**MATERIALS AND METHODS**

Different methods were adopted for collecting specimens depending upon the habits and habitats of the spiders. In case of smaller spiders living in bushes, unfolded umbrella was placed beneath the bush and by beating or shaking it, specimens were collected in the umbrella and from there transferred to glass tubes of suitable sizes containing 90% alcohol. Web-weavers were caught directly by the hand tracing the webs or threads and put to tubes containing 90% alcohol. Some types of spiders were collected by removing logs of woods, stones etc. Some were collected from the crevices in houses or hillsides and still others from inside grasses and fungi.

In most of the cases spiders were caught by hand, sometimes forceps or brushes was used. Majority of the collection was done during day time.

For all specimens 90% alcohol was found suitable to use both for fixation and preservation. Date of collection, locality of collection and name of collector were recorded in all cases.

Specimens were examined under stereo-binocular microscope with eye pieces of 5X, 8X, 10X, and objectives of 1X, 1.3X, 2X, 2.8X and 3.6X magnifications, and internal genitalia were studied under light microscope, with eye pieces of 5X and 10X and objectives of 15X and 25X magnifications.

Figures were drawn by the author himself by means of camera lucida of both mirror and prism types and measurements
were taken by ocular and stage micrometers.

Internal genitalia were studied mostly by dissecting out and then clearing in Clove oil. In a few cases where the number of specimens was very few, diagram of internal genitalia was drawn after keeping the specimen for eight to ten hours in Clove Oil. The body wall became translucent and internal genitalia visible from outside.
(i) LOCATION

Khasi and Jaintia Hills area is located in the North Eastern part of India in the eastern sub-Himalayan mountain range. It was within the state of Assam as one district, the United Khasi and Jaintia Hills district. In 1970 the new state, Meghalaya was formed, comprising Khasi, Jaintia and Garo Hills. United Khasi and Jaintia Hills district is now divided administratively into two districts namely Khasi Hills and Jaintia Hills. Khasi and Jaintia Hills districts covers an area of 14100 square Kilometres, greater part of this area is within Khasi Hills where as Jaintia Hills district occupies only something more than 2000 Square Km. with Jowai as the head quarter. The northern boundary of Khasi and Jaintia Hills merges with Kamrup and Nowgong districts of Assam, western boundary is formed by Garo Hills of Meghalaya, North Cachar and Mikir hills of Assam lie on the east and on the southern margin lies Bangladesh. Location is indicated in the maps provided.

(ii) PHYSICAL FEATURES

Khasi and Jaintia hills area comprises of mainly of hills of variable elevations, valleys in between the hills and plateaus. In this area one cannot overlook the rivulets and streams flowing in the grooves and gorges of the hills and also in the Valleys, of course many of them remain dry during the dry months. Hills, valleys and plateaus are mostly soil or silt deposited on the surface usually with rocks beneath or layer of coal. In areas of heavy rains such as Cherapunji, soil is being leached out surface layer is rocky.
To give an idea of elevations of this area altitudes of some places are mentioned. It may be pointed out here that the Northern border where it merges with Kamrup and Nongriat district the altitude is less than 300 metres above M.S.L., Eastern and Southern ends of Jaintia and Khasi Hills merge with North Cachar and Mikir hills of Assam and Bangladesh respectively, the elevations are as low as about 100 metres.

The elevations of some spots of Khasi hills are as below:-
- Kongpoh - 650 mts., Umrah - 790 mts., Suner - 950 mts.,
- Tarapani - 1175 - 1430 mts., Shillong plateau - 1500 - 1650 mts.,
- Upper Shillong - 1800 - 2500 mts., Morhlong - 1900 mts.,
- Lai-lyngkot - 1975 mts., Pynursla - 1500 mts., Umtingor - 1925 mts.,
- Mylliem - 1825 mts., Cherapunji - 1500 mts.,

Jaintia Hills district covers a small part, its eastern end has an elevation of 100 mts., almost gradually rises to the highest point round about Jowai at the elevation of about 1800 mts.

(iii) CLIMATE

Average climatic condition of this area is temperate, although the foot hills show more or less tropical type of climatic condition. South Western Monsoon sets in June-July and continues till September and accounts for 75% of the total annual rainfall. The North Eastern monsoon starts in Autumn and continues till January contributing only a minor percent of the rainfall. Relative Humidity is very high during rainy season whereas much drier between February and April. Atmospheric temperature never is very high, hottest during April-May. The climatic condition of Khasi and Jaintia Hills are shown in the following charts.

The charts show the climatic condition of Shillong as the representative of Khasi Hills and that of Jowai as the representative of Jaintia Hills. Rainfall map of Khasi Hills
divides the whole area into four main zones on the basis of annual rain fall:— (1) Barnihat to Barapani, less than 200 cm, (2) Barapani to Shillong 200 - 300, (3) Upper Shillong to Lycot 300 - 400 cm and (4) Beyond Lycot, 400 cm reaching the heaviest rainfall of the world at Churapunji about 1200 cm per annum.
TEMPERATURE AND RELATIVE HUMIDITY CHART OF SHILLONG.

Humidity—
Maximum Temperature—
Minimum Temperature—

Source Seismological observatory, Shillong, Govt. of India
RAIN FALL CHART OF SHILLONG.

Source Seismological observatory, Shillong. Govt. of India.
TEMPERATURE AND RELATIVE HUMIDITY CHART OF JOWAI.

Humidity
Maximum Temperature
Minimum Temperature

Source Seismological observatory, Shillong, Govt. of India.
RAIN FALL CHART OF JOWAI.

Source Seismological observatory, Shillong, Govt. of India.
(iv) VEGETATION

Ivhasi and Jaintia Hills area takes almost all through the year a greenish appearance, comprising evergreen or semi-evergreen forests. On the variation of altitude and quantity of annual rainfall mainly the forests are differentiated into types. Inspite of the division a major commonness in vegetation particularly of shrubby and herbaceous layers is visible almost all over the area. However, due to heavy rains at Chrapunji the soil is leached out, bare rocks are left exposed. Trees are very few here only dwarf grasses are found.

Human habitation and prominently 'Jhuming', a primitive type of shifting cultivation have altered the natural vegetation in many places.

The natural vegetation can be divided in the following manner:

<table>
<thead>
<tr>
<th>Altitude</th>
<th>Annual rainfall cm.</th>
<th>Type of vegetation</th>
</tr>
</thead>
<tbody>
<tr>
<td>100m-1200m</td>
<td>300-500 cm.</td>
<td>Tropical evergreen</td>
</tr>
<tr>
<td></td>
<td>150-300 cm.</td>
<td>Tropical Semi evergreen</td>
</tr>
<tr>
<td>1200m-1300m</td>
<td>300-500cm</td>
<td>Subtropical evergreen</td>
</tr>
<tr>
<td></td>
<td>150-300cm</td>
<td>Subtropical Semi evergreen</td>
</tr>
<tr>
<td>1500m-2500m</td>
<td>200-500cm</td>
<td>Temperate</td>
</tr>
</tbody>
</table>

Tropical evergreen zone: Shows a profusion of well-scattered species, no sole species of tree is dominant. The forest can be divided into two to three visible storeys. The outstanding trees of the upper story are vitax sp, Talaun sp., Polyalthia sp., Elaeocarpus sp., Xerospermum sp., Castanopsis sp. etc.
The next lower storey forms a continuous layer, usual plants are syzygium sp., Garcinia sp., Ficus sp., Sapindus sp., Heritiera sp., Sterculina sp., Aporusa sp., Petrospermum sp., etc.

Dominant plants of the third lower storey are Premna sp., Canthium sp., Carallia sp., Crewia sp., Vernonia sp., Trevesia sp., Malvina sp., Phoeoe sp., Syzygium sp., Hibiscus sp., Picrosma sp., Pinanga gracilis etc.

Below the 3rd storey of trees a layer of tall shrubs often merges with smaller tree layer. Among the innumerable plants of this layer prominently are: Leela sp., Abroma sp., Desmos sp., Bosmeria sp., Lacivanthus sp., Ficus sp., Ixora sp., Dracaena sp., Ardisia sp., Hyptianthera sp., Wallichia sp. etc.

The ground layer of dense herbs comprises prominently Hedyotis auricularia, ophiiorhiza nutans, Hygrophiila salicifolia, Phrynium pubinerve, Alpinia allughas, Spiradilis cylindrica, Degonia thomsonii and numerous species of fern, Selaginellas and fungi.

Few species of larve and small lienas are found in this forest. Epiphytic flora not rich, mostly are Selaginellas, ferns and Lycopodiums and few flowering types.

**Tropical semi-evergreen zone:** This zone shows fewer number of species than evergreen forest. Most of the trees are evergreen but some species like Careya arborea, Dillenia pentagyna etc. shed their leaves during dry season. Trees in this zone forms one or two storeys. The commonest trees of upper storey are Elaeocarpus sp., Dillenia sp., Hovenia dulcis, Radermachera gigantea etc.
The second story is dominated by Micromalus, Curcica, Celastrus championii, Sapindus rarus, Meliosoma Wallichii etc.

The undergrowth is composed of shrubs and herbs are less dense and constitutes two distinct layers. The upper layer of shrubs, most common ones are Randia sp., Bochmerin sp., Ardizia sp., Leea crispa, Clerodendrum sp., Indigofera sp. etc.

Lowest layer of herbaceous plants are Costus sp., Pilea sp., Zingiber capitatum, Curcina domestica, Fagostemon auricularis, Hedoyotis ovalifolia etc.

Subtropical evergreen zone: A transitional zone of mixed vegetation of both tropical and subtropical species is perceptible between altitude 1000 to 1400 metres. Woodlands of climated climax forests are seen scattered in deep shallow valleys, banks of rivers and streams and occasionally in flat places. These are surrounded by grass lands or Pine forests. Trees are generally of bushy appearance and shorter than in tropical zone. The tree layers are less distinguishable in strata. This reduction in tree strata coupled with lowering of canopy are associated with increase in altitude. The shrub and herbaceous layers are well marked. Lianas are rare in this forest and epiphytes predominate. Undergrowth is very dense in these forests. This zone is rich in species, although some are common with low land species. Usual trees of the upper story are Castanopsis, Lithocarpus sp., Myxothamia sp., Mem sp., Frunts sp., Exbucklandia sp., etc.

The second story is composed mainly of Viburnum sp., Quercus sp., Melicia sp., Syzygium sp., Vernonina sp. etc.

In the deep valleys or slopes of hills trees grow taller.
There are also many large scandant shrubs like Aspidotyrsa sp., Viptage sp., Elaeocarpus sp., Roura minor, Rosa moschata, Salox sp., Coniothalamus sp., Sarcococca sp., Sarcandra sp., Baliospernum sp., Ixora subsectis, Mycosia lonfolia, various species of Acanthaceae and Araliaceae.

The floor is densely covered with fungi, moss, Selaginillas, Lycopodium and various herbaceous angiosperms represented by Deoncia sp., Senecio sp., Sonevilla sp., Impatien sp., Chlorophytum sp., Disporum sp., various species of Zingiberaceae, Corinelinaceae, Chitrito oblomfolia etc.

**Subtropical evergreen zone**: In these forests number of species are less than subtropical evergreen forest. Most of the trees are evergreen but few deciduous species can be seen. Many of the components are identical with those of subtropical evergreen forest. Prominent large trees of forest story are Engantardia sp., Castanopsis sp., Sapindus sp., Paranichelia sp., Elaeocarpus sp., Alleizia sp., Diospyros sp. etc.

Second story comprises mainly Vitex vestila, Pyrularia sp., Micromelum minutum, Kyloma sp. etc. Lianas are scarce.

Shrubby layer consists of fewer species such as Crocallaria assamica, Bochneria platyphylla, Capparis aculifolia, Lyonia ovalifolia, Randia griffithii, Dosmodium sp., Sambucus javanica etc.

The herbaceous layer is very poorly developed, common species are Pilea umbrosa, Galinsoga sp., Anisadebia fusica, Curcuna sp., Polygala sp., Lysimachia laxa, Acanthus leoncostyches etc. Moss, ferns and Selaginellas are scarce.
Secondary Vegetations

In tropical evergreen zone: herbaceous layer comprises mainly Cassia sp., Scoparia dulcis, Mimosa pudica, Hypocochloa and various grasses like Cyrtococcus sp., Panicum and oplochneus.

Sometimes some shrubby plants like Lantana camara, Calotropis sp., Phyllanthus sp., Tithonia sp., Mourhania strobilifera, Eranthidium sp. and grasses like Fysonoclona are prominent.

The common grasses are Imperata cylindrica, Cynodon, Digitaria, Brachiaria sp., Panicum brevifolium, Centotheca lappacea etc. associated with herbaceous geotypes like Polygonum sp., Asparagus sp. etc.

In the tropical semievergreen zone vast areas are occupied by grassland, common plants are Saccharum sp., Sorghum setivum, Phragmites karka, Digitaria ternatifolia, D. setivera, Thallis sp. etc.

Shrubby vegetation of this zone comprises mainly Lantana camara, Tarularia cristata, Desmodium sp., Indigofera sp., Tephrosia occidentalis, Ageratum conyzoides, Cynoglossus globolitoris etc.

In the subtropical evergreen zone main type of vegetation are grass savanna mixed with certain herbaceous plants such as Polygonum, Duchesnea, Youngia, Malilia etc. Pine forests are found at higher altitude along hill slopes. Pines may be in pure stands or sometimes associated with Rhododendron, Eucamptodon etc. Bamboo forests are also common.

The undergrowth is dense comprising many species associated with shrubby plants like Lyonia, Butea, Dipsacus etc.
In Subtropical semi-evergreen zone grass land is associated with shrubs, herbs and trees. Common shrub and herbs are urena lobata, Crotalaria alata, Smithia, Desmodium, Cassia etc. Common trees are Castanopsis, Oroxylum, Callicarpa, Lithocarpus, Miens etc.

Temperate vegetation also shows a profusion of species, although in many places in Khasi and Jaintia Hills inclu'ding Cherrapunji plateau represent relics of much disturbed old forest vegetation due to practice 'Rhuning', a kind of primitive shifting method of cultivation. Rolling grass land and small mountain streams are common. Commonest plants of this zone are Fagacae with Quercus sp. and Castanopsis sp., Rosaceae with Rosa, Photina, Bribobohya, Pyrus, Sorbus, Lantana and several others shrubby and herbaceous sp. Corylopsis and Alnus clausa, Albizia, Manglietia with climbing Schizandra and Kadsura, Acer sp. with occasional Alnus, Engelhardtia, Valonia and vacciniaeae including Aranates and Vaccinium mostly epiphytic occur on them. Trees are heavily loaded with epiphytes mostly orchids.

The forest floor has a dense carpet of herbaceous vegetation belonging to Ranunculaceae, Rosaceae, Bignoniacae and Asteraceae.

Pinus insularis makes its appearance at about 900 metres altitude and forms extensive pure groves at higher elevation mixed with Pinus wallichiana, Rhododendron, Quercus sp. and Castanopsis sp.

Kitchen garden and ornamental gardens in Khasi and Jaintia Hills :- Common vegetation in the kitchen gardens are Melon, Spinachs and Chillies.

Ornamental gardens show commonly Podocarpus, Chuya,
Magnolia etc., Cedrus, Hibiscus, Poinsettia, Callistemon, Hypericum and Rosa. Border plants are Dahlias, Canva, Antirrhinum, Impatiens, Propaeolum, Aster, Antirrhinum, Oxalis etc. Climbers are also present such as Bongain villas, Rose, Jasminum etc. The ornamental gardens are commonly bordered with hedge of Duranta.

The spiders are found mainly in grass lands or on ground or in herbaceous or shrubby layers and in ornamental gardens or sometimes in kitchen gardens also. Excepting a few species larger trees does not seem to provide good habitat for spiders.

SOIL OF THE COLONIES HABITAT OF SPIDERS

Khasi and Jaintia Hills area is very rich in insect population. Study of insects excepting few groups of this area is very scanty. Naturally an attempt is made to give a general idea about some of the insects which are very common and are found to be preyed by the spiders.

Among the Apterygotes Thysanurans and Collembola are quite common, Lepisma sp. among the former is found inside houses almost in all points but are not found commonly to be preyed by spiders. Collembola of different genera and species are found prominently in the moist places with humus, fence bushes, they are very often preyed by spiders.

Among Pterygotes Hemipteran, Dipterans, Coleopterans and Lepidopterans deserve attention of the Hemipterans Hemiptera are common in many plants, Aphids are very high in their variety and number in this area found in different types of plants including trees, shrubs and herbs such as Willows, different cruciferons plants, fruit and flower plants. Psyllids are also common in many fruit plants. Dorthula sp. demands mentioning.
for their infestation on plants prominently Magnolia in vast number. Cicada are also common here in the rainy season though not commonly preyed by spiders.

In the order Hymenoptera Formica sp. are of prominent population and are found to be preyed by smaller spiders inside or outside houses. Vespa are also sometimes snared at least by some spiders such as Araneus. Apis sp. are also sometimes snared.

Dipterans are of highest importance as a group even as all the insects preyed by spiders in this area, which are profuse in number and varieties. Out of the huge types mention may be made of Anopheles, culen and Aedis of different species, Chironnus sp. are also common. Most of them are common in the bushes and forests but some of them such as Anopheles sp. visit houses during the evening. Musca sp. are also not uncommon and are found very often to be preyed by spiders.

Coleopterans are none the less important in their forms and population, the smaller varieties particularly from Coccinellidae, carabidae and chrysomelidae deserve mention.

The Lepidopteran population is a treasure in this area in their forms prominently by Pieridae, Papilionidae, Lycaenidae, Saturniidae etc., but they are not usually found to be preyed by the spiders.

Termites are also preyed by spiders after they swarm in the early rains.

Besides insects one group of terrestrial crustaceae, the Isopoda are common in moist places including bathrooms and other places and are found to be preyed by spiders.
Historical

Spiders have attracted the attention of workers from very early days. Mention have been made even in some mythological stories. In recent years a substantial work has been done, leading to the compilation of large volumes of literature, dealing not only with the taxonomy of spiders but also with their behaviour, habit, habitat, ecology, anatomy, physiology, cytology, embryology and post-embryonic development. Most of the recent literature on taxonomic studies of spiders and their relation with environment have been computed by the author and have been cited in appropriate places.

The classification now followed almost universally, is adopted in this thesis, and is based mainly on that proposed by Petrunkovitch (103-110). Numerous workers particularly Constock (32), Gertsch (51-64), Chamberlin (21-23), Pocher (107) and others have contributed substantially to our knowledge about American spiders. Morsman (164) has enriched our knowledge about Malaysian spiders. The work of Doleischall (36) is beyond doubt a bulwark in the field of spiders particularly of East Indies. Among numerous comprehensive natural histories of spiders in general the work of Walckenaer (162) may be considered of immense value. Blackwall (11,12) describes the natural history of British spiders. The taxonomic work of Locket and Millidge (99,100) on British spiders is also considered to be of great importance. Apart from all others, the contribution made by E. Simon (129,130) in the stock house of taxonomy is unparalleled and precious in the field of Arachnology.
Very recent work of Yaginuma (165-171) on spider fauna of Japan has not only enriched our knowledge about spiders of Japan but also its relation with environment and distributional peculiarities. Recent work of Levi (79-93) has enriched our knowledge mostly about American Theridiids.

In spite of the fact that the spiders are abundant throughout our country, our knowledge about Indian spiders is insufficient. Earliest contribution about Indian spiders was done by Stolizska (133). An interesting report about spiders from Ceylon and Minikoy island was made by Kersch. Farell (137) published a descriptive catalogue of about 200 species of spiders including nearly 150 new species from Burma. Pocock (111-113) reported nearly 200 species of spiders from India, Burma and Ceylon.

Sheriff (121-125) described many interesting types of South Indian spiders. The orbit of our knowledge of Indian spiders is enlarged notably by the contribution of Gravely (65-71), particularly of Tetragenathidae, Lycosidae, Clubionidae etc. Wal (47-49) described from Lahore a number of species. Narayan reported some interesting ant-spiders (family Attidae). Recently Bhun (131, 132) added important contribution to the knowledge of Arachnology.

Very recently Basu (5-9) described some Indian Thomisids. Very little interest was taken about the spiders of this North Eastern hill region (Khasi and Jaintia Hills) of India, and practically very scanty information was available until very recently. Hinder (139-161) opened up the field of taxonomic investigation in this region by his intensive work on spiders, particularly in the families Thomisidae, Tetragenathidae etc. Of course his work on spiders covers some other regions of India.
The body of the spider is divisible into a cephalothorax and an abdomen, jointed together by a narrow pedicle. Dorsally, the cephalothorax is covered by a hard sclerotic shield, the carapace, and ventrally by the sternum. The anterior part of the sternum generally 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 with the pleural membrane between the lateral edges of the carapace and the sternum. The cephalothorax can be discernible into an anterior cephalic region and a posterior thoracic region generally by a thoracic groove on the dorsum. On the cephalic region are present generally eight (in some six) simple eyes. The eyes may be black (diurnal) or white (nocturnal). When only one type is present, the condition is termed homogenous, when both the types are present in some individual, the term heterogenous is used. The eyes are generally arranged in two rows, the anterior and posterior row each row containing four eyes. When the concavity of the arch of any row of eyes is directed backward the condition is known as procurved and when the concavity of the arch is directed forward it is termed recurved. According to their position, the eyes are named as anterior medians, posterior medians, anterior laterals, and posterior laterals. The cephalic area occupied by the eyes is known as ocular area. The area taken by the four median eyes is termed ocular quadrangle or simply ocular quad. The area between the anterior row of eyes and base of chelicera is the clypeus and the space between anterior medians and clypeus in ocular area of clypeus is the width of clypeus. Often a depression is present in the middle of the thorax dorsally known as thoracic groove, in
some (families Gnaphosidae, Clubionidae) replaced by a black or deep brown marked called fovea.

The **Chelicerae** are the first pair of appendages of the cephalothorax. Each chelicera bears a curved **fang** at its apex. The inner surface of chalicera may be finely denticulate and may also have a groove into which the fang can be inverted when not in use. This groove may also be armed with teeth on each side; the outer row of these teeth is termed **promargin** and the inner row as **retromargin**. Sometimes there are long hairs on the promargin to constitute the so-called **fang scopulae**. In certain tarantulas the extremity of the basal segment of the Chelicera is armed with several rows of teeth constituting the **rake** of the Chelicera.

The **pedipalpae** are the second pair of appendages. Their hood and cushion-shaped bases are termed as **maxillary lobes**. The anterior and dorsal surfaces of each maxilla is furnished with scopulae of long hairs. A row of small teeth-like **serrula** is borne by the head of maxilla. The palp proper is composed of six segments viz. **coxa**, **trochanter**, **femur**, **patella**, **tibia** and **tarsus**. In the female the tarsus usually bears a monopodiate claw; the male lacks the claw. In male a **pretarsus** is present, the tarsus is hollowed below to receive the palpal or copulatory organs. Usually the tibia, tarsus and pretarsus are modified to take part in copulation. The tarsal segment is modified as **Cymbium** for reception of the genital bulb. The **alveolus** is the ventral depression, which receives the basal and middle divisions of the genital bulb. The genital bulb comprises three divisions. (1) The **basal** division - the haematodocha is the triangular sclerite, the base of which is partially articulated or fused with alveolus.
The subtegulum is a comma shaped sclerite. The bulbous apical end of which articulates with tegulum. (2) The middle division - the tegulum, a discoidal sclerite is the main portion of the middle division. The tegulum may bear apophysis, a conductor. (3) The apical division, the conductor and embolous comprise the apical division of the bulb (Comstock 1910). The conductor is the distal membranous or sclerotized outgrowth of the tegulum, which accommodates the apical portion of the embolous.

There are four pairs of legs, each leg is composed of seven segments, from the base they are coxa, trochanter, femur, patella, tibia, metatarsus and tarsus. Legs are variously clothed with spines, spinules, bristles and hairs of various types. The tarsus ends in two or three claws. A characteristic tuft of hairs called claw-tuft is found sometimes just above the claw. In Chrysopidae there are rows of dense hairs called leg-seopulae below the metatarsi and tarsi. On the legs dorsal and ventral spines are also distinguishable. The tarsi are often provided with tenant hairs and secrete an adhesive fluid like the insects, sometimes the tarsus bears clavate hairs or fine hairs known as pubescence as in Argyrobidæ etc., sometimes the hairs are modified as spiny hairs.

The abdomen is produced posteriorly into a conical anal tubercle and bears three pairs of spinners ventrally namely the first or anterior pair, the second or median pair and the third or posterior pair of spinners.

The ventral surface of abdomen is provided with one or two pairs of lunz-books followed by one or two pairs of snipping.

The female genital opening is the anus or vulva.
Behind the epigyne is a transverse fold known as the epigynial fold. The concave guide pocket for the male palpus may be unpaired or bilaterally paired. Concavity leads internally into receptaculum, which is divisible into an anterior intronittent division and a posterior spermathec. The male palpus and the epigyne and internal genitalia of female are diagnosing characters of many species.
CLASSIFICATION

The order Araneida, which includes only the spiders, are divided by some authors into two divisions, Opisthotele and Liphistinormphae. The suborder Liphistinormphae contains the family Liphistidae, where the abdomen is more or less distinctly segmented. The rest of the spiders having unsegmented abdomen are placed under Opisthotele. The Opisthotele are divided into two suborders, the Avicularinormphae (=Hygalomorphae) and Arachnomorphae on their characteristic chelicerae. The classification adopted by Simon, E., and followed by Comstock, J.H., divided broadly the spiders into suborders and superfamilies, Avicularoidea and Argiopoidea, corresponding to Araneae theraphosae and Araneae verae.

The modern classification followed by most authors is based largely on the system proposed by Petrunkevitch, A., (1936).

The classification adopted here is based mainly on the general basis of the classification suggested by Petrunkevitch, A., but the outline followed here is that adopted and incorporated by some recent arachnologists including Yaginuma, J., other alternative terms are also mentioned as far as practicable to avoid confusion.

The spiders are divided into three subdivisions, (i) the Archacotyle (Liphistinormphae, Mesothelae), (ii) the Protothelae (=Hygalomorphae, Orthognatha), and (iii) the Metathelae (=Archnomorphae, Opisthotele). The Archacotyle includes the spiders having segmented abdomen. The Protothelae and Metathelae on the other include spiders with unsegmented abdomen. The Protothelae
and Metathelae are distinguished by characteristic chelicerae and book lung. The Metathelae is further subdivided into two groups, the Cribellatae and Ecribellatae according to presence or absence of cribellum. The Ecribellatae is divided into Trionycha and Entelegynae and the Entelegynae is subdivided into Trionycha, having 3 claws, and Diornycha having 2 claws or the tarsus of legs.

Petrunkevitch, A., (1928) in his cataloguing of spiders of North, Central and South America, Bermuda island and their vicinity recognised 60 families, of which about 30 families are so far known to be represented by Indian fauna. The mainland area of Khasi and Shillong Hills area is represented by 10 families, about 60% of the total number of families found in whole of India, although the land mass of this area is about 0.001% of whole of India.

A synoptic key to the families found in this area and dealt with in this thesis is provided.

**KEY TO THE FAMILIES**

1. Book lungs 2 pairs, Chelicerae vertical.................2
   - Book lungs not more than 1 pair, chelicerae horizontal...

2. Labium immovably joined to sternum,
   - endite strongly developed, sigilla eight on sternum............................................. 
   - Labium free, endite rudimentary,
   - sigilla on sternum four to six................. Diplura

3. Cribellum and Calamistrum present................. 4
   - Cribellum and Calamistrum absent............. 5
4. Anal tubercle large, two jointed
   fringed with long hairs......................... Oecobiidae
   Anal tubercle normal.......................... 6

5. With two tarsal claws............................. Saratobidae
   With three tarsal claws, posterior
   median eyes of moderate size.................. Neobiidae

6. Eyes six............................................... 7
   Eyes absent......................................... 8

7. Chelicerae fused at the base,
   labium longer than broad....................... Scytobiidae
   Chelicerae not fused at the base,
   claws pectinate.................................... Commeisidae

8. Tarsi with 2 claws................................... 9
   Tarsi with 2 claws................................ 10

9. Fourth tarsus with spurious claws
   or ventral line of serrated bristles.......... 10
   Fourth tarsus without spurious claws,
   occasionally with serrated bristles
   but never in ventral line...................... 11

10. Anterior tibiae and metatarsi armed
    with a series of long spines and a
    series of shorter spines between each
    two long spines.................................. Ninetidae
    Anterior two tars without such
    armature.......................................... 11

11. Fourth tarsi with a ventral row of
    serrated bristles.............................. Oecobiidae
    Fourth tarsi without ventral row of
    serrated bristles............................. 12
12. Chelicerae with stridulating ridges on lateral surfaces, eyes heterogenous................................. Linyphiidae
Chelicerae without stridulating ridges, eyes homogenous........................... 13

13. Tibiae and metatarsi without a prorow of spines, epigynum of female distinguishable......................... Argiopidae
Chelicerae long, particularly in males, female without epigynum............. Eeotroleuroidae

14. Chelicera with a distinct lateral condyle................................................. 15
Chelicera without lateral condyle......................................................... 17

15. Trochanters deeply notched............................................................... 16
Trochanters not notched................................................................. 18

16. All trochanters deeply notched,
paired claws with few teeth, median claw with 1 or no tooth.................... Lycosidae
Only fourth trochanter deeply notched................. Oxyopidae

17. Colulus present, posterior spinnerets very long and attenuate...................... Hersiliidae
Colulus absent, posterior spinnerets short or obsolete........................... Zodariidae

18. Eyes heterogenous, only anterior
medians dark................................................................. 19
Eyes homogenous, all dark in colour.......................... 20

19. Eyes in two rows, tarsal claws toothed....... Gnaphosidae
Eyes in three rows, tarsal claws smooth.... Prosidaeidae

20. Legs laterigrade................................................................. 21
Legs normal, front one directed forward.............. 22
21. Lower margin of chelicera
indistinct, without teeth......................... The idiophora
Lower margin of the furrow
of chelicera distinct,
armed with teeth.................................................. 22

22. Four eyes in the first row......................... Helore利亚
Six eyes in the first row.............................. Solenophora*

23. Eyes in two rows................................. Clubionidae
Eyes in three or four rows......................... 24

24. Anterior median eyes much
larger than lateral eyes............................ Salticidae
Anterior median eyes smaller
than lateral eyes................................. Stenidae*

Asterisk (*) on the right side indicates the families not found in this area and are not dealt with in this thesis.