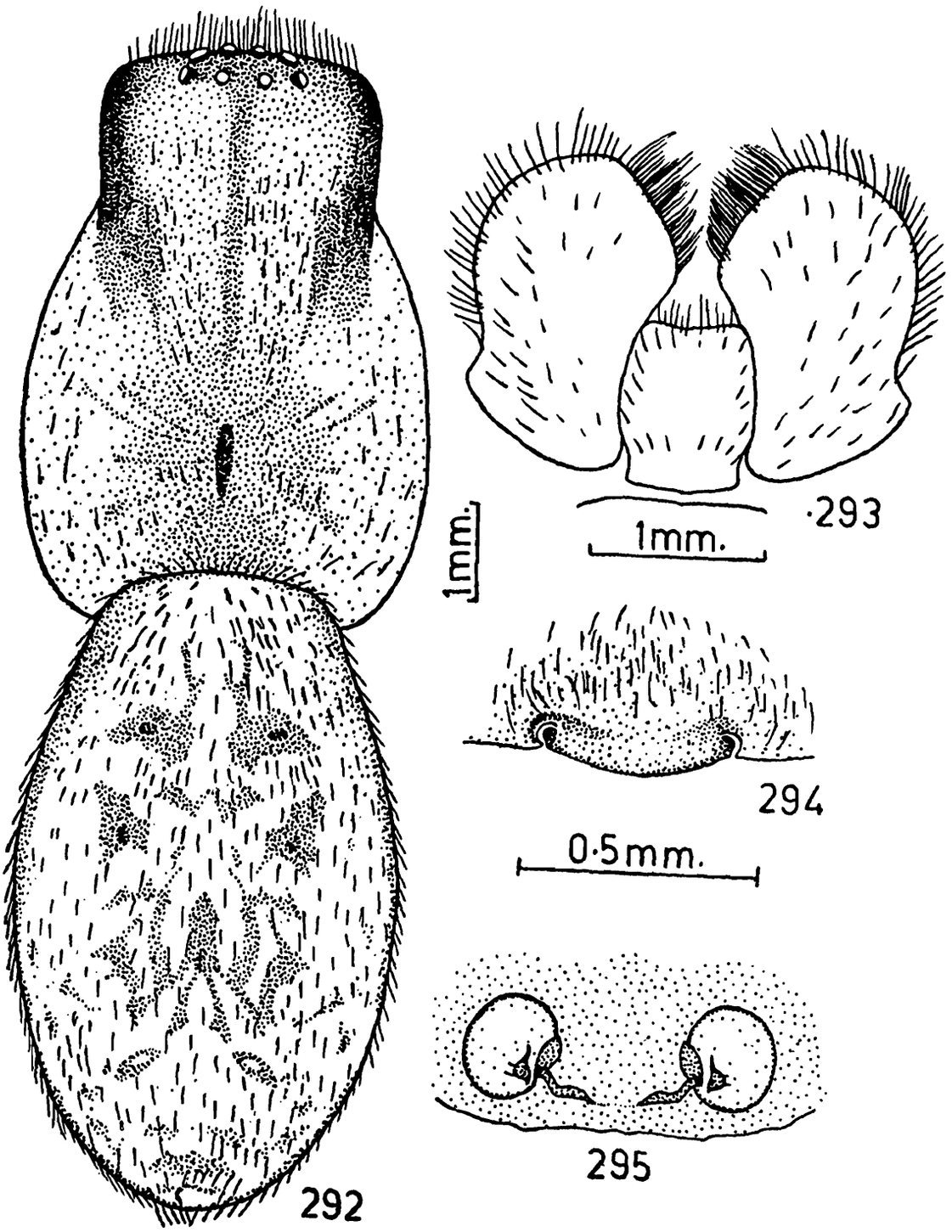
1934. *Drassodes* (*Brachydrassodes*) *singularis* Caporiacco, *Memorie. Soc. ent. ital.*, 13 : 192.

1954. *Drassodes* (*Brachydrassodes*) *singularis* : Roewer, *Katalog der Araneae*, 2 Band, Abt. a : 392.

General: Cephalothorax and legs yellowish brown, abdomen greyish brown. Total length 12.50 mm. Carapace 6.10 mm. long, 4.40 mm. wide; abdomen 6.85 mm. long, 4.15 mm. wide.

Cephalothorax: Longer than wide, blunt anteriorly scarcely clothed with hairs; cephalic region distinctly elevated than thoracic region, thoracic region provided with distinct longitudinal fovea as in text-fig. 292. Anterior median eyes smallest and anterior lateral eyes largest; posterior laterals slightly smaller than anterior laterals; anterior row also straight as seen from above. Ocular quad slightly longer than wide and wider behind than in front as in text-fig. 292. Sternum nearly oval, tapering posteriorly, clothed with hairs, yellowish in colour. Maxillae longer

than wide, bean shaped, yellowish, distal ends provided with distinct scopulae. Labium longer than wide, brownish in colour



FIGS. 292-295. *Drassodes singularis* Caporiacco

292. Dorsal view of female, legs omitted.
293. Labium and maxillae.
294. Epigyne.
295. Internal genitalia.

as in text-fig. 293. Chelicerae very strong, each provided with distinct boss. Legs long and strong, clothed with hairs and spines.

Abdomen: Longer than wide, clothed with hairs, dorsum provided with two pairs of sigilla and some irregular dark patches as in text-fig. 292. Epigyne very small and not heavily sclerotised as in text-fig. 294. Internal genitalia as in text-fig. 295.

Type-locality: Kashmir, INDIA, *Holotype* female in spirit, deposited in the MSNI. Regd. No. nil.

Distribution: Kashmir; Deosai, INDIA.

Remarks: Description and illustrations are based on *Holotype* female specimen, deposited in the Musco Civico Di Storia Naturale, Italia.

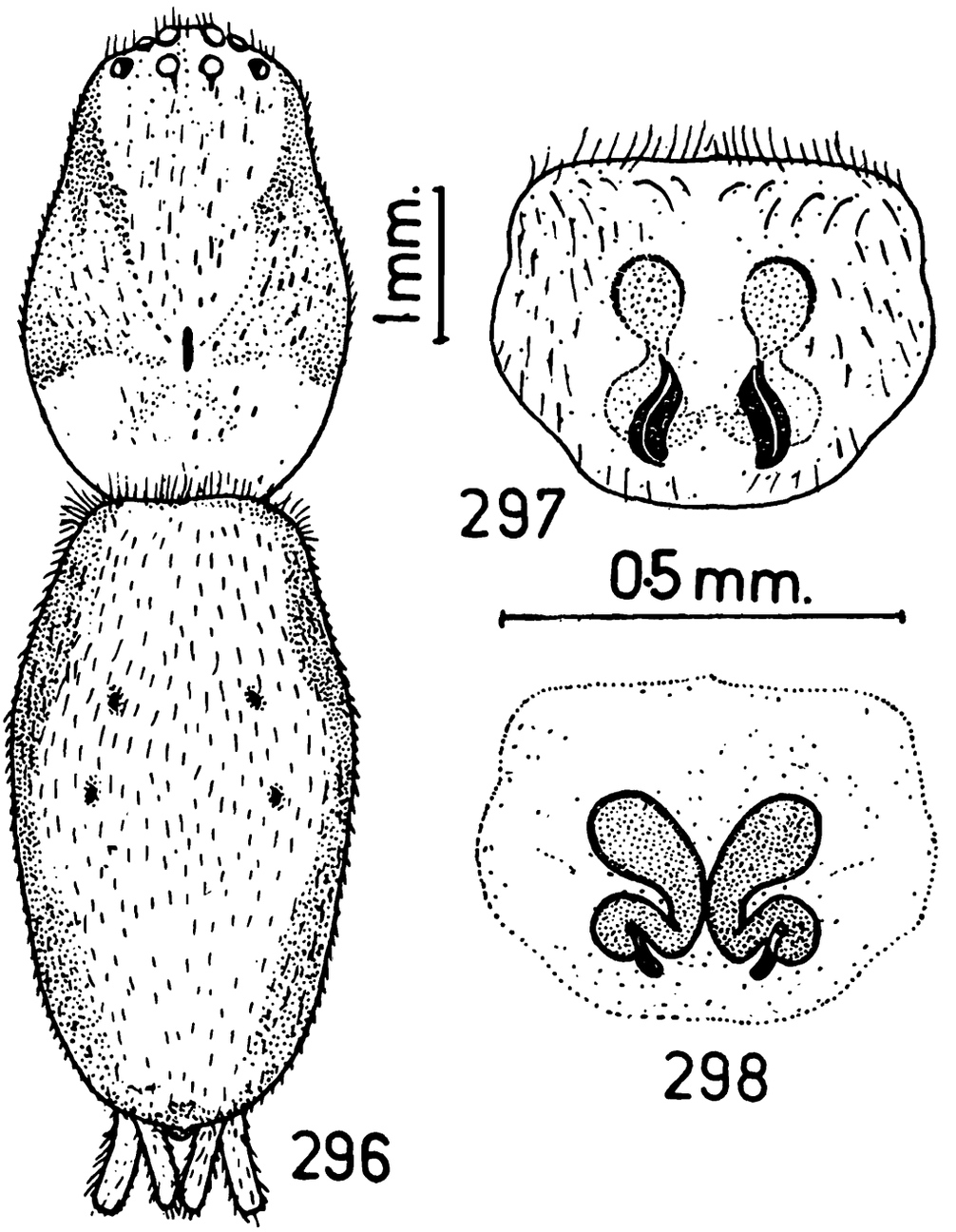
46. **Drassodes macilentus** (O. P. Cambridge)

(Figs. 296-298)

1874. *Drassus macilentus* O. P. Cambridge, *Proc. zool. Soc. Lond.*, : 392.
1954. *Drassodes macilentus* : Roewer, *Katalog der Araneae*, 2. Band. Abt. a, p. 396.

General: Cephalothorax and legs yellowish brown, greyish brown. Total length 7.45 mm. Carapace 3.25 mm. long, 2.20 mm. wide; abdomen 4.30 mm. long, 2.25 mm. wide.

Cephalothorax: Longer than wide, blunt in front, clothed with pubescence, cephalic region slightly elevated than thoracic region and thoracic region provided with a conspicuous longitudinal fovea as in text-fig. 296. Eyes pearly white except the anterior medians; laterals subequal in size and smaller than the median eyes; anterior row of eyes procurved as seen from in front, but recurved as seen from above; posterior row of eyes nearly straight as seen from above; ocular quad longer than wide and as wide in front as behind. Posterior row of eyes slightly longer than anterior row. Sternum heart-shaped, tappering behind, yellowish, clothed with hairs. Maxillae yellowish



FIGS. 296-298. *Drassodes macilentus* (Cambridge)
296. Dorsal view of female, legs omitted.
297. Epigyne.
298. Internal genitalia.

brown, much longer, provided with distinct scopulae. Labium light brownish, longer than wide, distal end having a few long hairs. Chelicerae moderately strong. Legs long and moderately strong, clothed with hairs and spines; ventral side of tibiae, metatarsi and tarsi provided with dense small hairs.

Abdomen: Longer than wide, tappering behind but anteriorly blunt, clothed with small and large hairs, two pairs of sigilla on the dorsum of abdomen as in text-fig. 296. Ventral side pale, provided with two longitudinal fine lines from epigastric furrow towards the spinnerets. Anterior pair of spinnerets largest as in text-fig. 296. Epigyne as in text-fig. 297. Internal genitalia as in text-fig. 298.

Type-locality: Bombay, Maharashtra, INDIA. *Holotype* female, in spirit, deposited in the OUM. Regd. No. 254(147).

Distribution: INDIA: Bombay, Maharashtra.

Remarks: Type-specimen, one female, has been studied for description and illustrations, which is deposited in the University Museum of Oxford, Oxford (Bottle No. 254, tube 147).

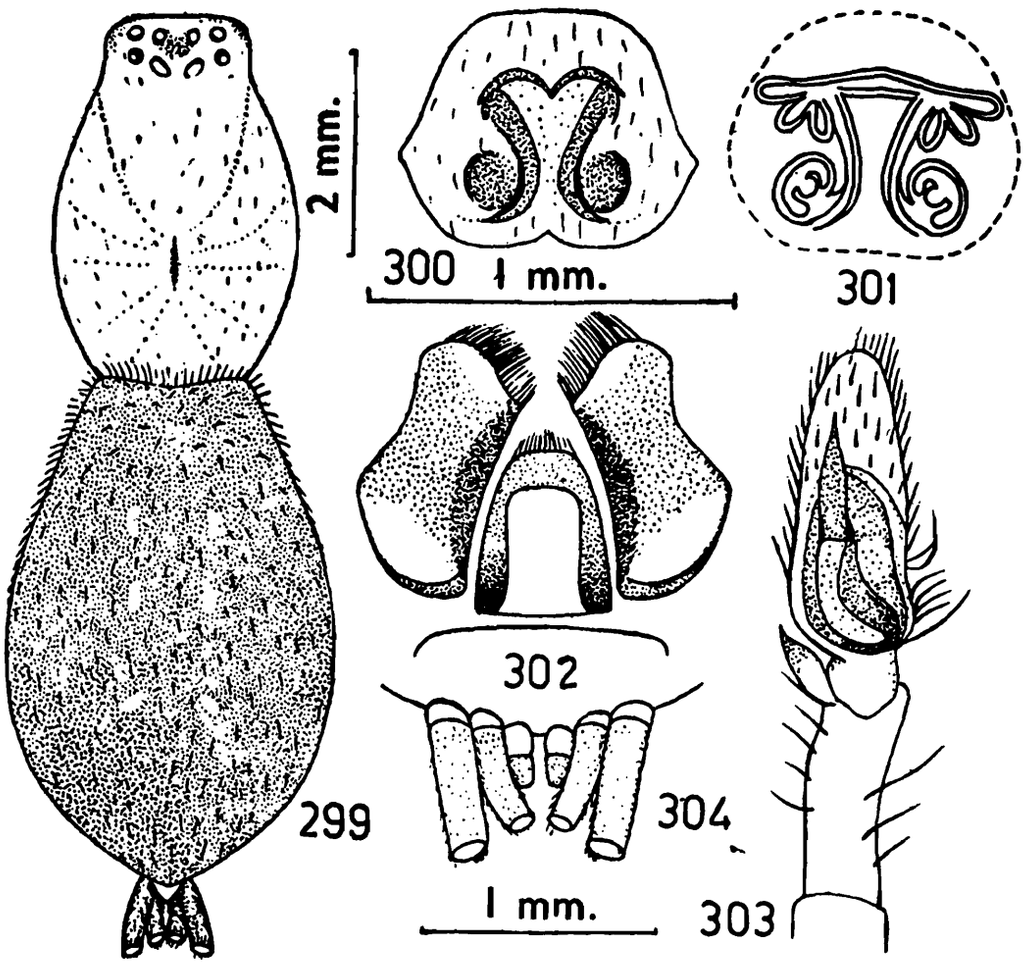
47. **Drassodes himalayensis** Tikader & Gajbe

(Figs. 299-304)

1975. *Drassodes himalayensis* Tikader & Gajbe, *Oriental Ins.*, 9(3) : 274-275.

General: Cephalothorax and legs light brown, abdomen slightly dark brown. Total length 8.50 mm. Carapace 3.80 mm. long, 2.40 mm. wide; abdomen 5.00 mm. long, 3.20 mm. wide.

Cephalothorax: Longer than wide, flat, cephalic region slightly wide and high; clothed with fine pubescence and some spine like hairs, centre provided with a conspicuous fovea. Eyes pearly white except anterior medians, anterior row slightly procurved (as seen from in front); medians slightly smaller than the laterals and a little closer to laterals than to each other. Posterior row longer, procurved, medians oval, slightly larger than the laterals and much closer to each other than the adjacent laterals. Chelicerae strong, inner and outer margin provided with two small teeth. Sternum oval, pointed behind, clothed with fine hairs. Maxillae and labium as in text-fig. 302. Legs long and strong, clothed with hairs and spines. Metatarsi and tarsi of I and II provided with ventrally conspicuous scopulae and tarsi



FIGS. 299-304. *Drassodes himalayensis* Tikader & Gajbe
299. Dorsal view of female, legs omitted.
300. Epigyne.
301. Internal genitalia.
302. Labium and maxillae.
303. Male palp, ventral view.
304. Spinnerets.

with prominent claw-tufts. Male and female, same colour and size. Male palp as in text-fig. 303.

Abdomen: Longer than wide, slightly narrowing in front and wider portion behind the middle, covered with pubescence and anterior portion provided with conspicuous hairs. Ventral side lighter than dorsal. Epigyne as in text-fig. 300 and internal genitalia as in text-fig. 301. The anterior spinnerets are cylindrical and longer than others as in text-fig. 304.

Type-locality: Harsil, Dist. Uttar Kashi, U.P., INDIA. *Holotype* female, *paratype* 5 females and *allotype* one male in spirit, deposited at the Z.S.I., Calcutta. Regd. No. 4972-4/18.

Distribution: INDIA: Uttar Pradesh; Harsil, Jalan Dist. Uttar Kashi, Khandoli, Daktrather, Satyanaraian, Dist. Dehra Dun, Meghalaya; Pynursal, Barapani, K & J. Hills, Shillong.

Remarks: Illustrations and description are based on *Holotype* female and *allotype* male specimens.

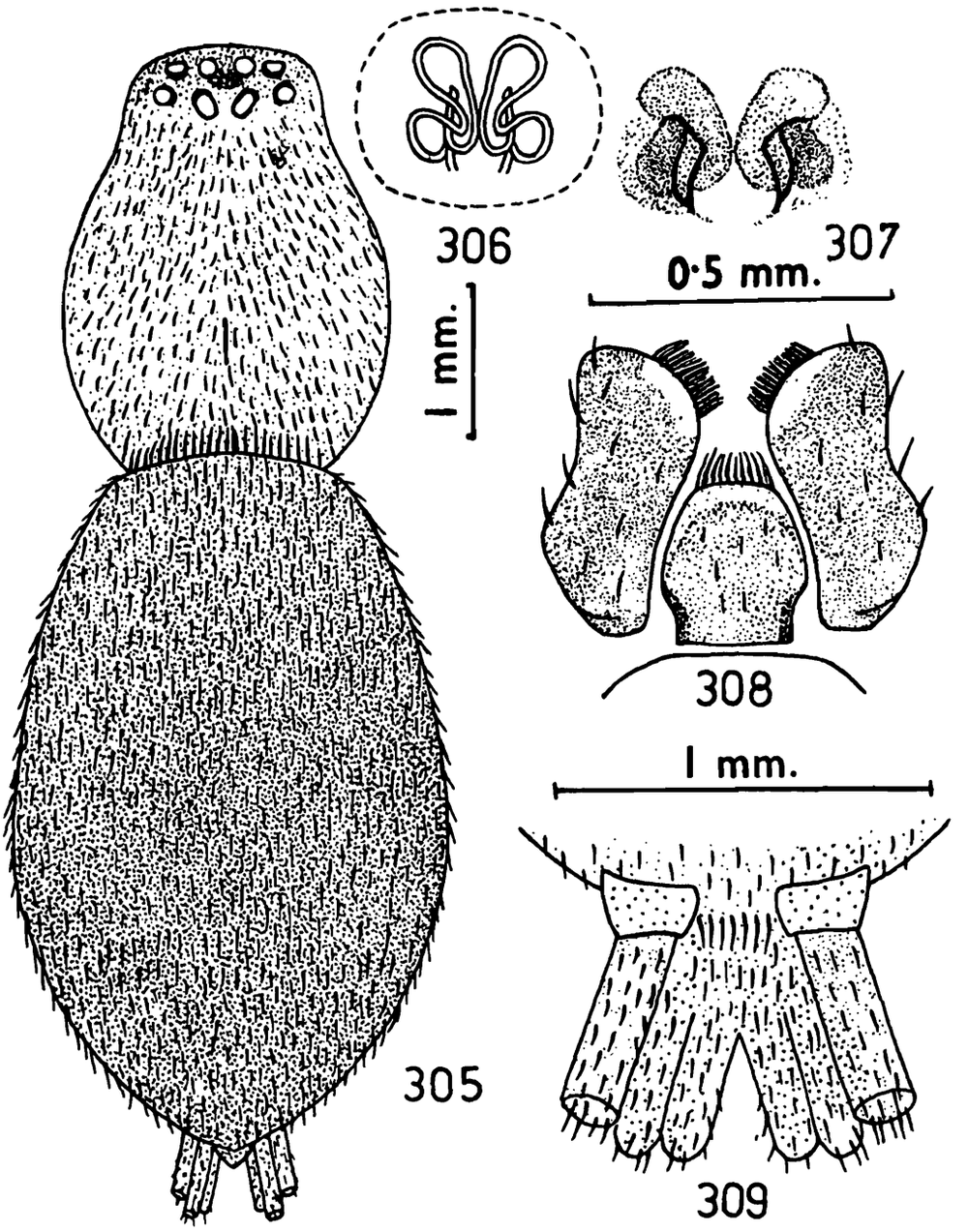
48. **Drassodes pashanensis** Tikader & Gajbe

(Figs. 305-309)

1977. *Drassodes pashanensis* Tikader & Gajbe, *Rec. zool. Surv. India*, 73(1-4) : 64.

General: Cephalothorax and legs light reddish-green. Abdomen brownish-green. Total length 7.60 mm. Carapace 2.90 mm. long, 2.20 mm. wide; abdomen 4.90 mm. long, 3.00 mm. wide.

Cephalothorax: Longer than wide, not very broad in front, clothed with fine thick hairs, posterior middle provided with a conspicuous fovea. Cephalic region slightly high. Eyes pearly white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly procurved (as seen from in front), medians slightly larger than the laterals and closer to laterals than to each other. Posterior row of eyes procurved, medians oval, larger than the laterals and much closer to each other than to the adjacent laterals. Chelicerae moderately strong, inner and outer margin provided with two small teeth and two slightly bigger teeth respectively. Sternum heart-shaped, pointed behind, clothed with fine hairs. Maxillae and labium reddish-green, shape as in text-fig. 308. Legs relatively long and strong, clothed with hairs and spines. Metatarsi and tarsi of I and II provided ventrally with conspicuous scopulae and tarsi with prominent claw tufts. Legs formula 4123.



FIGS. 305-309. *Drassodes pashanensis* Tikader & Gajbe
305. Dorsal view of female, legs omitted.
306. Internal genitalia.
307. Epigyne.
308. Labium and maxillae.
309. Spinnerets.

Abdomen: Longer than wide, narrowing behind, clothed with thick hairs as in text-fig. 305. Ventral side slightly lighter than the dorsal. Epigyne as in text-fig. 307 and internal genitalia as in text-fig. 306. Spinnerets prominent as in text-fig. 309.

Type-locality: Pashan, Poona, Maharashtra, INDIA. *Holotype* female *paratype* two females in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 4981-2/18.

Distribution: Known only from type locality.

Remarks: Description and illustrations are based on *Holotype* and *paratype* females.

Genus 12. **Sosticus** Chamberlin

1922. *Sosticus* Chamberlin, *Proc. bio. Soc., Wash.*, **35** : 160.
1940. *Sosticus* : Comstock, *The Spider Book*, New York, : 329.

Characters: Eye rows distinctly separated, posterior row of eyes is in a straight line. The anterior median eyes are slightly smaller than the anterior laterals eyes. The median ocular quadrangle is somewhat longer than broad, and the front eyes are as large as or larger than the posterior median eyes. The inner margin of the furrow of the chelicera is armed ordinary with two teeth, but three are sometimes present. Two spines are present on the dorsal surface of the fourth tibia.

Type-species: *Sosticus insularis* (Bauks).

Distribution: AMERICA, INDIA.

Key to species of the genus **Sosticus** Chamberlin

1. Abdomen dorsally provided with white bands.....2
   Abdomen dorsally not provided with any white bands but white spots may present.....3

2. Abdomen with three transverse white bands (Fig. 310) ; inner and outer margins of chelicera armed with two and three teeth respectively.....*nainitalensis*

   Abdomen with two white bands, anterior one dumbel shaped (Fig. 315) ; inner and outer margins of chelicera armed with two teeth each.....*dherikanalensis*

3. Outer margin of chelicera armed with three teeth ; abdomen with no chalk white rounded spots (Fig. 320).....*solanensis*

Outer margin of chelicera armed with two teeth ; abdomen provided with some chalk white patches on the dorsum.....4

4. Dorsum of abdomen provided with many small chalk white spots all over (Fig. 325) ; black reticulation markings present at the periphery on the carapace (Fig. 325).....*sundargarhensis*

Dorsum of abdomen provided with three chalk white patches, two at the middle and one at the posterior end (Fig. 330) ; black reticulation markings present at the middle on the carapace.....*poonaensis*

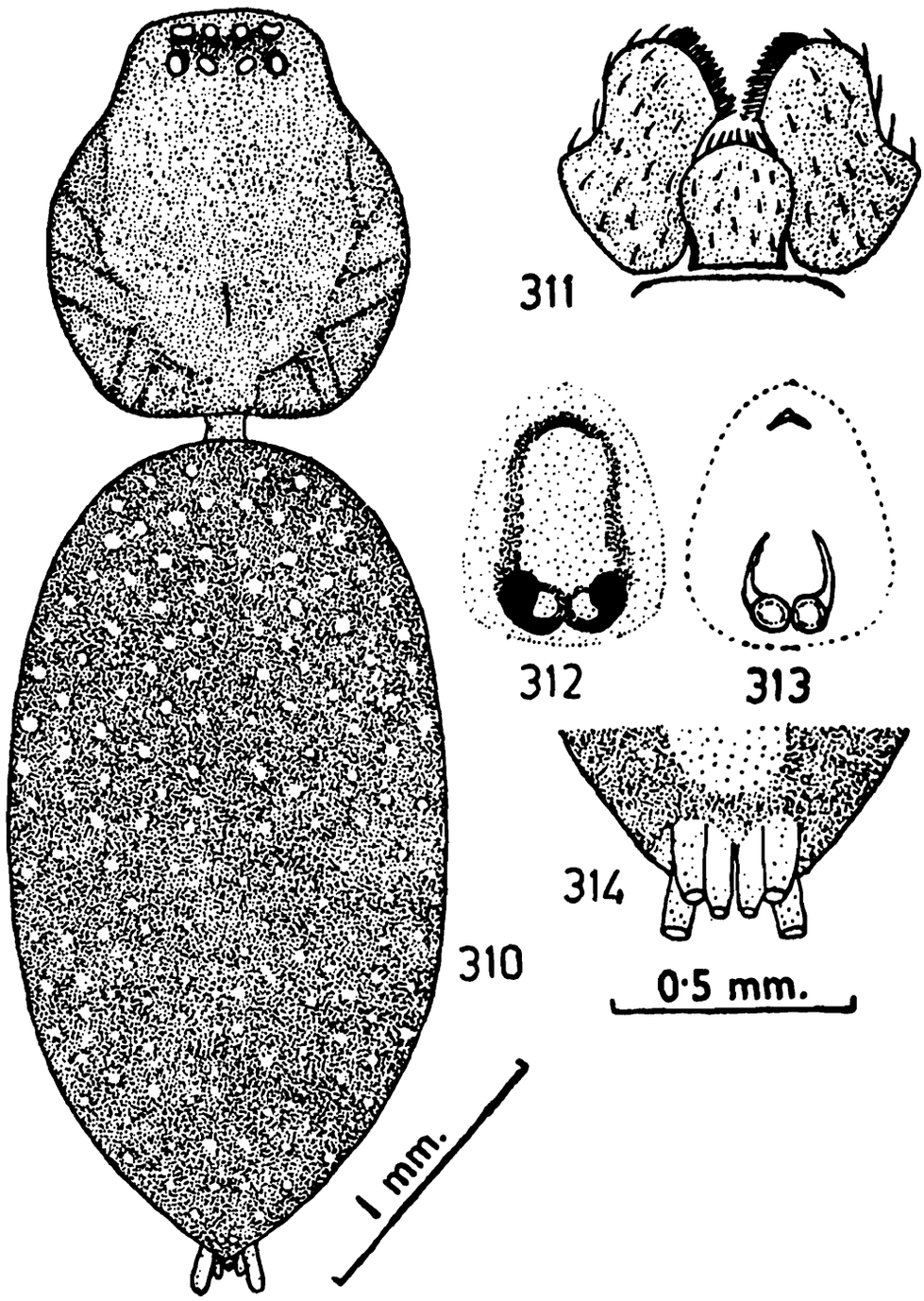
49. **Sosticus nainitalensis** Gajbe

(Figs. 310-314)

1979. *Sosticus nainitalensis* Gajbe, *Bull. zool. Surv. India*, 2(1) : 70.

General: Cephalothorax deep brown, legs brown, abdomen deep brown to black. Total length 6.50 mm. Carapace 2.50 mm. long, 2.20 mm. wide; abdomen 3.80 mm. long, 2.40 mm. wide.

Cephalothorax: Longer than wide, oval, clothed with pubescence, posterior middle of cephalothorax provided with an inconspicuous short fovea. Radiating dark streaks diverge from short fovea to lateral sides of cephalothorax. Eyes row distinctly separated, pearly white except anterior medians which are black, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly procurved (as seen from in front); medians smaller than the laterals and closer to adjacent laterals than to each other. The median ocular quadrangle longer than broad and wider behind than in front. Clypeal height greater than the diameter of the anterior median eyes. Strenum heart-shaped, pointed behind, strongly rebordered, clothed with black hairs. Labium longer than wide, anterior end of labium and maxillae provided with scopulae, shape as in text-fig. 311. Chelicerae moderately strong, vertical, inner margin provided with two small teeth and outer margin with three teeth. Legs relatively long and thin, clothed with hairs and spines. Tibia IV provided with two dorsal spines. Scopulae reach up to the



FIGS. 310-314. *Sosticus nainitalensis* Gajbe
310. Dorsal view of female, legs omitted.
311. Labium and maxillae.
312. Epigyne.
313. Internal genitalia.
314. Spinnerets.

base of metatarsi I and II and up to the middle of metatarsi III and IV Leg formula 4123.

Abdomen: Longer than wide, nearly elliptical, clothed with thick pubescence. Abdomen dorsally provided with three transverse white bands, one at the anterior end, second at just above the middle and third above the anal tubercle as in text-fig. 310. Ventral side lighter than the dorsal. Epigyne as in text-fig. 312. Internal genitalia as in text-fig. 313. Spinnerets prominent, anterior spinnerets widely separated, posterior spinnerets longer than others as in text-fig. 314.

Type-locality: Koladurgi Forest, Dist. Nainital, U.P. INDIA. *Holotype* female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 4318/18.

Distribution: Known only from type-locality.

Remarks: Description and illustrations are made on the basis of *Holotype* female.

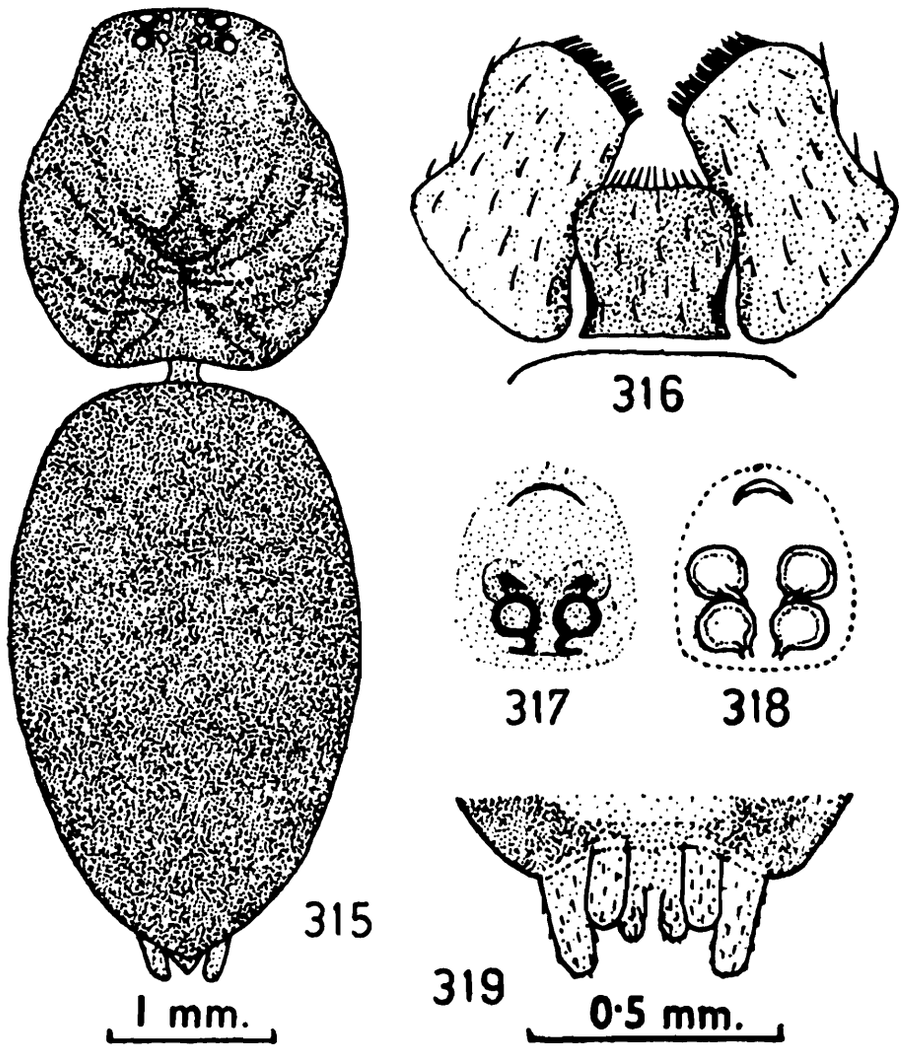
50. **Sosticus dherikanalensis** Gajbe

(Figs. 315-319)

1979. *Sosticus dherikanalensis* Gajbe, *Bull. zool. Surv. India*, 2(1) : 71.

General: Cephalothorax brown, legs reddish-brown, abdomen brownish-black. Total length 6.40 mm. Carapace 2.60 mm. long, 2.20 mm. wide; abdomen 3.60 mm. long, 2.20 mm. wide.

Cephalothorax: Longer than wide, oval, convex, clothed with pubescence, posterior middle provided with a conspicuous short fovea. Radiating black streaks diverge from short fovea to lateral sides of cephalothorax. Eye rows distinctly separated, pearly white except anterior medians which are black, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly procurved (as seen from in front); medians smaller than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes slightly recurved, medians oval, smaller than the laterals than to each other. The median ocular quadrangle longer than broad and wider behind than in front. Clypeal height greater than the diameter of the anterior median eye. Sternum heart-shaped, pointed behind, strongly rebordered,



FIGS. 315-319. *Sosticus dherikanalensis* Gajbe

315. Dorsal view of female, legs omitted.
316. Labium and maxillae.
317. Epigyne.
318. Internal genitalia.
319. Spinnerets.

clothed with some black hairs. Labium longer than wide, anterior end of labium and maxillae provided with scopulae, shape as in text-fig. 316. Chelicerae moderately strong, vertical, inner and outer margin provided with two small and two bigger teeth. Legs relatively long, thin, clothed with hairs and some spines. Tibiae IV, provided with two dorsal spines, Scopulae reach up to the metatarsi I and II and up to the middle of metatarsi III and IV, legs formula 4123.

Abdomen: Longer than wide, broadest behind the middle, clothed with pubescence and some spine like hairs. Abdomen dorsally provided with two white bands, one at the anterior to the middle and second just above the anal tubercle as in text-fig. 315. Ventral side much lighter than the dorsal and clothed with hairs. Epigyne as in text-fig. 317. Internal genitalia as in text-fig. 319.

Type-locality: Orissa, Tikarpara, Dist. Dherikanal, INDIA. *Holotype* female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 4319/18.

Distribution: Known only from type-locality.

Remarks: Description and illustrations are made on the basis of *Holotype* female.

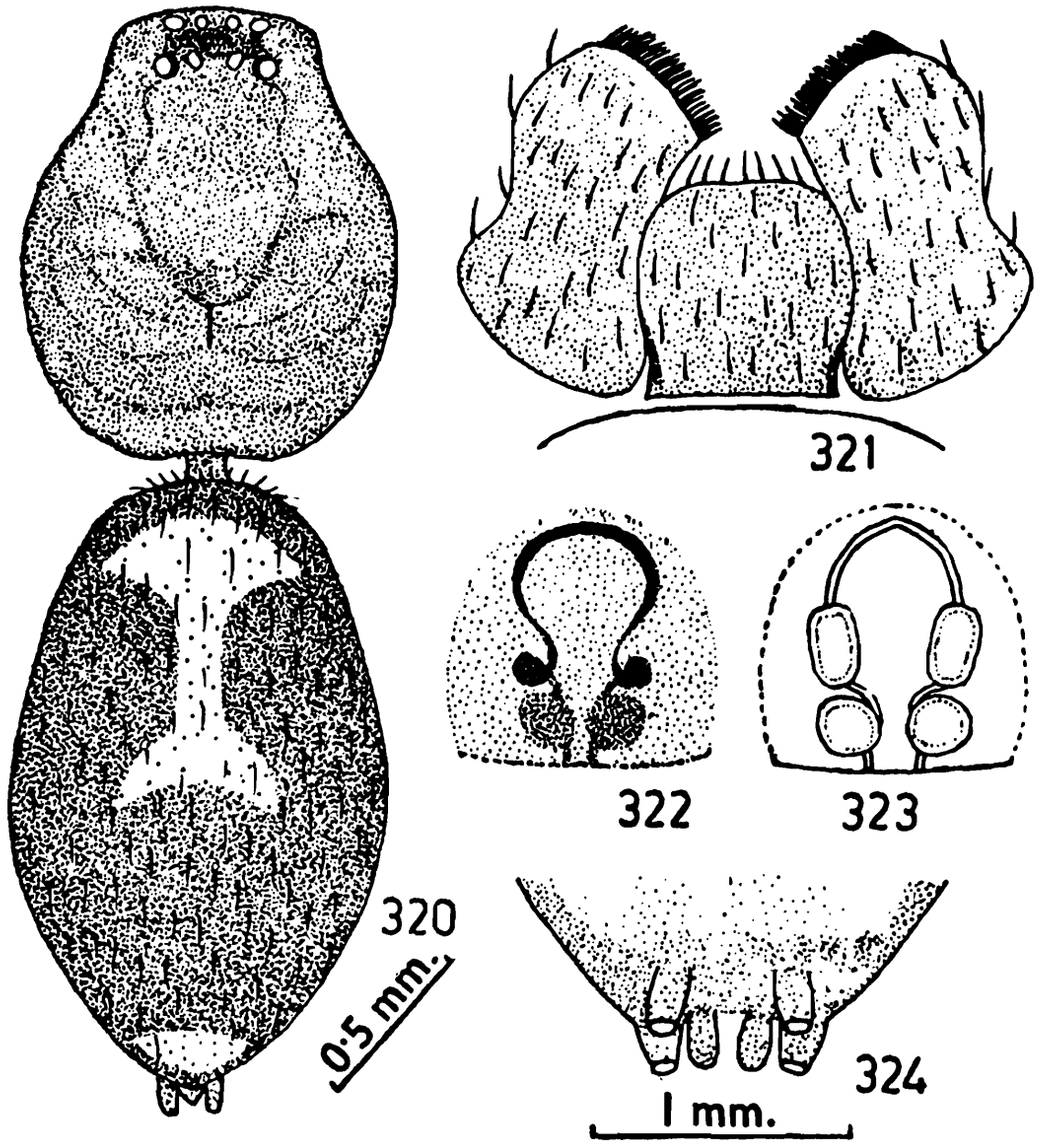
51, **Sosticus solanensis** Gajbe

(Figs. 320-324)

1979. *Sosticus solanensis* Gajbe, *Bull. zool. Surv. India*, 2(1) : 73.

General: Cephalothorax deep brown legs reddish-green, abdomen grey. Total length 5.80 mm. Carapace 2.10 mm. long, 1.90 mm. wide; abdomen 3.60 mm. long, 2.10 mm. wide.

Cephalothorax: Longer than wide, oval, narrowed in front, clothed with pubescence, posterior middle provided with a conspicuous short fovea. Radiating dark streaks diverge from fovea to lateral sides of cephalothorax. Eye rows distinctly separated, pearly white except anterior medians which are black, posterior row of eyes very slightly longer than the anterior row. Anterior row of eyes straight (as seen from in front); medians smaller than the laterals and closer to adjacent laterals that to each other. Posterior row of eyes slightly recurved, medians oval, smaller than the laterals and closer to adjacent laterals than to each other. Median ocular quadrangle longer than wide and wider behind than in front. Clypeal height more than the diameter of anterior median eye. Sternum heart-shaped, pointed behind, strongly rebordered, clothed with fine hairs. Labium



FIGS. 320-324. *Sosticus solanensis* Gajbe

320. Dorsal view of female, legs omitted.

321. Labium and maxillae.

322. Epigyne.

323. Internal genitalia

324. Spinnerets.

longer than wide, anterior end of labium and maxillae provided with conspicuous scopulae, shape as in text-fig. 321. Chelicerae moderately strong, vertical, inner margin provided with one minute tooth and outer margin with three longer teeth. Legs relatively long and thin, clothed with hairs and some spines. Tibiae IV provided with two dorsal spines. Scopulae reach up

to the base of metatarsi I and II and up to middle of metatarsi III and IV Leg formula 4123.

Abdomen: Longer than wide, elliptical, uniform, clothed with pubescence and some long hairs as in text-fig. 320. Ventral side lighter than the dorsal. Epigyne as in text-fig. 322. Internal genitalia as in text-fig. 323. Spinnerets prominent, anterior spinnerets widely separated, posterior spinnerets slightly larger than the anterior as in text-fig. 324.

Type-locality: Himachal Pradesh; Simla Hills, Dist. Solan. INDIA. *Holotypa* female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 4323/18.

Distribution: Known only from type-locality.

Remarks: Description and illustrations are made on the basis of *holotype* female.

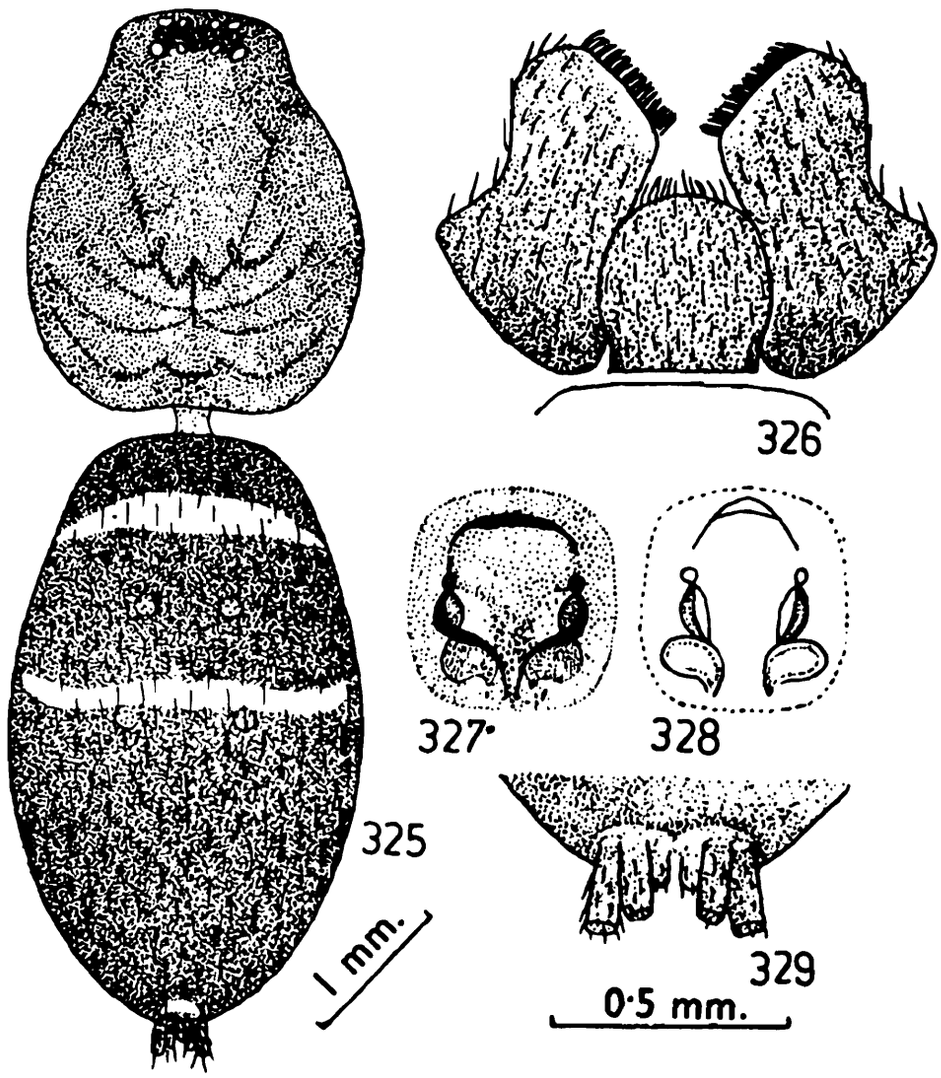
52. **Sosticus sundargarhensis** Gajbe

(Fig. 325-329)

1979. *Sosticus sundargarhensis* Gajbe, *Bull. zool. Surv. India*, 2(1) : 72.

General: Cephalothorax and legs reddish-brown, abdomen brownish black. Total length 4.40 mm. Carapace 1.40 mm. long, 1.30 mm. wide; abdomen 2.90 mm. long, 1.60 mm. wide.

Cephalothorax: Longer than wide, oval, narrow in front, clothed with pubescence, posterior middle provided with inconspicuous short fovea. Black reticulations are present on the lateral sides of cephalothorax. Eye rows distinctly separated, pearly white except anterior medians which are black, posterior row of eyes very slightly longer than the anterior row. Anterior row of eyes slightly procurved (as seen from in front); medians smaller than the laterals and closer to laterals than to each other. Posterior row of eyes straight, medians oval, smaller than the laterals and closer to adjacent laterals than to each other. Median ocular quadrangle longer than wide and wider behind than in front. Clypeal height more than the diameter of anterior median



FIGS. 325-329. *Sosticus sundargarhensis* Gajbe
325. Dorsal view of female, legs omitted.
326. Labium and maxillae.
327. Epigyne.
328. Internal genitalia.
329. Spinnerets.

eye. Sternum heart-shaped, pointed behind, strongly reborded, clothed with fine hairs. Labium longer than wide, anterior end of labium and maxillae provided with conspicuous scopulae, shape as in text-fig. 326. Chelicerae moderately strong, vertical, inner margin provided with one minute tooth and outer margin with two larger teeth. Legs relatively long and thin, clothed with hairs and some spines. Patella of all legs much larger and provided with two deep brown patches. Tibiae IV provided

with two dorsal spines. Scopulae reach upto the base of metatarsi I and II and upto middle of metatarsi III and IV Leg formula 4123.

Abdomen: Longer than wide, narrowing posteriorly; clothed with pubescence and provided with some round chalk-white spots as in text-fig. 325. Ventral side lighter than the dorsal. Epigyne as in text-fig. 327. Internal genitalia as in text-fig. 328. Spinnerets six, anterior spinnerets widely separated, posterior spinnerets longer than others as in text-fig. 329.

Type-locality: Orissa; Bonaigarh, Dist. Sundergarh; INDIA. *Holotype* female, *paratypes* two females in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 4322/18.

Distribution: Known only from type-locality.

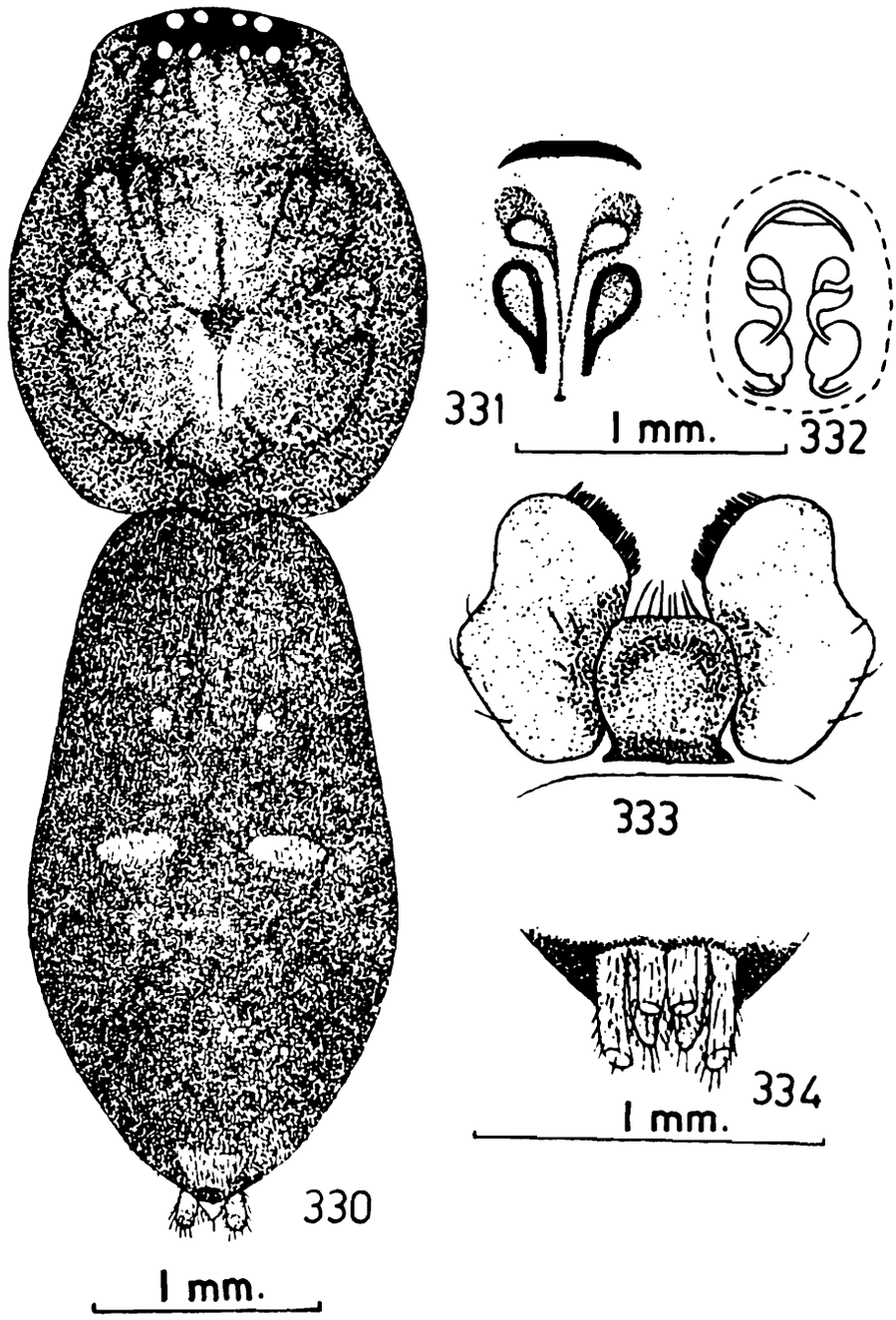
Remarks: Description and illustrations are made on the basis of *holotype* and *paratype* females.

53. **Sosticus poonaensis** sp.nov.

(Figs. 330-334)

General: Cephalothorax deep brown, legs brownish-green, abdomen black. Total length 5.30 mm. Carapace 2.20 mm. long, 1.80 mm. wide; abdomen 3.00 mm. long, 1.70 mm. wide.

Cephalothorax: Longer than wide, oval, convex, clothed with pubescence, posterior middle of cephalothorax provided with an inconspicuous short fovea. Radiating dark streaks diverge from short fovea to lateral sides of cephalothorax. Eyes rows distinctly separated, pearly white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes straight (as seen from in front); medians smaller than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes straight, posterior medians irregular in shape and slightly larger than the adjacent laterals and closer to laterals than to each other. The median ocular quadrangle longer than broad. Sternum heart-shaped, pointed behind, clothed with black hairs. Labium and maxillae as in text-fig. 333.



FIGS. 330-334. *Sosticus poonaensis* sp.nov.
330. Dorsal view of female, legs omitted.
331. Epigyne.
332. Internal genitalia.
333. Labium and maxillae.
334. Spinnerets.

Chelicerae moderately strong, vertical, inner margin provided with two small teeth and outer margin with two larger teeth. Legs relatively long and thin, clothed with hairs and spines.

Tibiae IV provided with two dorsal spines. Scopulae reach upto the base of metatarsi I and II and upto the middle of metatarsi III and IV Legs formula 4123.

Abdomen: Longer than wide, nearly elliptical, clothed with thick pubescence. Abdomen dorsally provided with three white spots, two in the middle and one just above the anal tubercle as in text-fig. 330. Epigyne as in text-fig. 331 and internal genitalia as in text-fig. 332. Spinnerets prominent, posterior spinnerets longer than others as in text-fig. 334.

Type-specimen: *Holotype* female, *paratype* two females in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 5057/18, 5058/18.

Type-locality: Mukund Nagar, Poona, Maharashtra, INDIA. Coll. *U. A. Gajbe,* 25.7.1975.

Discussion: This species resembles *Sosticus continentalis* Chamberlin but differs from it as follows: (i) Cephalothorax deep brown, abdomen black but in *S. continentalis* cephalothorax nearly chestnut, abdomen grey. (ii) Inner margin of chelicera provided with small teeth but in *S. continentalis* inner margin of chelicera provided with one moderate tooth. (iii) Epigyne also structurally different.

Genus **13. Talanites** Simon

1893. *Talanites* Simon, *Hist. Nat. Araign.*, 1(2) : 363.
1934. *Talanites* : Caporiacco, *Memorie Soc. ent. ital.*, **13** : 132.
1954. *Talanites* : Roewer, *Katalog der Araneae, Brussels*, 2 Band, Abt. a : 406.

Characters: Anterior row of eyes in a straight line. Median eyes smaller than the laterals. Eyes of posterior row equidistant and slightly larger in size than those of anterior row. median eyes are not elongated as in laterals. In both the rows the lateral eyes are close. Legs are fully provided with prickles.

Type-species: *Talanites fervidus* Simon.

Distribution: ASIA, AFRICA.

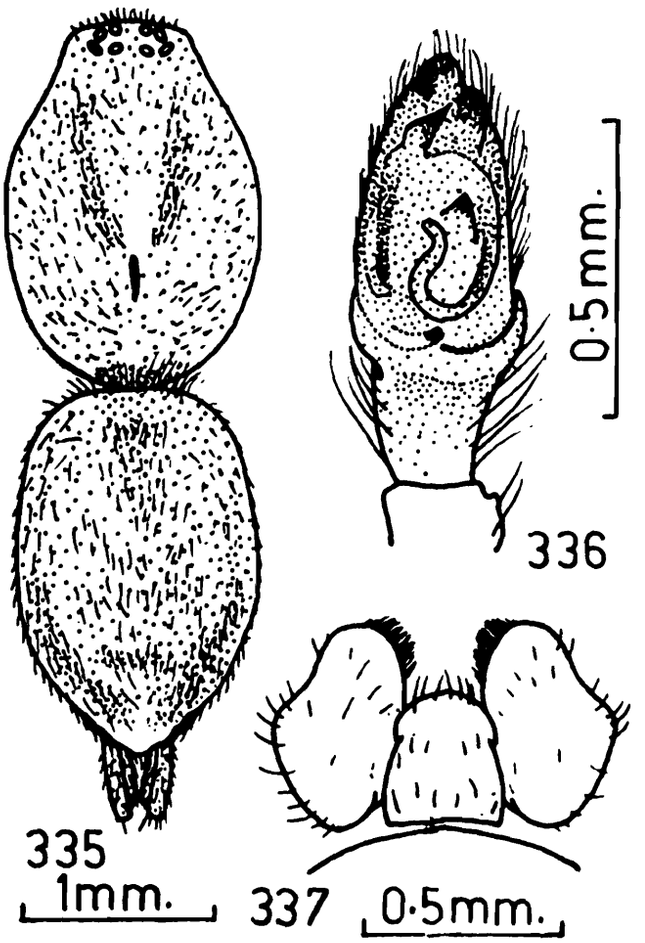
54. **Talanites tibialis** Caporiacco

(Figs. 335-337)

1934. *Talanites tibialis* Caporiacco, *Memorie. Soc. ent. ital.*, **13** : 132.
1954. *Talanites tibialis* : Roewer, *Katalog der Araneae*, 2 Band, Abt. a : 407.

General: Cephalothorax greyish brown, legs yellowish, abdomen greyish brown. Total length 3.95 mm. Carapace 2.00 mm. long, 1.40 mm. wide; abdomen 1.95 mm. long, 1.35 mm. wide.

Cephalothorax: Longer than wide, blunt anteriorly, moderately clothed with hairs; cephalic region slightly elevated and small in comparison to thoracic region; thoracic region provided with a fine longitudinal fovea as in text-fig. 335. Anterior median



FIGS. 335-337. *Talanites tibialis* Caporiacco
335. Dorsal view of male, legs omitted.
336. Male, palp, ventral view.
337. Labium and maxillae.

eyes smaller than posterior medians, laterals are subequal in size; anterior row of eyes nearly straight as seen from in front and posterior row slightly procurved. Ocular quad slightly wider behind than in front and slightly longer than wide. Sternum oval, tapering posteriorly, clothed with hairs, pale in colour. Maxillae longer than wide, convergent distally, distal ends with distinct scopulae, pale yellow in colour. Labium longer than wide, yellowish brown in colour. Male palp as in text-fig. 336.

Abdomen: Shield shaped, slightly wider posteriorly 2/3rd portion, longer than wide, clothed with hairs. Dorsum with some pale patches, posterior end with two pairs of black tubercles as in text-fig 335. Ventral side pale yellowish.

Distribution: INDIA: Srinagar, Jammu & Kashmir. PAKISTAN: Tukht-i-sulaiman.

Remarks: Description and illustrations are based on one authenticated identified specimen, deposited in the Museo Civico Di Storia Naturale, Italia.

Genus 14. **Sergiolus** Simon

1891. *Sergiolus* Simon, *Proc. zool. Soc. Lond.*, : 573.
1922. *Sergiolus* : Chamberlin, *Proc. biol. Soc. Wash.*, 35 : 151.
1948. *Sergiolus* : Kaston, *Spiders of Connecticut*, : 361.
1976. *Sergiolus* : Tikader & Gajbe, *Proc. Indian Acad. Sci.*, 84(5) : 185.

Characters: These spiders are brightly coloured. Both rows of eyes straight or slightly recurved, posterior median eyes round and median ocular area longer than wide and wider behind than in front. Inner margin of chelicera with one small tooth or unarmed. Tibia III provided with a median dorsal spine.

Type-species: *Sergiolus variegatus* (Hentz).

Distribution: AMERICA, INDIA.

Key to species of the genus **Sergiolus** Simon

1. Abdomen elliptical in shape (Fig. 338); dorsum of abdomen provided with two transverse pale bands (Fig. 338); posterior spinnerets longer than others (Fig. 342).....*singhi*

Abdomen oval in shape ; dorsum of abdomen without any pale transverse band ; posterior spinnerets may or may not be longer than others.....2

2. Abdomen ventrally provided with a pair of longitudinal deep brown lines ; outer margin of chelicera armed with a single large tooth ; anterior spinnerets larger than the others (Fig. 346).....*poonaensis*

Abdomen ventrally without any deep brown line ; outer margin of chelicera armed with three small teeth ; posterior spinnerets larger than the others (Fig. 350).....*meghalayensis*

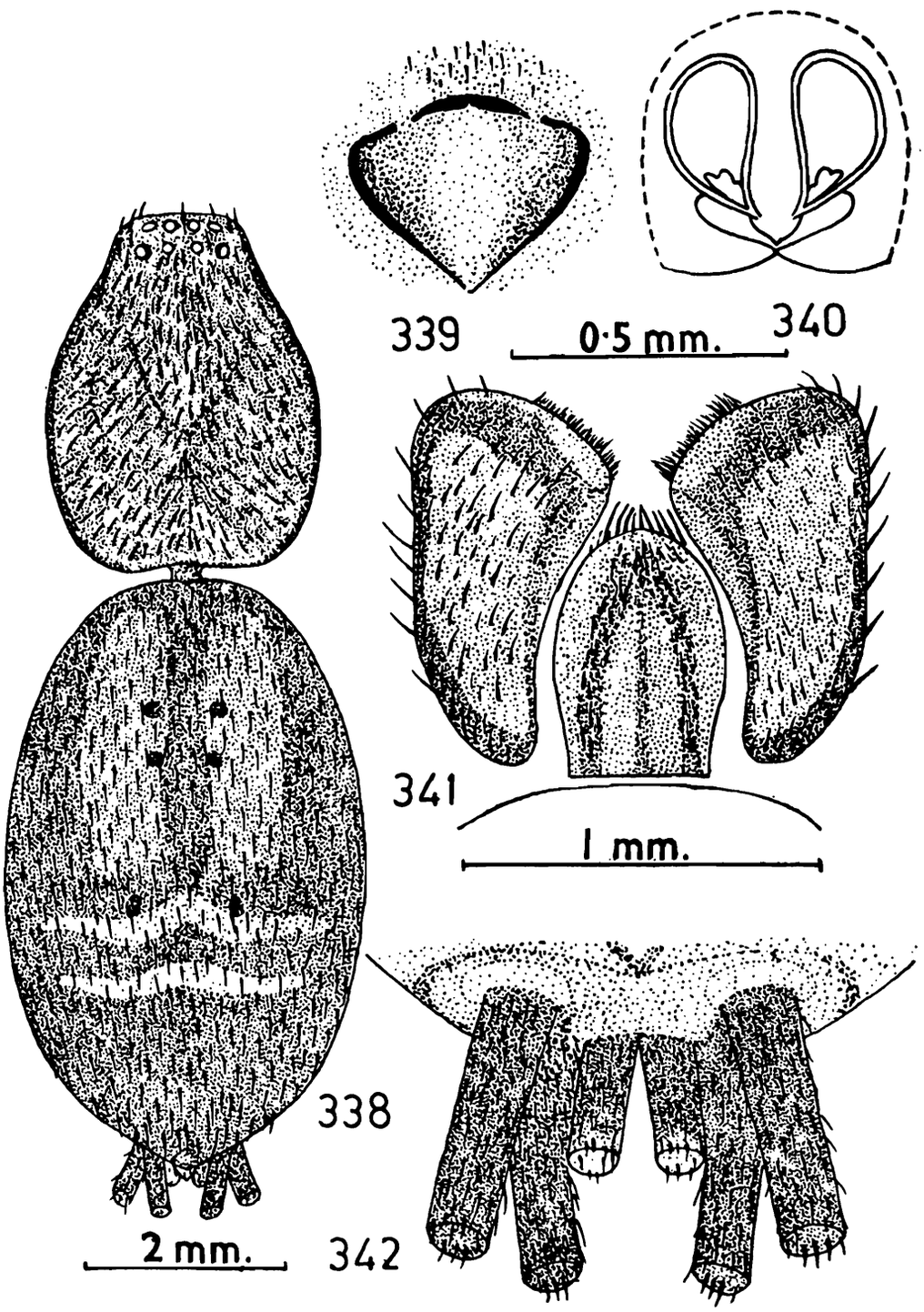
55. **Sergiolus singhi** Tikader & Gajbe

(Figs. 338-342)

1976. *Sergiolus singhi* Tikader & Gajbe, *Proc. Indian Acad. Sci.*, **84**(5) : 189-191.

General: Cephalothorax and legs deep brown, abdomen grey. Total length 9.50 mm. Carapace 3.40 mm. long, 2.60 mm. wide; abdomen 5.90 mm. long, 3.60 mm. wide.

Cephalothorax: Longer than wide, narrow in front, slightly convex, glazing smooth, clothed with fine black short fovea. Eyes dull pearly white except anterior medians. Anterior row of eyes slightly recurved (as seen from in front), medians circular slightly larger than the laterals and close to adjacent laterals than to each other. Posterior row of eyes slightly recurved, medians more or less circular, smaller than the laterals and equally spaced. Ocular area longer than wide and wider behind than in front. Sternum oval, deep brown, widest at middle, pointed behind and clothed with fine conspicuous hairs. Maxillae and labium longer than wide, shape as in text-fig. 341. Chelicerae moderately strong, vertical, inner margin provided with one small tooth and outer margin with slightly larger tooth. Legs relatively long and strong, clothed with thick hairs and some spines. Tibia III with a median dorsal spine. Leg formula 4123.



FIGS. 338-342. *Sergiolus singhi* Tikader & Gajbe

338. Dorsal view of female, legs omitted.

339. Epigyne.

340. Internal genitalia.

341. Labium and maxillae.

342. Spinnerets.

Abdomen: Longer than wide, nearly elliptical, clothed with fine thick hairs and provided with three pairs of sigilla on the dorsum. Dorsum behind the middle provided with two transverse pale bands as in text-fig. 338. Ventral side lighter than the dorsal. Epigyne as in text-fig. 339 and internal genitalia as in text-fig. 340. Spinnerets prominent, black, anterior spinnerets well separated, posterior spinnerets longer than others as in text-fig. 342.

Type-locality: Forest Lodge Compound, Bellara, Sira taluka, Dist. Tumkur, Karnataka, INDIA. *Holotype* female in spirit, deposited at the Z.S.I., Calcutta. Regd. No. 5052/18.

Distribution: INDIA: Tumkur, Karnataka.

Remarks: Description and illustrations are made on the basis of *holotype* female.

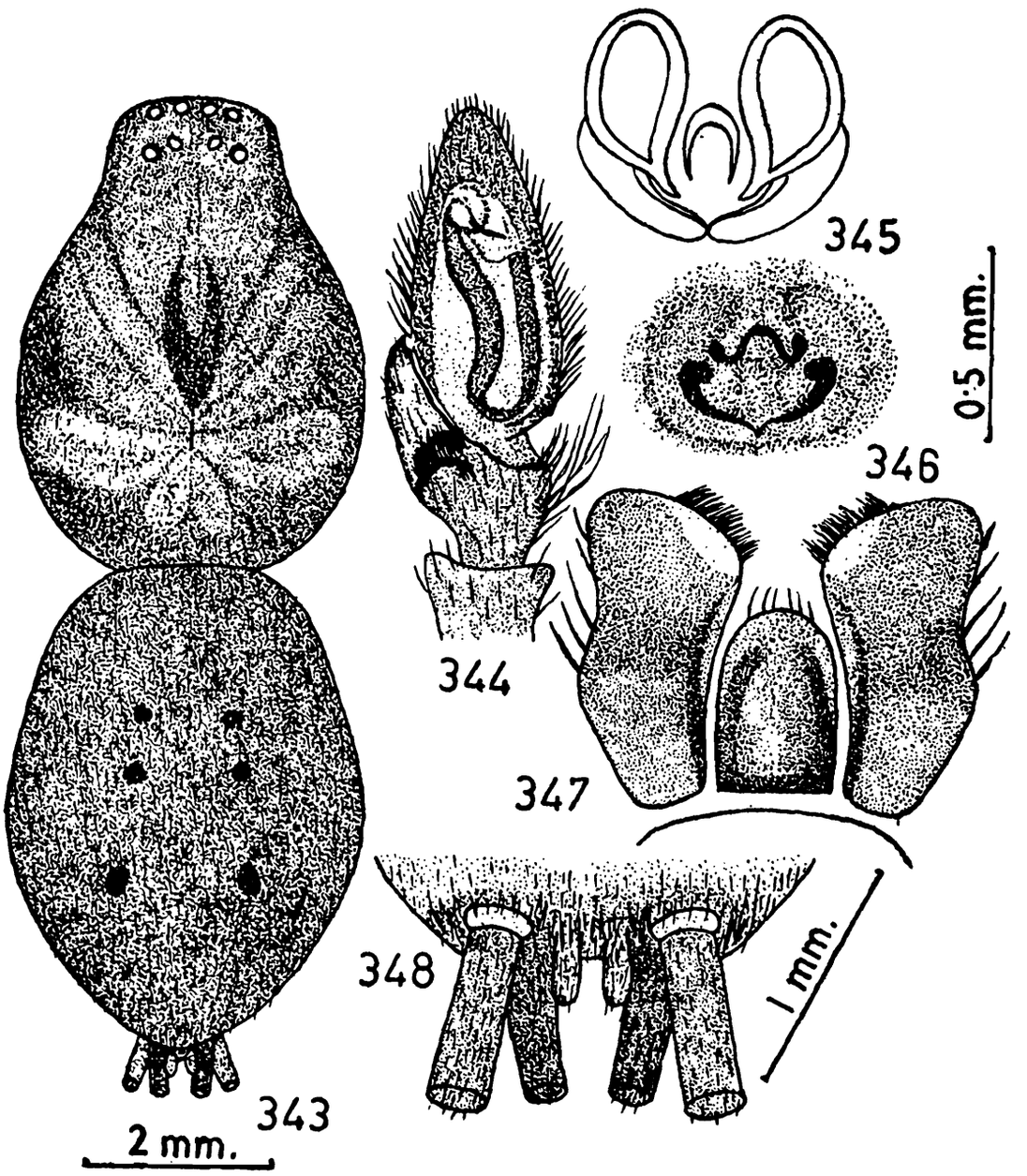
56. **Sergiolus poonaensis** Tikader & Gajbe

(Figs. 343-348)

1976. *Sergiolus poonaensis* Tikader & Gajbe, *Proc. Indian Acad. Sci.*, 84(5) : 186.

General: Cephalothorax, legs and abdomen deep brown. Total length 10.20 mm. Carapace 5.00 mm. long, 3.80 mm. wide; abdomen 5.40 mm. long, 3.90 mm. wide.

Cephalothorax: Longer than wide, narrow in front, convex, posterior middle of cephalothorax provided with an inconspicuous short fovea. Eyes pearly white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly recurve (as seen from in front), medians slightly larger than the laterals and close to adjacent laterals than to each other. Posterior row of eyes recurved, medians more or less round, smaller than the laterals and equally spaced. Ocular area longer than wide and wider behind than in front. Sternum deep brown, oval, widest at middle, pointed behind and clothed with hairs. Maxillae and labium longer than wide as in text-fig. 347. Chelicerae moderately strong, vertical,



FIGS. 343-348. *Sergiolus poonaensis* Tikader & Gajbe
343. Dorsal view of female, legs omitted.
344. Male palp, ventral view
345. Internal genitalia.
346. Epigyne.
347. Labium and maxillae.
348. Spinnerets.

inner margin with one small tooth and outer margin with a large tooth. Legs relatively long and strong, clothed with hairs and spines. Tibia III with a median dorsal spine. Male brown

in colour and nearly same in size as female. Male palp as in text-fig. 344.

Abdomen: Longer than wide, nearly oval, clothed with fine thick hairs and provided with three pairs of sigilla on the dorsum as in text-fig. 343. Ventral side light brown and provided with a pair of longitudinal deep brown lines starting from the epigastric fold to just above the base of spinnerets. Epigyne as in text-fig. 346 and internal genitalia as in text-fig. 345. Spinnerets prominent, anterior spinnerets larger than other as in text-fig. 348.

Type-locality: Bund Garden, Poona, Maharashtra, INDIA. *Holotype* female, *paratype* 3 females and *allotype* 10 males in spirit, deposited at the Z.S.I., Calcutta, Regd. No. 5049/18, 5050/18, 5051/18.

Distribution: INDIA: Maharashtra; Poona.

Remarks: Description and illustrations have been made on the basis of *holotype* female and one of the *allotype* male.

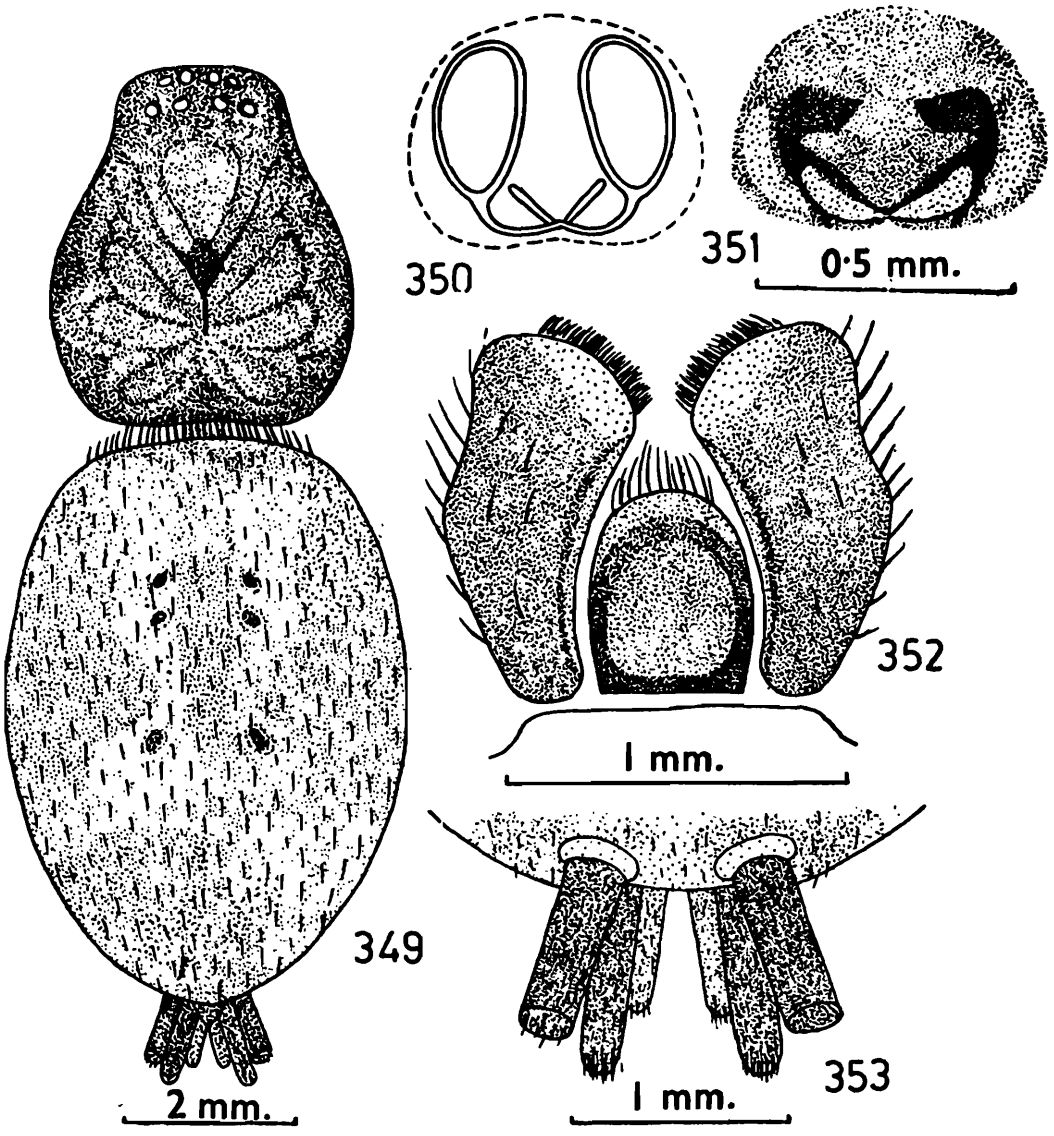
57. **Sergiolus meghalayensis** Tikader & Gajbe

(Figs. 349-353)

1976. *Sergiolus meghalayensis* Tikader & Gajbe, *Proc. Indian Acad. Sci.*, 84(5) : 186-189.

General: Cephalothorax and legs deep-brown, abdomen brownish-green. Total length 11.00 mm. Carapace 4.00 mm. long, 3.40 mm. wide; abdomen 6.80 mm. long, 4.80 mm. wide.

Cephalothorax: Longer than wide, narrow in front, convex, posterior middle of cephalothorax provided with an inconspicuous short fovea. Eyes pearly white except anterior medians, posterior row of eyes slightly longer than the anterior row and both rows recurved. Anterior medians slightly larger than the laterals and close to adjacent laterals than to each other. Posterior medians oval, smaller than the laterals and equally spaced. Ocular area longer than wide and wider behind than in front. Sternum



FIGS. 349-353. *Sergiolus meghalayensis* Tikader & Gajbe

349. Dorsal view of female, legs omitted.
350. Internal genitalia.
351. Epigyne.
352. Labium and maxillae.
353. Spinnerets.

conspicuous deep brown, oval, widest at middle and pointed behind, clothed with hairs. Maxillae and labium as in text-fig. 352. Chelicerae moderately strong, vertical, inner margin with one small tooth and outer margin with three small teeth. Legs relatively long and strong, clothed with hairs and spines. Tibia III with a median dorsal spine.

Abdomen: Longer than wide, oval, clothed with fine hairs and provided with three pairs of sigilla on the dorsum as in text-fig. 349. Ventral side slightly lighter than the dorsal. Epigyne as in text-fig. 351 and internal genitalia as in text-fig. 350. Spinnerets prominent, posterior spinnerets larger than others as in text-fig. 353.

Type-locality: Khasi Hills, Meghalaya, INDIA. *Holotype* female in spirit, housed at the Z.S.I., Calcutta. Regd. No. 5045/18.

Distribution: INDIA: Meghalaya, Khasi Hills.

Remarks: Description and illustrations are prepared on the basis of *holotype* female.

Genus 15. **Poecilochroa** Westring

1874. *Poecilochroa* Westring, *Goteborgs. K. Vetensk.-o. Vitterh Samh. Handl.*, 14 : 45.

1893. *Poecilochroa* : Simon, *Hist. Nat. Araign.*, 1(2) : 371-372.

1940. *Poecilochroa* : Comstock, *The Spider Book*, New York, : 329-330.

Characters: The cephalothorax narrow, oblong, slightly convex and a little narrowed in front. The anterior eyes close together in a straight line, and with the median larger than the lateral eyes. The posterior eyes small, in a slightly recurved line. The median ocular area is longer than broad, and narrower in front than behind. The chelicerae are of moderate size, with margins of the furrow unarmed. Abdomen with white spots.

Type-species: *Poecilochroa variana* (Koch C. L.)

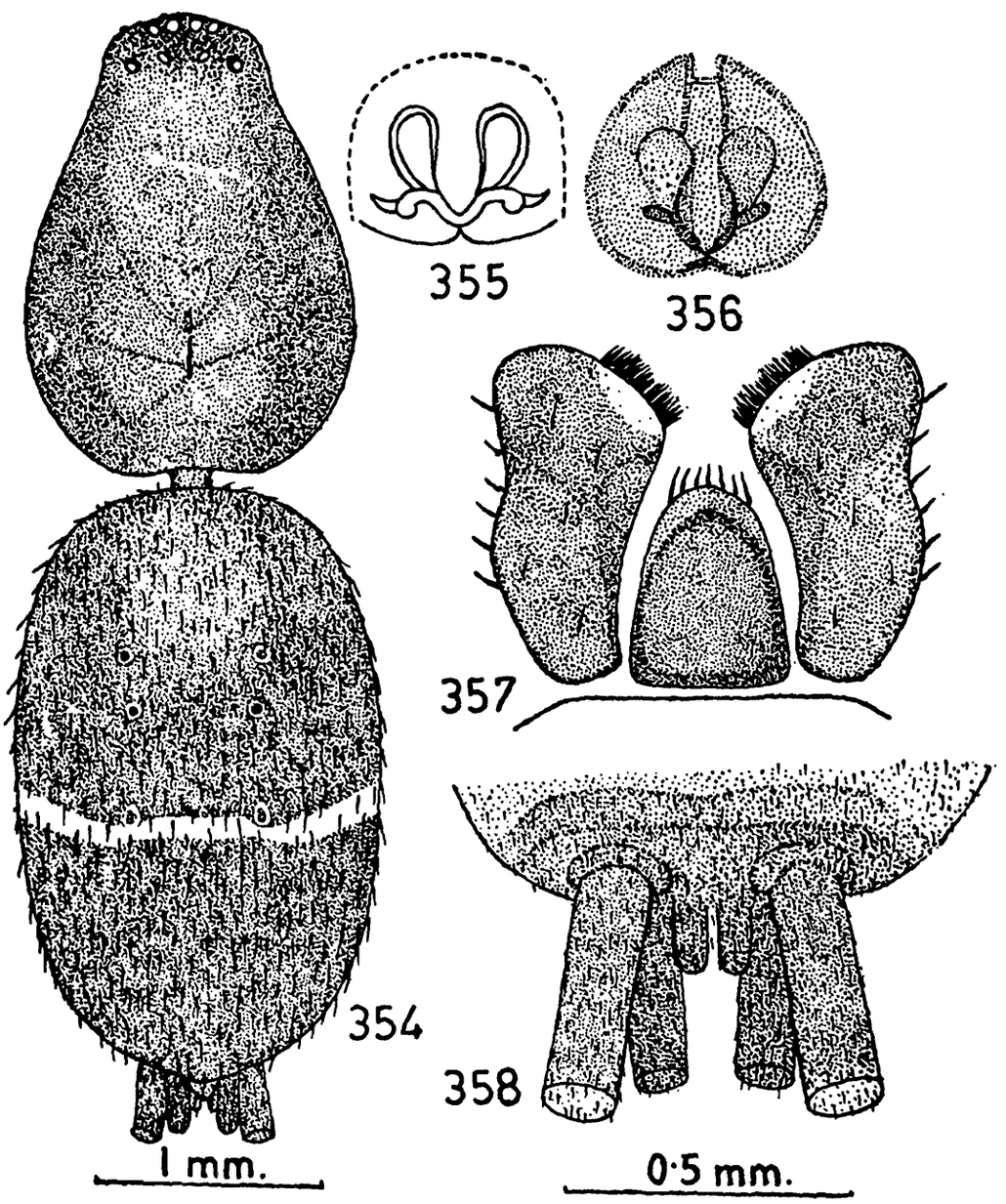
Distribution: EUROPE, AFRICA, ASIA, AMERICA.

58. **Poecilochroa barmani** sp.nov.

(Figs. 354-358)

General: Cephalothorax deep brown, legs brown, abdomen black. Total length 4.80 mm. Carapace 2.00 mm. long, 1.50 mm. wide; abdomen 2.70 mm. long, 1.70 mm. wide.

Cephalothorax: Longer than wide, narrow in front, slightly convex, posterior middle of cephalothorax provided with an inconspicuous short fovea, clothed with pubescence. Eyes pearly white except anterior medians, posterior row of eyes are close together in a straight line (as seen from in front), medians slightly



FIGS. 354-358. *Poecilochroa barmani* sp.nov.
354. Dorsal view of female, legs omitted.
355. Internal genitalia.
356. Epigyne.
357. Labium and maxillae.
358 Spinnerets.

larger than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes recurved, medians oval and slightly closer to adjacent laterals than to each other. Ocular area longer than wide and wider behind than in front. Sternum deep brown, oval, pointed behind and clothed with hairs. Labium and maxillae as in text-fig. 357. Chelicerae moderately strong and the margins of the furrow without tooth. Legs relatively long and strong, clothed with hairs and spines, femora of all legs are deep brown colour.

Abdomen: Longer than wide, nearly elliptical, clothed with hairs and provided with three pairs of sigilla on the dorsum. Dorsum provided with a transverse white band just behind the third pairs of sigilla as in text-fig. 354. Ventral side lighter than the dorsal. Epigyne as in text-fig. 356 and internal genitalia as in text-fig. 355. Spinnerets prominent, anterior spinnerets larger than others, posterior spinnerets darker in colour than others as in text-fig. 358.

Type-specimen: *Holotype* female in spirit, deposited at the Z.S.I., Calcutta. Regd. No. 5073/18.

Type-locality: Lady Keane College Campus, Shillong, Meghalaya, INDIA. 20.v.1957, Coll. *S. Bhuyar.*

Discussion: This species resembles *Poecilochroa montana* Emerton but differs from it as follows: (i) Cephalothorax deep brown but in *P. montana* cephalothorax brown with smooky markings and sparse white pubescence. (ii) Abdomen provided with a transverse white band just behind the third pair of sigilla but in *P. montana* abdomen provided with a pair of white spots near the middle of its length. (iii) Epigyne also structurally different.

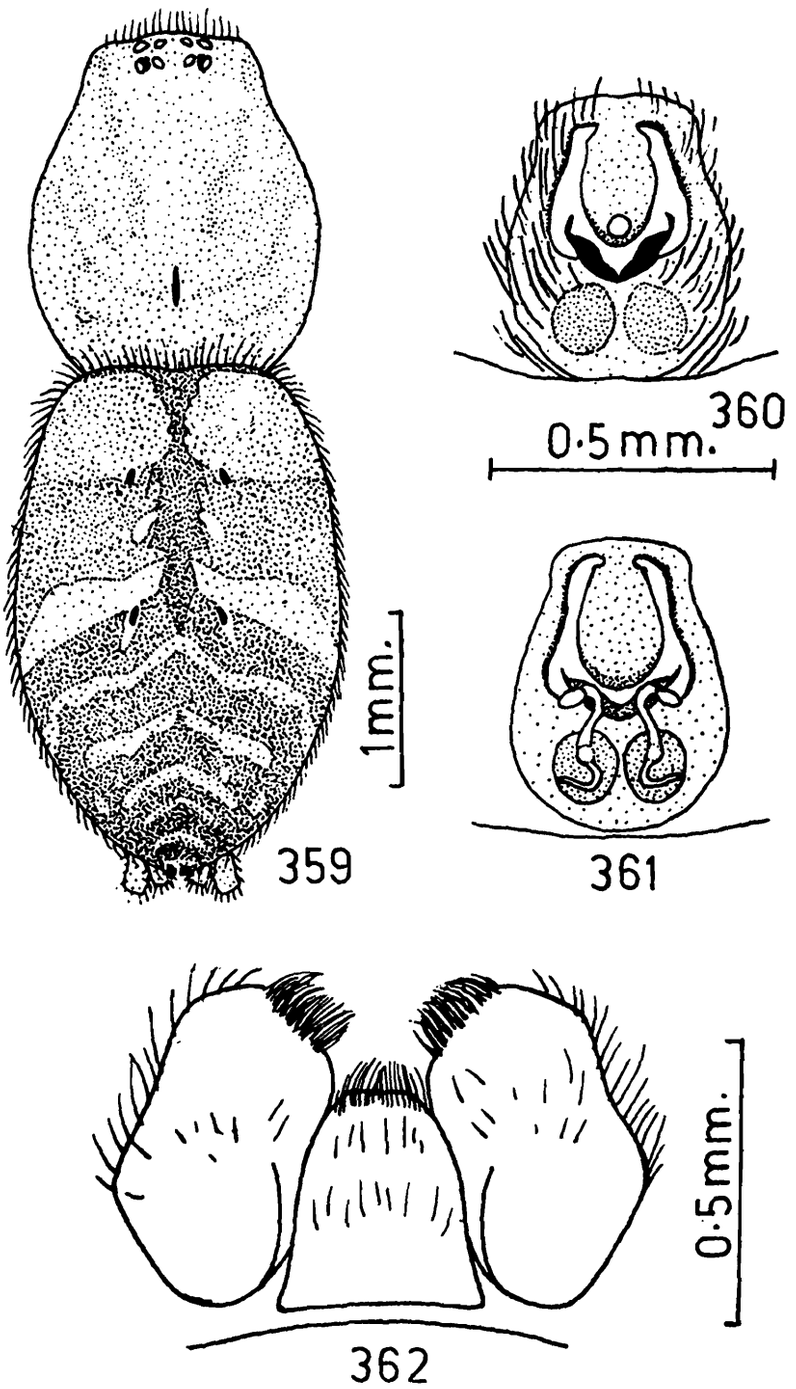
59. **Poecilochroa sedula** (Simon)

(Figs. 359-362)

1897. *Callilepis sedula* Simon, *Mém. Soc. zool. Fr.*, **10**(2) : 255.
1954. *Poecilochroa sedula* : Roewer, *Katalog der Araneae*, **2** : 431.

General: Cephalothorax dark brownish, legs brownish with

some dark shades, abdomen greyish with black patches. Total length 4.80 mm. Carapace 2.00 mm. long, 1.65 mm. wide; abdomen 2.90 mm. long, 1.85 mm. wide.



FIGS. 359-362. *Poecilochroa sedula* (Simon)

359. Dorsal view of female, legs omitted.
360. Epigyne.
361. Internal genitalia.
362. Labium and maxillae.

Cephalothorax: Longer than wide, blunt anteriorly, scarcely clothed with hairs, cephalic region rather elevated than thoracic region and lighter in colour; thoracic region provided with longitudinal fine fovea as in text-fig. 359. Anterior median eyes smallest and greenish, lateral eyes subequal in size and larger anterior row of eyes slightly procurved as seen from in front and posterior row nearly straight as in text-fig. 359. Ocular quad slightly wider behind than in front and slightly longer than wide as in text-fig. 359. Sternum heart-shaped, pointed behind, yellowish clothed with hairs. Maxillae a little convergent distally, yellowish in colour, distal ends with small scopulae. Labium longer than wide, brownish in colour as in text-fig. 362. Chelicerae moderately strong with no boss. Legs moderately long but stout, clothed with hairs and spines, segments with some black patches.

Abdomen: Roughly oval, longer than wide, anterior end provided with large hairs as in text-fig. 359. Dorsum with two pairs of small sigilla and a few blackish transverse bands as in text-fig. 359. Ventral side with two longitudinal black lines between epigastric furrow and the spinnerets. Epigyne provided with a scape like structure as in text-fig. 360. Internal genitalia as in text-fig. 361.

Distribution: Dehra Dun, (*Type-locality*) U.P. INDIA.

Remarks: Illustrations and description are based on one female type specimen, deposited in the Museum National d' Histoire Naturelle, Paris. Regd. No. AR 1649.

Genus 16. **Nodocion** Chamberlin

1922. *Nodocion* Chamberlin, *Proc. biol. Soc. Wash.*, **35** : 154.
1940. *Nodocion* : Comstock, *The Spider Book, New York*, : 328.

Characters: The inner margin of the furrow of the chelicera is completely unarmed as in *Liodrassus*. The anterior median eyes are considerably smaller than the lateral eyes. The median ocular quadrangle is narrowed in front, the anterior median eyes smaller than the posterior median. The chelicerae are armed in front with a thick covering of stiff bristles.

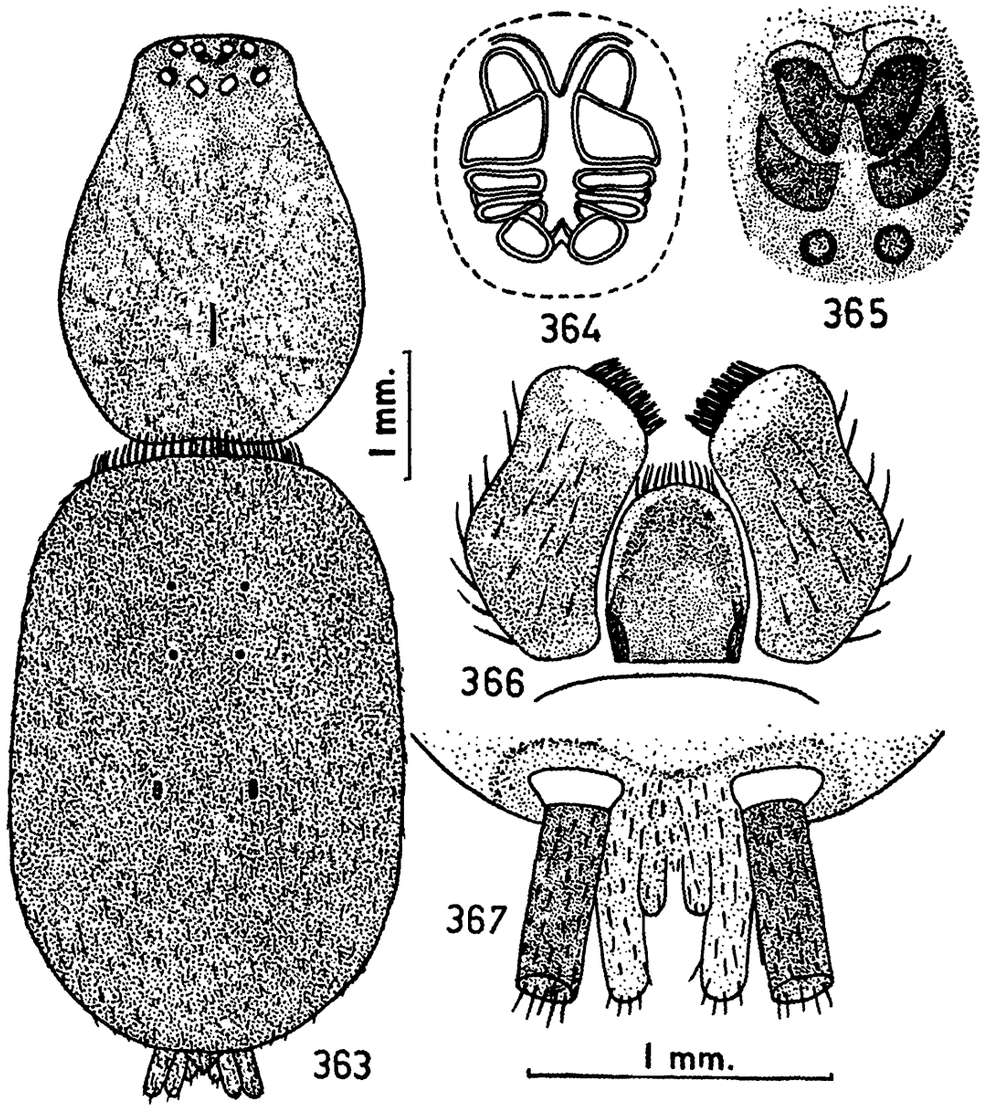
Type-species: *Nodocion mateonus* Chamberlin.

Distribution: CALIFORNIA, AMERICA, INDIA.

60. **Nodocion solanensis** Tikader & Gajbe

(Figs. 363-367)

1977. *Nodocion solanensis* Tikader & Gajbe, *Rec. zool. Surv. India*, **73**(1-4) : 73.



FIGS. 363-367. *Nodocion solanensis* Tikader & Gajbe
363. Dorsal view of female, legs omitted.
364. Internal genitalia.
365. Epigyne.
366. Labium and maxillae.
367. Spinnerets.

General: Cephalothorax and legs reddish-green, abdomen light brownish-green. Total length 8.80 mm. Carapace 3.50 mm. long, 2.40 mm. wide; 5.20 mm. long, 3.30 mm. wide.

Cephalothorax: Longer than wide, broad in front, clothed with pubescence, posterior middle provided with a conspicuous short fovea. Pattern of radiating streaks diverge from a short fovea to the sides. Eyes pearly white except anterior medians posterior row of eyes slightly longer than the anterior row. Anterior row of eyes procurved (as seen from in front), medians smaller than the laterals and closer to lateral than to each other. Posterior row of eyes procurved, medians elliptical, slightly larger than the laterals and closer to each other, than to the adjacent laterals. Chelicerae moderately strong, inner margin without tooth and outer margin provided with teeth. Sternum heart-shaped, pointed behind, clothed with fine hairs. Maxillae and labium reddish-green, shape as in text-fig. 366. Legs relatively long and strong, clothed with hairs and spines. Metatarsi and tarsi of I and II provided ventrally with conspicuous scopulae and tarsi with prominent claw tufts. Legs formula 4123.

Abdomen: Longer than wide, nearly elliptical, clothed with hairs and provided with three pairs of sigilla as in text-fig. 363. Ventral side lighter than the dorsal. Epigyne as in text-fig. 365 and internal genitalia as in text-fig. 364. Spinnerets prominent, anterior spinnerets prominent, cylindrical and longer than others as in text-fig. 367.

Type-locality: Kasoli Dist. Solan, Himachal Pradesh, INDIA. *Holotype* female in spirit, deposited at the Z.S.I., Calcutta. Regd. No. 5002/18.

Distribution: Known only from its type-locality.

Remarks: Description and illustrations are made on the basis of the *holotype* female.

Genus 17. **Herpyllus** Hentz

1832. *Herpyllus* Hentz, *Silliman soum. Sci. a. Arts*, 21 : 102.
1922. *Herpyllus* : Chamberlin, *Proc. biol. Soc. Wash.*, 35 : 148.
1940. *Herpyllus* : Comstock, *The Spider Book, New York*, : 332.

Characters: The two rows of eyes are nearly straight and widely separated; the eyes of each row are quite evenly spaced. The anterior middle eyes are larger than others. The posterior row of eyes subequidistant, median eyes are round, a little smaller than the posterior lateral eyes. Height of clypeus is not more than the diameter of an anterior median eyes. Lower margin of furrow of chelicera is armed with one tooth or nodule.

Type-species: *Herpyllus ecclesiasticus* Hentz.

Distribution: UNITED STATES OF AMERICA, INDIA.

61. **Herpyllus bicolor** (Simon)

(Figs. 368-371)

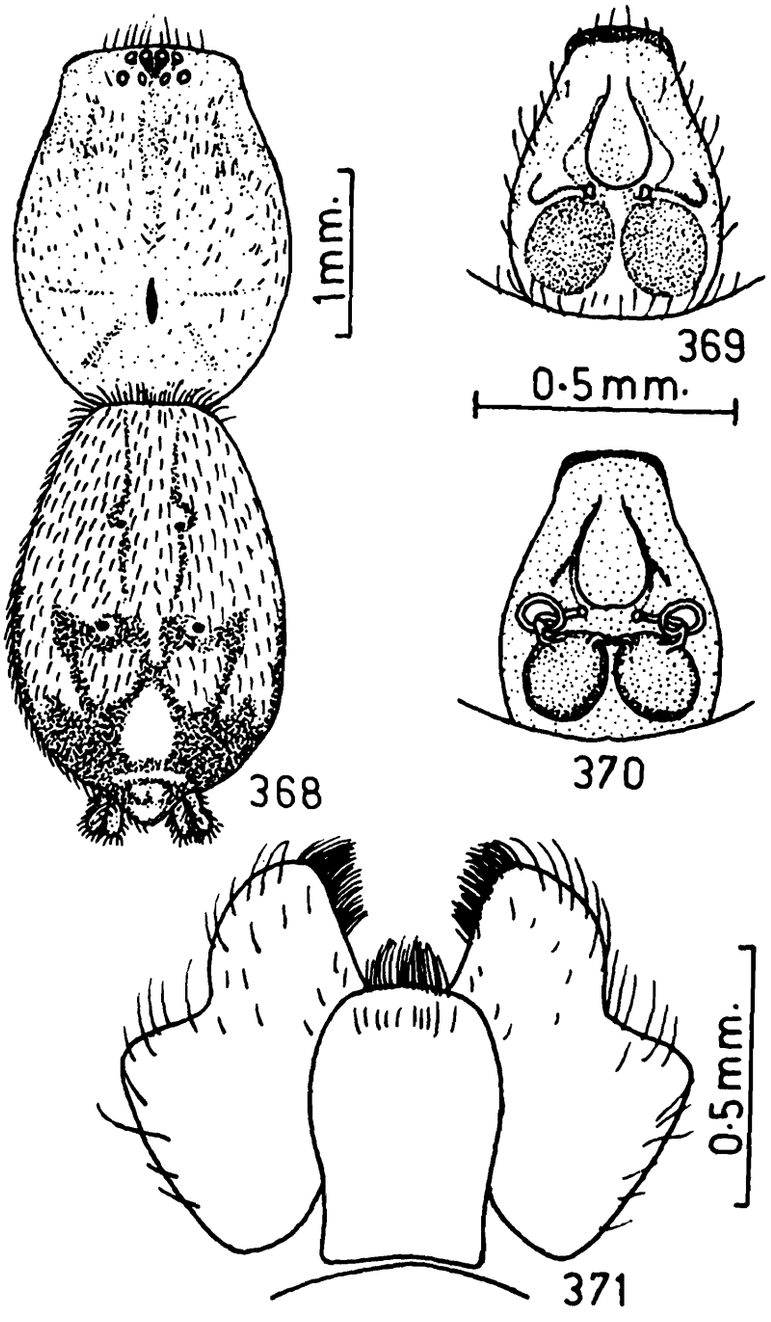
1885. *Melicymnis bicolor* Simon, *Bull. Soc. zool. Fr.*, **10** : 23.
1893. *Mulicymnis bicolor* : Simon, *Hist. Nat. Araign.*, **1**(2) : 370.

General: Cephalothorax and legs pale yellowish, abdomen also pale yellowish with some dark shade at the posterior end. Total length 4.80 mm. Carapace 2.30 mm. long, 1.70 mm. wide; abdomen 2.65 mm. long, 1.70 mm. wide.

Cephalothorax: Longer than broad, blunt and nearly truncated anteriorly, scarcely clothed with hairs; thoracic region provided with fine longitudinal fovea as in text-fig. 368. Posterior eyes smallest, lateral eyes are little larger than medians; both laterals subequal in size, anterior row of eyes slightly procurved as seen from in front and anterior median larger; posterior row straight as in text-fig. 368. Ocular quad slightly wider behind than in front as in text-fig. 368. Sternum roughly oval, pale yellowish, clothed with hairs. Maxillae provided with a distinct depression from outside and distally convergent; pale yellowish, distal end with indistinct scopulae. Labium much longer than wide, yellowish brown in colour as in text-fig. 371. Chelicerae moderately strong with no boss. Legs thin and weak, clothed with hairs, no bands.

Abdomen: Longer than wide, clothed with small hairs, anterior end provided with large hairs as in text-fig. 368. Dorsum with two pairs of distinct sigilla and some black shades at the potserior

end as in text-fig. 368. Ventral side pale yellowish with a pair of dark longitudinal lines in between epigastric furrow and spinnerets. Epigyne as in text-fig. 369. Internal genitalia as in text-fig. 370.



FIGS. 368-371. *Herpyllus bicolor* (Simon)
368. Dorsal view of female, legs omitted.
369. Epigyne.
370. Internal genitalia.
371. Labium and maxillae.

Distribution: Guntakal: Andhra Pradesh, INDIA.

Remarks: Illustrations and description are based on female type specimen deposited in the Museum National d' Histoire Naturelle, Paris. Regd. No. 24691.

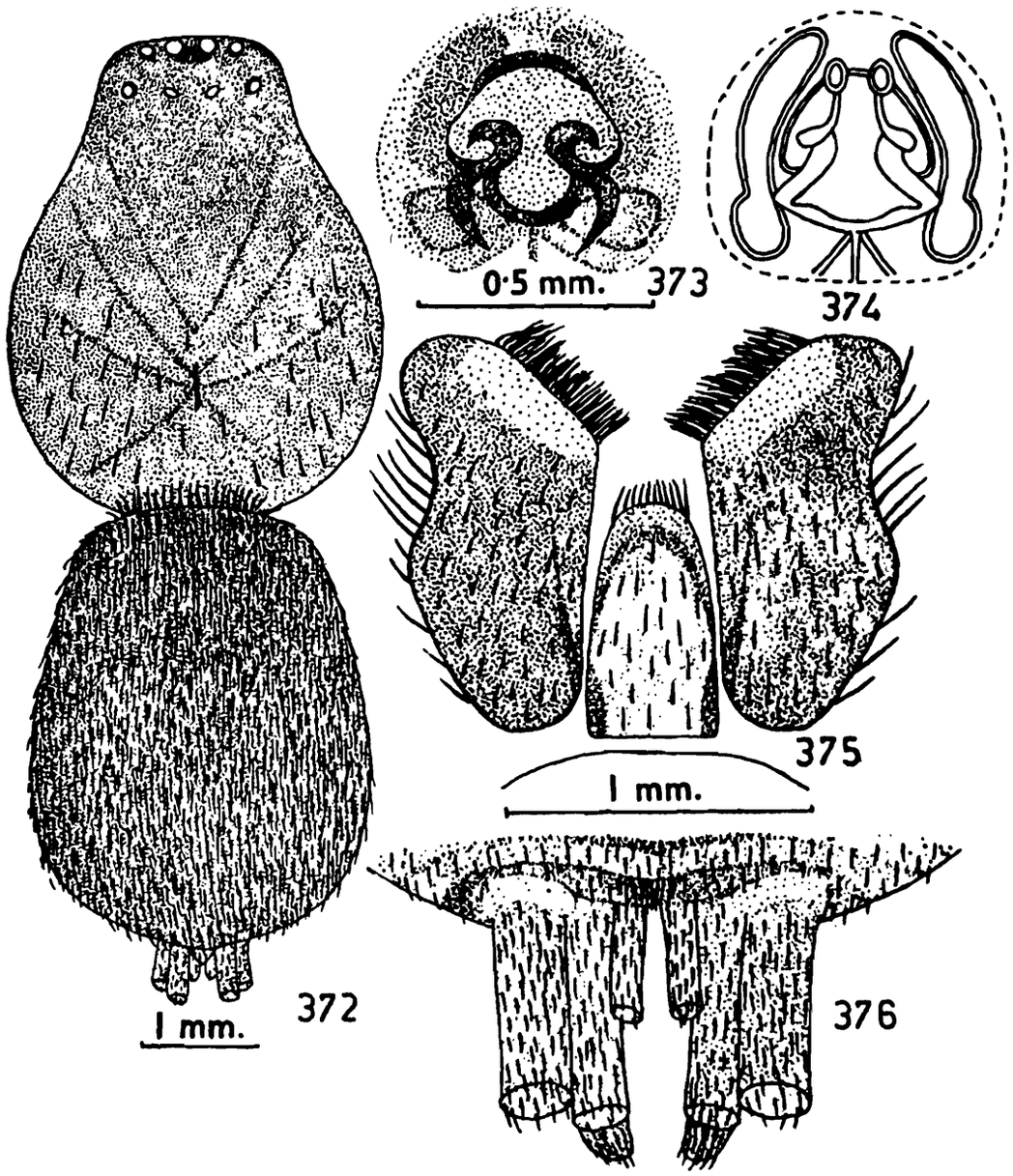
62. **Herpyllus goaensis** sp.nov.

(Figs. 372-376)

General: Cephalothorax and legs reddish-brown, abdomen grey. Total length 7.80 mm. Carapace 4.00 mm. long, 3.00 mm. wide; abdomen 3.80 mm. long, 2.60 mm. wide.

Cephalothorax: Longer than wide, oval, slightly narrowing in front, slightly convex, clothed with pubescence and some long hairs, posterior middle provided with a conspicuous short fovea. Eyes pearly white, widely separated, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes nearly straight, medians larger than the others and closer to adjacent laterals than to each other. Posterior row of eyes nearly straight, medians nearly rounded, smaller than the laterals and slightly closer to each other than to the adjacent laterals. Median ocular quadrangle longer than wide and wider behind than in front. Height of clypeus nearly same the diameter of the anterior median eyes. Chelicerae short, vertical inner margin provided with one small tooth and outer margin with three teeth. Maxillae and labium longer than wide, provided with long hairs, and anterior end provided with scopulae, shape as in text-fig. 375. Sternum deep brown, nearly elliptical, clothed with fine hairs. Legs relatively long and strong, clothed with hairs and some spines. Legs formula 4123.

Abdomen: Longer than wide, widest behind the middle, clothed with mousy hairs. Ventral side lighter than the dorsal and clothed with hairs. Epigyne as in text-fig. 373 and internal genitalia as in text-fig. 374. Spinnerets prominent, anterior spinnerets widely separated, posterior spinnerets longer than others as in text-fig. 376.



FIGS. 372-376. *Herpyllus goaensis* sp.nov.
372. Dorsal view of female, legs omitted.
373. Epigyne.
374. Internal genitalia.
375. Labium and maxillae.
376. Spinnerets.

Type-specimen: *Holotype* female in spirit, deposited at the Z.S.I., Calcutta. Regd. No. 5095/18.

Type-locality: Caranzalem, Goa, INDIA. 18.xii.1975, Coll. *U. A. Gajbe.*

Discussion: This species resembles *Herpyllus scholasticus* Chamberlin but differs from it as follows: (i) Abdomen grey but in *H. scholasticus* abdomen elsewhere grey excepting the sides, which are darker. (ii) Metatarsus I and II without a pair of spines but in *H. scholasticus* metatarsus I and II with a pairs of spines. (iii) Epigyne also structurally different.

Genus 18. **Haplodrassus** Chamberlin

1922. *Haplodrassus* Chamberlin, *Proc. biol. Soc. Wash.*, **35** : 161.
1934. *Haplodrassus* : Caporiacco, *Memorie. Soc. ent. ital.*, **13** : 131.
1940. *Haplodrassus* : Comstodk, *The spider Book*, New York, : 326.
1975. *Haplodrassus* : Platnick & Shadab, *Am. Mus. Novit.*, **2583** : 5.

Characters: Carapace flat, ocular area narrowed, thoracic region with thin eract black setae, cephalic area not elevated. Anterior row of eyes slightly procurved (as seen from in front) and posterior row of eyes procurved. Eyes of the anterior row round. Posterior medians larger than others and oblique, and close together, well away from the posterior laterals. Median ocular area as wide behind as in front. Height of the clypeus greater than the diameter of anterior medians. Inner margin of cheliceral furrow bears two teeth and outer margin with two or three teeth. Legs formula 4123. Fourth tibia without spines on dorsal side. Anterior spinnerets widely separated than median or posterior spinnerets. Epigyne with large paired chitinous processes separated by median septum.

Type-species: *Haplodrassus hiemalis* (Emerton).

Distribution: NEW YORK, AMERICA, INDIA.

Key to species to the genus **Haplodrassus** Chamberlin

1. Abdomen without any white or brown patches on the dorsum (Fig. 377) ; labium semiluner in shape (Fig. 378).....*smythiesi*
   Abdomen provided with white or brown patches on the dorsum ; labium not semiluner in shape.....2
2. Carapace provided with a W-shaped deep brown marking (Fig. 379) ; posterior median eyes very close, almost touching each other (Fig. 379).....*tehriensis*

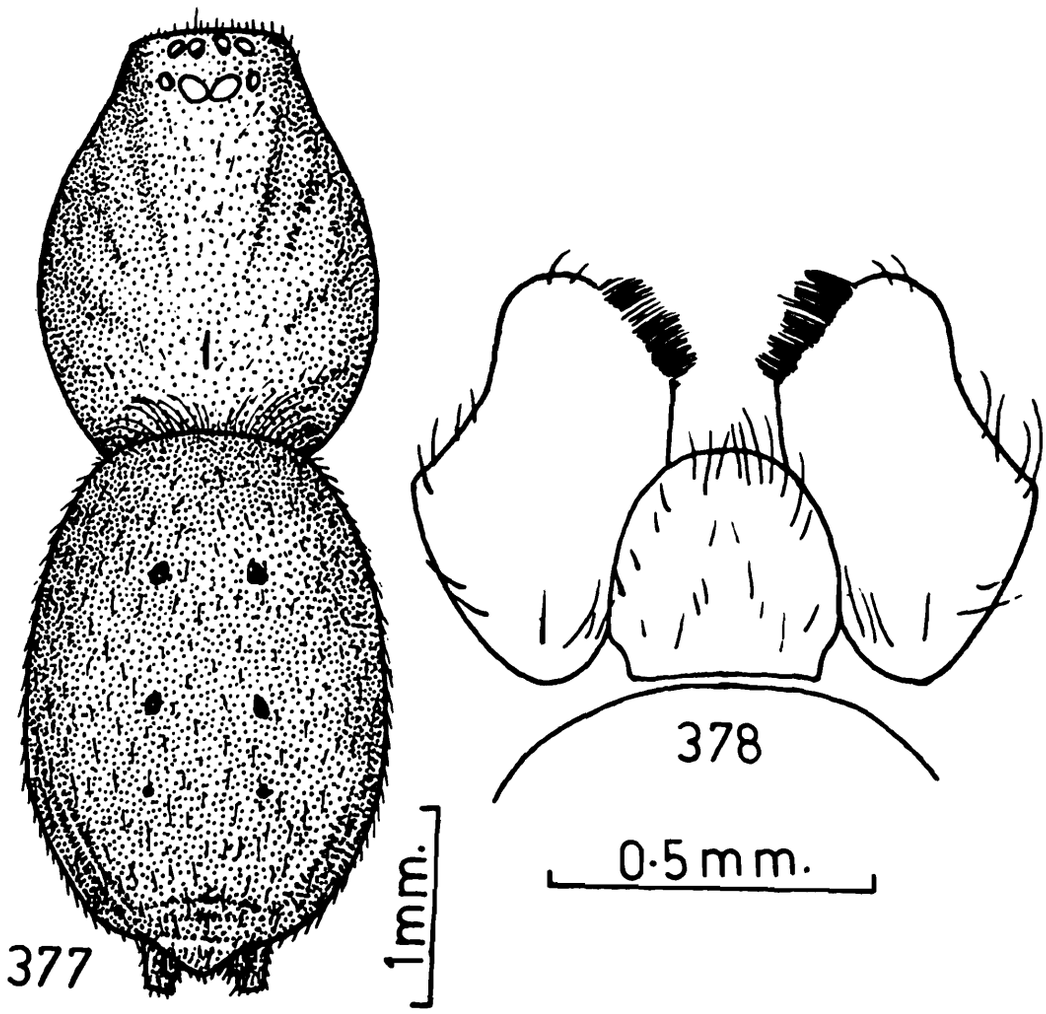
Carapace without any deep brown marking ; dorsum of abdomen provided with white patches ; posterior median eyes close but not touching each ohter.....3

3. Abdomen provided with white V-shaped marking (Fig. 385).....*sataraensis*
Abdomen without white marking (Fig. 391).....*dumdumensis*

63. **Haplodrassus smythiesi** (Simon)

(Figs. 377-378)

1897. *Echemus smythiesi* Simon, *Mém. Soc. zool. Fr.*, 10(2) : 255.



FIGS. 377-378. *Haplodrassus smythiesi* (Simon)
377. Dorsal view of female, legs omitted.
378. Labium and maxillae.

General: Cephalothorax and legs light brownish, abdomen

greyish. Total length 4.80 mm. Carapace 2.25 mm. long, 1.75 mm. wide; abdomen 2.75 mm. long, 1.80 mm. wide.

Cephalothorax: Longer than wide, blunt anteriorly, scarcely clothed with hairs; thoracic region provided with a fine longitudinal fovea as in text-fig. 377. Posterior median eyes largest, lateral eyes subequal in size; anterior row of eyes procurved as seen from in front, posterior row slightly procurved as seen from above. Ocular quad slightly wider behind than in front as in text-fig. 377. Sternum oval, pale yellowish, clothed with hairs. Maxillae with a little depression at the middle thus convergent distally. Labium longer than wide, brownish. Chelicerae small with no boss. Legs moderately long and thin, clothed with hairs and spines.

Abdomen: Longer than wide, three pairs of sigilla on the dorsum as in text-fig. 377.

Distribution: Dehra Dun, U.P.; INDIA.

Remarks: Description and illustration are based on an immature female type specimen deposited in the Museum National d' Historie Naturelle, Paris. Regd. No. AR. 1632.

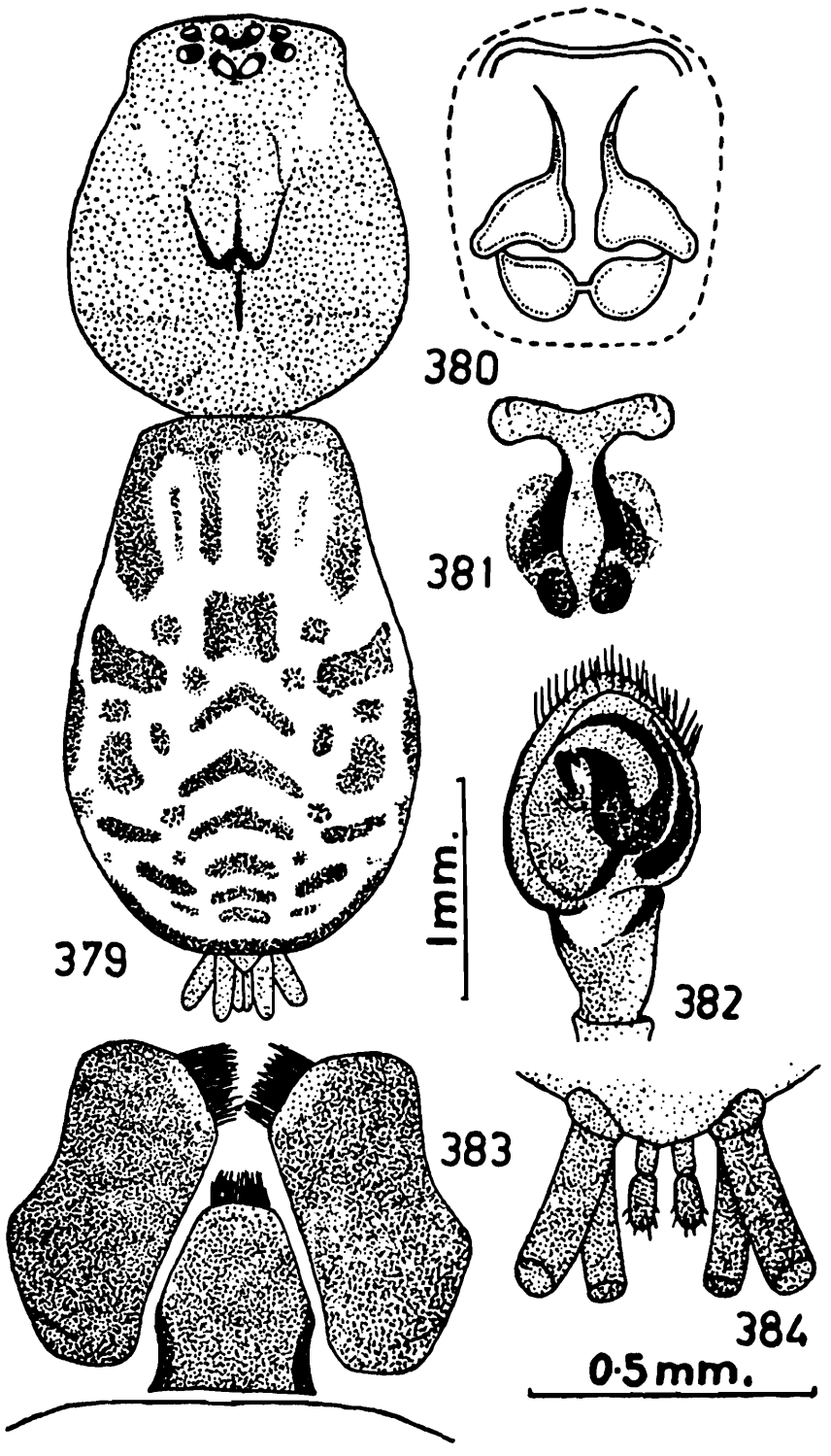
64. **Haplodrassus tehriensis** Tikader & Gajbe

(Figs. 379-384)

1977. *Haplodrassus tehriensis* Tikader & Gajbe, *Rec. zool. Surv. India*, 73(1-4) : 68.

General: Cephalothorax and legs light brownish green, abdomen light green. Total length 4.40 mm. Carapace 1.90 mm. long, 1.50 mm. wide; abdomen 2.50 mm. long, 1.60 mm. wide.

Cephalothorax: Longer than wide, broad in front, clothed with pubescence, posterior middle provided with a conspicuous fovea, just above the fovea there is a W-shaped conspicuous deep brown marking. Cephalic region slightly high. Eyes pearly white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly pro-



FIGS. 379-384. *Haplodrassus tehriensis* Tikader & Gajbe
379. Dorsal view of female, legs omitted.
380. Internal genitalia.
381. Epigyne.
382. Male palp, ventral view.
383. Labium and maxillae.
384. Spinnerets.

curved (as seen from in front), medians slightly larger than the laterals and closer to laterals than to each other. Posterior row of eyes procurved, medians oblique, larger than the laterals and closer to each other than to the adjacent laterals. Chelicerae moderately strong, inner and outer margin provided with two and three small teeth respectively. Sternum heart-shaped, pointed behind, clothed with fine hairs. Maxillae and labium light reddish-green, shape as in text-fig. 383. Legs relatively long and strong, clothed with hairs and spines. Metatarsi and tarsi of I and II provided ventrally with conspicuous scopulae and tarsi with prominent claw tufts. Legs formula 4123. The colour and size of male almost like female, male palp as in text-fig. 382.

Abdomen: Longer than wide, narrowing anteriorly, covered with pubescence and provided with brownish patches as in text-fig. 379. Ventral side same in colour as dorsal. Epigyne with prominent chitinous ridge as in text-fig. 381 and internal genitalia as in text-fig. 380. Spinnerets prominent, anterior spinnerets cylindrical and longer than others as in text-fig. 384.

Type-locality: Rajchalli Chamba, Dist. Tehri, U.P. INDIA. *Holotype* female, *paratype* five females, *allotype* one male in spirit, housed at the Z.S.I., Calcutta. Regd. No. 4994-6/18.

Distribution: Known only from its type-locality.

Remarks: Description and illustrations are based on *holotype* and *paratype* females and *allotype* male.

65. **Haplodrassus sataraensis** Tikader & Gajbe

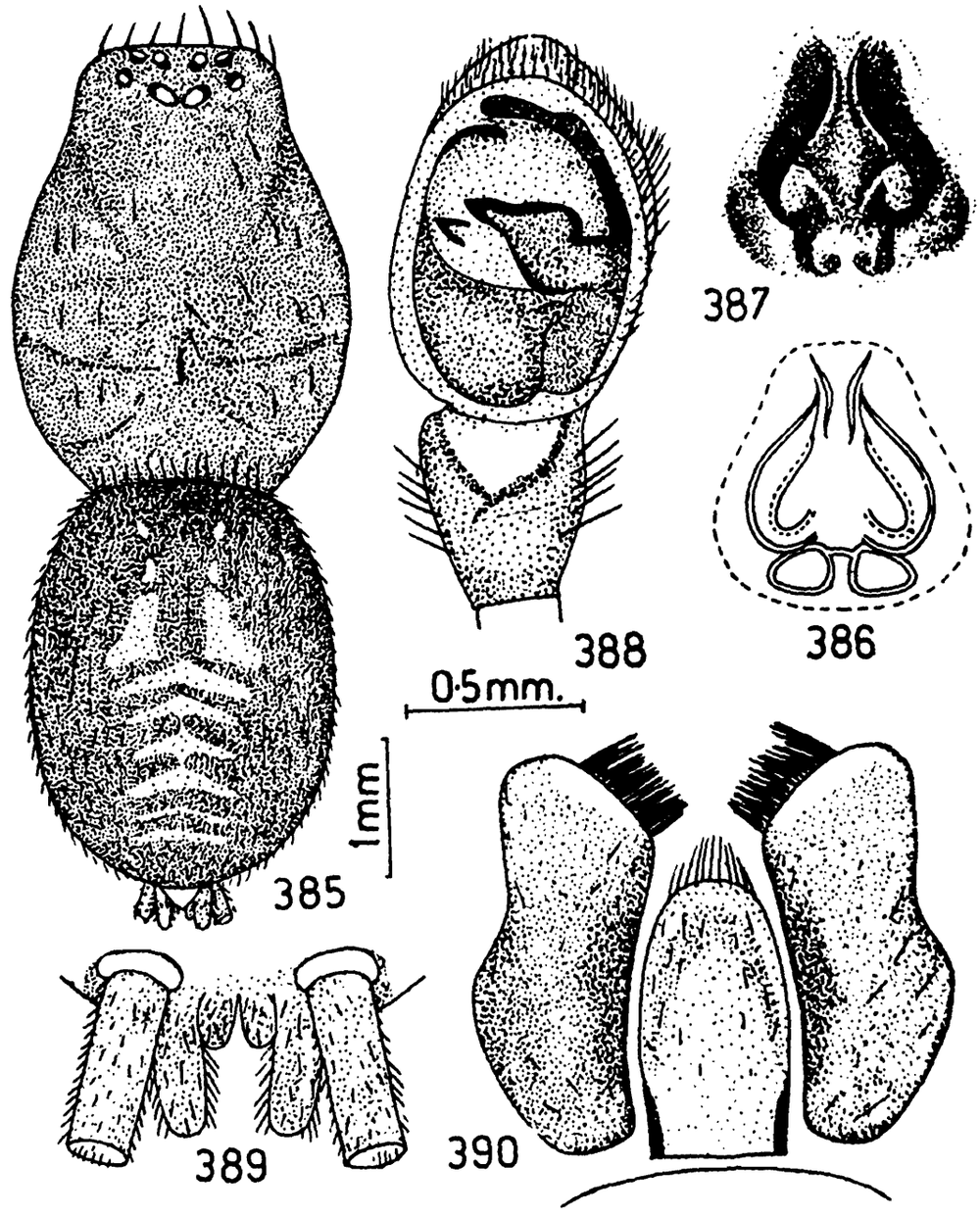
(Figs. 385-390)

1977. *Haplodrassus sataraensis* Tikader & Gajbe, *Rec. zool. Surv. India*, 73(1-4) : 70.

General: Cephalothorax reddish-green, legs light reddish-green, abdomen dark brown. Total length 6.30 mm. Carapace 3.30 mm. long, 2.40 mm. wide; abdomen 3.10 mm. long, 2.20 mm. wide.

Cephalothorax: Longer than wide, broad in front, clothed

with fine hairs, posterior middle provided with a conspicuous fovea. Eyes pearly white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly procurved (as seen from in front), medians slightly



FIGS. 385-390. *Haplodrassus ṣataraensis* Tikader & Gajbe
385. Dorsal view of female, legs omitted.
386. Internal genitalia.
387. Epigyne.
388. Male palp, ventral view.
389. Spinnerets.
390. Labium and maxillae.

larger than the laterals and closer to laterals than to each other. Posterior row of eyes procurved, medians oblique, larger than the laterals and much closer to each other than to the adjacent laterals. Chelicerae moderately strong, inner margin provided with two small similar teeth and outer margin with three dissimilar minute teeth. Sternum heart-shaped, pointed behind, clothed with fine thick hairs. Maxillae and labium reddish-green, shape as in text-fig. 390. Legs relatively long and strong, clothed with hairs and spines. Metatarsi and tarsi of I and II provided ventrally with conspicuous scopulae and tarsi with prominent claw tufts. Legs formula 4123. The colour and size of male almost like female, male palp as in text-fig. 388.

Abdomen: Longer than wide, nearly elliptical, clothed with thick hairs and provided with chalk-white chevrons as in text-fig. 385. Ventral side same as dorsal. Epigyne with prominent chitinous ridge as in text-fig. 387 and internal genitalia as in text-fig. 386. Spinnerets prominent, anterior spinnerets cylindrical and longer than others as in text-fig. 389.

Type-locality: Ambanali village near Mahabaleshwar, Dist. Satara, Maharashtra, INDIA. *Holotype* female, *allotype* two males in spirit, deposited at the Z.S.I., Calcutta. Regd. No. 4997-8/18.

Distribution: Known only from its type-locality.

Remarks: Description and illustrations are based on *holotype* female and *allotype* males.

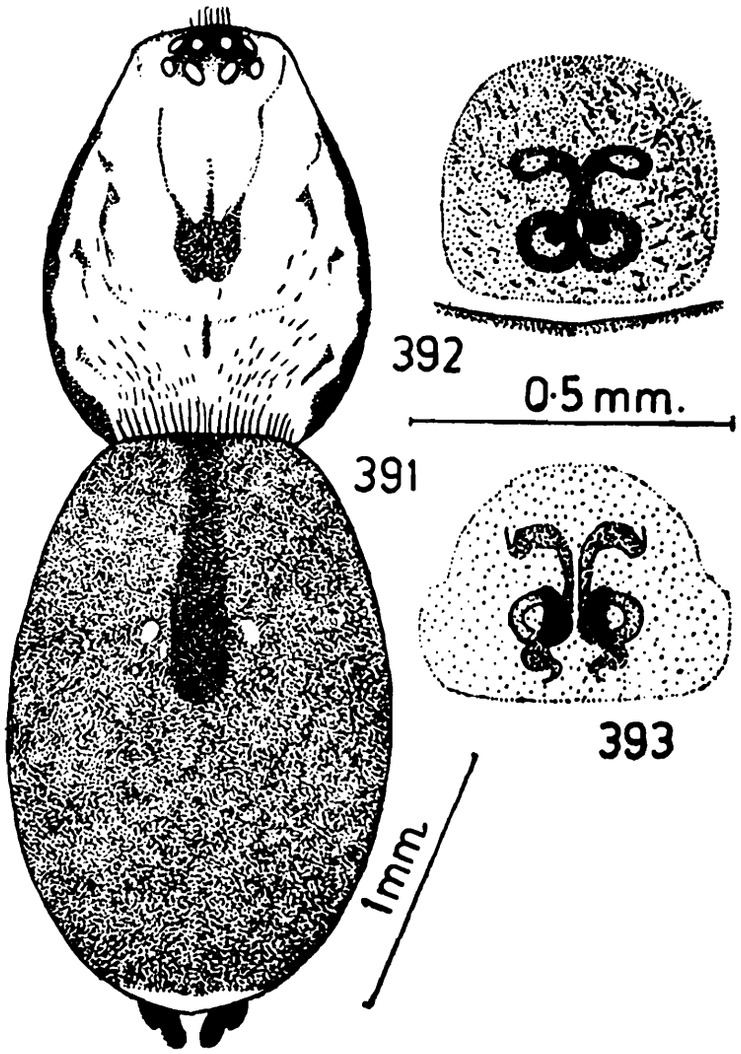
66. **Haplodrassus dumdumensis** sp.nov.

(Figs. 391-393)

General: Cephalothorax and legs light brownish. Abdomen light blackish. Total length 3.75 mm. Carapace 1.50 mm. long, 1.20 mm. wide; abdomen 2.15 mm. long, 1.45 mm. wide.

Cephalothorax: Longer than wide, narrower in front, clothed with pubescence, posterior middle provided with a conspicuous fovea, just above the fovea there is a W-shaped conspicuous deep brown marking. Cephalic region slightly high. Eyes pearly white except anterior median, posterior row of eyes slightly longer than

the anterior row. Anterior row of eyes procurved (as seen from in front), medians slightly larger than the laterals and closer to laterals than to each other. Posterior row of eyes procurved, medians oblique, larger than the laterals and well away to each other than to the adjacent laterals. Chelicerae moderately strong,



FIGS. 391-393. *Haplodrassus dumdumensis* sp.nov.
391. Dorsal view of female, legs omitted.
392. Epigyne.
393. Internal genitalia.

inner margin provided with three teeth but outer there is no teeth. Sternum heart-shaped, pointed behind, clothed with fine hairs. Maxillae and labium light brown. Legs relatively long and strong, clothed with hair and spines. Metatarsi and tarsi of I and II provided ventrally with conspicuous scopulae and tarsi with claw. Legs formula 4123. Male unknown.

Abdomen: Longer than wide, narrowing anteriorly, covered with pubescence and provided with light brownish dots as in text-fig. 391. Anterior part of the abdomen provided with long hair which is overlapping the posterior extremity of the cephalothorax. Ventral side grey in colour. Epigyne as in text-fig. 392 and internal genitalia as in text-fig. 393. Spinnerets cylindrical and posterior pair longer than other as in text-fig. 391.

Type-specimen: *Holotype* female in spirit, deposited at the Z.S.I., Calcutta. Regd. No. 4345/18.

Type-locality: Dum Dum Air Port area, Calcutta, INDIA. 7.xii.1977. Coll. *Bijan Biswas.*

Discussion: This species resembles *Haplodrassus sataraensis* Tikader & Gajbe but differs from it as follows: (i) On the cephalothorax just above the fovea there is a W-shaped marking but in *H. sataraensis,* there is no such marking. (ii) Inner margin of chelicerae provided with three but in *H. sataraensis* there is two teeth. (iii) Outer margin of chelicerae there is no teeth but in *H. sataraensis* provided with three teeth. (iv) Posterior median eyes well away to each other but in *H. sataraensis* closer to each other. (v) Epigyne and internal genitalia structurally different.

Genus 19. **Zelotes** Gistel

1848. *Zelotes* Gistel, *Nat. Thierr.*, : 11.
1934. *Zelotes* : Caporiacco, *Memorie. Soc. ent. ital.*, **13** : 135.
1940. *Zelotes* : Comstock, *The spider Book*, New York, : 330.
1948. *Zeelotes* : Kaston, *Spiders of Connecticut*, : 354-357.
1951. *Zelotes* : Locket & Millidge, *British Spiders*, **1** : 107-114.
1976. *Zelotes* : Tikader & Gajbe, *Proc. Indian Acad. Sci.*, **83**(3) : 109-122.

Characters: Cephalothorax oval, narrowed markedly in front (cf. *Drassodes*, *Gnaphosa*) covered with fine hairs. Generally the pattern of widening streaks divergin from short fovea. Eyes rather closely grouped, posterior row of eyes slightly longer than the anterior row (cf. Drassodes) Anterior row of eyes more or less procurved (as seen from in front); lateral eyes larger than medians. Posterior row of eyes straight; medians often irregular

in shape, sometimes larger than laterals and further from adjacent laterals than from each other or equally spaced. Chelicerae not very strong, vertical, with number of hairs on inner part of anterior surface. Sternum oval, pointed behind. Legs relatively long, tibiae and metatarsi III and IV may bear ventral spines. Scopulae reach between mid point and base of metatarsi I and II and to apices of metatarsi III and IV Abdomen dark or black covered with fine hairs. Dorsally there may occur three pairs of lighter spots or impressions.

Type-species: *Zelotes subterranea* (Koch).

Distribution: Oriental and temperate zone of the world.

Key to species of the genus **Zelotes** Gistel

1. Spiders of small size, upto 6 mm.....2
   Spiders of bigger size, above 6 mm.....12

2. Cephalic region provided with a distinct V-mark.....3
   Cephalic region not provided with any distinct V mark.....4

3. Posterior row of eyes straight (Fig. 394) ; abdomen narrow posteriorly (Fig. 394) ; maxilla with a notch outwardly (Fig. 397).....*sindi*
   Posterior row of eyes slightly procurved (Fig. 398) ; abdomen blunt posteriorly (Fig. 398) ; maxilla without any notch outwardly (Fig. 401).....*chandosiensis*

4. Posterior median eyes irregular in shape, smaller than the posterior lateral eyes.....5
   Posterior median eyes oval in shape, larger than the posterior lateral eyes.....*poonaensis*

5. Eyes of the posterior row equally spaced.....6
   Eyes of the posterior row not equally spaced.....9

6. Abdomen dorsally provided with black patches or chevrons ; inner margin of chelicera with two teech.....7

Abdomen dorsally without black patches, inner margin of chelicera without any tooth.....*nainitalensis*

7. Abdomen dorsally provided with some black patches ; outer margin of chelicera with four teeth.....*surekhae*

Abdomen dorsally not provided with black patches ; outer margin of chelicera with three teeth.....8

8. Abdomen dorsally provided with three pairs of sigilla ; posterior row of eyes as long as the anterior row.....*shantae*

Abdomen dorsally provided with seven deep brown transverse chevrons ; posterior row of eyes slightly longer than the anterior row.....*sajali*

9. Posterior row of eyes recurved (Fig. 428) ; maxilla without any notch outwardly (Fig. 431).....*baltoroi*

Posterior row of eyes not recurved ; maxilla provided with a notch outwardly.....10

10. Inner margin of chelicera with a tooth ; anterior row of eyes procurved as seen from in front.....11

Inner margin of chelicera with four teeth ; anterior row of eyes recurved as seen from in front.....*nainitalensis*

11. Outer margin of chelicera with two teeth.....*nasikensis*

Outer margin of chelicera with three teeth.....*mandae*

12. Abdomen elongated oval.....13

Abdomen not elongated oval.....14

13. Posterior row of eyes recurved (Fig. 447) ; cephalic region without any dark marking ; posterior median eyes irregular in shape (Fig. 448).....*desioi*

Posterior row of eyes straight (Fig. 451) ; cephalic region provided with a dark cup-shaped marking (Fig. 451) ; posterior median eyes roundish in shape (Fig. 415).....*pseudopusillus*

14. Anterior row of eyes slightly procurved as seen from in front.....15

Anterior row of eyes nearly straight as seen from in front.....16

15. Inner margin of chelicera without any tooth and outer margin provided with a single tooth.....*kusumae*

Inner margin of chelicera with at least one tooth and outer margin provided with more than one tooth.....17

16. Posterior median eyes slightly larger than the posterior lateral eyes.....18

Posterior median eyes slightly smaller than the posterior lateral eyes.....*mandlaensis*

17. Tibiae III and IV provided with two pairs of ventral spines ; inner and outer margins of chelicera with two and four teeth respectively.....*ashae*

Tibiae III and IV provided with three pairs of ventral spines ; inner and outer margins of chelicera with one and two teeth respectively.....*sataraensis*

18. Eyes of posterior row equally spaced (Fig. 474) ; inner and outer margins of chelicera with two and six teeth respectively.....*jabalpurensis*

Eyes of posterior row not equally spaced (Fig. 479) ; inner and outer margins of chelicera with two and four teeth respectively.....*choubeyi*

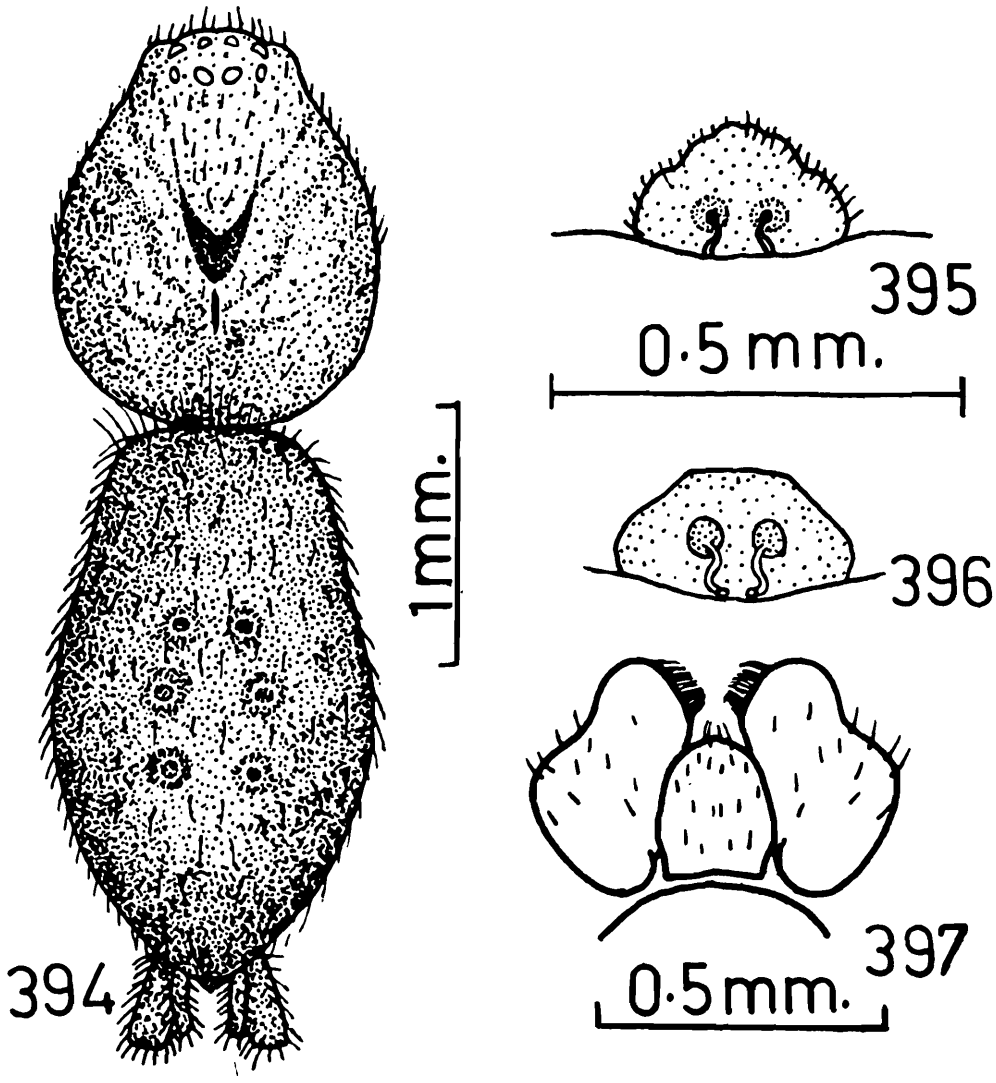
67. **Zelotes sindi** Caporiacco

(Figs. 394-397)

1934. *Zelotes sindi* Caporiacco, *Memorie. Soc. ent. ital.*, **13** : 138.

General: Cephalothorax and legs blackish brown, abdomen dark coloured. Total length 3.75 mm. Carapace 1.60 mm. long, 1.25 mm. wide; abdomen 2.30 mm. long, 1.25 mm. wide.

Cephalothorax: Longer than wide, blunt anteriorly, scarcely clothed with pubescence; cephalic region provided with a 'V' shaped dark coloured marking as in text-fig. 394; thoracic region having a fine longitudinal fovea as in text-fig. 394. Anterior median eyes smallest, others are subequal in size; anterior row of eyes procurved as seen from in front, posterior row straight as in text-fig. 394. Ocular quad slightly wider behind and longer



FIGS. 394-397. *Zelotes sindi* Caporiacco
394. Dorsal view of female, legs omitted.
395. Epigyne.
396. Internal genitalia.
397. Labium and maxillae.

than wide as in text-fig. 394. Sternum oval, greyish brown in colour, clothed with hairs. Maxillae with a depression on each,

thus proximal end much wider and distal ends convergent, distal end provided with distinct scopulae. Labium longer than wide, greyish brown in colour as is text-fig. 397. Chelicerae small with moderate boss. Legs long and moderately strong; metatarsi and tarsi yellowish.

Abdomen: Longer than wide as in text-fig. 394, clothed with small hairs, dorsum provided with three pairs of sigilla arranged mid-longitudinally as in text-fig. 394. Ventral side greyish brown with one pair of dark coloured longitudinal lines between epigastric furrow to the base of spinnerets. Epigyne small and plate like as in text-fig. 395. Internal genitalia as in text-fig. 396.

Distribution: INDIA: Kashmir. PAKISTAN: Sind.

Remarks: Description and illustrations have been made on the basis of one authenticated identified female specimen, housed in the Museo Civico Di Naturale, Italia. Regd. number not mentioned.

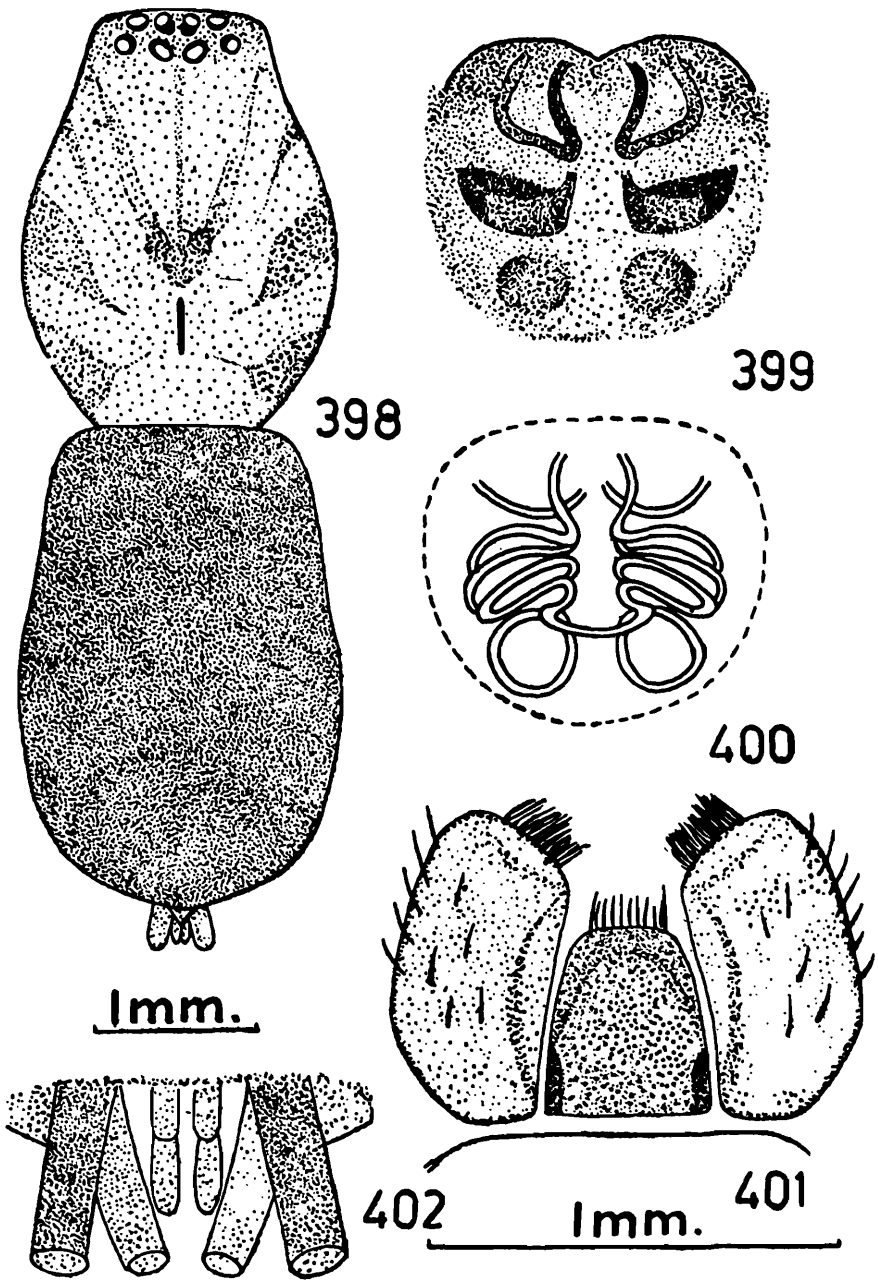
68. **Zelotes chandosiensis** Tikader & Gajbe

(Figs. 398-402)

1976. *Zelotes chandosiensis* Tikader & Gajbe, *Proc. Indian Acad. Sci.*, **83**(3) : 121-122.

General: Cephalothorax and legs reddish-green, abdomen brown. Total length 5.80 mm. Carapace 2.80 mm. long, 1.90 mm. wide; abdomen 3.10 mm. long, 2.00 mm. wide.

Cephalothorax: Longer than wide, narrow in front, flat, convex, clothed with pubescence, posterior middle provided with a conspicuous short fovea. Cephalic region provided with a V mark. Pattern of radiating streaks diverge from short fovea to lateral sides as in text-fig. 398. Eyes closely grouped, silvery white except anterior medians, anterior row of eyes slightly procurved (as seen from in front), medians smaller than the laterals and closer to laterals than to each other. Posterior row of eyes slightly procurved, medians irregular in shape, slightly larger than the laterals and farther from laterals than to each other.



FIGS. 398-402. *Zelotes chandosiensis* Tikader & Gajbe
398. Dorsal view of female, legs omitted.
399. Epigyne.
400. Internal genitalia.
401. Labium and maxillae.
402. Spinnerets.

Sternum oval, pointed behind and clothed with fine hairs. Labium and maxillae as in text-fig. 401. Chelicerae moderately strong, vertical, inner margin provided with three teeth and outer margin with six teeth. Legs relatively long and strong,

clothed with hairs and spines. Tibiae III and IV provided with two pairs of ventral spines. Scopulae reach upto the base of metatarsi I and II and upto apices of metatarsi III and IV Legs formula 4123.

Abdomen: Longer than wide, oval, clothed with fine hairs. Ventral side lighter than the dorsal. Epigyne as in text-fig. 399 and internal genitalia as in text-fig. 400. Spinnerets as in text-fig. 402.

Type-locality: Chandosi, Dist. Moradabad, U.P., INDIA. *Holotype* one female in spirit, deposited at the Z.S.I., Calcutta. Regd. No. 5033/18.

Distribution: INDIA: U.P., Chandosi, Dist. Moradabad.

Remarks: Illustrations and description are made on the basis of *holotype* female.

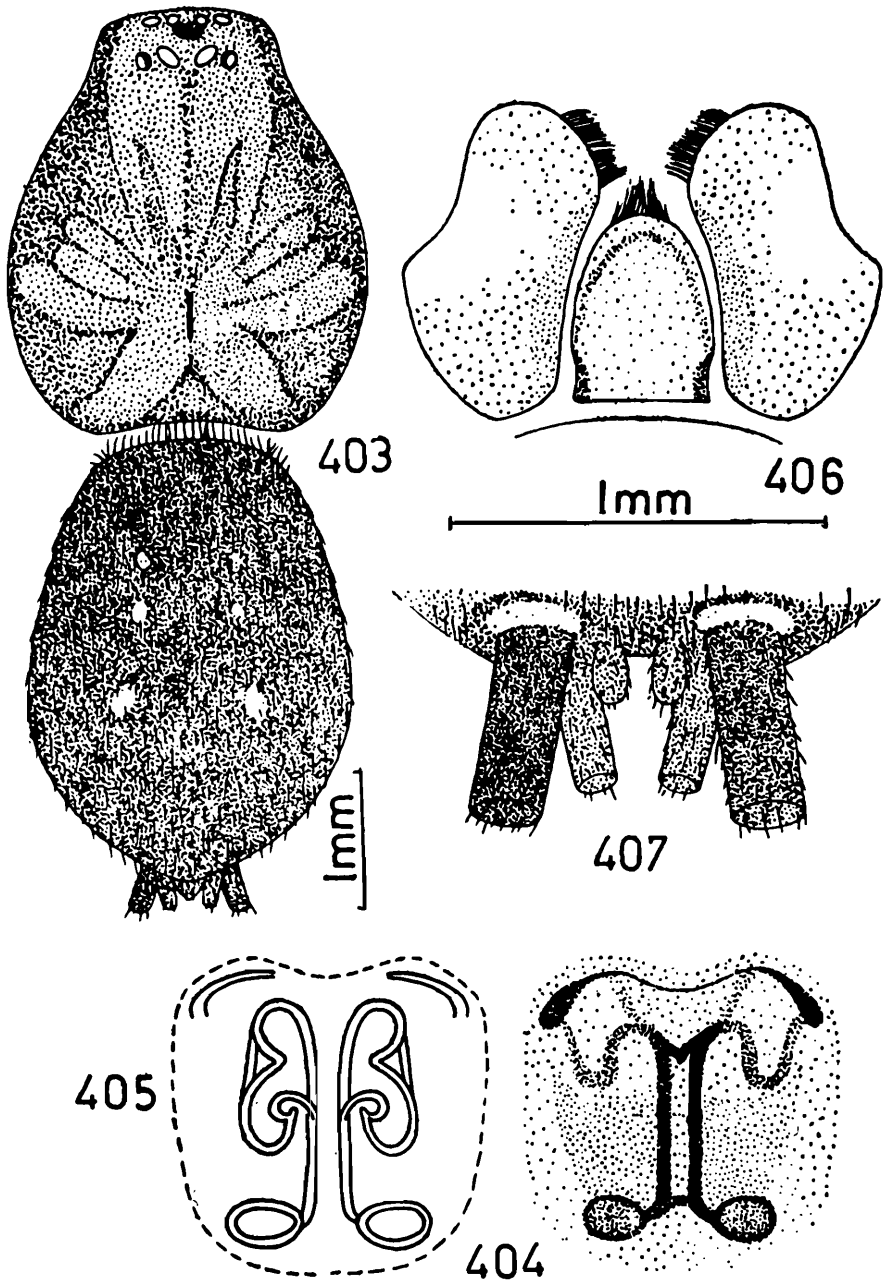
69. **Zelotes poonaensis** Tikader & Gajbe

(Figs. 403-407)

1976. *Zelotes poonaensis* Tikader & Gajbe, *Proc. Indian Acad. Sci.*, **83**(3) : 115-116.

General: Cephalothorax and legs brownish-green, abdomen uniform glossy deep brown. Total length 6.00 mm. Carapace 2.80 mm. long, 2.20 mm. wide; abdomen 3.10 mm. long, 2.10 mm. wide.

Cephalothorax: Longer than wide, narrow in front, convex, clothed with pubescence, posterior middle provided with a conspicuous short fovea. Pattern of radiating streaks diverge from short fovea to the lateral sides. Eyes closely grouped, silvery white, except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly procurved (as seen from in front), medians smaller than the laterals and closer to laterals than to each other. Posterior row of eyes straight; medians oval, slightly larger than the laterals and equally spaced. Sternum oval, pointed behind, clothed with



FIGS. 403-407. *Zelotes poonaensis* Tikader & Gajbe
403. Dorstal view of female, legs omitted.
404. Epigyne.
405. Internal genitalia.
406. Labium and maxillae.
407. Spinnerets.

long black hairs. Labium and maxillae as in text-fig. 406. Chelicerae moderately strong, vertical, both inner and outer margin provided with two small teeth. Legs relatively long and strong, clothed with hairs and spines. Tibiae III and IV pro-

vided with three pairs of ventral spines. Scopulae extend upto the base of metatarsi I and II and upto apices of metatarsi III and IV Legs formula 4123.

Abdomen: Longer than wide, oval, clothed with thick pubescence and three pairs of sigilla as in text-fig. 403. Ventral side same in colour as dorsal. Epigyne as in text-fig. 404 and internal genitalia as in text-fig. 405. Spinnerets very prominent, anterior spinnerets cylindrical, larger and darker in colour than other as in text-fig. 407.

Type-locality: Babdev Ghat, Poona, Maharashtra, INDIA. *Holotype* one female in spirit, deposited at the Z.S.I., Calcutta. Regd. No. 5029/18.

Distribution: INDIA: Maharashtra, Babdev Ghat, Poona.

Remarks: Description and illustrations are based on the *holotype* female.

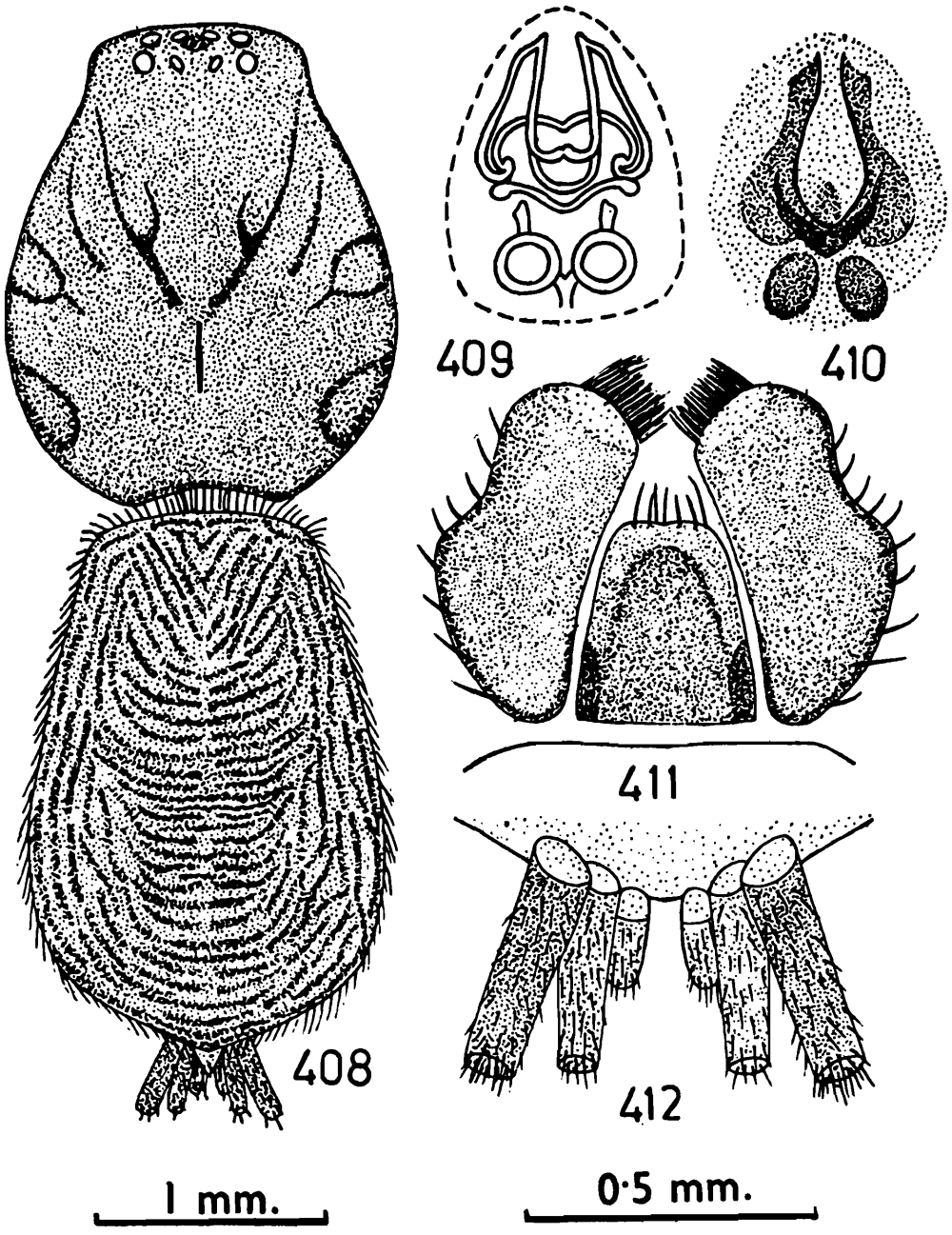
70. **Zelotes nainitalensis** Tikader & Gajbe

(Figs. 408-412)

1976. *Zelotes nainitalensis* Tikader & Gajbe, *Proc. Indian Acad. Sci.*, 83(3) : 119-121.

General: Cephalothorax and legs brownish-green, abdomen deep brown. Total length 4.60 mm. Carapace 2.00 mm. long, 1.80 mm. wide; abdomen 2.50 mm. long, 1.50 mm. wide.

Cephalothorax: Longer than wide, narrow in front, slightly convex, flat, clothed with pubescence posterior middle provided with a conspicuous short fovea. Pattern of radiating streaks diverge from short fovea to lateral sides. Eyes nearly closely grouped silvery white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly procurved (as seen from in front); medians smaller than the laterals and close to laterals than to each other. Posterior row of eyes straight; medians irregular in shape, slightly smaller than the laterals and equally spaced. Sternum oval, pointed



FIGS. 408-412. *Zelotes nainitalensis* Tikader & Gajbe

408. Dorsal view of female, legs omitted.
409. Internal genitalia.
410. Epigyne.
411. Labium and maxillae.
412. Spinnerets.

behind and clothed with fine hairs. Labium and maxillae as in text-fig. 411. Chelicerae moderately strong, vertical, inner margin without tooth but outer margin provided with four teeth. Legs relatively long and strong, clothed with hairs and spines.

Tibiae III and IV provided with three pairs of ventral spines. Scopulae extend upto the base of metatarsi I and II and upto apices of metatarsi III and IV Legs formula 4123.

Abdomen: Longer than wide, oval, clothed with fine hairs and provided with muscular corrugations as in text-fig. 408. Ventral side lighter than the dorsal. Epigyne as in text-fig. 410 and internal genitalia as in text-fig. 409. Spinnerets very prominent, anterior spinnerets cylindrical and longer than others as in text-fig. 412.

Type-locality: Dhungsila village, Dist. Nainital, U.P., INDIA. *Holotype* female in spirit, housed at the Z.S.I., Calcutta. Regd. No. 5032/18.

Distribution: Known only from its type-locality.

Remarks: Illustrations and description are made on the basis of *holotype* female.

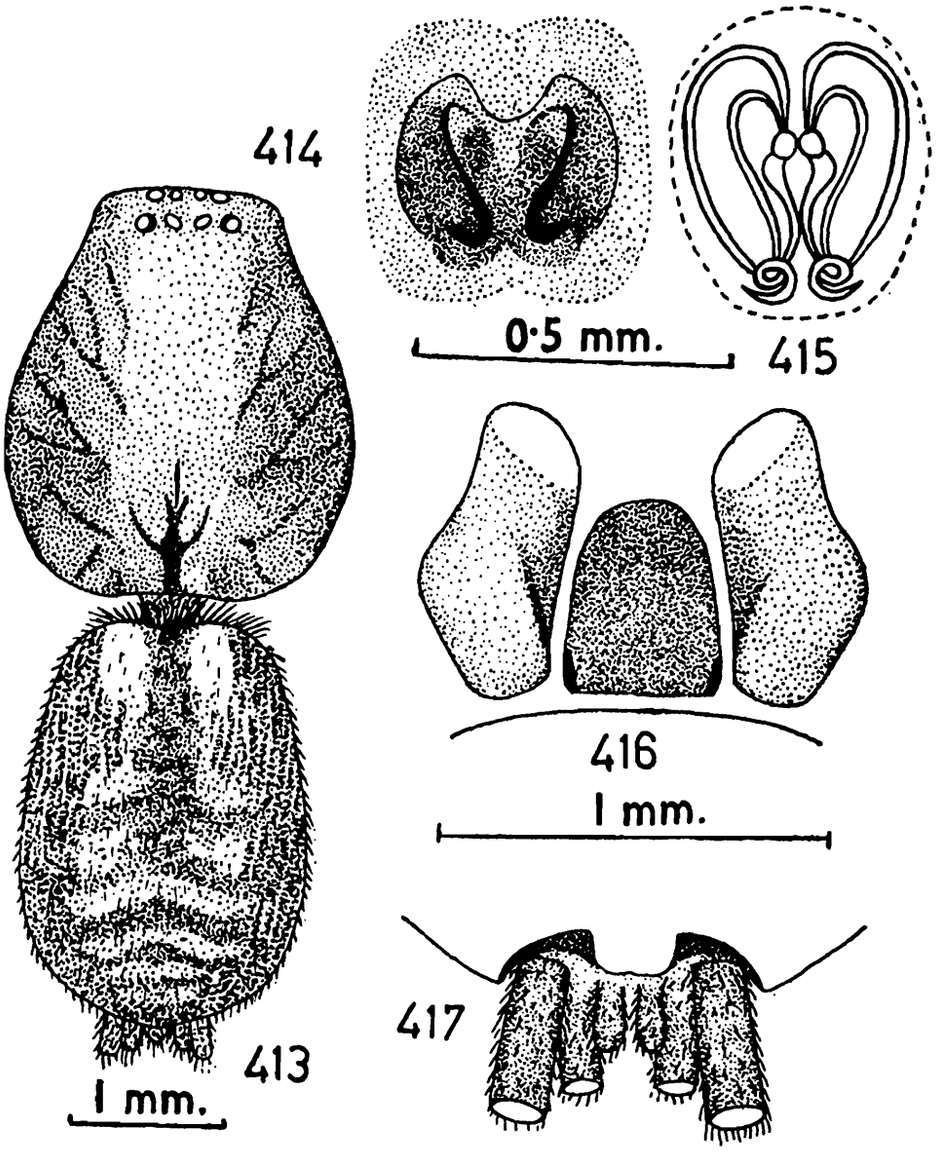
71. **Zelotes surekhae** Tikader & Gajbe

(Figs. 413-417)

1976. *Zelotes surekhae* Tikader & Gajbe, *Proc. Indian Acad. Sci.*, **83**(3) : 116-117.

General: Cephalothorax and legs reddish-green, abdomen deep brown. Total length 5.50 mm. Carapace 2.60 mm. long, 2.20 mm. wide; abdomen 2.80 mm. long, 1.80 mm. wide.

Cephalothorax: Longer than wide, narrow in front, flat, slightly convex, clothed with pubescence, posterior middle provided with a conspicuous short fovea. Eyes closely grouped, silvery white execept anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly procurved (as seen from in front), medians smaller than the laterals and closer to laterals than to each other. Posterior row of eyes straight, medians irregular in shape, slightly smaller than the laterals and equally spaced. Sternum oval, pointed behind, clothed with fine hairs. Labium and maxillae as in text-fig. 416. Chelicerae moderately strong, vertical, inner margin



Figs. 413-417. *Zelotes surekhae* Tikader & Gajbe
413. Dorsal view of female, legs omitted.
414. Epigyne.
415. Internal genitalia.
416. Labium and maxillae.
417. Spinnerets.

provided with two teeth and outer margin with four teeth. Legs relatively long and strong, clothed with hairs and spines. Tibiae III and IV provided with three pairs of ventral spines. Scopulae reach to the base of metatarsi I and II and to apices of metatarsi III and IV. Legs formula 4123.

Abdomen: Longer than wide, oval, clothed with fine hairs

and provided with some black patches as in text-fig. 413. Ventral side much lighter than the dorsal. Epigyne as in text-fig. 414 and internal genitalia as in text-fig. 415. Spinnerets very prominent, anterior spinnerets cylindrical, larger and darker in colour than others as in text-fig. 417.

Type-locality: Range Hills, Poona, Maharashtra, INDIA. *Holotype* one female in spirit, deposited at the Z.S.I., Calcutta. Regd. No. 5030/18.

Distribution: As far this species is known only from its type locality.

Remarks: Description and illustrations are made on the basis of *holotype* female.

72. **Zelotes shantae** sp. nov.

(Figs. 418-422)

General: Cephalothorax and legs deep brown, abdomen black. Total length 4.60 mm. Carapace 2.20 mm. long, 1.80 mm. wide; abdomen 2.50 mm. long, 1.50 mm. wide.

Cephalothorax: Longer than wide, narrow in front, convex, clothed with pubescence, posterior middle of cephalothorax provided with a conspicuous short fovea. Pattern of radiating streaks diverge from short fovea to the lateral sides. Eyes closely grouped, pearly white except anterior medians, posterior row of eyes as long as the anterior row. Anterior row of eyes slightly procurved (as seen from in front), medians smaller than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes straight, medians irregular in shape, smaller than the laterals and nearly equally spaced. Sternum oval, pointed behind, clothed with fine hairs. Labium and maxillae as in text-fig. 421. Chelicerae moderately strong, short, vertical, inner margin provided with two small teeth and outer margin with three larger teeth. Legs relatively short and strong, clothed with hairs and spines. Tibiae III and IV provided with three pairs of ventral spines. Scopulae reach upto base of metatarsi I and II and upto tarsi III and IV Legs formula 4123.

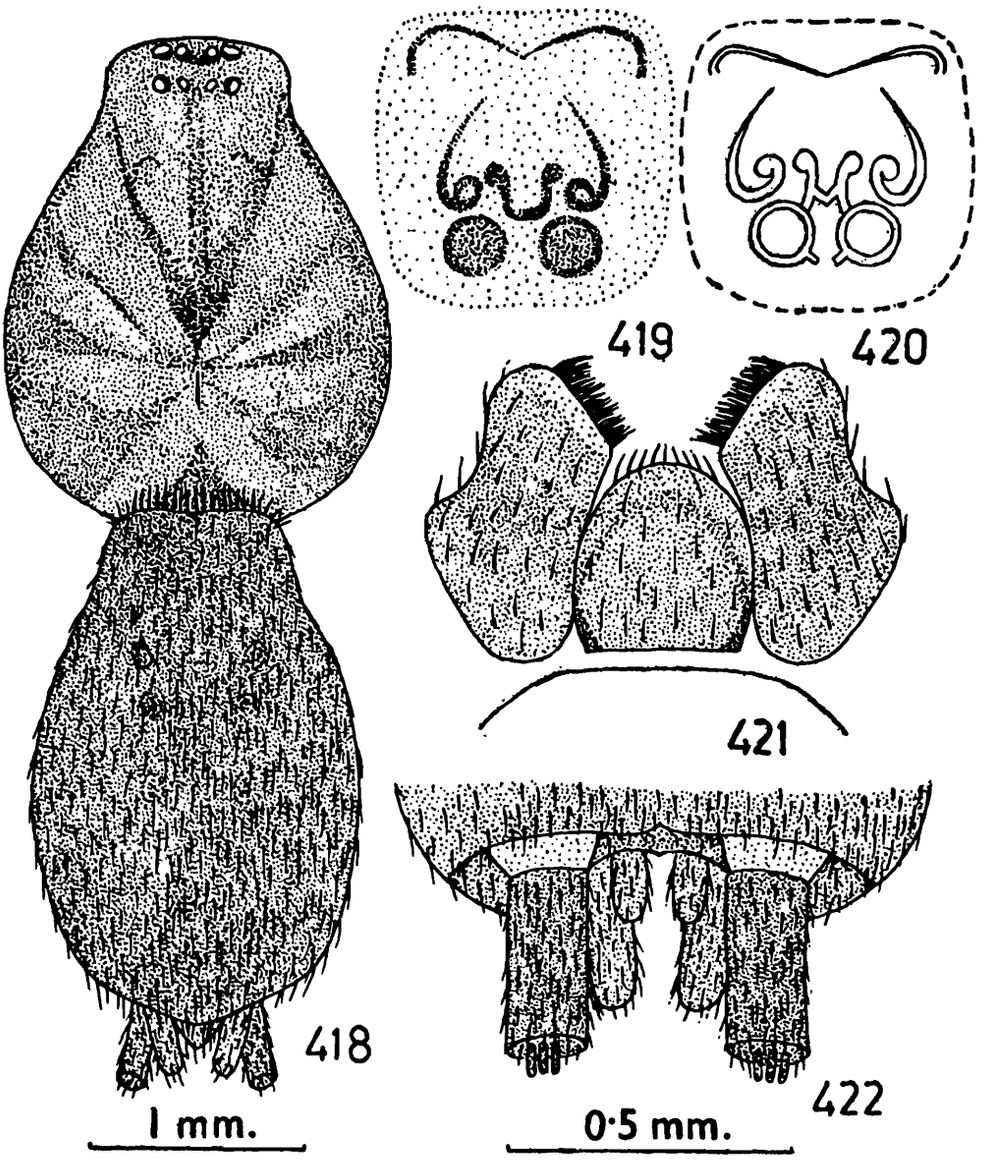


FIG:. 418-422. *Zelotes shantae* sp.nov.
418. Dorsal view of female, legs omitted.
419. Epigyne.
420. Internal genitalia.
421. Labium and maxillae.
422. Spinnerets.

Abdomen: Longer than wide, nearly elliptical, clothed with fine hairs and provided with three pairs of sigilla as in text-fig. 418. Ventral side slightly lighter than the dorsal. Epigyne as in text-fig. 419 and internal genitalia as in text-fig. 420. Spinnerets very prominent, anterior spinnerets widely separated, larger than others as in text-fig. 422.

Type-specimen: *Holotype* female in spirit, deposited at the Z.S.I., Calcutta. Regd. No. 5040/18.

Type-locality: Katraj ghat near Khed Shivapur, Dist. Poona, Maharashtra, INDIA. Coll. *Dr. B. K. Tikader,* 6.xii.1960.

Discussion: This species resembles *Zelotes surekhae* Tikader and Gajbe but differs from it as follows: (i) Inner and outer margin of chelicera provided with two and three teeth respectively but in *Z. surekhae* inner and outer margin with two and four teeth respectively. (ii) Abdomen without some black patches but in *Z. surekhae* abdomen provided with some black patches. (iii) Epigyne also structurally different.

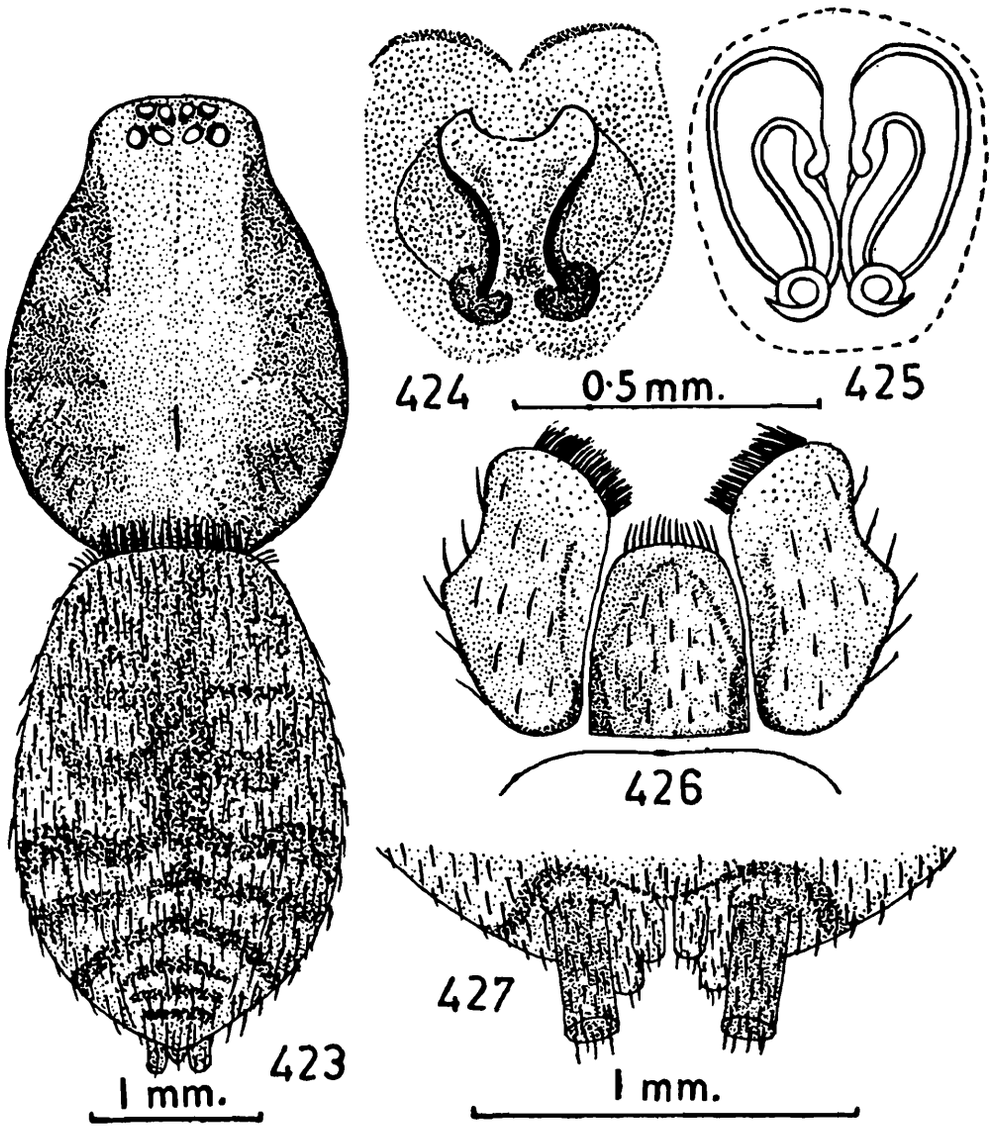
73. **Zelotes sajali** Tikader & Gajbe

(Figs. 423-427)

1979. *Zelotes sajali* Tikader & Gajbe, *Bull. zool. Surv. India,* 2(1) : 84.

General: Cephalothorax and legs reddish-brown, abdomen brown. Total length 6.00 mm. Carapace 2.90 mm. long, 2.00 mm. wide; abdomen 3.20 mm. long, 2.10 mm. wide.

Cephalothorax: Longer than wide, narrow in front, slightly convex, clothed with pubescence, posterior middle provided with a conspicuous fovea and with a deep brown narrow line encircling almost the entire border. Eyes closely grouped, silvery white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes very slightly procurved (as seen from in front), medians smaller than the laterals and closer to laterals than to each other. Posterior row of eyes straight, medians irregular in shape, slightly smaller than the laterals and nearly equally spaced. Sternum oval, pointed behind, clothed with fine hairs. Labium and maxillae as in text-fig. 426. Chelicerae moderately strong, vertical, inner margin provided with two teeth and outer margin with three teeth. Legs relatively long and strong, clothed with hairs and spines. Tibiae III and IV provided with three pairs of ventral spines. Scopulae reach



FIGS. 423-427. *Zelotes sajali* Tikader & Gajbe
423. Dorsal view of female, legs omitted.
424. Epigyne.
425. Internal genitalia.
426. Labium and maxillae.
427. Spinnerets.

upto the base of metatarsi I and II and upto apices of metatarsi III and IV. Legs formula 4123.

Abdomen: Longer than wide, elliptical, clothed with fine hairs and posterior half of abdomen provided with seven deep brown transverse chevrons as in text-fig. 423. Anterior margin of abdomen provided with very thick spine like hairs directed forward.

Ventral side much lighter than the dorsal. Epigyne as in text-fig. 424 and internal genitalia as in text-fig. 425. Spinnerets very prominent, anterior spinnerets widely separated, larger than others as in text-fig. 427.

Type-locality: Mukund Nagar, Poona, Maharashtra, INDIA. *Holotype* female in spirit deposited in the Z.S.I., Calcutta. Regd. No. 5034/18.

Distribution: So far known only from its type-locality.

Remarks: Description and illustrations are made on the basis of *holotype* female.

74. **Zelotes baltoroi** Caporiacco

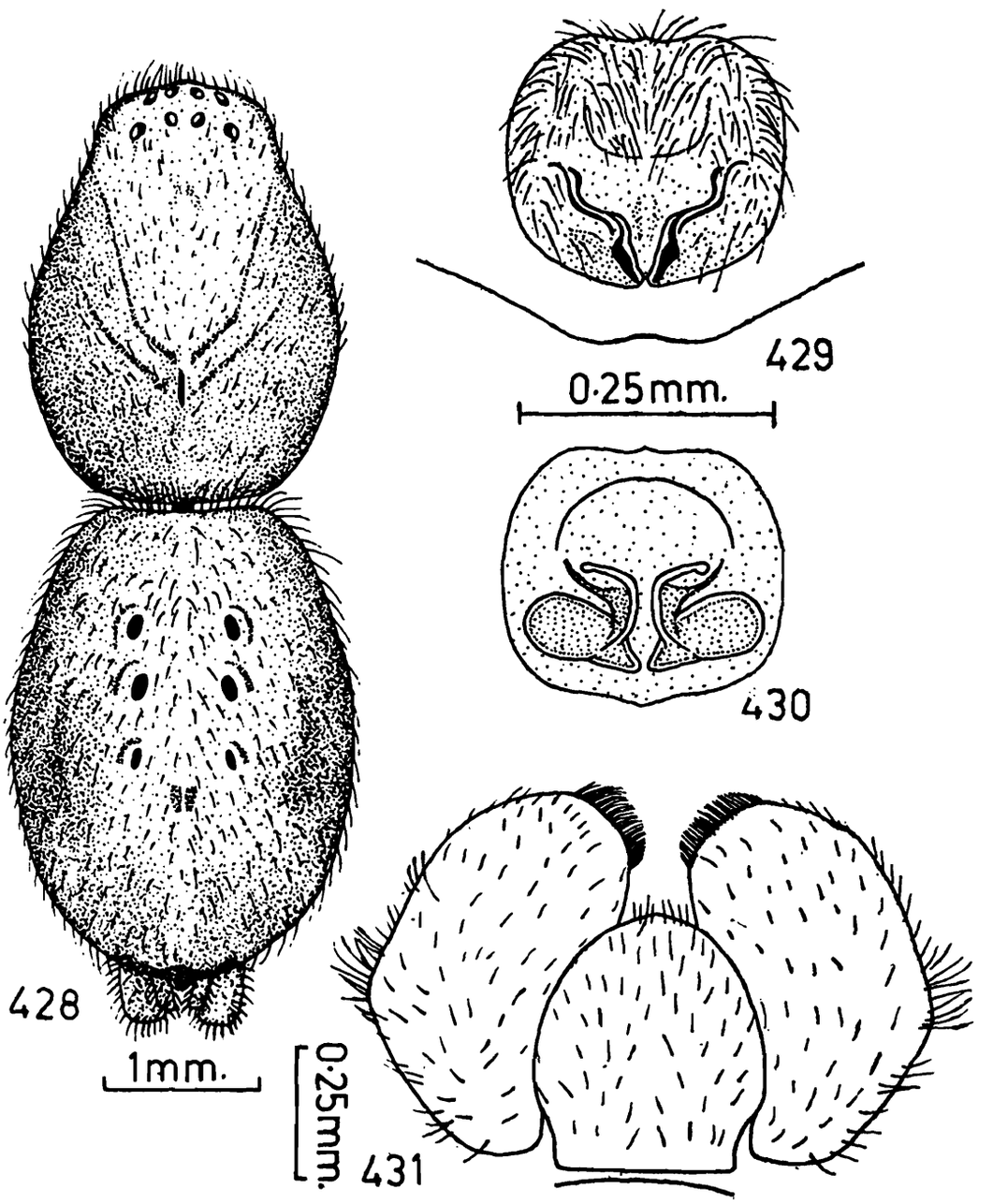
(Figs. 428-431)

1934. *Zelotes baltoroi* Caporiacco, *Memorie. Soc. ent. ital.*, 13 : 137.

General: Cephalothorax brownish, legs yellowish brown, abdomen greyish brown. Total length 6.00 mm. Carapace 2.80 mm. long, 2.05 mm. wide, abdomen 3.10 mm. long, 2.30 mm. wide.

Cephalothorax: Longer than wide, blunt in front, clothed with pubescence and hairs; cephalic region lighter in colour than thoracic region; thoracic region provided with a fine longitudinal fovea as in text-fig. 428. Posterior medians eyes pearly white, others light yellowish; posterior medians larger than anterior medians; laterals subequal; anterior row of eyes procurved as seen from above as in text-fig. 428. Ocular quad much longer than wide as in text-fig. 428. Sternum nearly oval with tapering posteriorly, clothed with hairs and pubescence, yellowish in colour. Maxillae pale in colour, much longer than wide with inward curve on each at the middle, thus converging both the distal ends, distal ends with distinct scopulae. Labium longer than wide, brownish in colour as in text-fig. 431. Legs short and stout, clothed with hairs.

Abdomen: Longer than wide, with a slight invagination at the anterior end as in text-fig. 428; clothed with hairs, three pairs



FIGS. 428-431. *Zelotes baltoroi* Caporiacco
428. Dorsal view of female, legs omitted.
429. Epigyne.
430. Internal genitalia.
431. Labium and maxillae.

of distinct sigilla on the dorsum as in text-fig. 428. Ventral side with a shallow horizontal fold in between the epigastric furrow and the spinnerets. Epigyne as in text-fig. 429. Internal genitalia as in text-fig. 430.

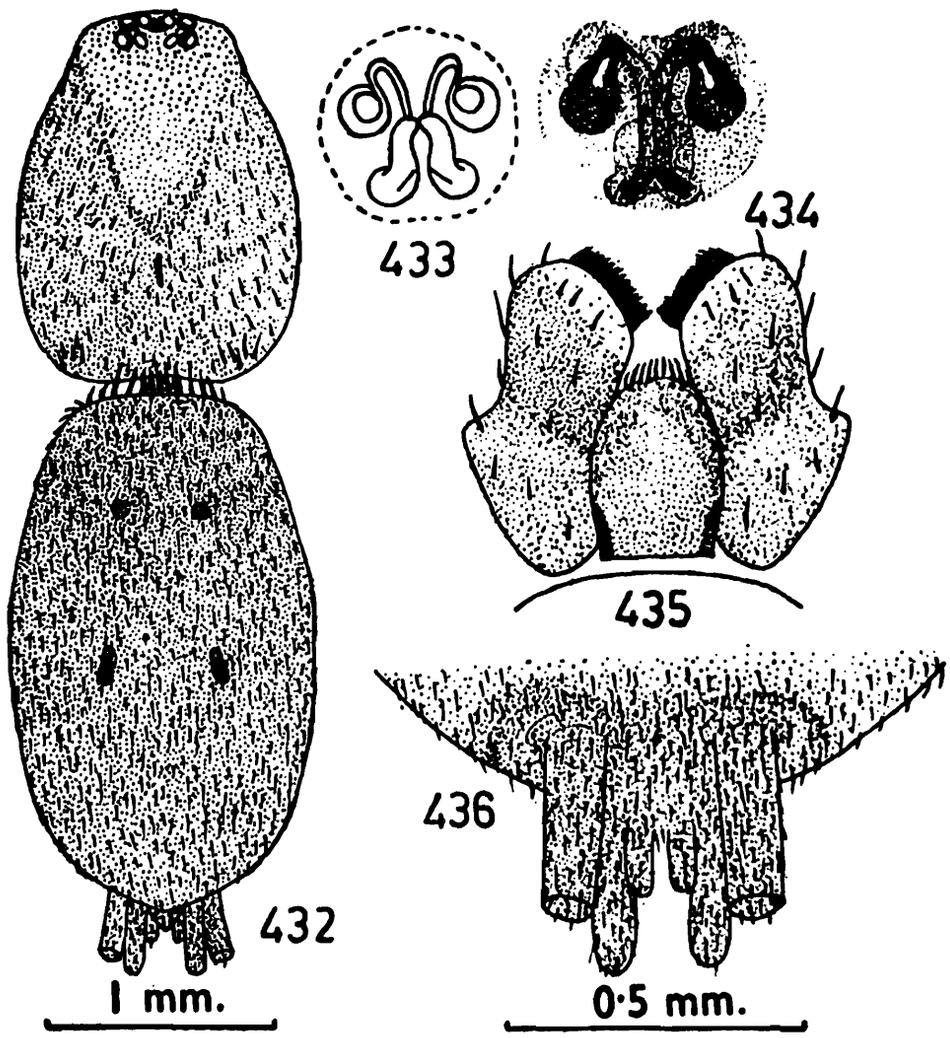
Distribution: INDIA: Kashmir, Baltoro.

Remarks: Description and illustrations are based on one female type specimen which is deposited in the Museo Zoologico Della Specola, Italia (Regd. No. is not mentioned).

75. **Zelotes naliniae** Tikader & Gajbe

(Figs. 432-436)

1979. *Zelotes naliniae* Tikader & Gajbe, *Bull. zool. Surv. India*, 2(1) : 85.



FIGS. 432-436. *Zelotes naliniae* Tikader & Gajbe
432. Dorsal view of female, legs omitted.
433. Internal genitalia.
434. Epigyne.
435. Labium and maxillae.
436. Spinnerets.

General: Cephalothorax and legs light brownish-green, abdomen light brown. Total length 4.00 mm. Carapace 1.60 mm. long, 1.20 mm. wide; abdomen 2.30 mm. long, 1.40 mm. wide.

Cephalothorax: Longer than wide, oval, slightly narrow in front, slightly convex, clothed with fine hairs, posterior end of cephalothorax provided with some spine like hairs. Posterior middle of cephalothorax provided with conspicuous short fovea. Eyes closely grouped, silvery white except anterior mediane, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly recurved (as seen from in front); medians smaller than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes straight, medians irregular in shape, slightly smaller than the laterals and closer to adjacent laterals than to each other. Sternum heart-shaped, pointed behind, clothed with black hairs. Labium and maxillae as in text-fig. 435. Chelicerae moderately strong, vertical, both inner and outer margin provided with four small teeth. Legs relatively long and strong, clothed with hairs and spines, tibiae III and IV with two and three pairs of ventral spines respectively. Scopulae reach upto the tarsi of all the legs. Legs formula 4123.

Abdomen: Longer than wide, elliptical, clothed with fine hairs and provided with two pairs of sigilla as in text-fig. 432. Ventral side slightly lighter than the dorsal. Epigyne as in text-fig. 434 and internal genitalia as in text-fig. 433. Spinnerets very prominent, posterior spinnerets smaller in size than the anterior but longer than others as in text-fig. 436.

Type-locality: Katraj, Dist. Poona, Maharashtra, INDIA. *Holotype* female in spirit, deposited at the Z.S.I., Calcutta. Regd. No. 5035/18.

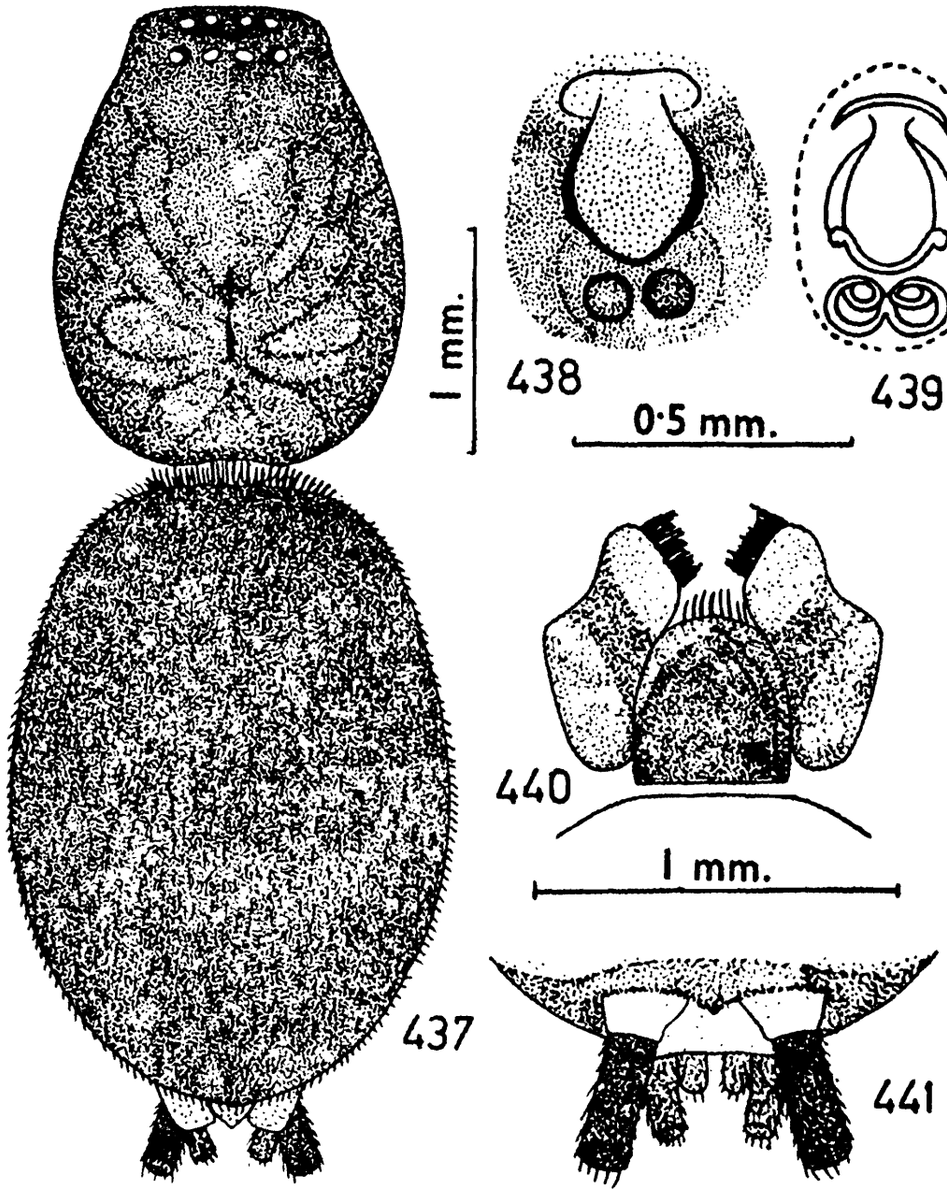
Distribution: Known only from its type-locality.

Remarks: Description and illustrations are made on the basis of *holotype* female.

76. **Zelotes nasikensis** Tikader & Gajbe

(Figs. 437-441)

1976. *Zelotes nasikensis* Tikader & Gajbe, *Proc. Indian Acad. Sci.*, 83(3) : 118-119.



FIGS. 437-441. *Zelotes nasikensis* Tikader & Gajbe

437. Dorsal view of female, legs omitted.
438. Epigyne.
439. Internal genitalia.
440. Labium and maxillae.
441. Spinnerets.

General: Cephalothorax and legs deep brown, abdomen uniform glossy deep brown. Total length 5.00 mm. Carapace 2.00 mm. long, 1.60 wide; abdomen 2.90 mm. long, 2.00 mm. wide.

Cephalothorax: Longer than wide, narrow in front, convex, flat, clothed with pubescence, posterior middle provided with a conspicuous short fovea. Pattern of radiating streaks diverge from short fovea to lateral sides. Eyes closely grouped silvery white except anterior medians, posterior row of eyes slightly procurved (as seen from in front), medians smaller than the laterals and closer to laterals than to each other. Posterior row of eyes straight; medians irregular in shape, slightly smaller than the laterals and closer to laterals than to each other. Sternum oval, pointed behind and clothed with fine hairs. Labium and maxillae as in text-fig. 440. Chelicerae moderately strong, vertical, inner margin provided with one small tooth and outer margin with two slightly bigger teeth. Legs relatively long and strong, clothed with hairs and spines. Tibiae III and IV provided with three pairs of ventral spines. Scopulae reach upto base of metatarsi I and II and upto apices of metatarsi III and IV Legs formula 4123.

Abdomen: Longer than wide, oval, clothed with fine hairs. Ventral side much lighter than the dorsal. Epigyne as in text-fig. 439. Spinnerets very prominent, anterior spinnerets cylindrical and larger than others as in text-fig. 441.

Type-locality: Meshi, Dist. Nasik, Maharashtra, INDIA. *Holotype* one female in spirit, housed in the Z.S.I., Calcutta. Regd. No. 5031/18.

Distribution: Only known from the type-locality.

Remarks: Description and illustrations are prepared on the basis of *holotype* female.

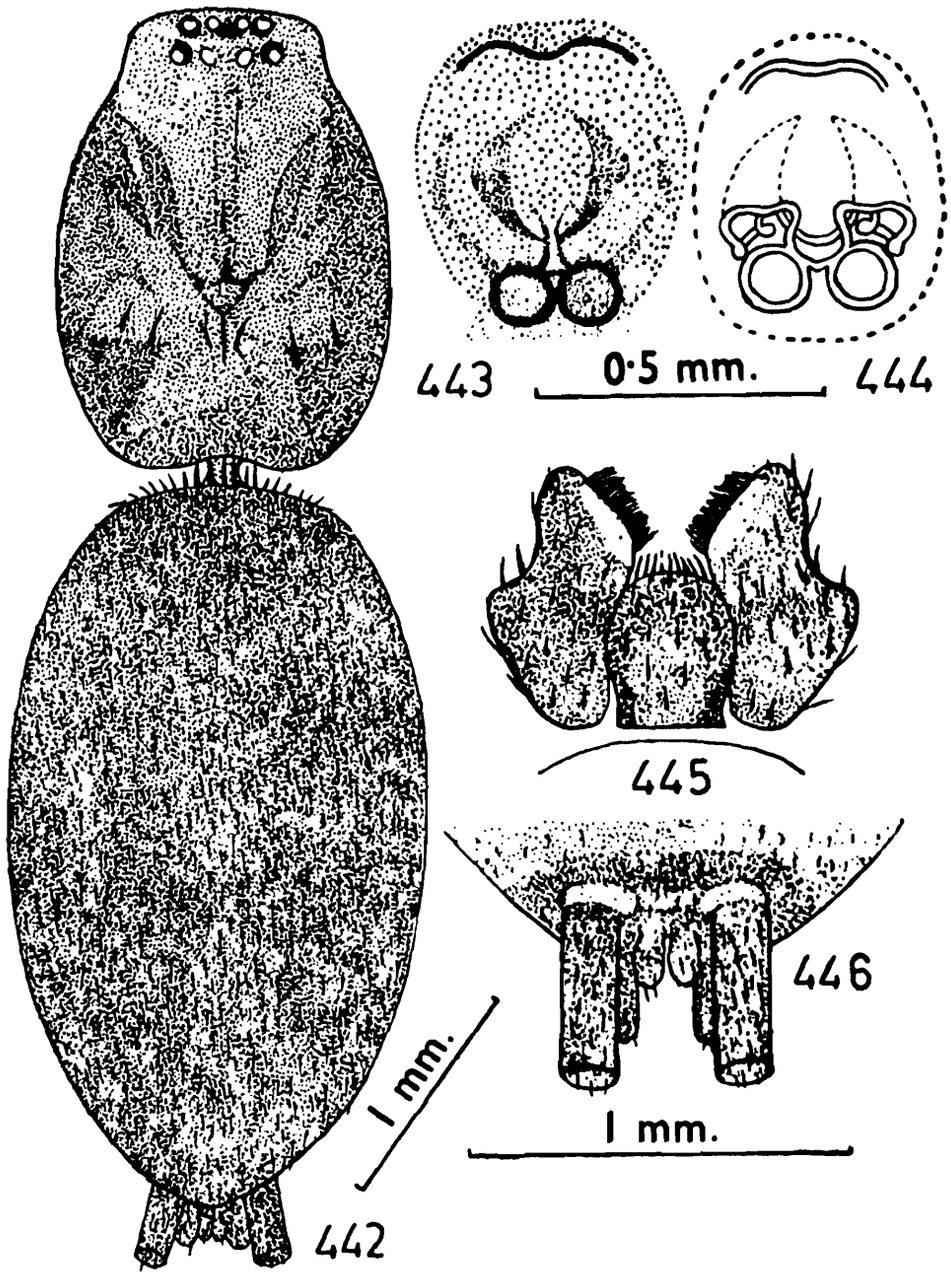
77. **Zelotes mandae** Tikader & Gajbe

(Figs. 442-446)

1979. *Zelotes mandae* Tikader & Gajbe, *Bull. zool. Surv. India*, 2(1) : 87.

General: Cephalothorax deep brown, legs brownish-green, abdomen black. Total length 5.20 mm. Carapace 3.20 mm. long, 1.40 mm. wide; abdomen 1.90 mm. long, 1.80 mm. wide.

Cephalothorax: Longer than wide, oval, slightly narrow in



FIGS. 442-446. *Zelotes mandae* Tikader & Gajbe
442. Dorsal view of female, legs omitted.
443. Epigyne.
444. Internal genitalia.
445. Labium and maxillae.
446. Spinnerets.

front, convex, clothed with some spine like hairs, posterior middle of cephalothorax provided with an conspicuous short fovea. Radiating streaks diverge from short fovea to lateral sides of cephalothorax. Eyes closely grouped, pearly white except anterior medians, posterior row of eyes slightly lonrger than the anterior row. Anterior row of eyes slightly procurved (as seen from in front); medians smaller than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes straight, medians irregular in shape, slightly smaller than the laterals and closer to adjacent laterals than to each other. Sternum oval, pointed behind, clothed with black hairs. Labium and maxillae as in text-fig. 445. Chelicerae moderately strong, vertical, inner margin provided with one small tooth and outer margin with three moderate teeth. Legs relatively long and strong, clothed with hairs and spines, tibiae III and IV with three pairs of venrtal spines. Scopulae reach upto the base of metatarsi I and II and upto tarsi III and IV Legs formula 4123.

Abdomen: Longer than wide, elliptical clothed with hairs as in text-fig. 442. Ventral side slightly lighter than the dorsal. Epigyne as in text-fig. 443 and ineternal genitalia as in text-fig. 444. Spinnerets very prominent, anterior spinnerets cylindrical, longer and darker in colour than others as in text-fig. 446.

Type-locality: Range Hills, Poona, Maharashtra, INDIA. *Holotype* female and *paratype* four female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 5036/18, 5037/18.

Distribution: Known only from its type-locality.

Remarks: Description and illustrations are made on the basis of *Holotype* female.

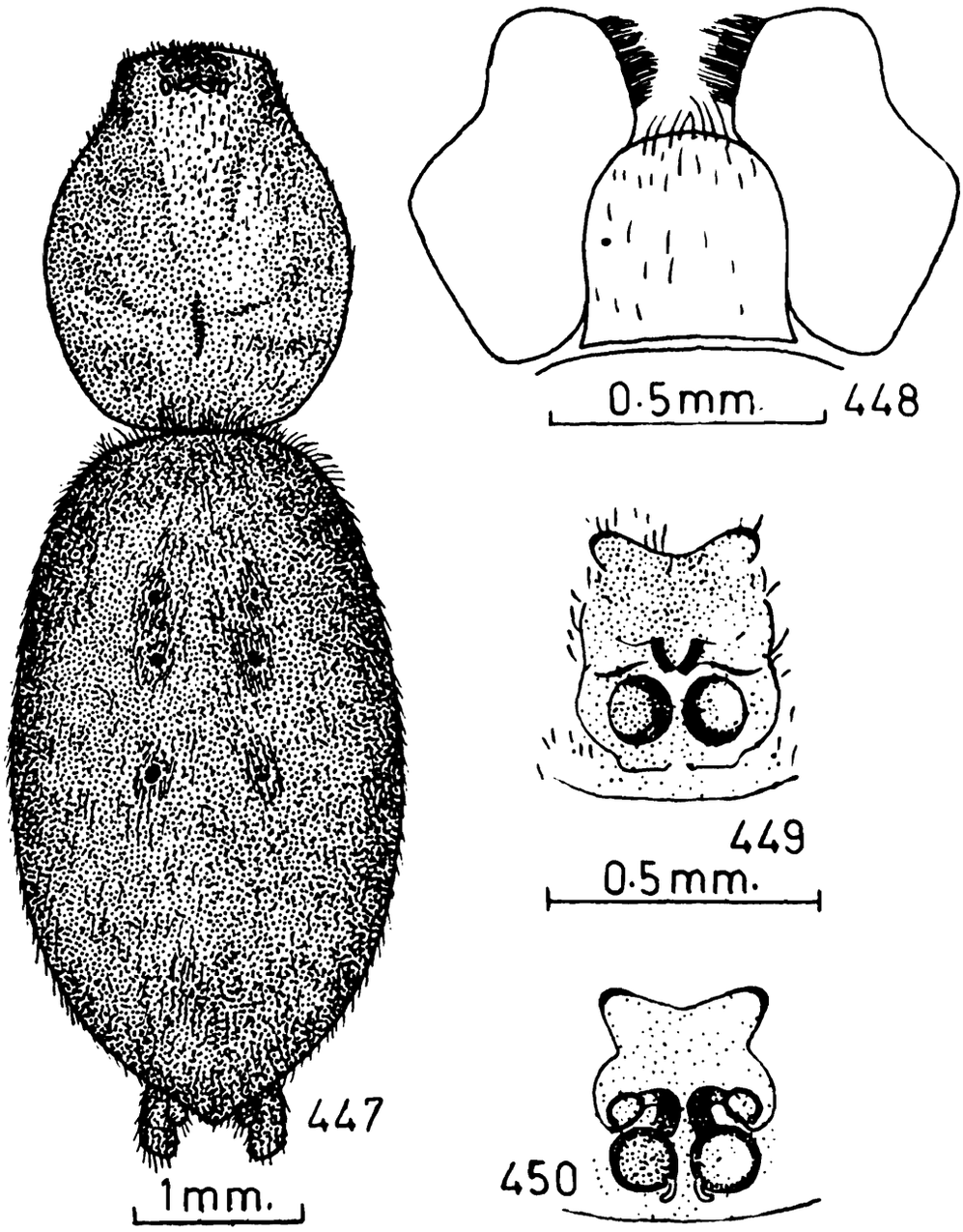
78. **Zelotes desioi** Caporiacco

(Figs. 447-450)

1934. *Zelotes desioi* Caporiacco, *Memorie. Soc. ent. ital.*, **13** : 136.

General: Cephalothorax and legs blackish brown, abdomen greyish. Total length 6.35 mm. Carapace 2.25 mm. long, 1.80 mm. wide, abdomen 4.15 mm. long, 2.30 mm. wide.

Cephalothorax: Longer than wide, blunt in front, clothed with hairs and pubescence; cephalic region slightly elevated than thoracic region; thoracic region provided with distinct longitudinal fovea as in text-fig. 447. Anterior median eyes smallest, anterior lateral eyes largest; aneritor row of eyes procurved as seen from



FIGS. 447-450. *Zelotes desioi* Caporiacco

447. Dorsal view of female, legs omitted.
448. Labium and maxillae.
449. Epigyne.
450. Internal genitalia.

in front and posterior row nearly straight as seen from above. Ocular quad wider behind than in front and longer than wide as in text-fig. 447. Sternum nearly oval, tapering posteriorly, clothed with hairs, light brown in colour. Maxillae longer than wide bent, convergent distally, distal end provided with distinct Scopulae, brownish in colour. Chelicerae moderately strong, each provided with moderate boss as in text-fig. 448. Legs long and strong, clothed with hairs and spines; femora I provided with yellowish patch on the lateral side.

Abdomen: Elongated oval, longer than wide, clothed with small hairs, dorsum having three pairs of sigilla as in text-fig. 447. Ventral side with a pale elongated region between epigastric furrow and the spinnerets. Epigyne as in text-fig. 449. Internal genitalia as in text-fig. 450.

Distribution: INDIA: Kashmir, Srinagar.

Remarks: Description and illustrations are based on one authenticated identified specimen, deposited in the Museo Civico Di Storia Naturale, Italia (Regd. No. not mentioned).

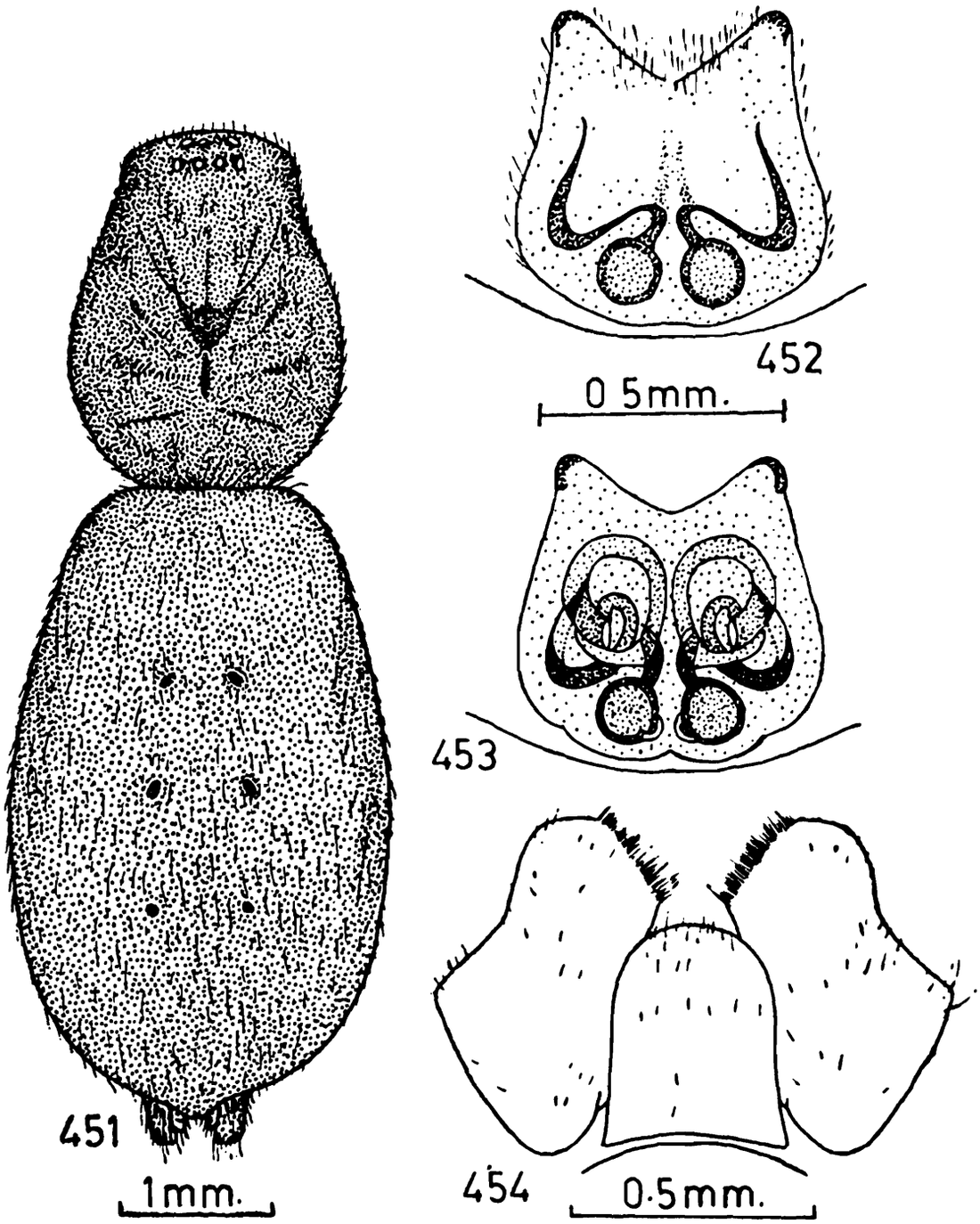
79. **Zelotes pseudopusillus** Capiriacco

(Figs. 451-454)

1934. *Zelotes pseudopusillus* Caporiacco, *Memorie. Soc. ent. ital.*, **13** : 135.

General: Cephalothorax and legs dark brown, abdomen greyish brown. Total length 6.60 mm. Carapace 2.45 mm. long, 1.80 mm. wide; abdomen 4.15 mm. long, 2.50 mm. wide.

Cephalothorax: Longer than wide, blunt in front, scarcely clothed with hairs; cephalic region slightly elevated than thoracic region and provided with dark 'V' shaped patch at the rear end of it; thoracic region provided with a fine longitudinal fovea as in text-fig. 451. Anterior eyes smallest of all, laterals subequal in size, anterior row of eyes procurved as seen from in front and posterior row straight as seen from above. Ocular quad slightly wider behind than in front and longer than wide as in text-fig. 451. Sternum oval, brownish, clothed with hairs.



FIGS. 451-454. *Zelotes pseudopusillus* Caporiacco
451. Dorsal view of female, legs omitted.
452. Epigyne.
453. Internal genitalia.
454. Labium and maxillae.

Maxillae longer than wide, a little twisted and convergent at the distal ends, distal ends provided with distinct scopulae, pale yellowish with brownish patches. Labium longer than wide,

brownish in colour as in text-fig. 454. Chelicerae moderately strong with small boss. Legs moderately long and very strong; femora dark coloured.

Abdomen: Elongated oval, anteriorly a little depressed, clothed with hairs, anterior side with large hairs, dorsum provided with three pairs of distinct sigilla arranged mid-longitudinally as in text-fig. 451. Ventral side greyish coloured, two longitudinal pale fine lines in between epigastric furrow and spinnerets. Epigyne as in text-fig. 452. Internal genitalia as in text-fig. 453.

Distribution: INDIA: Kashmir, Gilgit, Dusso.

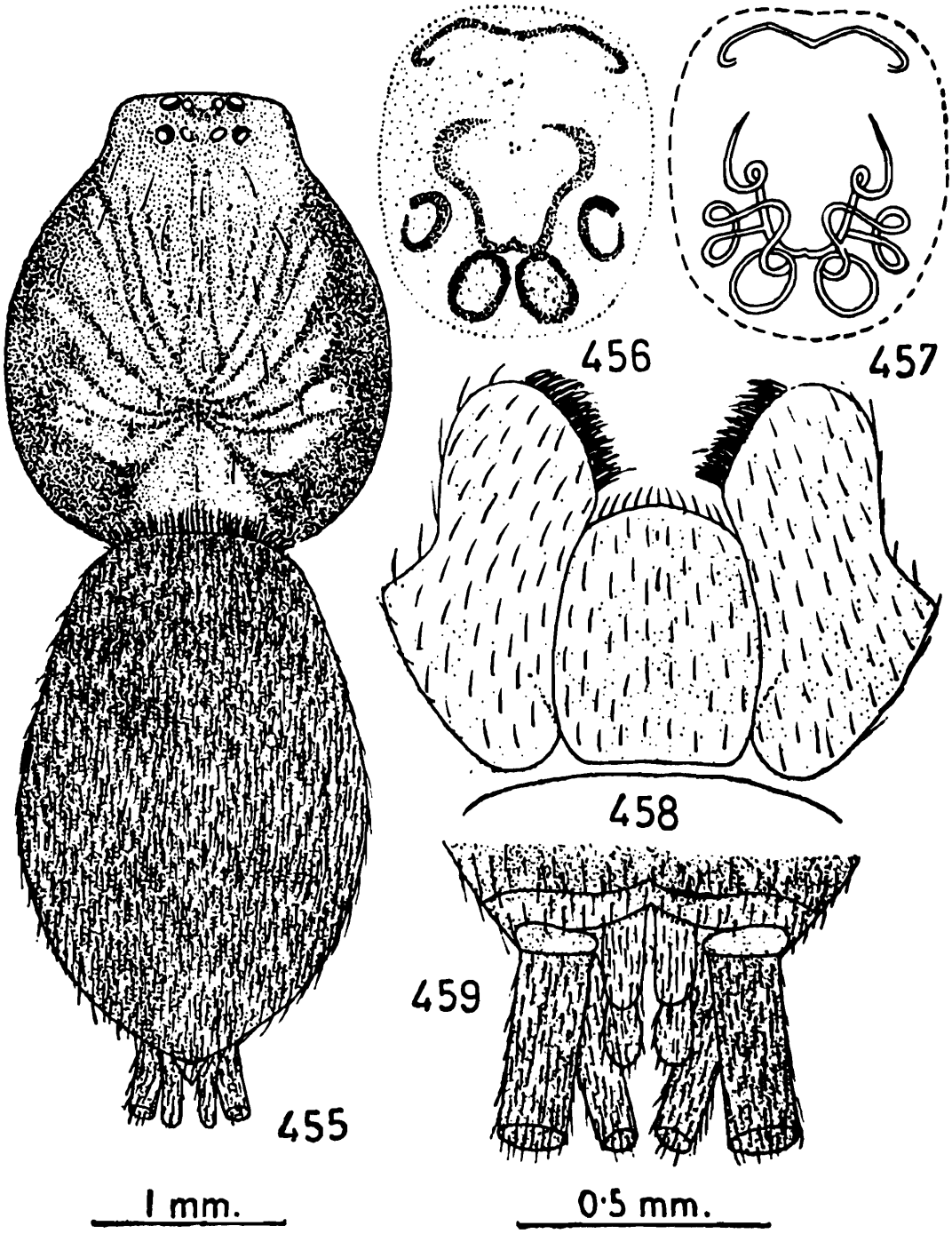
Remarks: Description and illustrations have been made on the basis of an authenticated identified female specimen, housed in the Museo Civico Di Storia Naturale, Italia (There is no Registered number).

80. **Zelotes kusumae** sp. nov.

(Figs. 455-459)

General: Cephalothorax and legs reddish-brown, abdomen black. Total length 5.00 mm. Carapace 2.30 mm. long, 2.00 mm. wide; abdomen 2.80 mm. long, 1.80 mm. wide.

Cephalothorax: Longer than wide, oval, not so narrow in front, clothed with spine like hairs, posterior middle provided with a inconspicuous short fovea. Black reticulations diverge from short fovea to the lateral sides. Eyes closely grouped, pearly white except anterior medians, posterior row of eyes as long as the anterior row. Anterior row of eyes slightly procurved (as seen from in front), medians smaller than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes straight, medians irregular in shape, smaller than the laterals and slightly closer to adjacent laterals than to each other. Sternum oval, pointed behind, clothed with fine hairs. Labium and maxillae as in text-fig. 458. Chelicerae moderately strong, short, vertical, inner margin without tooth but outer margin provided with a single tooth. Legs relatively long and slender,



FIGS. 455-459. *Zelotes kusumae* sp.nov.
455. Dorsal view of female, legs omitted.
456. Epigyne.
457. Internal genitalia.
458. Labium and maxillae.

clothed with hairs and spines. Tibiae III and IV provided with three pairs of ventral spines. Scopulae reach upto the base of metatarsi I and II and upto tarsi III and IV Legs formula 4123.

Abdomen: Longer than wide, nearly elliptical, slightly narrowing behind, clothed with fine mousy hairs as in text-fig. 455. Ventral side same in colour as dorsal. Epigyne as in text-fig. 456 and internal genitalia as in text-fig. 457. Spinnerets very prominent, anterior spinnerets widely separated, larger than others as in text-fig. 459.

Type-specimen: *Holotype* female in spirit, deposited at the Z.S.I., Calcutta. Regd. No. 5041/18.

Type-locality: Bhaja village near Karla, Dist. Poona, Maharashtra, INDIA. 4.xi.1963. Coll. *Dr. B. K. Tikader.*

Discussion: This species resembles *Zelotes mandae* sp. nov. but differs from it as follows: (i) Inner margin of chelicera without tooth but in *Z. mandae* inner margin provided with one small tooth. (ii) Epigyne also structurally different.

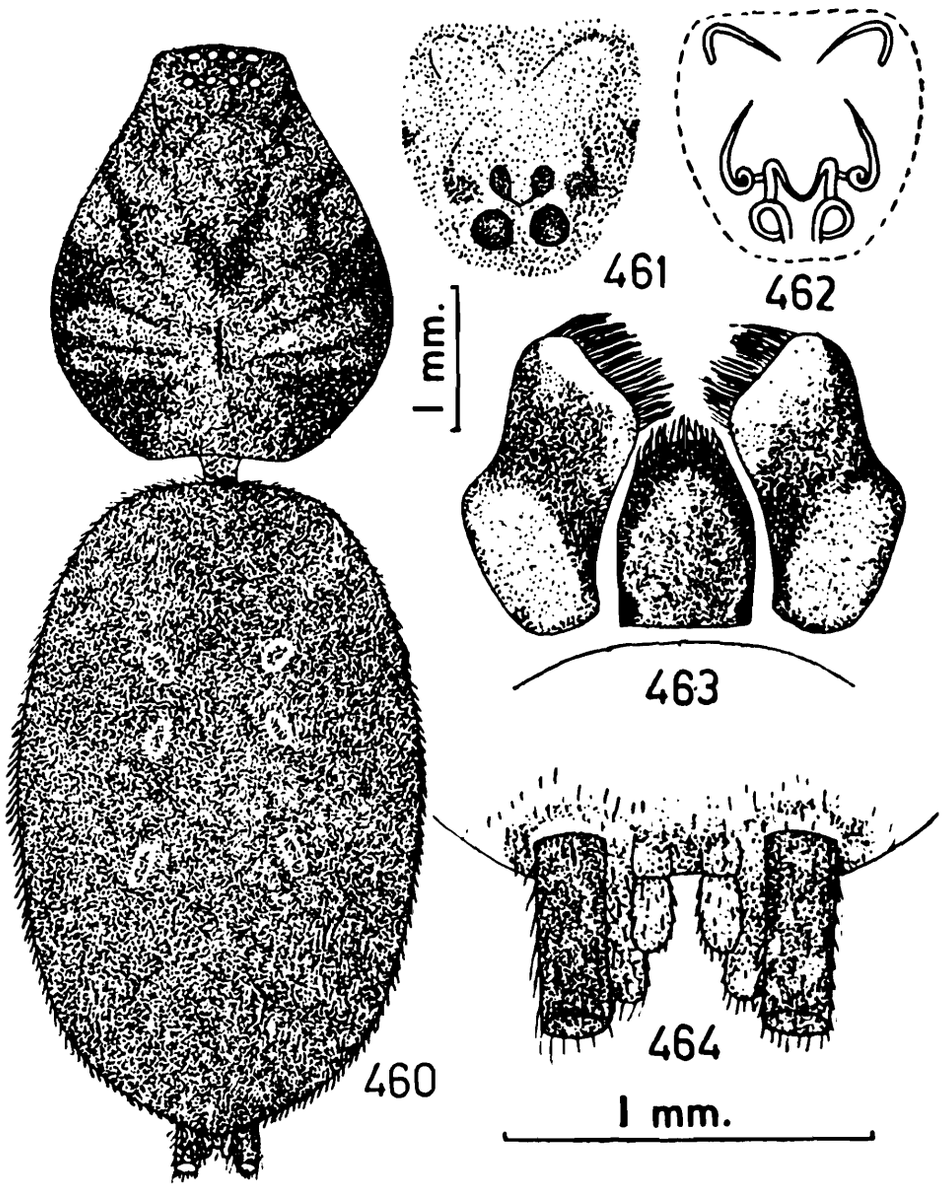
81. **Zelotes mandlaensis** Tikader & Gajbe

(Figs. 460-464)

1976. *Zelotes mandlaensis* Tikader & Gajbe, *Proc. Indian Acad. Sci.*, **83**(3) : 112-113.

General: Cephalothorax and legs deep brown, abdomen brown. Total length 7.60 mm. Carapace 2.80 mm. long, 2.40 mm. wide; abdomen 4.60 mm. long, 2.80 mm. wide.

Cephalothorax: Longer than wide, narrow in front, convex, clothed with pubescence, posterior middle provided with an inconspicuous short fovea. Pattern of radiating streaks diverge from short fovea to lateral sides. Eyes closely grouped, silvery white, except anterior medians, posterior row of eyes straight and slightly longer than the anterior row. Anterior row of eyes nearly straight (as seen from in front), medians smaller than the laterals and closer to the laterals than to each other. Posterior medians irregular in shape, slightly smaller than the laterals and closer to laterals than to each other. Sternum oval, pointed behind, clothed with hairs. Labium and maxillae as in text-fig. 463. Chelicerae moderately strong, vertical, inner margin provided



FIGS. 460-464. *Zelotes mandlaensis* Tikader & Gajbe
460. Dorsal view of female, legs omitted.
461. Epigyne.
462. Internal genitalia.
463. Labium and maxillae.
464. Spinnerets.

with three small teeth and outer margin with three slightly bigger teeth. Legs relatively long and strong, clothed with hairs and spines. Tibiae III and IV provided with two pairs of ventral spines. Scopulae reach upto the base of metatarsi I and II and upto apices of metatarsi III and IV Legs formula 4123.

Abdomen: Longer than wide, oval, clothed with fine hairs

and three pairs of light spots as in text-fig. 460. Ventral side lighter than the dorsal. Epigyne as in text-fig. 461 and internal genitalia as in text-fig. 462. Spinnerets very prominent, anterior spinnerets cylindrical, larger and darker in colour than others as in text-fig. 464.

Type-locality: Kisli, Dist. Mandla, M.P., INDIA. *Holotype* female in spirit, housed at the Z.S.I., Calcutta. Regd. No. 5027/18.

Distribution: This species is known only from its type-locality.

Remarks: Illustrations and description are based on the *holotype* female.

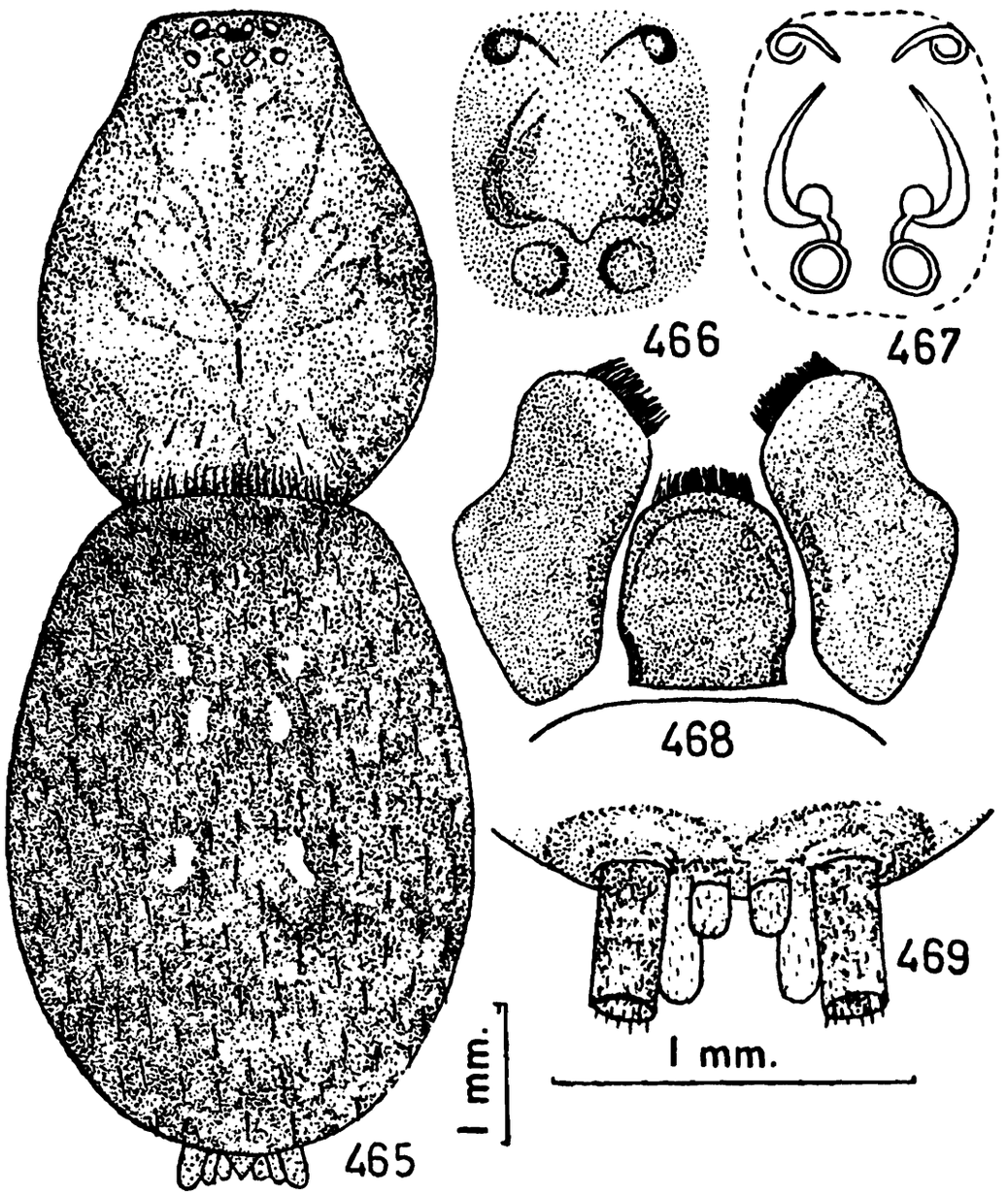
82. **Zelotes ashae** Tikader & Gajbe

(Figs. 465-469)

1976. *Zelotes ashae* Tikader & Gajbe, *Proc. Indian Acad. Sci.*, **83**(3) : 111-112.

General: Cephalothorax and legs reddish brown, abdomen uniform deep brown. Total length 8.20 mm. Carapace 3.50 mm. long, 2.80 mm. wide; abdomen 4.80 mm. long, 3.40 mm. wide.

Cephalothorax: Longer than wide, narrow in front, slightly convex, clothed with fine hairs, posterior middle provided with a conspicuous short fovea. Pattern of radiating streaks diverge from short fovea to the lateral sides. Eyes closely grouped, silvery white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly procurved (as seen from in front), medians smaller than the laterals and closer to the laterals than to each other. Posterior row of eyes straight, medians irregular in shape, slightly larger than the laterals and equally spaced. Sternum oval, pointed behind, clothed with long black spine like hairs. Labium and maxillae as in text-fig. 468. Chelicerae moderatly strong, vertical, inner margin provided with two small teeth and outer margin with four teeth. Legs relatively long and strong clothed with hairs and spines. Tibiae III and IV provided with two pairs of ventral spines. Scopulae reach upto base of metatarsi I and II and upto apices of metatarsi III and IV Legs formula 4123.



FIGS. 465-469. *Zelotes ashae* Tikader & Gajbe
465. Dorsal view of female, legs omitted.
466. Epigyne.
467. Internal genitalia.
468. Labium and maxillae.
469. Spinnerets.

Abdomen: Longer than wide, oval, clothed with fine hairs and three pairs of light spots, as in text-fig. 465. Ventral side slightly lighter than the dorsal. Epigyne as in text-fig. 465 and internal genitalia as in text-fig. 467. Spinnerets very prominent,

anterior spinnerets cylindrical, larger and darker in colour than others as in text-fig. 469.

Type-locality: Range Hill, Poona, Maharashtra, INDIA. Buchetty village, Dist. Jodhpur, Rajasthan, INDIA. *Holotype* female and *paratype* one female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 5025-6/18.

Distribution: INDIA: Maharashtra; Poona, Range Hill; Rajasthan; Jodhpur, Buchetty Village.

Remarks: Description and illustrations are based on the *holoiype* female.

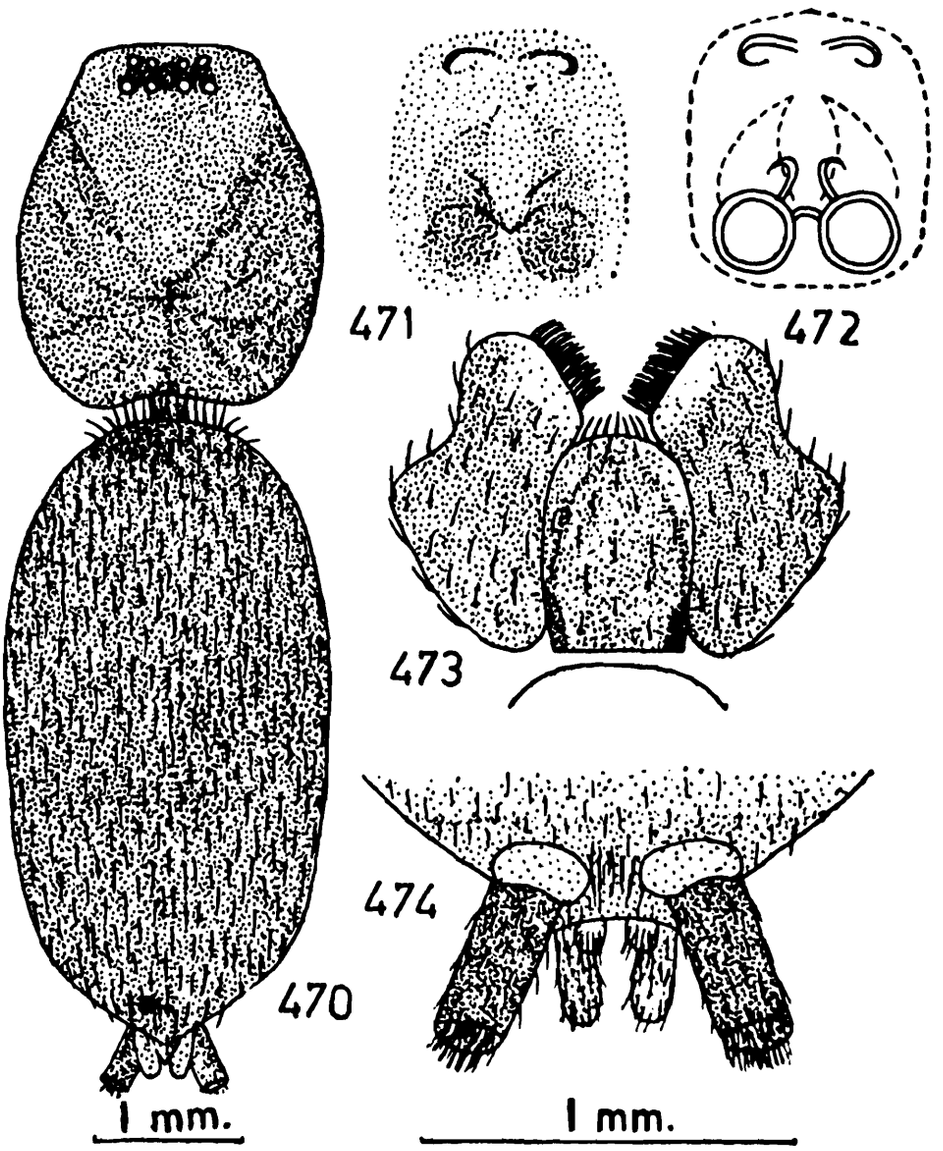
83. **Zelotes sataraensis** Tikader & Gajbe

(Figs. 470-474)

1979. *Zelotes sataraensis* Tikader & Gajbe, *Bull. zool. Surv. India*, 2(1) : 87.

General: Cephalothorax and legs deep brown, abdomen grey. Total length 7.00 mm. Carapace 2.40 mm. long, 2.10 mm. wide, abdomen 4.50 mm. long, 2.20 mm. wide.

Cephalothorax: Longer than wide, oval, slightly narrow in front, convex, clothed with pubescence, posterior middle provided with a conspicuous short fovea. Radiating streaks diverge from short fovea to lateral sides of cephalothorax. Eyes closely grouped, silvery white except the anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes very slightly procurved (as seen from in front), medians smaller than the laterals and closer to laterals than to each other. Posterior row of eyes straight, medians irregular in shape, slightly smaller than the laterals and closer to laterals than to each other. Sternum oval, pointed behind, clothed with fine hars. Labium and maxillae as in text-fig. 473. Chelicerae moderately strong, vertical, inner margin with one minute tooth and outer margin with two larger teeth. Legs relatively long and strong, clothed with hairs and spines. Tibiae III and IV provided with three pairs of ventral spines. Scopulae reach upto the base of metatarsi I and II and upto apices of metatarsi III and IV Legs formula 4123.



FIGS. 470-474. *Zelotes sataraensis* Tikader & Gajbe
470. Dorsal view of female, legs omitted.
471. Epigyne.
472. Internal genitalia.
473. Labium and maxillae.
474. Spinnerets.

Abdomen: Longer than wide, nearly elliptical, narrowing posteriorly, clothed with fine hairs as in text-fig. 470. Ventral side lighter than the dorsal. Epigyne as in text-fig. 471 and internal genitalia as in text-fig. 472. Spinnerets very prominent, anterior spinnerets widely separated, loger than others as in text-fig. 474.

Type-locality: Pratapgarh near Mahabaleswar, Dist. Satara, Maharashtra, INDIA. *Holotype* female in spirit, deposited in the Z.S.I., Calcutta. Regd. No. 5038/18.

Distribution: Only known from its type-locality.

Remarks: Illustrations and description are made on the basis of *Holotype* female.

84. **Zelotes jabalpurensis** Tikader & Gajbe

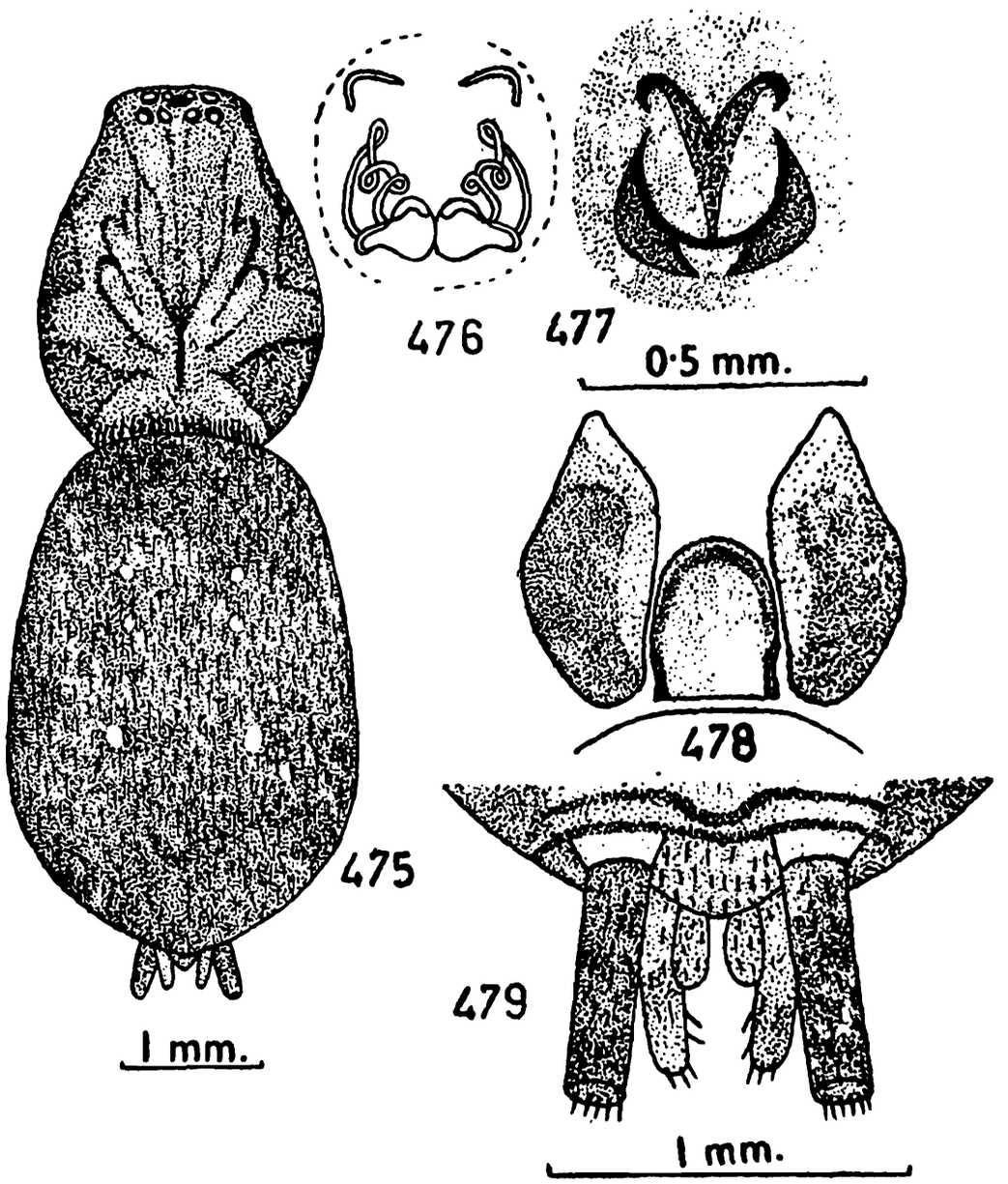
(Figs. 475-479)

1976. *Zelotes jabalpurensis* Tikader & Gajbe, *Proc. Indian Acad. Sci.*, **83**(3) : 114-115.

General: Cephalothorax and legs reddish-brown, abdomen brown. Total length 6.30 mm. Carapace 2.60 mm. long, 2.00 mm. wide; abdomen 3.80 mm. long, 2.40 mm. wide.

Cephalothorax: Longer than wide, narrow in front, clothed with fine hairs, posterior middle provided with a conspicuous short fovea. Pattern of radiating streaks diverge from short fovea to lateral sides. Eyes closely grouped, silvery white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes nearly straight (as seen from in front), medians smaller than the laterals and closer to the laterals than to each other. Posterior row of eyes straight, medians irregular in shape, slightly larger than the laterals and equally spaced. Sternum oval, pointed behind, clothed with hairs. Labium and maxillae as in text-fig. 478. Chelicerae moderately strong, vertical, outer margin with six teeth and inner margin without tooth. Legs relatively long and strong, clothed with hairs and spines. Tibiae III and IV provided with three pairs of ventral spines. Scopulae reach upto the base of metatarsi I and II and upto apices of metatarsi III and IV. Legs formula 4123.

Abdomen: Longer than wide, oval, dorsaly clothed with fine hairs and three pairs of light spots as in text-fig. 475. Ventral side lighter than the dorsal. Epigyne as in text-fig. 475 and internal genitalia as in text-fig. 477. Spinnerets very prominent,



FIGS. 475-479. *Zelotes jabalpurensis* Tikader & Gajbe
475. Dorsal view of female, legs omitted.
476. Internal genitalia.
477. Epigyne.
478. Labium and maxillae.
479. Spinnerets.

anterior spinnerets cylindrical, larger and darker in colour than others as in text-fig. 479.

Type-locality: Tilwar Ghat, Jabalpur, M.P., INDIA. *Holotype* female in spirit, deposited at the Z.S.I., Calcutta. Regd. No. 5028/18.

Distribution: This species is known only from its type locality.

Remarks: Illustrations and description are prepared on the *holotype* female.

85. **Zelotes choubeyi** Tikader & Gajbe

(Figs. 480-484)

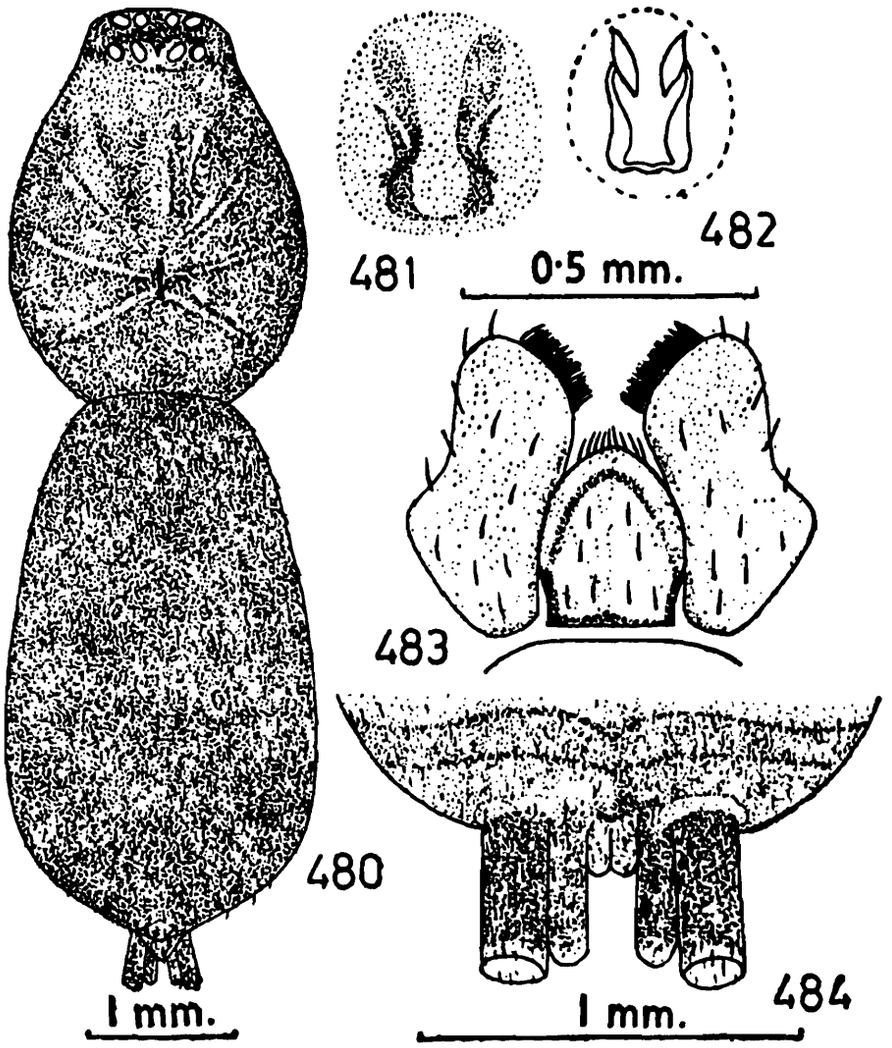
1979. *Zelotes choubeyi* Tikader & Gajbe, *Bull. zool. Surv. India*, 2(1) : 89.

General: Cephalothorax and legs reddish brown, abdomen deep brown to black. Total length 6.50 mm. Carapace 2.60 mm. long, 2.00 mm. wide; abdomen 4.00 mm. long, 2.10 mm. wide.

Cephalothorax: Longer than wide, oval, narrow in front, convex, clothed with pubescence, posterior middle of cephalothorax provided with an inconspicuous fovea. Radiating streaks diverge from short fovea to lateral sides of cephalothorax. Eyes situated closely grouped silvery white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes nearly straight (as seen from in front); medians smaller than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes straight, medians irregular in shape, slightly larger than the laterals and closer to adjacent laterals than to each other. Sternum heart-shaped, pointed behind, clothed with fine hairs. Labium and maxillae as in text-fig. 483. Chelicerae moderately strong, vertical, inner and outer margin provided with two and four teeth respectively. Tibiae III with two pairs of ventral spines. Legs formula 4123.

Abdomen: Longer than wide, nearly elliptical, broader just behind the middle, clothed with fine hairs and three pairs of sigilla as in text-fig. 480. Ventral side same in colour as dorsal. Epigyne as in text-fig. 481 and internal genitalia as in text-fig. 482. Spinnerets prominent, anterior spinnerets larger than others as in text-fig. 484.

Type-locality: Vetal Hill, Poona, Maharashtra, INDIA. *Holotype* female in spirit, deposited in the Z.S.I. Calcutta. Regd. No. 5039/18.



FIGS. 480-484. *Zelotes choubeyi* Tikader & Gajbe
480. Dorsal view of female, legs omitted.
481. Epigyne.
482. Internal genitalia.
483. Labium and maxillae.
484. Spinnerets.

Distribution: Only known from its type-locality.

Remarks: Description and illustrations made on the basis of *holotype* female.

Genus 20. **Drassyllus** Chamberlin

1922. *Drassyllus* Chamberlin, *Proc. biol. Soc. Wash.*, **35** : 166.
1948. *Drassyllus* : Kaston, *Spiders of Connecticut* : 359-361.
1976. *Drassyllus* : Tikader & Gajbe, *Oriental Ins.*, **10**(3) : 431-434.

Characters: The posterior row of eyes procurved, the posterior medians eyes large, oval oblique, and much closer to each other than to the posterior laterals eyes. The outer margin of the cheliceral fang furrow provided with three to six teeth, the inner margin from two to four. The species are all much alike in general apperance. The colours vary from orange to dark brown on the cephalothorax and grey to black on the abdomen. There are no markings, though in males there is a very conspicuous orange or brown scutum on the abdomen which covers from less than one-third to almost one-half of the dorsum. Epigyne without prominent sclerotized ridges on each side ending freely in front.

Type-species: *Drassyllus fallens* Chamberlin.

Distribution: AMERICA, INDIA.

Key to species of the genus **Drassyllus** Chamberlin

1. Abdomen concave anteriorly (Fig. 485); anterior pair of spinnerets smaller than the posterior pair (Fig. 489).....*mahabalei*
   Abdomen convex anteriorly; anterior pair of spinnerets larger than the posterior pair.....2

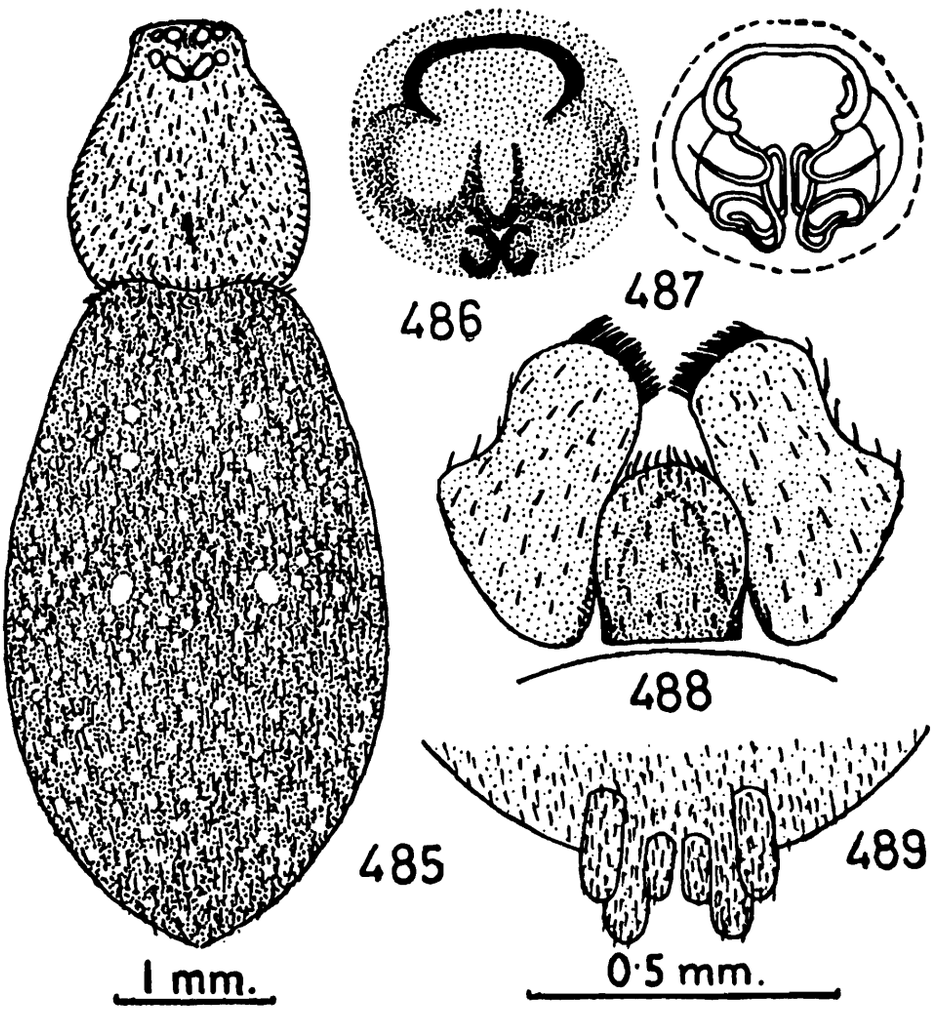
2 Posterior row of eyes longer than the anterior row; Outer margin of chelicera provided with two teeth. Carapace brownish geen.....*khajuriai*
   Posterior row of eyes as long as the anterior row; Outer margin of chelicera provided with three teeth. Carapace reddish green.....*ratnagiriensis*

86. **Drassyllus mahabalei** sp.nov.

(Figs. 485-489)

General: Cephalothorax reddish-green, legs brownish-green, abdomen brown. Total length 6.00 mm. Carapace 1.90 mm. long, 1.70 mm. wide; abdomen 4.20 mm. long, 2.40 mm. wide.

Cephalothorax: Longer than wide, much narrow in front, slightly convex, clothed with robust spines, posterior middle pro-



FIGS. 485-489. *Drassyllus mahabalei* sp.nov.
485. Dorsal view of female, legs omitted.
486. Epigyne.
487. Internal genitalia.
488. Labium and maxillae.
489. Spinnerets.

vided with an inconspicuous short fovea. Eyes silvery white in colour except anterior medians and all eyes situated in a compact area, posterior row of eyes slightly procurved (as seen from in front), medians slightly larger than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes procurved; medians large, triangular, oblique and nearly contiguous and all eyes equally spaced. Sternum oval, pointed behind, clothed with fine hairs. Labium and maxillae as in text-fig. 488. Chelicerae not very strong, vertical, inner margin provided with one minute tooth and outer margin with three

larger teeth. Legs relatively long and strong, clothed with hairs and spines.

Abdomen: Longer than wide, nearly elliptical, clothed with fine hairs and three pairs of sigilla on the dorsum and anterior portion provided with some black spine like hairs as in text-fig. 485. Ventral side much lighter than the dorsal. Epigyne as in text-fig. 485 and internal genitalia as in text-fig. 487. Spinnerets as in text-fig. 489.

Type-specimen: *Holotype* female in spirit, deposited at the Z.S.I., Calcutta. Regd. No. 5044/18.

Type-locality: Sindhi Colony, Poona, Maharashtra. INDIA. 4.iv.1976. Coll. *B. K. Tikader.*

Discussion: This species closely resembles *Drassyllus ratnagiriensis* Tikader & Gajbe but differs from it as follows: (i) Posterior median eyes triangular but in *D. ratnagiriensis* posterior median eyes oval. (ii) Inner margin of chelicera with one minute tooth but in *D. ratnagiriensis* inner margin of chelicera with two small teeth. (iii) Epigyne also structurally different.

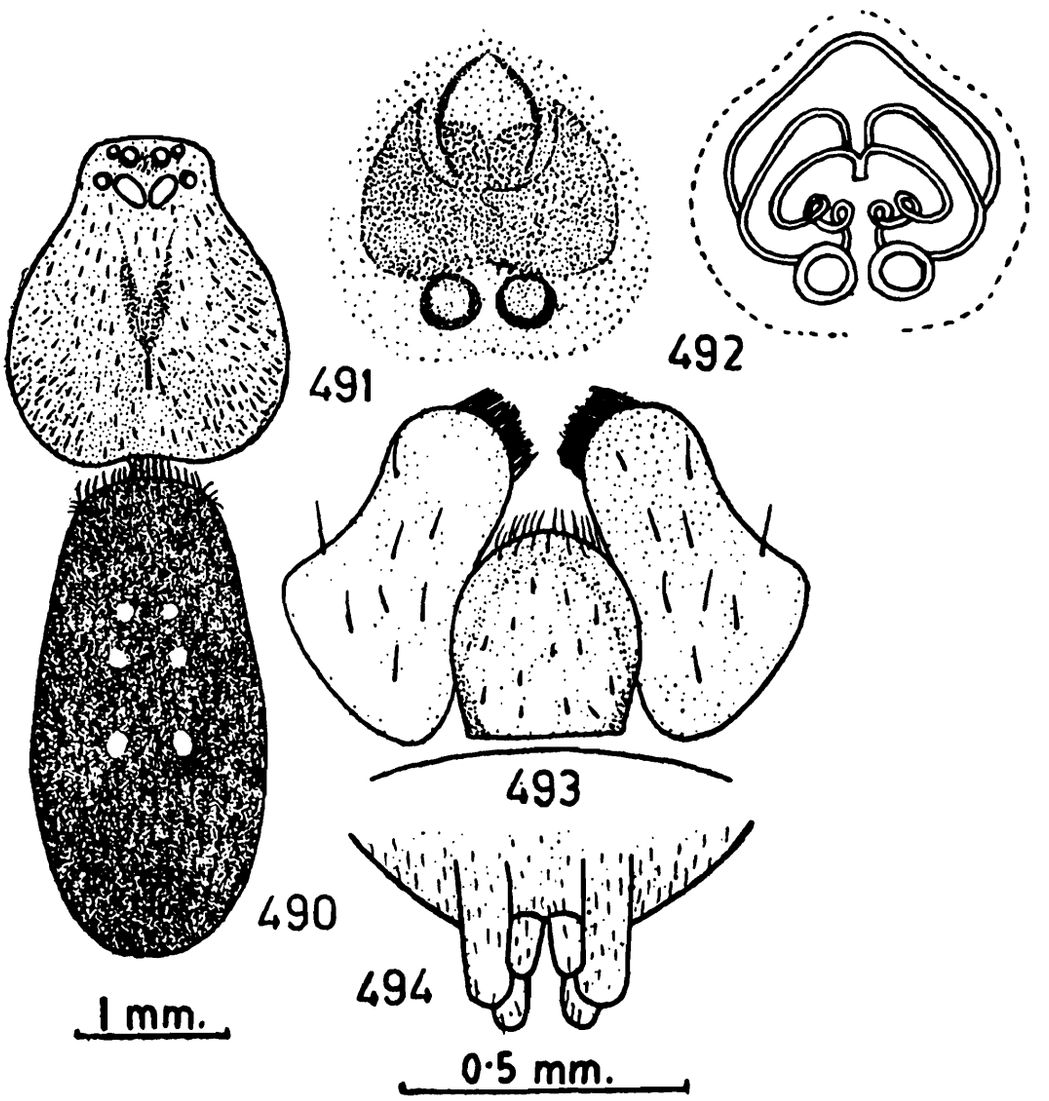
87. **Drassyllus khajuriai** Tikader & Gajbe

(Figs. 490-494)

1976. *Drassyllus khajuriai* Tikader & Gajbe, *Oriental Ins.*, 10(3) : 432-434.

General: Cephalothorax and legs light brownish-green. Abdomen deep brown. Total length 5.80 mm. Carapace 2.20 mm. long, 2.00 mm. wide; abdomen 3.40 mm. long, 1.80 mm. wide.

Cephalothorax: Longer than wide, narrowing in front, slightly convex, posterior middle of thorax provided with an inconspicuous short fovea, clothed with fine hairs and some spine like hairs. Eyes silvery white in colour except anterior medians and all eyes situated in a compact area. Posterior row of eyes slightly longer than the anterior row. Anterior row of eyes procurved (as seen from in front); medians slightly larger than laterals and closer to adjacent laterals than to each other. Posterior



FIGS. 490-494. *Drassyllus khajuriai* Tikader & Gajbe
490. Dorsal view of female, legs omitted.
491. Epigyne.
492. Internal genitalia.
493. Labium and maxillae.
494. Spinnerets.

row of eyes slightly procurved, medians large, oval, oblique and slightly closer to each other than to adjacent laterals. Sternum oval, pointed behind, clothed with fine hairs. Labium and maxillae light green, shape as in text-fig. 493. Chelicerae not very strong, vertical, inner margin with one minute tooth and outer margin provided with two moderate teeth. Legs relatively long and strong, clothed with hairs and spines. Legs formula 4123.

Abdomen: Nearly elliptical, clothed with fine hairs, three pairs of sigilla on the dorsum and anterior portion provided with some black spine-like hairs as in text-fig. 490. Ventral side lighter than the dorsal. Epigyne as in text-fig. 491 and internal genitalia as in text-fig.492. Spinnerets as in text-fig. 494.

Type-locality: Rest House Mandla, Dist. Mandla, M.P., INDIA. *Holotype* female in spirit, deposited at the Z.S.I., Calcutta, Regd. No. 5043/18.

Distribution: So far this species is known only from its type-locality.

Remarks: Description and illustrations are based on the *holotype* female.

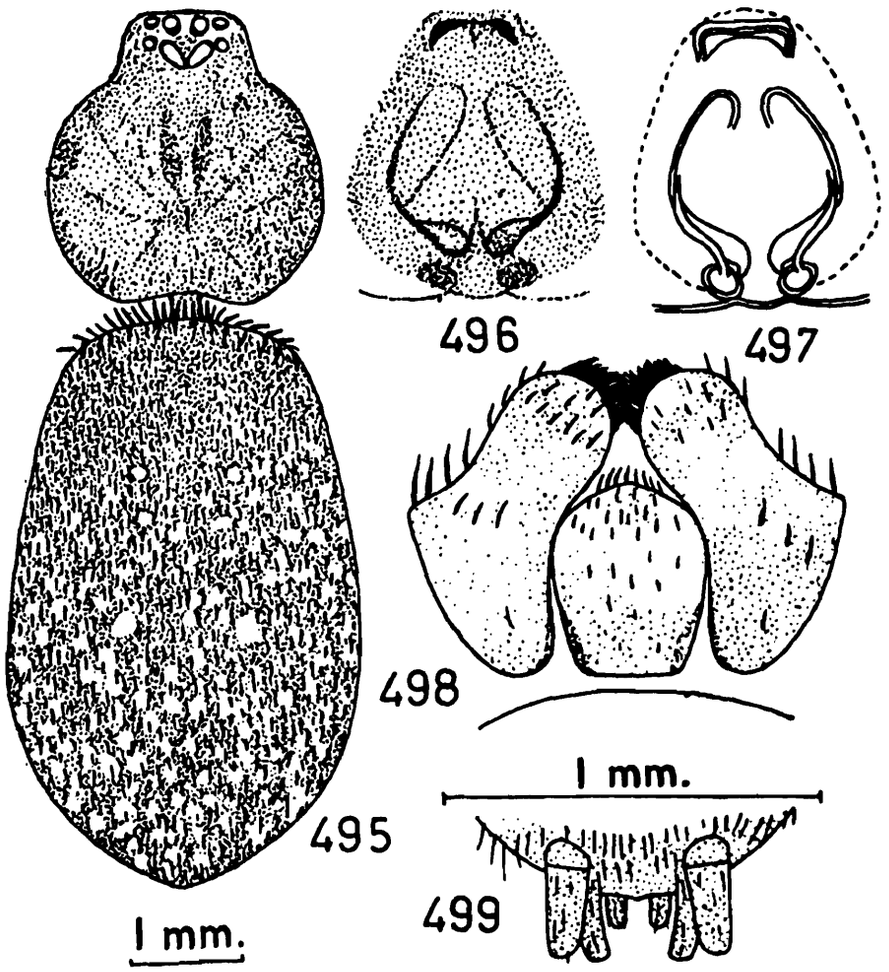
88. **Drassyllus ratnagiriensis** Tikader & Gajbe

(Figs. 495-499)

1976. *Drassyllus ratnagiriensis* Tikader & Gajbe, *Oriental Ins.*, **10**(3) : 431-432.

General: Cephalothorax and legs reddish-green, abdomen brown. Total. length 8.00 mm. Carapace 2.60 mm. long, 2.40 mm. wide; abdomen 5.20 mm. long, 3.20 mm wide.

Cephalothorax: Longer than wide, abruptly narrow in front, slightly convex, behind the middle provided with an inconspicuous short fovea, clothed with fine hairs and some spine like hairs. Eyes silvery white in colour except anterior medians and all eyes situated in a compact group, posterior row of eyes as long as the anterior row. Anterior row of eyes slightly procurved (as seen from in front), medians slightly larger than laterals and closer to adjacent laterals than to each other. Posterior row of eyes procurved; medians large, oval, oblique and joined at the base and formed like a 'V' Sternum oval, pointed behind, clothed with fine hairs. Labium and maxillae light reddish-green, shape as in text-fig. 498. Chelicerae not very strong, vertical, inner margin provided with one small tooth and outer margin with three slightly bigger teeth. Legs relatively long and strong, clothed with hairs and spines. Legs formula 4123.



FIGS. 493-499. *Drassyllus ratnagiriensis* Tikader & Gajbe
495. Dorsal view of female, legs omitted.
496. Epigyne.
497. Internal genitalia.
498. Labium and maxillae.
499. Spinnerets.

Abdomen: Nearly elliptical, clothed with fine hairs, and provided with three pairs of sigilla on the dorsum and anterior portion provided with some black spine like hairs as in text-fig. 495. Ventral side much lighter than the dorsal. Epigyne as in text-fig. 496 and internal genitalia as in text-fig. 499. Spinnerets as in text-fig. 499.

Type-locality: Kashvedi Ghat, Chiplun, Dist. Ratnagiri, Maharashtra, INDIA. *Holotype* female in spirit, deposited at the Z.S.I., Calcutta. Regd. No 5042/18.

Distribution: Only known from its type-locality.

Remarks: Illustrations and description are based on the *holotype* female.

Genus 21. **Scotophinus** Simon

1905. *Scotophinus* Simon, *Annals. Soc. ent. Fr.*, **74** : 169.
1954. *Scotophinus* : Roewer,*Katalog der Araneae*, Brussels, 2 Band, Abt. a : 438.

Characters: Eyes are much smaller than those of *Scotophaeus*. Posterior row of eyes more recurved than the anterior row. Anterior row of eyes more larger than the posterior row of eyes. Median eyes more smaller than the laterals. In the anterior row the medians are much nearer to the laterals. The median eyes are black and roundish but the laterals are white and oval. The eyes of anterior row much more nearer to each other than those of posterior row.

Type-species: *Scotophinus maindroni* Simon

Distribution: INDIA, Genji, Coromondal coast (*Type-locality*).

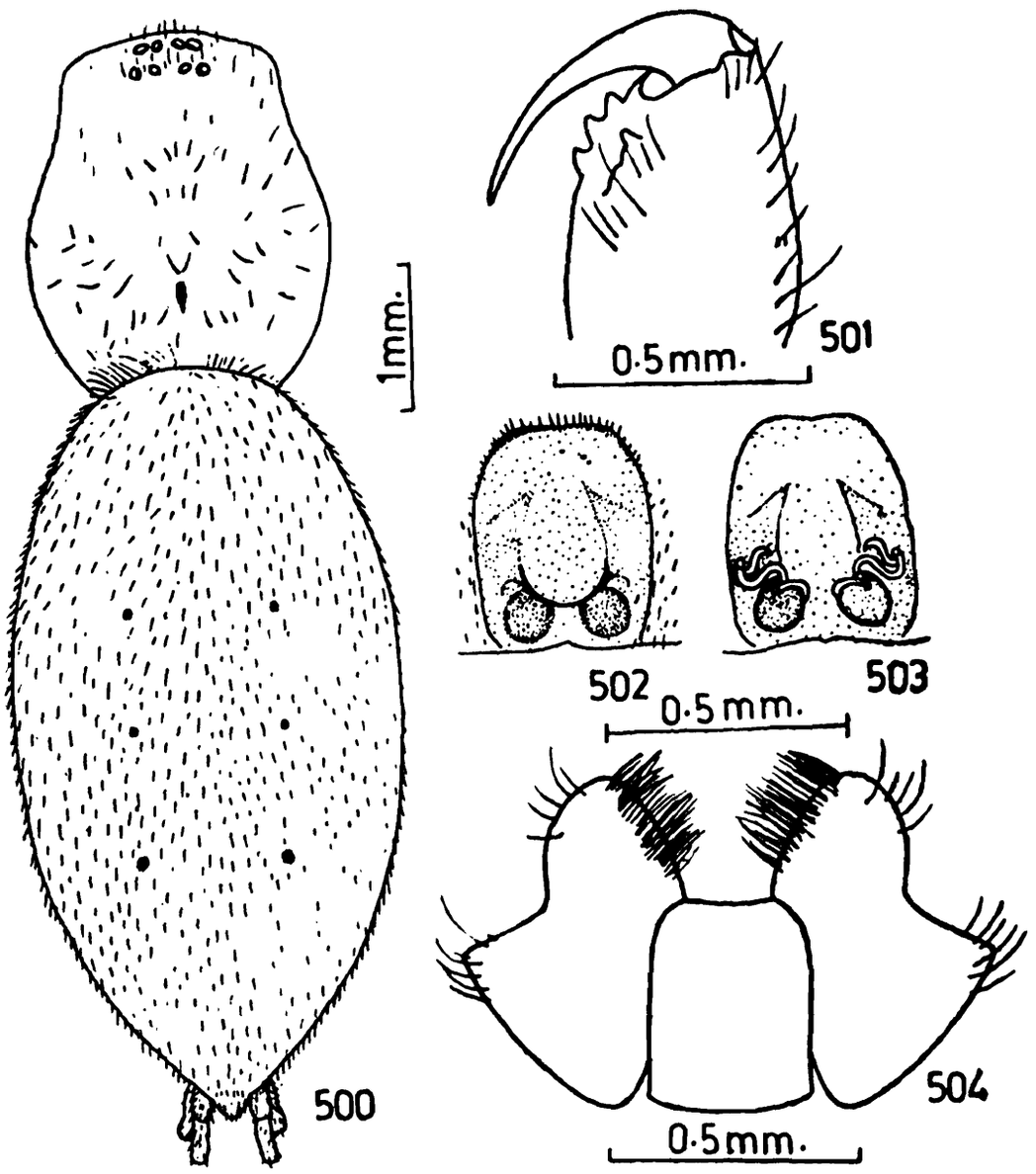
89. **Scotophinus maindroni** Simon

(Figs. 500-504)

1905. *Scotophinus maindroni* Simon, *Annals. Soc. ent. Fr.*, **74** : 169.

General: Cephalothorax and legs orange coloured, abdomen greyish. Total length 7.65 mm. Carapace 2.65 mm. long, 2.10 mm. wide; abdomen 5.20 mm. long 2.70 mm. wide.

Cephalothorax: Longer than wide, blunt in front, scarcely clothed with hairs; cephalic region slightly elevated than thoracic region; thoracic region provided with a fine distinct longitudinal fovea as in text-fig. 500. Posterior median eyes smallest, laterals subequal in size; anterior row of eyes slightly procurved as seen from in front and posterior row nearly straight as seen from above. Ocular quad slightly wider than long and narrowing in front as in text-fig. 500. Sternum heart-shaped, pointed



FIGS. 500-504. *Scotophinus maindroni* Simon

500. Dorsal view of female, legs omitted.
501. Left chelicera, side view.
502. Epigyne.
503. Internal genitalia.
504. Labium and maxillae.

behind, orange coloured, clothed with hairs. Maxillae with a distinct notch and depression at the middle and distally convergent orange coloured, distal ends provided with white patches. Labium longer than wide, brownish in colour as in text-fig. 503. Chelicerae very strong; outer margin of fang furrow provided with three small teeth and the inner margin with one tooth

and small boss as in text-fig. 504. Legs moderately long and strong, clothed with long hairs; femora very stout and provided with dark shades.

Abdomen: Elongated oval, much longer than wide, clothed with small hairs; anterior end with large hairs. Dorsum provided with three pairs of small sigilla arranged mid-longitudinally as in text-fig. 500. Epigyne as in text-fig. 501. Internal genitalia as in text-fig. 502.

Type-locality: Genji, Coromondal coast, INDIA. *Holotype* female in spirit, deposited in the M.N.H.N., Paris. Regd. No. AR 1672.

Distribution: Genji, Coromondal coast, INDIA.

Remarks: Description and illustrations are based on one female type specimen deposited in the Museum National d' Histoire Naturelle, Paris.

GLOSSARY OF ANATOMICAL TERMS OF SPIDERS

abdomen—The posterior body division of a spider, divided from the cephalothorax by the pedicel.

alveolus—A cuplike cavity on the ventral side of the cymbium of the male palpus containing the genital bulb.

anal tubercle—A small prominence at the tip of the adbomen ; the anus is situated on its ventral surface.

anteriad—Toward the anterior end of the body.

anterior—Pertaining to the foremost end of the body or of one of its main divisions.

anterolateral—Toward the anterior end and the side.

anterolateral—Pertaining to the anterior end and the side.

anteromesad—Toward the anterior end and the midline.

apical division—That part of the genital bulb of the male palpus comprising the conductor, embolus, and associated structures.

apophysis—A spine found on the male chelicerae, palpi, or legs and usually having a sexual function.

atrial—Pertaining to the atrium.

atrium—A cavity in the epigynal plate having the copulatory openings of the female in its floor or wall ; it may be subdivided by a median septum.

based—Toward the base, or point of attachment, of an appendage or segment.

basal—Pertaining to the base of an appendage or segment.

basal division—That part of the bulb of the male palpus comprising the subtegulum and associated structures.

basitarsus—The basal subdivision of the leg tarsus.

bidentate—Having two teeth.

book lungs—The paird booklike respiratory organs on the venter of the abdomen ; representatives of Mygalomorphae have two pairs, those of Araneomorphae one pair (occasionally two).

calamistrum—A series of stiff curved setae of uniform length along the dorsal surface of basitarsus IV in cribellate spiders.

carapace—The dorsal plate of the cephalothorax, bearing the eyes and the dorsal groove and representing the fused terga of the cephalothoracic segments.

cephalothorax—The undivided head—thorax, or anterior body division, to which are appended the chelicerae, palpi and legs.

chelicerae—The paired, seizing and pinching organs hanging down at the anterior end of the cephalothorax ; each comprises a large basal segment and a movable fang with, internally, the associated venom gland and muscles. They arise between the mouth and the palpi in the early embryo, but move anterior to the mouth and rostrum during embryonic development.

clavate—Club-shaped.

claw—A short, curved, usually toothed process at the tip of the pretarsus of a leg or palpus ; in dionychous spiders, each leg pretarsus has two claws, in trionychous spiders, three.

claw tuft—A bundle of setae at the tip of the leg tarsus in many dionychous spiders.

colulus—A small median sclerite on the venter of the abdomen located in the membranous area at the base of the anterior pair of spinnerets.

conductor—A structure in the male palpus on which the terminal part of the embolus rests ; although premitively part of the apical division of the bulb, it may be a secondary structure derived from the tegulum, as in some male Lycosidae, or from the cymbium, as in some male Thomisidae.

copulatory tube—The paired tubes leading inward from the copulatory openings of the female and receiving the embolus of the male in copulation.

coxa—The first or most basal segment of a leg or pulpus.

cribellate—Pertaining to spiders in which the abdomen has a cribellum.

cribellum—A transverse, plate like spinning organ on the venter of the abdomen anterior to the spinnerets.

cuticle—The outer layer of the integument, or body wall.

cymbium—The tarsus of the male palpus, containing the alveolus on its ventral side.

dentate—Toothed.

dionychous—Pertaining to those groups of spiders in which the leg tarsus bears only two claws.

distad—Toward the distal end of a leg or palpus.

distal—Pertaining to the end of a leg or palpus furthest from the base.

distitarsus—The distal subdivision of the leg tarsus.

distomesad—Toward the tip and the midline.

distomesal—Pertaining to the tip and the midline.

dorsad—Toward the dorsum.

dorsal—Pertaining to the uppermost surface of the body or of an appendage.

dorsal groove—A median furrow, or groove, on the carapace marking the presence of an ingrowth of the body wall on which the dilator muscles of the sucking pump are attached.

dorsum—The entire upper surface of the body ; also used for the upper surface of the abdomen.

ecribellate—Pertaining to spiders in which the abdomen has no cribellum.

emarginate—Having a notched margin.

embolus—The intromittent, or inserting, organ of the male palpus.

epigastric—Pertaining to the ventral side of the abdomen ; e.g., the epigastric scutum is a plate found on the abdomenal venter of some spiders anterior to the genital groove.

epigynum or epigyne—The copulatory organ of the female located in the midline immediately anterior to the genital groove ; usually with a sclerotized plate in which the copulatory openings are found.

epistome—An outgrowth of the body wall at the base of the labrum and partly covering the preoral cavity in front ; thought to be the morphological equivalent of the insect clypeus.

fang—The distal piercing segment of the chelicera.

fang furrow—A depression along the distomesal surface of the chelicera that receives the folded fang.

femur—The third from the base and usually longest segment of leg or palpus.

fertilization tubes—The paired tubes by which semen stored in the spermathecae of the female is conveyed to the eggs as they pass out of the body.

front—That part of the carapace located between the anterior margin and the anterior row of eyes.

genital bulb—The copulatory apparatus lying within the alveolus of the cymbium on the male palpus.

genital groove—A transverse groove on the venter of the abdomen in which lie the openings of the internal genitalia (ovaries, testicles) and a pair of book lungs.

haematodocha—An inflatable sac that extends and rotates the scelrotized parts of the bulb of the male palpus into copulatory position when filled with haemolymph from the body cavity.

hood—A pocketlike cavity at the anterior end of the epigyne of some female spiders.

integument—The body wall.

labium—The lower lip, which closes the preoral cavity behind ; it develops from the sternum of the palpul segment in the embryo.

labrum—The upper lip, which is appended to the epistome, with the combination forming the rostrum.

laterad—Toward one side.

lateral—Pertaining to the side.

laterigrade—Denotes the orientation of the legs of such spiders as Thomisidae in which these limbs are partly rotated on their bases so that the anatomically prolateral surface is uppermost ; also used to describe the mode of locomotion of such spiders.

longitudinal—Lying parallel on the midline of the body.

lorum—The tergum of the pedicel.

macroseta—An erectile seta that arises from a membranous area on the legs and palpi.

median—Pertaining to the middle.

median apophysis—The appendage of the tegulum on the bulb of the male palpus.

median septum—A raised longitudinal piece on the floor of the atrium of the epigyne.

mesad—Toward the midline.

mesal—Pertaining to the midline.

middle division—That part of the bulb of the male palpus comprising the tegulum and associated structures.

midline—An imaginary line dividing the body into right and left halves

nonclavate—Not club-shaped.

ocular quadrangle—The area enclosed by certain groups of eyes ; e.g., the median ocular quadrangle of spiders with the eyes in two transverse rows is the area enclosed by the anterior median eyes and posterior median eyes.

opisthosoma—The pedicel and abdomen together.

palea—A convex usually rugose pad at the distal end of the genital bulb of the palpus in some male spiders.

palp-coxal lobes—The paired lobes on the prolateral surfaces of the palpal coxae ; they form the sides of the preoral cavity.

palpus (pl., palpi)—One of a pair of leg like appendages arising between the preoral cavity and the first pair of legs ; in adult male spiders, modified as a semen-storing and copulatory organ.

paracymbium—An apophysis at the base of the cymbium of the palpus in some male spiders.

pars pendula—A thin flap along the margin of the embolus in some male spiders.

patella—The fourth segment from the base of a leg or palpus, forming a rigid piece with the tibia.

pedicel—The slender connection between cephalothorax and abdomen ; the first opisthosomatic segment.

petiole—A slender sclerite in the bulb of the male palpus connecting the subtegulum with the alveolar wall.

posteriad—Toward the posteriod end.

posterior—Pertaining to the hindmost end of the body or to one of its main divisions.

posteromesad—Toward the posterior end and the midline.

posteromesal—Pertaining to the posterior end and the midline.

posterolaterad—Toward the posterior end and the side.

posterolateral—Pertaining to the posterior end and the side.

preoral cavity—The entrance passage anterior to the mouth, bounded anteriad by the rostrum, laterad by the palpcoxal lobes, and posteriad by the labium.

pretarsus—The seventh or terminal segment of a leg or palpus ; bearing the claws.

procurved—Denotes the anterior displacement of the ends of a transverse, otherwise straight row (of eyes, for example) or groove.

prograde—Denotes the normal or nonlaterigrade orientation of the legs in spiders with the limbs not rotated on their bases ; also used to describe the mode of locomotion of such spiders.

prolaterad—Toward the prolateral surface.

prolateral—Pertaining to the lateral surface of a leg or palpus nearest the anterior end of the body, with the appendage extended at right angle to the trunk.

prolaterobasad—Toward the prolateral side and the base.

prolaterobasal—Pertaining to the prolateral side and the base.

prolateromesad—Toward the prolateral side and the midline.

prolateromesal—Pertaining to the prolateral side and the midline.

prolateroventral—Toward the prolateral side and the venter.

prolateroventral—Pertaining to the prolateral side and the venter.

promargin—The anterior margin of the fang furrow.

restellum—A series of stout setae forming a digging structure on the chelicerae of certain spiders.

recurved—Denotes the posterior displacement of the ends of a transverse, otherwise straight row (of eyes, for example) or groove.

retrolaterad—Toward the retrolateral surface.

retrolateral—The lateral surface of a leg or palpus nearest the posterior end of the body, with the appendage extended at right angles to the trunk.

retromargin—The posterior margin of the fang furrow.

rostrum—The combined epistome and labrum, which together cover the preoral cavity anteriad ; though to be the morphological equivalents of the insect clypeus and labrum respectively.

scape—A median unpaired process of the epigynal plate, free at one end and usually directed posteriad.

sclerite—A sclerotized plate forming part of the body wall.

sclerotized—Hardened and darkened through tanning of proteins.

scopula (pl., scopulae)—A brush of stiff flattened setae along the ventral surface of the leg ; a scopulate leg is one that is provided with a scopula.

scutum—A sclerite covering part of the abdomen ; e.g., dorsal scutum, epigastric scutum.

segment—One of a series of ringlike divisions into which the body or an appendage is divided.

seminal duct—A tube that conducts the semen from the interior of the male palpus to the embolus.

serrated—Notched like a saw.

seta (pl., setae)—A bristlelike outgrowth of the cuticle secreted by a single cell and supplied with a nerve ; setae may be modified in shape, e.g., flattened or clublike.

spermatheca (pl., spermathecae)—One of a pair of semen-storing organs of the female.

spermathecal organ—A small prominence at or near the junction of copulatory tube and spermatheca.

spine—A fixed, usually pointed, rise in the body wall.

spinnerets—The paired appendages at the posterior end of the abdomen through which liquid silk passes from the silk glands to the outside ; usually occurring in three pairs, anterior, median, and posterior.

spiracle—Tracheal opening in the body wall, located on the venter of the abdomen.

sternum—The ventral wall of a body segment ; also used for the fused sterna of the cephalothorax.

subtegulum—A ringlike sclerite in the wall of the basal haematodocha in the bulb of the male palpus.

subterminal apophysis—A sclerotized piece in the apical division of the bulb of the male palpus.

suture—A groove in the body wall.

tapetum—A carpet or sheath of cells behind the retina of the eye reflecting light that enters the retina outward again, thus causing the shining of the eyes in faint light.

tarsal comb—A midventral series of serrated setae on distitarsus IV of some spiders ; e.g., Theridiidae.

tarsus (pl., tarsi)—The sixth segment of a leg or palpus from the base ; in legs ; subdivided into basitarsus and distitarsus.

tegulum—A sclerite of the middle division of the genital bulb in the male palpus ; usually the dominant ventral sclerite of the unexpanded palpus in hunting spiders.

tergum (pl., terga)—The dorsal wall of a body segment.

terminal apophysis—A variously shaped sclerite of the apical division of the genital bulb in the male palpus.

tibia—The fifth segment from the base of a leg or palpus, forming a rigid piece with the patella.

tooth—A spine found on the chelicerae and assisting in feeding ; also, a small out growth on the paired claws of the leg in many spiders.

trachea—The internal system of tubes through which air exchange takes place, thus supplementing and sometimes replacing the book lungs ; their openings are the spiracles.

transverse—Lying at light angles to the midline of the body.

trichobothrium (pl., trichobothria)—A fine, erect kind of seta arising from a rimmed socket and found on the legs and palpi.

trionychous—Denotes groups of spiders in which each leg tarsus has three claws.

trochanter—The second segment from the base of a leg or palpus.

truncate—Squared rather than rounded or pointed at the tip.

tubercle—A small, fixed, usually rounded rise in the body wall ; eyes may be located on tubercles.

venom gland—The venom-secreting gland within the chelicera or the cephalothorax, or both, and opening on the cheliceral fang.

venter—The undersurface of the body ; also used for the undersurface of the abdomen or of the body's appendages.

ventrad—Toward the venter.

ventral—Pertaining to the venter.

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