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*Notes on the Fauna of a Desert Tract in Southern India. Part II.—Insects and Arachnida.*

(With one plate.)

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[Read December 6th, 1905.]

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INTRODUCTION.

The season of my visit to Rámanád was not a favourable one for obtaining Insects and Arachnida, and my collection in these groups is small. It is unlikely, except by the merest chance, that any form at all rare in the neighbourhood was taken, and certainly many of the common species were not collected. A considerable part of the collection, moreover, consists of small or obscure Insects and Spiders which I have not ventured to name. Systematic entomology is, among all the branches of zoology, the work of specialists in the various orders and families, and it is only the existence of monographs such as those in the "Fauna of India" series that makes it possible for one, who is not a specialist, to take a comprehensive view of the arthropodous fauna of a locality. Had it not been for the existence in the Indian Museum of specimens named by de Saussure, de Selys, Wood-Mason and other experts, and for the publication, in the series mentioned, of the volumes by Bingham, Distant and Pocock, and, elsewhere, of the papers on Orthoptera by de Saussure, Brunner von Wattenwyl and Bolivar, even the partial working out of this small collection would have been impossible. Nevertheless, the very exclusiveness of the collection gives it a certain interest, and it is important to ascertain any details regarding the habits and modifications of Insects living under conditions so unfavourable. My thanks are due to Mr. C. A. Paiva, Entomological Assistant in the Indian Museum, who has given me help in the preliminary work of sorting and comparison.

## INSECTS AND ARACHNIDA COLLECTED IN RÁMANÁD, August, 1905.

## ORTHOPTERA.

## Blattidæ

- Blatta supellectilium*, Serv.  
*Stylopyga ornata*, Br.  
 „ *rhombifolia*, Stol.  
*Pseudoglomeris flavicornis* (Burm.).

## Mantidæ

- Hierodula coarctata*, Sauss.

## Acridiidæ

- Epacromia tamulus* (Fabr.).  
*Chrotogonus oxypterus* (Blanch.).  
*Atractomorpha crenulata* (Fabr.).  
*Acridium æruginosum*, Burm.  
*Demodocus capensis* (Thunb.).

## Locustidæ

- Acanthodis ululina*, Guér.

## Gryllidæ

- Gryllotalpa africana*, Pal. de B.  
*Cophogryllus arenicola*, sp. nov.

## NEUROPTERA.

## Odonata

- Brachydiplax sobrina*, Selys.

## HYMENOPTERA.

## Apidæ

- Xylocopa amethystina*, Fabr.

## Eumenidæ

- Eumenes conica*, Fabr.

## Vespidæ

- Vespa cincta*, Fabr.  
*Icaria marginata* (Lepel).

## Sphegidæ

- Sceliphron violaceum*, (Fabr.).

## Formicidæ

- Camponotus compressus* (Fabr.).

## COLEOPTERA.

## Scarabæidæ

- Phyllognathus silenus* (Fabr.).  
*Anomala fraterna*, Burm.  
*Serica calcuttæ*, Brenske.

## Cicendelidæ

Cicendela biramosa, Fabr.

## Carabidæ

Anthia sexguttata, Fabr.

## Buprestidæ

Sternocera chrysis, Fabr.

## Cantharidæ

Mylabris balteata (Pall.).

## Cerambycidæ

Acanthophorus serraticornis, Oliv.

Batocera rubus (Linn.).

## LEPIDOPTERA RHOPALOCERA.

## Lycænidæ

Catachrysops pandava (Hors.).

## Pieridæ

Catopsilia pyranthe (Linn.).

Terias hecaboides, Ménét.

Terracolus danaë, Fabr.

## Papilionidæ

Papilio hector, Linn.

## HEMIPTERA HETEROPTERA.

## Pentatomidæ

Aspongopus janus (Fabr.).

Piezodorus rubrofasciatus (Fabr.).

## Lygæidæ

Lygæus militaris (Fabr.).

Aphanus sordidus (Fabr.).

Dieuches leucoceras (Walk.).

Geocoris tricolor (Fabr.).

Astacops sp.

## Hydrometridæ

Mesovelia mulsanti, Buch. White.

Gerris fossarum (Fabr.).

## Reduviidæ

Physorhynchus coprologus, sp. nov.

## Capsidæ

Lygus biseratensis, Dist.

## HEMIPTERA HOMOPTERA.

## Membracidæ

Leptocentrus taurus (Fabr.).

## SCORPIONES.

## Buthidæ

*Buthus tamulus* (Fabr.).

## Scorpionidæ

*Palamnæus swammerdami* *subsp.* *lucidipes*, Smn.

## ARANEÆ.

## Theraphosidæ

*Pæcilotheria striata*, Pck.

## Pholcidæ

*Artema atlanta*, Walck.

## Clubionidæ

*Heteropoda venatoria* (Linn.).

## ACARI.

## Trombidiidæ

*Trombidium grandissimum* (Koch.).

## ORTHOPTERA FROM RĀMANĀD.

## I. BLATTA SUPELLECTILIUM, Serv.

*B. cubensis*, *de Saussure, Mém. Mex.*, III., Orthoptères, p. 108, pl. I., fig. 15.

*B. (Phyllodromia) supellectilium*, *Bolivar in Ann. Soc. Ent. France*, LXVI., 1897, p. 289.

*Phyllodromia supellectillum*, *Kirby, Cat. Orthopt.*, I., 1904, p. 88.

A single male from the town of Rāmanād. On the whole it agrees with de Saussure's figure of *B. cubensis*, but is distinctly smaller and less brilliantly coloured than the individual depicted by him. It has indications of a pale triangle<sup>1</sup> on the dark part of the thorax, but not so distinctly as Kirby's *H. delta* (*Distant, Ins. Transvaal*, I., pl. I., fig. 4).

Bolivar has recorded the species from Southern India, and it is found throughout the Peninsular region. It also occurs in Brazil, Cuba, the Antilles and Tropical Africa. It was hitherto represented in the collection of the Indian Museum by a single specimen only, but it is not uncommon in houses in Calcutta and at Chakardharpur in Chota Nagpur. In Cuba it is said to be extremely common.

## II. STYLOPYGA ORNATA, Br.

*Dorylaea ornata*, *Kirby, Cat. Orthopt.*, I., 1904, p. 135.

A large female, running on the sand a short distance above tide-mark at night Kilakarai, Gulf of Manaar.

We have an imperfect female (named by de Saussure) from Mysore. Kirby gives the distribution, "India (?)." The species is evidently rare.

<sup>1</sup> The absence or presence of this mark seems, judging from a large number of examples recently killed and preserved, to be chiefly or entirely due to the method in which individual specimens are dried. (March 10th, 1906.—N. A.)

## III. STYLOPYGA RHOMBIFOLIA, Ställ.

*S. decorata*, Brunner in *Ann. Mus. Genova*, (2) XIII., 1893, p. 35.

*Dorylaea rhombifolia*, Kirby, *Cat. Orthopt.*, I., 1904, p. 135.

Solitary females of this Cochrach are not uncommon in August under stones on the stretches of almost bare sand on the Indian shore of Pamben Passage.

The species is widely distributed in the Tropics of both Hemispheres. We have a specimen from Zanzibar, and others from Java, Upper Burma, Chota Nagpur, and Calcutta, in the gardens of which the species is common under flower-pots. Brunner records *S. decorata* from Mandalay. There are specimens in the collection of the Entomologist of the Government of India from Bombay and Bihar.

## IV. PSEUDOGLOMERIS FLAVICORNIS. (Burm.)

*P. flavicornis*, Bolivar in *Ann. Soc. Ent. France*, LXVI., 1897, p. 300; Kirby, *Cat. Orthopt.*, I., 1904, p. 190.

Several males and females from the town of Rámanád. The latter agree very closely, except that their feet are rusty instead of white, with Bolivar's description of an Indian specimen which he identified a little doubtfully with Burmeister's *Derocalymna flavicornis*.

In the male the head, pronotum, lower surface of the body and base of the tegmina are pitchy black, which fades to very dark brown towards the margin of the tegmina; the anterior part of the wings is tinged with the latter shade, the posterior clear and almost colourless; the antennæ, tibiæ and femora are rusty, the palpi bright yellow, the tarsi and cerci fulvous, the dorsal surface of the abdomen rich golden brown, becoming darker in front. The pronotum entirely covers the head; it is large, depressed, subtriangular, densely punctured, slightly raised in the centre; the tegmina are long and narrow, rounded at the extremity; the wings large. The abdomen is flat above and below, having extremely little depth; the wings and tegmina fit very close to it when folded. The cerci are very short, as also are the legs.

In life the body of the female is even less compressed than would appear from dried specimens.

Both sexes are admirably fitted for living under the bark of trees, in which position I found them abundant on Tamarinds at Rámanád. They insinuated themselves with such agility into the lowest cracks that it was very difficult to dislodge them. The slightly-arched dorsal surface of the females doubtless protects them from being crushed under such conditions, while the flatter males are shielded by their tegmina.

*D. flavicornis* was originally described from Java; Kirby records the species from Tenasserim and Cambodia; Bolivar's specimen apparently came from Southern India. The following are the dimensions of specimens from Rámanád:—

Length . . . . .	♂ 13 mm.	♀ 11 mm.
Breadth of pronotum . . . . .	5 "	6 "
Expanse of wings . . . . .	26 "	—

## V. HIERODULA COARCTATA, Sauss.

*H. coarctata*, de Saussure in *Bull. Ent. Suisse*, III., 1869, p. 67, ♀; *Bolivar, op. cit.*, p. 311, ♂; *Kirby, Cat. Orthopt.*, I., 1904, p. 245.

Two females from Rámanád. Immature specimens were common in August on bushes of *Cassia auriculata* at Mandapam.

Specimens have been recorded from Australia, but it is a little doubtful whether they really belong to the same species. The true *H. coarctata* is common in all the more sandy parts of India, from Sind to Bengal and Cape Comorin. Some of the specimens in the Indian Museum have been identified by de Saussure.

The flowers of *Cassia auriculata* are by far the most conspicuous objects in the sandy wastes of Rámanád, and there can be no doubt that the Mantis benefits as regards its food by haunting their vicinity. Cf. pp. 185-186, *antea*.

No specimens of the Phasmidæ or the Earwigs were seen in Rámanád.

## VI. EPACROMIA TAMULUS (Fabr.)

Common together with the succeeding species. A widely distributed form in India.

## VII. CHROTOGONUS OXYPTERUS (Blanch.)

*Ch. oxypterus*, *Bolivar, op. cit.*, p. 605.

This species is very common on sand, but not on the seashore. Although it exhibits considerable variation as regards the minute details of its coloration, it is always most inconspicuous when resting on a sandy soil, especially in the shade of the wiry grasses and thorns which are produced by such a soil. As a rule, the first indication of its presence is given, at any rate to a human eye, by the movement of its leap, which is very long for the size of the insect.

I think that I am right in the identification, *Ch. oxypterus*, judging from Bolivar's remarks, appears to be the common one in Madura, but the species are difficult to distinguish except by comparison, and *Ch. trachypterus* is the only form authentically named that I have been able to examine.

## VIII. ATRACTOMORPHA CRENULATA (Fabr.)

Not uncommon at Rámanád among low vegetation.

## IX. ACRIDIUM AERUGINOSUM, Burm.

*A. aeruginosum*, *Cotes, Ind. Mus. Notes* III., 1898, p. 21.

According to Cotes, this Locust is very variable in colour and sometimes becomes destructive on account of its numbers in Madras. I only saw a few specimens, all of which were very small and pale in colour.



## X. DEMODOCUS CAPENSIS (Thunb.).

Only one specimen taken. It is considerably smaller and paler in colour than individuals in the Museum from Calcutta. Probably both it and the examples of the preceding species may be taken to represent dry-season forms.

## XI. ACANTHODIS ULULINA, Guér.

A specimen was brought me at Rámanád clinging to a stick. Its attitude was exactly that of *Sathrophyllia rugosa* as figured by Willey in *Spolia Zeylanica*, Vol. II. This attitude is one maintained during rest by many of those Pseudophyllides which resemble the bark of trees (*e.g.* *Acanthodis imperealis*). Leaf-like species frequently also adopt it, especially during early life before the wings and tegmina are fully developed. In the latter case the position chosen is the midrib or stalk of a green leaf, in the former a tree trunk or withered twig. It is less easy to startle *Acanthodis ululina* from this admirably adaptive attitude than is usually the case with the bark-like or stick-like Phasmides, which frequently assume a very similar one, while the species which live among grass or canes often spread out their limbs in an irregular formation.

## XII. GRYLLOTALPA AFRICANA, Pal. de B.

This appears to be the common peninsular species, while *G. vulgaris* is more abundant on the North-West Frontier. A specimen, of rather small size, of *G. africana* was brought to me at Rámanád.

## XIII. COPHOGRYLLUS ARENICOLA, sp. nov.

♀ Body cylindrical, stout; head large, globular, with broad inter-antennal space; pronotum large, much broader than long, simple; tegmina persisting as minute vestiges, cerci long, provided with long, fine hairs to the tips, ovipositor not more than half the length of the abdomen, barely longer than the cerci, feebly expanded at the tip. Colour varying with the state of preservation; in life pale testaceous, clouded with brown on the outer surface of the posterior femora, with brown markings at the lower extremity of all the femora, and sometimes with a row of dark spots across the head between the eyes. Surface smooth, with fine scattered hairs, irregularly shaped tracts of grey pubescence on the lateral lobes of the pronotum.

					mm.
Total length	...	...	...	...	27.5
Breadth of pronotum	...	...	...	...	6
Length	...	...	...	...	4.5
Length of cerci	...	...	...	...	7
Length of ovipositor	...	...	...	...	8

This species is not uncommon under stones on the sandy wastes at Mandapam, but only females were seen. Each had formed round itself an oval wall of sand grains, which were loosely fastened together. Above, this wall was fastened to the base of the stones;

below it terminated in the general surface of the sand. Probably the cricket protects itself in this way against centipedes, a species of *Scolopendra* being abundant under the stones.

#### ORTHOPTERA OF THE SEISTAN MISSION.

We have lately received at the Museum a small collection of insects made by a collector attached to the Seistan Boundary Commission under Sir A. H. McMahon. The specimens appear to have come mostly from the British side of the Perso-Baluch frontier; but they have no exact localities. It struck me that it might be interesting to compare this collection, made in a sandy and barren district at the other extremity of the Indian Empire, with my own from Rámanád; but I found it impossible to identify species belonging to any other group but the Orthoptera, although some general remarks on the collection are given on later pages. The following is an annotated list of the few Orthoptera,<sup>1</sup> taken.

##### MANTIDÆ—

###### 1. PSEUDOMANTIS MACULATA (Thunb.), ♀ ♂.

Widely spread in the Oriental Region.

###### 2. BLEPHAROPSIS MENDICA (Fabr.).

Though the only specimen obtained is immature, I have no doubt as to its identity. We have a male from Sind, identified, dissected and carefully carded by Wood-Mason, which agrees closely with the descriptions. *B. mendica* is recorded from the Canaries, N. Africa and N.W. Asia.

##### ACRIDIIDÆ—

###### 3. ACRIDIUM PEREGRINUM, Oliv.

The common Locust of Northern India.

Also two other species which I have been unable to identify.

##### GRYLLIDÆ—

###### 5. GRYLLOTALPA VULGARIS, Latr.

A large series, most of the specimens being of considerable size.

###### 6. GRYLLUS GRACILIPES, Sauss. ♂ ♀.

I think the two specimens obtained belong to this species, but cannot be certain.

###### 7. LIOGRYLLUS BIMACULATUS (De Geer) ♀.

The spots at the base of the tegmina are rather obscure in the one specimen obtained. This is one of the commonest of the Indian Crickets.

<sup>1</sup> There is also an Earwig (*Lapidura riparia* Pall.) in the collection. See Burr in *Journ. As. Soc. Bengal*, 1905, p. 29.

## LOCUSTIDÆ—

## 8. SCHIZODACTYLUS MONSTROSUS, Drury.

Common in sandy soil in the neighbourhood of water in some parts of Northern India, but rather local; flies to light at night, often in considerable numbers. Only two specimens were obtained on the Perso-Baluch border.

## NEUROPTERA FROM RÁMANÁD.

The only species of the true Neuroptera observed or collected were two Myrmeleonides, which I have been unable to identify. One, with transparent and colourless wings, was common above tide-mark on the shore at Pamben, the other occurred on the sand a short distance inland, being a larger and stouter form with wings spotted with black. Two somewhat similar species are represented in the Seistan collection. The "Ant Lions" are naturally restricted to localities where the soil is sandy, as sand is the suitable material for the pitfalls of their larvæ.

Of the Pseudo-Neuroptera, several species of Dragon Flies occurred round the slightly brackish pools in the sand near Pamben. Only one specimen was, however, taken, and one Embiid.

## XIV. BRACHYDIPLAX SOBRINA, Selys.

A single female from Pamben, where the species is common. This specimen agrees closely with a Burmese example in the Museum named by de Selys.

## HYMENOPTERA FROM RÁMANÁD.

The Hymenoptera in my collection form only a small proportion of the species that occur commonly in Rámanád. Several Ants abound, and the number of Mason Wasps and the like which frequent the edges of the tanks is certainly considerable. A large proportion of the Seistan collection consists of members of this order.

## XV. XYLOCOPA AMETHYSTINA, Fabr.

A single female was taken on Ráméswarem Island. Its right front wing is injured in a manner which suggests that it had been seized by a bird and so broken.

## XVI, XXVII. EUMENES CONICA &amp; VESPA CINCTA, Fabr.

A single specimen of each.

## XVII. ICARIA MARGINATA (Lepel).

A very common species at Rámanád. Bingham gives the distribution: "Southern India." There are numerous specimens from Sikkim and Northern Assam in our collection which have been named *Icarai marginato* by Dudgeon and others. They doubtless represent a local race of the species, the ground colour being a very dark-brown instead of the bright golden-brown of the typical form, which is that of Rámanád.

## XIX. SCALIPHON VIOLACEUM (Fabr.).

This species was peculiarly common on Ráméswarem Island at the time of my visit. Large numbers of individuals were noted in the evening clinging together to loose ends of thatch hanging from the eaves of a house at Pamben. They exhibited considerable individual and sexual variation as regards size.

## XX. CAMPONOTUS COMPRESSUS (Fabr.).

*C. maculatus*, *race* *compressus*, *Wroughton in Journ. Bombay Nat. Hist. Soc.*, VII, p. 30.

A very common species both at Mandapam and at Rámanád.

Its habits in the district under consideration evidently differ somewhat from those of colonies living in the neighbourhood of Bombay as described by Wroughton. The nests are made either in the bare sand, irrespective of any shade, or in the walls and foundations of houses. Winged males and females were noted in August in the nests, and flew to light at night after a shower of rain.

## COLEOPTERA FROM RÁMANÁD.

The bulk of the whole collection consists of small Coleoptera, only a few of which it has been possible to name. Unnamed forms belong to the Melolonthidæ, Carabidæ, Bostrychidæ, Elateridæ, Tenebrionidæ, Chrysomelidæ (gen. *Gallerucella*), Curculionidæ, and one or two of the more obscure aquatic families; the majority are Melolonthidæ (Coprides), and there are not more than two species of each of the other families named. A *Gallerucella* was common at Mandapam in the flowers of *Cassia auriculata*, and there were numerous minute Water Beetles in all the pools and tanks both on Ráméswarem Island and on the mainland. A small black Tenebrionid was remarkable for the great powers of resistance it exhibited. Unlike the other Beetles noted, it did not remain in the shade or concealed during the heat of the day, but walked about on the bare sand. A specimen put in a fresh cyanide bottle did not succumb for 48 hours. A small black-and-white weevil showed similar but less marked immunity in the same circumstances. None of the unnamed species exhibit any marked peculiarity of structure, and all, with the exception of the weevil mentioned, are dark or inconspicuous in colour, without showing any particular adaptation in this respect to their environment.

As I have no particular comment to make on the majority of the specimens, it will be unnecessary to note the whole of the species individually.

## XXIII. SERICA CALCUTTÆ, Brenske.

*S. calcuttæ*, *Brenske in Ind. Mus. Notes*, 1899, IV. p. 176, pl. XIII. fig. 3.

A species of *Serica* is common in Rámanád on the flowers of *Cassia auriculata* which appears to be identical with this form. I have compared specimens with Brenske's types in the Indian Museum.

## XXIV. CICENDELA BIRAMOSA, Fabr.

This is a common species in Southern India. I found it very common on the sea-shore at Pamben, in a very similar environment to that in which *C. sumatrensis*<sup>1</sup> occurs on the east coast of the Malay Peninsula.

On several occasions a Robber Fly of the genus *Promachus* was observed carrying off specimens of *C. biramosa* as its prey.

## XXVI. STERNOCERA CHRYSIS, Fabr.

This species evidently aestivates during dry weather, as large numbers appeared at Rámanád on the day following a shower of rain, all having a hard, fully formed integument.

I believe that the different phases which some have regarded as separate allied species, but which are usually now grouped together under the above name, are, to some extent, due to the state of preservation of specimens.

## XXVII. MYLABRIS BALTEATA (Pall.).

This conspicuous little Beetle was common at Pamben near the sea. I saw it on the wing at all times of day, and watched an individual feeding on a dead shoot of *Spinifex squarrosus* in the evening.

## LEPIDOPTERA RHOPALOCERA FROM RÁMANÁD.

## XXXI. CATACHRYSOPS PANDAVA (Hors.).

Common at Pamben, chiefly among the stunted thorns just above tide-mark on the shore. Specimens fresh and unworn.

## XXXII. CATOPSILIA PYRANTHE (Linn.).

Common at Rámanád and at Ráméswarem, less so at Pamben and Mandapam. Specimens in excellent condition.

## XXXIII. TERIAS HECABOIDES, Ménét.

Not very common. In good condition.

## XXXIV. TERRACOLUS DANAË (Fabr.).

Not uncommon at Rámanád. The specimens are in very bad condition.

## XXXV. PAPILIO HECTOR, Linn.

Probably the commonest and certainly the most conspicuous Butterfly at Pamben and Mandapam; not quite so abundant at Rámanád.

<sup>1</sup> See Robinson, in Annandale and Robinson, *Fascic. Malay., Zool.*, Vol. I., p. 180.

This fine species is most frequently seen on the wing a short time before sunset, or at any rate after the heat of the day has abated. It flies high, but descends to feed on the flowers of certain plants which grow in the sand.

#### HEMIPTERA HETEROPTERA FROM RÁMANÁD.

The Hemiptera are fairly well represented in the collection, considerably more so than in that of the Seistan Commission. In addition to the species named, several small representatives of the Notonectidæ were obtained from pools on Ráméswaram Island.

#### XXXVI. ASPONGOPUS JANUS (Fabr.).

Very common in gardens at Rámanád, where it seems to feed on a variety of plants.

#### XXXVII. PIEZODORUS RUBROFASCIATUS (Fabr.).

Abundant on bushes of *Cassia auriculata* at Mandapam.

#### XLII. ASTACOPS, sp.

A specimen was obtained at Rámanád which differs from the type of *A. occidentalis*, Distant, (the only species of the genus as yet recorded from India) in having the abdomen of a uniform pale fulvous below and in its small size (length 5 mm.). It may represent a variety of this form.

#### XLIII. MESOVELIA MULSANTI, Buch. White.

Although immature specimens only were obtained, I have very little doubt as to their species, as I have compared them with fresh examples of different ages from Calcutta.

At Pamben, this little Surface Bug was abundant on slightly brackish pools. It runs with great rapidity on the surface of the water and appears to be common all over India.<sup>1</sup>

The larvæ are of an almost uniform pale-green.

#### XLIV. PHYSORHYNCHUS COPROLOGUS, sp. nov.

♀ Apterous; body moderately stout; head narrow, the ante-ocular part not much longer than the post-ocular; anterior section of the pronotum considerably longer than the posterior, globose, deeply corrugated longitudinally; dorsal surface of abdomen almost flat, finally striated transversely, the margins flattened and turned upwards;

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<sup>1</sup> I take this opportunity to record the minute species *Microvelia singalensis*, Kirk, from Calcutta, where it is common on the tanks, being easily distinguished from its equally minute congener, *M. repentina*, Distant, on account of its spotted appearance. The former species has lately been recorded also from Java by Breddin in *Mitt. Nat. Mus. Hamburg*, *xxii*, p. 129. (March 8th 1906.—N. A.)

ventral surface concave. First joint of the antennæ shorter than the second; the anterior femora feebly thickened, non-tuberculate. The body, limbs and antennæ finely pilose. The head, rostrum, pronotum, dorsal surface of the abdomen and the femora dull black; the ventral surface shining black; hairs piceous; antennæ, tibiæ and tarsi ferruginous.

A single specimen, taken at Rámanád in a manure-heap in a garden.

#### XLV. EYGUS BISERATENSIS, Distant.

*L. biseratensis*, Distant in *Annandale and Robinson, Fascic. Malay. Zool.* 1, p. 269, pl. XVI, fig. 11.

A single specimen, from the flowers of *Cassia auriculata* at Mandapam.

This individual agrees closely with Distant's figure P, the type from the Malay Peninsula, except that the cuneus is slightly paler in colour.

The species, found in Ceylon, Burma, and the Siamese Malay States, does not appear to have been previously recorded from India proper.

#### HEMIPTERA HOMOPTERA.

Of this suborder, only a few individuals were seen. In addition to the common *Leptocentrus taurus* (Fabr.) one or two minute Jassids and a small Fulgorid were obtained. These I have not been able to identify.

#### ARACHNIDA FROM RÁMANÁD.

The Arachnida, speaking generally, are even more poorly represented than the Insects during the dry season in Rámanád. Among the spiders, a few Attidæ were common on the walls of houses; while numbers of Scorpions, belonging to the two forms noted above, were brought me at all my halting places. *Trombidium grandissimum* and a Tick, which attacked dogs and cattle, must have been extremely abundant both on Ráméswarem Island and on the mainland. An unnamed spider of the family Thomisidæ was observed in the yellow flowers of *Cassia auriculata* to which it was admirably adapted as regards colour.

#### XLVI. BUTHUS TAMULUS (Fabr.).

All the specimens examined belonged to the typical form of this species, which, according to Pocock, is the common variety of Southern India. In life, the female has a greenish tinge, which soon disappears in spirit.

#### XLVII. PALAMNÆUS SWAMMERDAMI subsp. LUCIDIPES, Smn.

This subspecies, distinguished from the typical form by its yellow legs, occurs commonly all over the Rámanád desert, in which I did not see the typical form. The yellow of the legs is far browner in life than would appear from the examination of specimens preserved in spirit. Pocock gives Rámanád and Trichinopoly as localities.