DIPLOPODA OF INDIA.

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CONTENTS.

Introduction.

When the authorities of the Indian Museum, Calcutta, requested me to work out the unnamed Diplopoda in their collection, and to revise the species named by Pocock and Silvestri, I hoped that I will be able to study the Diplopod fauna of India as a whole, but this has not been possible. The Indian Museum collection is fairly extensive, but it contains only a small percentage of the described species, and nearly all the tubes of unnamed material sent to me contained new species. I have, therefore, not been able to study the majority of the Indian species, and I cannot do more than furnish the foundation stones for a future monograph of the Indian fauna.

Under " India " I include the whole territory of the Indian Peninsula, Ceylon, Burma, the Indo-Chinese countries and China, excepting the Malay Peninsula. The high mountains of the Himalayan range, which form in the north the frontiers between the Indian Territory and the Palaearctic Region, form a very sharp barrier. For other groups of animals, as for example, the birds, the separation is less sharp. Jerdon in " The Birds of India " says that the Himalayan region has two components in its fauna, one common with the hills of Assam and Burma and the second in the higher regions common with Tibet and Northern Asia. In the Diplopoda there are no Himalayan species of Asiatic origin, but the Himalayan fauna is very poorly known at present. In the East we cannot trace any sharp boundaries between India-China and the Palaearctic Region. The Diplopod fauna of the south of China is purely tropical-Indian, in the north it is mixed and composed of Indian and palaearctical elements. Such palaearctic genera in the Chinese fauna are of the family Blaniulidae—*Skeleroprotopus* and *Anaulaciulus*. The remaining forms appertain to true Indian genera and families and we cannot exclude China from the Indian Territory.

It is not necessary to affirm that India has not a single species or genus common with the Palaearctic Region in the West.

Our systematic and faunistic knowledge of the Indian Diplopoda is as yet very incomplete, and I may remark, as I did recently about the Aethiopian Diplopod fauna, that we are only in the beginning of a faunistic exploration of India. Some years ago the well known Swiss diplopodologist Dr. Johann Carl explored the southern parts of India and published the first chapter of his results on the Polydesmoidea ; the numerous species he found and so well described were nearly all new to science ; many new genera were also discovered. Of all parts of India only this part, South India, can be considered as properly explored. Humbert published in 1865 an important paper on the Myriopods of Ceylon ; his descriptions are very good for his time, and the majority of his species can be recognised, a fact which cannot be asserted about most of the older forms. Humbert found 26 species of Chilopoda and Diplopoda in Ceylon, and remarked that this number would be increased to 60 by more intensive exploration. This view has been fully confirmed, for we now know 55 species of Diplopoda alone. In one point I cannot agree with him. He remarked : " Jusqu'a present, les myriapodes n'ont pas fourni des faits de distribution geographique bien interessants ; aucune famille, et meme aucun genre nombreux en espéces n'est special a un continent " On the contrary, the distribution of the Myriopods, especially the Diplopods, is very important for the solution of zoogeographical questions ; genera with a world-wide distribution are rare today, the determination of the genera is more exact and the relation-

ships of the faunas of different countries is much clearer. In 1892 Pocock published an important paper on the Myriopoda of Ceylon. The fauna of Burma and the Mergui Archipelago was studied by Pocock ; but unfortunately many of his species cannot be recognised. The papers of Pocock on the Sphaerotheridae of Ceylon and Burma are much better. Silvestri published a good paper on the Oniscomorpha-Glomeridia of India. In 1914 I discussed the Myriopod fauna of the Indo-Australian Region, based principally on the materials from the Sunda- and New Guinea Archipelagoes. From the Indian Territory I cited 106 species and 36 genera, excluding the doubtful species. Today we know 92 genera and 290 species, and when all Indian areas are properly explored this number is sure to increase appreciably.

In the present paper 62 new species and 15 new genera are described. In view of the fact that the faunistic exploration of India is far from complete, a discussion of the details of zoogeographical consideration will not be of much value, and I, therefore, confine myself to demonstrate the principal features of the fauna as they appear at this time.

The most characteristic feature of the Indian Diplopod fauna is the great number of Sphaerotheridae, all the genera excepting *Zephronia* are endemic. As is well known, the Sphaerotheridae are distributed now in two widely separated areas : the Indo-Australian Region and in South Africa and Madagascar ; in the two areas the genera, however, are quite different. This phenomenon can be explained, if we suppose that the Sphaerotheridae once inhabited the countries between the two areas, Indo-Australian Region and Madagascar-South Africa, and that they later died out in the intermediate countries because of the unsuitable climatic conditions, etc. It is not necessary to postulate the Indo-Madagassian bridge to explain the present-day distribution.

The Oniscomorpha-Glomeridia are also distributed in two distinct areas, the Palaearctic Region and the Indo-Australian Region. The Indian forms belong to the genera *Dinoglomeris*, *Hyperglomeris* and *Annameris* endemic in Tonkin, *Rhopalomeris* in Tonkin, Burma, Mergui Archipelago and Malay Peninsula, *Apiomeris* in British India including Assam, Siam, Sunda Archipelago (Sumatra, Celebes, Borneo, Nias). It has to be supposed that the Indo-Australian Region has received the Glomeridia by way of the East Indies and China, but unfortunately no Glomeridia are known so far from China, and the exploration of the Chinese mountains of Yunnan, etc., would be especially interesting in this connection. The distribution of the Glomeridia is just the opposite of the distribution of the Sphaerotheridae : the Glomeridia came from the east to India, while the connection between the areas of the Sphaerotheridae is in the west. Further remarkable features are :—a great number of Strongylosomidae with 13 endemic genera and 9 genera which are also found in the Sunda Archipelago. All the Indian genera of Vanhoeffeniidae and Cryptodesmidae are endemic. The genus *Platyrhacus*, which is so common in the Sunda Archipelago, with a dozen of species in the Malay Peninsula, is represented by only 3 species in the Extra-Peninsula and China.

The Spirostreptoidea are represented only by Harpagophoridae, a family also represented in South Africa, but by different genera. 6 genera are endemic, 3 genera, *Thyropygus*, *Thyroglutus* and *Anurostreptus*, also inhabit the Sunda Archipelago. The number of Spirostreptoidea of India is much smaller than that of the African species.

The number of Indian Spiroboloidea is also low ; of the genus *Trigoniulus* only the ubiquitous species *T. lumbricinus* has been found in India. This genus is very common in

the Sunda Archipelago and New Guinea. The Rhinocricidae are completely wanting in India.

The Indian fauna contains 290 species and subspecies of Diplopoda. All these species except two species of *Cambalopsis*, and the very common tropical *Orthomorpha coarctata*, *O. gracilis* and *Trigoniulus lumbricinus* are endemic in India. It is doubtful whether the Indian forms of *Cambalopsis* belong to the same species as those known from the Malay Peninsula and Sumatra, and one may safely conclude that nearly all Indian Diplopoda are endemic forms. I doubt whether this holds for most other groups of animals. The endemism of the Indian Diplopoda goes still further : the great majority of the species inhabit only one of the four parts of the territory, and only 6 or 7 species are common to two parts—Peninsula and Ceylon : *Arthrosphaera inermis*, *Arthrosphaera brandti ?*, *Ktenostreptus specularis*, *Xenobolus carnifex ;* Ceylon and Extra Peninsula : *Anoplodesmus luctuosus ;* Tonkin and China : *Helicorthomorpha holstii.* It is, therefore, clear that the distribution of the species is of no use in determining the origin of the Indian fauna and the relations of the Indian fauna to those of other territories.

Of the 92 Indian genera 64 or nearly 70 per cent. are endemic, 28 genera also occur outside India. The genera *Orthomorpha*, *Fontaria*, *Platyrhacus*, *Diopsiulus*, *Glyphiulus*, *Cyclothyrophorus*, *Spirobolus*, *Pseudospirobolellus*, *Trigoniulus* and *Siphonophora* are assigned so wide a distribution, probably owing to faulty determinations, that they must be excluded from faunistic conclusions. Of the remaining 18 genera not endemic in India, 16 inhabit the Sunda Archipelago also (2 further occur in the Philippines, *Nedyopus* in Sumatra and Japan), and I designate them briefly as the Sundaic genera : *Zephronia*, *Rhopalomeris*, *Apiomeris*, *Anoplodesmus*, *Prionopeltis*, *Euphyodesmus*, *Pagioprium*, *Eudasypeltis*, *Nedyopus*, *Sundanina*, *Heterochordeuma*, *Trachyiulus*, *Cambalopsis*, *Thyropygus*, *Thyroglutus* and *Anurostreptus.* The genera *Chondromorpha* and *Helicorthomorpha* have, besides the Indian species, one species each in the New Guinea Archipelago. The close relationship between the faunas of India and the Sunda Archipelago was to be expected, as both the territories form almost adjacent parts of the Indo-Australian Region. Of all parts of the Indian Territory, the Extra-Peninsular area has, according to its geographical position, closest relationship to the Sunda Archipelago.

The Indian Territory may be divided into the following parts :—(1) The Indian Peninsula to the Indo-Gangetic alluvial plain in the north, (2) Ceylon, (3) the hilly countries of the Himalayas, Burma, Siam, Annam or the Extra-Peninsular area, and (4) China. This division agrees with the division accepted by the geologists. The great alluvial plain, separating the Peninsula and the Extra Peninsular area is probably poor in Diplopods ; we know scarcely one or two species inhabiting it. The faunas of the Peninsula and Ceylon have the closest connection. The Peninsula has 25, and Ceylon 6 endemic genera. Further, 8 genera inhabit the Peninsula and Ceylon, but are not found elsewhere. To demonstrate that the relationship is relatively close, reference may be made to the fact that the Peninsula and the Extra-Peninsular area have 3, Ceylon and the Extra-Peninsular area 1, the Extra-Peninsular area and China 2 common genera, endemic in the entire Indian Territory. Of the Sundaic genera, 8 inhabit the Peninsula, 7 Ceylon, and 4 of them both the territories. The relatively high number of endemic genera in the Peninsula (25) is due to the number of new genera of Polydesmoidea published by Carl. By more intensive exploration of the remain-

ing parts of India this difference will probably be compensated. Since the papers of Humbert nobody has collected intensively in Ceylon. The 6 endemic genera are all monotypic. The third division, the Extra-Peninsular area, has a closer relationship with the Sunda Archipelago than the remaining divisions. Of the 16 Sundaic genera 13 are found in the Extra-Peninsular area (8 in the Peninsula, 7 in Ceylon, 2 in China) and 15 are endemic genera. Except for Burma, which was treated in a series of papers by Pocock, based upon the collections of Fea, Oates and Comotto, the fauna of these countries are nearly unknown. The conditions in these countries are ideal for a rich life of Diplopoda and further expeditions will completely change our present ideas. China is the least explored part of the Indian Territory, we know only 21 species of Diplopoda distributed in 13 genera of which 5 are endemic : *Chinosphaera*, *Yünnanina*, *Gonobelus*, *Skeleroprotopus* and *Anaulaciulus ;* 2 are endemic Indian genera : *Kronopolites* and *Cambalomorpha*, and 2 are Sundaic genera : *Thyroglutus* and *Helicorthomorpha*. As I have stated already we must treat China as a part of the Indian Territory. On the one hand there are no physical barriers between the eastern countries of the Extra Peninsular area and South China, and in spite of our very insufficient knowledge, relationships of the two faunas are distinctly indicated. The Diplopod fauna of the cultivated plains of China must be poor, but the woody mountains of Yunnan etc., are sure to yield a great number of species of Diplopods. In view of the mixing of the Indian-tropical and the Palaearctic fauna in China the exploration of these intermediate countries is extremely desirable.

I have cited in the present paper all the doubtful species recorded from India, but I have not considered them in the faunistical remarks and in the lists of genera and species ; their introduction in the lists would only lead to erroneous conclusions about the distribution of the genera. It is very improbable that all the species referred to *Sphaerotherium*, *Strongylosoma*, *Polydesmus*, *Julus*, *Spirostreptus* and *Spirobolus* really belong to the genera as understood today. Doubtful species are cited under the names : *Arthrosphaera* (1), *Trochosoma* (1), *Sphaeropoeus* (1), *Sphaerotherium* (3), *Orthomorpha* (21), *Anoplodesmus* (6), *Tetracentrosternus* (1), *Trogodesmus* (3), *Strongylosoma* (2), *Cryptodesmus* (1), *Cryptodesmoides* (1), *Pocodesmus* (1), *Polydesmus* (3), *Hendersonula* (1), *Julus* (4), *Thyropygus* (2), *Gonoplectus* (1), *Spirostreptus* (19), *Spirobolus* (20), *Lithostrophus* (1), *Titsonobolus* (1), *Trigoniulus* (1), in all 95 species.

The following species described in this paper were not represented in the collection of the Indian Museum, but they belong to the Naturhistor. Museum, Wien : *Kronopolites swinhoei* Poc., *Thyropygus poseidon*, sp. nov., *Ktenostreptus anulipes* Att., *Ktenostreptus lankaensis* Humb., *Ktenostreptus rugulosus*, sp. nov., *Ktenostreptus specularis*, sp. nov., *Ktenostreptus costulatus* Att., *Harpurostreptus hamifer* (Humb.), *Harpurostreptus robustior*, sp. nov., *Harpurostreptus virgatus*, sp. nov., *Harpurostreptus exaratus*, sp. nov., *Leptostreptus fuscus*, sp. nov., *Leptostreptus leviventer*, sp. nov. and *Aulacobolus levissimus*, sp. nov.

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DISTRIBUTION OF INDIAN GENERA.

Generic Name.	India.	Ceylon.	Sikkim, Burma, Siam, Tonkin, etc.	China.	Further distribution.
Arthrosphaera Poc.	+	+			
Zephronia Gray	+		+		Malay Peninsula, Sumatra, Java, Borneo, Philippines, Halmaheira.
Lophozephronia, gen. nov.			+		
Indosphaera, gen. nov.	+		+		
Kophosphaera, gen. nov.			+		

DISTRIBUTION OF INDIAN GENERA—*contd.*

Generic Name.	India.	Ceylon.	Sikkim, Burma, Siam, Tonkin, etc.	China.	Further distribution.
Chinosphaera Att.				+	
Tonkinobelum Verh.			+		
Prionobelum Verh.			+		
Sphaerobelum Verh.			+		
Trochosoma Chamb.	+				
Rhopalomeris Verh.			+		Malay Peninsula.
Dinoglomeris Silv.			+		
Hyperglomeris Verh.			+		
Annameris Verh.			+		
Apiomeris Cook	+				Sumatra, Celebes, Borneo, Nias.
Termitodesmus Silv.	+	+			
Orthomorpha Poc.	+	+	+	+	Most countries of Indo-Australian and Neotropical regions.
Anoplodesmus Poc.	+	+	+		Sumatra, Java.
Chondromorpha Silv.	+	+			Upolu, New Caledonia.
Euphyodesmus Att.		+			Borneo.
Prionopeltis Poc.			+		Java, Celebes, Borneo.
Helicorthomorpha Att.			+	+	Celebes, New Guinea.
Pagioprium Att.		+			Sumatra, Java.
Streptogonopus Att.	+				
Eudasypeltis Poc.			+		Sumatra.
Nedyopus Att.			+		Sumatra, Japan.
Paranedyopus Carl	+				
Singalorthomorpha Att.		+			
Sundanina Att.	+	+			Sumatra, Java.
Dasypharkis, gen. nov.	+				
Kronopolites Att.			+	+	
Himantogonus Carl.	+				
Telodrepanum Carl	+				
Polydrepanum Carl	+				
Grammorhabdus Carl	+				
Xiphidiogonus Carl	+				
Yünnanina, gen. nov.					
Delarthrum, gen. nov.	+				
Gonobelus, gen. nov.					
Alogolykus, gen. nov.			+		

DISTRIBUTION OF INDIAN GENERA—*contd.*

Generic Name.	India.	Ceylon	Sikkim, Burma, Siam, Tonkin, etc.	China.	Further distribution.
Akribosoma Carl	+				
Hingstonia Carl	+				
Strongylosoma Brdt.	+				
Fontaria Gray				+	America.
Platyrhacus Koch			+	+	Malay Peninsula, Sunda Archipelago, New Guinea Archipelago, Philippines, Neotropical Region.
Ootacodesmus Carl	+				
Pseudosphaeroparia Carl	+				
Lankadesmus Carl		+			
Kukkalodesmus Carl	+				
Sholaphilus Carl	+				
Coonoorophilus Carl	+				
Eutrichodesmus Silv.			+		
Trichodesmus Poc.			+		
Trichopeltis Poc.			+		
Archandrodesmus Carl	+				
Pagodesmus Carl	+				
Akreiodesmus Carl	+				
Propyrgodesmus Silv.	+		+		
Skotodesmus Carl	+				
Klimakodesmus Carl	+	+			
Pyrgodesmus Poc.		+			
Steganostigmus Carl	+				
Eustaledesmus Silv.		+			
Catapyrgodesmus Silv.		+			
Heterochordeuma Poc.			+		Sumatra.
Diopsiulus Silv.		+			New Guinea, Kameroun, Gold Coast.
Skeleroprotopus Att.				+	
Anaulaciulus Poc.				+	
Apatidea, gen. nov.	+				
Glyphiulus Verh.		+	+		Java, Tahiti, New Caledonia, Mauritius, Comores, Seychelles.
Trachyiulus Pet.		+	+		Sumatra.
Cambalopsis Poc.	+		+		Malay Peninsula, Sumatra, Java.
Cambalomorpha Poc.			+	+	
Pericambala Silv.			+		

DISTRIBUTION OF INDIAN GENERA—*concld.*

Generic Name.	India.	Ceylon.	Sikkim, Burma, Siam, Tonkin, etc.	China.	Further distribution.
Thyropygus Poc.	+	+	+		Malay Peninsula, Sumatra, Java, Borneo, Philippines.
Thyroglutus, gen. nov.	+		+	+	Sumatra, Java.
Gongylorrhus, gen. nov.			+		
Ktenostreptus Att.	+	+			
Anurostreptus Att.			+		Sumatra.
Drepanopus Verh.		+			
Harpurostreptus, gen. nov.	+	+			
Leptostreptus, gen. nov.	+	+			
Stenurostreptus Carl	+	+	+		
Gonoplectus Chamb.	+				
Spirobolus Brdt.				+	
Pseudospirobolellus Carl			+		Java, Aru Archipelago, Flores, Comores.
Cyclothyrophorus Poc.			+		Mexico.
Physobolus, gen. nov.			+		
Trigoniulus Poc.	+		+		Most tropical countries.
Stenobolus Carl					Maldives.
Xenobolus Carl	+	+			
Cingalobolus Carl	+	+			
Epombrophilus, gen nov.	+				
Aulacobolus Poc.	+		+		
Eucentrobolus Poc.	+				
Siphonophora Brdt..	+				All tropical countries.

LIST OF SPECIES.

Specific Name.	Indo-Gangetic Plains and South India.	Ceylon.	Himalayas, Sikkim, Burma, Siam, etc.	China.
Arthrosphaera lutescens Butl.	+			
Arthrosphaera craspedota, sp. nov.	+			
Arthrosphaera corrugata Butl.		+		
Arthrosphaera scholastica, sp. nov.	+			
Arthrosphaera gracilis, sp. nov.	+			
Arthrosphaera inermis, sp. nov.	+	+		
Arthrosphaera transitiva, sp. nov.	+			

LIST OF SPECIES—*contd.*

Specific Name.	Indo-Gangetic Plains and South India.	Ceylon.	Himalayas, Sikkim, Burma, Siam, etc.	China.
Arthrosphaera magna, sp. nov.	+			
Arthrosphaera carinata, sp. nov.	+			
Arthrosphaera hendersoni Poc.	+			
Arthrosphaera brandti Humb.	?	+		
Arthrosphaera atrisparsa Butl.	+			
Arthrosphaera aurocincta Poc.	+			
Arthrosphaera bicolor Poc.	+			
Arthrosphaera dalyi Poc.	+			
Arthrosphaera davisoni Poc.	+			
Arthrosphaera dentigera Verh.		+		
Arthrosphaera disticta Poc.	+			
Arthrosphaera fumosa Poc.	+			
Arthrosphaera heterosticta Newp.	+			
Arthrosphaera leopardina Butl.		+		
Arthrosphaera marmorata Butl.	+			
Arthrosphaera nitida Poc.	+			
Arthrosphaera noticeps Butl.		+		
Arthrosphaera pilifera Butl.		+		
Arthrosphaera rugosa Butl.		+		
Arthrosphaera rugulosa Butl.		+		
Arthrosphaera thurstoni Poc.	+			
Arthrosphaera versicolor White		+		
Arthrosphaera wroughtoni Poc.	+			
Arthrosphaera zebraica Butl.	+			
Arthrosphaera severa Att.	+			
Arthrosphaera pygostolis Att.	+			
Zephronia manca, sp. nov.			+	
Zephronia clivicola Poc.			+	
Zephronia juvenis, sp. nov.			+	
Zephronia disparipora, sp. nov.			+	
Zephronia densipora, sp. nov.			+	
Zephronia debilis, sp. nov.			+	
Zephronia nigrinota Butl.			+	
Zephronia specularis, sp. nov.			+	
Zephronia lignivora, sp. nov.			+	
Zephronia tumida Butl.			+	
Zephronia alticola, sp. nov.			+	

LIST OF SPECIES—*contd.*

Specific Name.	Indo-Gangetic Plains and South India.	Ceylon.	Himalayas, Sikkim, Burma, Siam, etc.	ina.
Zephronia alticola bengalica, subsp. nov.	+			
Zephronia tigrinoides Silv.	+			
Zephronia inferior Silv.			+	
Zephronia hysophila Silv.			+	
Zephronia hirta, sp. nov.			+	
Zephronia viridescens, sp. nov.			+	
Zephronia profuga, sp. nov.				+
Zephronia comotti Poc.			+	
Zephronia dollfusi Poc.			+	
Zephronia formosa Poc.			+	
Zephronia gestri Poc.			+	
Zephronia laevissima Butl.			+	
Zephronia semilaevis Poc.			+	
Zephronia siamensis Hirst			+	
Zephronia doriae Poc.			+	
Zephronia feae Poc.			+	
Lophozephronia crepitans (Poc.)			+	
Indosphaera curiosa, sp. nov.			+	
Indosphaera fortis, sp. nov.	+			
Kophosphaera excavata (Butl.)			+	
Kophosphaera excavata mammifera, subsp. nov.			+	
Kophosphaera politissima, sp. nov.			+	
Kophosphaera devolvens, sp. nov.			+	
Kophosphaera brevilamina Silv.			+	
Chinosphaera maculosa Att..				+
Tonkinobelum maculatum Silv.			+	
Prionobelum durum Verh.			+	
Sphaerobelum clavigerum Verh.			+	
Sphaerobelum hirsutum Verh.			+	
Trochosoma pelloceps Chamb.	+			
Borneopoeus dorsispina, sp. nov.[1]				
Rhopalomeris carnifex Poc.			+	
Rhopalomeris carnifex var. *pallida* Poc..			+	
Rhopalomeris tonkinensis Silv.			+	
Rhopalomeris demangei Silv.			+	
Dinoglomeris dirupta Silv.			+	

[1] This species is described from a specimen collected at Sarawak, W. Borneo.

LIST OF SPECIES—*contd.*

Specific Name.	Indo-Gangetic Plains and South India.	Ceylon.	Himalayas, Sikkim, Burma, Siam, etc.	China.
Hyperglomeris lamellosa Silv.			+	
Annameris robusta Verh.			+	
Annameris curvimana Verh.			+	
Apiomeris electa Silv.			+	
Apiomeris modesta Silv.	+			
Apiomeris venustula Silv.			+	
Apiomeris siamensis Silv.			+	
Termitodesmus ceylonicus Silv.		+		
Termitodesmus escherichii Silv.		+		
Termitodesmus lefroyi Hirst.	+		+	
Orthomorpha (*Orth.*) *coarctata* Sauss.			+	
Orthomorpha (*Orth.*) *karschi* Poc.			+	
Orthomorpha (*Orth.*) *karschi insularis* Poc.			+	
Orthomorpha (*Orth.*) *minlana* Poc.			+	
Orthomorpha (*Orth.*) *miranda* Poc.			+	
Orthomorpha (*Orth.*) *oatesii* Poc.			+	
Orthomorpha (*Orth.*) *uncinata* Att.			+	
Orthomorpha (*Orth.*) *hingstoni* Carl			+	
Orthomorpha (*Orth.*) *simulans* Carl			+	
Orthomorpha (*Kalorth.*) *corticina* Att.				+
Orthomorpha (*Kalorth.*) *ursula*, sp. nov..	+			
Orthomorpha (*Kalorth.*) *gracilis* Koch				+
Orthomorpha (*Kalorth.*) *greeni* Poc.		+		
Orthomorpha (*Kalorth.*) *pekuensis* Karsch				+
Orthomorpha (*Kalorth.*) *dentata* Carl	+			
Orthomorpha (*Kalorth.*) *coonoorensis* Carl	+			
Orthomorpha (*Kalorth.*) *willeyi* Carl		+		
Orthomorpha (*Kalorth.*) *penicillata* Att.				+
Orthomorpha (*Kalorth.*) *roseipes* Poc.				+
Orthomorpha (*Kalorth.*) *doriae* Poc.			+	
Orthomorpha (*Kalorth.*) *hummelii* Verh.				+
Anoplodesmus tanjoricus (Poc.)	+			
Anoplodesmus insignis, sp. nov.	+			
Anoplodesmus athopus Chamb.	+			
Anoplodesmus anthracinus Poc.			+	
Anoplodesmus humberti (Carl)		+		
Anoplodesmus indus Chamb.	+			

LIST OF SPECIES—*contd.*

Specific Name.	Indo-Gangetic Plains and South India.	Ceylon.	Himalayas, Sikkim, Burma, Siam, etc.	China.
Anoplodesmus luctuosus (Pet.)		+	+	
Anoplodesmus obesus Poc.			+	
Anoplodesmus pinguis Poc.			+	
Anoplodesmus saussurei (Humb.)		+		
Anoplodesmus twaithesii (Humb.).		+		
Chondromorpha mammifera, sp. nov.	+			
Chondromorpha severini Silv.	+			
Chondromorpha severini robustior, var. nov.	+			
Chondromorpha kelaarti (Humb.)		+		
Chondromorpha kelaarti valparaiensis (Carl)	+			
Chondromorpha xanthotricha (Att.)		+		
Chondromorpha stadelmanni (Verh.)		+		
Euphyodesmus greeni Silv.		+		
Prionopeltis cervinus Poc.			+	
Prionopeltis planatus Poc.			+	
Prionopeltis taurinus Poc.			+	
Helicorthomorpha holstii (Poc.)			+	+
Helicorthomorpha ocellata (Poc.)			+	
Pagioprium serrulatum (Att.)		+		
Streptogonopus jerdani (Poc.)	+			
Streptogonopus phipsoni (Poc.)	+			
Streptogonopus nitens, sp. nov.	+			
Eudasypeltis pusillus Poc.			+	
Eudasypeltis setosus (Poc.)			+	
Nedyopus pictus (*Brōl.*)			+	
Paranedyopus subcylindricus Carl	+			
Singhalorthomorpha cingalensis (Humb.)		+		
Singhalorthomorpha skinneri (Humb.)		+		
Sundanina nulla, sp. nov.	+			
Sundanina granulifera, sp. nov.	+			
Sundanina pleuroptera, sp. nov.	+			
Sundanina hirta Carl	+			
Sundanina laevisulcata Carl	+			
Sundanina simplex (Humb.)		+		
Sundanina gracilipes (Verh.)				+
Sundanina bimontana (Carl)	+			
Dasypharkis rugulosa (Carl)	+			

LIST OF SPECIES—*contd.*

Specific Name.	Indo-Gangetic Plains and South India.	Ceylon.	Himalayas, Sikkim, Burma, Siam, etc.	China.
Kronopolites swinhoei (Poc.)				+
Kronopolites spiniger, sp. nov.			+	
Kronopolites unicolor, sp. nov.			+	
Kronopolites uncinatus, sp. nov.		•	+	
Kronopolites helvolus, sp. nov.			+	
Kronopolites svenhedini (Verh.)				+
Kronopolites svenhedini dentiger (Verh.)				+
Himantogonus rufocinctus Carl	+			
Telodrepanum badaga Carl	+			
Polydrepanum tamilum Carl	+			
Grammorhabdus asperrimus Carl	+			
Xiphidiogonus spinipleurus Carl	+			
Xiphidiogonus dravidus Carl	+			
Xiphidiogonus hendersoni Carl	+			
Yünnanina ceratogaster, gen. et sp. nov.				+
Delarthrum obscurum, gen. et sp. nov.	+			
Gonobelus sinensis, gen. et sp. nov.				+
Alogolykus gracilis, gen. et sp. nov.			+	
Akribosoma cylindrica Carl			+	
Hingstonia eremita Carl			+	
Strongylosoma montigena Carl			+	
Fontaria (?) *lacustris* Poc.				+
Platyrhacus modestior Silv.	+			
Platyrhacus andersoni Poc.			+	
Platyrhacus bouvieri Bröl				+
Ootacodesmus humilis Carl	+			
Pseudosphaeroparia palnensis Carl	+			
Pseudosphaeroparia palnensis var. *sorer* Carl	+			
Pseudosphaeroparia nilgirensis Carl	+			
Pseudosphaeroparia cardamoni Carl	+			
Lankadesmus cognatus (Humb.)		+		
Kukkalodesmus exiguus Carl	+			
Sholaphilus albidus Carl	+			
Coonoorophilus monstruosus Carl	+			
Eutrichodesmus demangei Silv.			+	
Trichodesmus watsoni Poc.			+	

LIST OF SPECIES—*contd.*

Specific Name.	Indo-Gangetic Plains and South India.	Ceylon.	Himalayas, Sikkim, Burma, Siam, etc.	China.
Trichopeltis feae Poc.			+	
Trichopeltis doriae Poc.			+	
Archandrodesmus areatus Carl	+			
Archandrodesmus tuberculatus Carl	+			
Archandrodesmus? riparius Carl	+			
Archandrodesmus kandyanus Carl		+		
Pagodesmus biporus Carl	+			
Pagodesmus eremitus Carl	+			
Pagodesmus sulcifer Carl	+			
Akreiodesmus minutus Carl	+			
Akreiodesmus simulans Carl.	+			
Propyrgodesmus frater Carl	+			
Propyrgodesmus lobulatus Silv.			+	
Skotodesmus crepuscularis Carl	+			
Skotodesmus crepuscularis var. *debilis* Carl	+			
Klimakodesmus gravelyi Carl	+			
Klimakodesmus permutatus Att.		+		
Pyrgodesmus obscurus Poc.		+		
Steganostigmus canonicus Carl	+			
Steganostigmus patruelis Carl	+			
Steganostigmus contortipes Carl	+			
Eustaledesmus parvus Silv.		+		
Catapyrgodesmus ceylonicus Silv.		+		
Heterochordeuma doriae Poc.			+	
Diopsiulus annandalei Silv.		+		
Diopsiulus ceylonicus (Poc.)		+		
Diopsiulus madaraszi Silv.		+		
Skeleroprotopus confucius Att.				+
Anaulaciulus paludicola Poc.				+
Apatidea kohalana, sp. nov.	+			
Glyphiulus ceylanicus Att.		+		
Glyphiulus elegans Silv.			+	
Glyphiulus cavernicolus Silv.			+	
Glyphiulus superbus Silv.			+	
Trachyiulus ceylanicus Pet.		+		
Trachyiulus ceylanicus minor Silv.		+		

LIST OF SPECIES—*contd.*

Specific Name.	Indo-Gangetic Plains and South India.	Ceylon.	Himalayas, Sikkim, Burma, Siam, etc.	China.
Trachyiulus humberti Carl		+		
Trachyiulus mimus Silv.			+	
Trachyiulus modestior Silv.			+	
Cambalopsis calva (Poc.)			+	
Cambalopsis heteropus (Silv.)			+	
Cambalopsis proximatus (Silv.)			+	
Cambalopsis annectens (Silv.)	+			
Cambalopsis pauper (Silv.)	+			
Cambalomorpha doriae (Poc.)			+	
Cambalomorpha feae (Poc.)			+	
Cambalomorpha formosa (Poc.)				+
Pericambala orientalis Silv.			+	
Thyropygus nigrolabiatus (Newp.).	+			
Thyropygus alienus, sp. nov.			+	
Thyropygus minusculus, sp. nov.	+			
Thyropygus induratus, sp. nov.			+	
Thyropygus descriptus, sp. nov.			+	
Thyropygus mundus, sp. nov.	+			
Thyropygus poseidon, sp. nov.		+		
Thyropygus aterrimus (Poc.)			+	
Thyropygus cuisinieri Carl			+	
Thyropygus lunelii (Humb.)		+		
Thyroglutus astutus, gen. et sp. nov.				+
Thyroglutus probus, sp. nov.	+		+	
Thyroglutus repertus, sp. nov.			+	
Thyroglutus cautus, sp. nov.			+	
Gongylorrhus sulcatus, gen. et sp. nov.			+	
Gongylorrhus gracilis, sp. nov.			+	
Gongylorrhus corniger, sp. nov.		+		
Ktenostreptus anulipes Att.		+		
Ktenostreptus lankaensis (Humb.).		+		
Ktenostreptus rugulosus, sp. nov.		+		
Ktenostreptus specularis, sp. nov.	+	+		
Ktenostreptus centrurus (Poc.)		+		
Ktenostreptus costulatus Att.		+		
Ktenostreptus debilis, sp. nov.	+			

LIST OF SPECIES—*contd.*

Specific Name.	Indo-Gangetic Plains and South India.	Ceylon.	Himalayas, Sikkim, Burma, Siam, etc.	China.
Anurostreptus feae Poc.			+	
Drepanopus einsleinii Verh.		+		
Harpurostreptus gen. nov. *hamifer* (Humb.)		+		
Harpurostreptus robustior, sp. nov.		+		
Harpurostreptus virgatus, sp. nov.	+			
Harpurostreptus exaratus, sp. nov.	+			
Leptostreptus fuscus, gen. et sp. nov.		+		
Leptostreptus leviventer, sp. nov.	+			
Stenurostreptus falcatus, sp. nov.			+	
Stenurostreptus crenulatus, sp. nov.	+			
Stenurostreptus stenorhynchus (Poc.)		+		
Spirobolus joannisi Bröl.				+
Pseudospirobolellus elevatus (Poc.)			+	
Cyclothyrophorus siamensis, sp. nov.			+	
Physobolus olivaceus, gen. et sp. nov.			+	
Trigoniulus lumbricinus (Gerst.)	+		+	
Stenobolus insularis Carl			+	
Xenobolus acuticonus, sp. nov.	+			
Xenobolus carnifex (Fabr.)	+	+		
Cingalobolus carli, sp. nov.	+			
Cingalobolus bugnioni Carl		+		
Epombrophilus rufipes, gen. et sp. nov.	+			
Aulacobolus excellens Silv.	+			
Aulacobolus variolosus Silv.	+			
Aulacobolus levissimus, sp. nov.	+			
Aulacobolus uroceros (Poc.)	+			
Aulacobolus gravelyi Silv.	+			
Aulacobolus newtoni Silv.	+			
Aulacobolus thurstoni (Poc.).	+			
Eucentrobolus maindroni (Bouv.)	+			
Eucentrobolus hamulus Poc.	+			
Siphonophora coniceps, sp. nov.	+			
Siphonophora cingulata, sp. nov.	+			
Siphonophora picteti Humb.		+	+	
Siphonophora feae Poc.				
Siphonophora humberti Poc.		+		

SYSTEMATIC ACCOUNT.

Family SPHAEROTHERIDAE.

The number of Sphaerotheridae in the collection is large, but unfortunately the majority of them are represented by few or single specimens, and of these both sexes are not available in all cases. It is, therefore, not possible to draw up detailed descriptions in such cases. The state of preservation of most species is poor, a circumstance very disagreeable in the Sphaerotheridae, where the specific diagnoses are based in great part on the sculpture, the punctures and the pilosity. The hairs of the tergites are easily lost and such descriptions as " punctate and hairless " based on defective specimens must be accepted with reserve, for fresh and undamaged individuals are often pilose. Modern systematists, however, place much greater weight on the morphology of the telopods.

The genera *Arthrosphaera* and *Zephronia* with numerous species are a source of great difficulty for the systematist, as many of the earlier species are insufficiently described; this is especially the case with the old descriptions of Brandt, Newport, Butler, etc., many of which are generally useless for the recognition of the species. Pocock is the author, who has done most work on this family; he described numerous Indian species and published a key for *Arthrosphaera* in *Journ. Bombay Nat. Hist. Soc.* XII, p. 281, and for the genus *Zephronia* in the same volume (p. 471). Within recent years Verhoeff described some new Indian genera and gave a key for the genera, but unfortunately the genus *Zephronia* is not included in his key.

Key to the Indian Genera of Sphaerotheridae.

1. Anterior third of the 2nd segment steeply declivous. Anterior half of the tergites beset with acute cones	*Borneopoeus* Verh.
Anterior third of the 2nd segment in the same plane with the rest of the surface. Tergites without spine cones	2.
2. Coxae of 2nd legs of the ♀ completely coalesced without median suture	*Indosphaera*, gen. nov.
Coxae of 2nd legs of the ♀ separated	3.
3. Basal part of the vulva bipartite. Tibia of the posterior telopods with 2 white lappets. Tarsal part of the tibio-tarsus of the anterior telopods with a broadly rounded lobe, the margin of the lobe beset with knobs	*Arthrosphaera* Poc.
Basal part of the vulva undivided. If white lappets are present in the posterior telopods they belong to the femoral process . .	4.
4. Both pairs of the telopods without stridulating organs . . .	5.
Posterior or posterior and anterior telopods with stridulating organs	6.
5. Femoral process of the anterior telopods situated at the medial side of the tibio-tarsus. Pygidium of the ♀ with a large groove .	*Sphaeropoeus* Brdt.
Femoral process of the anterior telopods situated at the lateral side of the tibio-tarsus. Pygidium without a groove. Marginal thickening of the 2nd segment increased behind the eyes . .	*Tonkinobelum* Verh.
6. Legs in the hinder half of the body modified, longer; femur bent in the form of an arch, tarsus dilated and clothed with long hairs. Tibia of posterior telopods with a plate covered with fine ridges	*Lophozephronia*, gen. nov.

Posterior legs not modified. Tibia of posterior telopods with knobs, not with a plate covered with parallel ridges .	7.
7. Femoral process of the anterior telopods situated behind the tibio-tarsus	*Kophosphaera*, gen. nov.
Femoral process of the anterior telopods situated at the median or lateral side of the tibio-tarsus.	8.
8. Tibia of anterior telopods in the form of a large hook, the small tarsus inserted in the midst of this hook .	9.
Tarsus inserted at the top of tibia, latter not hook-shaped, sometimes tibia and tarsus coalesced	10.
9. Tibia of posterior telopods split, with a large knob-bearing process, this process simple, without lappets, forming pincers with tibio-tarsus. Femoral process of anterior telopods situated at the lateral side of tibia	*Prionobelum* Verh.
Tibia of posterior telopods not split, without process. Femoral process of posterior telopods with white lappets. Femoral process of anterior telopods very small, not reaching the top of femur	*Chinosphaera* Att.
10. Femoral process of posterior telopods club-shaped	*Sphaerobelum* Verh.
Femoral process of posterior telopods not club-shaped	*Zephronia* Gray.

Genus **Arthrosphaera** Poc.

(I have not seen the species marked with an asterisk and have had to rely on Pocock's descriptions for the correctness of the statements relative to these species).

Key to the Species.

1. A prominent ridge armed with spines running along the top of the head from side to side above the eyes .	24.
Head without ridge or teeth . .	2.
2. Margin of 2nd tergite with a large or small but abrupt thickening on a level with the eye ; lower edge of anal tergite not grooved	3.
2nd tergite without an abrupt tuberculiform thickening on a level with the eye	9.
3. Mostly pale yellow. Second segment chestnut-brown, a stripe of the same colour on the hinder border of segments 3-7	**A. bicolor* Poc.
Colours variable, mostly a uniform dark green or brown, often mottled	4.
4. Posterior inferior angles of terga 8-10 thickened and turned outwards. Terga densely corrugated, mottled	*A. hendersoni* Poc.
Posterior inferior angles not thickened and out-turned. Posterior half of terga finely punctured or smooth .	5.
5. Colour deep olive-yellow spotted with black, a large black patch on each side of the terga	**A. disticta* Poc.
Colour deep olive-green or brown, often variegated, but without a large lateral patch on the terga . . .	6.

6. Anal tergite and posterior two-thirds of others perfectly smooth and polished. Colour deep olive-green, mottled	*A. nitida* Poc.
Anal tergite punctured throughout or at least above . . .	7.
7. Anterior half of the terga densely pubescent in the adult (terga entirely pubescent in young)	*A. dalyi* Poc.
Terga not pubescent	8.
8. Posterior half of terga (excepting the anal) smooth and polished; anal tergite without impression on its anterior inferior angle .	*A. fumosa* Poc.
Posterior half of terga not polished, dull, punctulate. Anal tergite with a pit-like depression on its anterior inferior angle . .	*A. davisoni* Poc.
9. Tergites 3-12 with a low polished median keel	*A. carinata*, sp. nov.
Tergites without median keel	10.
10. Second segment punctate	11.
Second segment not punctate	20.
11. Marginal groove of 2nd segment continued over the dorsum and sharply limited posteriorly	12.
Marginal groove of the 2nd segment more or less vanishing on a level with the eyes. The part corresponding to the groove in the middle of the dorsum only finely pubescent, not sharply limited	13.
12. Green, marbled with black	*A. atrisparsa* Butl.
Green, not marbled with black	*A. lutescens* Butl.
13. Posterior part of tergites smooth. Body spotted, not distinctly striped	14.
Posterior part of the tergites punctate. Body very conspicuously striped, yellow and black, a yellow stripe running along posterior border	17.
14. Spots in the form of large irregular blotches	15.
Spots smaller, irregularly arranged, black	16.
15. 2nd tergite and posterior border of the rest smooth and polished .	*A. leopardina* Butl.
2nd tergite and those succeeding it entirely coriaceous; of large size	*A. marmorata* Butl.
16. Antero-lateral portion of margin of lamina of the 2nd tergite thicker than the part above and below it, anal tergite with long posterior crest	*A. thurstoni* Poc.
Edge of lamina evenly thickened; anal tergite with short posterior crest	*A. heterosticta* Newp.
17. Collum with a fine sulcus, remote from margin in middle. Pygidium and posterior part of tergites finely punctate, with 2 ridges on under side	*A. craspedota*, sp. nov.
Collum without sulcus	18.
18. Pygidium without ridge on the underside; 11 and 12 segments also without ridges	*A. corrugata* Butl.
Pygidium with 2 ridges on underside	19.
19. Pygidium to posterior border densely and finely punctate, fine punctures intermixed with some larger, punctures not united; posterior border of pygidium not marginated; posterior half of tergites not punctate	*A. severa* Att.

Pygidium densely and very coarsely punctate, the punctures partly united in common grooves. Posterior border finely marginated. Posterior half of tergites finely punctate	*A. pygostolis* Att.
20. (10). Posterior part of tergites finely punctate	*A. scholastica*, sp. nov.
Posterior part of tergites smooth, not punctate	21.
21. Marginal groove continued over dorsum, behind the groove a strong sulcus, distinct radial folds begin in this sulcus. Width 8·8 mm.	*A. gracilis*, sp. nov.
No sulcus behind the marginal groove	22.
22. Pygidium without ridge on under side, posterior border finely marginated	*A. inermis* Humb.
Pygidium with 2 ridges on under side, posterior border not marginated	23.
23. Marginal thickening of the second segment a little incrassate opposite the button on the under side. Anterior border of second segment finely pubescent. Collum with an anterior edge	*A. transitiva*, sp. nov.
Marginal thickening of the second segment equally thick. Anterior border of the 2nd segment hairless. Collum without edge	*A. magna*, sp. nov.
24 (1). Ridge on head mesially interrupted by a downward prolongation of lower border of nuchal plate (collum), which is deeply bisinuate	25.
Ridge on head continued from side to side without interruption, lower edge of collum scarcely bisinuate	26.
25. Anterior border of 2nd tergite strongly produced on a level with eye ; smooth, polished, marbled black and yellow	**A. versicolor* White.
Anterior border of 2nd tergite not produced ; densely punctured, not polished, of a dull greenish tint	**A. noticeps* Butl.
26. Pygidium with a small tubercular inner crest ; tergites including the second punctured and roughened to the very margin	**A. rugulosa* Butl.
Pygidium without inner crest ; 2nd tergite and posterior border of rest smooth	*A. brandti* Humb.

Arthrosphaera lutescens (Butl.).

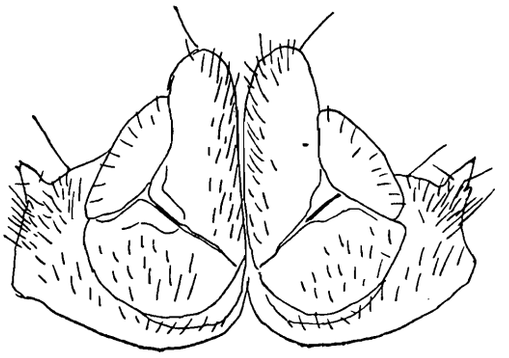
1872. *Zephronia lutescens*, Butler, *Ann. Mag. Nat. Hist.* (4) X, p. 356.
1873. *Zephronia lutescens*, Butler, *Proc. Zool. Soc. London*, p. 179.
1899. *Arthrosphaera lutescens*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 274.

Colour green, head and antennae darker, posterior margin of the tergites dark chestnut.

Head and collum densely punctate and setose. 6th joint of antenna strongly expanded laterally, terminal disk oblique. Collum without anterior sulcus. Second segment very densely and finely punctate, marginal groove continued over the dorsum, densely and shortly hairy, posteriorly sharply separated from the remaining surface by a furrow.

Anterior edge of tergites rather punctate than beaded, marginal bristles dorsally in one row not surpassing the border, laterally whole surface covered with bristles. Tergites and pygidium very densely and finely punctated by apertures of cuticular glands. On the pygidium besides these small gland openings there are larger, scattered setiferous punctures. Anterior quarter of each tergite not punctate, but very finely wrinkled.

Posterior border of pygidium finely marginated with two ridges on the under side. Coxae of legs with pointed, lateral tooth. Medial piece of the vulva large, broad, distinctly larger than the operculum. Operculum small, crescent-shaped (text-fig. 1).



TEXT-FIG. 1.—*Arthrosphaera lutescens* (Butl.). Vulva.

Distribution.—Maddathoray, (1 ♀ and 1 *juv.*) and Kulattupuzha, (1 *juv.*), western base of Western Ghats, Travancore (Dr. N. Annandale; 17-18 and 20. xi. 08).

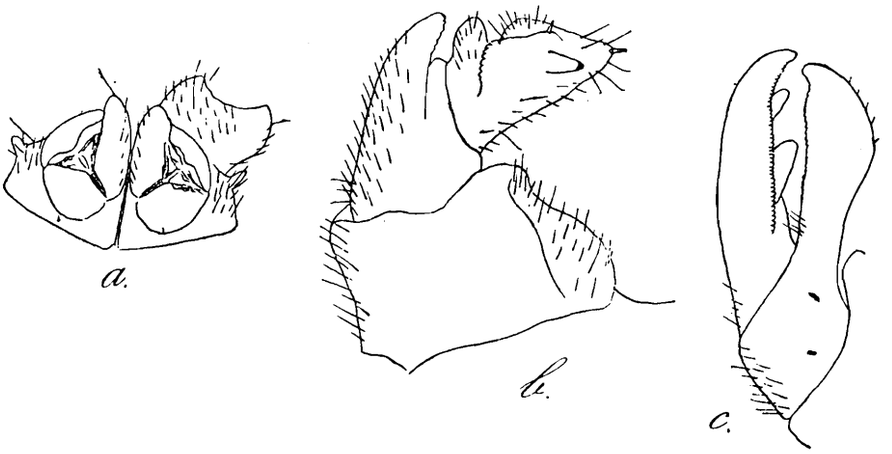
Arthrosphaera craspedota, sp. nov.

Colour brown, nearly black, tergites from the second to the pygidium with olive-yellowish posterior border.

Length 38½ mm., width 21½ mm.

Head coarsely and densely punctate, also the vertex, 6th joint of the antenna strongly incrassate, terminal disc a narrow oval. Collum with one fine sulcus remote from the margin in the middle, whole surface densely punctate. Second segment very densely punctate, marginal groove vanishing in the middle, but the corresponding zone hairy like the lateral part of the groove.

Anterior edge of tergite with minute granules, behind the furrow no bristles, anterior quarter of tergite not punctate, the rest densely and finely punctate, not hairy. Marginal bristles not surpassing the border.



TEXT-FIG. 2.—*Arthrosphaera craspedota,* sp. nov. *a.* coxa of 2nd leg of ♀; *b.* anterior telopod (posterior view); *c.* posterior telopod.

Entire pygidium densely and finely punctate, posterior border not marginated, 2 ridges on the underside. Coxae of legs with large pointed lateral tooth, beset with some small

pointed cones. Tarsus with one apical spine. Vulva like that of *A. lutescens*, the rounded medial part surpassing the coxa. Operculum broad. Coxa of 2nd legs of ♀ with a large lateral tooth (text-fig. 2*a*). Praefemur of anterior telopods (text-fig. 2*b*) with an edge, femoral process broad, situated at the side of tibia ; tibia and tarsus coalesced, tibial part with a superior rounded lappet, tarsal part with a similar superior rounded lappet and a second lappet posteriorly with small granules, near the apex a strong cone. Posterior telopods (text-fig. 2*c*) like that of allied species ; femoral process club-shaped, surface opposite tibia with weak tubercles, tibia with 2 whitish lappets and a row of numerous (*ca.* 34) tubercles.

Distribution.—Parambikulam, 1,700-3,200 feet, Cochin State (Dr. F. H. Gravely ; 16-24. ix. 1914) ; 4 exs.

Arthrosphaera corrugata (Butl.).

1872. *Zephronia corrugata*, Butler, *Ann. Mag. Nat. Hist.* (4) X, p. 355.

1873. *Zephronia corrugata*, Butler, *Proc. Zool. Soc. London*, p. 180.

1899. *Arthrosphaera corrugata*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 273.

Dark red-brown. Width of juv. 8·5 mm.

Head deeply punctate, the anterior part also hairy. 6th joint of the antenna cylindrical (*juv.*).

Anterior edge of tergite with a row of granules. Anterior half of tergite roughly punctate, the punctures of the posterior half become finer towards the posterior border. Collum without anterior sulcus, with some irregular shallow depressions, near the anterior border a row of deep punctures. Second segment densely and coarsely punctate, marginal groove very narrow, nearly vanishing in the middle, behind the groove a shallow sulcus, extending a little beyond the sides of the collum.

Entire pygidium densely and coarsely punctate, punctures distinctly deeper than the punctures of the tergite ; posterior border not marginated.

Tarsus with one apical spine.

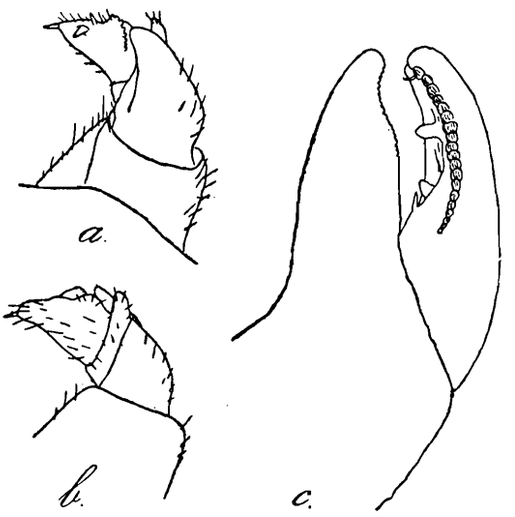
Distribution.—Peradeniya, Ceylon (Dr. F. H. Gravely ; 3.viii.10) ; 2 juvs.

Arthrosphaera scholastica, sp. nov.

Dark olive-brown to green, pygidium brighter, more brownish, the antenna including the terminal disc dark coloured, nearly black. Width, ♂ 8·2 mm., ♀ 12·3 mm.

6th joint of antenna only weakly expanded. Head punctate, vertex less than the anterior part. Collum with a fine anterior edge, behind it a row of setiferous punctures, near the posterior border no setiferous pits. Second segment very smooth, not punctate, marginal groove vanishing opposite the eyes, marginal thickening a little incrassate in this area. Anterior border sparsely punctate in the middle, in each puncture a minute hair. Anterior edge of tergites with very small granules. Anterior third of the tergite strongly punctate, in each puncture a hair ; in the first narrow zone of this part the punctures are much denser ; remainder two-thirds of tergite very finely punctated by cuticular glands, appearing nearly smooth. Marginal bristles not surpassing the border. Lateral wings 9-12 not incrassate. Pygidium evenly arched in the ♂ and ♀, the posterior border not marginated, entire surface very finely punctated by glandular apertures. On under side an undivided ridge or two ridges ; lateral notch visible. Coxae laterally not toothed. Tarsus with one apical spine.

Praefemur of anterior telopods with a strong edge on the posterior surface (text-fig. 3*a*), femoral process situated behind the tibio-tarsus, its top beset with small, sharp cones ; tibia



TEXT-FIG. 3.—*Arthrophaera scholastica*, sp. nov. *a*. anterior telopod (posterior view) ; *b*. anterior telopod (anterior view) ; *c*. posterior telopod (posterior view).

and tarsus distinctly separated (text-fig. 3*b*), tibia on upper side with a rounded narrow lappet, tarsus with a rounded lamella beset with granules, near the top a cone and 2 spines. Posterior telopods (text-fig. 3*c*) ; coxal horns rounded and bent backwards, at the broad top a white cushion with some small points, on either side of cushion a spine ; femoral process with small granules on surface opposite to tibio-tarsus ; tibia with 2 white blunt lappets, before the first lappet a small curved spine and a row of large granules, near the top a small spine resembling the tarsal spine of other species, but this is not separated by a sulcus.

Vulva normal, medial part of the basale surpassing the short operculum.

Distribution.—Marian Shola, *ca.* 7,000 feet, Palni Hills, S. India (Dr. S. W. Kemp ; 24. viii 22 ; under stones on dry hill-side) ; 7 exs.

Arthrosphaera gracilis, sp. nov.

Olive with large irregular black spots, posterior margin of tergites blackish-brown. Width 8·8 mm.

Clypeus densely, vertex sparsely punctate. 6th joint of antenna expanded, terminal disc oblique. Collum with a very fine anterior edge, behind it a row of setiferous punctures, near the posterior margin a similar row, remaining surface not punctate. Second segment smooth and shining like a mirror, not punctate, marginal groove continued over entire dorsum, hairless in the middle, behind the groove a sharp furrow ; radial folds begin at this furrow.

Anterior edge of tergites with 2 rows of granules, granules of second row larger. No bristles behind the furrow. Anterior and posterior thirds of tergites smooth, not punctate ; middle coarsely punctate and hairy. Marginal bristles not extending over the border. Pygidium with scattered fine punctures ; denser in the middle. Posterior border indistinctly and finely marginated.

Praefemur of anterior telopods with a sharp edge, femoral process slender, curved towards the tibio-tarsus ; tibia and tarsus distinctly separated, tibia above with a rounded

process, tarsus with a lappet beset with small tubercles, second lappet of other species wanting ; before the tip a cone and some bristles (text-fig. 4). Coxal horns of the posterior

TEXT-FIG. 4.—*Arthrosphaera gracilis*, sp. nov. Anterior telopod.

telopods unusually thick, apex broad, claw-like, bent backwards. Femoral process slender, nearly as long as tibio-tarsus ; surface opposite the tibio-tarsus beset with low granules ; tibia with 2 white lappets and with a row of *ca.* 25 rasp-buttons ; tarsus not visible.

Distribution.—Courtallam, S. India (Dr. H. S. Rao ; 26.x.24) ; 2 exs.

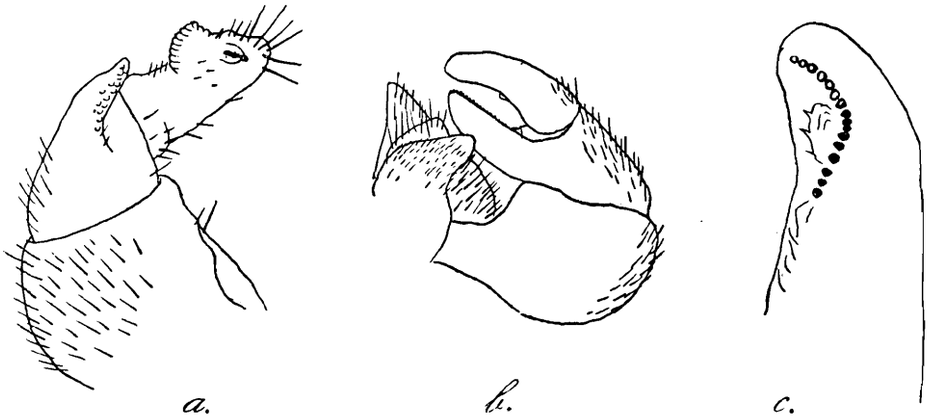
Arthrosphaera inermis, sp. nov.

Anterior part of tergites chestnut, posterior part greenish, posterior border dark brown.

Clypeus densely, vertex sparsely punctate. 6th joint of antenna expanded laterally, terminal disc oblique. Collum with a fine anterior edge, behind the edge a row of punctures ; surface not punctate. 2nd segment not punctate, broad marginal furrow vanishing opposite the eyes, in the middle only a fine furrow.

Anterior edge of tergites with minute granules, anterior half of tergite from the 3rd densely punctate, not hairy, posterior half smooth ; marginal bristles not extending over the border.

Entire pygidium densely and very finely punctate, not hairy, posterior border finely marginated. Under side hairy, no sharp transverse edge and no lateral ridges. On the



TEXT-FIG. 5.—*Arthrosphaera inermis*, sp. nov. *a.* anterior telopod ; *b.* posterior telopod (anterior view) ; *c.* tibio-tarsus of posterior telopod (posterior view).

wings of the foregoing segments a ridge is present. Tarsus with one apical spine, coxa with a large lateral tooth beset with several small cones. Coxae of 2nd legs of the ♀ with a conical

lateral process ; tarsus without apical spine. Median piece of vulva surpassing the short operculum.

Praefemur of anterior telopods (text-fig. 5*a*) with an edge on the medial side ; femoral process rises on posterior side and projects along lateral side of the tibio-tarsus ; it is small and slender ; surface opposite tibio-tarsus beset with small round tubercles, tibia and tarsus completely coalesced, on the tibia no large round lobe, as in *A. aurocincta*, etc., on tarsus a broad rounded lobe beset with knobs and near apex a small pointed cone. Praefemur of posterior telopods without processes, femoral process large and thick, on the edge opposite tibio-tarsus a row of small black buttons ; tibia and tarsus coalesced, on the posterior side a row of dark coloured buttons and 2 pale cushions, the distal of which bears 3 small cones (text-figs. 5*b*, *c*).

Distribution.—Peradeniya, Ceylon (Dr. F. H. Gravely ; 13.v.10 ; under stone), 1 ex. ; Trivandrum, Travancore, 1 ex.

Arthrosphaera transitiva, sp. nov.

Bright yellowish brown, posterior part of each tergite chestnut, anterior border of the 2nd segment chestnut, femur, postfemur, tibia and tarsus greenish ; antennae dark green, apex yellow, both colours sharply contrasting. Width 19 mm.

Clypeus densely, vertex sparsely punctate, 6th joint of antenna expanded, terminal disc oblique. Collum not punctate, with a fine anterior edge, behind the edge a row of punctures. Marginal groove of 2nd segment completely vanishing in the middle of dorsum, part corresponding to the groove punctate and beset with short hairs, surface not punctate.

Anterior edge of tergites with fine granules, behind the furrow a narrow zone densely and finely punctate, without hair. Anterior half of tergite coarsely punctate, sometimes several punctures united to form depressions ; posterior part smooth, not hairy. Pygidium finely punctate, posterior border not marginated. On the under side 2 ridges, posterior very short, like a tubercle, lateral notch weak. Coxae of legs not toothed laterally. Tarsus with one apical spine. (2nd legs wanting).

Distribution.—Ganjam, Madras Presidency (V. Ball) ; 1 ex.

Arthrosphaera magna, sp. nov.

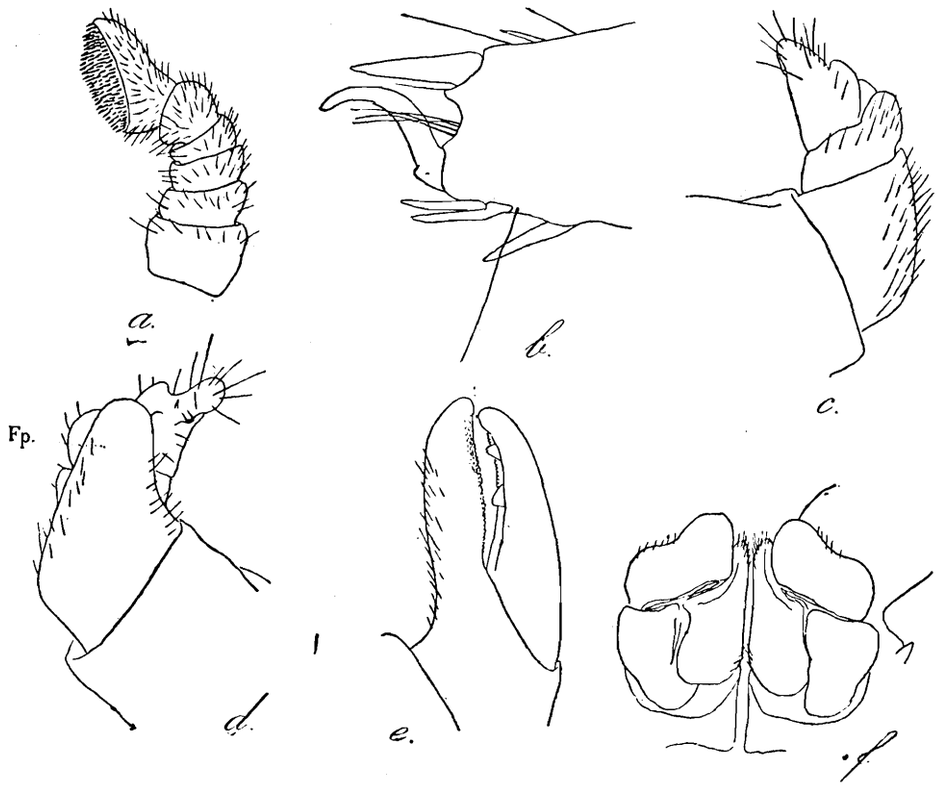
Head collum and second segment bright chestnut, yellowish brown, olive-brown, or olive-green, other tergites dark brown, posterior border of tergites yellowish, forming a narrow stripe. Length 63 mm. ; width $18\frac{1}{2}$-34 mm.

Head sparsely punctate, clypeus also not densely punctate. 6th joint of antenna of ♂ strongly expanded laterally (text-fig. 6*a*), terminal disc narrow, oval and oblique. In ♀ 6th joint only weakly expanded. Collum without anterior edge or sulcus, with an anterior row of setiferous punctures and a similar row near the posterior border ; surface not punctate.

Second segment polished like a mirror, not punctate, marginal groove vanishing near eyes, anterior zone in the middle of dorsum not punctate or with few scattered punctures, each puncture with or without a hair, lateral part of groove with scattered fine yellow hairs. Marginal thickening equally thick.

Anterior edge of tergite with small granules, behind the furrow no zone of bristles, anterior half of tergite densely punctate and hairy, posterior half smooth and shining, with

only few punctures near the posterior margin, especially visible on the 12th segment. Marginal bristles not extending over the border.



TEXT-FIG. 6.—*Arthrosphaera magna*, sp. nov. *a*. antenna of ♂ ; *b*. tarsus and claw of anterior leg ; *c*, *d*. anterior telopod (anterior and posterior views) ; *Fp*. femoral process ; *e*. posterior telopod ; *f*. vulva.

Entire pygidium densely punctate, punctures fine or coarse, sometimes several punctures united to form common shallow depressions ; hairs visible only in the anterior zone, this zone more densely punctate. Pygidium of the ♂ lightly expanded like a bell, not marginated. On the under side 2 ridges. Lateral notch distinct.

Coxae of legs with a small or strong tooth ; claw sigmoid, curved (text-fig. 6*b*). Femoral process (*Fp*) of anterior telopods (text-figs. 6*c*, *d*) short and blunt, situated behind tibio-tarsus, not forming pincers with the latter, tibia and tarsus distinctly separated, tibia with a superior rounded lobe, tarsus with a similar lobe, then narrowed, cylindrical, with long bristles at the apex. On the posterior side a small knob and a small spine. Posterior telopods (text-fig. 6*e*) like those of related species ; coxal horns large, thick at the base, densely and shortly hairy on the medial side, apex with a rounded, dark-coloured claw ; femoral process longer than tibia, with numerous rounded tubercles, situated beside the tibia ; tibia with 2 short broadly rounded lappets, posterior edge with numerous rounded tubercles.

Vulva (text-fig. 6*f*) resembling that of *A. hendersoni*, but the operculum larger and broader.

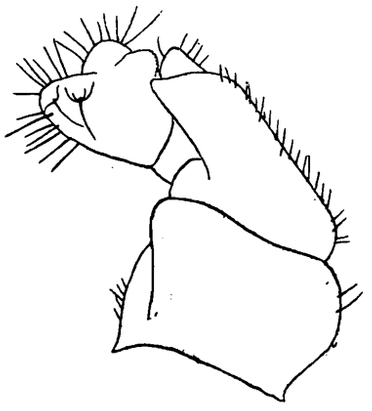
Coxae of 2nd legs of ♀ with a small lateral cone.

Distribution.—Khandala (R. Hodgart ; 20-22.vii.24), 1 ♂ and Lonavla (Dr. B. Prashad ; 17.vii.23), 1 ♀, Bombay Presidency ; Shevaroy Hills, S. India, 2 exs. ; Woodhouse Rajamandry, Madras Presidency, 1 ♂ ; north of Phenda Ghat, Kolhapur State, Bombay Presidency (H. Cecil Jones ; vii.22), 1 ex.

Arthrosphaera carinata, sp. nov.

Colour black, terminal disc of antenna, tarsus and underside of the remaining joints of legs yellowish. Width 7 mm.

Head very smooth and shining, sparsely punctate, also the clypeus. 6th joint of antenna laterally expanded, terminal disc very oblique. Collum with a fine anterior edge, very shining, punctures scattered and relatively large. Second segment punctate, fine dense punctures intermixed with some larger ones. Anterior edge of tergites with one row of minute tubercles. Tergites densely and finely punctate, anterior half also shortly hairy. Entire pygidium densely and finely punctate, with few short hairs; posterior border not marginated. Pygidium and tergites without ridges on under side. Tergites 3-12 with a shining median keel, not reaching the anterior border, but extending to the middle; although the keel is low and not sharp, it is conspicuous because of its shining, darker colour and absence of punctures.



TEXT-FIG. 7.—*Arthrosphaera carinata*, sp. nov. Anterior telopod.

Praefemur of anterior telopods (text-fig. 7) with a sharp edge, femoral process situated behind the tibio-tarsus, curved to the latter, pointed at the top. Tibia and tarsus distinctly separated, tibia above with a slender lappet, tarsus with 2 rounded lappets, one smooth, the other beset with small granules. Posteriorly near the top a cone, some long bristles, no spines. Femoral process of the posterior telopods thick, pointed; tibia with 2 white lappets, on the posterior surface a row of tubercles. No tarsus visible.

Distribution.—Jungle between Kemmangundi and Kalhattigiri, Bababudan Hills, Kaddur distr., 4,500-6,155 feet, Mysore (Dr. H. S. Rao; 17.xii.28); 2 exs.

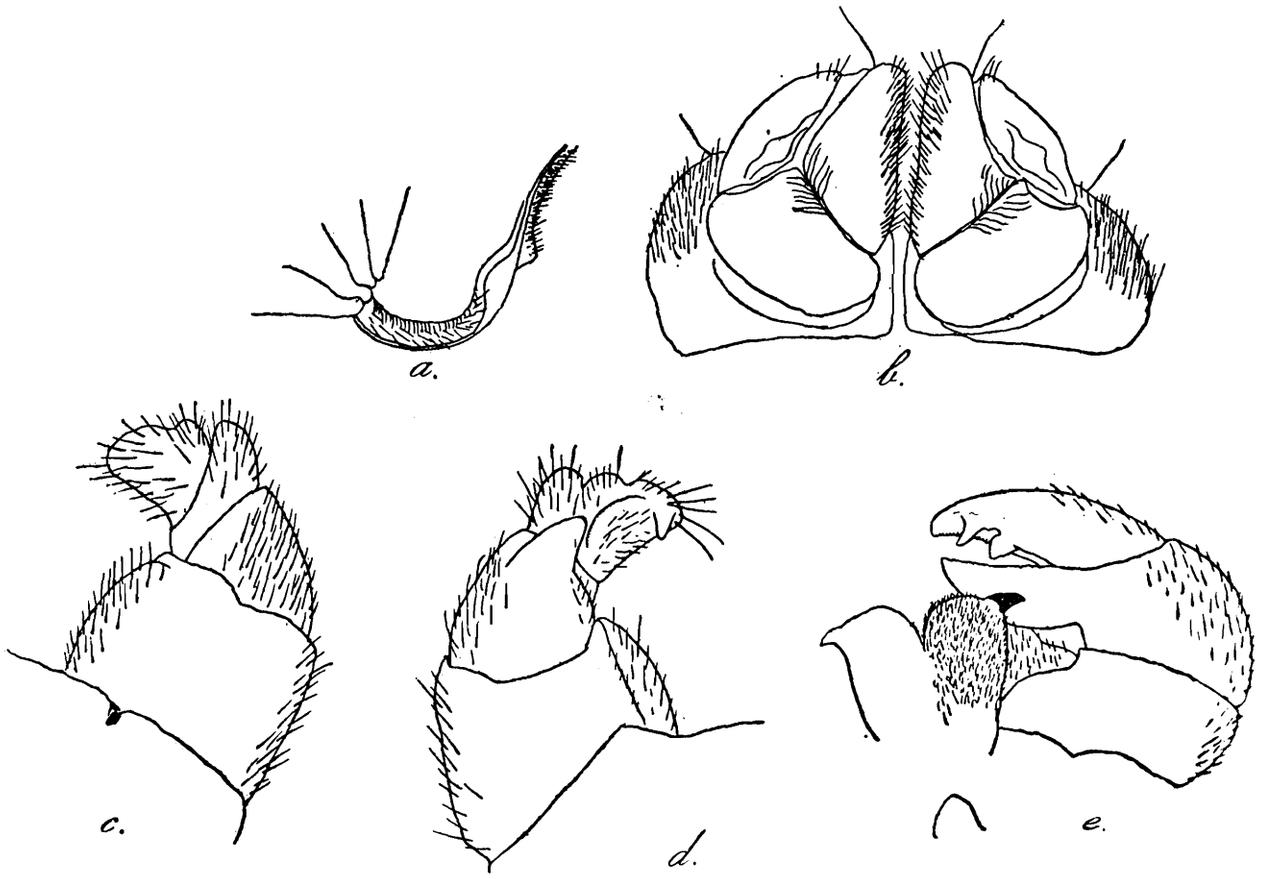
Arthrosphaera hendersoni Poc.

1895. *Arthrosphaera hendersoni*, Pocock, *Ann. Mag. Nat. Hist.* (6) XVI, p. 411.
1899. *Arthrosphaera hendersoni*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 277.

Width, ♂ 20 mm., ♀ 23 mm.

Head very smooth, sparsely punctate. 6th joint of antenna not expanded laterally. Collum densely and very finely punctate, near the anterior border a fine edge. The margin of the second segment is incrassate opposite the knob on the under side and projects into the marginal groove; the latter in the middle very narrow and shallow, not hairy. No

radial folds. Tergites from the second segment densely and coarsely punctate in the anterior two-thirds, punctures more or less united to form depressions, surface between these wrinkled. Posterior third sparsely punctate, not wrinkled. Towards the caudal end the unwrinkled zone becomes gradually narrower, and the last segments are wrinkled almost to the posterior border. Marginal bristles not extending over the border. Anterior edge of tergite beaded, bearing two irregular rows of fine pearl-like beads. Pygidium very densely punctate, nearly to the posterior border ; punctures not united to form grooves. On the under side one ridge, corresponding to the anterior ridge of species with 2 ridges. Tarsus with one apical spine. Coxa with a large lateral tooth beset with several cones.



TEXT-FIG. 8.—*Arthrosphaera hendersoni* Poc. *a.* side of second tergite ; *b.* vulva ; *c, d.* anterior telopod ; *e.* posterior telopod.

Vulva (text-fig. 8*b*) consisting of 3 pieces, basal part bipartite, median piece very long and surpassing the small operculum. Coxae of 2nd legs of ♀ with a lateral tooth as on other legs.

Praefemur of anterior telopods (text-figs. 8*c*, *d*) with a sharp edge behind ; femoral process situated behind the tibio-tarsus and not visible from front, short, blunt, curved ; tibia and tarsus distinctly separated ; tibia with a rounded lobe above ; tarsus above and behind with a rounded lobe, a blunt cone near the apex. Coxal horns of the syncoxite of the posterior telopods (text-fig. 8*e*) with a dark-coloured lateral claw at the apex. Femoral process thick, pointed, longer than the tibia. No tarsus. Tibia with two separated white lobes, edge covered with well developed knobs.

Distribution.—Kodaikanal, 6,900-7,200 feet, Palni Hills, S. India (Dr. S. W. Kemp, viii. 22 ; T. B. Fletcher, viii-ix.21) ; 7 exs.

Arthrosphaera brandti (Humb.).

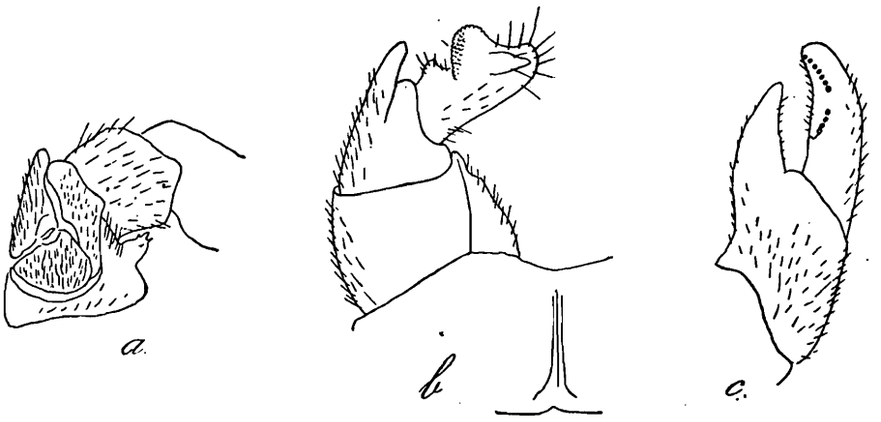
1865. *Sphaeropoeus Brandti*, Humbert, *Mem. Soc. Genévè*, XVIII, p. 38.

?1872. *Zephronia chitinoides*, Butler, *Ann. Mag. Nat. Hist.* (4) X, p. 354.

1892. *Zephronia brandti*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 143.

1899. *Arthrosphaera brandti*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 272.

The following notes may be added to the earlier descriptions : 6th joint of antenna strongly expanded laterally. Collum not punctate, with a fine anterior edge. Marginal groove of second segment continued over the dorsum, very shallow and not hairy in the middle, surface of second segment not punctate. Anterior edge of tergites with irregularly arranged pearls. Anterior part of tergites coarsely punctate, punctures united to form common grooves; posterior part smooth, not punctate. Pygidium regularly, finely punctate, border marginated by a fine furrow in both ♂ and ♀. Coxae of legs with 2 lateral teeth beset with small acute cones. Coxae of 2nd legs of ♀ with one tooth of similar shape. Median piece of vulva larger than the operculum, all 3 pieces of the vulva perforated by apertures, in which bristles are inserted (text-fig. 9*a*). Praefemur of anterior telopods (text-fig. 9*b*) with a sharp edge ; femoral process situated beside the tibio-tarsus, small and slender,



TEXT-FIG. 9.—*Arthrosphaera brandti* (Humb.). *a*. vulva ; *b*. anterior telopod ; *c*. posterior telopod.

at the top of the surface opposite tibio-tarsus some minute acute cones, at the lateral side a triangular tooth, a rounded lamella beset at the border with small knobs ; tarsus a small cone with 2 bristles and inserted before the top of the tibia. Coxal horns of posterior telopods strongly curved backwards, terminal lobe broad. Femoral process shorter than the tibio-tarsus ; tibia and tarsus coalesced, or tarsus not visible. Row of tibial rasp-buttons nearly reaching the top but interrupted in the middle, 3 or 4 and 7 buttons ; hairs of tibia short and fine (text-fig. 9*c*).

Distribution.—Peradeniya, Ceylon (Dr. F. H. Gravely ; 16-17.v.10 ; under stones), 5 exs. ; (Madras ?).

INDIAN SPECIES OF *ARTHROSPHAERA* NOT REPRESENTED IN THE COLLECTION OF THE INDIAN MUSEUM.

Arthrosphaera atrisparsa (Butl.).

1878. *Zephronia atrisparsa*, Butler, *Trans. Ent. Soc. London*, p. 302.

1899. *Arthrosphaera atrisparsa*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 27.

Distribution.—Bombay.

Arthrosphaera aurocincta Poc.

1899. *Arthrosphaera aurocincta*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 276.

Distribution.—E. India.

Arthrosphaera bicolor Poc.

1895. *Arthrosphaera bicolor*, Pocock, *Ann. Mag. Nat. Hist.* (6) XVI, p. 411.

1899. *Arthrosphaera bicolor*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 278.

Distribution.—Salem, Shevaroy Hills, Madras.

Arthrosphaera corrugata Silv. (*Nom.* praeocc.).

1897. *Arthrosphaera corrugata*, Silvestri (*nec* Butler), *Ann. Soc. Ent. Belg.* XLI, p. 359.

Distribution.—India ?

Arthrosphaera dalyi Poc.

1895. *Arthrosphaera dalyi*, Pocock, *Ann. Mag. Nat. Hist.* (6) XVI, p. 412.

1899. *Arthrosphaera dalyi*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 280.

Distribution.—Lone Cottage, Palni Hills, Madras Presidency.

Arthrosphaera davisoni Poc.

1895. *Arthrosphaera davisoni*, Pocock, *Ann. Mag. Nat. Hist.* (6) XVI, p. 412.

1899. *Arthrosphaera davisoni*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 279.

Distribution.—Coimbatore, Annamalai Hills, Madras Presidency.

Arthrosphaera dentigera Verh.

1930. *Arthrosphaera dentigera*, Verhoeff, *Zool. Anz.* LXXXIX, p. 208, figs. 10-12.

Distribution.—Kandy, Ceylon.

Arthrosphaera disticta Poc.

1895. *Arthrosphaera disticta*, Pocock, *Ann. Mag. Nat. Hist.* (6) XVI, p. 411.

1899. *Arthrosphaera disticta*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 278.

Distribution.—Yercaud, Shevaroy Hills, Madras Presidency.

Arthrosphaera fumosa Poc.

1895. *Arthrosphaera fumosa*, Pocock, *Ann. Mag. Nat. Hist.* (6) XVI, p. 412.

1899. *Arthrosphaera fumosa*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 280.

Distribution.—Coimbatore, Madras Presidency.

Arthrosphaera heterosticta (Newp.).

1844. *Zephronia heterosticta*, Newport, *Ann. Mag. Nat. Hist.* (1) XII, p. 265.

1892. *Zephronia heterosticta*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 145.

1899. *Arthrosphaera heterosticta*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 273.

Distribution.—Madras.*

* This species is also represented in the collections of the Indian Museum from the following localities :—Panchgani, 4,000-4,500 feet, Western Ghats (Rev. E. Blatter, S. J.) and Poona, Bombay Presidency.—*Editor.*

Arthrosphaera leopardina (Butl.).

1872. *Zephronia leopardina*, Butler, *Ann. Mag. Nat. Hist.* (4) X, p. 356.
1873. *Zephronia leopardina*, Butler, *Proc. Zool. Soc. London*, p. 181, pl. xix, fig. 10.
1899. *Arthrosphaera leopardina*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 274.

Distribution.—Ceylon.

Arthrosphaera marginella Silv.

1897. *Arthrosphaera marginella*, Silvestri, *Ann. Soc. Ent. Belg.* XLI, p. 360.

Distribution.—India ?

Arthrosphaera marmorata (Butl.).

1882. *Zephronia marmorata*, Butler, *Ann. Mag. Nat. Hist.* (5) IX, p. 197.
1899. *Arthrosphaera marmorata*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 274.

Distribution.—India.

Arthrosphaera nitida Poc.

1895. *Arthrosphaera nitida*, Pocock, *Ann. Mag. Nat. Hist.* (6) XVI, p. 411.
1899. *Arthrosphaera nitida*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 281.

Distribution.—Kodaikanal, Palni Hills, Madras Presidency.

Arthrosphaera noticeps (Butl.).

1872. *Zephronia noticeps*, Butler, *Ann. Mag. Nat. Hist.* (4) X, p. 355.
1873. *Zephronia noticeps*, Butler, *Proc. Zool. Soc. London*, p. 179.
1899. *Arthrosphaera noticeps*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 271.

Distribution.—Ceylon.

Arthrosphaera pilifera (Butl.).

1872. *Zephronia pilifera*, Butler, *Ann. Mag. Nat. Hist.* (4) X, p. 357.
1873. *Zephronia pilifera*, Butler, *Proc. Zool. Soc. London*, p. 180.
1899. *Arthrosphaera pilifera*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 270.

Distribution.—Ceylon.

Arthrosphaera rugosa Verh.

1930. *Arthrosphaera rugosa*, Verhoeff, *Zool. Anz.* LXXXIX, p. 209, figs. 13, 14.

Distribution.—Ceylon.

Arthrosphaera rugulosa (Butl.).

1872. *Zephronia rugulosa*, Butler, *Ann. Mag. Nat. Hist.* (4) X, p. 355.
1899. *Arthrosphaera rugulosa*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 273.

Distribution.—Ceylon.

Arthrosphaera thurstoni Poc.

1895. *Arthrosphaera thurstoni*, Pocock, *Ann. Mag. Nat. Hist.* (6) XVI, p. 411.
1899. *Arthrosphaera thurstoni*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 276.

Distribution.—Nilgiri Hills, Madras Presidency.

Arthrosphaera versicolor (White).

1859. *Zephronia versicolor*, White, *Ann. Mag. Nat. Hist.* (3) XIII, p. 405.
1859. *Zephronia versicolor*, Humbert, *Mém. Soc. Genève*, XVIII, p. 41, pl. iii, fig. 17.
1873. *Zephronia versicolor*, Butler, *Proc. Zool. Soc. London*, p. 181.
1899. *Arthrosphaera versicolor*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 272.

Distribution.—Peradeniya, Ceylon.

Arthrosphaera wroughtoni Poc.

1895. *Arthrosphaera wroughtoni*, Pocock, *Ann. Mag. Nat. Hist.* (6) XVI, p. 411.
1899. *Arthrosphaera wroughtoni*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 275.

Distribution.—Kanara, Bombay Presidency.

Arthrosphaera zebraica (Butl.).

1872. *Zephronia zebraica*, Butler, *Ann. Mag. Nat. Hist.* (4) X, p. 356, pl. XVIII, fig. 4.
1899. *Arthrosphaera zebraica*, Pocock, *Journ. Bombay Nat. Hist. Soc.* XII, p. 275.

Distribution.—Bombay.

Arthrosphaera severa Att.

1935. *Arthrosphaera severa*, Attems, *Arch. Hydrobiol.* XIV, Suppl., pp. 139—140, figs. **32—35.**

Distribution.—Madras.

Arthrosphaera pygostolis Att.

1935. *Arthrosphaera pygostolis*, Attems, *Arch. Hydrobiol.* XIV, Suppl., p. 141.

Distribution.—Madras.

Genus **Zephronia** Gray.

Key to the species.

1.	Tarsus with one apical spine	2.
	Tarsus with 2 or more apical spines	19.
2.	Posterior half of tergites with long, vertical hairs . . .	*Z. hirta*, sp. nov.
	Posterior half of tergites not hairy, hairs of tergites, when present, short	3.
3.	Anterior part of tergites granular	4.
	Anterior part of tergites not granular	17.
4.	Collum without a transverse furrow	5.
	Collum with a transverse furrow	6.
5.	Posterior part of the tergites nearly smooth, the punctures very sparse, vertex sparsely punctate	*Z. doriae* Poc.
	Posterior part of tergites in anterior half densely and finely, in its posterior half coarsely and dispersedly punctate, whole head and vertex also densely punctate. Operculum unusually large, basal piece of vulva divided nearly to its base	*Z. manca*, sp. nov.
6.	Pygidium slightly saddle-shaped	*Z. formosa* Poc.
	Pygidium evenly vaulted	7.
7.	Granular part of tergites not hairy	8.
	Granular part of tergites hairy	9.

8. Furrow of collum widely interrupted in the middle. 6th joint of antenna cylindrical, terminal disc transverse. Marginal bristles extending over the border . . . . . *Z. clivicola* Poc.
   Furrow of collum not interrupted. 6th joint of antenna strongly expanded, terminal disc oblique. Marginal bristles not extending over the border . . . . . *Z. juvenis*, sp. nov.
9. Dorsum ochraceous, thickly covered with irregularly disposed black spots . . . . . *Z. feae* Poc.
   Dorsum not spotted . . . . . 10.
10. Entire granular part of tergites densely hairy. Pores of all tergites including those of 2nd segment and pygidium of two sizes . *Z. diversipora*, sp. nov.
    The first zone of the granular part of the tergites not hairy, the middle zone granular and hairy. All pores of equal size . . 11.
11. No bristles behind posterior marginal furrow of tergites . . 12.
    A narrow zone of bristles behind marginal furrow . . . 13.
12. Last zone of tergite very densely and finely punctate. Pores of pygidium minute, visible only under strong magnification. Antennae black, terminal disc yellow . . . . . *Z. densipora*, sp. nov.
    Last zone of tergite very sparsely punctate, entire pygidium distinctly punctate. Antennae yellowish-brown . . . . *Z. debilis*, sp. nov.
13. Second segment and posterior part of the tergites smooth, not punctate . . . . . 14.
    Second segment and posterior part of tergites punctate . . 15.
14. Width 11 mm. Head and vertex densely punctate. 6th joint of antennae weakly expanded laterally. Pygidium very smooth and shining . . . . . *Z. nigrinota* Poc.
    Width 22 mm. Head very sparsely punctate or not at all punctate. 6th joint of antennae strongly expanded laterally. Anterior half of pygidium finely granular . . . . . *Z. specularis*, sp. nov.
15. Olive green. Width 11 mm. . . . . *Z. lignivora*, sp. nov.
    Brown of different shades. Width 18-21 mm. . . . . 16.
16. Punctures of 2nd segment, posterior part of tergites and pygidium large and dense. One ridge on the under side of pygidium; posterior border finely marginated . . . . . *Z. tumida* Buth.
    Punctures of 2nd segment, posterior part of tergites and pygidium much finer. On the under side of pygidium 2 ridges; posterior border not marginated . . . . . *Z. alticola*, sp. nov.
17 (3). No ridge on under side of pygidium. Marginal groove of 2nd segment finely hairy in the middle . . . . . *Z. tigrinoides* Silv.
    A ridge on under side of pygidium present[1]. Marginal groove not hairy in the middle . . . . . 18.
18. Pygidium not punctate or only isolated minute punctures. Tibia and tarsus of anterior telopods united . . . . . *Z. inferior* Silv.
    Pygidium densely punctate . . . . . *Z. hysophila* Silv.

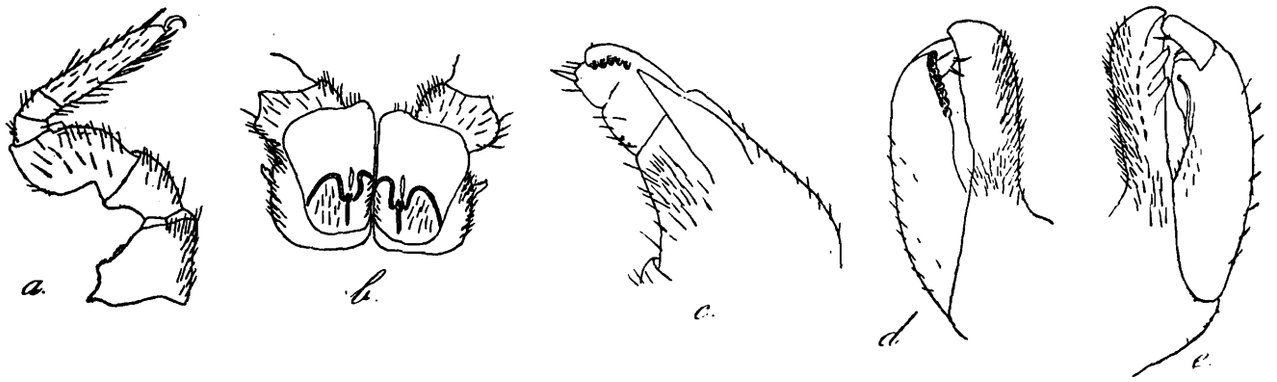
[1] Here-to *Z. comotti* Poc., *Z. gestri* Poc.

19 (1). Tergites not punctate or only tergite (11) 12 near its posterior border	20.
Tergites more or less densely punctate	21.
20. Pygidium very finely and densely punctate with a weak ridge on under side. Triangular plates of the syncoxite of posterior telopods very short, covered by thick and broad coxal horns. Tarsus with 3 apical spines	*Z. impunctata* Poc.
Pygidium not punctate, without an inner ridge. Tarsus with 2 apical spines	*Z. semilaevis* Poc.
21. Tergites densely hairy	*Z. siamensis* Hirst.
Tergites only partially hairy	22.
22. Middle zone of tergites densely punctate and hairy. Marginal groove of 2nd segment also hairy in the middle. 6th joint of antenna strongly expanded laterally. Pygidium not marginated. Collum densely punctate anteriorly and posteriorly, sparsely punctate in the middle. Dorsum not spotted	*Z. viridescens*, sp. nov.
Middle zone of tergites smooth, neither punctate nor hairy. Marginal groove of 2nd segment not hairy in the middle. 6th joint of antenna only weakly expanded laterally. Pygidium finely marginated. Entire collum only sparsely punctate. Dorsum olive-brown with olive-green spots	*Z. profuga*, sp. nov.

Zephronia manca, sp. nov.

Colour dark brown, nearly black. Width 11 mm.

Entire head including vertex densely punctate and covered with yellow hairs. Collum without transverse furrow, densely and coarsely punctate. Marginal groove of 2nd segment continued over dorsum and hairy also in the middle; remaining surface densely punctate, not hairy. Anterior edge of tergites with one row of very small tubercles; behind the posterior marginal furrow a narrow zone of bristles, followed by a granular zone without bristles. Posterior half of tergites punctate, punctures in the anterior zone fine, in the



TEXT-FIG. 10.—*Zephronia manca*, sp. nov. *a*. ♂ leg from the middle of the body; *b*. vulva; *c*. anterior telopod; *d*, *e*. posterior telopod.

posterior zone coarse and scattered. Marginal bristles extending over the border. Entire pygidium densely and coarsely punctate up to the posterior border and hairy, hairs are ve ry

fragile, and now only a few hairs present. Posterior border not marginated, slightly projecting in the middle. One ridge on the under side, no lateral notch (between the two segments). Coxae of the male legs (text-fig. 10*a*) without lateral lappet, coxae of 2nd legs of ♀ with a blunt lateral tooth. Basal of the vulva divided nearly up to the base, operculum remarkably long, a little expanded and weakly sinuate distally (text-fig. 10*b*). Femoral process of anterior telopods very slender and acute; tibia and tarsus distinctly separated, tibia with a lobe bearing some (5) knobs, tarsus with one spine and some hairs (text-fig. 10*c*). Femoral process of posterior telopods incrassate, apex suddenly pointed, outer surface densely covered with short hairs, surface opposite to tibia with 2 whitish lappets; tibia and tarsus clearly separated; tibia anteriorly with a rounded lamella and one long bristle at the base of the lamella, posteriorly with a row of 8 knobs; tarsus with 2 spines (text-figs. 10*d*, *e*).

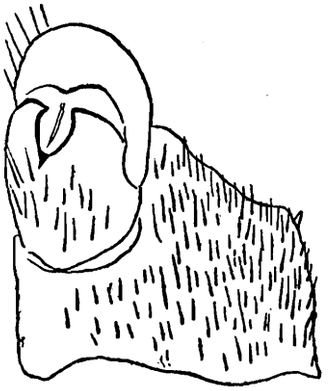
Distribution.—Dran, 3,000 feet (2 exs.), and Dalat, 5,000 feet (1 ex.), Langbian Prov., South Annam (C. Boden Kloss; iii-v.18); Dhobie Jhora, Kurseong, Eastern Himalayas (M. Sharif; 11.iii.26); 1 ex.

Zephronia clivicola Poc.

1890. *Zephronia clivicola*, Pocock, *An. Mus. Civ. Genova* (2) X, p. 386.

Length 28 mm.; width 15 mm.

6th joint of antenna cylindrical, not expanded, the terminal disc transverse, not oblique (♀). Collum dispersedly punctate, with a fine anterior furrow interrupted in the middle. 2nd segment densely and finely punctate, marginal groove continued over dorsum, in the middle very shallow and sparsely hairy. Anterior edge of tergites with small tubercles, no zone of bristles behind the posterior marginal furrow, anterior part of tergites densely and finely granular, middle densely punctate, posterior very sparsely punctate, marginal bristles not extending over the border. Pygidium very densely and finely punctate, posterior border not marginated (♀), on the under side one very long ridge.



TEXT-FIG. 11.—*Zephronia clivicola* Poc. Vulva.

From 3rd leg onwards one apical tarsal spine. Coxa with a large broadly rounded lateral lobe; coxa of 2nd legs of ♀ without this lobe. Femur beset with small acute cones. Operculum broadly rounded (text-fig. 11).

Distribution.—Second Defile, River Irrawaddy, Burma (Dr. J. Anderson; 5. ii. 1875), 1 ♀; Carin Cheba, 900-1,200 m., Burma.

Zephronia juvenis, sp. nov.

Bright yellowish-brown. Width 9 mm. (*juv.*).

Head densely punctate, evenly vaulted. Terminal disc of antenna oblique. Collum densely punctate, with a fine anterior ridge. Marginal groove of 2nd segment continued over the dorsum, very shallow and hairless in the middle, behind the groove a sharp furrow limiting the upper ends of the radial folds. Anterior edge of tergites with fine tubercles, no zone of bristles behind marginal furrow. Anterior zone of tergites dispersedly, finely granular, remainder densely granular, uneven. Tergites hairless. Marginal bristles not extending over the border. Pleurites densely hairy. Pygidium densely and finely granular, posterior border finely marginated ; 2 ridges on the under side. One apical dorsal tarsal spine.

Vulva not completely developed.

Distribution.—Darrang distr., Assam (Lt.-Col. H. H. Godwin-Austen), 1 ♀ (*juv.*).

Zephronia disparipora, sp. nov.

Anterior part of tergites yellowish-brown, posterior part dark chestnut. Width 17 mm.

Head punctate. 6th joint of antenna laterally expanded, terminal disc very oblique. Collum densely punctate, with a complete, uninterrupted anterior ridge. 2nd segment very densely punctate, punctures of two sizes, some very small, others larger. Marginal groove continued over the dorsum, covered with yellow hairs also in the middle. Anterior edge of tergites with fine tubercles, anterior half beginning from the rounded edge behind the marginal furrow completely hairy. Posterior half densely punctate up to posterior border. Marginal bristles not extending over the border. Pygidium densely punctate, 2 ridges on the under side, posterior border not marginated. Punctures of tergites and pygidium of two sizes, similar to those of 2nd segment described above.

One apical tarsal spine.

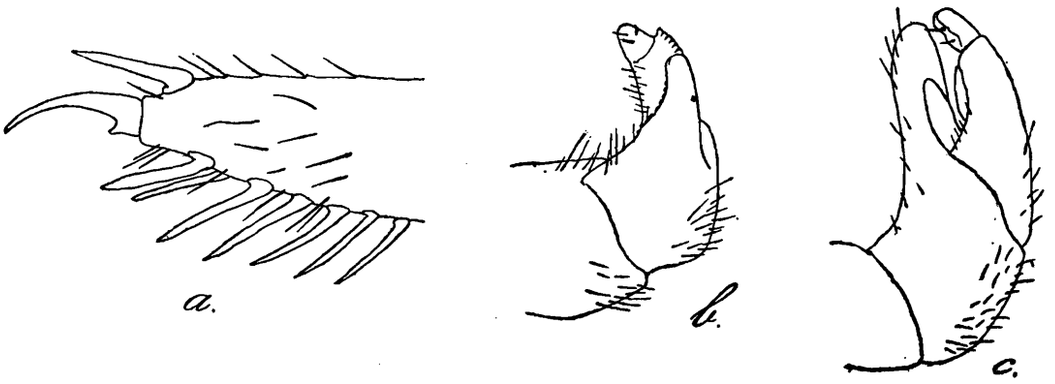
Distribution.—Kobo, 400 feet, Assam (Dr. S. W. Kemp ; 3.xii.11 ; in rotten wood), 1 ♂ (telopods are lost).

Zephronia densipora, sp. nov.

Colour very dark, nearly black-brown, antennae of the same colour, only the terminal disc yellow. Length 30 mm. ; width 14½ mm.

Punctures on the anterior part of head denser than on vertex. 6th joint of antenna a little expanded and terminal disc a little oblique. Collum sparsely punctate, near the posterior border no dense row of pores. One anterior complete furrow present. 2nd segment very densely and finely punctate, marginal groove continued over dorsum, covered with fine short hairs, also in the middle. Anterior edge of tergites with one row of small tubercles, behind the marginal furrow no zone of bristles. Anterior part of tergites finely granular, middle zone densely punctate and hairy, posterior zone very densely and finely punctate. Marginal bristles not extending over the border. Lateral wings not incrassate. Pygidium a little swollen, posterior border a little projecting in the middle, indistinctly marginated, entire surface very smooth and shining, glandular pores minute, scarcely visible. On the under side 2 ridges.

One apical tarsal spine (text-fig. 12*a*). Coxa with rounded lateral lobe, femur with small cones. Femoral process of anterior telopod (text-fig. 12*b*) behind the tibio-tarsus,



TEXT-FIG. 12.—*Zephronia densipora*, sp. nov. *a*. ♂ leg from the middle of the body; *b*. anterior telopod; *c*. posterior telopod.

strongly curved, on its anterior surface opposite the tibio-tarsus a blunt finger-like lobe and small round buttons; tibia and tarsus distinctly separated; tibia with a ridge bearing some knobs, tarsus densely bristled. Praefemur of posterior telopods (text-fig. 12*c*) normal. Femoral process large, with a deep oval groove, but without white lappets in the groove. Tibia and tarsus distinctly separated, tibia hollowed out beneath, anterior edge smooth and slightly projecting, posterior edge beset with a row of knobs. Tarsus with some spines.

Distribution.—Elephant Falls, Shillong, Khasi Hills, Assam (R. B. S. Sewell; 26.ix.26), 1 ♂.

Zephronia debilis, sp. nov.

Anterior half of tergites olive-brown, posterior half dark brown, becoming darker posteriorly, head, collum and 2nd segment dark brown, antennae and legs yellowish-brown. Width 13 mm.

Head densely punctate. 6th joint of antenna expanded laterally, terminal disc transverse. Collum sparsely punctate, anterior ridge present, no punctures near posterior border. 2nd segment densely and finely punctate, only the posterior zone very sparsely punctate, marginal groove continued over dorsum and covered with dense, short, yellow hairs also in the middle. Anterior edge of tergites with one row of minute tubercles. No bristles

TEXT-FIG. 13.—*Zephronia debilis*, sp. nov. Vulva.

behind the marginal furrow. Anterior zone of tergites finely granular, middle zone also finely granular, with fine yellow hairs between granules, posterior zone finely punctate, smooth

and shining ; change between the middle hairy and the posterior punctate zone gradual. Pygidium very densely and finely punctate, anterior covered part only densely beset with fine yellow hairs. On the under side 2 ridges. Coxae of legs with rounded lateral lobe, femur with small cones. Operculum of vulva broadly rounded, with a short blunt lappet on the medial side (text-fig. 13).

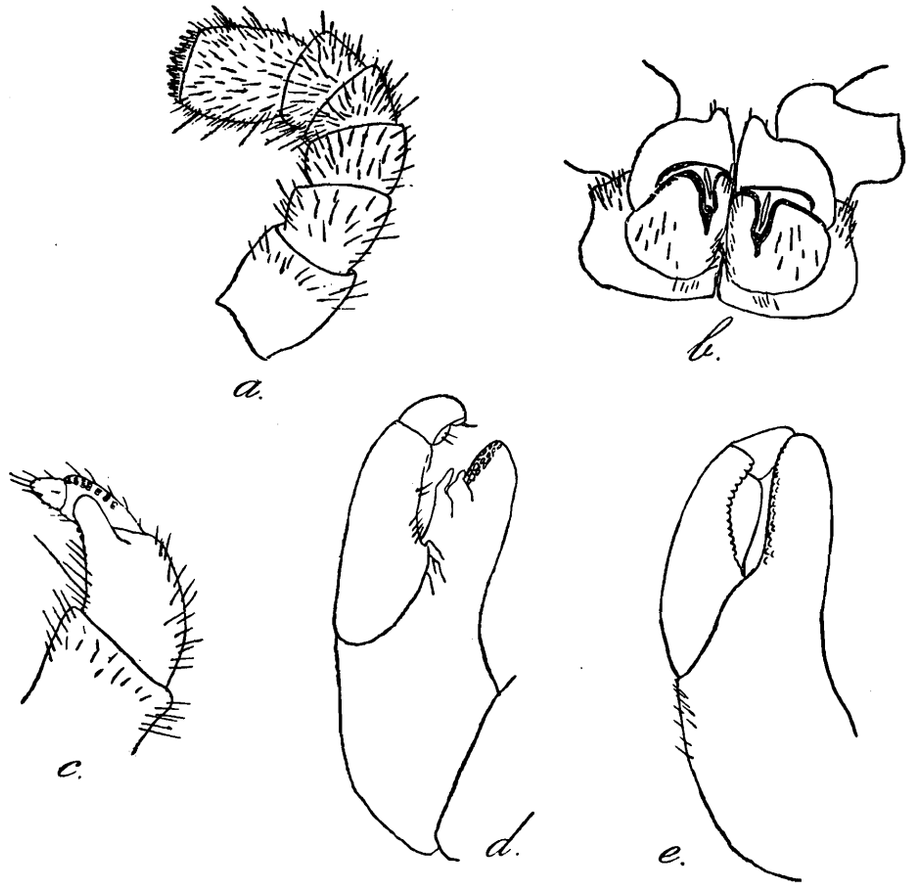
Distribution.—Near Darjeeling, Eastern Himalayas (1 ♀).

Zephronia nigrinota Butl.

1872. *Zephronia nigrinota*, Butler, *Ann. Mag. Nat. Hist.* (4) X, p. 356, pl. xviii, fig. 9.

Dark brown. Length 21 mm., width ♂ 11 mm., ♀ 11·6 mm.

Head including the vertex densely punctate. 6th joint of antenna only weakly incrassate, terminal disc nearly transverse (text-fig. 14*a*). Collum with a fine anterior edge, surface with scattered punctures. 2nd segment not punctate ; marginal groove continued over dorsum, densely and shortly hairy, hairs yellow. Anterior edge of tergites with one row of fine tubercles. Anterior and posterior halves of tergites very different ; anterior half finely granular and its posterior region densely hairy ; posterior half smooth and shining like a mirror, not punctate ; marginal bristles not extending over the border. Pygidium smooth and shining, not punctate, the anterior narrow zone finely hairy ; two ridges on under side, anterior keel short, posterior keel long. Tarsus with one apical spine.



TEXT-FIG. 14.—*Zephronia nigrinota* Butler. *a.* antenna ; *b.* vulva ; *c.* anterior telopod ; *d*, *e.* posterior telopod.

Operculum of vulva sinuate, medial part forming a small rounded lobe (text-fig. 14*b*). Praefemur of anterior telopods (text-fig. 14*c*) without ridge, femoral process rising on

the posterior side and not visible from front, on the anterior surface with some small buttons. Tibia and tarsus distinctly separated; tibia with a row of 6 or 7 rasp-buttons, tarsus with 2 spines and some fine hairs. Praefemur of posterior telopods normal; femoral process large and thick, projecting nearly as much as tibio-tarsus; on the anterior surface opposite to tibio-tarsus 2 narrow blunt lappets, the lateral surface beset with low rounded knobs; tibia and tarsus distinctly separated, on posterior side of tibia a ridge beset with 13 rounded knobs; tarsus with 3 spines (text-fig. 14*d*, *e*). Coxal horns of syncoxite a little shorter than the triangular plates and not bent backwards.

Distribution.—Darjeeling, 7000-8000 feet (R. B. Horsfield) and Jorpokri, 8000 feet (C. W. Beebe; 25.vi.10; under moss), Eastern Himalayas, 2 exs. (damaged).

There is also a tube labelled *Z. nigrinota* var. *tumida* Butl. from 'Aideo, Assam (S. E. Peal; 1.vi.1882), 2 exs. (damaged).

Zephronia specularis, sp. nov.

The covered anterior part of tergites bright yellow-brown, posterior part, head and collum dark chestnut. Length 44 mm.; width 23 mm.

Punctures of head very sparse and shallow. 6th joint of antenna much expanded laterally, terminal disc oblique. Collum with a fine ridge, surface sparsely and finely punctate. 2nd segment not punctate; marginal groove continued over dorsum, not hairy in the middle. Anterior edge of tergites with a row of granules, behind the posterior marginal furrow a small zone of bristles, followed by a broad zone, granular, without bristles, then a granular zone densely covered with yellow hairs; posterior part of tergites smooth, neither punctate nor hairy. Marginal bristles not extending over the border. Anterior half of pygidium densely and finely granular in ♂ and ♀, posterior half smooth, not punctate in ♂, densely and finely punctate in ♀. Posterior border finely marginated in ♀, not marginated in ♂. One ridge on under side. Tarsus with one apical spine. Femoral process of anterior telopods curved forwards, not toothed, tibia and tarsus not distinctly separated, on tibial segment a projection beset with knobs. Femoral process of posterior telopods with 2 lappets. Tibia and tarsus distinctly separated, on the posterior side of tibia a knobbed ridge.

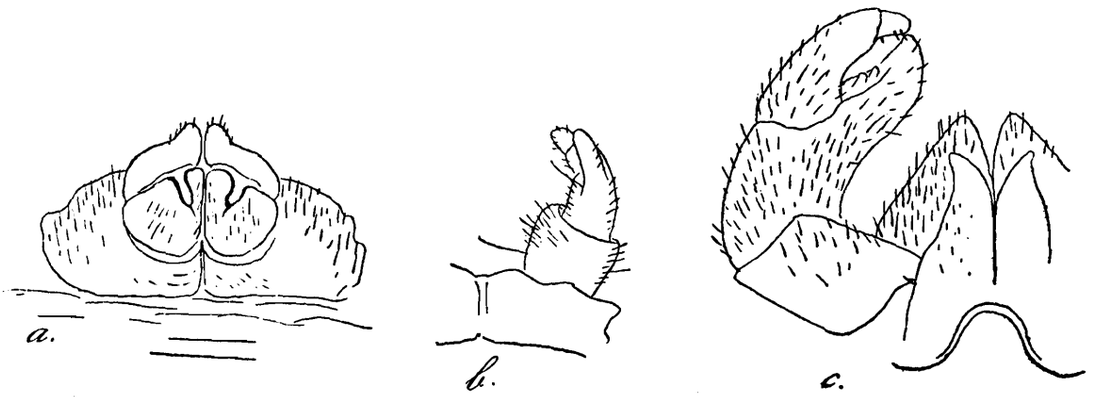
Distribution.—Dafla Hills, Assam (Lt.-Col. H. H. Godwin-Austen), 3 exs.

Zephronia lignivora, sp. nov.

Olive-green, head antennae and collum darker, tip of antennae yellow. Length 20 mm.; width ♂ 10½ mm., ♀ 11-11½ mm.

Head densely punctate, anteriorly still more. Antennae only weakly expanded laterally, terminal disc nearly transverse. Collum with a fine complete anterior ridge, densely punctate, punctures near the posterior border not so dense. Entire 2nd segment up to the posterior border densely punctate, marginal groove continued over dorsum and hairy, also in the middle. Behind the posterior marginal furrow of the tergites a narrow zone of bristles; followed by a granular zone; in ♂ this zone is not hairy, in ♀ densely hairy. Posterior zone densely and finely punctate up to posterior border, not hairy. Marginal bristles not extending over the border. Pygidium punctate as in the case of the tergites, border finely marginated; on the ventral side 2 ridges, posterior longer than the anterior ridge. Shoulder of

coxa broadly rounded, not toothed. Coxae of 2nd legs of ♀ also not toothed. Terminal border of operculum sinuate, internal angle consequently somewhat lobate (text-fig. 15*a*).



TEXT-FIG. 15.—*Zephronia lignivora*, sp. nov. *a*. vulva ; *b*. anterior telopod ; *c*. posterior telopod.

Tarsus with one apical spine. Femoral process of anterior telopods (text-fig. 15*b*) shorter than tibio-tarsus ; tibia and tarsus distinctly separated, no rasp-button present. Femoral process of posterior telopods broad, with 2 short hyaline lappets ; tibia and tarsus distinctly separated, tibia posteriorly with a ridge beset with *ca.* 20 round knobs (text-fig. 15*c*).

Distribution.—Kobo, 500 feet (Dr. S. W. Kemp ; 30.xi-8.xii.11 ; under rotten wood) and Geku, 1000 feet (Dr. S. W. Kemp), Assam (5 exs.).

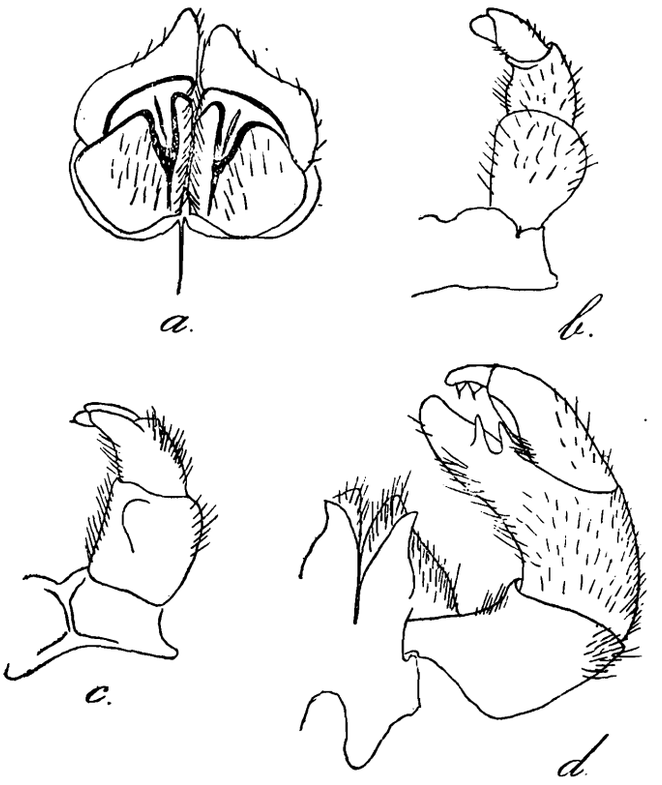
Zephronia tumida Butl.

1882. *Zephronia tumida*, Butler, *Ann. Mag. Nat. Hist.* (5) IX, p. 196.

Dark brown, from 3rd tergite with irregular yellowish-brown spots, head, antennae, collum and 2nd segment very dark brown, terminal disc of antennae yellow. Length 40 mm., width 21 mm.

Clypeus densely, vertex sparsely punctate, sides and middle of head inflated ; 6th joint of antenna only weakly expanded laterally. Collum densely punctate, near the posterior border no row of denser punctures, anteriorly a fine complete ridge. 2nd segment densely punctate up to posterior border, marginal groove continued over dorsum and hairy also in the middle. Anterior edge of tergites with a row of small tubercles, behind the furrow a narrow densely hairy zone, behind this a broad granular zone, posterior part of latter densely hairy, laterally this hairy part meets the anterior hairy zone. Posterior third of tergites densely punctate up to the posterior border, not hairy. Marginal bristles extending slightly or not over the border. Entire pygidium densely punctate, posterior border in ♀ finely marginated, in ♂ indistinctly marginated. Ventral side densely hairy, one very short ridge present, corresponding to the anterior ridge of species with 2 ridges. Transverse ridge vanishing in the middle and visible only laterally. Tarsus from the 3rd legs with one apical spine, claw evenly curved. Lateral shoulder of coxa broadly rounded, coxae of 2nd legs of the ♀ with a blunt tooth. Operculum bluntly and shortly lobated medially (text-fig. 16*a*). Tibia and tarsus of both telopods distinctly separated, femoral process of anterior

telopods behind and beside the tibio-tarsus (text-figs. 16*b*, *c*); femoral process of posterior telopods with 2 long lappets connected at base (text-fig. 16*d*).



TEXT-FIG. 16.—*Zephronia tumida* Butler. *a*. vulva; *b*, *c*. anterior telopods; *d*. posterior telopod.

Distribution.—Harmutti, base of Dafla Hills (Lt.-Col. H. H. Godwin-Austen), Sibsagar (S. E. Peal) and Dikrang Valley, Darrang distr. (Lt.-Col. H. H. Godwin-Austen), Assam, 10 exs.; Tavoy, Lower Burma (Moti Ram), 1 ex.; Kamaing, Myitkyina distr., Upper Burma (Dr. B. N. Chopra; xi-xii.26), 1 ex.

There is also a tube labelled *Z. tumida* var. *nigrinota* Butl. from Darjeeling, Eastern Himalayas (damaged).

Zephronia alticola, sp. nov.

Dark brown, almost black-brown; antennae and legs yellowish-brown. Length ♂ 29 mm., ♀ 33 mm., width ♂ 16-18 mm., ♀ 18 mm.

Head punctate, anterior part very densely, vertex sparsely. 6th joint of antenna not much expanded laterally, but terminal disc very oblique. Collum with a fine, anterior furrow, sparsely punctate. 2nd tergite densely and finely punctate, not hairy, marginal groove continued over dorsum, hairy, hairs short, fine, yellow. Radial folds weak. Anterior edge of tergites with one row of minute tubercles, behind the marginal furrow a small zone of bristles; anterior half of tergite densely granular, posterior zone only of this granular part densely hairy; posterior half of tergite punctate; the density of the punctures diminishes towards the posterior border and the last zone is only sparsely punctate, punctures small, all of the same size. Marginal bristles rising near the border and extending over it. Entire pygidium punctate, the more caudal less densely so; posterior border not marginated in ♂, finely marginated in ♀. 2 ridges on under side.

1st and 2nd legs without apical tarsal spines, from 3rd leg onwards one spine. Coxa of 2nd legs of ♀ without lateral tooth. Operculum of the vulva elongated and flapped.

Femoral process of the anterior telopods situated behind tibio-tarsus, hooked, curved towards the tibio-tarsus ; tibia and tarsus distinctly separated, tibia with a ridge and a row of rasp-buttons. Femoral process of posterior telopods with 2 finger lobes ; tibia and tarsus distinctly separated, tibia with a ridge beset with several buttons, tarsus short, with some spines. The horns of the syncoxite are shorter than the triangular plates and are situated before these plates.

Distribution.—Sureil, 5000 feet, Darjeeling distr., Eastern Himalayas (Drs. N. Annandale and F. H. Gravely ; 11-31.x.17), 4 exs. ; Rotung, 1300 feet, Assam (Dr. S. W. Kemp ; 30.xii.11 ; under stones), 2 exs.

Zephronia alticola bengalica, subsp. nov.

Dark brown, anterior covered part of tergites yellowish, antennae and terminal disc dark brown. Length 40 mm. ; width 18 mm.

Head punctate, 6th joint of antenna expanded laterally, terminal disc oblique. Collum densely punctate, with a fine ridge. 2nd tergite punctate, punctures distinctly finer and sparser than in *Z. alticola*, marginal groove like that of *Z. alticola*. Anterior edge of tergites with fine tubercles, behind the marginal furrow a narrow zone of bristles, followed by a broad granular zone, the middle zone with short yellow hairs ; posterior zone finely and sparsely punctate, punctures finer and less numerous than in *alticola*. Marginal bristles not extending over the border. Lateral wings not incrassate.

Punctures of pygidium finer and less numerous than in *alticola*. 2 ridges on the under side. Posterior border not marginated. Tarsus with one apical spine. Femoral process of anterior telopods strongly curved, at the base a triangular lobe ; tibia and tarsus distinctly separated ; tibia without rasp-buttons. Femoral process of posterior telopods short and thick with 2 large lappets ; tibia and tarsus separated, tibia hollowed out on the under side, anterior ridge lamellar, posterior ridge limiting the groove without buttons.

Distribution.—Buxa Road, North Bengal (Dr. I. M. Puri ; 6.ix.28) ; 1 ex.

Zephronia tigrinoides Silv.

(The species was named by Silvestri, but the description has not yet been published.)

Dark chestnut, tip of antenna yellow, legs brown. Length 35 mm. ; width 18 mm.

Head densely punctate, 6th joint of antenna weakly expanded laterally, terminal disc transverse. Collum not punctate, with a complete anterior ridge. 2nd segment smooth and shining, marginal groove continued over dorsum, and finely hairy also in the middle. Anterior edge of tergites with a row of minute tubercles. In the declivity behind the furrow a narrow zone of minute bristles, otherwise the tergites are hairless, not punctate, smooth and polished. Pygidium densely punctate, pores partially in common grooves. Posterior border finely marginated. No inner crest present, 12th segment without such crest, 4th-11th segments with a crest. Tarsus with one apical spine. Femoral process of anterior telopods with a tooth, tibia with a lamella beset with knobs at the margin. Femoral process of posterior telopods with 2 finger-like lobes ; tibia anteriorly with a lamella, posteriorly with a row of knobs ; tarsus with some spines.

Distribution.—Sukna, 500 feet, Darjeeling distr., Eastern Himalayas (Dr. N. Annandale), 1 ♂.

Zephronia inferior Silv.

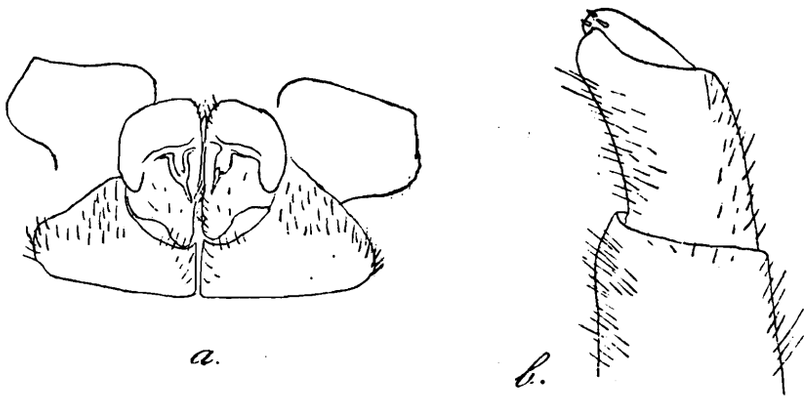
(Named by Silvestri, but not described so far.)

Colour dirty olive-brown, posterior margin of tergites darker.

Length, ♂ 25 mm., ♀ 28 mm. ; width, ♂ 14 mm., ♀ 15½ mm.

Head dispersedly punctate, clypeus somewhat denser. 6th joint of antenna laterally more expanded in ♂ than in ♀, the terminal disc oblique. Collum not punctate, with an anterior fine sulcus. Second segment not punctate, marginal groove continued over dorsum, only its posterior part hairy, middle and sides hairless. Anterior edge of tergites with a row of minute tubercles, behind the furrow a narrow zone of stiff bristles ; surface smooth, not punctate. Marginal bristles not extending over posterior border.

Pygidium not punctate or with a minute punctation here and there, posterior border finely marginated, more distinctly in ♀ than in ♂. One undivided inner crest present.



TEXT-FIG. 17.—*Zephronia inferior* Silvestri. *a.* vulva ; *b.* posterior telopod.

Tarsus with one apical spine. Vulva (see text-fig. 17*a*). Tibia and tarsus of anterior telopods completely coalesced, femoral process broad with a triangular posterior lobe. Femoral process of posterior telopods (text-fig. 17*b*) with 2 whitish lappets ; tibia and tarsus distinctly separated, tibia with a knob-bearing posterior ridge, tarsus with some spines.

Distribution.—Moulmein, Lower Burma (7 exs.).

Zephronia hysophila Silv.

(Named by Silvestri, but not described so far.)

Olive-green, head, collum and a narrow posterior stripe of tergites olive-brown.

Length 30 mm. ; width 16½ mm.

Head and clypeus with few punctations. 6th joint of antenna fully expanded laterally, terminal disc oblique. Collum not punctate, with a fine anterior sulcus. Marginal groove of second segment continued over dorsum, hairless in middle region. Anterior edge of tergites with a row of small granules, behind the furrow a narrow zone of short bristles. Tergites smooth and shining, neither punctate nor granular.

Pygidium very densely and finely punctate, punctations separated and not in common grooves ; a broad posterior stripe of pygidium not punctate. One long undivided inner crest present, 12th segment also with such a crest.

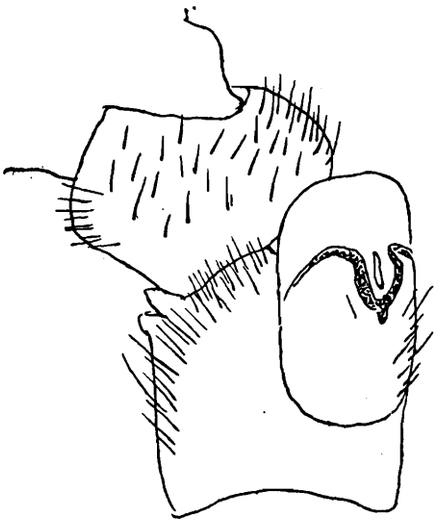
Tarsus with one apical spine.

Distribution.—Dikrang Valley, Darrang distr., Assam (1 ♀ without 2nd leg).

Zephronia hirta, sp. nov.

Black. Length 17 mm. ; width 9 mm.

Entire dorsum, head, collum, tergites and pygidium densely and coarsely punctate and hairy, hairs relatively long. Marginal bristles extending over the border.



TEXT-FIG. 18.—*Zephronia hirta,* sp. nov. Vulva.

Pygidium with one long ridge on the under side. 6th joint of antenna cylindrical, terminal disc transverse, circular, with numerous sensitive cones. Operculum very thick, rounded (text-fig. 18). Tarsus with one apical spine, coxae of 2nd and subsequent legs with a large, rounded lateral lappet.

Distribution.—Sureil, 5000 feet, Darjeeling distr., Eastern Himalayas (Drs. N. Annandale and F. H. Gravely ; 11-31.x.17), 1 ♀.

Remarks.—Lately I described a species from Sumatra, *Z. pellita,* with a similar pilosity, but the hairs in *Z. pellita* are much shorter and denser and lie closer to the body ; they cover also the whole tergite except its first quarter. The hairs of *Z. hirta,* on the contrary, are much longer, not so dense, more divergent and are present only on the free part of the tergite. The 6th joint of the antenna of *Z. pellita* is more expanded laterally, its terminal disc is oblique and oblong.

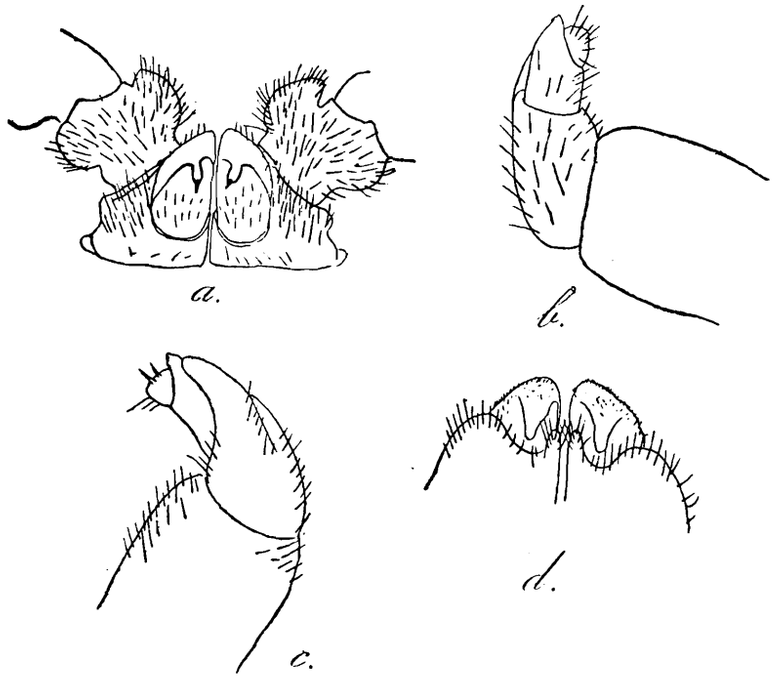
Zephronia impunctata Poc.

1895. *Zephronia impunctata,* Pocock, *Ann. Mag. Nat. Hist.* (6) XVI, p. 413.

Head very densely punctate anteriorly, vertex sparsely punctate. 6th joint of antenna expanded laterally, terminal disc more oblique in ♂ than in ♀. Collum with a fine anterior ridge, behind the ridge a punctate zone, rest almost smooth. Second tergite not punctate, marginal groove continued broadly over dorsum, not hairy in the middle region.

Tergites smooth, neither hairy nor punctate. Anterior edge with fine tubercles, behind the furrow a narrow zone of bristles. Pygidium very finely and densely punctate, posterior border finely marginated both in ♂ and ♀ ; ridge on under side short, pale and hardly visible ; ridges of the foregoing segments similar. Praefemur of 2nd legs of ♀ with a large blunt tooth at the tip ventrally. Terminal border of operculum oblique, but not sinuate (text-fig. 19*a*).

Femoral process of anterior telopods without lappets; tibia and tarsus distinctly divided, tibia with a projecting lamella, but without knobs, tarsus with 2 spines and several fine hairs



TEXT-FIG. 19.—*Zephronia impunctata* Poc. *a*. vulva *b, c*. anterior telopod; *d*. coxite of posterior telopod.

(text-figs. 19*b*, *c*). Coxal horns of the posterior telopods (text-fig. 19*d*) exceedingly thick and bent backwards at right angle, distal half of horn lies on a small triangular plate; femoral process with 2 lobes; tibia with a row of knobs on the posterior side.

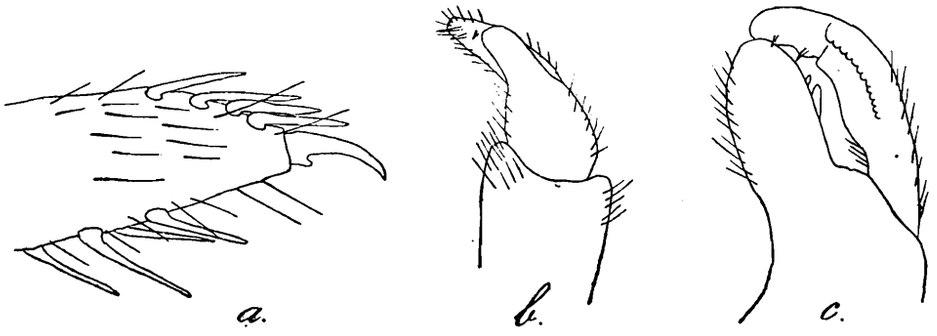
Distribution.—Malay Peninsula (Moti Ram); 6 exs.

Remarks.—This species does not belong to the Indian fauna.

Zephronia viridescens, sp. nov.

Head, antennae and collum green, terminal disc of antenna brown; tergites earthy yellow, a narrow posterior stripe chestnut. The colour has been evidently altered by bad preservation. Length 32 mm.; width 19 mm.

Head densely and finely punctate. 6th joint of antenna expanded laterally, terminal disc oblique. Collum with a complete fine anterior edge, densely punctate, punctures behind edge and in a narrow zone near posterior border finer and denser than between it.



TEXT-FIG. 20.—*Zephronia viridescens*, sp. nov. *a*. tarsus of ♂ leg; *b*. anterior telopod; *c*. posterior telopod.

Entire 2nd segment densely and finely punctate, marginal groove continued over the dorsum, hairy, also in middle region.

Anterior edge of tergites with a row of minute tubercles ; no hairy zone behind furrow ; anterior zone of tergite warty, uneven, not truly granular, middle zone densely punctate and hairy, posterior zone densely punctate but not hairy. Marginal bristles not extending over the border.

Entire pygidium densely punctate, on the under side one dark coloured ridge, longer in ♂, shorter in ♀. Posterior border not marginated. Tarsus with 4 apical spines (text-fig. 20*a*). Femoral process of anterior telopods strongly curved, situated behind tibio-tarsus and shorter than it, with an acute lobe in its basal half ; tibia and tarsus indistinctly separated, both joints with long and dense hairs, tarsus besides with 3 spines ; no rasp-buttons present (text-fig. 20*b*). Coxal horns of posterior telopods strongly curved, gradually narrowed distally ; femoral process broad, curved, with a hyaline lappet, tibia and tarsus distinctly separated, tibia anteriorly with a rounded lamella, posteriorly with 2 rounded knobs on an edge (text-fig. 20*c*).

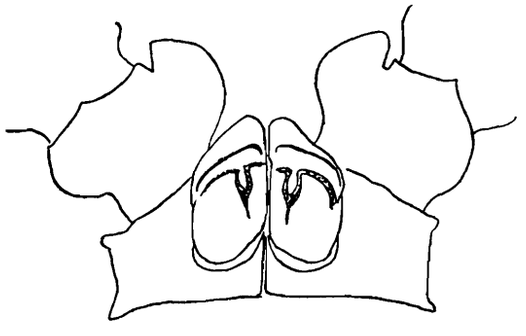
Distribution.—Tavoy, Lower Burma (Moti Ram) ; 2 exs.

Zephronia profuga, sp. nov.

Olive-brown with greenish spots, under side of wings, pleurites and legs olive-green. Length 50 mm. ; width 27 mm.

Anterior part of head densely, vertex sparsely punctate. 6th joint of antenna weakly expanded laterally, terminal disc oblique. Collum with a fine anterior furrow, only in middle slightly away from anterior border ; surface finely and sparsely punctate. 2nd segment very densely and finely punctate, marginal groove continued over dorsum, in middle region scarcely punctate, not hairy.

Anterior edge of tergite with a row of small granules ; behind the posterior marginal furrow a narrow zone of bristles ; first zone of tergite finely wrinkled, wrinkles longitudinal ; not punctate, succeeding zone up to middle or more smooth not punctate ; posterior zone very densely and finely punctate.



TEXT-FIG. 21.—*Zephronia profuga*, sp. nov. Vulva.

Major part of pygidium very densely and finely punctate, posterior stripe smooth and not punctate, border finely marginated by a sulcus, one short ridge on the under side, no lateral notch.

Tarsus with 3 apical spines. Coxa of 2nd legs of ♀ without lateral tooth ; praefemur with a large, blunt conical lobe on the under side. Operculum with an oblique terminal border, its medial border longer than its lateral border (text-fig. 21).

Distribution.—Hongkong, China (R. Hungerford) ; 1 ♀.

INDIAN SPECIES OF *Zephronia* NOT REPRESENTED IN THE COLLECTION OF THE INDIAN MUSEUM.

Zephronia comotti Poc.

1890. *Zephronia comotti*, Pocock, *Ann. Mus. Genova*, XX, p. 391.

Distribution.—Minhla, Burma.

? **Zephronia dollfusi** Poc.

1895. *Zephronia dollfusi*, Pocock, *Ann. Mag. Nat. Hist.* (6) XVI, p. 413.

Distribution.—Cochin China.

Zephronia formosa Poc.

1890. *Zephronia formosa*, Pocock, *Ann. Mus. Genova*, XX, p. 387.

Distribution.—Burma.

Zephronia gestri Poc.

1890. *Zephronia gestri*, Pocock, *Ann. Mus. Genova*, XX, p. 390.

Distribution.—Thagata, Burma.

Zephronia laevissima Butl.

1874. *Zephronia laevissima*, Butler, *Ann. Mag. Nat. Hist.* (4) XIV, p. 185, pl. xvi, fig. 4.

Distribution.—Sikkim.

Zephronia semilaevis Poc.

1890. *Zephronia semilaevis*, Pocock, *Ann. Mus. Genova*, XX, p. 388.

Distribution.—Malwoon, Tenasserim.

Zephronia siamensis Hirst.

1907. *Zephronia siamensis*, Hirst, *Ann. Mag. Nat. Hist.* (7) XX, p. 218.

Distribution.—Siam, Kosichang, Chautaboon.

Zephronia doriae Poc.

1890. *Zephronia doriae*, Pocock, *Ann. Mus. Genova*, XIX, p. 79, fig. 1.

1890. *Zephronia doriae*, Pocock, *Ann. Mus. Genova*, XX, p. 385.

Distribution.—Burma, Cochin Hills near Bhamo.

Zephronia feae Poc.

1890. *Zephronia feae*, Pocock, *Ann. Mus. Genova*, XIX, p. 80, fig. 2.

1890. *Zephronia feae*, Pocock, *Ann. Mus. Genova*, XX, p. 385.

Distribution.—Burma, Teinzo, Kochin Cauri.

Lophozephronia, gen. nov.

In *Zephronia crepitans* Poc. the legs in the hinder half of the body are peculiarly modified and the stridulating organ of the posterior telopods is quite different from that of the other species of the genus *Zephronia*. A new genus is, therefore, proposed for it. Pocock's

description reads " the legs in the hinder half of the body gradually increase in length from before backwards and alter in shape at the same time. The two basal segments become very large, the third segment completely bent in the form of an arch and the distal segment dilated towards its extremity and thickly clothed with long hairs". Femur of anterior telopods with a process, tibia and tarsus coalesced. Femur of posterior telopods with a very short process, tibia and tarsus separated, the tibia bears on its posterior surface a plate covered with fine parallel ridges, constituting a stridulating organ with the fine granules on the inner surface of the pygidium. The tarsus closes upon the tibia almost as the blade of a pocket knife does on its handle.

Lophozephronia crepitans (Poc.).

1890. *Zephronia crepitans*, Pocock, *Ann. Mus. Genova*, XXX, p. 392, fig. 6.

Distribution.—Rangoon, Lower Burma.

Indosphaera, gen. nov.

Femoral process of anterior telopods situated behind the tibio-tarsus, surface opposing the tibio-tarsus beset with small knobs. Tibia and tarsus distinctly separated, tibia with a rasp-button ; tarsus with some spines. Femoral process of posterior telopods large, with 2 white lappets, tibia and tarsus distinctly separated, tibia posteriorly with some rasp-buttons, tarsus with spines. Triangular plates of syncoxite normal. 6th joint of antenna only weakly expanded laterally. Collum with a fine anterior sulcus. Marginal groove of the second segment continued over the dorsum, hairy also in the middle region. Tarsus of legs distally narrowed, one apical spine near the claw. Coxae of 2nd legs of ♀ completely fused, no median suture visible in the syncoxite (text-fig. 22*k*). Vulva bipartite, operculum broadly rounded covering the top of the basal.

Genotype.—Indosphaera curiosa, sp. nov.

Indosphaera curiosa, sp. nov.

Colour chestnut, tergites from the first to the penultimate with narrow dark brown posterior margins, pygidium brighter brown, more yellowish. Length 30 mm. ; width 14 mm.

Head densely and coarsely punctate, 6th joint of antenna not expanded laterally. Collum as densely and coarsely punctate as head, with a fine, uninterrupted sulcus a little remote from margin in the middle. Second segment densely punctate, marginal groove continued over entire dorsum, finely and shortly hairy, radial folds very weak. Anterior and middle part of tergites granular, posterior part punctate ; the granules are rounded protuberances of the epidermis, more or less darkened at the top. In the middle part of tergite there are numerous bristles between the granules, much more numerous than the granules ; each bristle lies in a bright circle, as a result of the epidermis being thinner round the base of the bristle and perforated ; the bristle behind each granule is a little longer than the remaining bristles and the circle is a little larger (text-fig. 22*a*). In the anterior zone of the tergite, there are no distinct bristles or only rudimentary ones, but owing to the poor state of preservation of the animals it is not possible to be definite about the normal condition. In the coarse punctures of the posterior part of the tergites there are minute cones

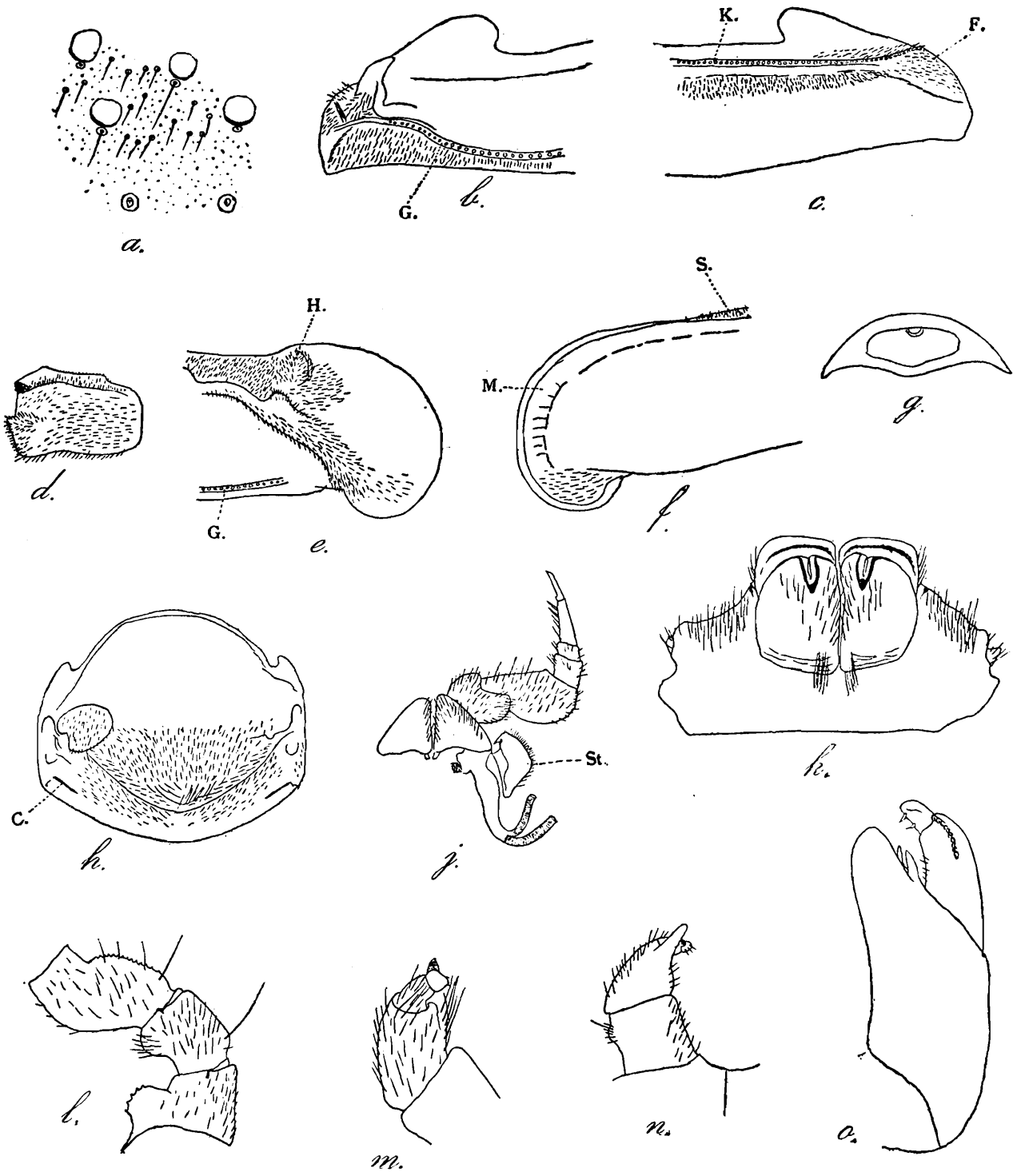
with rudimentary bristles. The fine apertures of the epidermal glands are so minute that they are visible only under a microscope ; they are very numerous. The marginal bristles are simple, fine hairs rising close to the margin and extending over it. On the under side of the pygidium there is a long, simple (undivided) ridge.

The posterior margin of the tergite is thin, in front of it on the under side there is a rounded edge bearing the marginal bristles. In front of the edge there is a deep groove, the praemarginal groove (text-fig. 22*b*, *G*), while in the groove there is a row of longitudinal oval tubercles, the praemarginal tubercles. In front of these tubercles the surface of the under side is smooth. The intersegmental membrane is inserted far from the posterior margin. The praemarginal groove runs laterally before the beginning of the lateral wings from the posterior margin and meets in the middle of the wing, the junction of the pleurite and the roll of the wing ; it is continued on the under side of the wing nearly to the top.

At the anterior margin of the tergite, there is a lamella perpendicular to the tergite, the prophragma, very narrow in the major part of the circumference but a little broader in the sides. Above the smooth inferior edge of the prophragma there is a furrow, the anterior marginal furrow, and above the furrow the knob-edge (text-fig. 22*c*, *K*), a rounded edge, beset with little semiglobose or oblong tubercles. In *Indosphaera*, *Zephronia* and *Kophosphaera* these tubercles are arranged in one regular row, in *Arthrosphaera* they are generally smaller and arranged less regularly. Laterally the inferior edge and the knob-edge diverge and the anterior marginal furrow becomes an elliptical field, thin, nearly membranous and setose. In the middle of the dorsum the inferior edge and the knob-edge are separated only by the narrow marginal furrow. Behind or above the knob-edge there is a second furrow, the posterior marginal furrow passing over laterally in the setos oblique anterior field (text-fig. 22*c*, *F*) of the lateral wing. Frequently the bristles of this field are continued as a narrow garland over the dorsum at the limit between the posterior marginal furrow and the dorsal surface. This garland of bristles can be present also when the tergites are not hairy as the rest of the surface. There is no such garland of bristles in *Indosphaera*. The intersegmental membrane is attached at the interior surface of the segment just behind the inferior edge. The tergite and the pleurites are connected by a narrow membrane permitting only a limited amount of withdrawing of the pleurites and the tergite. On the other side each pleurite is connected by a membrane with the two sternites of each segment. The pleurites are setose, the medial part is plane ; laterally an anterior roll is separated by a deep transverse groove (text-fig. 22*d*). Each pleurite covers the anterior end of the following pleurite, as opposed to the sternites, where the anterior part covers the posterior part of the foregoing sternite. The sternites are divided in two halves, separated by the coxa ; each half is an irregular quadrangular lamella ; the stigma lies in the posterior medial angle. In the middle of the posterior border beside the tracheal stalks is a lobiform process. The broad lateral part of the coxa separates the subsequent sternites of each side of the body. The membrane between the sternite and the pleurites can easily be separated, but the pleurites and the tergite are firmly united.

The second segment differs from the remaining segments. On the inner side (text-fig. 22*e*) there are 2 large round knobs, one behind the other, homologous to the knobs at the under side of the wings and separated by a deep groove, the continuation of the marginal furrow. The anterior knob (*H*) is larger. The surface behind the edge and the whole under

side of the lateral wings is setose. The anterior edge is bent backwards and ends at the posterior knob. The part corresponding to the knob-edge of the remaining tergites is smooth



TEXT-FIG. 22.—*Indosphaera curiosa*, sp. nov. *a*. surface of tergite ; *b*. tergite showing the praemarginal groove (*G*) ; *c*. tergite showing the knob-edge (*K*) and the setose oblique anterior field (*F*) ; *d*. pleurite ; *e*. 2nd segment inner side, showing the anterior knob (*H*) and the praemarginal furrow (*G*) ; *f*. 2nd segment outer side, showing the oblique field (*S*) and the marginal groove (*M*) ; *g*. collum ; *h*. pygidium showing the crest (*C*) ; *j*. first leg of ♂, (*st*) sternite ; *k*. syncoxite and vulva ; *l*. leg from middle of body of ♂ ; *m*. anterior telopod (anterior view) ; *n*. anterior telopod (posterior view) ; *o*. posterior telopod (posterior view).

and passes over in the marginal roll of the lateral wings. In the middle of the dorsum before the edge is an oblique field (text-fig. 22*f*, *S*) belonging to the under side, but turned, and visible from above. Behind the edge is the marginal groove (text-fig. 22*f*, *M*), narrow and furrow-like in the middle and corresponding to the posterior marginal furrow of the

following tergites. Near the posterior border on the under side, as in the tergites, is a deep premarginal furrow (text-fig. 22*e*, *G*) with a row of knobs, but no marginal bristles.

The collum (text-fig. 22*g*) is crescent-shaped, the top appressed to the sides of the head and reaching to the middle of the eyes. The arched middle of the anterior margin is adapted to a sinus of the head. In the intersegmental membrane between the collum and the second segment there is a small semicircular sclerite. The anterior part of the pygidium (text-fig. 22*h*) resembles the foregoing tergites: the marginal furrow, the knob-edge, the lateral field resulting from the divergence of knob-edge and inferior edge, the oblique lateral fields and the prophragma are the same. As is well known, the pygidium is formed by two segments; this coalescence is indicated in many species by a short notch in the lateral border, but there is no notch in *Indosphaera*. The dorsal body wall is inserted in the middle of the pygidium, the free posterior half of the under side of the pygidium is setose except for the posterior median stripe. In the region surrounding the low transverse edge the bristles are longer than those before and behind the edge. From the knob corresponding to the knob on the under side of the wing of the remaining tergites starts a low rounded transverse edge, in the middle nearer to the posterior border than laterally. Parallel to the posterior border and at some distance there is a ridge (text-fig. 22*h*, *C*). Here this ridge is not divided into two parts, and corresponds to both the ridges of other species in which it is divided, indicating the composition of the pygidium by two segments.

The sternite and the tracheal stalks of the first legs (text-fig. 22*j*) are very different from the following legs. The tracheal stalk is a large horn curved forwards; the tracheae are inserted at the top and on the surface. The halves of the sternite (text-fig. 22*j*, *St*) are small and connected with the lateral angle of the coxa.

The basal piece of the vulva (text-fig. 22*k*) is longer than the operculum, the latter is short and broad, the distal border nearly straight, in the middle there is a dark-coloured, curved, transverse stripe.

Praefemur of anterior telopods (text-figs. 22 *l*, *m*, *n*) without edge, femoral process long and slender, longer than the tibio-tarsus and situated behind it, surface opposite the tibia beset with low little knobs; tibia and tarsus distinctly separated, near the top of the tibia posteriorly a rounded rasp-button, tarsus with several short spines. Coxal horns of the syncoxite of the posterior telopods strongly curved backwards, femoral process very broad, near the base with 2 long finger-like lobes connected at the base; tibia and tarsus distinctly separated, tibia with a row of *ca.* 10 rasp-buttons, tarsus with 2 spines (text-fig. 22*o*).

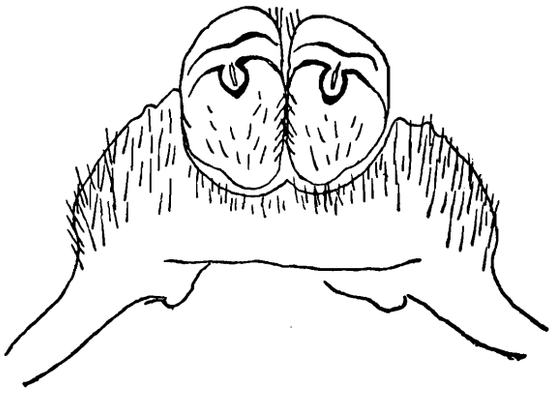
Distribution.—Nemotha and Silcuri, Cachar, Assam (Dr. J. Wood-Mason); several exs.

Indosphaera fortis, sp. nov.

Chestnut, posterior broad border darker; head antennae and collum blackish. Length 38 mm.; width 22 mm.

Head punctate, anterior part more than vertex. 6th joint of antenna regular, not expanded, terminal disc transverse. Collum with a fine groove in the middle remote from anterior border, surface dispersedly punctate, near posterior border a row of dense punctures without bristles. The marginal groove of second segment continued over dorsum, very

shallow and densely hairy in middle, hairs yellow; anterior part of the second segment densely punctate, posterior smooth, not punctate.



TEXT-FIG. 23.—*Indosphaera fortis*, sp. nov. Vulva.

Anterior edge of tergites with a row of small tubercles, behind the marginal furrow a narrow zone of bristles, anterior part of tergites densely and finely granular, not hairy, middle part densely punctate and hairy, posterior part smooth, hairless; only the terminal segments have some fine punctures in the corresponding region. Pygidium densely and finely punctate, ridge on under side unusually long. Pleurites densely hairy.

Tarsus with one apical spine. Coxae of 2nd legs of ♀ coalescent, forming a syncoxite, no lateral prominence. Operculum broadly rounded (text-fig. 23).

Distribution.—Southern Shan States, Burma (1 ♀ preserved dry).

Kophosphaera, gen. nov.

Both pairs of telopods without rasping knobs. Tibia and tarsus of both telopods distinctly separated. Femoral process of the posterior telopod without white lappets.

Collum with one sulcus remote from margin in middle. Marginal groove of second segment continued over dorsum, not hairy in middle. Behind posterior marginal furrow of tergites generally a narrow zone of bristles. Anterior part of tergites very finely punctate, neither hairy nor granular; posterior part punctate.

Key to the Species.

1. Pygidium of male more or less like a bell, not evenly arched . . 2
   Pygidium evenly arched in ♂ and ♀ 3
2. Pygidium of ♂ densely punctate except a smooth margin, excavation more distinct . . . . . *K. excavata* (Butl.).
   Pygidium not at all punctate, excavation less distinct . . . *K. politissima*, sp. nov.
3. Pygidium of ♂ densely punctate to posterior border . . . . *K. devolvens*, sp. nov.
   A broad posterior margin of the pygidium not punctate . . . *K. brevilamina* (Silv.).

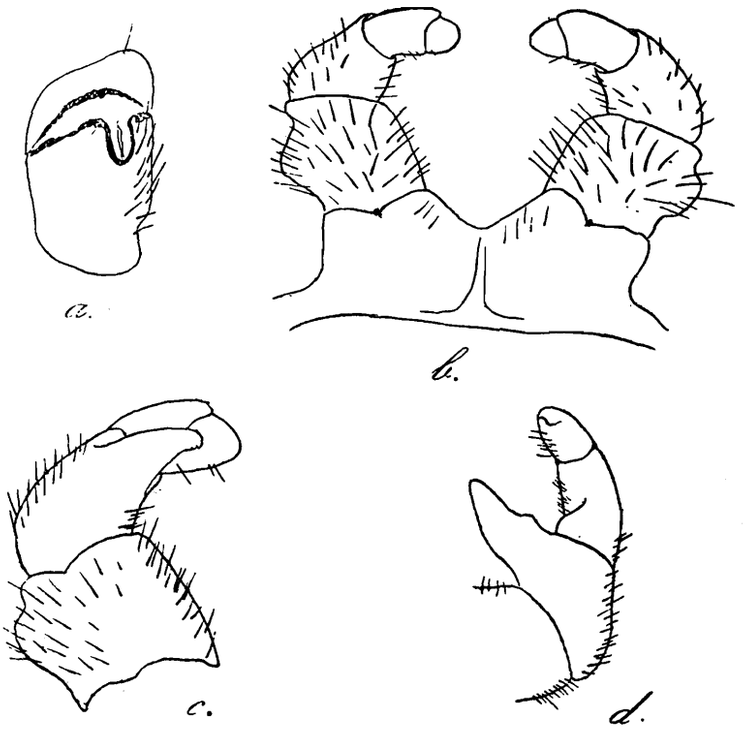
Kophosphaera excavata (Butl.).

1874. *Zephronia excavata*, Butler, *Ann. Mag. Nat. Hist.* (4) XIV, p. 185, pl. xvi, fig. 1.

Chestnut, tergites darkly marginated posteriorly. Length 23-34 mm.; width 10-11 mm.

Vertex sparsely bristled, 6th joint of antenna only slightly expanded laterally. Collum smooth, shining, with a weak sulcus in the middle remote from anterior border, behind

the sulcus a row of punctures, rest of surface not punctate. Second segment not punctate, marginal groove continued over dorsum, very weak in middle, nearly vanishing, finely punctate, not hairy.



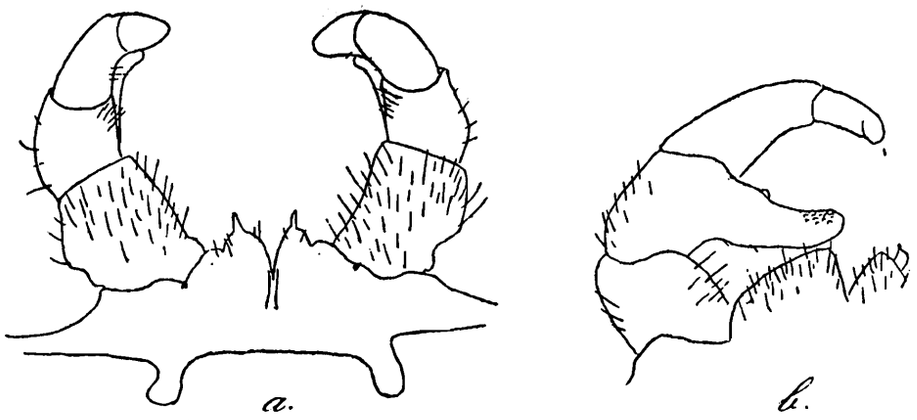
Text-fig. 24.—*Kophosphaera excavata* (Butl.). *a.* vulva; *b.* anterior telopod (anterior view); *c.* anterior telopod (posterior view); *d.* posterior telopod (posterior view).

Anterior edge of tergites with one regular row of small granules, behind the marginal furrow a narrow dense zone of short bristles, followed by a broad finely punctate zone, posterior half smooth like a mirror. Pygidium resembling a bell, posterior part excavated from centre to near border (the figure published by Butler is a little exaggerated), surface densely punctate except for a broad smooth margin, on the under side one very long ridge. No lateral notch present. Vulva (see text-fig. 24*a*). Tarsus with one apical spine. Femoral process of anterior telopods (text-figs. 24*b*, *c*) somewhat shorter and slenderer than that of *devolvens*, with some small knobs before the tip. Femoral process of posterior telopods (text-fig. 24*d*) more pointed, tarsus with a small rounded lappet posteriorly. Coxal horns of posterior syncoxite bent backwards.

Distribution.—Chitlong, Nepal (Museum Collector), 1 ex.; Dikrang Valley, Darrang distr., 2 exs. and Shillong, Khasi Hills, Assam (T. B. Fletcher; v. 18), 1 ex.

Kophosphaera excavata mammifera, subsp. nov.

Differing from *excavata* in the telopods: the coxae of the anterior telopods are separated to nearly half the length, each coxa is provided with a process similar to an udder (text-fig. 25*a*), the whole telopodite of the anterior telopod is slenderer and the praefemur is less projecting laterally. The femoral process of the posterior telopod (text-fig. 25*b*) is somewhat thicker and bears a small knob; the surface opposite the tibio-tarsus has weak squamous granules. Coxal horns are slender and straight, not bent backwards.



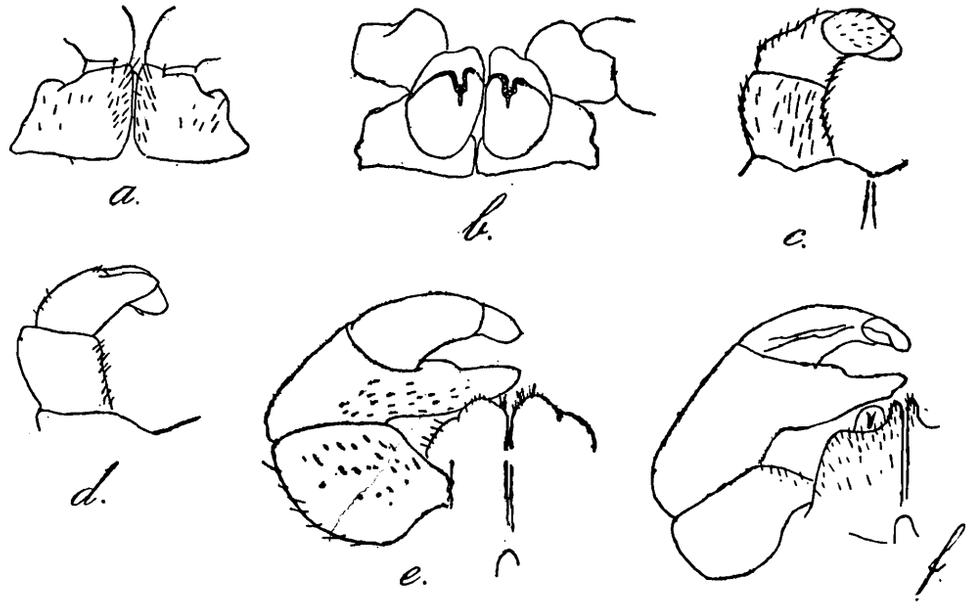
TEXT-FIG. 25.—*Kophosphaera excavata mammifera*, subsp. nov. *a*. anterior telopod (anterior view); *b*. posterior telopod (posterior view).

Distribution.—Sureil, Darjeeling distr., Eastern Himalayas (A. Alcock; 1905), 2 exs.; Khasi Hills, Assam, 8 exs.

Kophosphaera politissima, sp. nov.

Dark brown, with 2 or 3 rows of yellowish spots, median spots resembling hour-glasses and sometimes absent, lateral ones oval. Width 11 mm.

Head very smooth and shining, clypeus densely, vertex sparsely and finely punctate and hairy. 6th joint of antenna only weakly expanded laterally, terminal disc oblique. Collum not punctate, with one sulcus in the middle remote from margin. Marginal groove of second segment continued over dorsum, not hairy in middle, radial folds distinct. All segments from collum to pygidium smooth and shining like a mirror, first quarter of each tergite very densely and finely punctate, anterior edge with one row of granules, declivous surface behind marginal furrow with a zone of short bristles, passing into the anterior declivous hairy surface of lateral wings.



TEXT-FIG. 26.—*Kophosphaera politissima*, sp. nov. *a*. ♂, coxae of last pair of legs; *b*. vulva; *c*. anterior telopod (anterior view); *d*. anterior telopod (posterior view); *e*. posterior telopod (anterior view); *f*. posterior telopod (posterior view).

Pygidium of the ♂ resembling that of *K. excavata*, but less distinctly excavated. Coxa of legs (text-fig. 26*a*) with broadly rounded lateral lobe, tarsus with one apical spine. Coxa

of 2nd legs of the ♀ without lateral lobes. Operculum nearly straight-line, only weakly excavated (text-fig. 26*b*). Femoral process of the anterior telopods (text-figs. 26*c*, *d*) situated behind tibio-tarsus, with cones ; tibia and tarsus distinctly separated, tibia without knobs. Coxal horns of the syncoxite of posterior telopods semiglobular when seen from the anterior side, top bent backwards. Femoral process of posterior telopods without white lappets ; tibia and tarsus distinctly separated, tibia without knobs (text-figs. 26*e*, *f*).

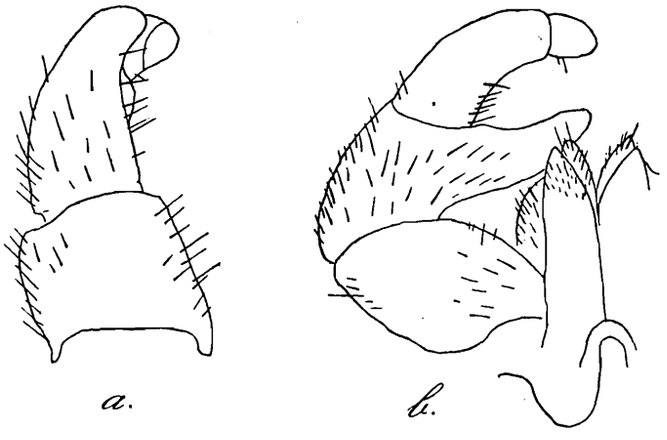
Distribution.—Dobie Jhora, Kurseong, 3 exs. and Sureil, 5,000 feet, 1 ex., Darjeeling district (Drs. N. Annandale and F. H. Gravely ; 11-31.x.17), Eastern Himalayas.

Kophosphaera devolvens, sp. nov.

Head, collum, major part of second segment and a broad posterior margin of tergites chestnut, remainder of tergites yellowish ; antennae dark brown, terminal disc bright brown. Width 19 mm.

Middle and sides of the head only weakly puffed up, vertex sparsely punctate. 6th joint of antenna weakly expanded laterally, terminal disc oblique. Collum with one sulcus in middle remote from margin, anterior edge of collum rounded, not sharp. Marginal groove of second segment continued over entire dorsum, in middle very shallow and not hairy or sparsely hairy, radial folds very weak, entire surface minutely and finely punctate.

Anterior edge of tergites smooth, as also anterior zone, succeeded by a short zone with dense, short hairs, terminal zone densely and finely punctate, hairless ; free part of tergite more coarsely punctate, with minute hairs, which are so small that they are visible only in the profile, a short posterior zone not punctate.



Text-fig. 27.—*Kophosphaera devolvens*, sp. nov. *a*. anterior telopod (posterior view) ; *b*. posterior telopod (anterior view).

Entire pygidium very densely punctate, with minute hairs ; sometimes several punctures united in a common depression. Posterior margin scarcely bell-like, under side densely hairy, without ridges. Coxa of legs with a large broadly rounded lateral lobe, femur with few pointed cones.

Praefemur of anterior telopods ridged, femoral process large and thick, situated behind tibio-tarsus, not visible from the anterior side, nearly as long as tibio-tarsus ; tibia and tarsus distinctly separated, both without knobs, etc. (text-fig. 27*a*). Coxal horns of posterior telopods strongly bent backwards ; praefemur without stridulating organs ; femur with a strong process, without lappets, shorter than the tibio-tarsus and forming a pincers with

the latter; tibia and tarsus distinctly separated, without stridulating organs. Tarsus with some bristles and a rounded lappet on the posterior surface (text-fig. 27*b*).

Distribution.—Gangtok, 6,150 feet, Sikkim (Museum Collector; 9.ix.09), 1 ex.; Sureil, 5,000 feet, Darjeeling district (Drs. N. Annandale and F. H. Gravely; 11-31.x.17), 1 ex., and Darjeeling (J. Gammie) 1 ex., Eastern Himalayas.

Kophosphaera brevilamina (Silv.).

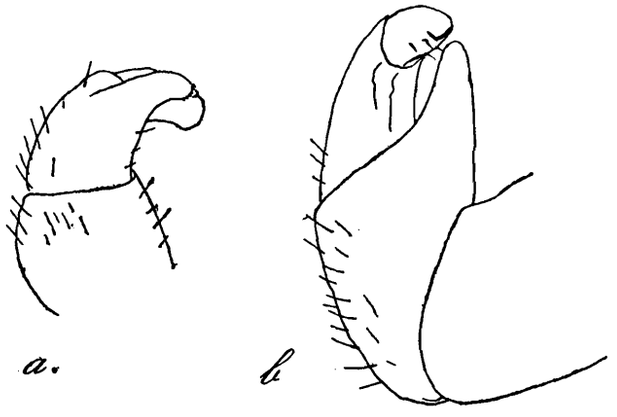
(Bearing the label *Zephronia brevilamina* Silv.; the description of this species has not been published so far).

Bright chestnut, head and collum darker, top of antenna beginning at base of 6th joint yellow, each tergite darkly marginated posteriorly. Width 16 mm.

Collum not punctate, with one fine sulcus in middle remote from anterior border. Second segment not punctate, marginal groove continued over entire dorsum, not hairy in middle, posterior part of groove very narrow.

Anterior edge of tergites with one row of granules, anterior declivous surface hairy, anterior zone very finely and densely punctate, not hairy, remainder very finely scribbled, punctures visible only with a strong lens.

Pygidium evenly arched, very densely punctate, a broad posterior border smooth, not punctate. Border not marginated. No ridge on under side, 12th segment with a ridge.



TEXT-FIG. 28.—*Kophosphaera brevilamina* (Silv.). *a*. anterior telopod; *b*. posterior telopod (posterior view).

Femoral process of anterior telopod (text-fig. 28*a*) with a tooth at the base and some small pointed cones at top; tibia without granulated lamella. Femoral process of posterior telopod broader than that of *K. devolvens*, without finger-like processes, on posterior side of tibia a weak edge without knobs; tarsus with some spines (text-fig. 28*b*).

Distribution.—Siliguri, North Bengal (Museum Collector; 18.vii.07), 1 ex.; Kurseong, 5,000 feet, Eastern Himalayas (Museum Collector and C. Lynch; 5.vii.08), 2 exs.

INDIAN GENERA NOT REPRESENTED IN THE COLLECTION OF THE INDIAN MUSEUM.

Chinosphaera Att.

Chinosphaera maculosa Att.

1935. *Chinosphaera maculosa*, Attems, *Arch. Hydrobiol.* XIV, Suppl., pp. 134-136, figs. 23-27.

Distribution.—Futschau, Prov. Fokien, China.

Tonkinobelum Verh.

Tonkinobelum maculatum Verh.

1924. *Tonkinobelum maculatum*, Verhoeff, ***Ark. Zool.*** XVI, p. 62.

Distribution.—Tonkin, Man Son.

Prionobelum Verh.

Prionobelum durum Verh.

1924. *Pronobelum durum*, Verhoeff, *Ark. Zool.* XVI, p. 64.

Distribution.—Tonkin.

Sphaerobelum Verh.

Sphaerobelum clavigerum Verh.

1924. *Sphaerobelum clavigerum*, Verhoeff, *Ark. Zool.* XVI, p. 65.

Distribution.—Tonkin.

Sphaerobelum hirsutum Verh.

1924. *Sphaerobelum hirsutum*, Verhoeff, *Ark. Zool.* XVI, p. 66.

Distribution.—Tonkin.

DOUBTFUL GENERA AND SPECIES.

Trochosoma Chamb.

Trochosoma pelloceps Chamb.

1921. *Trochosoma pelloceps*, Chamberlin, *Ann. Mag. Nat. Hist.* (9) VII, p. 56.

Distribution.—Periakulum, S. India.

The description is not accompanied by drawings, and it is not clear how the genus *Trochosoma* differs from *Arthrosphaera*.

Sphaeropoeus montanus Karsch.

1881. *Sphaeropoeus montanus*, Karsch, *Arch. Naturg.* XLVII, p. 31.

Distribution.—Himalayas.

The description of the species is useless for its identification.

Sphaerotherium maculatum Butl.

1874. *Sphaerotherium maculatum*, Butler, *Ann. Mag. Nat. Hist.* (4) XIV, p. 186, pl. xvi, fig. 3.

Distribution.—Sikkim.

Sphaerotherium nebulosum Butl.

1875. *Sphaerotherium nebulosum*, Butler, *Trans. Ent. Soc. London*, p. 165.

Distribution.—Nankow Pass between Mongolia and China.

Sphaerotherium politum Butl.

1874. *Sphaerotherium politum*, Butler, *Ann. Mag. Nat. Hist.* (4) XIV, p. 186, pl. xvi, fig. 2.

Distribution.—Sikkim.

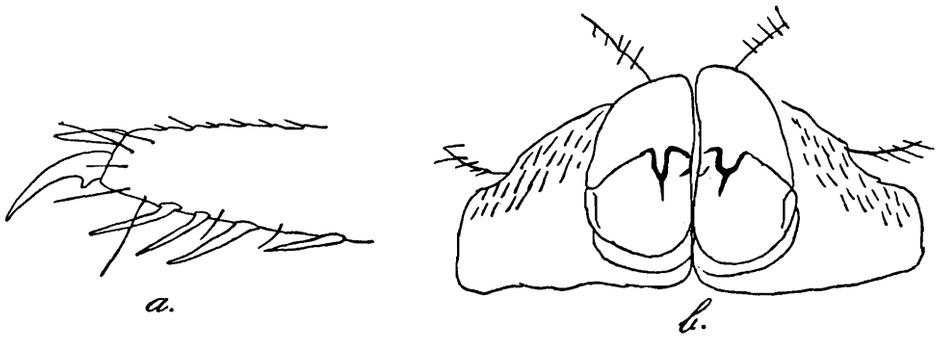
It is very doubtful whether the last three species of Butler listed above belong to the genus *Sphaerotherium*, as understood to-day.

Genus **Borneopoeus** Verh.

Borneopoeus dorsispina, sp. nov.

One female in very poor condition, with the original colour not at all recognisable. Width 11½ mm.

Head densely punctate and setose. 6th joint of antenna expanded laterally, terminal disc oblong, with numerous sensitive cones. Eyes round, hemispherical, single ocelli well defined. Collum lightly arched, middle of anterior border forming a rounded lappet ; a fine ridge some distance behind the border, not reaching lateral ends. Surface densely granular and shortly hairy. Anterior part of second segment sloped downwards, this part short, much shorter than a third of the entire segment. Marginal groove deep, continued over dorsum ; anteriorly the groove is limited by the fine anterior edge, posteriorly by a sharp edge separated from the upper surface of the segment by a sharp sulcus ; the sulcus and the edge are situated



TEXT-FIG. 29—*Borneopoeus dorsispina*, sp. nov. *a*. tarsus; *b*. vulva.

in the anterior sloped part. Anterior edge of tergites finely beaded. Tergites 3-12 with one or two irregular rows of acute, darkly coloured spines, directed backwards, rows extending from anterior border to middle. A row of small, dark coloured tubercles behind anterior sulcus, on the surface similar tubercles here and there ; tergites in addition densely granular and setose. Pygidium densely covered with large, low granules, in anterior half a low, rounded keel, also covered with granules, surface partly setose, posterior border sharp, not marginated, inner crest long, not divided, no lateral segmental notch. Tarsus with one strong apical spine (text-fig. 29*a*.) Vulva bipartite, two halves equal (text-fig. 29*b*.)

Distribution.—Kapit, Sarawak, West Borneo. (1 ♀, in bad condition).

Remarks.—Silvestri identified this specimen in the collection of the Indian Museum as *Castanotherium granulatum* Tömösvary, but the description of Tömösvary is not at all sufficient for the identification of his species.

Family GLOMERIDAE.

Rhopalomeris Verh.

Rhopalomeris carnifex (Poc.).

1887. *Glomeris carnifex*, Pocock, *Journ. Linn. Soc. London*, XXI, p. 290.

1890. *Glomeris carnifex*, Pocock, *Ann. Mus. Genova*, XX, p. 385.

1917. *Rhopalomeris carnifex*, Silvestri, *Rec. Ind. Mus.* XIII, p. 142.

Distribution.—Tenasserim, Moulmein.

Rhopalomeris carnifex var. **pallida** (Poc.).

1887. *Glomeris carnifex* var. *pallida*, Pocock, *Journ. Linn. Soc. London*, XXI, p. 290, pl. xxiv, fig. 7.

1917. *Rhopalomeris carnifex* var. *pallida*, Silvestri, *Rec. Ind. Mus.* XIII, p. 143.

Distribution.—Elphinstone Island, Mergui Archipelago (Dr. J. Anderson); Malacca, Salanga Island.

Rhopalomeris tonkinensis Silv.

1917. *Rhopalomeris tonkinensis*, Silvestri, *Rec. Ind. Mus.* XIII, p. 144.

Distribution.—Tonkin, Montes Mauson.

Rhopalomeris demangei Silv.

1917. *Rhopalomeris demangei*, Silvestri, *Rec. Ind. Mus.* XIII, p. 145.

Distribution.—Tonkin, Hanoi.

Dinoglomeris Silv.

Dinoglomeris dirupta Silv.

1917. *Dinoglomeris dirupta*, Silvestri, *Rec. Ind. Mus.* XIII, p. 147.

Distribution.—Tonkin, Montes Mauson.

Hyperglomeris Verh.

Hyperglomeris lamellosa Silv.

1917. *Hyperglomeris lamellosa*, Silvestri, *Rec. Ind. Mus.* XIII, p. 146.

Distribution.—Tonkin, Montes Mauson.

Annameris Verh.

Annameris robusta Verh.

1921. *Annameris robusta*, Verhoeff, *Arch. Naturg.* LXXXVI, p. 35.

Distribution.—Tonkin.

Annameris curvimanus Verh.

1921. *Annameris curvimanus*, Verhoeff, *Zool. Anz.* XLVI, p. 50.

Distribution.—Tonkin.

Apiomeris Cook.

Apiomeris electa Silv.

1917. *Apiomeris electa*, Silvestri, *Rec. Ind. Mus.* XIII, p. 119.

Distribution.—India : Darjeeling district, Ghumti.

Apiomeris modesta Silv.

1917. *Apiomeris modesta*, Silvestri, *Rec. Ind. Mus.* XIII, p. 121.

Distribution.—North Assam, Kobo.

Apiomeris siamensis Silv.

1917. *Apiomeris siamensis*, Silvestri, *Rec. Ind. Mus.* XIII, p. 116.

Distribution.—Siam, Meetaw, Rahong.

Apiomeris venustula Silv.

1917. *Apiomeris venustula*, Silvestri, *Rec. Ind. Mus.* XIII, p. 117.

Distribution.—North Assam, Sadiya.

Family GLOMERIDESMIDAE.

Termitodesmus Silv.

Termitodesmus ceylonicus Silv.

1911. *Termitodesmus ceylonicus*, Silvestri, *Termitenleben auf Ceylon*, p. 246.

1911. *Termitodesmus ceylonicus*, Silvestri, *Zool. Jahrb.* XXX, p. 412.

Distribution.—Ceylon, Peradeniya, in nests of *Termes obscuriceps.*

Termitodesmus escherichii Silv.

1911. *Termitodesmus escherichii*, Silvestri, *Termitenleben auf Ceylon*, p. 247.

1911. *Termitodesmus escherichii*, Silvestri, *Zool. Jahrb.* XXX, p. 413.

Distribution.—Ceylon, Peradeniya, in nests of *Termes obscuriceps.*

Termitodesmus lefroyi Hirst.

1911. *Termitodesmus lefroyi*, Hirst, *Ann. Mag. Nat. Hist.* (8) VIII, p. 256.

Distribution.—Orissa, Cuttack, nest of *Termes obesus.*

Family STRONGYLOSOMIDAE.

Of all the families of Polydesmoidea only the Strongylosomidae are represented in the Indian Museum collection by a considerable number of species and nearly all these species are new. The great number of Strongylosomid genera and species is a characteristic feature of the Indo-Australian diplopod fauna and we can expect still more new species. The small size of these animals is responsible for their being overlooked by the ordinary collectors, not specialists in diplopods, much more easily than the large Juloidea or Sphaerotheridae. The group of genera, with a gland on the femur of the first legs, which is dominant in the Sunda— and New Guinea Archipelago and Australia, is represented only by two genera in the Indian Territory.

Key to the Indian genera.

1. Praefemur of gonopod with a long and slender process . . .	*Alogolykus*, gen. nov.
Praefemur of gonopod without a process	2.
2. Praefemur of 1st legs of male with a short process	*Gonobelus*, gen. uov.
Praefemur of 1st legs without a process (sometimes the femur with a process)	3.
3. Femur of 1st legs of male with a large gland, opening on a process .	19.
Femur of 1st legs of male without a gland and generally without a process	4.
4. Lateral keels of the 2nd segment below the level of the following keels	5.
Lateral keels of 2nd segment and the following keels on the same level	17.
5. Canal branch cylindrical, its diameter equal to the top or the top a little broader. Canal branch not sheathed by tibio-tarsus .	*Kronopolites* Att.
Canal branch distally much narrowed and pointed, more or less sheathed by tibio-tarsus	6.
6. Canal branch unusually long, bent several times. No lateral rolls .	*Himantogonus* Carl.
Canal branch moderately long, not curved several times . . .	7.
7. 2nd legs of male with a process	*Telodrepanum* Carl, *Polydrepanum* Carl, *Grammorhabdus* Carl.
2nd legs without a process	8.
8. Femur of gonopod without lateral branches	9.
Femur of gonopod with one or more lateral branches . . .	15.
9. Canal branch and tibio-tarsus twisted together in a spiral . .	10.
Canal branch and tibio-tarsus not twisted	11.
10. Sternite 5 of male with a process	*Helicorthomorpha* Att.
Sternite 5 of male without a process	*Streptogonopus* Att.
11. On the lateral rolls a fine ridge. Metazonites densely covered with squamuliform granules and white hairs	*Eudasypeltis* Poc.
No ridge on the lateral rolls. Metazonites not covered with squamuliform granules and hairs	12.
12. Femur of gonopod strongly swollen anteriorly	13.
Latitude of gonopod femur equal or the femur gradually narrowed basally	14.
13. Canal on the lateral side. Sulcus of metazonite present. Sternite V of ♂ with one or two processes	*Nedyopus* Att.
Canal on medial side. No sulcus on metazonite. Sternite V of ♂ without process	*Paranedyopus* Carl.
14. Tibio-tarsus of gonopod with some saw-teeth	*Pagioprium* Att.
Tibio-tarsus of gonopod without such teeth	*Orthomorpha* Poc.
15 (8). Canal branch very long and slender, greatly exceeding the tibio-tarsus	*Dasypharkis* Att.
Canal branch does not extend beyond the tibio-tarsus . . .	16.
16. Sternites very broad. Sternite V without process . . .	*Sichotanus* Att.
Sternites normal. Sternite V with a process	*Sundanina* Att.

17 (4). Lateral margin of keels hollowed out by a channel, with the pore situated in this channel. Metazonites densely and finely granular	*Chondromorpha* Silv.
Lateral rolls of keels thick and round	18.
18. Tibio-tarsus of gonopod triramous with a large two-pointed lamella or deeply bifid, one branch directed basally	*Anoplodesmus* Poc.
Tibio-tarsus of gonopod simple or only the top shortly bifid	*Prionopeltis* Poc.
19 (3). Sternite VI of ♂ with a large curved process	*Yünnanina* Att.
Sternite VI of ♂ without process	20.
20. Only the 1st legs of ♂ with femoral process	*Delarthrum* Att.
1st and 2nd legs of ♂ short and thick, with femoral process	*Xiphidiogonus* Carl.

Orthomorpha Poc.

Subgen. **Orthomorpha** Att.

Key to the Indian Species.

1. Sternite V without prominence	*O. coarctata* Humb. et Sauss.
Sternite V with 1 or 2 prominences	2.
2. Terminal knobs of anal segment in the form of elongated, acute cones, directed downwards	*O. uncinata* Att., *O. minlana* Poc.
Terminal knobs of anal segment small, directed backwards straight.	3.
3. Sternite V with 2 widely separated prominences. Tibio-tarsus of gonopod shortly triramose	*O. karschi* Poc.
Sternite V with one prominence. Tibio-tarsus of gonopod simple or slightly branched	4.
4. Tibio-tarsus of gonopod with a blunt spur at the base, tip simple	*O. oatesi* Poc.
Tibio-tarsus of gonopod without spur at the base, tip branched	*O. miranda* Poc.

Orthomorpha (Orthomorpha) coarctata (Sauss.).

1860. *Polydesmus coarctatus*, Saussure, *Mém. Soc. Genève*, XV, p. 297, pl. xviii, fig. 18.
1869. *Polydesmus coarctatus*, Humbert et Saussere, *Verhandl. Ges. Wien*, XIX, p. 670.
1881. *Polydesmus (Paradesmus) vicarius*, Karsch, *Arch. Naturg.* XLVII, p. 38, pl. iii, fig. 8.
1895. *Orthomorpha coarctata*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 809.
1898. *Orthomorpha coarctata*, Attems, *Denk. Ak. Wien*, LXVII, p. 335.
1902. *Orthomorpha coarctata*, Saussure, *Grandidier Madagascar*, p. 82, pl. xiv, fig. 21.

Distribution.—Burma : Pyinmana (Upper Burma), Tharrawaddy, Moulmein, Rangoon, S. Tenasserim, Palon (Pegu), Teinzo on the Moolay River, Bhamo, Malewoon (Tenasserim).

A widespread species ; also found in Singapore, Java, Sumatra, Borneo, Ternate, Halmaheira, Aru and Kei Archipelago ; Mauritius ; Madagascar ; Nossi Be ; Seychelles ; Mayotte ; Comores ; Antilles ; Guyana and Jamaica.

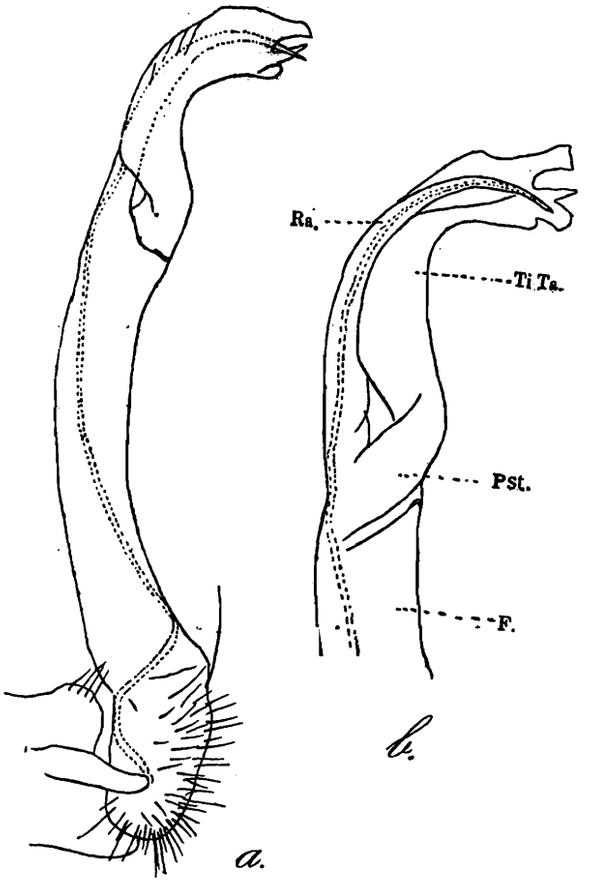
Orthomorpha (Orthomorpha) karschi (Poc.).

1889. *Paradesmus karschi*, Pocock, *Journ. Linn. Soc. London*, XXI, p. 293, pl. xxiv, fig. 5.
1895. *Orthomorpha karschii*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 817, fig. 14.

Entire prozonite, metazonite below lateral wings and anterior half of dorsum before the sulcus dark chestnut, remainder of metazonite pale yellow ; antennae and legs bright

brown, head brown, collum in middle of anterior border brown, rest yellow. In segments 2-4 only the cylindrical part and a narrow following stripe brown, rest yellow. Width of metazonite 5-6 mm. ; prozonite 4 mm.

Clypeus dispersedly hairy, vertex hairless. Sides of collum not symmetrical, posterior border straight, posterior angles blunt. Lateral wings rising high, dorsum between keels weakly arched. Marginal thickening of 2nd segment narrow, from 3rd segment onwards very broad, dorsally sharply limited by a furrow, in the poreless segments only a little smaller than in the pore-bearing segments. Pores lateral. Anterior angle rounded, posterior angle



TEXT-FIG. 30.—*Orthomorpha* (*Orthomorpha*) *karschi* (Poc.). *a*. Gonopod ; *b*. Gonopod (lateral view) ; *F*. femur ; *Pst*. postfemur ; *Ra*. canal branch ; *TiTa*. tibio-tarsus.

from 2nd segment tooth-like and acute ; in middle segments up to 12th the tooth is blunt, from 13th segment again more pointed. Suture finely beaded. Metazonite dorsally smooth or weakly wrinkled. Segments 5-18 with a sulcus. Above the coxa a rounded knob, no true pleural keels ; at the posterior border of the sides up to the wings a fine ridge. Tail broad, terminal knobs with small, oblique cones ; setiferous tubercles small, anal scale rounded with 2 setiferous tubercles. Sternite V of ♂ with 2 low, widely separated prominences ; posterior sternites with a shallow, transverse impression ; dispersedly hairy. Tarsus of anterior legs of ♂ with dense brush. Gonopods (text-figs. 30*a*, *b*), at the top of the coxa few bristles. Praefemur short, distinctly separated from femur (*F*), latter long and slender, post-femur (*Pst*) limited by a fine line. Tibio-tarsus (*TiTa*) broad sickle-shaped, top tridentate.

Distribution.—Sullivan Island, Mergui Archipelago (Museum Collector).

Orthomorpha (Orthomorpha) karschi insularis Poc.

1895. *Orthomorpha insularis*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 817, fig. 15.

Lateral swelling of keels very thick, much thicker than in *O. karschi*, posteriorly rounded; only in terminal segments with a small blunt point. Metazonites dorsally leather-like, wrinkled, behind the sulcus some irregular, shallow folds. Colour similar to that of *O. karschi*, collum darker. Gonopods like those of *O. karschi*.

Distribution.—Thingannyinaung-Myawadi, *ca.* 900 feet (Dr. F. H. Gravely ; 24-26.xi.11 ; several exs.) and Tavoy (Moti Ram ; 5.i.85 ; 1 ex.), Lower Burma ; Hills dividing Burma from Siam (Moti Ram ; 15.iv.85.).

Orthomorpha (Orthomorpha) minlana Poc.

1895. *Orthomorpha minlana*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 816, fig. 20.

Distribution—Burma, Minhla.

Orthomorpha (Orthomorpha) miranda Poc.

1895. *Orthomorpha miranda*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 812, fig. 13.

1896. *Brachytropis miranda*, Pocock, *Ann. Mus. Genova*, XXXVI, p. 198.

Distribution.—Rangoon, Tharrawaddy, Palon in Pegu and Thigian, Upper Irrawaddy.

Orthomorpha (Orthomorpha) oatesii Poc.

1895. *Orthomorpha oatesii*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 821, fig. 17.

Distribution.—S. Tenasserim.

Orthomorpha (Orthomorpha) uncinata Att.

1931. *Orthomorpha uncinata*, Attems, *Zoologica*, XXXIX, Heft 79, p. 117, figs. 176, 177.

Distribution.—Siam, Mnoh lek.

Orthomorpha (Orthomorpha) festiva Brölemann

1896. *Orthomorpha festiva*, Brölemann, *Bull. Mus. Hist. Nat. Paris*, p. 332, fig. 11.

Distribution.—Indo-China.

Remarks.—A doubtful species.

Orthomorpha (Orthomorpha) hingstoni Carl.

1935. *Orthomorpha hingstoni*, Carl, *Rev. Suisse Zool.* XLII, p. 326, figs. 1-3.

Distribution.—Yatung.

Orthomorpha (Orthomorpha) simulans Carl.

1935. *Orthomorpha (Orthomorpha) simulans*, Carl, *Rev. Suisse Zool.* XLII, p. 330, figs. 7, 8.

Distribution.—Rongshar Valley, Nepal ; Tropde, Tibet.

Subgenus **Kalorthomorpha** Att.

Key to the Species.

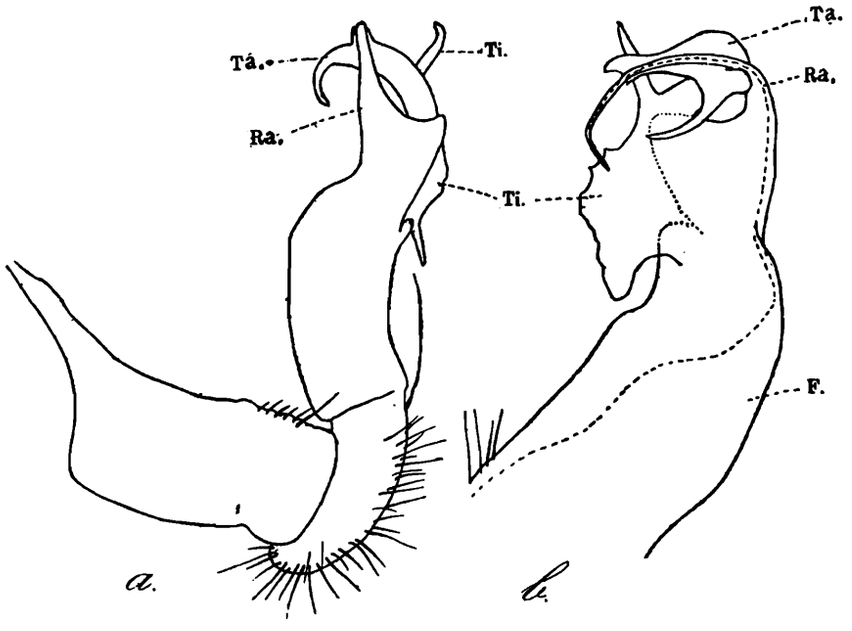
1. Sternite V without prominence	2.
Sternite V with 1 or 2 prominences	4.
2. Femur of gonopod short and straight, limit between tibia and tarsus distinct, tibia with a lateral branch, tarsus divided in 2 branches	*O. gracilis* C. Koch.
Femur of gonopod long and slender, tibio-tarsus without distinct boundary line between tibia and tarsus	3.
3. Lateral wings well developed, with acute posterior angles (Peking)	*O. pekuensis* Karsch.
Lateral swellings low and rounded (Ceylon) .	*O. greeni* Poc.
4. Metazonites with a deep sculpture like bark of a tree, or longitudinally wrinkled	5.
Metazonites smooth .	6.
5. Metazonites deeply sculptured (China)	*O. corticina* Att.
Metazonites from the 8th with longitudinal wrinkles, folds thus formed extend beyond posterior border of metazonite. Gonopods different from those of *O. corticina* (India) .	*O. dentata* Carl.
6. Praefemur of the legs of ♀ with a group of conically converging stiff bristles in addition to normal hairs. Femur of gonopod long and slender (China) . .	7.
Praefemur of legs only with scattered normal bristles . . .	8.
7. At base of gonopod tibio-tarsus with one small transverse branch. Suture furrowed longitudinally. Anal scale with 2 normal setiferous warts. Pleural keels from the 5th segment onwards as large, rounded lobes, extending beyond posterior border	*O. penicillata* Att.
At base of gonopod tibio-tarsus with 2 branches. Suture smooth. Anal scale with 2+2 large tubercles . .	*O. roseipes* Poc.
8. Sternite V with one prominence	10.
Sternite with 2 separated prominences	9.
9. Metazonites without sulcus. Sides of collum broadly rounded. Tarsal bristles of legs not arranged in a brush-like manner. Femur of gonopod without triangular tooth, basal branch of tibio-tarsus directed downwards (India)	*O. ursula*, sp. nov.
Metazonite 5-18 with sharp sulcus. Sides of collum narrowly rounded. Tarsal bristles of legs arranged like a brush, short, widened on one side. Femur of gonopod with a triangular tooth, tibial branch directed distally (Ceylon)	*O. willeyi* Poc.
10. Only weak swellings on sides of metazonites, no distinct keels; tarsi of legs without dense brushes. Femur of gonopod short, broad, rounded and projecting anteriorly (India)	*O. coonoorensis* Carl.
Lateral keels distinctly developed. Tibiae and tarsi of legs 1-7 with dense brushes. Femur of gonopod less broad and not swollen anteriorly (China)	*O. hummeli* Verh.

Orthomorpha (Kalorthomorpha) corticina, sp. nov.

Dark brown, ventral side a little brighter, entire lateral keels yellow. Length 34; width 3·3 mm.

Head and vertex roughly wrinkled, granulated and densely hairy. Antennae moderately long, 2nd-5th joints equal in length, 6th a little shorter and thicker.

Collum sparsely hairy, less wrinkled than metazonites; sides broadly rounded. Lateral keels well developed, not broad, horizontal, rising high on sides, dorsum between keels, as a result, moderately vaulted; keels of 2nd segment below level of the following keels, lateral margin weakly incrassate, projecting anteriorly and posteriorly; keels of segments 3 and 4 more incrassate, anterior angle more, posterior angle less rounded. Margin of pore-bearing keels greatly thickened, poreless keels less so, marginal roll dorsally sharply set off. Pores situated in an oblique groove and visible from above. Anterior angle of all keels much rounded, posterior angle dentiform from 5th segment, tooth blunt in anterior segments, a long acute triangle in the posterior segments. Prozonites very densely and finely granulated. Metazonites roughly wrinkled like the bark of a tree. Sulcus present in segments 4-17. 2 rows of fine yellow bristles, one in front and the other behind the sulcus (the animals are in a poor state of preservation and it is impossible to decide whether more bristles were present). Sides finely granular. Pleural keels present up to 18th segment, beset with little acute granules and continued as fine ridges along posterior border to the keels.



TEXT-FIG. 31.—*Orthomorpha* (*Kalorthomorpha*) *corticina*, sp. nov. *a*. Gonopod (lateral view), *Ra*. canal branch, *Ta*. tarsus, *Ti*. tibia; *b*. Gonopod (medial view), *F*. femur, other lettering as in *a*.

Sternites broader than long, densely and finely hairy, transverse impression distinct, longitudinal impression weak. Tail stout, a little flattened, narrowed distally, setigerous tubercles very small. Anal scale rounded, with 2 small setigerous tubercles, 2 bristles besides thickened margin of valves.

Legs densely hairy throughout, posterior legs not elongated. Sternite V of male with 2 separated, rounded, low, hairy tubercles between 4th pair of legs.

Telopodite of gonopod very broad, base of femur (*F*) slightly bent forwards, no lateral branch at top. Canal runs first on medial side, then on the anterior edge. Femur separated

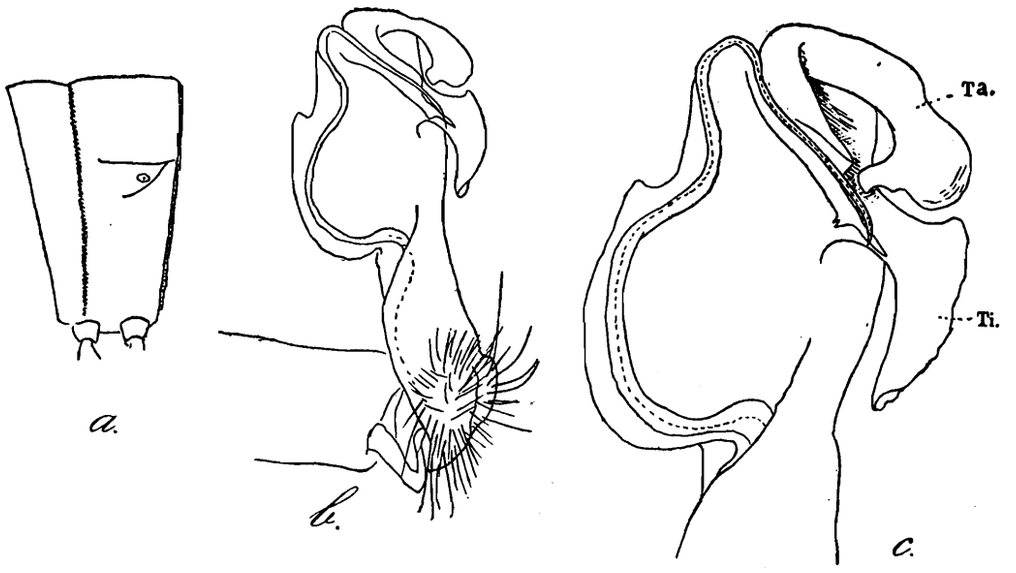
by a weak constriction from the postfemur. Limit between tibia (*Ti*) and tarsus (*Ta*) moderately distinct, tibia a rounded lamella with a basally directed tooth and a distal S-shaped horn. Tarsus bifid, one branch forming sheath of canal branch, second a slender hook (text-figs. 31*a*, *b*).

Distribution.—Yunnan, Western China (Prof. J. W. Gregory ; 19.vi.22) ; several exs.

Orthomorpha (Kalorthomorpha) ursula, sp. nov.

Bright chestnut, head anteriorly and on sides yellowish, vertex dark brown, antennae black-brown, top yellow. Width 3 mm.

Head up to antennae densely and finely hairy, some fine bristles in the sides of vertical sulcus and on cheeks. Antennae moderately long not club-shaped. Sides of collum broadly rounded, not symmetrical, anterior border straightened. Keels of 2nd segment long, sharp, anteriorly acute ridges, lying only a little below the level of the following keels. Segments 3 and 4 with similar but shorter ridges, following segments with flat rounded lateral prominences, much shorter than the metazonite and not reaching transverse suture. In pore-bearing segments they are better developed than in the poreless segments ; they are limited dorsally by a furrow ; ventrally only the posterior half is limited by a furrow meeting the upper furrow in an acute angle (text-fig. 32*a*). The pores are situated in a lateral groove between the two furrows near the dorsal furrow and the posterior angle. Metazonites smooth, no bristles and no sulcus. Suture beaded, at the posterior border a small stripe longitudinally sulcated. Tail straight, nearly cylindrical, bristles 4+4 and 2+2, arising from small tubercles. Anal scale rounded, with 2 long bristles on small tubercles. Margin of valves thickened, 2 long bristles near the margin.



TEXT-FIG. 32.—*Orthomorpha* (*Kalorthomorpha*) *ursula*, sp. nov. *a*. 12th segment ; *b*. gonopod ; *c*. Gonopod (medial view), *Ta*. tarsus ; *Ti*. Tibia.

Sternites square, dispersedly beset with long hairs, transverse impression strong, longitudinal impression weak. Pleural keels present as rounded ridges, more and more reduced towards cauda, visible up to segment 15.

Legs abundantly hairy, posterior legs not elongated, in the male only coxa and praefemur incrassate. No true brush on tarsus. Coxa of gonopod (text-fig. 32*b*) slender, a few bristles

at top ; femur short and broad, canal on the medial side. In the beginning the canal branch curves forwards and is then applied to the deep and narrow channel of the tibio-tarsus ; its top is half sheathed by a lamella. Tibio-tarsus very broad, anteriorly rounded, besides the channel for the canal branch two large rounded lobes ; proximal lobe appertains to the tibia (text-fig. 32*c*, *Ti*), distal lobe and the sheath of canal branch to tarsus (text-fig. 32*c*, *Ta*).

Distribution.—Tungle between Kemmangundi and Kalhattigiri, 4,500-6,150 feet, Baba-budan Hills, Kaddur district, Mysore State (Dr. H. S. Rao ; 17.xii.28).

Orthomorpha (Kalorthomorpha) gracilis (Koch).

1847. *Fontaria gracilis*, C. Koch, *Syst. Myr.*, p. 142.
1863. *Fontaria gracilis*, C. Koch, *Die Myr.* II, p. 51, fig. 173.
1884. *Paradesmus gracilis*, Latzel, *Myr. Oest. ung. Mon.* II, p. 162.
1894. *Paradesmus gracilis*, Attems, *Sitz. Ber. Ak. Wien.*, CIII, figs. 1-4.
1895. *Orthomorpha gracilis*, Pocock, *Ann. Mag. Nat. Hist.* (6) XV, p. 356.
1902. *Orthomorpha gracilis*, Saussure, *Grandidier Madagascar*, p. 84, pl. i, fig. 3 ; pl. iii, fig. 6.

Distribution.—Widespread in all tropical regions, from the Indian region recorded only from China, Great Loo Choo (Pocock, 1895).

Orthomorpha (Kalorthomorpha) greeni (Poc.).

1892. *Strongylosoma greeni*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 149, pl. x, fig. 14.

Distribution.—Ceylon, Punduloya.

Orthomorpha (Kalorthomorpha) pekuensis (Karsch).

1881. *Polydesmus* (*Paradesmus*) *pekuensis*, Karsch, *Arch. Naturg.* XLVII, p. 39, pl. iii, fig. 10.
1898. *Orthomorpha pekuensis*, Attems, *Denk. Ak. Wien*, LXVII, p. 336, pl. iii, figs. 81, 82.

Distribution.—Peking.

Orthomorpha (Kalorthomorpha) dentata Carl.

1932. *Orthomorpha dentata*, Carl, *Rev. Suisse Zool.* XXXIX, p. 428, figs. 9-13.

Distribution.—Nilgiris, Coonoor.

Orthomorpha (Kalorthomorpha) willeyi Carl.

1932. *Orthomorpha willeyi*, Carl, *Rev. Suisse Zool.* XXXIX, p. 425, figs. 6, 7.

Distribution.—Ceylon, Kala Oya.

Orthomorpha (Kalorthomorpha) penicillata Att.

1931. *Orthomorpha penicillata*, Attems, *Zoologica*, XXXIX, Heft 79, p. 118, figs. 178-183.

Distribution.—China, Prov. Fukien.

Orthomorpha (Kalorthomorpha) roseipes Poc.

1895. *Orthomorpha roseipes*, Pocock, *Ann. Mag. Nat. Hist.* (6) XV, p. 353, pl. xi, fig. 2.
1898. *Orthomorpha roseipes*, Attems, *Denk. Ak. Wien*, LXVII, p. 334, pl. iv, fig. 86.

Distribution.—China, Chusan Island.

Orthomorpha (Kalorthomorpha) doriae Poc.

1895. *Orthomorpha doriae,* Pocock, *Ann. Mus. Genova,* XXXIV, p. 823, fig. 19.

Distribution.—Yado ; Biapo ; Meteleo ; Puepoli.

Orthomorpha (Kalorthomorpha) hummelii (Verh.).

1933. *Hedinomorpha hummelii,* Verhoeff, *Arkiv Zool.* XXVI, A, p. 15.

Distribution.—China, South Kansu, Tan Chang.

Doubtful species of *Orthomorpha.*

Orthomorpha bistriata Poc.

1895. *Orthomorpha bistriata,* Pocock, *Ann. Mus. Genova,* XXXIV, p. 814.

Distribution.—Burma ; Bhamo.

Orthomorpha bisulcata Poc.

1895. *Orthomorpha bisulcata,* Pocock, *Ann. Mus. Genova,* XXXIV, p. 808.

Distribution.—Burma ; Rangoon ; Meteleo.

Orthomorpha bivittata Poc.

1895. *Orthomorpha bivittata,* Pocock, *Ann. Mus. Genova,* XXXIV, p. 814.

Distribution.—Burma, Shenmaga.

Orthomorpha clivicola Poc.

1895. *Orthomorpha clivicola,* Pocock, *Ann. Mus. Genova,* XXXIV, p. 813.

Distribution.—Burma, Mount Mooleyit.

Orthomorpha comotti Poc.

1895. *Orthomorpha comotti,* Pocock, *Ann. Mus. Genova,* XXXIV, p. 814.

Distribution.—Minhla.

Orthomorpha coxisternis Poc.

1895. *Orthomorpha coxisternis,* Pocock, *Ann. Mus. Genova,* XXXIV, p. 811, fig. 2.

Distribution.—Burma, Bhamo.

Orthomorpha crucifera (Poc.).

1889. *Paradesmus crucifer,* Pocock, *Journ. Linn. Soc. London,* XXI, p. 293.

Distribution.—Mergui Archipelago.

Orthomorpha endeusa Att.

1898. *Orthomorpha endeusa,* Attems, *Denk. Ak. Wien,* LXVII, p. 337.

Distribution.—China, Tientsin.

Orthomorpha flavocarinata Dad.

1889. *Paradesmus flavocarinatus,* Daday, *Termész. Füzetek,* XII, p. 136.

Distribution.—Siam.

Orthomorpha fuscocollaris Poc.

1895. *Orthomorpha fuscocollaris*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 822, fig. 18.

1901. *Strongylosoma (Orthomorpha) fuscocollaris*, Sinclair, *Proc. Zool. Soc. London*, II, p. 519, pl. xxx, fig. 23 ; pl. xxxii, fig. 81.

Distribution.—Malewoon.

Orthomorpha gestri Poc.

1895. *Orthomorpha gestri*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 820.

Distribution.—Burma, Kokareet, Tenasserim.

Orthomorpha melanopleuris Poc.

1895. *Orthomorpha melanopleuris*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 813.

Distribution.—Burma, Teinzo on the Moolay River.

Orthomorpha microtropis Att.

1898. *Orthomorpha microtropis*, Attems, *Denk. Ak. Wien*, LXVII, p. 333.

Distribution.—Ceylon, Pandera.

Orthomorpha monticola Poc.

1895. *Orthomorpha monticola*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 820.

Distribution.—Carin Cheba.

Orthomorpha palonensis Poc.

1895. *Orthomorpha palonensis*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 820, fig. 16.

Distribution.—Burma, Palon, near Pegu.

Orthomorpha pardalis Poc.

1895. *Orthomorpha pardalis*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 815.

Distribution.—Burma, Palon, near Pegu.

Orthomorpha paviei Bröl.

1896. *Orthomorpha paviei*, Brölemann, *Bull. Mus. Paris*, II, p. 333, fig. 2.

Distribution.—Indo-China.

Orthomorpha pilifera Poc.

1895. *Orthomorpha pilifera*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 809, fig 11.

Distribution.—Burma, Rangoon, Palon, near Pegu.

Orthomorpha silvestris Poc.

1895. *Orthomorpha silvestris*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 824.

Distribution.—Burma, Thao, Carin Ghecu.

Orthomorpha variegata Bröl.

1896. *Orthomorpha variegata*, Brölemann, *Bull. Mus. Paris*, II, p. 333.

Distribution.—Indo-China.

Anoplodesmus Poc.

Key to the Species.

1. Femur of some anterior legs with a process	2.
Femur of all legs without process	9.
2. Metazonites with 2 rows of 6-8 yellow spots	*A. twaithesii* (Humb.).
Metazonites without such spots	3.
3. Along posterior border of metazonites a row of 8-10 strong knobs .	*A. humberti* (Carl).
Metazonites without such knobs	4.
4. Dorsum of metazonites smooth or weakly wrinkled, not hairy . .	5.
Dorsum of metazonites and sides densely granular	8.
5. Posterior tooth of the keels in posterior half of the body long and acute. 6th and 7th legs of male with femoral process (text-fig. 33*a*)	*A. saussurei* (Humb.).
Posterior angle of posterior keels short, blunt, tooth-like or rounded. Femur of legs 5-7 or 4-7 with a process	6.
6. Femur of 4th legs without a process. Posterior angle of posterior segments shortly toothed and projecting backwards . . .	*A. insignis*, sp. nov.
Femur of legs 4-7 with femoral process. Posterior angle of posterior keels more rounded	7.
7. Sides of collum symmetrically narrowed. At the top of the gonopod coxa an area of bristles	*A. tanjoricus* (Poc.).
Sides of collum not symmetrical, posterior border straight. Gonopod coxa without bristles	*A. anthracinus* Poc.
8 (4). Dark brown to black, lateral keels yellow except for dark anterior part. 4th and 5th segments with pleural keels	*A. indus* Chamb.
Brighter brown, entire keels yellow. No pleural keels . .	*A. athopus* Chamb.
9 (1). Posterior angles of keels acute and toothed from anterior segments	*A. luctuosus* (Pet.).
Posterior angles of anterior segments rounded; only in the posterior segments with short, blunt teeth	*A. pinguis* Poc., *A. obesus* Poc.

Anoplodesmus tanjoricus (Poc.).

1892. *Leptodesmus tanjoricus*, Pocock, *Journ. Bombay Nat. Hist. Soc.*, VII, p. 147, pl. i, fig. 3.

1898. *Anoplodesmus tanjoricus*, Attems, *Denk. Ak. Wiss. Wien*, LXVII, p. 350.

Bright chestnut or dark chocolate brown, lateral keels pale yellow, head, antennae, legs and underside pale brown. Length 36 mm.; width of metazonites 4 mm.; prozonites 3 mm.

Clypeus sparsely hairy, vertex hairless. Collum much broader than head, sides pointed. Anterior segments close together. Dorsum strongly arched. Lateral keels rising in the middle, well developed, gradually vanishing forwards, posterior angle distinct in segments 2 and 3, rounded in the following segments. 19th segment with minute rounded rolls. Lateral border of the keels thickened, in pore-bearing segments more than in the poreless segments. Pores lateral in the thickening, remote from posterior end. Dorsum very smooth and shining, hairless; segments 5-18 with transverse furrow. Suture finely beaded, segments constricted by the suture. Sides finely granulated, pleural keels present to 16th segment, a fine curved edge continued upwards to below the keel. Tail slender, cylindrical,

straight. Posterior sternites hairy, sternite V of ♂ with a broad and low knob, filling the whole space between the anterior legs and bearing a low transverse ridge. Femur of legs 4-7 filled by a gland opening in a thick knob beneath. Coxa of gonopods with a group of long bristles at the top. Canal branch finely pointed, top curved. Limit between femur and tibio-tarsus distinct only on the lateral side. At base of tibia a short blunt hooked lateral arm. Tarsus and tibia not distinctly separated; the tarsus forms a channel including the canal branch.

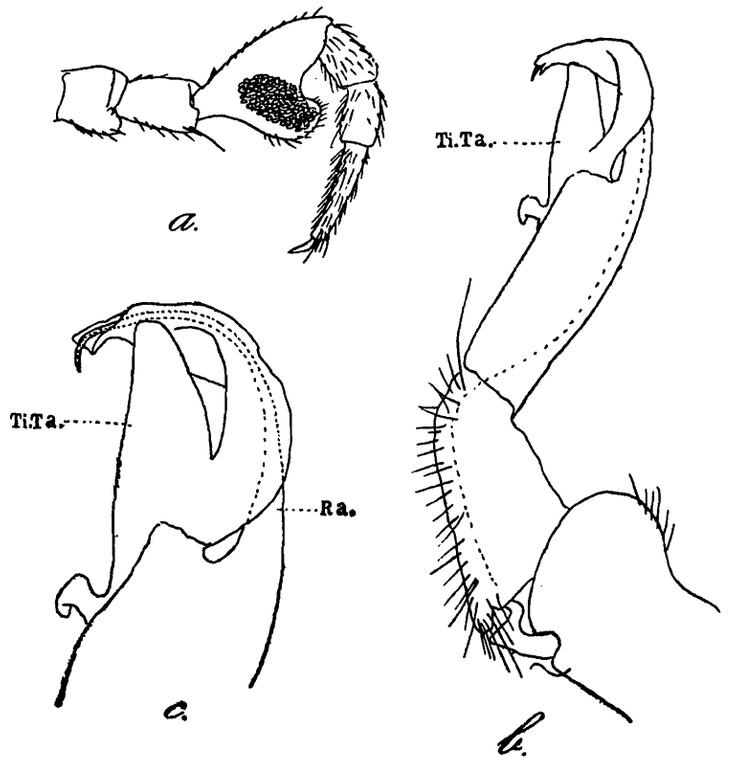
Distribution.—Trivandrum, Travancore (Dr. N. Annandale; 12.xi.08; 3 exs.); Tanjore, Madras Presidency (Dr. N. Annandale; 27.x.11; on road; 4 exs.).

Anoplodesmus insignis, sp. nov.

Dark chestnut, entire lateral keels yellow, antennae and legs reddish-brown. Width of metazonite 5·5 mm., prozonite 3·7 mm.

Clypeus dispersedly beset with long bristles; medially of each antenna one bristle, vertex hairless, vertical sulcus deep.

Collum nearly as broad as 2nd segment, sides acute. Lateral keels well developed, horizontal, rising above middle of sides, dorsum between the keels vaulted. Lateral margin a thick roll, sharply limited dorsally; in the pore-bearing segments the rolls are thicker than in the poreless segments. Posterior corner moderately toothed in segments 1-4, blunt in the following segments; a thick, blunt tooth in the posterior segments, becoming longer and longer in successive segments, in 19th segment the tooth is again small and rounded.



TEXT-FIG. 33.—*Anoplodesmus saussurei* (Humb.) *a.* ♂ 7th leg; *Anoplodesmus insignis*, sp. nov. *b.* gonopod; *c.* gonopod (lateral view); *Ra.* canal branch; *TiTa.* tibio-tarsus.

Pores lateral in marginal roll. Dorsum of metazonites very smooth and shining, fine wrinkles scarcely visible. Sulcus present up to segment 17. Transverse suture weakly beaded.

Sides weakly wrinkled, not granular. Pleural keels small, present to segment 13. Sternites sparsely hairy. Sternite V of ♂ with a broad, round lamella between 4th legs; lamella obliquely directed backwards and hairy on anterior surface. Tail thick, nearly cylindrical, distally narrowed, bristles not arising from granules. Scale rounded, margin of valves thickened, beside the margin 2 bristles. Femur of legs 5-7 with a large thick setiferous knob beneath (text-fig. 33*a*). 4th legs without process.

Gonopods (text figs. 33 *b*, *c*) resemble those of *A. tanjoricus*. Femur broad, top only little broader. Limit between femur and tibio-tarsus distinct only on lateral side. Tibio-tarsus with a basal hook; biramous from middle onwards, one branch forming sheath of canal branch.

Distribution.—On the way to Shenbagadevi Falls, Courtallam, South India (Dr. H. S. Rao; 29.x.24), 2 exs.

Anoplodesmus athopus Chamb.

1920. *Anoplodesmus athopus*, Chamberlin, *Univ. Calif. Public.* XIX, p. 395, pl. xxviii, figs. 27, 28

Distribution.—India, Coonoor.

Anoplodesmus anthracinus Poc.

1895. *Anoplodesmus anthracinus*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 798.

Distribution.—Burma, Rangoon.

Anoplodesmus humberti (Carl).

1902. *Prionopeltis humberti*, Carl, *Rev. Suisse Zool.*, X, p. 590.

Distribution.—Ceylon, Peradeniya.

Anoplodesmus indus Chamb.

1920. *Anoplodesmus indus*, Chamberlin, *Univ, Calif. Public.* XIX, p. 393, pl. xxviii, figs. 22-26.

Distribution.—India, Coonoor.

Anoplodesmus luctuosus (Pet.).

1864. *Polydesmus (Oxyurus) luctuosus*, Peters, *Monatsber. Ak. Berlin*, p. 532.

1866. *Polydesmus (Strongylosoma) luctuosus*, Humbert, *Mém. Soc. Genève*, XVII, p. 35.

1895. *Anoplodesmus striolatus*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 799, fig. 6.

1898. *Anoplodesmus luctuosus*, Attems, *Denk. Ak. Wiss. Wien*, LXVII, p. 348, pl. v, fig. 106.

Distribution.—Ceylon, Rambodde; Burma, S. Tenasserim.

Anoplodesmus obesus Poc.

1895. *Anoplodesmus obesus*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 800.

Distribution.—Burma, Meteleo, Carin Mountains.

Anoplodesmus pinguis Poc.

1895. *Anoplodesmus pinguis*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 800.

Distribution.—Burma, Rangoon, Palon in Pegu.

Anoplodesmus saussurei (Humb.).

1866. *Polydesmus saussurei*, Humbert, *Mém. Soc. Genève*, XVIII, p. 26, pl. ii, fig. 8.
1898. *Prionopeltis saussurei*, Attems, *Denk. Ak. Wiss. Wien*, LXVII, p. 354, pl. v, figs. 103, 104.

Distribution.—Ceylon, Peradeniya.

Anoplodesmus twaithesii (Humb.).

1866. *Polydesmus twaithesii*, Humbert, *Mém. Soc. Genève*, XVIII, p. 27, pl. ii, fig. 9.
1902. *Prionopeltis twaithesii*, Carl, *Rev. Suisse Zool.* X, p. 593.
1914. *Anoplodesmus twaithesii*, Attems, *Arch. Naturg.* LXXX, A 4, p. 206.

Distribution.—Ceylon, Peradeniya.

DOUBTFUL SPECIES.

Anoplodesmus attemsii Verh.

1930. *Anoplodesmus attemsii*, Verhoeff, *Zool. Anz.* LXXXIX, p. 206. (Description of ♀ only.)

Distribution.—Ceylon, Kandy.

Anoplodesmus inornatus (Humb.).

1866. *Polydesmus inornatus*, Humbert, *Mém. Soc. Genève*, XVIII, p. 30, pl. iii, fig. 11.

Distribution.—Ceylon, Peradeniya.

Anoplodesmus kathanus Chamb.

1921. *Anoplodesmus kathanus*, Chamberlin, *Ann. Mag. Nat. Hist.* (9) VII, p. 80.

Distribution.—Upper Burma.

Anoplodesmus layardi (Humb.).

1866. *Polydesmus layardi*, Humbert, *Mém. Soc. Genève*, XVIII, p. 28, pl. iii, fig. 10.

Distribution.—Ceylon, Peradeniya.

Anoplodesmus sabulosus Att.

1898. *Anoplodesmus sabulosus*, Attems, *Denk. Ak. Wiss. Wien*, LXVII, p. 351. (Description of ♀ only).

Distribution.—Ceylon.

Anoplodesmus spectabilis Karsch.

1881. *Polydesmus (Paradesmus) spectabilis*, Karsch, *Arch. Naturg.* XLVII, p. 38, pl. iii, fig. 9.
1898. *Anoplodesmus spectabilis*, Attems, *Denk. Ak. Wiss. Wien*, LXVII, p. 347.

Distribution.—Ceylon.

Chondromorpha Silv.

The genus is mainly distributed in India; only one species has been recorded from Upolu, New Caledonia.

Key to the Indian Species.

1. Width 1·7 mm. Granules of dorsum higher, granules along posterior border elongated like nipples. Posterior angle of all keels acute, surpassing the border . . . . *C. xanthotricha* (Att.).

   Width 3-3·5 mm. Granules finer, granules along posterior border not elongated . 2.

2. Posterior angle of keels 3-5 not surpassing the border, only from 6th segment the posterior angle is more acute; sternite V of ♂ with one rounded prominence *C. severini* Silv.

   Posterior angle of keels from the 1st segment acute, tooth-like, extending over the border. Sternite V of ♂ with a two-pointed projection or with 2 prominences . 3.

3. Lateral border of the keels distinctly sinuated behind rounded anterior angle. Femur of gonopod longer. Sternite V of ♂ with a two-pointed prominence . *C. kelaarti* (Humb.).

   Lateral border of keels not sinuated. Femur of gonopod very short. Tibio-tarsus different from tibio-tarsus of *C. kelaarti*. Sternite V of ♂ with 2 prominences . . *C. mammifera*, sp. nov.

Chondromorpha mammifera, sp. nov.

Black-brown, posterior angles of lateral keels yellow, antennae and legs bright brown. Width 3·5 mm.

Anterior and lateral part of head hairy, vertex without bristles. Antennae long, 6th joint scarcely thicker than 5th.

Collum as broad as the following segment, sparsely bristled , sides acute, sinuated posterior border of sides and anterior border meeting in an acute angle.

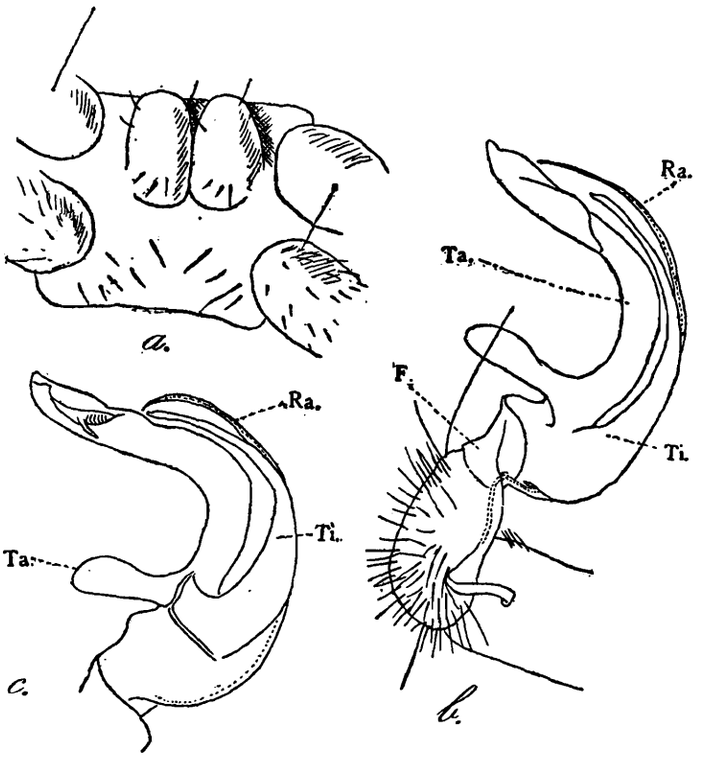
Lateral keels horizontal, dorsum flattened in ♂, much more vaulted in ♀. Anterior angle much rounded, posterior angle acute and surpassing the border. Lateral border of segments 1-5 with a minute setiferous notch, from 6th segment onwards the lateral border is smooth. Parallel to lateral border a ridge, posterior half of lateral border appearing hollowed out like a gutter, pores in this gutter oblique. Dorsum of metazonites very finely and lowly granular, with 3 rows of fine bristles. Sulcus present in segments 4-18. Sides granular, granules sharper than dorsal granules. No pleural keels ; near posterior border a fine granular ridge running up to lateral keels.

Tail broad, narrowed distally, setiferous tubercles small. Scale rounded.

Sternite V of ♂ (text-fig. 34*a*) with 2 long blunt, rounded, bristled processes lying close together. Posterior sternites sparsely and finely hairy, without processes. Basal half of femur of legs 4-7 with a bristled process.

The gonopods of *Chondromorpha* differ from the gonopods of *Anoplodesmus* and *Prionopeltis* in the shorter femur ; the femur of the latter two genera is not very long, but it is distinctly longer than that of *Chondromorpha*. Tibio-tarsus three-branched ; one branch, the sheath for the canal branch, is a simple, slender sickle, belonging to the tibia (*Ti*) ; the remaining two branches belong to the tarsus (text-figs. 34*b*, *c*, *Ta*), the basal branch is a simple

blunt lobe, while the distal branch bears a slender spine, a sulcated lamella and a triangular lobe.



TEXT-FIG. 34.—*Chondromorpha mammifera*, sp. nov. *a.* ♂ 5th sternite; *b.* gonopod (medial view); *c.* gonopod (lateral view); *F.* femur; *Ra.* canal branch; *Ta.* tarsus, *Ti.* tibia.

Distribution.—Puri, Orissa Coast (Drs. S. L. Hora and B. N. Chopra ; 14-27.x.23 ; under stones in loose earth ; 1 ex.) ; Bombay Presidency (from Bajra and Javari fields ; 1 ex.) ; Ranchi district, Bihar [Rev. A. Van Emelin, S. J. ; 1 (damaged) ex.].

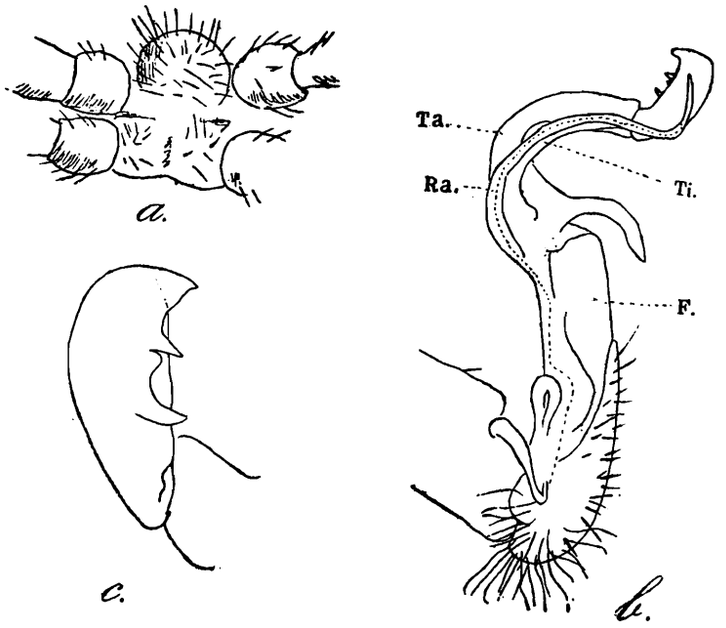
Chondromorpha severini Silv.

1897. *Chondromorpha severini*, Silvestri, *Ann. Soc. Ent. Belgique*, XLI, p. 356, figs. 38-40.

Chestnut or black, posterior half of wings, antennae and legs pale yellow. Length 30 mm. ; width of metazonites 3 mm. ; prozonites 2 mm.

Head up to antennae very hairy, besides the fine vertical sulcus several bristles in longitudinal rows. Antennae long, nearly reaching 5th segment. Collum densely and finely granular, sides of posterior border weakly sinuate, posterior angle shortly toothed, but not projecting. Lateral wings rising high on sides, dorsum weakly arched. Anterior angle rounded, posterior angle in segments 2 and 3 acute, in segments 4 and 5 rectangular, from 6th segment extending over the border, in the last segments as a long pointed triangle. Lateral border lightly convex, smooth, without any notch, near the border a fine ridge, beginning behind anterior angle and extending to the posterior angle. In poreless segments specially the border appears furrowed. Pores in the middle of the furrow obliquely directed upwards, and visible from above. Dorsum of metazonites densely and finely granular, with a sulcus, before sulcus one, behind the sulcus two rows of small, fine bristles. Underside of wings and sides finely granular. No pleural keels. Sternites with dense and long bristles and cross impression ; sternite V of ♂ (text-fig. 35*a*) with a large thick rounded prominence. Anal segment smooth, tail flattened, distally narrowed, anal scale broadly rounded. Femur

of some ♂ legs in the basal half with a round setiferous prominence, small in 4th legs, well developed in legs 6-10, but relatively small compared to other species. Gonopods



TEXT-FIG. 35.—*Chondromorpha severini* Silv. *a*. sternite V; *b*. gonopod (medial view); *c*. gonopod (lateral view); *F*. femur, *Ra*. canal branch, *Ta*. tarsus, *Ti*. tibia.

(text-figs. 35*b*, *c*) very similar to those of *C. mammifera*, femur a little longer and distal branch of tarsus with different teeth.

Distribution.—Gokak, Belgaum district, Bombay Presidency (Drs. B. Prashad and H. S. Rao ; xi.28 ; 2 exs.) ; Sagar-Shimoga Road near Sagar, Shimoga district, Mysore State (Dr. H. S. Rao ; 5.xii.28 ; 1 ex.) ; Temnalai, western side of Western Ghats, Travancore (Dr. N. Annandale ; 22.xi.08 ; 1 ex.) ; Mettupalayam (Dr. S. L. Hora ; 19.x.25 ; several exs.), Marikuppam, *ca.* 2,500 feet (Museum Collector ; 19.x.10 ; 2 exs.) and Coromandel, *ca.* 2,500 feet (Museum Collector ; 23.x.10 ; 4 exs.), Madras Presidency.

Chondromorpha severini robustior, var. nov.

Unicolor dark brown. Width of metazonites 3·8 mm., prozonites 2·5 mm. All remaining characters including the gonopods as in the type species.

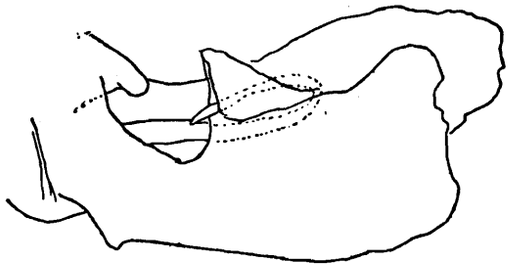
Distribution.—Jungle between Kammangundi and Kalhattigiri, 4,500-6,155 feet, Bababudan Hills, Kaddur district, Mysore State (Dr. H. S. Rao ; 17.xii.28) ; 1 ex.

Chondromorpha kelaarti (Humb.).

1866. *Polydesmus kelaarti*, Humbert, *Mém. Soc. Genève*, XVIII, p. 23, pl. ii, fig. 7.
1892. *Paradesmus kelaarti*, Pocock, *Journ. Bombay Nat. Hist. Soc.*, VII, p. 149, pl. x, fig. 12.
1898. *Prionopeltis kelaarti*, Attems, *Denk. Ak. Wiss. Wien*, LXVII, p. 358, pl. v, figs. 99, 100.
1902. *Prionopeltis kelaarti*, Carl, *Rev. Suisse Zool.*, X, p. 593.

Lateral border of wings with two distinct notches. Parallel to border a fine ridge, the border, therefore, appears furrowed. Dorsum and sides of metazonites and underside of wings finely granular ; small granules along posterior border forming a fine, blunt saw. Dorsum of metazonites dispersedly hairy, along posterior border a row of stouter bristles. Sternite V of ♂ with a large, two-pointed and hairy prominence. Femur of legs 4-7 with a

weak callosity near base, callosity hairy as on other legs. Lateral wings a little raised, dorsum, therefore, a little hollowed out. For teeth of the distal branch of the gonopod tarsus see text-figure 36.



TEXT-FIG. 36.—*Chondromorpha kelaarti* (Humb.). Gonopod tarsus.

Distribution.—Peradeniya, Ceylon (Dr. F. H. Gravely ; 4 exs.), Courtallam, South India (Dr. H. S. Rao ; 28.x.24 ; 2 exs.).

Chondromorpha kelaarti valparaiensis (Carl.).

1932. *Anoplodesmus kelaarti valparaiensis*, Carl, *Rev. Suisse Zool.* XXXIX, p. 467, figs. 60, 61, 67.

Distribution.—South India, Anamalai, Valparai.

Chondromorpha xanthotricha (Att.).

1898. *Prionopeltis xanthotrichus*, Attems, *Denk. Ak. Wiss. Wien*, LXVII, p. 359, pl. v, fig. 115.

1914. *Anoplodesmus xanthotrichus*, Attems, *Arch. Naturg*, LXXX, A 4, p. 206.

Distribution.—Ceylon, Kandy.

Chondromorpha stadelmanni (Verh.)

1930. *Anoplodesmus stadelmanni*, Verhoeff, *Zool. Anz.* LXXXIX, p. 206.

Distribution.—Ceylon, Kandy.

Euphyodesmus Att.

Euphyodesmus greeni (Silv.).

Chestnut, keels colourless, whitish, legs light brown.

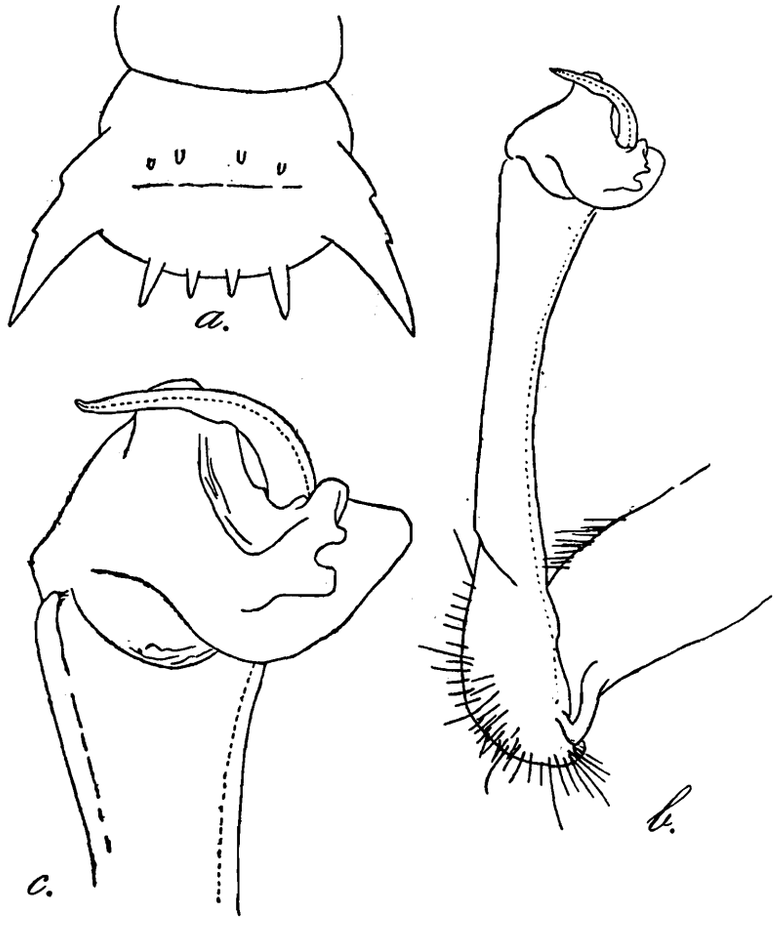
Width 1·8 mm. ; body very slender.

Head smooth, clypeus densely and shortly hairy, vertex hairless, vertical sulcus deep. Antennae extremely long, slender, 6th joint only weakly incrassate.

Collum wider than head, as wide as 2nd segment, anterior and lateral border forming one arch ; posterior angles sharp, surpassing the posterior border, near posterior border 4 small tubercles. Keels very long, slender, acute horns (text-fig. 37*a*), rising greatly on sides and turned a little upwards, their ends higher than the middle of dorsum ; anterior and lateral border coalesced in a flat arch, with 2 small notches and teeth. Keels starting a fair distance behind transverse sulcus. Lateral border of poreless keels with a sharp edge ; in pore-bearing keels condition similar up to pore-groove ; the groove is not situated in a thick

swelling but is surrounded by sharp edges ; keels of 2nd segment at the same level as keels of following segments. Dorsum of the metazonite hairless, lightly wrinkled and very finely granular, not shining, beginning from 2nd segment a weak, transverse furrow, before the furrow 4 short blunt cones, at posterior border 4 acute cones, directed obliquely backwards, lateral cones twice as long as the two paramedian. Segments strongly constricted by a smooth transverse sulcus. Sides densely and very finely granular, no pleural keels. 19th segment not as short as in *E. gracilis* Att., keels of 18th segment reach only to the middle of the small keels of 19th segment.

Sternites quadrate, with a weak, transverse furrow, without longitudinal sulcus, very sparsely hairy. 5th segment of ♂ with a thick, rounded, sparsely hairy knob between anterior legs.



TEXT-FIG. 37.—*Euphyodesmus greeni* (Silv.). *a.* 6th segment ; *b, c.* gonopod.

Anal segment flattened, narrowed distally, terminal knobs small and directed backwards, before these knobs on either side a large bristle-bearing tubercle. Anal scale rounded, bristle-bearing tubercles small. Legs very long and slender, only femur of anterior legs a little incrassate. All joints shortly hairy, tarsus without dense brush, coxa and femur each with one long tactile bristle. Femur of first legs without glandular process. Gonopodial opening regularly oval, its borders elevated anteriorly. Gonopod coxa with a large field of bristles near top. Femur very long and slender, a little widened at top, without lateral branches. Canal straight, canal branch small, slender, sickle-shaped ; tibio-tarsus bent at a right angle to the medial side ; for form of its lappets see text-figures 37*b, c.*

Distribution.—Ceylon, Peradeniya (Dr. F. H. Gravely ; 6.viii.10) ; damaged exs.

Remarks.—Silvestri named this species *Prionopeltis greeni*, but the description has not been published so far. It certainly belongs to the genus *Euphyodesmus* Attems of which genus only one species, *E. gracilis* Att., is known from Borneo. The new species differs in the strange long cones at the posterior border of the metazonites, furthermore the metazonites are not smooth and shining but dull and finely granular, the transverse suture is smooth, the sternites have no transverse sulcus, the process of 5th sternite of ♂ is a rounded knob, and the tibio-tarsus of the gonopod has a different shape. The general type of the gonopods is, however, the same as in *E. gracilis* Att.

Prionopeltis Poc.

Prionopeltis cervinus Poc.

1895. *Prionopeltis cervinus*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 831, fig. 23.

Distribution.—Burma, S. Tenasserim, Malewoon.

Prionopeltis planatus Poc.

1895. *Prionopeltis planatus*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 830, fig. 22.

Distribution.—Burma, Rangoon, Pegu.

Helicorthomorpha Att.

Helicorthomorpha holstii (Poc.).

1895. *Orthomorpha holstii*, Pocock, *Ann. Mag. Nat. Hist.* (6) XV, p. 375, pl. xi, fig. 3.
1914. *Orthomorpha (Helicorthomorpha) holstii*, Attems, *Arch. Naturg.* LXXX, A-4, p. 197.
1915. *Helicorhabdosoma holstii*, Brölemann, *Ann. Soc. Ent. France*, LXXXIV, p. 596.
1933. *Kochliopus trivittatus*, Verhoeff, *Arkiv Zoolog.* XXVI, A, p. 20.

Distribution.—Yunnan, Western China (Prof. J. W. Gregory).

Helicorthomorpha ocellata (Poc.).

1895. *Strongylosoma ocellatum*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 801.
1914. *Orthomorpha (Helicorthomorpha) ocellata*, Attems, *Arch. Naturg.* LXXX, A-4, p. 198.

Distribution.—Burma, Rangoon, Tharawaddy, Taikkyii in Pegu.

Pagioprium Att.

Pagioprium serrulatum (Att.).

1931. *Orthomorpha serrulata*, Attems, *Zoologica*, XXXIX, Heft 79, p. 120, figs. 184, 185.

Distribution.—Ceylon, Nuwaraeliya.

Streptogonopus Att.

This genus, consisting of 3 species, is a purely Indian genus. *S. jerdani* is not represented in the collection of the Indian Museum.

Key to the Species.

1. Surface dull and wrinkled; lateral swellings of metazonites almost completely wanting. Unicolor, yellow — *S. jerdani* Poc.
   Surface very smooth and shining. Lateral swellings small but distinct — 2.
2. Transversely anulated, metazonites dark brown, behind the sulcus yellow. Pleural keels toothed posteriorly. Beside the thin margin of the sides of the collum only a narrow furrow — *S. phipsoni* Poc.
   Dorsum unicolor bright brown, only the lateral swellings pale yellow. Pleural keels rounded posteriorly. Besides the margin of the sides of the collum a broad cock-like plane — *S. nitens* sp. nov.

Streptogonopus jerdani (Poc.).

1892. *Strongylosoma jerdani*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 22.

Distribution.—Madras.

Streptogonopus phipsoni (Poc.).

1892. *Strongylosoma phipsoni*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 151, pl. i.
1898. *Strongylosoma contortipes*, Attems, *Denk. Ak. Wiss. Wien*, LXVII, p. 299, pl. i, fig. 14.
1914. *Streptogonopus phipsoni*, Attems, *Arch. Naturg.* LXXX, A-4, p. 219.

Bright or dark chestnut, metazonites behind the sulcus and lateral wings yellow, head and legs brown, like the trunk.

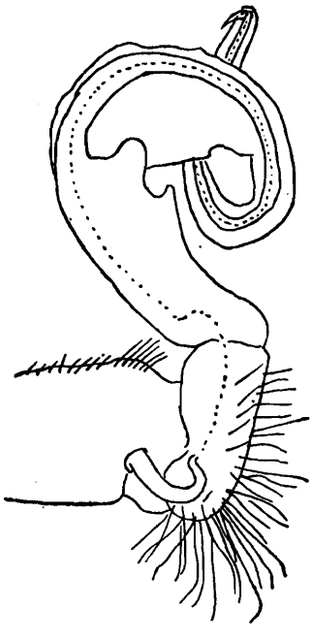
Length 25 mm.; width ♂ 2·8-3 mm., ♀ 3·6 mm.

Anterior part and sides of head hairy, in the median part hairs reaching the middle between labral border and antennae. Above each antenna a large tubercle sharply limited round about by a furrow. Sides of collum symmetrically, broadly rounded. Lateral wings rising in middle of sides, narrow, wings of the segments 2-4 flat, the remaining, especially the pore-bearing wings thick, dorsally sharply limited by a furrow, this furrow does not reach the suture and its anterior end curves a little towards the dorsum; below only posterior half of wing sharply limited. Posterior angle of wings rectangular up to middle of body, on following segments more acute, but in terminal segments only slightly extending over the posterior border. Lateral ridge of 2nd segment long, below the level of those of the following segments, anterior end rounded, posterior end bluntly toothed. Pores in an oval groove in the middle between suture and posterior border. Dorsum smooth, segments 4-17 with a sharp sulcus, not attaining the lateral furrows. Suture beaded, segments constricted in the suture. Sides weakly wrinkled. Pleural keels present in segments 2-17, bluntly notched, posterior end with an acute tooth. Sternites quadrate, with transverse impressions, dispersedly hairy, all sternites, also the 5th, without prominences. Tail broad, flattened, terminal knobs small, bristles on tubercles. Anal scale rounded.

Legs of ♂ thick, praefemur dorsally swollen, tarsus, except of the last legs, with a dense brush.

Gonopods (text-fig. 38): coxa with a long hairy zone. Praefemur short, femur broad, before the top a short blunt tooth and beside the base of the canal branch a short rounded

lobe. The canal branch rises on the antero-medial side, it is slender and lies close to the tibio-tarsus; both are twisted in a spiral.



TEXT-FIG. 38.—*Streptogonopus phipsoni* (Poc.). Gonopod.

Tibio-tarsus simple, gradually narrowed distally.

Distribution.—Calcutta (viii.31 ; 1 ex.) and Royal Botanic Garden, Sibpore (Dr. H. S. Rao ; 24.vi.23 ; 3 exs.), Bengal ; Rawalpindi (R. A. Hodgart ; vi-vii.17 ; 5 exs.) and Bakrota Hill, 7,000 feet, Dalhousie (Dr. S. L. Hora ; v-vi.27 ; 2 exs.), Punjab ; Ahmedabad, Bombay Presidency (Prof. J. J. Asana ; 5, 6 & 10.vi.25 ; several exs.) ; Fyzabad, United Provinces (Capt. H. W. Hingston ; 1922 ; 2 exs.).

Streptogonopus nitens, sp. nov.

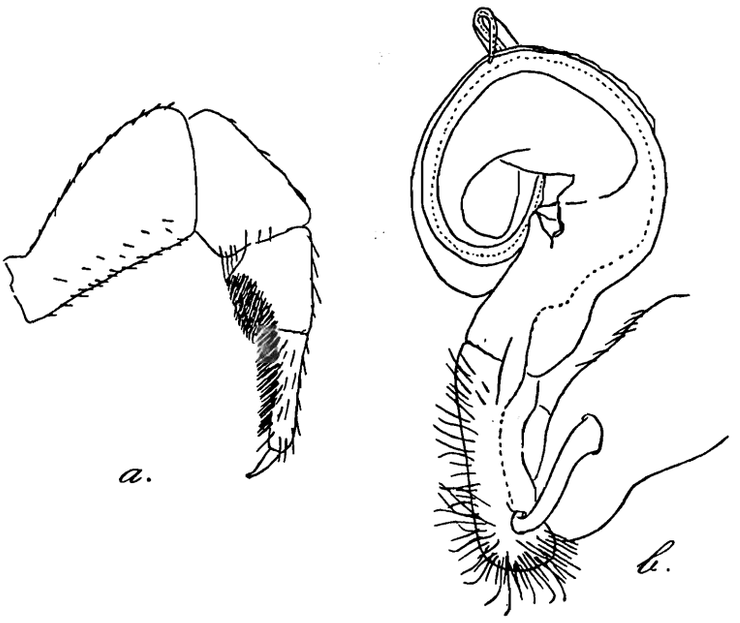
Trunk, head and legs except the yellow tarsus chestnut, lateral keels and tail pale yellow, antennae from the middle of the 5th joint black, tip white.

Length 30 mm. ; width 4·5 mm.

Clypeus sparsely hairy, vertical sulcus begins between antennae, margin surrounding the antennal opening sharply limited by a furrow and becoming a thick rounded swelling dorsally.

Sides of collum broadly rounded, broad border finely marginated and deepened like a cock, resembling the 2nd segment of Glomeridae. Lateral keels of segment 2 long, projecting neither anteriorly nor posteriorly. Lateral keels of segments 3 and 4 like thick rolls, lateral keels of the following segments narrow and developed only in the posterior two-thirds of the metazonite, gradually vanishing in the first third. Posterior angle with a very short tooth in segments 16-18, segment 19 with low rounded swellings. Swellings in the pore-bearing segments are thicker than in the poreless segments. Pores lateral in a round groove. Segments moderately constricted in the suture, suture nearly smooth, indistinctly sulcated. Metazonites smooth and shining, sulcus weak, present in segments 5-16. Sides longitudinally wrinkled and granular. Pleural keels very large, posterior end as a projecting rounded lobe ; these are present up to 17th segment.

Sternite of ♀ broader than long, with shallow transverse impressions, densely bristled. Anterior sternites of ♂ without processes. Tail straight, lightly flattened, terminal knobs thick, low, rounded; all setiferous granules small, lateral ones remote from knobs. Anal scale rounded. setiferous granules large.



Text-fig. 39.—*Streptogonopus nitens*, sp. nov. *a*. ♂ leg, anterior region; *b*. gonopod.

Legs of ♂ much incrassate, tibia and tarsus of anterior legs of ♂ with dense brushes (text-fig. 39*a*), posterior legs not elongated.

Gonopodial opening constricted by a rounded process in the middle of posterior border. Praefemur long, distinctly limited, femur short and broad without lateral branches. The canal describes several windings, the canal branch rises anteriorly and runs from before to the tibio-tarsus, its borders are thin and hyaline and the tip is a fine gradually narrowed point. Limit between femur and tibia very distinct. Tibio-tarsus distally narrowed and curved in a spiral (text-fig. 39*b*).

Distribution.—Bombay Presidency, Ahmedabad (Prof. J. J. Asana; 5.vi.25; several exs.).

Eudasypeltis Poc.

Eudasypeltis pusillus, Poc.

1895. *Eudasypeltis pusillus*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 796, fig. 4.

Distribution.—Pla-Po on Mt. Mooleyit, Tenasserim.

Eudasypeltis setosus (Poc.)

1894. *Strongylosoma setosum*, Pocock, *Journ. Linn. Soc. London*, XXIV, p. 320.

1895. *Eudasypeltis setosus*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 797.

Distribution.—Mergui.

Remarks.—" The latter may be recognised by its much larger size, slenderer copulatory feet and different toothed keels " (Pocock).

Nedyopus Att.

Nedyopus pictus (Bröl.).

1915. *Vaulogerodesmus pictus*, Brölemann, *Ann. Soc. Ent. France*, LXXXIV, p. 588.

Distribution.—Tonkin.

Remarks.—Besides this species we know five species of *Nedyopus* from Japan and one from Sumatra.

Paranedyopus Carl.

Paranedyopus subcylindricus Carl.

1932. *Paranedyopus subcylindricus*, Carl, *Rev. Suisse Zool.* XXXIX, p. 452, figs. 44-49.

Distribution.—South India : Palnis, Kukkal ; Travancore, Vattavadai Valley.

Singhalorthomorpha Att.

Singhalorthomorpha cingalensis (Humb.).

1866. *Polydesmus (Strongylosoma) cingalensis*, Humbert, *Mém. Soc. Genève*, XVIII, p. 32.

1892. *Strongylosoma cingalense*, Pocock, *Journ. Bombay, Nat. Hist. Soc.*, VII, p. 150, pl. IX, f. 5.

1914. *Orthomorpha (Singhalorthomorpha) cingalensis*, Attems, *Arch. Naturg.* LXXX, A 4, p. 198.

Distribution.—Ceylon, Punduloya Valley.

Singhalorthomorpha skinneri (Humb.).

1866. *Polydesmus (Strongylosoma) skinneri*, Humbert, *Mém. Soc. Genèva*, XVIII, p. 31, pl. v, fig. 12.

1892. *Strongylosoma skinneri*, Pocock, *Journ. Bombay Nat. Hist. Soc.*, VII, p. 150, pl. ix, fig. 6.

1914. *Orthomorpha (Singhalorthomorpha) skinneri*, Attems, *Arch. Naturg.* LXXX, A 4, p. 198.

Distribution.—Ceylon, Peradeniya.

Sundanina Att.

Key to the Indian Species.

1. Gonopod femur with one lateral branch . . . . . 2.[1]
   Gonopod femur with 2 lateral branches. Lateral wings well developed . . 5.
2. Lateral wings of metazonites small but distinct, sharply limited dorsally by a furrow (Ceylon) . . . . . *S. simplex* Humb.
   On the sides of metazonites only weak rounded swellings, not limited dorsally by a furrow . . . . 3.
3. Metazonites without sulcus. Pleural keels very large, present up to 17th segment, posterior angle acute. Gonopod femur with a thick blunt, backwardly directed lateral tooth . . . *S. nulla*, sp. nov.
   Metazonite with a sulcus. Pleural keels on segments 2-4 small, curved ridges. Thumb-like process at the top of the gonopod femur directed forwards . . . . . 4.

[1] *S. gracilipes* Verh. should also be included here.

4. Length 11-14 mm.; width 1-1·5 mm. Metazonites with single bristles.	*S. laevisulcata* Carl.
Length 7 mm.; width 0·7 mm. Metazonites with 3-5 rows of 12-16 long white bristles arising from tubercles	*S. hirta* Carl.
5. Metazonites with 2 rows of relatively large setiferous tubercles. No pleural keels	*S. granulifera*, sp. nov.
Metazonites without setiferous tubercles. Pleural keels very large, present up to 17th segment; posterior angle curved upwards and pointed	*S. pleuroptera*, sp. nov.

Sundanina nulla, sp. nov.

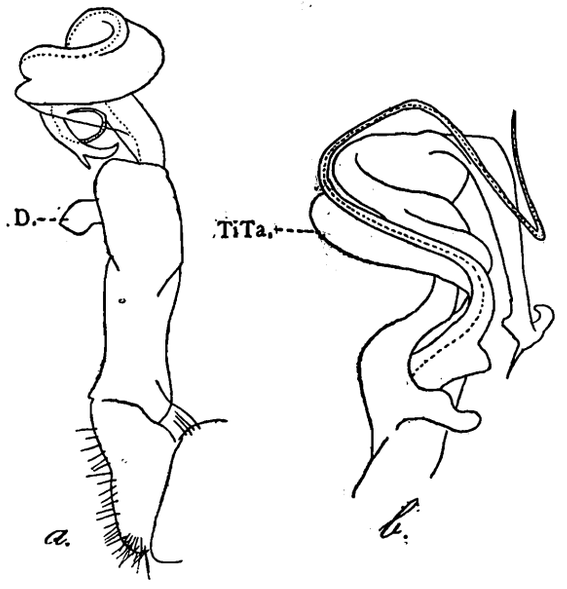
Dark brown, legs bright yellowish brown.

Width 3 mm.

Clypeus hairy, antennae moderately long, slender. Sides of collum broadly rounded, appressed to the body, finely marginated.

Pore-bearing segments a little swollen in the area surrounding the large pores; swelling not limited by a furrow. Trunk smooth and shining. Dorsum of metazonite with very weak, leather-like sculpture. No sulcus. Suture smooth. Sides with strong curved folds. Pleural keels very large, rounded posterior angle dentiform, present up to segment 17. Sternite with transverse impression, no longitudinal furrow, sparsely and finely hairy. Sternite V of ♂ with a thick transverse knob, furrowed in the middle and bearing 2 separate, distally narrowed, rounded small lamellae.

Tail straight, weakly flattened, distally greatly narrowed, bristles not on tubercles. Posterior border of anal scale broad, nearly straight. Hairs of the legs sparse and short, only tarsus of anterior legs of ♂ with a dense brush. Praefemur swollen dorsally.



Text-fig. 40.—*Sundanina nulla*, sp. nov. *a.* gonopod (lateral view), *D.* lateral tooth of femur; *b.* gonopod (medial view), *TiTa.* tibio-tarsus.

At top of gonopod coxa some long bristles. Praefemur short, distinctly separated from femur, femur short and broad, straight, near its top a thick, blunt, lateral tooth (text-figs. 40*a*, *D*). The canal runs firstly on the medial side near the anterior edge, then on the lateral side. Canal branch very long and slender, partially concealed in tibia, its thin top

projecting. Limit between femur and tibio-tarsus distinct on lateral side. Tibio-tarsus very long and slender, not distinctly divided into tibia and tarsus, curved ; before top a small acute lateral tooth (text-figs. 40*a*).

Distribution.—Karyar nullah, 2 miles from Chamba, 3,000 feet, Punjab (D. Bagchi ; v. 27 ; 6 exs.).

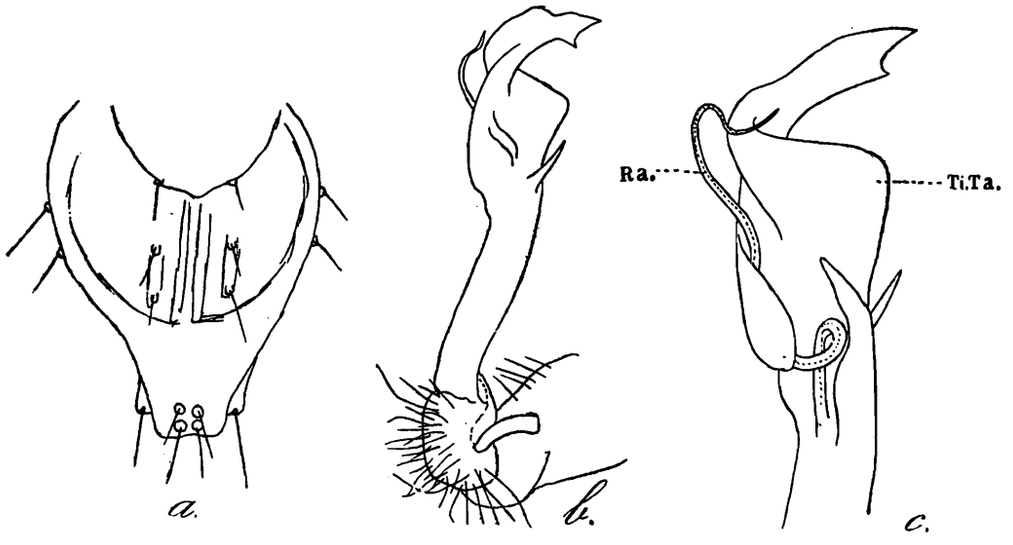
Sundanina granulifera, sp. nov.

Chestnut, lateral keels and legs yellowish-brown.

Width, ♂ 2·7 mm. ; ♀ 3·3 mm.

Head hairy up to the antennae, no vertical bristles, vertical sulcus deep, vertex swollen near sulcus.

Collum with 2 rows of setiferous granules, sides broadly rounded. Lateral keels of 2nd segment long, below level of keels of following segments roundly projecting anteriorly and posteriorly. Lateral keels starting from segment 3 large, rising highly on sides, horizontal or in anterior segments directed a little upwards ; dorsum between keels weakly vaulted, margin in the poreless keels sharp, in pore-bearing keels a little thickened with a little break before pore swelling, break especially distinct in the posterior segments. Pores lateral, in a narrow groove behind the middle. Anterior angle rounded, posterior border of anterior half of body at right angle to long axis, in succeeding segments more and more oblique, posterior angle forming a long, narrow and acute triangle in the posterior segments. Metazonites with 2 rows of large setiferous tubercles, in first row before sulcus 4 tubercles, in row behind sulcus 6-8 tubercles ; bristles short and stout, surface between tubercles wrinkled. Sulcus present to 18th segment, suture beaded. Sides lightly wrinkled, no pleural keels. Sternites smooth, with cross impression, very sparsely, finely and shortly hairy. Sternite V of ♂ with a transverse, distally narrowed lamella between 4th legs. Tail relatively broad, terminal knobs low and thick, lateral setiferous tubercles nearly in line with knobs. Anal scale broad, posterior border nearly straight (text-fig. 41*a*).



TEXT-FIG. 41.—*Sundanina granulifera*, sp. nov. *a*. anal segment ; *b*. gonopod (medial view) ; *c*. gonopod (lateral view), *Ra*. canal branch ; *TiTa*. tibio-tarsus.

Legs sparsely hairy, hairs short and fine. Tarsus of ♂ excepting the last pairs, with dense brush.

Coxa of gonopod with few bristles at top; praefemur short, sharply limited; femur long and slender with 2 spines at top, one lateral, the other anterior. Canal branch (*RA*) small, slender, pointed, rising on lateral side and applying from behind to tibio-tarsus (*TiTa*). The canal turns in the beginning to the lateral side and runs straight. Femur and tibio-tarsus not sharply limited, distal half of tibio-tarsus curved forwards (text-figs. 41*b*, *c*).

Distribution.—Lonavla, Bombay Presidency (Dr. S. L. Hora; VIII-24; 2 exs.).

Sundanina pleuroptera sp. nov.

Prozonites chestnut, brighter or darker, metazonites yellow, sometimes also posterior stripe of the prozonites yellow, sometimes metazonites with a transverse darkened zone. Head to antennae and cheeks yellow, vertex brown, legs yellow.

Width ♂ 2·5 mm.; ♀ 2·8 mm.

Clypeus and frons hairy, on vertex 2+2 bristles, on cheeks some bristles. Antennae moderately long, not clubbed.

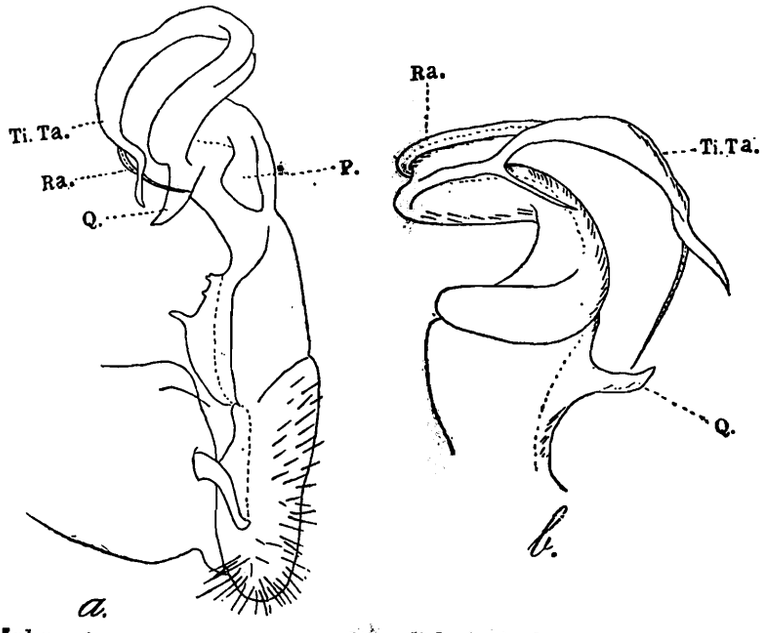
Sides of collum broadly rounded, a little protruding posteriorly, border finely marginated.

Segments moderately constricted in the suture region, metazonite weakly swollen laterally, without furrows or ridges, pore in a circular groove. Segment 1 wholly cylindrical. Pleural keels strongly developed, present to 17th segment, in the middle of body vaulted then straight, posterior angle rounded in segments 2-4, in following segments dentiform and acute, directed upwards.

Dorsum smooth and shining, no sulcus, sides weakly folded and wrinkled longitudinally. Suture not beaded.

Tail straight, weakly flattened, distally narrowed, besides terminal bristles no large knobs, all bristles on small tubercles. Anal scale rounded.

Sternites square, cross impressed, dispersedly hairy. Sternite V of ♂ with 2 separate little knobs between 4th legs.



Text-fig. 42.—*Sundanina pleuroptera*, sp. nov. *a*. gonopod (medial view); *b*. gonopod (lateral view, more highly magnified), *P*. posterior branch; *Q*. anterior branch; *Ra*. canal branch; *TiTa*. tibio-tarsus.

Legs sparsely and shortly hairy, bristles of tarsus dense, but not brush-like. Legs of ♂ only weakly incrassate, praefemur dorsally swollen. Posterior legs not elongated.

Coxa of gonopod short and thick, before the top a constriction, anteriorly some bristles. Praefemur long. Femur short and broad, bearing about the middle a lateral acute tooth, at top 2 lateral branches, anterior branch (*Q*) slender and acute, slightly curved, posterior branch (*P*) broad and blunt. Canal branch (*Ra*) very long and slender, lying wholly in cavity of the tibio-tarsus. Sperma canal runs firstly on medial side ; in the middle of the femur it turns to the lateral side to the base of the canal branch. Tibio-tarsus (*TiTa*) long and slender, several times strongly curved. Tibia and tarsus not clearly limited. In distal half a pointed slender straight lateral spine, at the top a narrow lamella (text-figs. 42*a*, *b*).

Distribution.—Chhangla Gali, Abbotabad distr., 8,450 feet, Punjab (Dr. H. S. Pruthi ; 2.x.28 ; under stones ; 5 exs.).

Sundanina hirta Carl.

1932. *Sundanina hirta*, Carl, *Rev. Suisse Zool.* XXXIX, p. 439, figs. 24-26.

Distribution.—South India, Travancore.

Sundanina laevisulcata Carl.

1932. *Sundanina laevisulcata*, Carl, *Rev. Suisse Zool.* XXXIX, p. 436, figs. 19-23.

Distribution.—South India, Palni Hills, Sholas near Vandaravu and Mariyanshola 2,300 m.

Sundanina simplex (Humb.).

1866. *Polydesmus (Strongylosoma) simplex*, Humbert, *Mém. Soc. Genève*, XVIII, p. 34, pl. iii, fig. 14 ; pl. v, fig. 14*d*.

1892. *Strongylosoma simplex*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 149.

1898. *Strongylosoma simplex*, Attems, *Denk. Ak. Wiss. Wien*, LXVII, p. 296.

1932. *Orthomorpha simplex*, Carl, *Rev. Suisse Zool.* XXXIX, p. 424, fig. 5.

Distribution.—Ceylon, Punduloya Valley.

Sundanina gracilipes (Verh.).

1933. *Mandarinopus gracilipes*, Verhoeff, *Arkiv Zoolog.* XXVI A, p. 19.

Distribution.—China near the Pei-shui-ho river.

Sundanina bimontana (Carl).

1932. *Orthomorpha (Gyrodrepanum) bimontana*, Carl, *Rev. Suisse Zool.* XXXIX, p. 431, figs. 14, 15.

Distribution.—South India, Anamalai, Valparai 1,100 m. ; Nilgiris, Kartery Valley near Coonoor, 1,600 m. At the top of the gonopod femur and on the tibio-tarsus there are several processes the interpretation of which is difficult.

Dasypharkis, gen. nov.

20 segments. Pores in segments 5, 7, 9, 10, 12, 13, 15-19. Lateral keels well developed, keels of 2nd segment below level of succeeding keels, marginal thickening in poreless keels narrow, in pore-bearing keels the thickening is branched and the lateral pore groove lies between the branches. Posterior angle of keels in posterior half of body toothed. Metazonites dorsally densely and roughly wrinkled, sulcus present, no pleural keels. Anal segment without peculiarities. All sternites of male without processes.

Telopodite of gonopod slender ; the canal runs on the lateral side in a straight course. Femur with a large branch before top. The canal branch rises on the lateral side and is applied from behind to the tibio-tarsus, considerably surpassing the latter ; the canal branch is long and slender. Limits between praefemur and femur and between femur and tibio-tarsus very distinct. Tibio-tarsus as a hollowed out lamella partially sheathing the canal branch. First legs of male normal, posterior legs not elongated, tarsus of male with dense brush.

Genotype.—D. rugulosa (Carl).

Dasypharkis rugulosa (Carl).

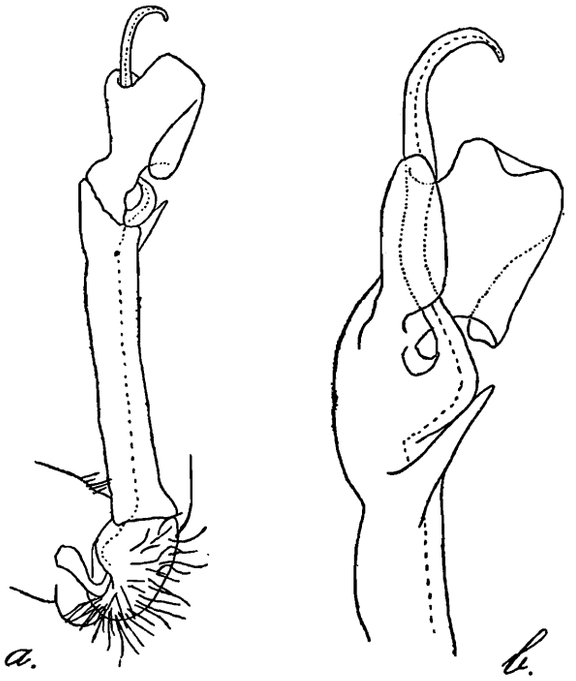
1932. *Orthomorpha rugulosa*, Carl, *Rev. Suisse Zool.* XXXIX, p. 421, figs. 3, 4.

Chestnut, middle of dorsum lightly brighter, lateral keels and legs yellowish-brown, head and under side chestnut.

Width 2·3 mm.

Head finely wrinkled, hairy to antennae, cheeks with some bristles, vertex hairless. Antennae moderately long and thick, 2nd to 5th joint of equal length, 6th joint shorter, top of antenna not club-like.

Sides of collum broadly rounded, margin raised, surface wrinkled like metazonites. Lateral keels well developed, horizontal, rising over middle of sides, dorsum well vaulted between keels. Keels of 2nd segment below level of succeeding keels and much longer than keels of the segments 3 and 4, latter in the form of rounded lobes. Marginal thickening of poreless keels narrow, in pore-bearing keels marginal thickening is forked and encloses the pore-groove between the branches ; before the pore-groove the lateral border is broken off. Posterior angle of the keels a rounded lobe from 13th segment onwards ; in



TEXT-FIG. 43.—*Dasypharkis rugulosa* (Carl.). *a, b.* Gonopods.

18th segment it is somewhat acute while in 19th segment it is very small. Prozonite very finely granular. Dorsum of metazonites roughly and equally wrinkled, wrinkles small and

very dense. Sulcus present in segments 4-17. Apparently there were 2 or 3 rows of small yellow bristles, but now nearly all bristles are lost. Suture deeply sulcated. Sides finely granular, like sand. No pleural keels, parallel to posterior border a small ridge.

Sternites smooth, with cross impression and sparse fine bristles, all sternites of male without processes.

Tail moderately broad, rounded, ventrally hollowed out, setiferous tubercles small. Posterior border of anal scale nearly straight.

Legs of ♂ moderately thickened, posterior legs not elongated, all legs dorsally sparsely, ventrally more hairy ; tarsus and part of tibia with a dense brush, brush of posterior legs less dense. Telopodite of gonopod slender ; praefemur and femur clearly limited, praefemur short, ovoid ; femur long, slender, with a slender and straight spine on top. The canal branch rises on the lateral side and applies from backwards to the tibio-tarsus ; it is long and slender, its major part is straight, the top hooked and it surpasses considerably the tibio-tarsus. Limit between tibia and tarsus not clear (text-figs. 43*a*, *b*).

Distribution.—South India, Neutral Saddle, 5,000 feet, Palni Hills (Dr. S. W. Kemp ; 15.ix.22 ; 3 exs.).

Kronopolites Att.

In his paper on the Myriapoda of the Sven Hedin Expedition to China (*Ark. Zool.*, XXVI A, 1933) Verhoeff has introduced a new term in the description of the gonopods of the Strongylosomidae, the Solänophor, an organ deeply hollowed out like a channel, rising from the top of the postfemur or from the limits between postfemur and tibio-tarsus ; it is quite distinct, therefore, from the tibio-tarsus sheathing the canal branch (Solänomerit of Verhoeff). In the numerous species of Strongylosomidae, which I have studied, I did not find any organ characterised as above and detected by Verhoeff in some of his interesting new species. Verhoeff does not accept the genus *Kronopolites* and not knowing this genus he supposes that I perhaps mistook a Solänophor, *sensu* Verhoeff, for a canal branch and that I overlooked the true canal branch. I do not believe that I did so. I describe below 4 new species of the genus which hitherto was known only from the type species, *K. swinhoei* from China. The new species from India differ from *K. swinhoei* in the absence of the ventral spines, but the canal branch is developed as characteristically as in *K. swinhoei*.

Key to the Species.

1. Trunk transversely annulated, dark brown, broad posterior stripe of metazonite yellow. Posterior sternites with 4 spines. Pleural keels strongly developed. Sternite 5 with a low lamella. Tibio-tarsus of gonopod deeply branched (China) — *K. swinhoei.*

   Trunk unicolor or the dorsum brighter, not annulated. Sternites without spines. No pleural keels. Tibio-tarsus of gonopod not deeply branched (India) — 2.

2. Sternite V with a process. Terminal knobs of anal segment rounded, thick and low. Lateral furrows limiting the rolls not bent anteriorly. Metazonites smooth — 3.

   Sternite V without process. Terminal knobs of anal segment long, pointed cones, directed ventrally. Anterior and posterior ends of lateral furrows bent towards dorsum. Metazonites wrinkled — 4.

3. No spine at the top of gonopod femur. Posterior angle of lateral rolls very shortly toothed only in posterior segments	5.
A strong acute spine at the top of gonopod femur. Posterior angle of lateral rolls toothed from 3rd segment. Teeth of segment 19 very acute	*K. spiniger*, sp. nov.
4. Unicolor, pale brown. Lateral rolls very small. No vertical bristles. Tibio-tarsus of gonopod with strong lateral teeth	*K. uncinatus*, sp. nov.
Dark chestnut, middle of dorsum yellowish-brown. 2+2 vertical bristles. Lateral rolls sensibly larger. Tibio-tarsus of gonopod without teeth	*K. helvolus*, sp. nov.
5. Tibio-tarsus of gonopod as broadly rounded lobes, no sheath for canal branch	*K. unicolor*, sp. nov.
Tibio-tarsus with a long slender branch, sheath for canal-branch present	*K. svenhedini* (Verh.).

Kronopolites swinhoei (Poc.).

1895. *Strongylosoma swinhoei*, Pocock, *Ann. Mag. Nat. Hist.* (6) XV, p. 314.
1896. *Strongylosoma swinhoei*, Brölemann, *Mém. Soc. Zool. France*, IX, p. 345, pl. xiii, figs. 9-11.
1898. *Strongylosoma swinhoei*, Attems, *Denk. Ak. Wiss. Wien*, LXVII, p. 304.
1914. *Kronopolites swinhoei*, Attems, *Arch. Naturg.* LXXX, A 4, p. 219.

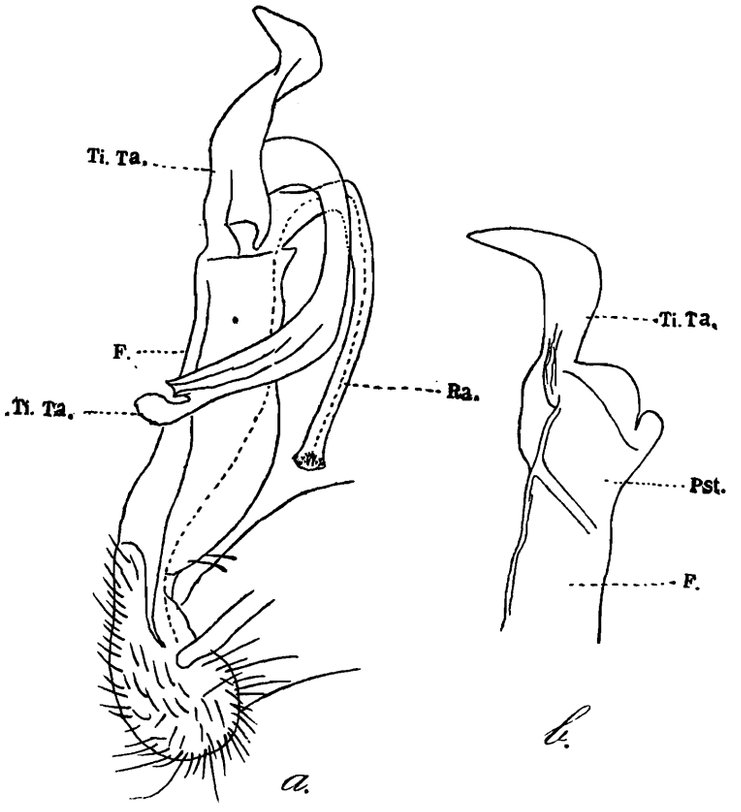
Dark red-brown nearly black. Posterior half of metazonites, lateral wings and tail orange-yellow, antennae and legs yellowish-white, annulated.

Length 35-47 mm. ; width 3·8-4·5 mm.

Head densely hairy up to middle of vertex, hairs yellow ; some bristles on mandible. Antennae moderately long, not clubbed. Sides of collum broadly rounded, segment 2 with sharp lateral ridges, ending anteriorly with an acute tooth and situated behind in level with the succeeding wings, directed obliquely downwards and forwards. From 3rd segment onwards the wings are thick rounded rolls, the furrow limiting the wing reaches dorsally from the posterior border to the suture and is not curved anteriorly, towards the dorsum. Only posterior half of wing sharply limited below ; width of wing diminishes gradually from posterior border to suture. Posterior angle not toothed, only in segments 17 and 18 a short blunt tooth projecting over the border. Dorsum generally smooth, behind sulcus somewhat wrinkled. Sulcus sharp on segments 5-18, before sulcus a row of small granules. Suture weakly furrowed. Pleural keels present in segments 2-18 ; in anterior segments larger than lateral wings ; posterior angle forming a blunt tooth from 5th segment to middle of body, and rounded on remaining segments. Tail roof-like, distally narrowed, beside terminal bristles no distinct knobs, all bristles long, situated on small tubercles ; scale rounded. Sternites quadrate, dispersedly hairy, in posterior segments, beside each coxa, an acute spine directed posteriorly, posterior spines of each segment larger than anterior. In ♀ spines much smaller. Posterior legs not elongated, coxa and praefemur of ♂ a little incrassate, hairs dense and short.

Gonopodial opening biscuit-shaped. Coxa of gonopod short, thick with few bristles at the top. Praefemur and femur distinctly separated, postfemur visible only on the lateral side, femur (*F*) broad, base a little arched forwards. The canal runs on the medial side obliquely to the anterior edge ; the canal branch (*Ra*) rises anteriorly and forms a long,

uniformly thick cylinder ; at the top beside the opening of the canal there is a small, rounded lobe. Femur and tibio-tarsus (*TiTa*) very distinctly separated ; on the lateral side a



TEXT-FIG. 44.—*Kronopolites swinhoei* (Poc.). *a, b.* gonopods (medial and lateral views) ; *F.* femur ; *Pst.* postfemur ; *Ra.* canal branch ; *TiTa.* tibio-tarsus.

postfemur visible (*Pst*) ; basal part of the tibio-tarsus a process resembling canal branch ; both the process and the canal branch lying close together (text-figs. 44*a*, *b*). At top of tarsus 2 large teeth, one directed distally, other downwards.

Distribution.—China, Chee Foo, Chou San Island. Lan Tschou. (Not represented in the collection of the Indian Museum.)

Kronopolites spiniger, sp. nov.

Bright chestnut, lateral keels yellow, antennae brown, terminal half of the 6th joint and basal half of the 7th joint blackish, tip whitish-yellow.

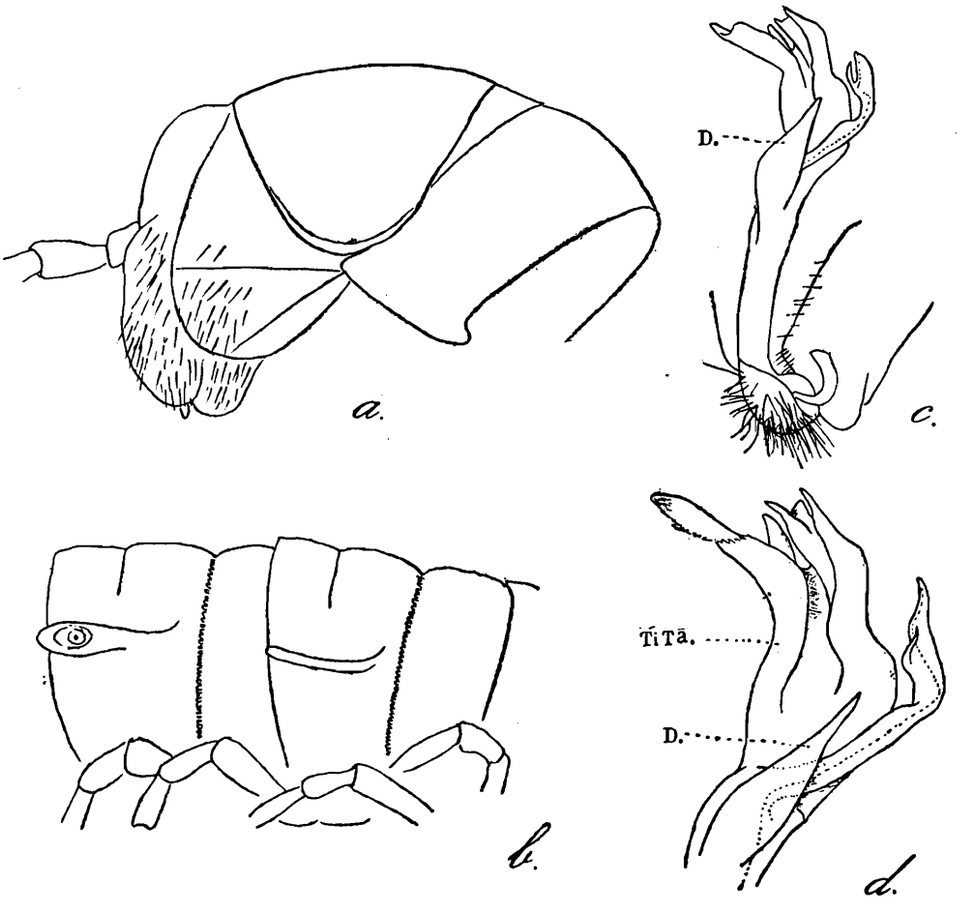
Width 3·5 mm.

Anterior and lateral part of head densely hairy, hairs relatively long. A pair of bristles near the vertical sulcus, cheeks with some bristles. Antennae moderately long, thick, tip not club-like. 2nd to 6th joint nearly equal in length, 3rd joint a little longer, 6th joint a little shorter. Collum with 2 rows of long bristles, sides symmetrically, broadly rounded, pressed close to body, border finely marginated, with some bristles.

Keels of 2nd segment long, below the level of keels of succeeding segments ; anterior and posterior angles forming rounded lobes (text-fig. 45*a*). Lateral keels of succeeding segments in the middle of sides, narrow ; marginal thickening small, also in pore-bearing segments, vanishing gradually towards suture. Posterior angle from 3rd segment toothed, extending beyond the posterior border (text-fig. 45*b*) in posterior segments the angle is more

pointed, in 19th segment it is very acute. In pore-bearing segments posterior half of marginal thickening swollen oviform, lateral pore situated at the bottom of a groove in this thickening. Furrow limiting keel curves anteriorly, with a short piece towards dorsum; it does not reach the suture.

Segments weakly constricted along suture, latter finely beaded. Dorsum smooth, dull, with 2 rows of bristles; sulcus weak, present up to 17th segment. Sides finely granular, like sand. Lateral thickening of some segments with one bristle (remaining bristles lost ?), at top of posterior angle a little groove (whether the groove bore bristles cannot be decided on account of poor preservation).



TEXT-FIG. 45.—*Kronopolites spiniger*, sp. nov. *a*. anterior end of animal; *b*. 11th and 12th segments; *c, d*. gonopods (medial and lateral views). *D*. spine of femur; *TiTa*. tibio-tarsus.

Tail short, straight, bristles in 2 rows, not arising from granules, terminal knobs low, stout; anal scale broad, its posterior border nearly straight with 2 setiferous granules. Posterior sternites square, with cross impressions, densely hairy, hairs long. Sternite V of ♂ with a thick knob ending in a broad bristled lamella.

Legs very densely hairy, hairs fine; tarsus of anterior legs of male densely hairy, but no true brush present.

Gonopodial opening constricted in median line. Coxa anteriorly densely bristled from middle to tip, bristles long extending beyond the telopodite when pressed close to the coxa. Praefemur short, sharply limited; femur long and slender, near the tip before the canal branch a strong straight spine (*D*). The canal runs on the medial side straight to the canal branch; the latter rises on the medial side; it is cylindrical, its diameter is the same,

only near the top it is a little broader, plate-like with a short lateral branch. Femur and tibio-tarsus distinctly limited, latter as a large, hollowed out leaf, with several pointed arms and lobes, border of the longest lobe partially and finely fringed. The canal branch lies in the cavity of the tibio-tarsus (text-figs. 45*c*, *d*).

Distribution.—Below P. W. D. Bungalow at Pashok, 2,600 feet, Darjeeling district (Dr. S. L. Hora ; 16.xii.26 ; 1 ex.) and Kalijhora, Kurseong, 4,000 feet (M. Sharif ; 6.ii.26 ; 2 exs.), Eastern Himalayas.

Kronopolites unicolor, sp. nov.

Chestnut to blackish-brown, tip of antenna whitish-yellow, sharply contrasting with other dark brown joints. Coxae and praefemurs of legs yellow, rest brown.

Length 36 mm. ; width ♂ 3·7 mm., ♀ 4·4 mm.

Clypeus weakly wrinkled and dispersedly hairy, 2—2 bristles near the vertical sulcus, no interantennal bristles, on cheeks several bristles. Antennae moderately long, not club-like.

Sides of collum symmetrically, broadly rounded, finely marginated.

Lateral keels of 2nd segment below the level of succeeding keels, anteriorly not so projecting, posteriorly distinctly. Lateral keels narrow, sharply limited dorsally by a furrow ; the anterior end of the furrow curves a little upwards in the first 6 segments, and does not reach the suture, in the succeeding segments it does not curve upwards ; in the pore-bearing segments the posterior half of the lateral keel is squashed and oval, extending a little over the posterior border in the segments 17-19. Pores in a shallow oval groove. Dorsum of metazonites smooth, but dull, not shining ; sulcus present in segments 5-18, weak, not reaching the furrows limiting the keels ; before the sulcus a row of long bristles. Suture finely beaded. Sides finely granular like sand, no pleural keels.

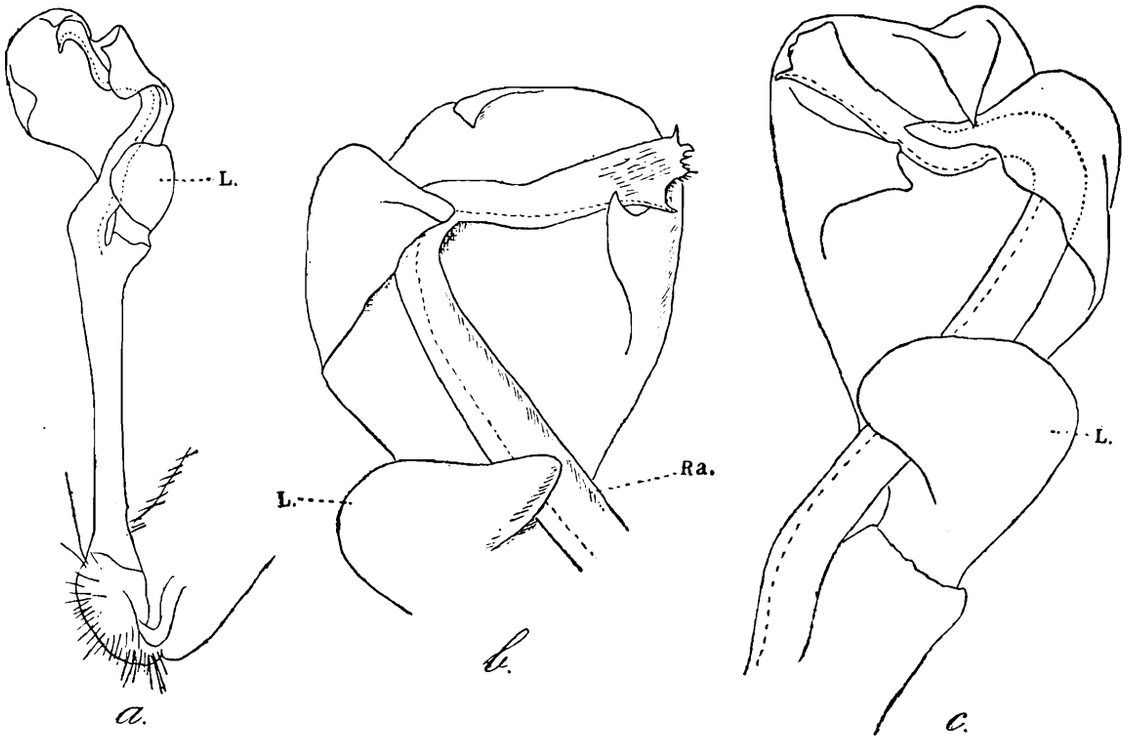
Tail straight, moderately broad, dorsally flattened, terminal knobs short, stout, rounded : bristles on granules, lateral bristles of second row remote from terminal knobs. Anal scale broad, bluntly angled, setiferous granules small.

Posterior sternites densely hairy, with cross impression. Sternite V of ♂ with a large transverse lamella between 4th legs, sides of lamella parallel, tip straight, cross-cut, anterior side densely, posterior sparsely hairy. Sternite VI with weak cross impression, in each quarter a tuft of bristles.

Legs densely hairy, coxa and praefemur with one long bristle on under side, tarsus of anterior legs of ♂ with dense brush.

Gonopodial opening a little constricted in medial line. Coxa long, stout, densely bristled from about middle to tip. Praefemur short, well limited, femur very long and slender, straight, without lateral branch. The canal runs on the medial side in a straight direction, the canal branch (*Ra*) which rises on the posterior side, is cylindrical ; its diameter is equal, only near the top it is a little broader and plate-like ; the canal ends in a little point before the fringed terminal plate. At base of tibio-tarsus a stout lateral lobe (*L*). Border of the broad round or oval tibio-tarsus clapped in several places ; the canal

branch lies in the cavity of the tibio-tarsus (text-figs. 46*a-c*). Lobes of tibio-tarsus show individual variations (text-figs. 46*b*, *c*).



Text-fig. 46.—*Kronopolites unicolor*. sp. nov. *a*, *b*, *c*. gonopod. *L*. basal lateral lobe of tibio-tarsus ; *Ra*. canal branch.

Distribution.—On the way from Mawplang to Mairong (Museum Collector ; 14.iv.27 ; 5 exs.), Maosmai Cave, 4,000 feet, Khasi Hills (Dr. S. L. Hora ; 20.ii.23 ; under stones and dead leaves at entrance ; several exs.), Assam ; near Clarendon Hotel, Kurseong, 5,366 feet (M. Sharif ; 8.iii.25 ; 1 ex.) and Eagles' Crag, Kurseong, 5,000 feet (M. Sharif ; 10.iii.25 ; under stone ; several exs.), Eastern Himalayas.

Kronopolites uncinatus, sp. nov.

Pale brown, tip of the antenna yellowish-white.

Length 30 mm. ; width 4 mm.

Form generally clumsy. Clypeus densely hairy, no vertical bristles, sulcus deep, several bristles on cheeks. The groove with the organ of Tömösvary is not as deep as in *K. helvolus*. Antennae moderately long.

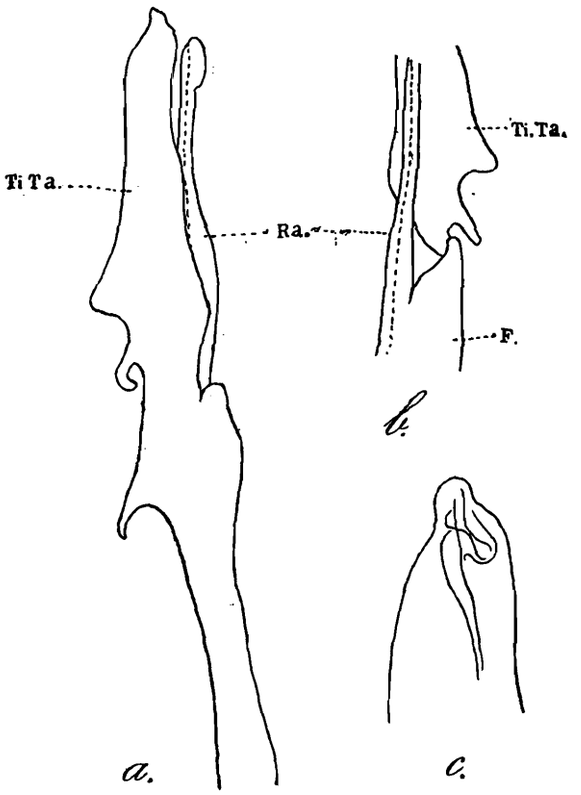
Sides of collum broadly and symmetrically rounded, border finely marginated, on surface 2 rows of bristles.

Lateral keels of the 2nd segment projecting anteriorly more than posteriorly ; succeeding keels in middle of sides ; keels of segments 3 and 4 somewhat larger, succeeding keels very narrow, roll-like, formed only by the marginal thickening ; sharply limited dorsally by a furrow, which curves anteriorly a great deal towards the dorsum, posteriorly it curves dorsally still more. In anterior poreless segments the keel is flattened in a dorsoventral direction, in the pore-bearing segments the posterior half of the keel is incrassate and oviform. Posterior angle rounded to 12th segment, angular to 15th segment and a short blunt tooth in segments 16-19. Pores lateral, in a round groove near posterior angle. Prozonites finely wrinkled like leather, metazonites more roughly wrinkled. Sulcus sharp,

finely beaded, present in segments 4-18. Segments moderately constricted in suture region, latter beaded. Sides densely granular. No pleural keels.

Terminal knobs of the anal segment long, slender, acute cones, directed obliquely ventrally. Bristles of anal segment consisting of 2 rows of 4+4 and 2+2, arising from small granules; lateral bristles of posterior row remote from terminal cones. Anal scale broad, its posterior border straight with 2 large setiferous tubercles. Anal valves with 2 large setiferous tubercles and low marginal thickening.

Anterior sternites of ♂ without process, posterior sternites with cross impression, densely hairy.



TEXT-FIG. 47.—*Kronopolites uncinatus*, sp. nov. *a*, *b*. gonopod; *F*. femur; *Ra*. canal branch; *TiTa*. tibio-tarsus; *c*. apex of gonopod tibio-tarsus.

Legs slender, legs of ♂ not incrassate, tibia and tarsus densely hairy, tarsus of anterior and middle legs of ♂ with a brush, remaining joints more sparsely hairy, hairs of upper side small. Gonopodial opening oval, not constricted in median line. Coxa slender, before its tip only few bristles. Telopodite very slender (text-fig. 47*a*), straight. Praefemur short, distinctly separated from femur, tibio-tarsus and femur separated only on medial side (text-fig. 47*b*). The canal runs on the median side in a straight direction. Tibio-tarsus very slender, straight, only a little longer than canal branch and forming a deep sheath for the latter. On lateral side 2 spines and a conical tooth (text-fig. 47*a-c*).

Distribution.—Khasi Hills, Assam (1 ex. damaged).

Kronopolites helvolus, sp. nov.

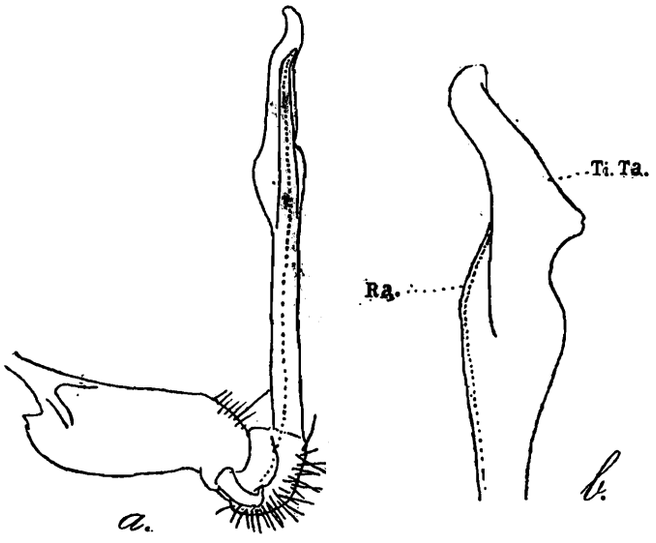
Dark chestnut, a broad stripe on dorsum; lateral keels, anal segment and legs yellowish-brown; tip of antenna white.

Width 4 mm.

Clypeus hairy, 2+2 bristles near vertical sulcus, cheeks with some bristles. The organ of Tömösvary lies in a deep cavity.

Sides of collum broadly and symmetrically rounded, finely marginated, surface wrinkled like leather, with 2 rows of small bristles.

Lateral keels of 2nd segment long, anteriorly rounded, a little projecting, with a little setiferous groove ; lateral keels of succeeding segments larger than in *K. uncinatus* ; keels of segment 3 and 4 well developed. Marginal roll in poreless segments smaller than in pore-bearing segments, the furrow dorsally limiting the roll curves anteriorly and posteriorly towards the dorsum. Posterior angle rounded to 15th segment, rectangular in segments 16 and 17, a blunt tooth in segments 18 and 19, scarcely extending over the border. Pores in an oval groove near posterior end of roll. Prozonites very finely granular, metazonites finely wrinkled like leather ; sulcus sharp, present in segments 5-18. Sides very finely granular. No pleural keels. Suture beaded. A small posterior margin of metazonites furrowed longitudinally. Sternites nearly square, weak cross impression vanishing in the middle ; sternites densely hairy, hairs fine, long. Anterior sternites of ♂ without processes.



TEXT-FIG. 48.—*Kronopolites helvolus* , sp. nov. *a.* gonopod ; *b.* apex of gonopod (lateral view). Reference lettering same as in text-fig. 47.

Tail straight, nearly cylindrical, terminal knobs conical, directed ventrally like in *K. uncinatus*. Scale rounded.

Coxa and praefemur of legs of ♂ a little incrassate, remaining joints not incrassate. Tibia and tarsus of all legs densely bristled but no true brush on tarsus, bristles of upper side very small. Gonopodial opening oval, not constricted in median line. The gonopods (text-fig. 48*a*) greatly resemble those of *K. uncinatus*, the telopodite is as long and slender as in that species, and is straight. The canal branch (*Ra*) rises on the medial side, at its top it is not broader ; canal straight, on medial side. Tibio-tarsus (*TiTa*) with one blunt lateral lobe (text-fig. 48*b*).

Distribution.—Lashio, Northern Shan States, Burma (Dr. H. S. Rao ; 12.xi.26 ; round and about small streams), 2 exs.

Kronopolites svenhedini (Verh.).

1933. *Kansupus svenhedini*, Verhoeff, *Arkiv Zoolog.* XXVI A, p. 17.

Distribution.—China, N. E. Szetchouan, South Kansu.

Kronopolites svenhedini dentiger (Verh.).

1933. *Kansupus svenhedini dentiger*, Verhoeff, *Arkiv Zoolog.* XXVI A, p. 19.

Distribution.—China, near the Pei-shui-ho river.

Himantogonus Carl.

Himantogonus rufocinctus Carl.

1932. *Himantogonus rufocinctus*, Carl, *Rev. Suisse Zool.* XXXIX, p. 455, figs. 50, 51.

Distribution.—South India, Anamalai, Valparai.

Telodrepanum Carl.

Telodrepanum badaga Carl.

1932. *Telodrepanum badaga*, Carl, *Rev. Suisse Zool.* XXXIX, p. 458, figs. 52-54.

Distribution.—South India, Nilgiris, Kotagiri.

Polydrepanum Carl.

Polydrepanum tamilum Carl.

1932. *Polydrepanum tamilum*, Carl, *Rev. Suisse Zool.* XXXIX, p. 434, figs. 16-18.

Distribution.—South India, Madras.

Grammorhabdus Carl.

Grammorhabdus asperrimus Carl.

1932. *Grammorhabdus asperrimus*, Carl, *Rev. Suisse Zool.* XXXIX, p. 441, figs. 27-30.

Distribution.—South India, Palnis, Maryland, Neutral Saddle, Tandikudi.

Xiphidiogonus Carl.

Xiphidiogonus spinipleurus Carl.

1932. *Xiphidiogonus spinipleurus*, Carl, *Rev. Suisse Zool.* XXXIX, p. 444, figs. 31-34.

Distribution.—South India, Palnis, Shola near Kodaikanal, Mariyanshola and Vandaravu.

Xiphidiogonus dravidus Carl.

1932. *Xiphidiogonus dravidus*, Carl, *Rev. Suisse Zool.* XXXIX, p. 447, figs. 35-39.

Distribution.—South India, N. Travancore, Upper Vatavadai Valley, between Anamalais and Palnis.

Xiphidiogonus hendersoni Carl.

1932. *Xiphidiogonus hendersoni*, Carl, *Rev. Suisse Zool.* XXXIX, p. 449, figs. 40-43.

Distribution.—South India, Palnis, Kodaikanal.

These species may be distinguished by the following key :—

1. A row of 4 long white bristles before the sulcus. Femur of gonopod anteriorly with 2 strong acute teeth . .	*X. spinipleurus* Carl.
Metazonites hairless	2.
2. Femur of gonopod anteriorly with simple, posteriorly with biramose lateral branch. Pleural keels fine curved ridges. Width of body 1·8 mm. . . .	*X. dravidus* Carl.
Femur of gonopod only with an anterior two-pointed lateral branch. Pleural keels in segments 2-4 acute prominences, in segments 5-10 roll-like. Width 1 mm.	*X. hendersoni* Carl.

Yünnanina, gen. nov.

20 segments. Pores in segments 5, 7, 9, 10, 12, 13, 15-19. Coxa of gonopod with a thumb-like process at the tip. Praefemur and femur short, distinctly separated ; the canal branch rises in the middle of the lateral side of the femur, it is very long and has 2 lateral branches. Articulation between femur and tibio-tarsus semiflexible, canal straight on the medial side ; tibio-tarsus very long, curved backwards and sheathing the canal branch. Sternite V of ♂ with 2 processes, larger process between 4th pair of legs and smaller between the 5th pair of legs. Sternite VI with a large horn-shaped process. 1st legs of ♂ incrassate, femur with a process. Posterior sternites without teeth, etc. Lateral keels with very small swellings in the middle at the sides, keels of the 2nd segment below the level of the succeeding keels. Metazonites without peculiar sculpture, sulcus present, no pleural keels. Tail short, roof-like. Posterior legs of ♂ not elongated, coxa and praefemur densely bristled beneath.

Genotype.—Y ceratogaster, sp. nov.

Yünnanina ceratogaster, sp. nov.

Black, antennae also black, lateral keels and legs bright yellowish-brown.

Width 2 mm.

Head bristled up to middle of vertex, vertical sulcus deep, some bristles on cheeks. Antennae long, slender.

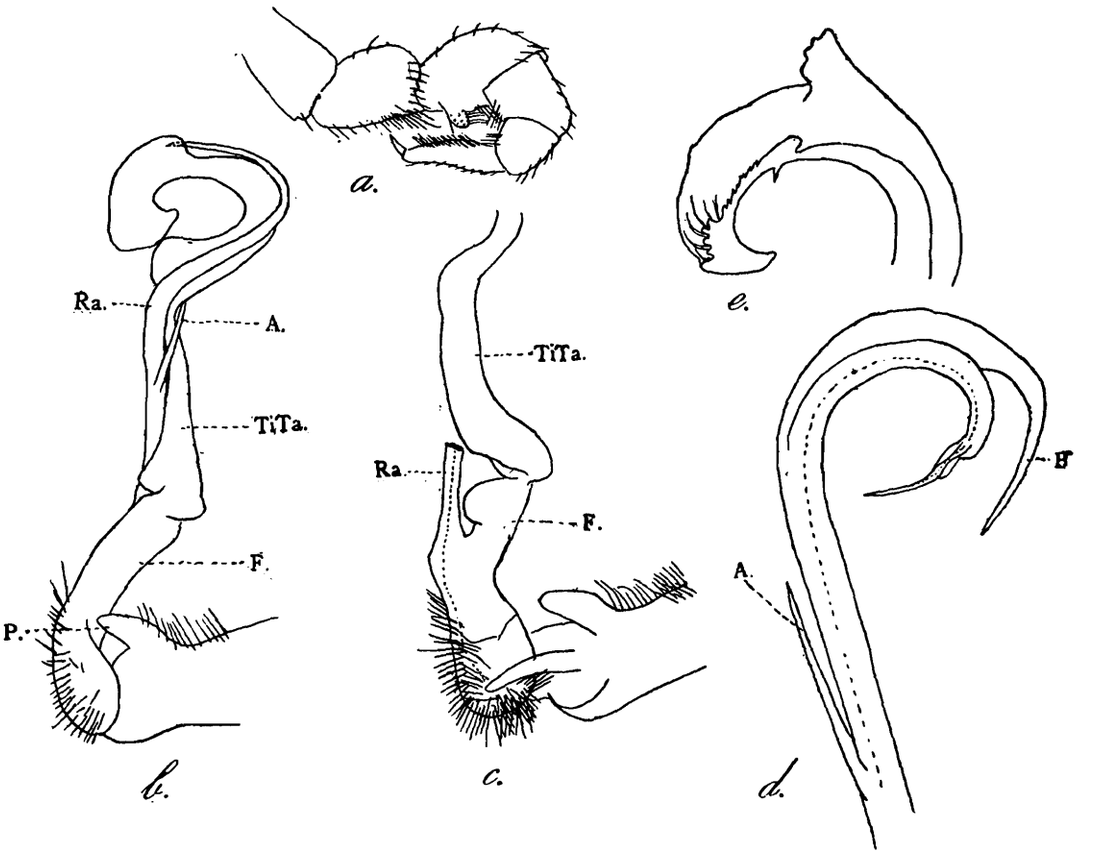
Sides of collum broadly rounded, border narrowly marginated and turned upwards, 3 rows of fine bristles.

Lateral keels of 2nd segment long, its posterior end in the same level with succeeding keels, descending under this level anteriorly, rounded at both ends. Succeeding lateral keels in the middle of the sides, very narrow swellings, sharp-bordered in poreless segments, thicker in pore-bearing segments, pore near the posterior end of a narrow lateral groove. Posterior angle sharply toothed and extending beyond the border from 2nd segment. Dorsum of metazonite lightly wrinkled, not shining, traces of sulcus in 2nd segment, distinct sulcus in segments 3-18. Before sulcus one row, behind sulcus one or two rows of long bristles. Suture deeply sulcated. Oval oblique stigma opening at the top of a

small crater, above the crater two small swellings, no pleural keels. Tail short, broad roof-like, terminal knobs not enlarged, setiferous tubercles very small. Anal scale rounded. 2 large setiferous tubercles remote from marginal thickening of valves.

Sternites square, sparsely bristled.

Process between 4th legs of male long, its base cylindrical, tip hollowed out and bristled ; between 5th legs a short acute cone. Sternite VI of ♂ with a long median process, pointed gradually and curved forwards, its tip touching anterior process of Sternite V. Sternite V and VI of ♂ with few long bristles.



TEXT-FIG. 49.—*Yünnanina ceratogaster*, sp. nov. *a*. 1st leg of ♂ ; *b*, *c*. gonopod ; *d*. canal branch, *A*. *B*. lateral spines ; *e*. tibio-tarsus, *F*. femur ; *P*. process of coxa ; *Ra*. canal branch ; *TiTa*. tibio-tarsus.

1st legs of ♂ incrassate, femur with a blunt process beneath, beset with some bristles (text-fig. 49*a*). Tarsus of anterior legs with dense brush, coxa of anterior legs blunt conical. Legs of ♂ moderately thickened, posterior legs not elongated, copiously bristled, especially coxa and praefemur. Gonopodial opening divided by a long narrow acute process arising from posterior border. At tip of coxa a large thumb-like process (text-fig. 49*b*), before it an area of bristles. Praefemur and femur (*F*) short, tibio-tarsus (*TiTa*) extremely long. The cylindrical canal branch (*Ra*) rises in the middle of the femur (text-fig. 49*c*) and is applied so firmly to the tibio-tarsus that it is not visible without dissection ; it has 2 long lateral spines, one straight (text-fig. 49*d*, *A*) and one curved (*B*), the tip is fine and pointed. On femur distally from the base of the canal branch is a rounded lateral lobe. Articulation between femur and tibio-tarsus distinct. Tibio-tarsus very long, its base straight, then curved two folds, border of hollowed out and boat-like tip dentate, before the tip a large lateral lobe (text-fig. 49*e*).

Distribution.—Western China, Yunnan (Prof. J. W. Gregory), 1 ex.

Delarthrum, gen. nov.

20 segments, pores in segments 5, 7, 9, 10, 12, 13, 15-19. Femur and tibio-tarsus of gonopod very distinctly separated, articulation flexible, femur slender with a spine at tip. The canal branch rises behind, it is slender, acute and lies in the cavity of the tibio-tarsus; the canal is on the medial side, straight. Tibio-tarsus like a broad leaf. Femur of 1st legs of ♂ with a little process. Tarsus of anterior legs of ♂ with a dense brush. Sternite V of ♂ with a process between 4th legs. Lateral keels small. Pores lateral, in marginal thickening. Sulcus and pleural keels present. Anal segment without peculiarities.

Genotype.—D. obscurum, sp. nov.

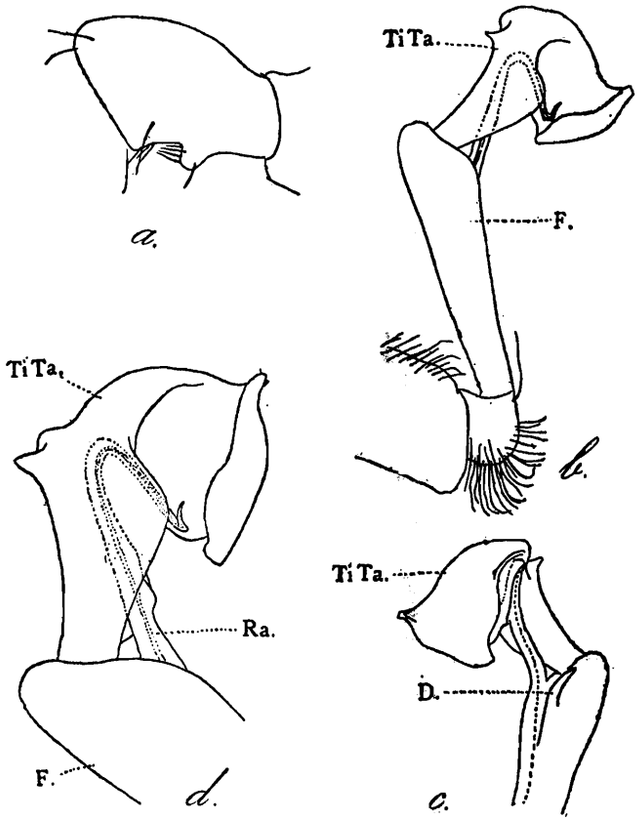
Delarthrum obscurum, sp. nov.

Dark brown, nearly black, head and antennae black, coxa of legs bright brown, remaining joints dark brown.

Width 1·8 mm.

Clypeus bristled, a pair of bristles next to vertical sulcus. Antenna moderately long, tip weakly incrassate.

Sides of collum turned up, this elevated part bordered by a furrow; surface with several rows of bristles, nearly all lost in the specimen.



TEXT-FIG. 50.—*Delarthrum obscurum*, sp. nov. *a.* femur of 1st leg of ♂; *b, c, d.* gonopod; *D.* hook of femur; *F.* femur; *Ra.* canal branch; *TiTa.* tibio-tarsus.

Lateral keels of 2nd segment below the level of succeeding keels, long, rounded anteriorly, toothed behind. Succeeding keels above the middle of sides, narrow but well developed in entire length of metazonite; sharply limited dorsally, lateral border of poreless keels sharp, posterior half of pore-bearing keels incrassate, pores in short, oval, lateral grooves.

Anterior angle much rounded, posterior angle toothed from 2nd segment, tooth more and more acute towards the caudal end, but in posterior segments also it does not greatly extend over the border. Furrow limiting keel dorsally does not bend towards dorsum. Space between keels vaulted. Metazonites dorsally smooth, sulcus present in segments 4-18. Owing to poor preservation of the material it is impossible to state whether bristles were present or not. Sides finely granular. On anterior segments up to 7th weak rounded pleural keels. Segments moderately constricted in suture, latter deeply sulcated dorsally and on sides. Sternites square, bristled. Sternite V of ♂ with a large, transverse, rectangular lamella between 4th legs. Legs of ♂ moderately thickened, posterior legs not elongated, tarsus of anterior legs with a dense brush. Femur of 1st legs of ♂ with a little process below (text-fig. 50*a*). Coxa of gonopod (text-fig. 50*b*) short, thick ; praefemur short, distinctly limited ; femur (*F*) long and slender, a little thickened distally, at tip a little hook (text-fig. 50*c*, *D*). The canal is straight on the medial side, the canal branch is slender, finely pointed, and lies in the cavity of the tibio-tarsus. Tibio-tarsus very distinctly set off from femur, like a broad leaf (text-fig. 50*d*).

Distribution.—India, Chhangla Gali, 8,450 feet, Abbotabad district, Punjab (Dr. H. S. Pruthi ; 2.x.28 ; under stones), 1 ex.

Gonobelus, gen. nov.

20 segments. Pores in segments 5, 7, 9, 10, 12, 13, 15-19. Telopodite of gonopod slender ; praefemur, femur and tibio-tarsus distinctly limited, praefemur short, femur slender, with acute terminal tooth. The canal branch rises posteriorly and is applied from behind to the tibio-tarsus ; it is long, thin and finely pointed, with a lateral spine. The canal branch and the tibio-tarsus are curved in a spiral. Canal straight, on the medial side. First legs of ♂ thickened, praefemur with a process. Sternite V of ♂ with a process between 4th legs, the remaining sternites without cones, etc. Trunk resembling a garland of roses, lateral keels small, roll-like in middle of sides ; lateral keels of 2nd segment larger, below the level of succeeding keels. Metazonites roughly wrinkled ; sulcus present. Anal segment without peculiarities. Legs densely hairy especially on the under side of praefemur. Legs of ♂ not incrassate, excepting the first pair, posterior legs not elongated.

Genotype.—*G. sinensis*, sp. nov.

Gonobelus sinensis, sp. nov.

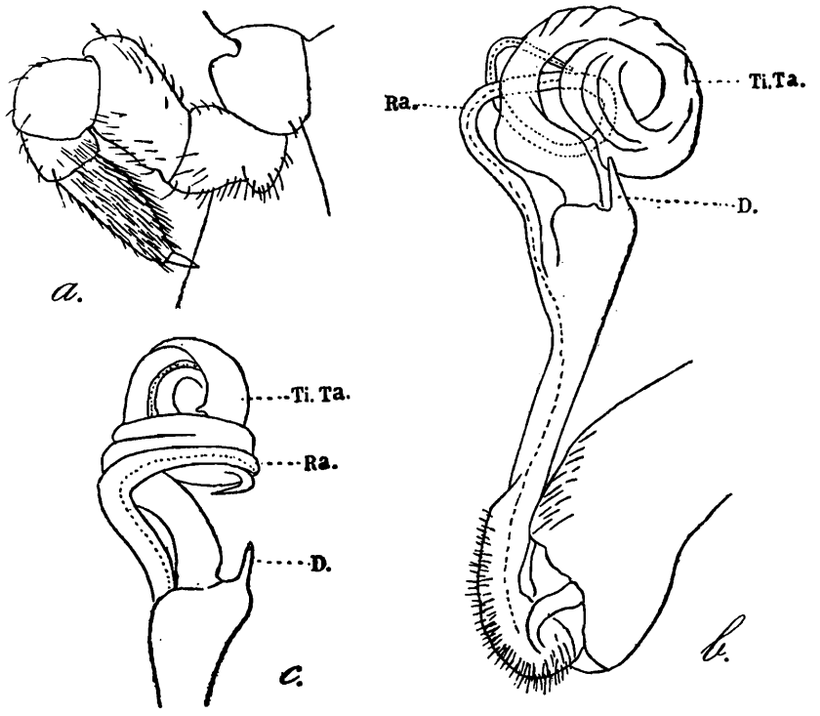
Black, lateral swellings brighter.

Width 2·6 mm.

Head wrinkled, clypeus and sides densely bristled, several bristles between antennae, vertex not bristled, sulcus deep. Antennae long and slender ; 2nd to 5th joints equally long, 6th joint shorter.

Sides of collum semielliptical, border white and a little turned up. Segments strongly constricted in suture, lateral rolls over the middle of sides, narrow ; in poreless segments ridge-like, in pore-bearing segments thicker ; latitude of each roll increases posteriorly. In anterior segments posterior angle rounded, in posterior segments a little blunt tooth, only slightly extending over the border. Pores oblique, in a groove near posterior angle. Keels of 2nd segment flattened dorsoventrally, rounded and not projecting anteriorly or posteriorly

below level of succeeding keels. Prozonites very finely granular, metazonites roughly wrinkled, sulcus present in segments 5-18. Apparently 3 rows of bristles were present, but the animals are in a bad condition and it is not possible to be certain about the number of rows of bristles. Sides densely granular, like sand. In anterior segments weak traces of pleural keels. Suture longitudinally sulcated. Sternites with deep transverse impression,



TEXT-FIG. 51.—*Gonobelus sinensis*, sp. nov. *a*. first leg of ♂; *b*. right gonopod (medial view); *c* left gonopod (lateral view). Reference lettering same as in text-fig. 50.

no longitudinal sulcus, sparsely bristled, at border near each coxa a tooth-like prominence. Sternite V of ♂ with a large rounded lamella between 4th legs, lamella oblique and bristled anteriorly and posteriorly.

Tail broad, flattened, granules small, scale rounded, valves wrinkled, 2 large bristles near narrow, marginal thickening.

1st legs of ♂ (text-fig. 51*a*) very thick, praefemur with a short thick process; femur without process, remaining legs not incrassate.

Coxa of gonopods thickest in the middle, bristled from the middle to tip; telopodite long and slender, femur especially very slender, straight, at tip an acute, distally directed tooth (*D*). Canal straight, on medial side. The canal branch (*Ra*) rises on the posterior side and lies in the cavity of the tibio-tarsus (*TiTa*); in its middle is a slender lateral tooth. Tibio-tarsus rises between the femoral tooth and the canal branch; canal branch and tibio-tarsus curved in a spiral (text-figs. 51*b*, *c*).

Distribution.—Western China, Yunnan (Prof. J. W. Gregory), 2 damaged exs.

Alogolykus, gen. nov.

20 segments. Pores in segments 5, 7, 9, 10, 12, 13, 15-19. Coxa of gonopod short, broad, with a large flagelliform process projecting beside the tibio-tarsus; canal branch long, slender, pointed, sheathed by tibio-tarsus; limit between femur and tibio-tarsus not distinct; tibio-tarsus large, the channel in which the canal branch lies is finely fringed. Lateral keels in

the middle of sides, small furrow limiting the keel dorsally reaching from the suture to posterior border, not bending towards dorsum. Posterior angle of keels toothed. Pores lateral. Keels of 2nd segment below the level of succeeding keels. Metazonites smooth, sulcus present. Sternite V of ♂ with a process between 4th legs, the remaining sternites without processes. 1st legs of ♂ normal; legs of ♂ not incrassate, posterior legs not elongated, tarsus densely bristled but no true brush present.

Genotype.—A. gracilis, sp. nov.

Alogolykus gracilis, sp. nov.

Chestnut, so also head and antennae; lateral keels, ventral side and legs pale yellow.

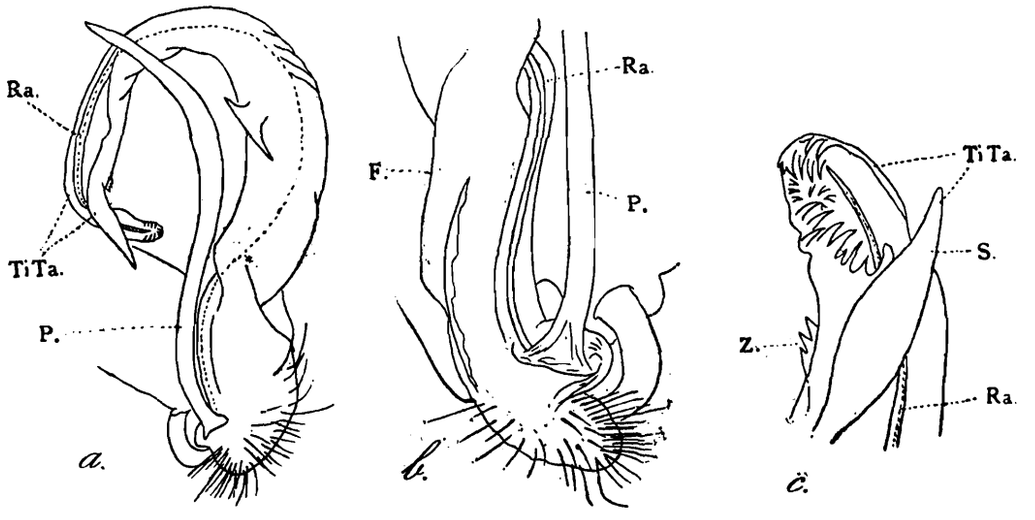
Width 1·7 mm.

Clypeus bristled, a pair of bristles next to vertical sulcus. Antennae moderately long, tip a little incrassate.

Collum large, laterally rounded but not symmetrical, 2 rows of bristles. Lateral keels in the middle of sides, very narrow, consisting almost only of marginal rolls, furrow limiting them dorsally reaching from the suture to posterior border, not bending towards dorsum anteriorly. Pore-bearing keels sensibly thicker dorsoventrally, pores lateral, in a small groove. Posterior angle tooth-like from 2nd segment, not greatly extending over the posterior border, also in posterior segments. Dorsum of metazonites smooth, sulcus present in segments 5-17, not reaching the furrows limiting keels. In segments 2-7 a row of bristles before sulcus (lost in the succeeding segments ?). Suture beaded. Sides finely granular, like sand. Pleural keels rounded, present to 7th segment.

Tail straight, terminal knobs large, all setiferous tubercles very small. Anal scale rounded.

Sternite V of ♂ with a thick transversely compressed process with some bristles between 4th legs. Posterior sternites smooth, sparsely hairy. Legs of ♂ not incrassate, posterior legs not elongated, tibia and tarsus densely hairy, remaining joints sparsely hairy, bristles of tarsus not forming a close brush.



TEXT-FIG. 52.—*Alogolykus gracilis*, sp. nov. *a, b. c.* gonopod (different views); *F.* femur; *P.* process of praefemur; *Ra.* canal branch; *S., Z.* spine and dentated lamella respectively of tarsus; *TiTa.* tibio-tarsus.

Coxa of gonopod (text-fig. 52*a*) short, broad, at top a large area of bristles. Praefemur with a long and slender process (*P*), rising near the beginning of sperm canal and projecting

beside tibio-tarsus. Limit between femur (*F*) and tibio-tarsus not distinct. Canal branch (text-fig. 52*b*, *Ra*) long, slender, finely pointed, applying from before to the sheath formed by tibio-tarsus (*TiTa*). This channel is partially fringed, the fringes are fine, and the round terminal opening of the channel is surrounded by fine, radial spines. In the first half of tibia a two-pointed lateral lobe, tarsus with a large spine (text-fig. 52*c*, *S*) and opposite a dentated lamella (*Z*).

Distribution.—Burma, Southern Shan States, Yawnghwe State, Inlé Lake (Dr. F. H. Gravely ; 5.iii.17), 1 ex.

Akribosoma Carl.

1935. *Akribosoma*, Carl, *Rev. Suisse Zool.* XLII, p. 333.

Akribosoma cylindrica Carl.

1935. *Akribosoma cylindrica*, Carl, *Rev. Suisse Zool.* XLII, p. 334, figs. 15-19.

Distribution.—Darjeeling.

Hingstonia Carl.

1935. *Hingstonia*, Carl, *Rev. Suisse Zool.* XLII, p. 336.

Hingstonia eremita Carl.

1935. *Hingstonia eremita*, Carl, *Rev. Suisse Zool.* XLII, p. 337, figs. 20-25.

Distribution.—Rongskar Valley, Nepal.

Strongylosoma Brdt.

Strongylosoma montigena Carl.

1935. *Strongylosoma montigena*, Carl, *Rev. Suisse Zool.* XLII, p. 330, figs. 20-25.

Distribution.—Darjeeling.

DOUBTFUL GENERA AND SPECIES OF STRONGYLOSOMIDAE.

Tetracentrosternus subspinosus Poc.

1895. *Tetracentrosternus subspinosus*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 803.

Distribution.—Burma.

Trogodesmus bicolor Poc.

1895. *Trogodesmus bicolor*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 804, fig. 10.

Distribution.—Burma, Carin Cheba, Yado.

Trogodesmus nigrescens Poc.

1895. *Trogodesmus nigrescens*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 806.

Distribution.—Burma, Carin Cheba.

Trogodesmus vittatus Poc.

1895. *Trogodesmus vittatus*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 806.

Distribution.—Burma, Palon, Pegu.

Strongylosoma nadari Bröl.

1896. *Strongylosoma nadari* Brölemann, *Mém. Soc. Zool. France*, p. 357, pl. xiii, figs. 17, 18.

Distribution.—China, Chou San.

Strongylosoma nietneri Pet.

1864. *Strongylosoma nietneri*, Peters, *Monatsber. Ak. Berlin*, p. 535.

1866. *Strongylosoma nietneri*, Humbert, *Mém. Soc. Genève*, XVIII, p. 36.

Distribution.—Ceylon, Rambodde.

Family LEPTODESMIDAE.

Fontaria Gray.

Fontaria (?) lacustris Poc.

1895. *Fontaria lacustris*, Pocock, *Ann. Mag. Nat. Hist.* (6) XV, p. 359, p. xi, fig. 8.

Distribution.—Wo-Lee Lake near Ningpo.

This species is not recognisable. From the Loo-Chou Islands we know 3 species of *Rhysodesmus* : *R. holstii* Poc., *R. neptunus* Poc. and *R. variatus* Poc. These and some not recognisable Japanese species are the sole Asiatic members of the principally American family Leptodesmidae.

Family PLATYRHACHIDAE.

Platyrhacus Koch.

Platyrhacus modestior (Silv.).

(Labelled as *Cyrtorhachis modestior* Silvestri, but no description has yet been published.)

Colour dark chestnut.

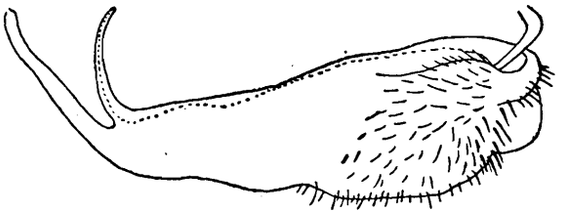
Width ♂ 10 mm., ♀ 11½ mm.

Head equally and finely granular, clypeus dispersedly hairy, between antennae a shallow depression, no sharp vertical sulcus. Collum as wide as head, strongly convex, nearly elliptical. Sides pressed close to head, along the anterior border a dense row of strong, round tubercles, these tubercles forming a thick roll, along the posterior border a row of similar tubercles, but tubercles more distant ; surface granular like metazonites. Dorsum strongly arched, keels rising in the middle of sides, lightly sloped downwards but not following curve of back, keels of posterior segments nearly horizontal. Anterior keels directed obliquely forwards, their lateral borders lightly converging backwards. Anterior and posterior borders of keels smooth, anterior border distinctly shouldered at base, lateral border with 4 or 5 large round tubercles, posterior angle in anterior half of body rectangular, but angle not sharp, in posterior half the angle forms a short, blunt tooth ; keels of 19th segment form rounded lappets. Metazonites and keels densely granular dorsally with 3 rows of larger tubercles, first and second row of tubercles not prominent, third row more distinct. Sides finely granular. Prozonites dull, minutely wrinkled and covered with minute, linear granules. Pores remote from border, as wide as their diameter.

Sides of anal segment straight, lightly converging backwards. Tail shovel-like, rounded, without incisions or lappets at posterior border. Anal scale with 2 short, thick, bristle-bearing tubercles, not extending sensibly beyond the middle. Sternites densely granular, without bristles or spines.

Telopodite of gonopod gradually narrowed distally from a pear-like base. Femoral part short, not separated from praefemur or tibio-tarsus. Canal branch a slender sickle posteriorly, *i.e.*, in the hollow side of the curving. Tibio-tarsus stands at a blunt angle to femur, it is a simple nearly straight spine gradually tapering distally (text-fig. 53).

Distribution.—Sukli, 2,100 feet, eastern side of Dawna Hills (Dr. F. H. Gravely ; 22-29.xi.11 ; 5 exs.) and Misty Hollow, 2,200 feet, western side of Dawna Hills (Dr. F. H. Gravely ; 22-30.xi.11 ; 2 exs.), Burma.



TEXT-FIG. 53.—*Platyrhachus modestior* (Silv.). Tilopodite of gonopod.

This species is closely related to *P. verrucosus* from Sumatra. The main differences are : the collum in the new species is strongly arched and not wider than the head, in *P. verrucosus* it is lightly convex and a little wider than the head. The keels rise in the new species in the middle of the sides and slightly slope downwards below the middle of the strongly arched dorsum, in *P. verrucosus* they rise above the middle and follow the curving of the back. The pores of *P. modestior* are remote from the border, as wide as their diameter, in *verrucosus* they are situated close to the lateral border. The sides of the anal segment of the new species are straight, in *P. verrucosus* the caudal process is curved from side to side. The tibio-tarsus of the gonopod is nearly straight in *P. modestior*, in *P. verrucosus* it is strongly curved like the canal branch.

Platyrhacus andersoni Poc.

1889. *Platyrhacus pilipes*, Pocock (*nec* Peters), *Journ. Linn. Soc. London*, XXI, p. 291, pl. xxiv, fig. 4.

1895. *Platyrhacus andersoni*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 788.

1902. *Platyrhacus andersoni*, Carl, *Rev. Suisse Zool.* X, p. 648, pl. xi, figs. 62-64.

Distribution.—Mergui, Tenasserim.

Platyrhacus bouvieri Bröl.

1897. *Platyrhacus bouvieri*, Brölemann, *Bull. Mus. Hist. Nat. Paris*, No. 7, p. 333, fig. 3.

Distribution.—Indo-China (A doubtful species).

Family VANHOEFFENIIDAE.

Ootacodesmus Carl.

Ootacodesmus humilis Carl.

1932. *Ootacodesmus humilis*, Carl, *Rev. Suisse Zool.* XXXIX, p. 469, figs. 68-74.

Distribution.—South India, Nilgiris, Dodabetta Reserved Forest 2,500 m.

Pseudosphaeroparia Carl.

Pseudosphaeroparia palnensis Carl.

1932. *Pseudosphaeroparia palnensis*, Carl, *Rev. Suisse Zool.* XXXIX, p. 472, figs. 75-84.

Distribution.—South India, Upper Palnis, Shola near Kodaikanal 2,200 m., Maryian-shola, Kukkalshola 200 m., Vandaravu Shola 2,350 m., Shola near Pumbarai 1,950 m.; Lower Palnis, Maryland Shola 1,600 m., Tandikudi 1,500 m.; Travancore, Vattavadai Valley 1,850 m.; between Palnis and Anamalais.

Pseudosphaeroparia palnensis var. **sorer** Carl.

1932. *Pseudosphaeroparia palnensis* var *sorer*, Carl, *Rev.Suisse Zool.* XXXIX, p. 476, figs. 87, 88.

Distribution.—South India, Anamalais, Naduar Estate near Valparai 1,200 m.

Pseudosphaeroparia nilgirensis Carl.

1932. *Pseudosphaeroparia nilgirensis*, Carl, *Rev. Suisse Zool.* XXXIX, p. 477, figs. 85, 89, 90.

Distribution.—South India, Nilgiris, Coonoor 1,600 m. Dodabetta Reserved Forest 2,400 m., Elk-Hill 2,400 m. Avalanche Shola 2,050 m.

Pseudosphaeroparia cardamoni Carl.

1932. *Pseudosphaeroparia cardamoni*, Carl, *Rev. Suisse Zool.* XXXIX, p. 478, figs. 86, 91-93.

Distribution.—South India, Anamalais, Valparai 1,100 m. Naduar Estate.

Lankadesmus Carl.

Lankadesmus cognatus (Humb.).

1865. *Polydesmus cognatus*, Humbert, *Mém. Soc. Genève*, XVIII, p. 22, pl. ii, fig. 6.

1896. *Nasodesmus cognatus*, Cook, *Amer. Natur.* XXX, p. 417 (*Nom. Nud.*).

1932. *Lankadesmus cognatus*, Carl, *Rev. Suisse Zool.* XXXIX, p. 480, figs. 94-97.

Distribution.—Ceylon, Pundaloya.

Kukkalodesmus Carl.

Kukkalodesmus exiguus Carl.

1932. *Kukkalodesmus exiguus*, Carl, *Rev. Suisse Zool.* XXXIX, p. 483, figs. 89-102.

Distribution.—South India, Palnis, Kukkal-Shola 1,900 m.

Sholaphilus Carl.

Sholaphilus albidus Carl.

1933. *Sholaphilus albidus*, Carl, *Rev. Suisse Zool.* XXXIX, p. 485, figs. 103-108.

Distribution.—South India, Palnis, Vandaravu Shola 2,300 m.

Coonoorophilus Carl.

Coonoorophilus monstruosus Carl.

1932. *Coonoorophilus monstruosus*, Carl, *Rev. Suisse Zool.* XXXIX, p. 487, figs. 109-113.

Distribution.—South India, Nilgiris, Jungle near Coonoor 1,500 m., Elk-hill 2,400 m., Dodabetta Reserved Forest 2,400 m., Avalanche 1,800 m.

Eutrichodesmus Silv.

Eutrichodesmus demangei Silv.

1910. *Eutrichodesmus demangei*, Silvestri, *Zool. Anz.* XXXV, p. 364.

Distribution.—Tonkin, Phy Ly.

Family CRYPTODESMIDAE.

Trichodesmus Poc.

Trichodesmus watsoni Poc.

1895. *Trichodesmus watsoni*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 793.

1896. *Otodesmus watsoni*, Cook, *Brandtia*, V, p. 27, fig. 3.

Distribution.—Upper Burma, North Chin Hills. In the collection of the Indian Museum it is represented from the following localities : Gauhati (Dr. S. L. Hora ; 2.iii.23), Samagutung (Lt. Col. H. H. Godwin-Austen) and Mangaldai distr. (Dr. S. W. Kemp ; 17.xii.10), Assam ; Pashok, 2,000 and 2,600 feet, Darjeeling distr., Eastern Himalayas (Dr. F. H. Gravely, 26.v.-14.vi.16 ; Dr. S. L. Hora, 16.xii.26) ; Shishgk Valley, Chittagong Hills Tracts (R. P. Mullins ; 5.ii.22) and Howrah opposite Calcutta (K. Das ; xii.29), Bengal ; Waseru Choung River, south boundary of North Arakan, Burma (I. H. Burkill ; 6.i.07).

Trichopeltis Poc.

Trichopeltis feae Poc.

1895. *Trichopeltis feae*, Pocock, *Ann. Mus. Genova;* XXXIV, p. 793.

Distribution.—Burma, village of Chiala, Carin Asciuii Ghecu 1,200-1,600 m. Between Namkham and Kwangmu, 2,500 feet (Dr. H. S. Rao ; xii.26) and Mule track between Hosi and Mio-Hsao, 3,700-4,400 feet (Dr. H. S. Rao ; xi.26), North Shan States, Burma.

Trichopeltis doriae Poc.

1895. *Trichopeltis doriae*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 792, fig. 2.

Distribution.—Burma, Yado, Carin Asciuii Cheba 1,200-1,300 m.

Archandrodesmus Carl.

Archandrodesmus areatus Carl.

1932. *Archandrodesmus areatus*, Carl, *Rev. Suisse Zool.* XXXIX, p. 490, figs. 114-118.

Distribution.—Upper Palnis, Kodaikanal, Bombay Shola 200 m. Maryian Shola 2,300 m., Pumbarai Shola 1,900 m., Kukkal Shola, Vandaravu Shola 2,300 m.

Archandrodesmus tuberculatus Carl.

1932. *Archandrodesmus tuberculatus*, Carl, *Rev. Suisse Zool.* XXXIX, p. 493, figs. 119-122.

Distribution.—South India, Nilgiris, Dodabetta Reserved Forest 2,400 m. ; Elk-Hill Reserved Forest 2,300 m. ; Karteri Valley near Coonoor 1,550 m.

Archandrodesmus (?) riparius Carl.

1932. *Archandrodesmus riparius*, Carl, *Rev. Suisse Zool.* XXXIX, p. 495, figs. 123-126.

Distribution —South India, Nilgiris, Mudumalai 1,000 m.

Archandrodesmus kandyanus Carl.

1932. *Archandrodesmus kandyanus*, Carl, *Rev. Suisse Zool.* XXXIX, p. 497, figs. 127-130.

Distribution.—Ceylon, Kandy.

Pagodesmus Carl.

Pagodesmus biporus Carl.

1932. *Pagodesmus biporus*, Carl, *Rev. Suisse Zool.* XXXIX, p. 500, figs. 131-139.

Distribution.—South India, Palnis, Vandaravu Shola 2,350 m., Maryian Shola 2,300 m., Pumbarai Shola 190, Travancore Vattavadai Valley between Palnis and Anamala 1,850 m.

Pagodesmus eremitus Carl.

1932. *Pagodesmus eremitus*, Carl, *Rev. Suisse Zool.* XXXIX, p. 504, fig. 140.

Distribution.—South India, Upper Palnis, Bombay Shola near Kodaikanal 2,200 m.

Pagodesmus sulcifer Carl.

1932. *Pagodesmus sulcifer*, Carl, *Rev. Suisse Zool.* XXXIX, p. 504, fig. 141.

Distribution.—South India, Nilgiris, Coonoor 1,500 m.

Akreiodesmus Carl.

Akreiodesmus minutus Carl.

1932. *Akreiodesmus minutus*, Carl, *Rev. Suisse Zool.* XXXIX, p. 506, figs. 142-149.

Distribution.—South India, Nilgiris, Coonoor 1,700 m.

Akreiodesmus simulans Carl.

1932. *Akreiodesmus simulans*, Carl, *Rev. Suisse Zool.* XXXIX, p. 509, figs. 150-155.

Distribution.—South India, Nilgiris, Forest near Coonoor 1,700 m., Lower Palnis, Maryland 1,600 m.

Propyrgodesmus Carl.

Propyrgodesmus frater Carl.

1932. *Propyrgodesmus frater*, Carl, *Rev. Suisse Zool.* XXXIX, p. 511, figs. 156-160.

Distribution.—South India, Nilgiris, Coonoor, Lady Cunnings-Seat, 1,700 m.

Propyrgodesmus lobulatus Silv.

1920. *Propyrgodesmus lobulatus*, Silvestri, *Rec. Ind. Mus.* XIX, p. 124.

Distribution.—South India, Chochins-Forest Tramway.

Skotodesmus Carl.

Skotodesmus crepuscularis Carl.

1932. *Skotodesmus crepuscularis*, Carl, *Rev. Suisse Zool.* XXXIX, p. 514, figs. 161-169.

Distribution.—South India, Palnis, Bombay Shola near Kodaikanal 2,200 m., Pumbarai 2,000 m., Maryian Shola 2,300 m., Maryland Shola, Neutral Saddle 1,600 m.

Skotodesmus crepuscularis var. **debilis** Carl.

1932. *Skotodesmus crepuscularis*, var. *debilis*, Carl, *Rev. Suisse Zool.* XXXIX, p. 517, fig. 162.

Distribution.—South India, Palnis, Coffee Farm, near Kukkal 1,850 m.

Klimakodesmus Carl.

Klimakodesmus gravelyi Carl.

1932. *Klimakodesmus gravelyi*, Carl, *Rev. Suisse Zool.* XXXIX, p. 518, figs. 170-177.

Distribution.—South India, Nilgiris, Coffee Farm near Coonoor 1,600 m., Kartei Forest near Coonoor 1,500 m., Coonoor, Lady Cunnings-Seat 1,800 m., Mudumalai 1,000 m.

Klimakodesmus permutatus Att. (nom. nov.).

1920. *Pyrgodesmus obscurus*, Silvestri (*nec* Pocock), *Rec. Ind. Mus.* XIX, p. 120, figs. 1-3.

Distribution.—Ceylon, Peradeniya.

Pyrgodesmus Poc.

Pyrgodesmus obscurus Poc.

1892. *Pyrgodesmus obscurus*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 155, pl. x, fig. 1.

Distribution.—Ceylon.

Steganostigmus Carl.

Steganostigmus canonicus Carl.

1932. *Steganostigmus canonicus*, Carl, *Rev. Suisse Zool.* XXXIX, p. 524, figs. 178-184.

Distribution.—South India, Palnis, Pumbarai Forest 1,900 m.

Steganostigmus patruelis Carl.

1932. *Steganostigmus patruelis*, Carl, *Rev. Suisse Zool.* XXXIX, p. 527, figs. 185, 186.

Distribution.—South India, Palnis, Kukkal Shola 1,900 m.

Steganostigmus contortipes Carl.

1932. *Steganostigmus contortipes*, Carl, *Rev. Suisse Zool.* XXXIX, p. 528, figs. 187-189.

Distribution.—South India, Palnis, Vandaravu Shola 2,300 m., Mariyan Shola 2,300 m.

Eustaledesmus Silv.

Eustaledesmus parvus Silv.

1920. *Eustaledesmus parvus*, Silvestri, *Rec. Ind. Mus.* XIX, p. 133.

Distribution.—Ceylon, Namunakuli.

Catapyrgodesmus Silv.

Catapyrgodesmus ceylonicus Silv.

1920. *Catapyrgodesmus ceylonicus*, Silvestri, *Rec. Ind. Mus.* XIX, p. 128.

Distribution.—Ceylon, Namunakuli.

DOUBTFUL SPECIES OF CRYPTODESMIDAE.

Cryptodesmus ceylonicus Poc.

1892. *Cryptodesmus ceylonicus*, Pocock, *Journ. Bombay Nat. Hist.* VII, p. 153, pl. ii fig. 3.

Distribution.—Ceylon, Punduloya.

Cryptodesmoides feae Poc.

1895. *Cryptodesmoides feae*, Pocock, *Ann. Mus. Genova*, XXXIV, p. 790.

Distribution.—Burma, Palon in Pegu.

DOUBTFUL SPECIES, FAMILY ?

Pocodesmus greeni Poc.

1892. *Cryptodesmus greeni*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 154.

1896. *Pocodesmus greeni*, Cook, Brandtia, V, p. 23.

Distribution.—Ceylon.

Polydesmus depressus (Fabr.).

1775. *Julus depressus*, Fabricius, *Syst. Ent.* II, p. 393.

1816. *Polydesmus depressus*, Cuvier, *Regne Anim.* IV, p. 335.

1847. *Polydesmus depressus*, Gervais, *Ins. Apt.* IV, p. 100.

Distribution.—East India.

Polydesmus moorei Poc.

1895. *Polydesmus moorei*, Pocock, *Ann. Mag. Nat. Hist.*, (6) XV, p. 356, pl. xi, fig. 4.

Distribution.—China, Dajeh Valley.

Polydesmus paludicola Poc.

1895. *Polydesmus paludicola*, Pocock, *Ann. Mag. Nat. Hist.* (6) XV, p. 357, pl. xi, fig. 5.

CHORDEUMOIDEA.

Heterochordeuma Poc.

Heterochordeuma doriae Poc.

1893. *Heterochordeuma doriae*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 387.

Distribution.—Burma, Thao, Karen's Hills.

Hendersonula Poc.

Hendersonula collina Poc.

1903. *Hendersonula collina*, Pocock, *Ann. Mag. Nat. Hist.* (7) XII, p. 520.

Distribution.—British India. (A doubtful species).

STEMMIULOIDEA.

Diopsiulus Silv.

Diopsiulus annandalei Silv.

1915. *Diopsiulus annandalei*, Silvestri, *Boll. Lab. Zool. Portici*, X, p. 341.

Distribution.—Ceylon, Pettipola.

Diopsiulus ceylonicus Poc.

1892. *Stemmiulus ceylonicus*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 26.

1915. *Diopsiulus ceylonicus*, Silvestri, *Boll. Lab. Zool. Portici*, X, p. 346.

Distribution.—Ceylon.

Diopsiulus madaraszi Silv.

1915. *Diopsiulus madaraszi*, Silvestri, *Boll. Lab. Zool. Portici*, X, p. 339.

Distribution.—Ceylon, Kala Wera.

JULOIDEA.

Julus ?

? **Julus birmanicus** Poc.

1891. *Julus birmanicus*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 392.

Distribution.—Burma, Meteleo, Carin Cheba.

? **Julus feae** Poc.

1893. *Julus feae*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 393.

Distribution.—Burma, Kawkareet, Tenasserim.

? **Julus septemlineatus** Poc.

1893. *Julus septemlineatus*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 393.

Distribution.—Burma, Meteleo, Carin Cheba.

? **Julus vallicola** Poc.

1895. *Julus vallicola*, Pocock, *Ann. Mag. Nat. Hist.* (6), XV, p. 366, pl. xi, fig. 13.

Distribution.—China, Dajeh Valley, Che Kiang.

These 4 species are not recognisable ; they do not belong to the genus *Julus* as restricted at the present day.

Skleroprotopus Att.

Skleroprotopus confucius Att.

1901. *Skleroprotopus confucius*, Attems, *Dritte Asiatische Forsch. Reise Gf. Eugen Zichy*, II, p. 306, pl. x, figs. 10-17 ; pl. xi, figs. 1-14.

Distribution.—China, Khalgan.

Anaulaciulus Poc.

Anaulaciulus paludicola Poc.

1895. *Anaulaciulus paludicola*, Pocock, *Ann. Mag. Nat. Hist.* (6) XV, p. 366.

Distribution.—China, Ningpo.

CAMBALOIDEA.

Family CAMBALIDAE.

Apatidea, gen. nov.

Mentum secundarium and promentum distinctly separated (text-fig. 54*a*). Sternite of anterior gonopods with 2 curious, slender clubs, elastically attached ; gonopods consisting of a simple coxa coalesced with the tracheal stalk and telopodite, both articulated flexibly. Posterior gonopods not detected. 1st legs of ♂ normal, 6-jointed, resembling the succeeding legs, coxa free. Tarsus of middle and posterior legs of ♂ more or less two-jointed. Metazonites with longitudinal keels. Pores from 6th segment, situated on keels.

Genotype.—A. kohalana, sp. nov.

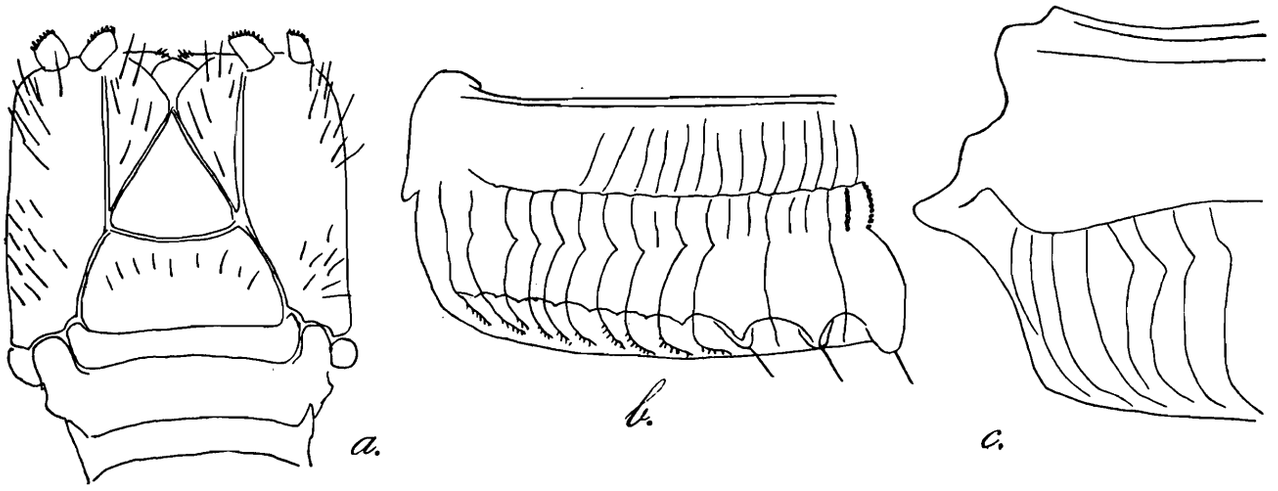
Apatidea kohalana, sp. nov.

Blackish brown, clouded with yellowish spots, furrows between the keels yellowish ; in the median line a broad, whitish yellow stripe ; clypeus and mandibles bright brownish-yellow mottled with darker brown, vertex blackish brown, antennae dark brown, legs yellowish brown.

Width 2·4 mm. ; 5·7 segments.

Head flattened, on vertex a low knob ; labral sinus shallow with 3 labral teeth, antennae very long, slender ; eyes rounded, ocelli numerous, moderately convex, arranged in 8 longitudinal rows. Basal joint of mandible inflated, without process below.

Collum with low, longitudinal keels, in the middle a transverse row of bristles, no bristles at the posterior border.



TEXT-FIG. 54.—*Apatidea kohalana,* sp. nov. *a.* gnathochilarium; *b.* ♂ tergite of posterior segment ; *c.* ♂ tergite of 7th segment, ventral end.

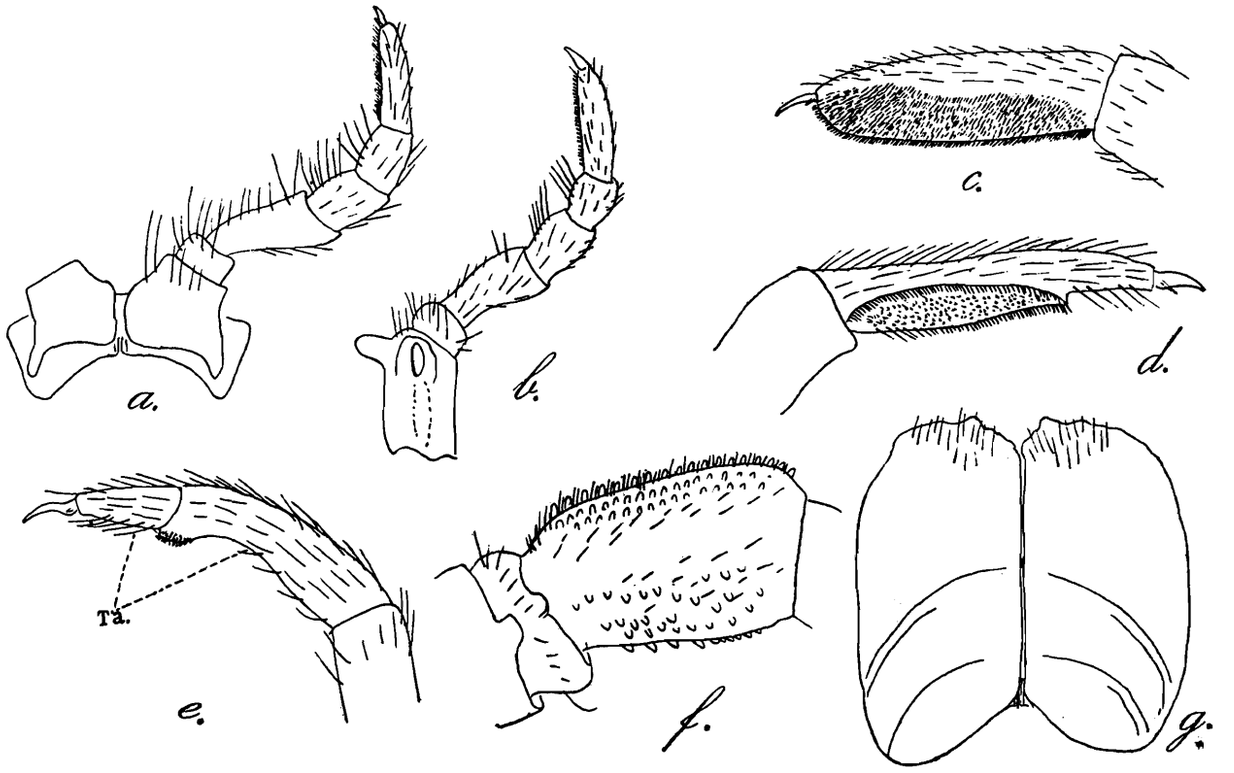
Anterior longer part of prozonite finely granular, posterior shorter part smooth, both parts with fine, minutely beaded, longitudinal ridges. Metazonite with longitudinal keels, each keel flattened anteriorly and posteriorly ; in the posterior segments they are narrower and sharper and the posterior end is tooth-like (text-fig. 54*b*) ; the 2 paramedian keels are weaker than the remaining keels. Below the level of the pores the posterior end of the keel is curved upwards and the furrows between the keels form arches, open above. On the sides the keels become more and more flat and finally only sulci remain. Pores in the middle

of a strongly widened keel, in ♀ from 6th segment, in ♂ these are distinct only from 18th segment, but probably they are also present in earlier segments.

Anal segment very finely granular, without keels ; anal ring, which projects a little over valves, is roof-like. Valves flat, with narrow marginal thickening and 2 small setiferous tubercles. Anal scale triangular with 2 setiferous tubercles.

Sternites free, neither coalesced with one another nor with the tergite. Ventral ends of tergite rounded, projecting with a small rounded lobe between the 2 sternites of each segment ; lobe in 7th segment much larger (text-fig. 54*c*).

First two pairs of legs of the ♂ are much shorter than the succeeding legs. 1st legs (text-fig. 55*a*) normal, 6-jointed, sternite entire, coxa free without process, bristles like those of 2nd legs, claw with a secondary claw. Coxa of 2nd legs (text-fig. 55*b*) with a prominence, opening of the *vas deferens* does not enter this prominence ; tarsus below with a regular comb of short, stiff bristles. From 3rd legs the tarsus densely hairy below (text-fig. 55*c*), from 8th segment tarsus begins to be divided (text-fig. 55*d*), the basal two-thirds are hollowed out and the borders of this groove are beset with short stiff bristles ; minute granules in the groove. Distally the groove is suddenly set off, corresponding to a short yellow transverse furrow on upper surface of the tarsus, but the furrow does not completely divide the tarsus

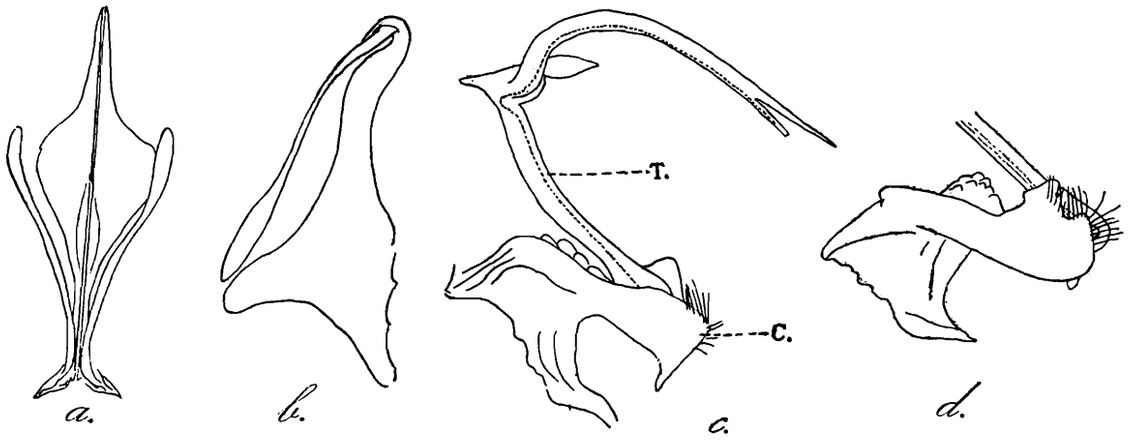


TEXT-FIG. 55.—*Apatidea kohalana*, sp. nov. *a*. ♂ 1st leg ; *b*. ♂ 2nd leg ; *c*. ♂ tarsus of 5th leg ; *d*. ♂ tarsus of leg from the middle of the body ; *e*. ♂ tarsus (*Ta*) of leg from the posterior part ; *f*. ♂ praefemur of 5th leg ; *g*. ♀ fused coxae of 2nd leg.

and in the middle segments the tarsus cannot be described as two-jointed ; in the posterior segments, on the contrary, it is distinctly two-jointed (text-fig. 55*e*), first joint longer, arched, with a small knob at the top on the under side beset with short bristles. Coxa and praefemur with rounded or conical tubercles (text-fig. 55*f*). 2nd legs of ♀ consist only of large, fused coxae, which almost completely surround the ventral opening (text-fig. 55*g*).

Sternite (text-fig. 56*a*) very peculiar, it consists of 2 pieces triangular in profile (text-fig. 56*b*) ; at the anterior top of each piece is attached a very slender club, which returns

elastically to its normal position when it is bent. Each gonopod (text-fig. 56*c*) consists of coxa (*C*) coalesced with the tracheal stalk and telopodite (*T*); the articulation between these 2 pieces is flexible. Coxa with some bristles. Base of telopodite planted in coxa (text-



TEXT-FIG. 56.—*Apatidea kohalana*, sp. nov. *a*, *b*. sternite of gonopod from below and side respectively; *c*, *d*. gonopod, *C*. coxa, *T*. telopodite.

fig. 56*d*), telopodite is strongly curved and bears 2 opposing prominences. The top is branched, one branch shorter with the canal, the second branch thin and pointed. In its natural position the telopodite projects backwards in the sides of 7th segment. I could not detect the posterior gonopods. It is a pity that only one male was present in the collection and that this interesting species could not be studied better.

Distribution.—Punjab, Kohala, 2,000 feet, Murree Subdivision, Country round about Gharial, *ca.* 6,000 feet, Murree Subdivision (Dr. H. S. Pruthi; 19.ix.28), 2 exs.

Glyphiulus Verh.

Glyphiulus ceylanicus Att.

1909. *Glyphiulus ceylanicus*, Attems, *Ark. Zool.* V, p. 64, figs. xvii-xxi; pl. ii, figs. 58-60; pl. iv, figs. 61-68.

Distribution.—Ceylon, Point de Galles.

Glyphiulus elegans Silv.

1923. *Glyphiulus elegans*, Silvestri, *Rec. Ind. Mus.* XXV, p. 189, fig. 7.

Distribution.—Bombay Presidency, Satara district, Koyna Valley, Nechal.

Glyphiulus cavernicolus Silv.

1923. *Glyphiulus cavernicolus*, Silvestri, *Rec. Ind. Mus.* XXV, p. 192, fig. 10.

Distribution.—Bidi Caves.

Glyphiulus superbus Silv.

1923. *Glyphiulus superbus*, Silvestri, *Rec. Ind. Mus.* XXV, p. 190, figs. 8, 9.

Distribution.—S. Annam, Dalat, Langbian Province.

Trachyiulus Peters.

Trachyiulus ceylanicus Pet.

1864. *Trachyiulus ceylanicus*, Peters, *Mon. Ber. Ak. Wiss. Berlin*, p. 547.

1866. *Trachyiulus ceylanicus*, Humbert, *Mém. Soc. Genève*, XVIII, p. 44, pl. iii, fig. 18.

1901. *Trachyiulus ceylanicus*, Sinclair, *Proc. Zool. Soc. London*, II, p. 522.

1912. *Trachyiulus ceylanicus*, Carl, *Rev. Suisse Zool.* XIX, p. 597.

Distribution.—Ceylon.

Trachyiulus ceylanicus minor Silv.

1923. *Trachyiulus ceylanicus minor*, Silvestri, *Rec. Ind. Mus.* XXV, p. 181, fig. 1.

Distribution.—Ceylon, Namunakuli.

Trachyiulus humberti Carl.

1911. *Trachyiulus humberti*, Carl, *Rev. Suisse Zool.* XIX, p. 399.

Distribution.—Ceylon.

Trachyiulus mimus Silv.

1924. *Trachyiulus mimus*, Silvestri, *Rec. Ind. Mus.* XXVI, p. 71, fig. 1.

Distribution.—Assam, Siju Cave, Garo Hills.

Trachyiulus modestior Silv.

1923. *Trachyiulus modestior*, Silvestri, *Rec. Ind. Mus.* XXV, p. 182, fig. 2.

Distribution.—South India, Cochin, Forest Tramway.

Cambalopsis Pocock.

Cambalopsis calva Poc.

1893. *Cambala calva*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 391.

1894. *Cambala calva*, Pocock, *Webers Reise Niederl. Ind.* III, p. 377.

1895. *Cambalopsis calva*, Pocock, *Ann. Mag. Nat. Hist.* (6) XV, p. 363.

Distribution.—Burma, Reef Island near Tavoy, Palon in Pegu ; Sumatra ; Kuching, Sarawak, West Borneo (C. W. Beebe ; 29.vii.10). India, Bengal, Calcutta (Dr. F. H. Gravely ; 11 and 19.iv.10 ; under bricks at banks of Museum tank).

Cambalopsis heteropus Silv.

1901. *Cambala calva*, var. nov., Sinclair, *Proc. Zool. Soc. London*, II, p. 522.

1923. *Trachyiulus heteropus* Silvestri, *Rec. Ind. Mus.* XXV, p. 185, fig. 4.

Distribution.—Malay Peninsula, Jalor Patani. Gua Gambar, Biserat Jala District.

Cambalopsis proximatus Silv.

1923. *Trachyiulus proximatus*, Silvestri, *Rec. Ind. Mus.* XXV, p. 186, fig. 5.

Distribution.—India, Madras Pres., Barkuda, Chilka Lake.

Cambalopsis annectens Silv.

1923. *Trachyiulus annectens*, Silvestri, *Rec. Ind. Mus.* XXV, p. 184, fig. 3.

Distribution.—South India, Madras.

Cambalopsis pauper (Silv.)

1923. *Trachyiulus pauper*, Silvestri, *Rec. Ind. Mus.*, XXV, p. 187, fig. 6.

Distribution.—Chilcada.

Cambalomorpha (Poc.)

Cambalomorpha doriae Poc.

1893. *Cambala doriae*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 389.

1895. *Cambalomorpha doriae*, Pocock, *Ann. Mag. Nat. Hist.* (6) XV, p. 365.

Distribution.—Burma, Palon in Pegu ; India, Bengal, Calcutta (Dr. F. H. Gravely ; 7.iv.10 ; under stones at mud edge of Museum tank).

Cambalomorpha feae (Poc.)

1893. *Cambala feae*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 390.

1895. *Cambalomorpha feae*, Pocock, *Ann. Mag. Nat. Hist.* (6) XIII, p. 363.

Distribution.—Burma, Farm Caves (C. Weglum, 1.i.11 ; Dr. F. H. Gravely, 17.xi-4-xii.11) and Khyon Caves (Dr. N. Annandale) near Moulmein.

Cambalomorpha formosa Poc.

1895. *Cambalomorpha formosa*, Pocock, *Ann. Mag. Nat. Hist.* (6) XV, p. 364.

Distribution—China, Hongkong.

Pericambala Silv.

Pericambala orientalis Silv.

1909. *Pericambala orientalis*, Silvestri, *Boll. Lab. Zool. Protici*, IV, p. 69.

Distribution.—Tonkin, Than Moi.

SPIROSTREPTOIDEA.

HARPAGOPHORIDAE.

The number of Indo-Australian Spirostreptoidea is very small in comparison to the numbers found in the Aethiopian and Nearctic regions. All the species belong to the family Harpagophoridae, whilst the family Spirostreptidae, which is so rich in species in those regions, is completely wanting here. Unfortunately a large part of the species recorded from India are doubtful species ; for example, the species described as *Spirostreptus*, cited below, surely do not belong to the genus *Spirostreptus* as restricted at present, their descriptions, however, are utterly useless and it is impossible to place these species in any modern genus. From all species hitherto recorded from India only *Thyropygus nigrolabiatus* is present in the collections of the Indian Museum, the remaining species in this collection are all new species.

Key to the Indian Genera of Harpagophoridae.

1. Pores beginning in 5th segment	*Leptostreptus*, gen. nov.
Pores beginning in 6th segment	2.
2. Tibio-tarsus of gonopod without a row of spines at the tip	*Stenurostreptus* Carl.
Tibio-tarsus of gonopod with a row of hooked or straight spines at the tip	3.
3. Dorsum of metazonites longitudinally furrowed or wrinkled. Tibio-tarsus of gonopod short, not twisted spirally, the canal opens in the branch bearing the bristles	*Ktenostreptus* Att.
Metazonites smooth or weakly sculptured	4.
4. No tail	5.
A tail present	6.
5. Tibio-tarsus of gonopod divided in a branch with spines and a canal-branch	*Gongylorrhus*, gen. nov.
The canal and the spines in the same branch	*Anurostreptus* Att.
6. Labrum not dentated	*Drepanopus* Verh.
Labrum tridentated	7.
7. The canal and the spines of the gonopod in the same branch	8.
The canal and the spines in distinct branches	*Thyroglutus*, gen. nov.
8. Tail straight or curled upwards	*Thyropygus* Poc.
Tail long, evenly curved downwards	*Harpurostreptus*, gen. nov.

Identification of females of the Harpagophoridae is not easy and even then the result is always a little doubtful. The following key may, however, be useful for separating females of this family :

Key to the females of the Harpagophoridae.

1. Pores beginning in 5th segment	Gen. *Leptostreptus, gen. nov.*
Pores beginning in 6th segment	2.
2. No tail. Stigmal grooves short, triangular	3.
A tail present	9.
3. Dorsum of metazonites roughly wrinkled	*Ktenostreptus costulatus* Att.
Dorsum of metazonites smooth or weakly striated	4.
4. Dorsum of metazonites finely striate	*Gongylorrhus sulcatus*, sp. nov.
Dorsum of metazonites smooth	5.
5. Anterior border of collum without marginal thickening	*Gongylorrhus gracilis*, sp. nov.
Sides of collum with marginal thickening	6.
6. Metazonites above, next to the suture, with very short striae (these are the continuation of the longitudinal striae below the pores)	7.
No striae above near the suture	*Gongylorrhus corniger*, sp. nov.
7. Sternites with a network of fine striae	*Stenurostreptus falcatus*, sp. nov.
Sternites smooth	8.

8. Width of body 4 mm. Near the marginal thickening of the collum one strong furrow . .	*Stenurostreptus crenulatus*, sp. nov.
Width considerably larger, length 150 mm. In the sides of the collum, near the posterior angle, many long and short striae	*Anurostreptus feae* Poc.
9(2). Tail long, pointed, evenly curved downwards	Gen. *Harpurostreptus*, gen. nov.
Tail straight or the tip curved upwards	10.
10. Dorsum of metazonites strongly sulcated or wrinkled	11.
Dorsum of metazonites smooth	16.
11. Width of body 3·4 mm. Tail curved upwards. Sternites smooth	*Ktenostreptus debilis*, sp. nov.
Width 8 mm. or more. Tail straight	12.
12. Metazonites above with broad shallow grooves, not sharply sulcated	13.
Dorsum of metazonites densely wrinkled or furrowed	14.
13. Posterior zone of prozonites very smooth and shining	*Ktenostreptus specularis*, sp. nov.
Prozonites finely striolated in front and covered with a closely and finely reticulated pattern of smooth and low ridges behind	*Ktenostreptus centrurus* (Poc.).
14. Dense striae or furrows of metazonites regular. Legs annulated with brown and yellow. Tail moderately long	*Ktenostreptus anulipes* Att.
Dense dorsal wrinkles or furrows irregular. Legs unicolor. Tail very short	15.
15. Segments cylindrical. Metazonites wrinkled above	*Ktenostreptus lankaensis* (Humb.).
The diameter of each metazonite increases backwards, segments not cylindrical. Metazonites dorsally more striated than wrinkled	*Ktenostreptus rugulosus*, sp. nov.
16(10). Anal scale coalesced with the ring	17.
Anal scale separated from the ring by a furrow	18.
17. No supralabral foveolae	*Thyropygus alienus*, sp. nov.
Supralabral foveolae present (?)	*Thyropygus aterrimus*, (Poc.).
18. Labrum not dentate	*Drepanopus einsleinii* Verh.
Labrum tridentate	19.
19. Stigmal grooves short, triangular	20.
Stigmal grooves more or less expanded laterally	23.
20. Several fine striae on the sides of the collum behind the marginal thickening. 1+1 supralabral foveolae	*Thyroglutus cautus*, sp. nov.
Sides of the collum not striated. 4-6 supralabral foveolae	21.
21. Anterior part of clypeus black, remaining head yellowish-brown	*Thyropygus nigrolabiatus* (Newp.)
Anterior part of the clypeus yellowish brown, remaining head darker	22.

22. A second furrow parallel to the furrow limiting the marginal thickening of the collum. Width of body 6·6 mm.	*Thyropygus mundus*, sp. nov.
No furrow parallel to the marginal thickening of the collum. Width of body 11 mm.	*Stenurostreptus stenorhynchus* (Poc.).
23. Posterior zone of prozonite with undulated and anastomosing fine striae or a network of meshes	24.
Posterior zone of prozonite finely punctate, striated or smooth	25.
24. Clypeus roughly wrinkled. Some fine striae on the sides of collum. Width of body 11·5 mm. 61 segments	*Thyropygus induratus*, sp. nov.
Clypeus smooth. No striae on the sides of collum. Width of body 8 mm. 50 segments	*Thyropygus poseidon*, sp. nov.
25. Width of body 3 mm.	*Thyropygus minusculus*, sp. nov.
Width 8 mm. or more	26.
26. Posterior zone of prozonite densely and finely punctate or striate	27.
Posterior zone of prozonite smooth	30.
27. Posterior zone of prozonite finely but irregularly striate. 6 supralabral foveolae	*Thyropygus cuisinieri* Carl.
Posterior zone of prozonite finely punctate. 4 supralabral foveolae	28.
28. The uppermost lateral stria of the metazonite widely remote from the pore	29.
Lateral striae of the metazonite reaching nearly to the pores. Dorsum of the metazonites very smooth and polished	*Thyroglutus astutus*, sp. nov.
29. Clypeus very densely punctate. Transparent punctures of metazonites present, arranged in a broad irregular row	*Thyropygus descriptus*, sp. nov.
Clypeus very sparsely punctate. No transparent punctures. Head remarkably smooth and polished	*Thyroglutus repertus*, sp. nov.
30. Antero-lateral border of the collum not thickened	*Thyroglutus probus*, sp. nov.
Collum with marginal thickening	*Thyropugus lunelii* (Humb.).

Genus **Thyropygus** Poc.

Pocock based the diagnosis of the genus *Thyropygus* only upon the length of the ventral grooves (stigmal grooves) and the distance between the eyes in comparison to the longer diameter of the eye, two characters not at all appropriate for a diagnosis. We now know species with short grooves nearly related to species of *Thyropygus* (*sensu* Pocock) with long grooves. The diagnosis of the genus must, therefore, be based on other characters, in first line the gonopods. Unfortunately Pocock when erecting the genus *Thyropygus* designated *T. erythropleurus* as the type, but did not either describe or figure its gonopods.

Among the species referred to *Thyropygus* in its old sense we can distinguish two groups, in the first group, *Thyropygus sensu stricto*, the canal ends on the same branch which also bears the hooked spines, in the second group, genus *Thyroglutus*, the canal ends on a separate branch, independent of the branch with the hooked spines. The canal branch may be furrowed transversely or not. Sometimes in *Thyropygus* also the undivided branch, bearing the hooked spines and the canal, is furrowed. The terminal branches of the gonopod, at the most four, are not distinctly separated by a suture at their base and tibia and tarsus cannot be clearly distinguished. I believe that only the large spine present in many species belongs to the tibia and that the remaining branches belong to the tarsus. Such a tibial spine is present in : *molleri*, *renschi*, *rubrocinctus*, *coelestis*, *javanicus*, *coniferus*, *piceus*, *tjisaroanus*, *coalitus*, *immanis*, *boyoricus*, *zehntneri* and *induratus*.

The telopodite may not be branched at all, as in *javanicus*, *coniferus*, *anulatus*, *tjisaroanus*, *piceus*, *zehntneri* and *neglectus*.

Carl made *T. nigrolabiatus* the type of a new genus *Phyllogonostreptus*, differing from *Thyropygus* in the absence of a femoral spine, but on account of the great variability of all spines, etc., in the gonopods, it is a little doubtful whether this separation is phylogenetically correct.

Key to the Species of Thyropygus (Poc.) Att.

1. Gonopod without femoral spine	*T. nigrolabiatus* (Newp.), *T. serpentinus* Att., *T. brölemanni* Att., *T. melinopus* Att.
1-3 femoral spines present	2.
2. Anal scale coalesced with the anal ring	3.
Anal scale free	4.
3. Postfemur of legs of ♂ padded	*T. immanis* Att., *T. coalitus* Att., *T. aterrimus* Poc. ?
Postfemur not padded	*T. alienus*, sp. nov.
4. One femoral spine present	6.
2 or 3 femoral spines present	5.
5. Both femoral spines straight and directed distally. At the base of the gonopod tibio-tarsus a thick rounded knob ; tibio-tarsus without acute spine	*T. poseideon*, sp. nov.
One or all femoral spines curved. Tibio-tarsus with 1 or 2 acute spines between the knee and the terminal plate	*T. javanicus* Brdt., *T. renschi* Att., *T. molleri* Att., *T. coniferus* Att.
6. One tibial spine present	7.
No tibial spine	*T. neglectus* Carl, *T. anulatus* Att., *T. lunelii* (Humb.), *minor* Carl.
7. Width of body 3 mm. Tail straight, stout and blunt	*T. minusculus*, sp, nov.
Width of body much greater. Tail hooked, curved upwards	8.
8. Tibia of gonopod very long, tibial spine very large and directed basally	*T. cuisinieri* Carl.
Tibia of gonopod not so long, tibial spine directed distally	9.

9. On the gonopod tibia near the tibial spine a broad, lateral lamella	*T. rubrocinctus* Poc.
No lamella on the gonopod tibia near the tibial spine	10.
10. Posterior zone of prozonites with undulated, anastomosing fine striae	*T. induratus*, sp. nov.
Posterior zone of prozonite finely punctate or quite smooth	11.
11. On the posterior side of the gonopod coxite a large spine	*T. descriptus*, sp. nov.
No spine on the posterior side of the gonopod coxite	12.
12. Tip of the gonopod coxite with 3 pointed teeth	*T. coelestis* Silv.
Tip of the gonopod coxite simply rounded or with rounded lobes	13.
13. Femoral spine hooked	*T. tjisaroanus* Att., *T. zehntneri* Carl.
Femoral spine straight, in the same axis as the femur	14.
14. On the median side of the gonopod coxite no process. Stigmal grooves broad. Collum laterally with some longitudinal furrows. Width of body 10 mm.	*T. piceus* Att.
In the middle of the gonopod coxite medially a thumb-like process. Stigmal grooves short, triangular. Width of body 6·6 mm.	*T. mundus*, sp. nov.

Key to the species of Thyropygus from India.

1. Gonopod without femoral spine. Anterior part of clypeus black, rest of the head brown	*T. nigrolabiatus* (Newp.).
1-3 femoral spines present	2.
2. Anal scale coalesced with the ring	3.
Anal scale separated from the ring by a furrow	4.
3. Postfemur of legs of ♂ padded. (Supralabral foveolae ?)	*T. aterrimus* Poc.
Postfemur of legs not padded. No supralabral foveolae. Gonopod with 2 femoral spines	*T. alienus*, sp. nov.
4. Gonopod with one femoral spine	5.
2 large femoral spines. Posterior zone of the prozonite striolated with a network of meshes	*T. poseidon*, sp. nov.
5. Gonopod without tibial spine	*T. lunelii* (Humb.).
One tibial spine	6.
6. Width of body 3 mm. Tail straight, stout and blunt	*T. minusculus*, sp. nov.
Width of body much greater. Tail hooked, curved upwards	7.
7. Tibia of gonopod very long ; tibial spine very large, directed basally	*T. cuisinieri* Carl.
Tibia of gonopod not so long ; tibial spine directed distally	8.
8. Posterior zone of prozonite with undulated, anastomosing, fine striae. Stigmal grooves expanded laterally. Transparent punctures in a broad zone. Clypeus wrinkled. 61 segments. Width 11·5 mm.	*T. induratus*, sp. nov.
Posterior zone of prozonites finely punctate	9.
9. On the posterior side of gonopod coxite a large spine. Stigmal grooves expanded laterally, reaching to the top of coxa. Transparent punctures in a broad zone. Clypeus finely punctate. 71 segments. Width 8·2 mm.	*T. descriptus*, sp. nov.
On the posterior side of gonopod coxite no spine. Stigmal grooves short triangular. No transparent punctures. 59 segments. Width 6·6 mm.	*T. mundus*, sp. nov.

Thyropygus nigrolabiatus (Newp.).

1844. *Spirostreptus nigrolabiatus*, Newport, *Ann. Mag. Nat. Hist.* XIII, p. 269.

1892. *Spirostreptus nigrolabiatus*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 159, pl. i, fig. 7, pl. ii, fig. 5.

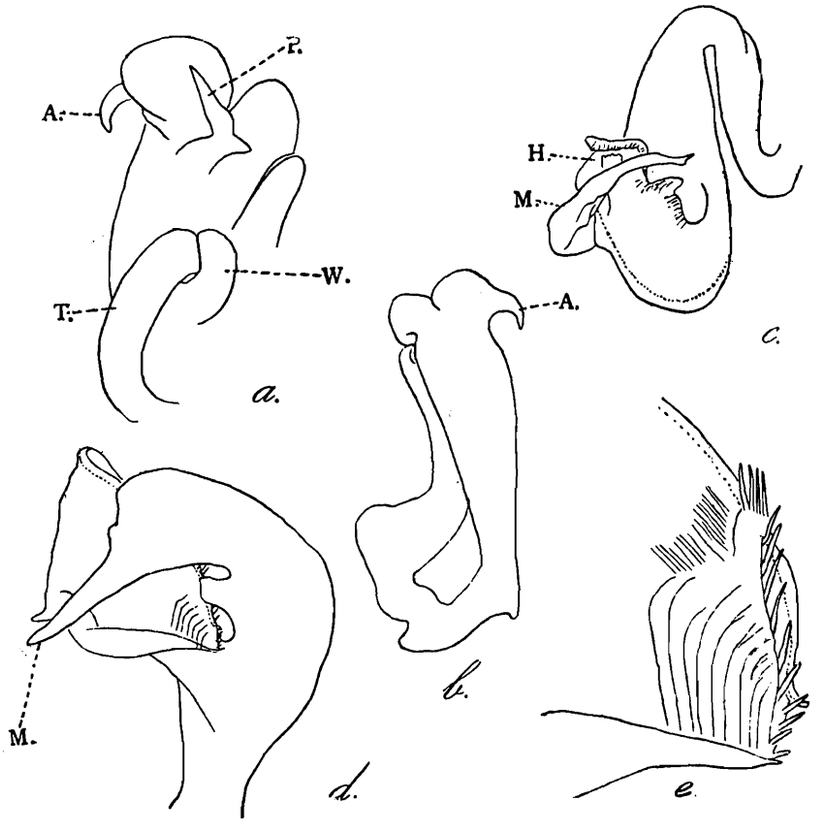
1918. *Phyllogonostreptus nigrolabiatus*, Carl, *Rev. Suisse Zool.* XXVI, p. 426.

♂ width 8·2-9 mm. ; 52-57 segments.

Labral sinus narrow, semicircular, 3 labral teeth, 2+2 supralabral foveolae ; labral margin blackish, clypeus and frons reddish brown. Clypeus densely punctate. Median angle of eyes acute, extending beyond the antennal socket ; ocelli convex.

Anterior and posterior borders of collum parallel, anterior corner rounded, marginal thickening broadest in the angle ; no furrows laterally. Anterior half of prozonite with dense, transverse striae, posterior half finely punctate. Metazonite very smooth, shining, with microscopical fine punctures of opening of the glands ; uppermost longitudinal striae remote from pores. Transparent punctures of varying size, in a broad, irregular zone. Stigmal grooves short, triangular-rounded, not longer than the coxa. Tail short curved upwards ; anal scale free. Postfemur and tibia from 3rd legs with whitish pads, present up to last pair of legs but becoming gradually smaller.

Coxa (text-figs. 57*a*, *b*) of gonopods laterally without knob. Gonocoel opens on anterior side laterally, finally on the posterior side. The place, where the telopodite (*T*) leaves the coxa is surrounded by a thickening of the coxa (*W*). The top of the coxa is divided in 2



TEXT-FIG. 57.—*Thyropygus nigrolabiatus* (Newp.). *a. b.* gonopod, coxite, *A.* hook of median lobe ; *P.* posterior two-pointed process ; *T.* telopodite ; *W.* thickening of coxa at joint with telopodite ; *c. d.* telopodite, *H.* lamellar branch, *M.* second branch ; *e.* lamellar branch enlarged.

rounded lobes, on the median lobe anteriorly a hook (*A*), posteriorly a two-pointed process (*P*). No spine in the knee of the telopodite (text-figs. 57*c*, *d*) ; at its beginning the

telopodite is cylindrical, then enlarged and branched, one branch a broad lamella (text-fig. 57*e*; *H*), its distal half clapped back; this branch bears the hooked spines and the canal the second branch (*M*) ends in a thin point and has a large, irregularly dentate, lateral lobe.

Distribution.—Ceylon; South India, Madras (Dr. F. H. Gravely; xii.22; 1 ex.) and Rambha, Ganjam distr. (Dr. N. Annandale; 18.ix.23; 2 exs.).

Thyropygus alienus, sp. nov.

Head, collum and anal segment bright chestnut, prozonites testaceous, metazonites dark chestnut, trunk therefore annulated, antennae and legs blackish brown.

Width ♂ 8·5 mm.; ♀ 12 mm. ♂ 59 segments.

Labral sinus semicircular, 3 labral teeth, labral setigerous pits well developed but no supralabral foveolae. Head very smooth, shining; anterior part of clypeus finely punctate, vertical sulcus fine, no interocular line. Median angle of eyes moderately rounded, not surpassing the antennal socket; ocelli convex. Anterior border of collum weakly sinuate, on sides broadly margined, surface with fine irregular striae.

Anterior part of prozonites with finely punctate, transverse striae; posterior part and metazonites very smooth, shining, uppermost longitudinal striae of metazonite below the pores abbreviated and indistinct. Pores small, separated from the suture by more than

Text-fig. 58.—*Thyropygus alienus,* sp. nov. *a.* leg showing the padded tibia; *b.* gonopod; *c. d.* gonopod telopodite; *e.* Apex of telopodite.

the pore diameter. Suture sharp throughout. No transparent punctures. Stigmal grooves short, oval, only slightly longer than the coxa.

Tail curved upwards ; anal scale coalesced with ring, incrassate. Median border of anal valves thickly rounded but not separated from the remaining surface.

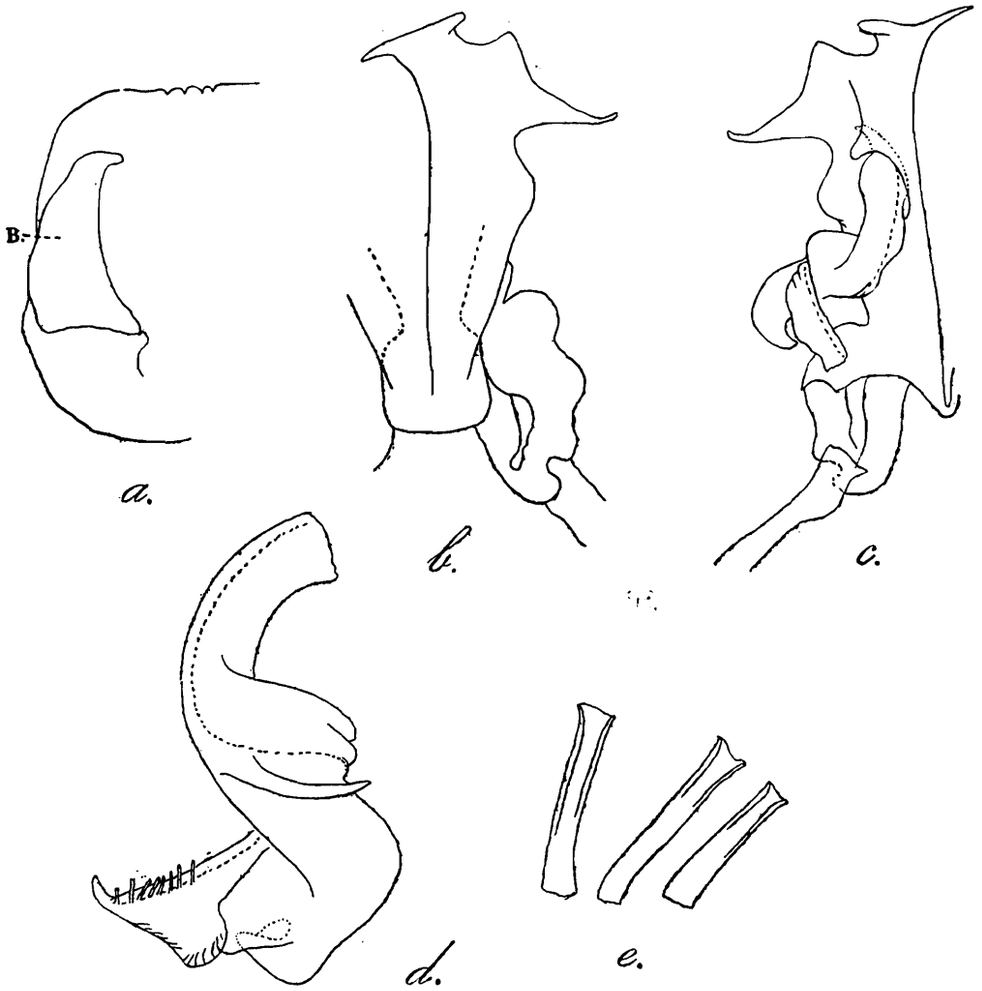
Tibia of third to last legs with a large pad along its entire length, postfemur not padded (text-fig. 58*a*).

Tip of gonopod coxite (text-fig. 58*b*) in the form of a hollowed-out lamella, resembling a mushroom, hollow posterior, median side bluntly dentate. Median border of coxite laterally with 2 blunt teeth. On the knee of the telopodite (text-fig. 58*d*) 2 slender, weakly curved spines, directed distally (text-fig. 58*c*). Tibio-tarsus gradually enlarged, bearing 3 large spines and a branch with the long hooked spines (text-fig. 58*e*) and the canal ; the latter branch is bifurcated and one arm has a deep transverse furrow.

Distribution.—South Annam ; Dran, 3,000 feet, Langbian Province (C. Boden Kloss ; iii-v.18 ; 2 exs.).

Thyropygus minusculus, sp. nov.

Colour in general dark brown, marbled with yellowish brown ; prozonites brighter than metazonites, sometimes unicolorous, testaceous ; on the dorsum of metazonites a yellowish brown spot, middle zone of metazonites the darkest, nearly black-brown, anterior



TEXT-FIG. 59.—*Thyropygus minusculus*, sp. nov. *a*. basal joints of mandible showing the hook (*B*) ; *b*. *c*. gonopod coxite ; *d*. gonopod telopodite ; *e*. spines on top of tibio-tarsus.

zone with yellowish brown spots ; posterior stripe yellowish brown ; all these colours are not sharply contrasting. Antennae and legs dark brown.

Width 3 mm. ; 57 segments.

4 labral teeth, 5 supralabral foveolae, distances between them equal, labral sinus shallow ; median angle of eyes not extending beyond the antennal socket, vertical sulcus very fine, anterior part of clypeus very finely punctate owing to openings of glands. Basal joint of mandibles with a strong hook (text-fig. 59*a* ; *B*).

Anterior border of collum weakly sinuate, in the sides broadly marginated, posterior border straight ; laterally some short striae.

Anterior two-thirds of the prozonite with fine, punctate, transverse striae, posterior third smooth. Metazonite dorsally with some very weak longitudinal keels only visible by proper lighting ; ventrally to the pores finely striate. No transparent punctures. Pores nearly in the middle of metazonite. Transverse suture sharp throughout.

Tail of anal ring thick, cylindrical, straight, blunt, extending over the anal valves. Marginal thickening of valves moderately high and broad.

Anal scale free, obtuse, angular.

Tibia and postfemur of legs of the anterior half of the body padded ; legs of posterior half not padded.

On the anterior side of gonopod coxite (text-fig. 59*b*) only a short piece of gonocoel visible, rest of the gonocoel opens on the posterior side (text-fig. 59*c*). At the base of coxa laterally no large knob. At the tip of medial lamella two pointed, slender spines, one medial, other lateral. The posterior side of lamella with a rounded lobe, partially covering the telopodite especially the femoral spine ; latter stout, sharply narrowed, directed distally in the same direction as femur. Telopodite (text-fig. 59*d*) curved in a spiral. A slender, pointed tibial spine present, visible only from the anterior side. Tip of tibio-tarsus branched, one branch with spines and canal. The spines are as if cut away at the top and forming a cup (text-fig. 59*e*).

Distribution.—South India, Madras Presidency, Kodai Kanal, 6,900 feet, Palni Hills (Dr. S. W. Kemp ; viii.22 ; under rotten wood ; 4 exs.).

Thyropygus induratus, sp. nov.

Head bright chestnut, anterior stripe blackish brown. Collum bright chestnut, posterior border except for the sides blackish brown. Prozonites testaceous, metazonites black, a reddish narrow posterior stripe ; trunk distinctly annulated. Antennae greenish black. Legs brown, anal segment yellowish brown.

Width ♂ 11·5 mm., ♀ 13 mm. ; ♂ 61 segments ; ♀ 65 segments.

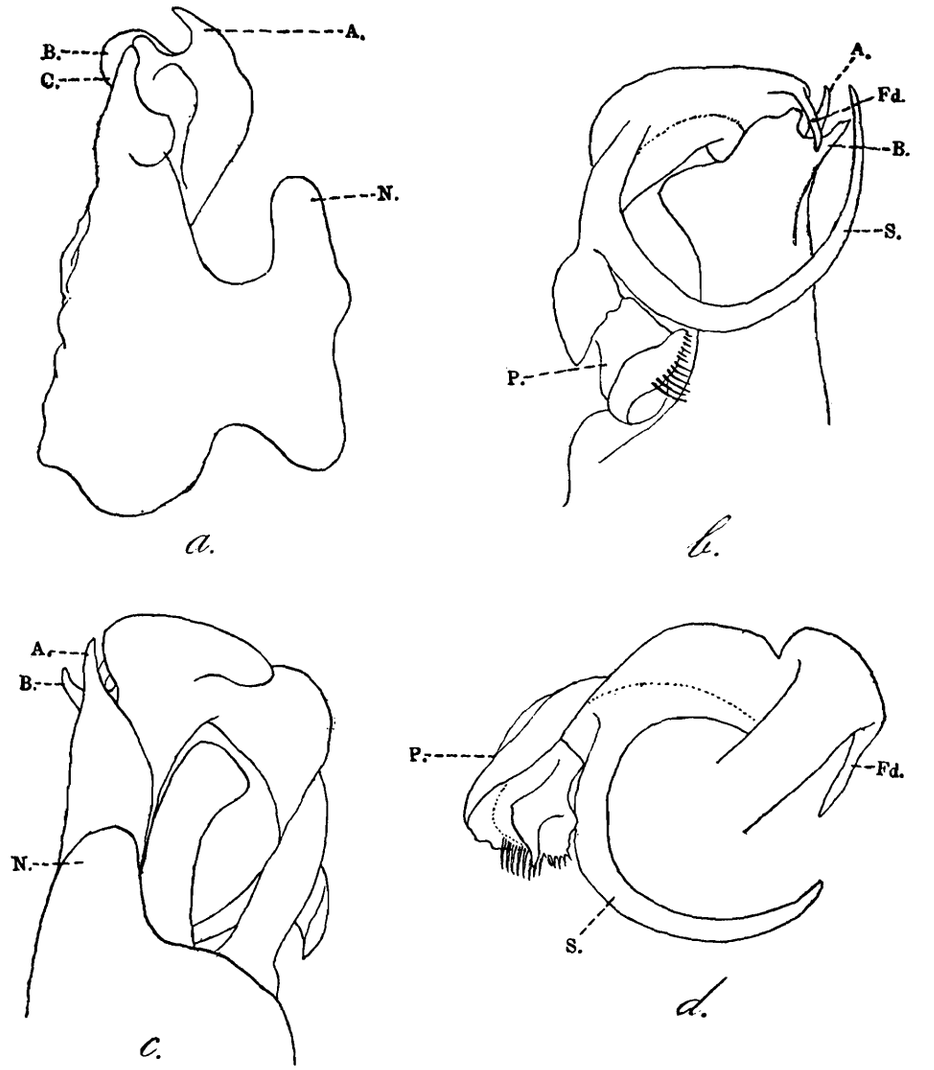
Clypeus deeply, longitudinally wrinkled, supralabral foveolae 2+2, somewhat indistinct. Median angle of eyes not projecting above the antennal socket. Antenna longer than the second segment when laid backwards. Anterior corner of collum broadly rounded and weakly protruding, anterior border of sides broadly marginated, laterally with some straight, irregular striae.

Prozonite with numerous punctate, transverse striae, not or nearly not anastomosing, posterior zone with undulate, anastomosing striae. Metazonite densely and finely punctate, anterior zone in addition densely and finely wrinkled. Longitudinal striae reaching the pores. Pores small, remote from suture ; the latter curving away before the pores only on the anterior segments. Transparent punctures in a broad zone, irregularly distributed.

Tail short, curved upwards, marginal thickening of valves moderately high, abruptly raised but not sharply limited by a sulcus. Anal scale free.

Stigmal grooves reaching nearly to the tip of praefemur.

Tibia and postfemur padded, pad of postfemur occupies only the distal half of the joint. Coxa of posterior pair of each segment with a rounded knob.



TEXT-FIG. 60.—*Thyropygus induratus*, sp. nov. *a. b. c.* gonopod (anterior, posterior and lateral views); *A.* curved spine, *B.* broad lamella, *C.* blunt process, *Fd.* spine of knee, *N.* lateral knob at base of coxa; *P. S.* two branches of tibio-tarsus; *d.* telopodite.

In the median distal angle of the gonopod coxite (text-figs. 60*a-c*) 3 processes, an acute curved spine (*A*), a broad lamella (*B*) and a blunt process (*C*). At the base of the coxa a stout lateral knob (*N*). Telopodite (text-fig. 60*d*) stout, especially next to coxite, short and broad. In the knee one small spine (*Fd.*), directed basally. Tibio-tarsus branched, one branch (*P*) with the hooked spines, second branch (*S*) a large pointed sickle.

Distribution.—East Siam (C. Boden Kloss; 5.v.17; 2 exs.).

Thyropygus descriptus, sp. nov.

Black brown, antennae brown, head with a narrow reddish yellow margin, marginal thickenings of anal valves and tail reddish yellow.

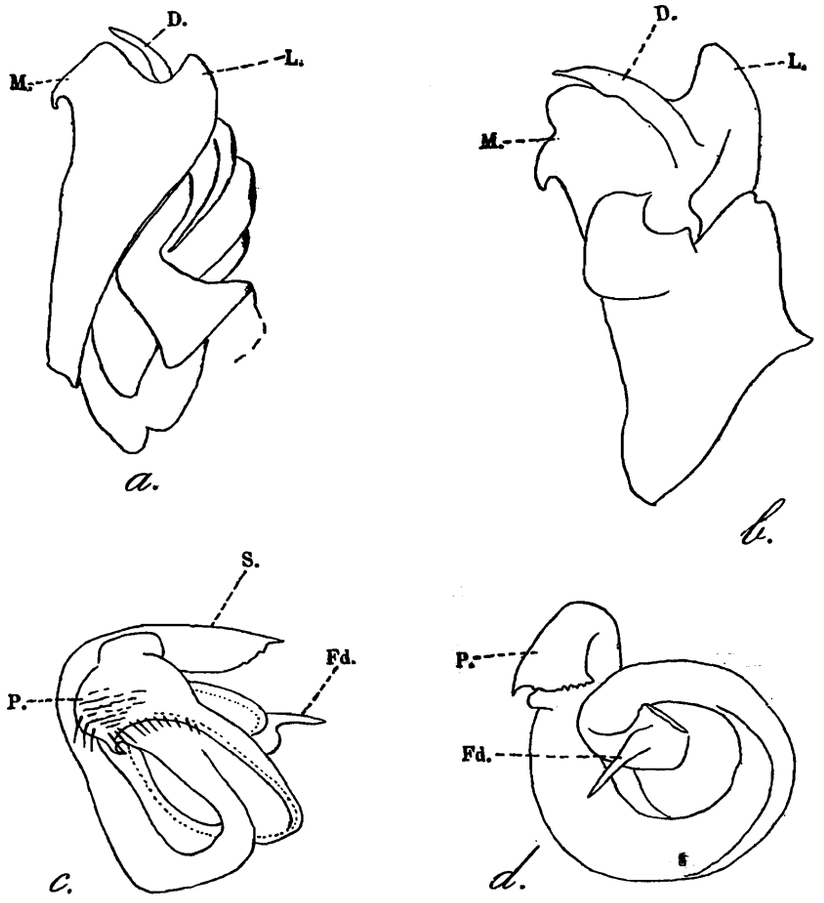
♂ width 8·2 mm., slender. 71 segments.

Clypeus very densely and finely punctate, vertex not punctate. Labral sinus semicircular, 2+2 supralabral foveolae, vertical sulcus distinct, median angle of eyes acute, only a little projecting beyond the antennal socket, ocelli convex.

Anterior border of collum very weakly sinuate laterally; marginal thickening narrow, 2 strong furrows from the posterior border to middle. Finely punctate transverse striae occupy more than half of prozonite, they anastomose only here and there; covered part of prozonite olive yellowish; posterior part of prozonite very densely punctate. Metazonite smooth, very finely punctate; uppermost striae remote from the pores; transverse suture weakly curving away before the small pores; transparent punctures of varying size, irregularly arranged in a broad zone. Stigmal groove in prozonite as broad as in the sternite, reaching to the top of coxa.

Tail separated by a transverse fold from the ring, strongly curved upwards. Marginal thickening of valves moderately high and broad, rising gradually. Anal scale free.

Postfemur and tibia of almost all legs padded. Coxa of posterior pair of legs of each segment with a short cone directed posteriorly.



TEXT-FIG. 61.—*Thyropygus descriptus*, sp. nov. *a. b.* gonopod coxite; *D.* spine of coxa; *L.* lateral lobe of coxite, *M.* median lobe of coxite; *c. d.* telopodite, *Fd.* spine of the knee, *P. S.* two branches of telopodite.

At the tip of gonopod coxite (text-figs. 61*a*, *b*) 2 lobes, separated by a rounded area, median lobe (*M*) with a little hook, lateral lobe (*L*) rounded. On the posterior side of coxa a large spine (*D*) surpassing the coxa.

Telopodite (text-figs. 61*c*, *d*) twisted in a spiral. On the knee a small spine (*Fd.*). After describing a semicircle the telopodite is branched, the first branch (*S*), a curved lamella

ends in a black spine, the second branch (*P*), hollowed out like a channel, bears hooked spines. The canal opens close to the spines.

Distribution.—South India, Mormugao Bay, Portuguese India (Dr. S. W. Kemp ; viii-ix. 16 ; 1 ex.).

Thyropygus mundus, sp. nov.

Head black brown, anterior stripe yellow brown (as opposed to *T. nigrolabiatus*), antennae dark olive, collum and following 5 or 6 segments bright chestnut, in the remaining segments only the covered part of the prozonite yellowish brown, free part and metazonite blackish, metazonite with a narrow posterior reddish margin, anal ring brownish yellow, valves blackish, coxa and praefemur testaceous, other joints blackish brown.

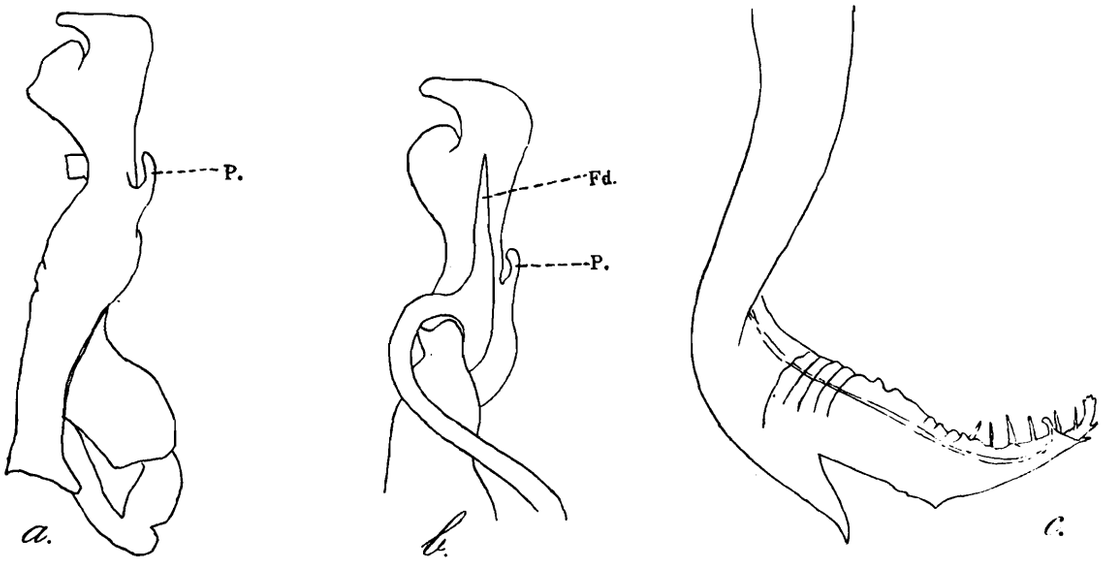
♂ width 6·6 mm., very slender. 59 segments.

Labral sinus shallow, 2+2 supralabral foveolae near the median line, in addition to one on the right side, no foveola on the left side. Anterior part of clypeus irregularly and finely wrinkled, rest of the head smooth. Vertical sulcus very fine, median angle of eyes acute, projecting a little beyond the antennal socket. No interocular line.

Anterior border of collum nearly straight, a second furrow parallel to the furrow limiting the marginal thickening.

Covered part of prozonite with finely punctate, sometimes anastomosing transverse striae, free part densely and finely punctate. Metazonite dorsally smooth, longitudinal striae nearly reaching the pores, uppermost striae a little abbreviated. Pores small, suture curving away before the pores. No transparent punctures.

Tail long and slender, curved upwards ; marginal thickening of valves high, rising gradually ; anal scale free.



TEXT-FIG. 62.—*Thyropygus mundus*, sp. nov. *a. b.* gonopod coxite, *Fd.* spine on knee of telopodite ; *P.* medial process ; *C.* telopodite.

Stigmal grooves short, triangular, not reaching the tip of coxa. Tibia and postfemur of all legs from the third onwards padded.

Coxite of gonopods (text-figs. 62*a*, *b*) slender, laterally no knob, medially about the middle a short thumb-like process (*P*), tip enlarged with 2 lobes. On the knee of the telopodite a long straight, acute spine (*Fd.*) parallel to the tip of the coxite. Telopodite

(text-fig. 62*c*) relatively simple, before the tip a strong, conical tooth, the terminal branch transversely furrowed and bearing hooked spines.

Distribution.—South India, near Kukkal, 5,500-6,500 feet, Palni Hills (Dr. S. W. Kemp ; 31.viii.22 ; 4 exs.).

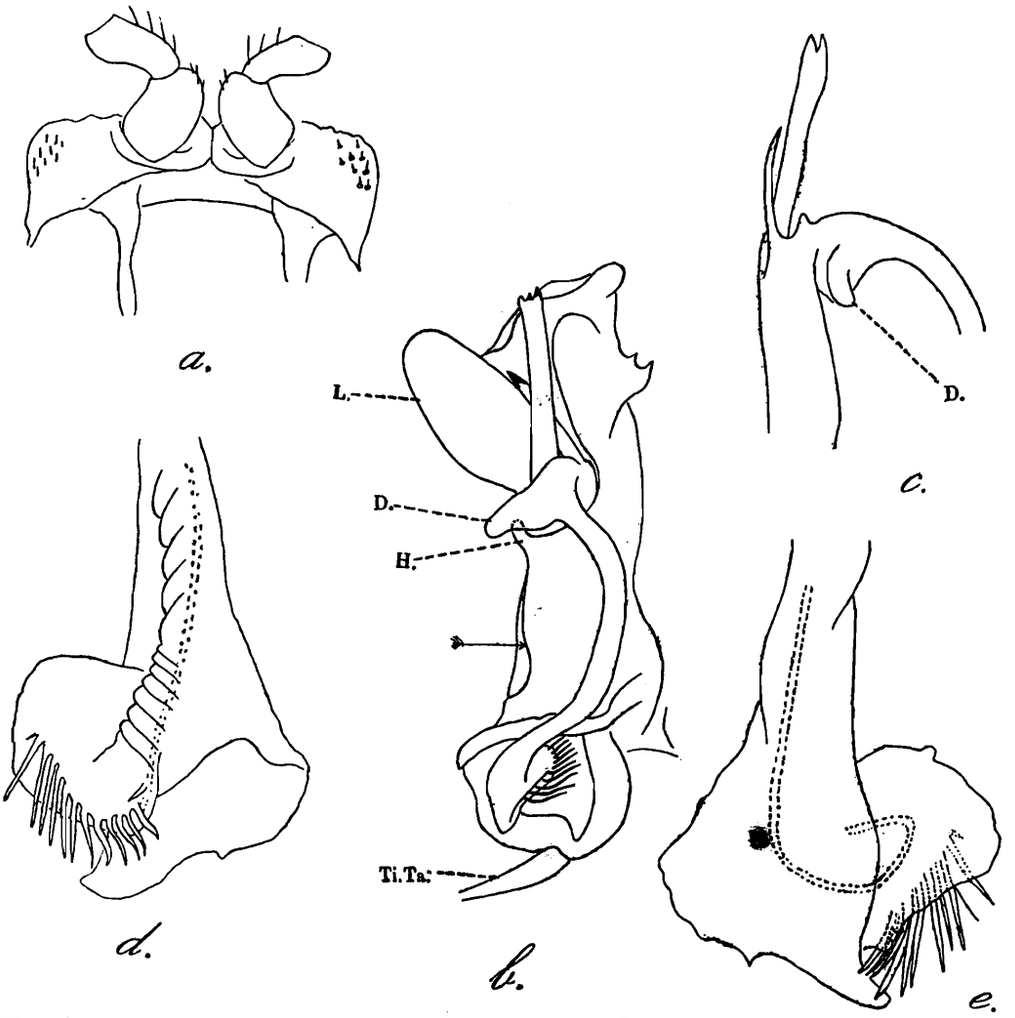
Thyropygus poseidon, sp. nov.

One ♂ in very bad condition, colour now dark chestnut.

Width 8 mm., 50 segments (♂ broken into many pieces).

Labral sinus moderately deep, with 3 teeth, 4 supralabral foveolae. Head smooth ; median angle of eyes pointed, slightly projecting beyond the antennal grooves ; vertical sulcus very fine ; interocular line scarcely visible. Basal piece of mandible with a rounded, thickly marginated process. Sides of collum narrowed. Border from eyes thickly marginated ; anterior corner rounded, no lateral striae on the surface.

Anterior part of prozonite with the usual, irregular, anastomosing striae ; posterior part of prozonite with a network consisting of large meshes, and with short, longitudinal striae, as on the metazonite. Suture fine, distinct throughout. Pores very small, remote



TEXT-FIG. 63.—*Thyropygus poseidon*, sp. nov. *a.* ♂ 1st legs (anterior view) ; *b.* right gonopod (posterior view), *D.* double knob near base of tibio-tarsus, *H.* lobe of posterior lamella ; *L.* ovoid lobe at the tip of coxite ; *TiTa.* tibio-tarsus ; *c.* telopodite ; *d. e.* tibio-tarsal part of gonopod.

from the suture ; the latter curving away before the pores. Sternites finely transversely striated. Stigmal grooves expanded laterally.

Tail of anal segment curved upwards ; anal scale free, bluntly triangular.

2 pads (on postfemur and tibia), occupying the whole under side, tip acutely lobated ; they are present to near the posterior end of the body, last legs are wanting. Coxosternum of 1st legs of ♂ (text-fig. 63*a*) large, much wider than long, no distinct limit between coxae and sternum ; the surrounding region of the praefemora stuffed, on each side a group of short bristles. Praefemur without distinct basal lobe.

Gonopods (text-fig. 63*b*).—Gonocoel opens laterally (the arrow in text-fig. 63*b* indicates the gonocoel) ; posterior lamella with a short lobe (*H*), laterally near the knee of telopodite. At the tip of coxite laterally a large ovoid lobe (*L*) probably homologous to the lateral cone of many species of Spirostreptidae ; medially a short dentated lamella. In the knee of telopodite (text-fig. 63*c*) 2 long femoral spines and a short blunt cone ; longer femoral spines with parallel sides and 2 or 3 teeth at the tip (2 on the right gonopod, 3 on the left), shorter femoral spine slender, pointed, weakly curved. Near the base of the tibio-tarsus a thick rounded double knob (*D*). Tibio-tarsus cylindrical, weakly curved, near the apex obliquely rifled, tip widened with a short blunt terminal tooth and a thin lamella bearing bristles and the canal (text-fig. 63*d*). The bristles are slender lancets, straight or weakly curved, arranged in one row. The canal describes a loop before its termination (text-fig. 63*e*).

Distribution.—Ceylon (Coll. *Wiener Naturhist. Museum,* Novara Expedition 1857).

Thyropygus aterrimus (Poc.).

1889. *Spirostreptus aterrimus,* Pocock, *Journ. Linn. Soc. London,* XXI, p. 295.

Distribution.—Mergui Archipelago (Museum Collector).

Thyropygus cuisinieri Carl.

1917. *Thyropygus cuisinieri,* Carl, *Rev. Suisse Zool.* XXV, p. 392, figs. 12-15.

Distribution.—Cochinchina, Tayninh.

Thyropygus lunelii (Humb.).

1866. *Spirosreptus lunelii,* Humbert, *Mém. Soc. Genève,* XVIII, p. 47.

1917. *Thyropygus lunelii,* Carl, *Rev. Suisse Zool.* XXV, p. 390, figs. 10, 11.

Distribution.—Ceylon, Putlam.

? **Thyropygus anurus** Poc.

1896. *Thyropygus anurus,* Pocock, *Ann. Mus. Genova,* p. 349.

Distribution.—Burma, Bhamo.

Remarks.—This species probably does not belong to this genus ; the stigmal grooves are short and triangular.

? **Thyropygus aulaconotus** Poc.

1896. *Thyropygus aulaconotus,* Pocock, *Ann. Mus. Genova,* XXXVI, p. 350.

Distribution.—Burma, Bhamo.

Thyroglutus, gen. nov.

Gonopod with one to three femoral spines, generally with a tibial spine, canal branch separate from spine-branch. Labral sinus semicircular, 3 labral teeth, one row of labral setigerous pits ; 2+2 or 1+1 supralabral foveolae. Vertical sulcus fine ; interocular line visible or absent. Medial angle of eyes generally projecting a little beyond the antennal socket. Anterior border of sides of collum generally thickened, thickening broadest in the rounded corner, behind the thickening sometimes fine striae. Major part of prozonite with fine, anastomosing, transverse striae, free part finely punctate or smooth or the whole prozonite striated. Metazonites dorsally smooth, below the pores longitudinally striate. Transverse suture sharp throughout, curving away before the pores. Pores small, beginning in 6th segment. Anal ring with a tail, curved upwards ; anal scale free ; valves with high marginal thickening. Postfemur and tibia of male legs padded.

Genotype.—T astutus, sp. nov.

Key to the Species.

1. Canal branch not furrowed transversely	2.
Canal branch deeply furrowed transversely	5.
2. Coxite of gonopod rounded at tip	*T. frater* Carl.
Coxite of gonopod sharply pointed	3.
3. One femoral spine, no acute tibial spine	*T. malayus* Carl, *T. saussurei* Carl.
Two femoral spines and one acute tibial spine	4.
4. Entire prozonite up to the suture with irregular transverse striae. Legs yellowish white. Femoral spine of gonopod very long and slender, curving on the anterior side	*T. straminipes* Carl.
Posterior zone of prozonite finely punctate, not striate. Legs brownish. Femoral spine not so long and not curving to the anterior side	*T. astutus*, sp. nov.
5. Canal branch of gonopod partially hairy	*T. probus*, sp. nov.
Canal branch of gonopod not hairy	6.
6. Posterior zone of prozonite with undulate striae. Collum with some fine striae laterally	*T. cautus*, sp. nov.
Posterior zone of prozonite very smooth. Collum not striate laterally	*T. repertus*, sp. nov.

Thyroglutus astutus, sp. nov.

Prozonites olive yellow, metazonites chestnut, head, antennae and legs brownish yellow, the head anteriorly reddish brown marginated.

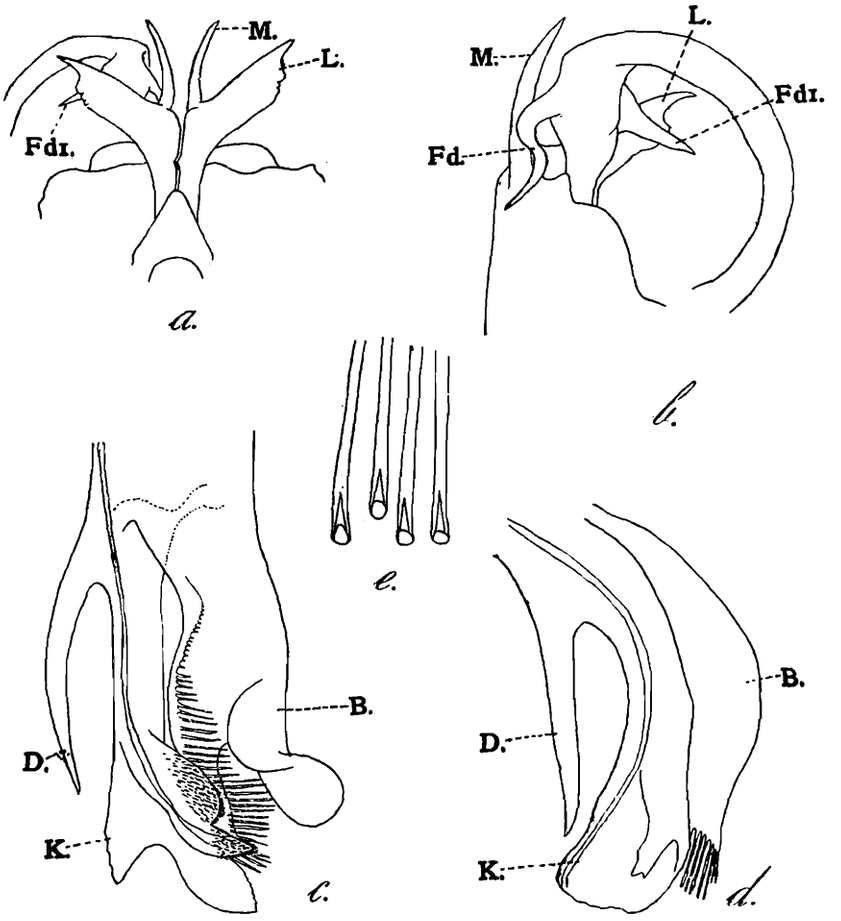
Width 7·8 mm. ; 64 segments.

2+2 supralabral foveolae, vertical sulcus distinct, head very smooth, clypeus finely punctate.

Anterior border of collum weakly sinuate, marginal thickening narrow, only in the rounded anterior corner the margin is knotty ; on the sides some fine striae, corresponding to the striae of metazonites.

Prozonites with numerous irregular anastomosing striae, posterior zone finely punctate. Metazonites smooth like a mirror ; longitudinal striae nearly reaching the pores, uppermost striae very weak ; pores small, suture curving away only a little. No transparent punctures. Stigmal grooves of medium size.

Tail of anal ring curved upwards, no folds at its base ; marginal thickening of valves broad and high, rising gradually. Anal scale free. Postfemur and tibia padded, pad smaller on the last legs.



TEXT-FIG. 64.—*Thyroglutus astutus*, sp. nov. *a. b.* gonopod coxite, *Fd. Fd1.* femoral spines ; *L. M.* branches of coxite ; *c. d.* tibio-tarsus ; *B. K.* the two branches of the tibio-tarsus ; *D.* spine of branch *K.* ; *e.* bristles of tarsus.

Apical part of gonopod coxite (text-fig. 64*a*) branched, consisting of a slender medial spine (*L*) and a broad lateral branch (*M*). Just before the knee of the telopodite 2 femoral spines, medial one (*Fd*) S-shaped ; lateral one (*Fd'*) straight. Tibio-tarsus (text-figs. 64*c*, *d*) describes a semicircle and is then divided in 2 branches, one branch (*K*) with the canal and a strong lateral spine (*D*), the second branch (*B*), which is indistinctly limited by a suture at its base, can be considered as the tarsus ; it bears numerous bristles with cup-like tips (text-fig. 64*e*), majority of them apparently broken. Whether this is the normal condition or not cannot be decided as only a single male was present.

Distribution.—Western China, Yunnan (Prof. J. W. Gregory ; 1 ex.).

Thyroglutus probus, sp. nov.

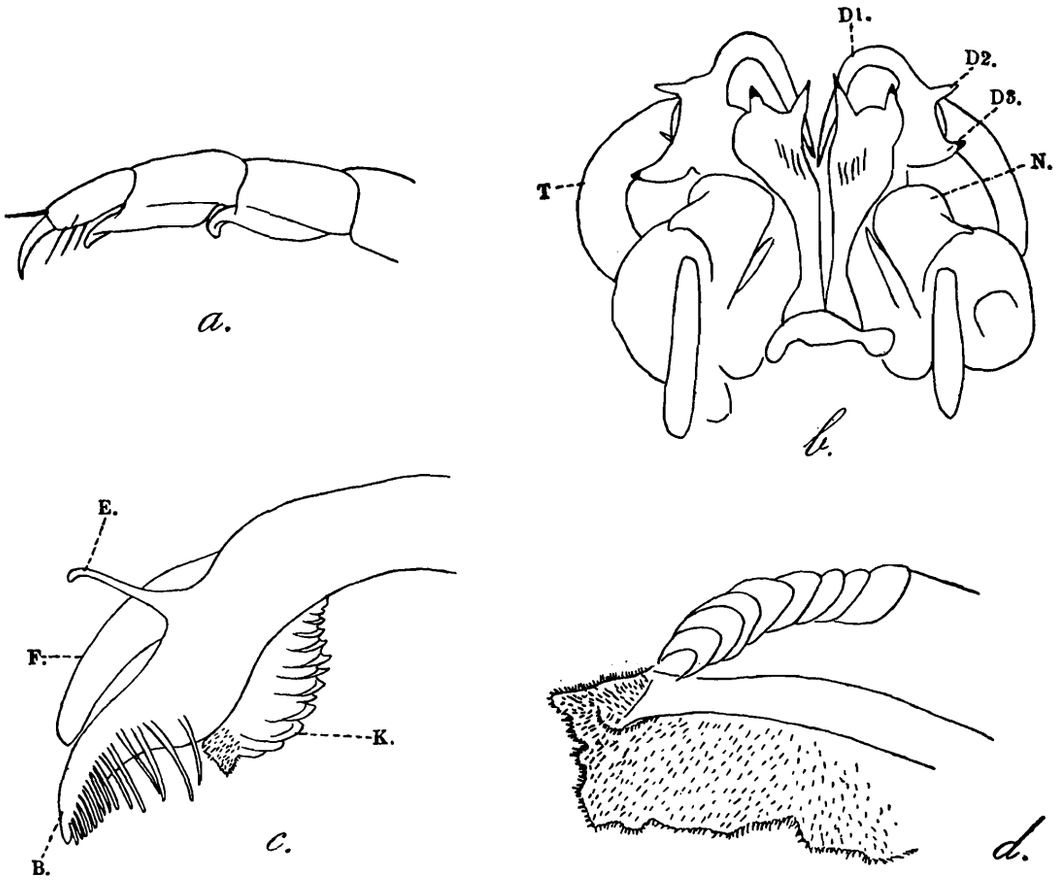
Prozonites, anal segment and legs bright chestnut, metazonites black brown, clypeus and frons dark chestnut, vertex brighter, antennae dark brown.

Width 10 mm. ; 71 segments.

Labral sinus semicircular, labral teeth normal, 4 supralabral foveolae, head very smooth, clypeus not punctate, vertical sulcus fine, no interocular line, median angle of eyes not surpassing the antennal socket. Antennae slender, a little longer than the collum, when laid backwards. Anterior border of collum weakly sinuate, near the anterior border of sides a sharp furrow, border itself not thickened, behind a short stria.

Major part of prozonite with numerous fine and irregularly anastomosing striae, distance between striae increasing gradually. Posterior zone and entire metazonite smooth ; longitudinal striae nearly reaching the pores. Pores small, suture curving far away before pores of the 6th segment, curving less marked in the succeeding segments, but distinct on the terminal segments. No transparent punctures.

Tail curved upwards, marginal thickening of valves high but not broad ; anal scale free. Stigmal grooves reaching the middle of praefemur.



TEXT-FIG. 65.—*Thyroglutus probus*, sp. nov. *a*. ♂ 7th leg ; *b*. gonopod, D_1. D_2. D_3. the three spines of telopodite ; *N*. lateral knob of coxa, *T*. tibio-tarsus ; *c*. tibio-tarsus of telopodite with branches *B*. *E*. *F*. *K*. ; *d*. canal branch (*K*) of gonopod further enlarged.

Postfemur and tibia padded (text-fig. 65*a*) pad of tibia present on the penultimate pair but small, pad of postfemur vanishing long before. Apical part of gonopod coxite (text-fig. 65*b*) with 2 strong acute spines ; lateral knob (*N*) of coxa large and rounded ; in the knee of telopodite one long spine directed medially and basally, and 2 short spines directed distally ; tibia arises between these 2 spines. Tibio-tarsus (*T*) describing a semicircle, its top divided in 4 branches (text-fig. 65*c*), one branch with the spines (*B*), second branch deeply furrowed (*K*) with the canal ; third branch (*E*) very slender and fourth branch (*F*)

broad and obtuse, spines numerous ; the non-furrowed part of the canal branch is densely and shortly hairy (text-fig. 65*d*).

Distribution.—Eastern Himalayas, Bengal, Mungphu, *ca.* 4,000 feet, Darjeeling Distr. (Shaw ; 1 ex.).

Thyroglutus repertus, sp. nov.

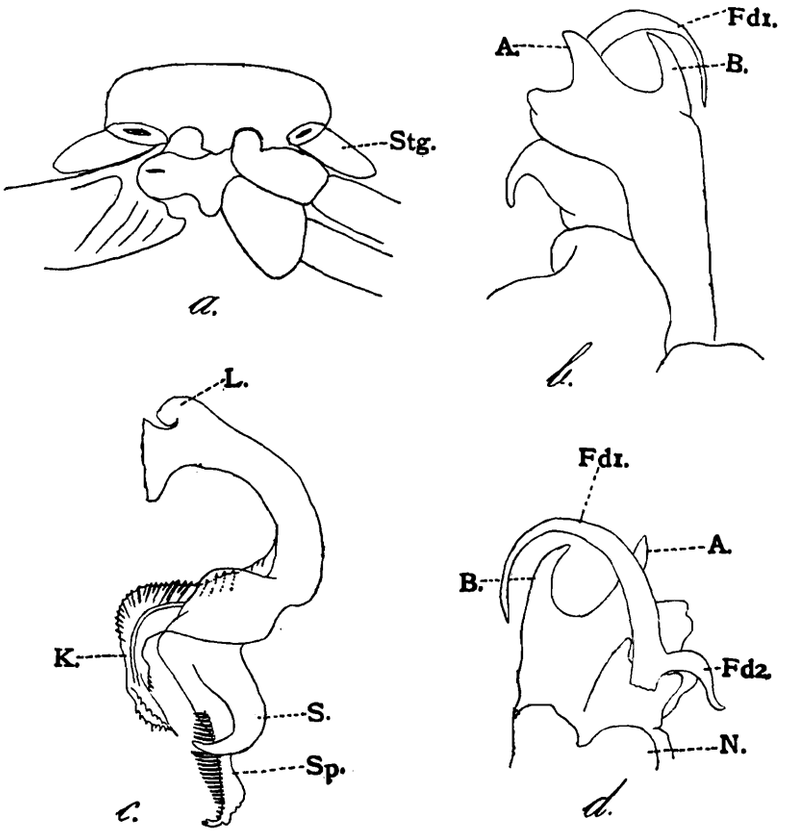
Head and antennae brown, 2 rounded brightly marbled spots between antennae, anterior margin of head broad, reddish brown, collum dark brown, brightly marbled in the middle ; posterior third of prozonite and entire metazonite dark chestnut, remaining part of prozonite testaceous ; anal ring and scale dark chestnut ; valves and legs yellow.

Width 7·8 mm. ; 72 segments.

Head very smooth as if varnished ; clypeus dispersedly punctate ; 2+2 supralabral foveolae ; vertical sulcus distinct, no interocular line, medial angle of eyes acute, projecting only a little beyond the antennal socket ; ocelli convex.

Anterior border of collum laterally sinuate, sides protruding, behind the marginal thickening a deep furrow, no striae, surface smooth, like a mirror.

Anterior two-thirds of prozonite with dense, finely punctate, anastomosing striae ; posterior third finely punctate. Metazonites very smooth, lateral striae not reaching the pores ; pores small, suture weakly curving away before the pores. No transparent punctures.



TEXT-FIG. 66.—*Thyroglutus repertus*, sp. nov. *a.* sternite, *Stg.* stigmal groove ; *b. c. d.* gonopod ; *A. B.* spines at tip of gonopod coxite, Fd_1. Fd_2. spines in the knee of telopodite, *K.* second or canal branch, *L.* rounded lobe near the knee of telopodite ; *S.* sickle ; *sp.* spines.

Stigmal grooves (text-fig. 66*a*. *Stg.*) large, reaching the middle of praefemur, sternite part of groove as broad as that in prozonite. It may, however, be observed that only the

prozonite has enlarged grooves in connection with the grooves of the sternite bearing the stigmata. The groove in the sternite is much smaller than the groove in the prozonite, but both together form a common large groove with sharp border, posteriorly reaching the transverse suture, medially to the opening of the coxa ; this opening is a creek in the posterior border of the sternite and closed behind by the posterior sternite. The anterior sternite is cracked anteriorly at a right angle and continued in the prophragma, partially closing the segment. The inter-segmental cuticle is inserted in the edge between sternite and prophragma.

Tail slender, broken off in the single male, marginal thickening of valves moderately high and broad, not sharply limited.

Praefemur and tibia padded, tip of the pad acute and directed ventrally. Last two pairs of legs much smaller than the remaining legs.

At the tip of gonopod coxite two pointed spines (text-figs. 66*b*, *c*. *A*. *B*.) separated by a rounded creek ; lateral spine connected with a rounded lobe, on the aboral side of the coxite ; near the base a rounded lappet (*N*). The gonocoel opens laterally. In the knee of telopodite two spines of different sizes ; one spine (Fd^1) curved medially in a semicircle is much larger than the second spine (Fd^2) directed basally. Distally near the knee a short rounded lobe (*L*), after which the telopodite describes a circle and is branched ; one of the branches is further branched in the arm bearing spines (*Sp*.) and a large sickle (*S*) ; the second branch (*K*) with the canal is deeply furrowed and has a rounded lateral lobe ; the spines are not hooked but straight (text-fig. 66*d*).

Distribution.—Bengal, Eastern Himalayas, Pashok, 3,000 feet, Darjeeling Distr. (Dr. F. H. Gravely ; 26.v-14.vi.16 ; 1 ex.).

Thyroglutus cautus, sp. nov.

Head, antennae, collum, prozonites, anal segment and legs bright chestnut, metazonites dark brown.

Width 9 mm. ; ♂ 61-67 segments.

Labral sinus moderately deep, semicircular. 1+1 supralabral foveolae. 3 strong labral teeth. Head very smooth, anterior part of clypeus finely punctate, vertical sulcus and interocular line very fine. Median angle of eyes acute, projecting a little beyond the antennal socket ; ocelli convex. Anterior border of collum weakly sinuate, rounded corners a little protruding. Behind the marginal thickening a strong fold. On the sides 8-10 fine, irregular striae, corresponding to the striae of the metazonite.

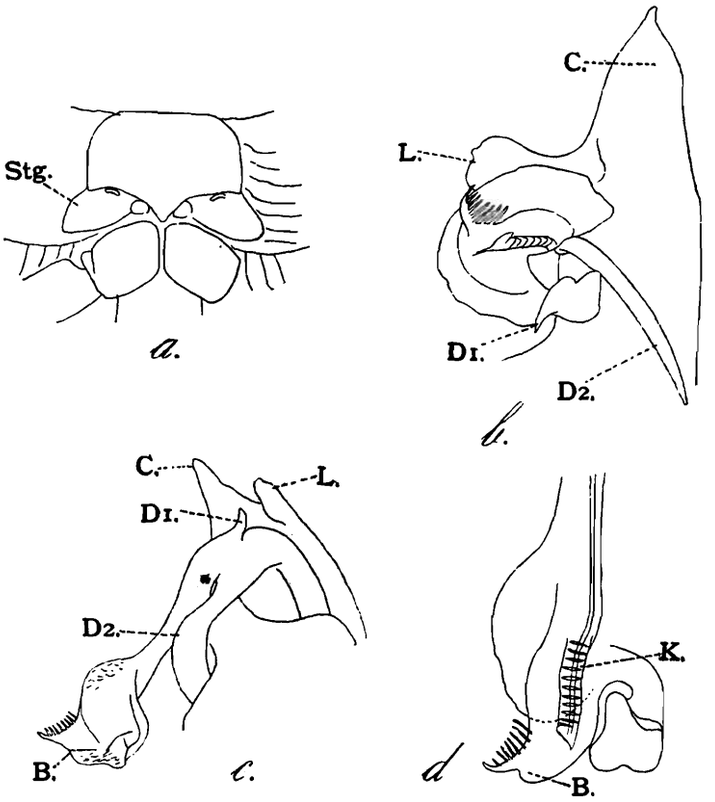
Anterior half of the prozonite with finely punctate, transverse striae, posterior half with fine, undulate, anastomosing striae, areas between the striae densely punctate. Lateral striae of metazonite reaching the pores, sometimes also above the pores some irregular striae. Pores small, separated from the suture by more than a pore diameter. Suture distinct throughout, curving away before the pores. A zone of minute transparent punctures, irregularly distributed, hardly visible.

Sternites smooth, stigmal grooves (text-fig. 67*a*. *Stg*.) triangular, scarcely longer than the coxa.

Tail long, slender, curved upwards ; valves moderately vaulted, marginal thickening high and broad ; anal scale free, not incrassate.

Postfemur and tibia of third to last legs padded.

Coxite of the gonopod (text-figs. 67*b*, *c*) with a blunt hatchet-like lateral branch (*L*) before the triangular terminal point (*C*). In the knee of telopodite two spines, one short



TEXT-FIG. 67.—*Thyroglutus cautus*, sp. nov. *a*. sternite, *Stg*. stigmal groove ; *b*. *c*. *d*. gonopod, *B*. spiny branch of tibio-tarsus ; *C*. terminal point of coxite, D_1. D_2. spines in the knee of telopodite, *K*. canal branch, *L*. hatchet-like branch of coxite.

(D^1) on the external side of the curving and one very long and thick (D^2) on the internal side, directed obliquely basally. Tibio-tarsus branched, both branches broad and lamelliform, one branch with (*B*) 8 slender spines ; near the canal a furrowed edge (text-fig. 67*d*).

Distribution.—Bengal, Mianimukh, at junction of Miani and Kasalong Rivers, Chittagong Hill Tracts (R. P. Mullens ; 18-26.xi.21 ; 1 ex.) ; Bihar, Pusa (Dr. H. S. Pruthi ; 26-30.viii.25 ; 2 exs.).

Gongylorrhus, gen. nov.

The basal part of the gonocoel opens on the anterior side of the coxa and the rest lies to the posterior side, as a result the telopodite leaves the coxite on the posterior side. Telopodite with 3 femoral spines, tibio-tarsus short, divided in 3 or 4 branches, the branch with the canal separated from the branch with the spines.

3 labral teeth, 2+2 supralabral foveolae. Vertical sulcus present ; medial angle of the eyes acute, reaching as far as the antennal socket or slightly extending beyond, 5th and 6th joints of antenna with a group of sensitive hairs, more or less sunk in a groove.

Anterior angle of collum broadly rounded, thickened or not, in the sides a few or no fine striae.

Metazonite dorsally smooth or finely striate ; prozonite with fine transverse striae, posterior zone punctate. No transparent punctures. Pores from the 6th segment, sulcus curving away before the pores.

Posterior border of anal ring triangular but not extending beyond the anal valves. Anal scale free, valves with broad, marginal thickening.

Stigmal grooves short, triangular.

Genotype.—*G. sulcatus*, sp. nov.

Key to the Species.

1. Metazonite dorsally with fine longitudinal striae reaching in the ♂ to the middle, in the ♀ to the posterior border. Canal branch of gonopod strongly furrowed	*G. sulcatus*, sp. nov.
Metazonite dorsally smooth. Canal branch of gonopod not at all or indistinctly furrowed	2.
2. All 3 femoral spines of gonopod large. Tibio-tarsus with canal branch, spine branch and 2 broad rounded lamellae	*G. gracilis*, sp. nov.
2 large femoral spines and a third very small spine. Tibio-tarsus with canal branch, spine branch and a large tibial spine	*G. corniger*, sp. nov.

Gongylorrhus sulcatus, sp. nov.

Prozonites bright chestnut, metazonites blackish brown to brown, trunk across annulated ; legs including tibia testaceous, tarsus and antennae black brown.

Width ♂ 7 mm., ♀ 9 mm. ; ♂ 57-59 segments.

Labral sinus moderately deep, semicircular, 3 labral teeth, 2+2 supralabral foveolae, the lateral ones minute. Clypeus anteriorly very finely punctate, rest smooth like a mirror. Vertical sulcus very fine, no interocular line, median angle of eyes acute, reaching as far as the antennal socket ; ocelli convex.

Anterior border of collum nearly straight, anterior angle rounded, marginal thickening broad.

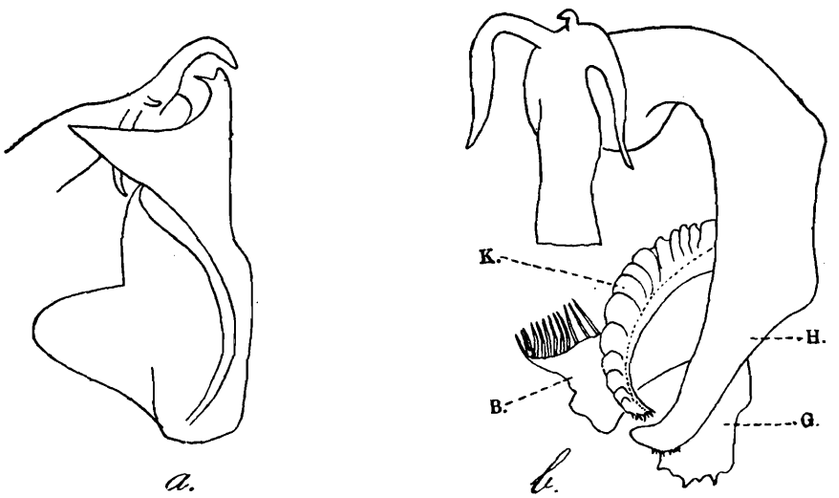
Prozonite with very fine, undulate, anastomosing striae, posterior zone very finely punctate in ♀, somewhat more than in ♂. Sculpture of dorsum of metazonite sexually dimorphic, in ♂ very fine, short striae, beginning in the suture, not reaching the middle, remaining part very smooth and shining ; in ♀ striae reach the posterior border or nearly so ; between the striae dense and fine punctures. Below the pores in ♂ and ♀ regular, fine striae from suture to posterior border. Pores small, somewhat remote from suture, the latter curving away before the pores. No transparent punctures. Sternites smooth, stigmal grooves short, triangular, scarcely longer than the coxa.

Dorsal border of anal ring acutely angular, surrounded by anal valves, no free tail. Marginal thickening of valves high and broad, raising gradually, not sharply limited by a sulcus. Anal scale free, angular.

Postfemur and tibia padded, pad of tibia vanishing in the last legs, pad of postfemur already indistinct before the end.

Coxite of gonopod (text-fig. 68*a*) with a large triangular lateral lamella and a little acute spine near the tip. In the knee of telopodite (text-fig. 68*b*) two long spines, curved towards base, between the spines a little hook. Telopodite short and broad, divided in 4 branches ; as no branch limited by a suture it is not possible to distinguish tibia and tarsus.

One broad and lamelliform branch (*B*) bears the spines characteristic of the Harpagophoridae. The second branch (*K*) is deeply furrowed and bears the canal, the third branch



TEXT-FIG. 68.—*Gongylorrhus sulcatus*, sp. nov. *a*. gonopod (anterior view); *b*, gonopod telopodite, showing its four branches *B. G. H. K.*

(*G*) is a broad lamella with some teeth, the fourth branch (*H*) is slender with some minute hairs.

Distribution.—Eastern Himalayas, Ghum, 7,200 feet, Darjeeling Distr. (J. van Manen; 21.viii.18; damaged exs.).

Gongylorrhus gracilis, sp. nov.

Prozonite bright brownish yellow, metazonite dark brown with a broad, reddish posterior stripe and somewhat brighter behind the suture, collum brownish yellow, posterior margin dark brown; head and anal segment yellowish, antennae blackish. Legs testaceous.

♂ width 4·4 mm., slender. 61-62 segments.

Head very smooth and shining, clypeus finely punctate, 2+2 supralabral foveolae, median angle of eyes acute, slightly projecting beyond the antennal socket. 5th and 6th joints of antenna with two round deepened areas, bearing short, sensitive hairs. (I described the same in *Globanus integer*. Verhoeff found in *Drepanopus einsleinii* porose sieves but no sensitive hairs). The 8th joint is sunk into the 7th and only the points of the 4 sensitive cones are visible (text-fig. 69*a*).

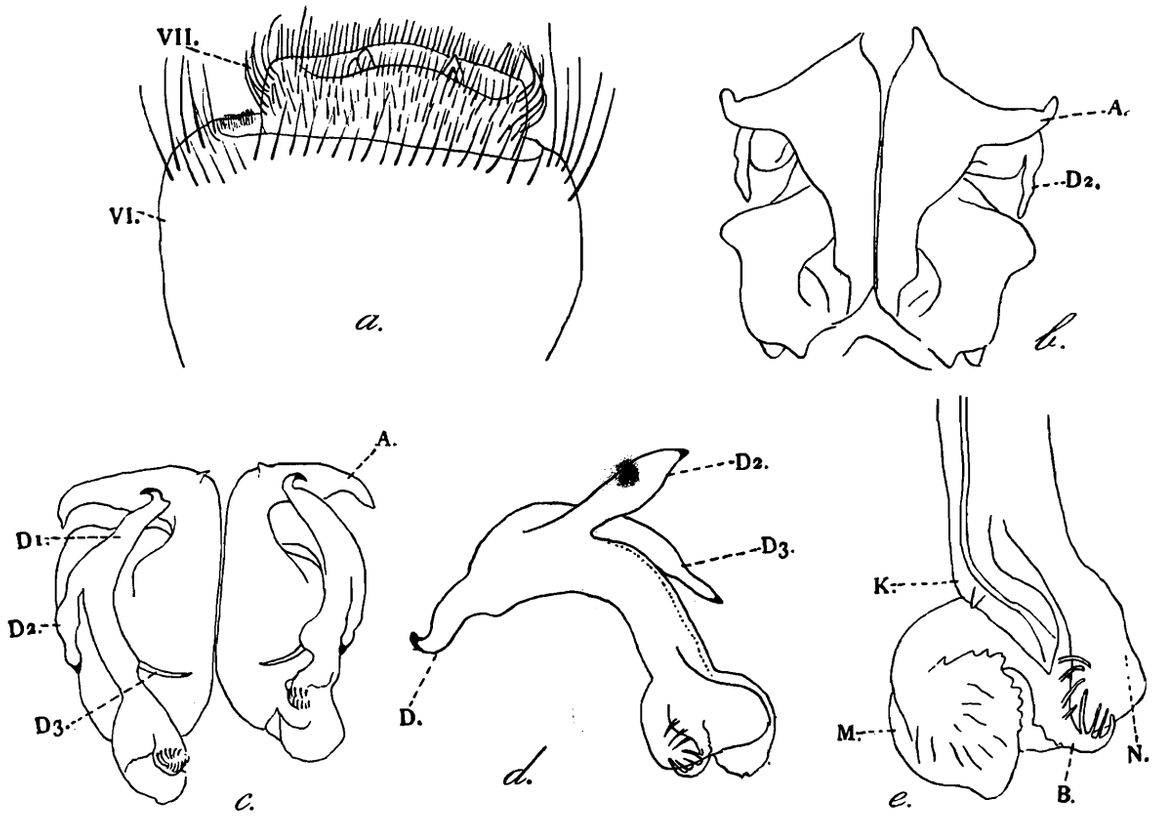
Anterior border of collum weakly sinuate, sides anteriorly broadly rounded, margin itself not thickened, at some distance from the margin a strong stuffed fold, behind the fold some striae.

More than the anterior half of prozonite with numerous, finely punctate, anastomosing, transverse striae, remaining part finely punctate. Metazonite smooth, longitudinal striae reaching pores. Pores small, suture strongly curving away before the pores in 6th segment, less in the succeeding segments. No transparent punctures.

Dorsal border of anal ring angular, triangle limited by some transverse wrinkles and surpassed posteriorly by anal valves. Marginal thickening of valves high and broad, rising abruptly. Anal scale free. Stigmal grooves triangular, not longer than the coxa.

Tibial pad distinct to last pair of legs, pad of the postfemur very small from middle of body, indistinct in posterior legs.

Tip of gonopod coxite acutely triangular, with a large lateral branch (*A*). In the knee of the telopodite 3 spines, one (D^1) directed towards the base, and two (D^2 D^3) directed towards



TEXT-FIG. 69.—*Gongylorrhus gracilis*, sp. nov. *a*. 6th & 7th joints of the antenna ; *b. c.* anterior and posterior views of gonopod ; *d*. tibio-tarsus with its apex more magnified in *e.* ; *A*. lateral branch of gonopod coxite, *B*. spiny branch of tibio-tarsus, D_1. D_2. D_3. the three spines in the knee of telopodite ; *K*. canal branch, *M*. *N*. lateral lamellae of tibio-tarsus.

the tibio-tarsus ; the latter divided in 4 branches, between two broad lamellae (*M*. *N*.) lies the branch with spines (*B*), while the canal ends on a separate branch with a little tooth (*K*).

Distribution.—Eastern Himalayas, Pashok, 3,500 feet, Darjeeling Distr. (L. C. Hartless ; vi.16 ; 1 ex.).

Gongylorrhus corniger, sp. nov.

Prozonite testaceous, metazonite blackish brown, trunk across annulated, head bright chestnut ; anal segment and legs testaceous.

Width 6·5 mm. ; ♂ 65 segments.

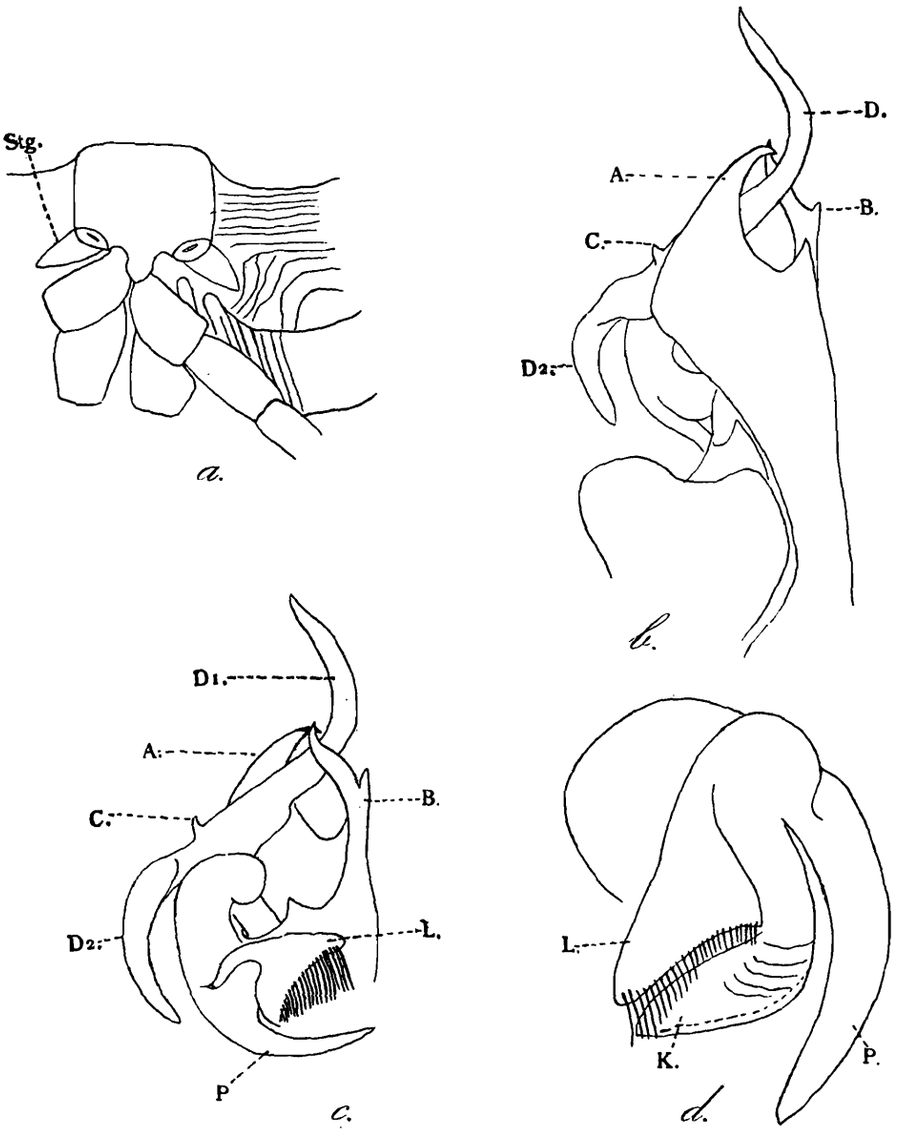
Labral sinus and labral teeth same as in other species, 2+2 supralabral foveolae. Head smooth, anterior part of clypeus finely punctate. Vertical sulcus weak, median angle of eyes obtuse and extending a little over the antennal socket.

Anterior border of collum sinuate, sides somewhat directed anteriorly, marginal thickening narrow, behind margin a second ridge, posteriorly becoming more and more removed from margin, behind the ridge 6 strong striae.

Prozonite with numerous, fine, transverse striae, posterior zone densely and very finely punctate. Metazonite smooth with microscopical fine punctures (openings of glands), longitudinal striae reaching the pores, uppermost stria abbreviated. Pores small, suture curving away before the pores. No transparent punctures. Stigmal grooves not longer than the coxa (text-fig. 70*a*).

Dorsal border of anal ring angular, not surpassing the valves ; marginal thickening very broad. Anal scale free, not incrassate.

Postfemur and tibia padded, pad of tibia vanishing in the last 3 pairs of legs, pad of the postfemur vanishing earlier.



TEXT-FIG. 70.—*Gongylorrhus corniger*, sp. nov. *a.* sternite, *Stg.* stigmal groove ; *b. c.* gonopod (anterior and posterior views) ; *d.* gonopod telopodite ; *A, B.* two sickles at the tip of coxite ; *C, D_1, D_3* three spines in the knee of the telopodite, *K. L. P.* three branches of the tibio-tarsus.

At the tip of the gonopod coxite (text-fig. 70*b*) two slender sickles (*A*, *B*), curved towards each other, medial sickle with a little lateral tooth. In the knee of the telopodite 2 large spines (D_1 D_2), and a rudimentary third spine (*C*) ; one spine (D_1) is directed distally, one spine (D_2) towards the tibio-tarsus ; the latter divided into 3 branches ; a broad lamella (*L*) with numerous spines occupying the whole margin of the lamella ; the canal runs in the second branch (*K*), this branch is transversely furrowed, and the third branch forms a large, simple sickle (*P*, text-figs. 70*c*, *d*).

Distribution.—Assam, Digboi, Lakhimpur District. (D. R. James ; vii.16 ; under stones).

Genus **Ktenostreptus** Att.

Ktenostreptus is principally a Ceylonese genus, only *K. specularis* has been found in Ceylon and in India (Lucknow), and *K. debilis* in S. India, Nilgiris. The gonopods of all species agree very well but other characters such as the first legs of ♂, the sculpture of the dorsum etc., are variable.

Key to the Species.

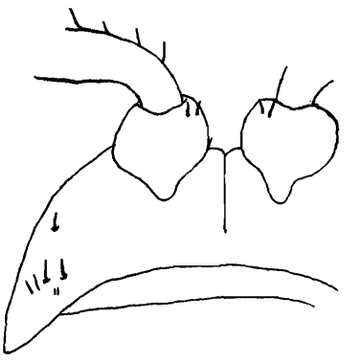
1. No tail. Metazonites dorsally roughly and irregularly wrinkled. Gonopod without femoral spine	*K. costulatus* Att.
A tail present	2.
2. Width of body 3·4 mm. Tail curved upwards. Legs of ♂ not padded. Sternites smooth. Praefemur of first legs more or less entering into the coxosternum . . .	*K. debilis*, sp. nov.
Width of body 8·5 mm. or more. Tail straight. Legs of ♂ padded. Sternites striated	3.
3. Dorsal striae of metazonites as shallow, broadly separated grooves not sharp furrows	4.
Metazonites dorsally densely striated or wrinkled	5.
4. Posterior zone of prozonites very smooth and shining. Gonopod with femoral spine. Praefemur of first legs of ♂ in an excavation of the coxosternum ; telopodite weak in comparison with the enormous coxosternum	*K. specularis*, sp. nov.
Prozonite finely striolate in front and covered with a close and fine reticulated pattern of smooth and low ridges behind	*K. centrurus* (Poc.).
5. Dense striae of the dorsum of metazonite regular. Legs remarkably annulated, brown and yellow. Gonopod with femoral spine. Tail moderately long. Praefemur of first legs of ♂ entering into the coxosternum with a broad basal lobe	*K. anulipes* Att.
Dense dorsal wrinkles or furrows irregular. Tail very short. Praefemur of first legs of ♂ free, without basal lobe. Legs unicolor	6.
6. Segments cylindrical. Metazonites dorsally wrinkled. Prozonites yellow. Gonopod with large femoral spine	*K. lankaensis* (Humb.).
Diameter of each metazonite increasing backwards, segments, therefore, not regularly cylindrical. Dorsum of metazonites more striated than wrinkled. Prozonites as brown as the metazonites. Gonopod without femoral spine.	*K. rugulosus*, sp. nov.

Ktenostreptus anulipes Att.

1909. *Ktenostreptus anulipes*, Attems, *Arkiv Zoolog.* V, p. 75, pl. v, figs. 81-84.
1909. *Spirostreptus pulcherrimus*, Carl, *Rev. Suisse Zool.* XVII, p. 258, figs. 2-6.

Carl does not mention the pads of the legs, but I believe that his species also has pads. As for the rest of the description of Carl it agrees completely with that of *K. anulipes*. In my earlier paper I did not describe the first legs of ♂ ; in these legs the coxosternum is large

but not enormous, the praefemora enter partially into the coxosterna and have a broad



TEXT-FIG. 71.—*Ktenostreptus anulipes* (Att.). ♂ 1st leg.

basal lobe (text-fig. 71).

Distribution.—Ceylon.

Ktenostreptus lankaensis (Humb.).

1866. *Spirostreptus lankaensis*, Humbert, *Mém. Soc. Genève*, XVIII, p. 50, pl. iv, fig. 21.

1892. *Spirostreptus lankaensis*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 165.

1917. *Ktenostreptus lankaensis*, Carl, *Rev. Suisse Zool.* XXV, p. 295, figs. 16-18.

Carl includes *K. costulatus* Att. as a synonym, but, as is shown below, *K. costulatus* is quite a distinct species.

Blackish brown, prozonites more or less yellowish brown ; in ♂ and 2 *juv.* only the anterior part of the dorsum of the prozonite, in the ♀ the whole prozonite yellowish, anterior half of clypeus dark reddish brown, rest of the head blackish ; antennae, legs and anal segment reddish brown.

Width ♂ 6.7-7 mm., ♀ 7-8 mm., ♂ 55-60, ♀ 60,61 segments.

Labral sinus moderately deep, with 3 broad and very short teeth (Humbert says that the labral sinus is not dentated ; this the only difference between the specimens I studied and the excellent description of Humbert. I suppose that Humbert missed the small incisions between the teeth). 18 labral foveolae, 5 supralabral foveolae. Head smooth, vertical line very weak, no interocular line. Median angle of eyes projecting a little beyond the antennal grooves. Ocelli distinctly convex. 5th and 6th joints of antenna at the tip, laterally, with a semilunar or oval groove, bearing numerous densely set short sensitive rods. Distal half of *stipites gnathochilarii* of ♂ with a large low rounded protuberance, bearing one short strong bristle. Basal joint of mandibles without process.

Anterior corner of collum broadly rounded, lateral border convex, posterior border weakly sinuate. From eyes to posterior angle a broad marginal thickening, broadest in the anterior corner. In the thickening along the anterior border 2 fine furrows delimiting 2 fine anterior ridges. Anterior two thirds of prozonite with fine, punctate encircling striae running straight to sternite ; ventrally they diverge more and more and the distance between the last stria and the suture is very short ; only in 7th segment of the ♂ the striae turn backwards ventrally. Posterior third of prozonite very finely wrinkled, much finer than wrinkles of metazonite ; latter irregular, some wrinkles join the narrow keels running from suture to posterior border, other wrinkles short. Below the pores metazonites regularly striate. Pores small, remote from suture. Suture sharp, not curving away before pores. Segments

cylindrical, diameter of metazonites equal to the whole length. Sternites with 7 straight transverse striae. Stigmal grooves triangular, lateral border of groove in a very blunt angle to the lateral border of sternite.

TEXT-FIG. 72.—*Ktenostreptus lankaensis* (Humb.). *a.* anal segment ; *b.* ♂ 1st leg ; *c.* gonopod.

Anal ring and valves very finely wrinkled ; ring with a short straight tail (text-fig. 72*a*), its top projecting freely. Marginal thickening of valves moderately high, not separated by a groove from valves. Anal scale free, bluntly angled.

Postfemur and tibia of legs of ♂ padded, pads diminish in the posterior half of the body and are wanting in the last 25 segments. Bristles of legs very sparse ; coxa, praefemur and femur with one long, tactile bristle ; bristles of tarsus more numerous, one supra-apical bristle. Coxosternum of first legs of ♀ moderately enlarged solidly connected with collum, sides of coxosternum reaching to the middle of mandibles, praefemur not planted in the coxosternum (text-fig. 72*b*).

Coxite of gonopod (text-fig. 72*c*) broad, lateral border rounded, near the tip medially a small rounded lobe turned laterally. In the knee of telopodite a very large process ; apex of the telopodite is correctly described and figured by Carl.

Distribution.—Ceylon, Punduloya, Trincomali, Belligam.

Ktenostreptus rugulosus, sp. nov.

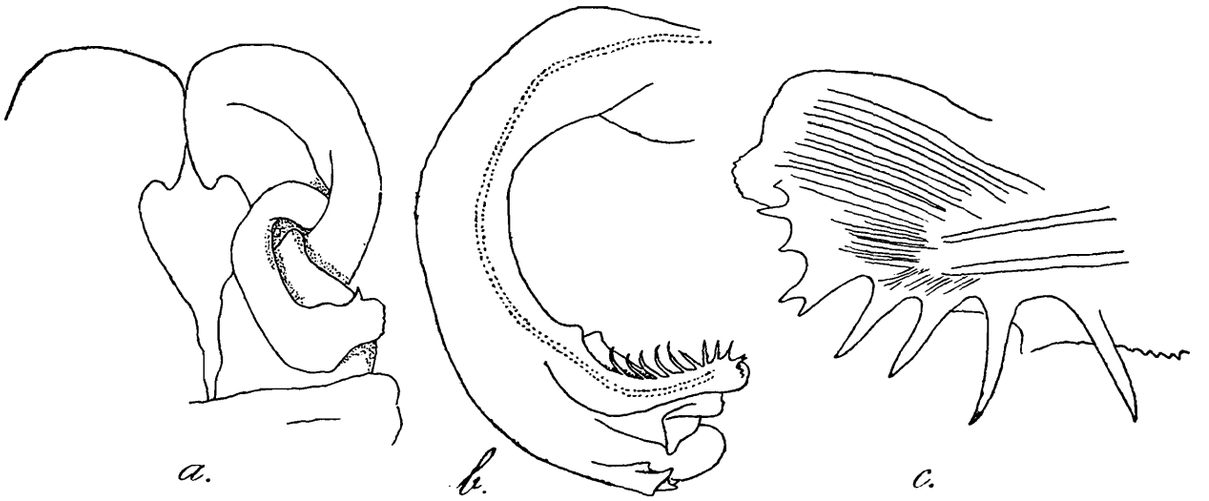
Colour dark brown ; anal valves, antennae and legs reddish brown.

♂ width 8·5 mm.; 66 segments.

Labral sinus moderately deep with 3 broad short teeth like the teeth in *K. lankaensis*, 18 labral foveolae, 4 supralabral foveolae ; anterior part of clypeus weakly and finely wrinkled, vertical sulcus very fine, no interocular line, medial angle of eyes projecting slightly beyond the antennal grooves. Antennae short and stout ; 5th and 6th joints with grooves bearing sensitive rods as in *K. lankaensis*. *Stipites gnathochilarii* of ♂ with a protuberance in the distal half, basal joint of mandibles without process.

Segments not cylindrical, but diameter of metazonites increases gradually to near the posterior border and then becomes abruptly smaller. Anterior part of prozonite with fine, punctate encircling striae, posterior free zone very finely wrinkled. Metazonite dorsally with somewhat irregular narrow and dense keels ; some keels running from suture to posterior border, some keels shorter. Keels much finer and more irregular than in *K. anulipes*.

Pores small, remote from suture, surface between pores and suture smooth and shining. Suture weakly curving away before the pores. Sternites with several transverse striae. Stigmal grooves triangular. Anal segment densely and finely wrinkled, wrinkles stronger than in *K. lankaensis* ; tail short and straight. Valves very finely wrinkled, marginal thickening rising suddenly but not separated by a furrow ; anal scale free, angulated, angle smaller than in *K. lankaensis.*



TEXT-FIG. 73.—*Ktenostreptus rugulosus,* sp. nov. *a. b.* gonopod ; *c.* spiny branch.

Postfemur and tibia of anterior legs padded, pads wanting in the last 26 segments. First legs of ♂ like that of *K. lankaensis.*

Gonopods.—Coxite (text-figs. 73*a-c*) broad, tip broadly projecting medially, no lateral lobe, in the middle of posterior surface a shallow groove limited by a sharp edge. In the knee of the telopodite no spine. Limit between coxa and tibio-tarsus well marked by a spiral twisting and a weak constriction. Tibio-tarsus a broad, short sickle ; its top divided into the branch with canal and bristles, and a broad, rounded lamella ; distal border of lamella clasped, forming a broad hook. The ending of the canal is visible very distinctly and the surface surrounding it is finely striated.

Distribution.—Ceylon, Ranapura (Coll. *Wiener Naturhist. Museum*).

Ktenostreptus specularis, sp. nov.

Black, antennae and legs ochraceous.

Length 16-19 cm.; width 11·6 mm.; 54-65 segments.

Labral sinus rounded with 3 teeth, number of labral foveolae sometimes irregular. I observed 7 foveolae on the right side and 10 foveolae on the left, 3+3 or 4+4 supralabral foveolae. Clypeus and vertex smooth, vertical sulcus very fine, no interocular line ; 64 ocelli in horizontal rows, 10, 10, 10, 9, 8, 7, 6, 3, 1 ; median angle of eyes acute and a little surpassing the antennal grooves. Antennae slender, not incrassate at tip, 5th and 6th joints of antennae with an oval groove at the end of the lateral side, in the groove numerous, dense, short and fine sensitive rods. Basal joint of mandible with a short, rectangular process.

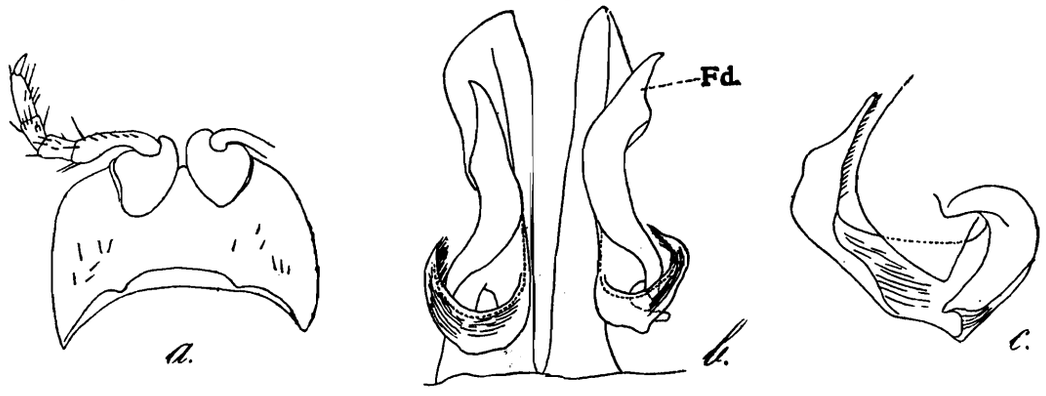
Sides of collum broad, anterior border slowly curved forwards, anterior angle less than 90° ; marginal thickening thickest in the anterior angle and well limited by a sulcus. On the under side a thick rounded roll beginning in the anterior angle. A few irregular sulci on

surface of lateral part. Along posterior border very indistinct longitudinal impressions, not sharp striae.

Anterior part of prozonite with numerous irregularly anastomosing, fine transverse striae, posterior free part shorter than the striated part, smooth and shining. Metazonites below the pores regularly, sharply, longitudinally striate, dorsally the striae become more and more shallow and the grooves become broader, one sulcus median. Surface of metazonites smooth and polished. Pores from 6th segment.

Sternites smooth with a transverse furrow in middle, not reaching lateral borders. Stigmal grooves triangular, lateral border of groove continuing over the lateral border of sternite.

Entire anal segment smooth ; tail long and straight, upper line of ring and tail not completely straight, but weakly depressed at base of tail. Anal valves arched, marginal thickening moderately high ; anal scale free, bluntly angulated, nearly straight.



TEXT-FIG. 74.—*Ktenostreptus specularis*, sp. nov. *a.* ♂ 1st leg ; *b. c.* gonopod.

Third to last legs of ♂ with 2 pads, with a sulphurous colour ; pad of tibia of conspicuous anterior and middle legs occupies the entire length, pad of postfemur leaves a small part free at base, in posterior legs basal half of postfemur and a basal piece of the tibia free ; distal end of all pads tooth-like. First legs of ♂ with enormous coxosterna, telopodites small (text-fig. 74*a*).

Gonopod coxite (text-figs. 74*b*, *c*) with a relatively narrow lamella a little widening distally. In the knee of the telopodite one large strong femoral spine (*d*) parallel to coxite. Telopodite short and broad, at its tip a branch with spines and canal and several curved lamellae.

Distribution.—India, Lucknow (♂ 54 segments) ; Ceylon (♀ 65 segments). (Coll. *Wiener Naturhist. Museum*).

Ktenostreptus centrurus (Poc.).

1892. *Spirostreptus centrurus*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 162, pl. ii, fig. 4.

I had identified *K. specularis* with *K. centrurus*, but Pocock in his descriptions of *K. centrurus* remarked : " the anterior portion (prozonite) finely striolate in front, and covered with a closely and finely reticulated pattern of smooth and low ridges behind ". In *K. specularis* the posterior part of prozonite is smooth and shining. Moreover the description of the gonopods of *K. centrurus* (Pocock did not figure them) does not agree with that of *K. specularis*. Pocock says : " Copulatory feet with anterior laminae very narrow and slender, widening distally, with its surface subcostate ; the central protrusible portion consisting of an elongate slender cylindrical rod, pointed at its distal end. From the distal fourth of its

length there springs a posterior piece, which slender at first, rapidly expands into a wide lamina bearing distally on its external angle a backwardly directed slightly curved slender pointed process fringed beneath with conspicuous hairs."

Distribution.—Ceylon.

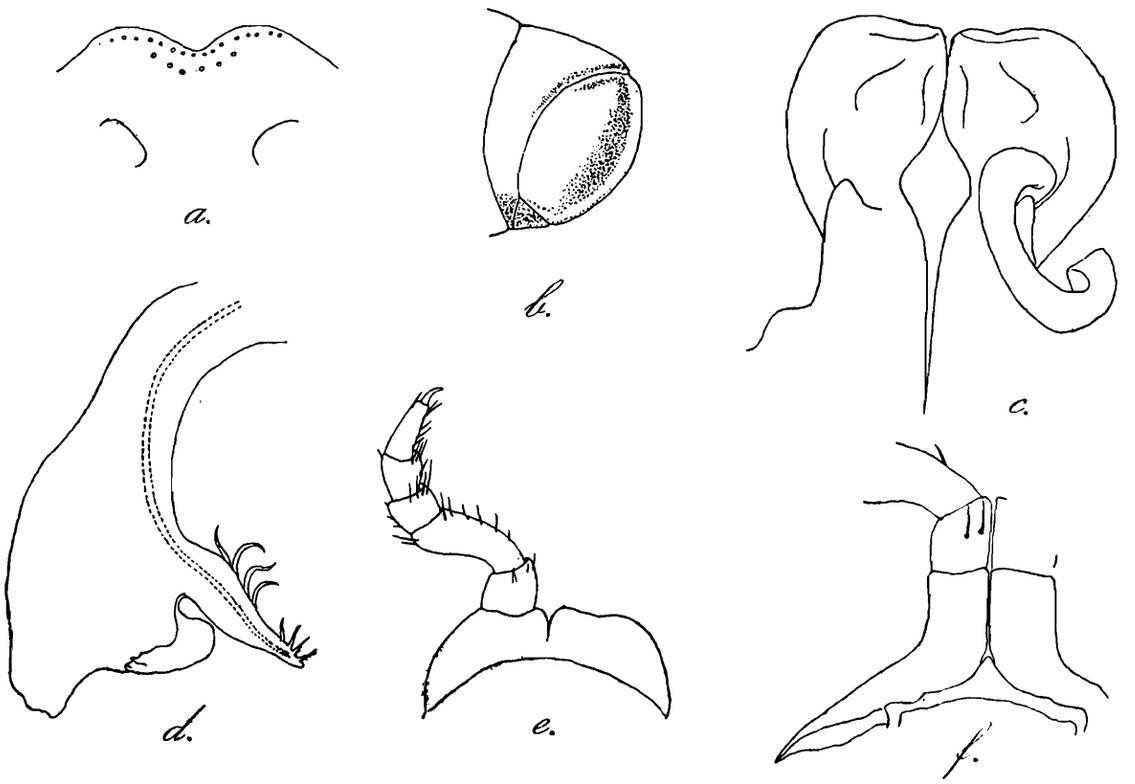
Ktenostreptus costulatus Att.

1913. *Ktenostreptus costulatus*, Attems, *Denkschr. Ak. Wiss. Wien*, LXXXIX, p. 684, figs. 14-16.

1930. *Ktenostreptus scaberrimus*, Verhoeff, *Zool. Anz.* LXXXIX, p. 202, figs. 6-9.

Labral sinus with 3 well developed teeth or not dentate (text-fig. 75*a*), number of supralabral foveolae varies considerably. I observed 1+2 (left side 1, right side 2), 2+1, 2+2, 3+2, 3+3 foveolae. Number of labral foveolae generally 15, disposition irregular. Distal half of *stipites gnathochilarii* with a finely wrinkled protuberance bearing a strong bristle. Basal joint of mandible without process. Clypeus more or less transversely folded or wrinkled, sometimes nearly smooth, sometimes deep folded. Vertex with fine polygonal wrinkles. In grooves of 5th and 6th joints of antennae close, short sensitive rods.

Verhoeff found a sieve of fine pores in the grooves at the top of these joints but this I suppose is a mistake as all species of Harpagophoridae which I know, have sensitive rods in the grooves and not a sieve. In the description of *K. costulatus* I remarked that the legs of the last 19 segments are not padded (more correctly of the last 17-19 segments), in *K. scaberrimus* the last 34 legs are not padded ; the condition is so similar that on this character no specific difference can be found between the species *K. costulatus* and *K. scaberrimus*.



TEXT-FIG. 75.—*Ktenostreptus costulatus* Att. *a.* clypeus ; *b.* anal segment ; *c. d.* gonopod ; *e.* ♂ 1st leg ; *f.* ♂ 2nd leg.

Carl supposed that *K. costulatus* and *K. lankaensis* are synonymous, but this is not correct. *K. costulatus* has no tail at all (text-fig. 75*b*), *K. lankaensis* has a short but distinct tail in the anal segment. The gonopod telopodite of *K. costulatus* (text-figs. 75*c, d*) has no process in

the knee, *K. lankaensis* has a short, broadly triangular femoral process. *K. costulatus* is much smaller, ♂ 4 mm. wide ; ♂ of *K. lankaensis* is 6·7-7 mm. wide. First leg ♂ (text-fig.75*e*) ; second leg ♂ (text-fig. 75*f*). The provenance of *K. costulatus* and *K. scaberrimus* is the same.

Distribution.—Ceylon, Kandy.

Ktenostreptus debilis, sp. nov.

Dark brown, on the dorsum a testaceous median stripe, beginning on 10th segment and extending to the anal segment. Antennae brown ; anal valves and tail testaceous.

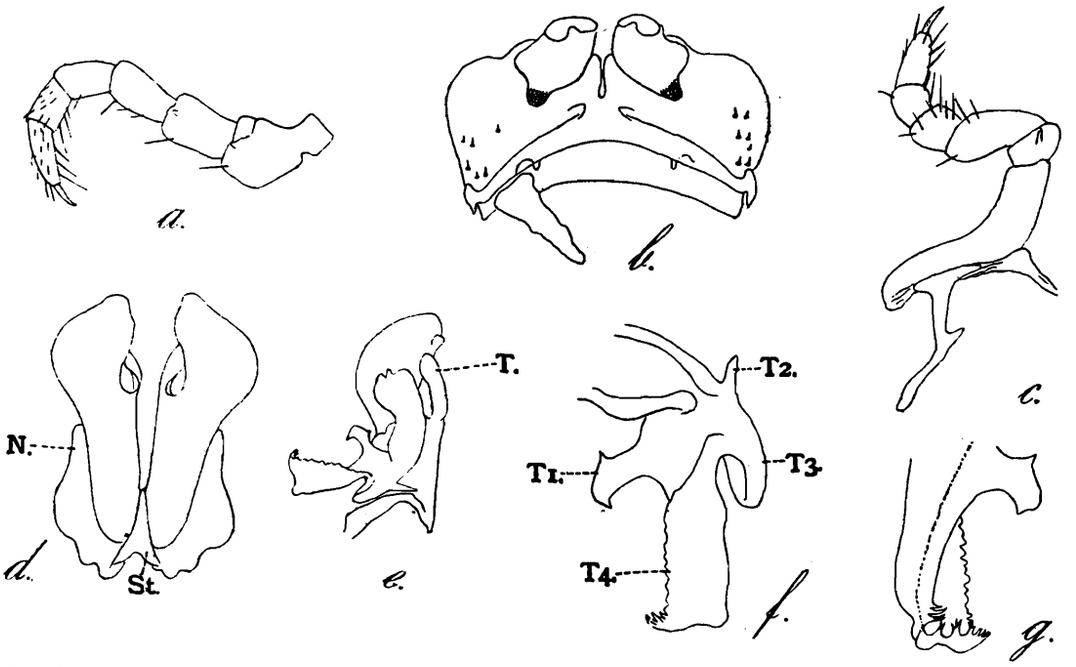
Width 3·4 mm.; 67 segments.

3 labral teeth, 2+2 supralabral foveolae ; eyes not projecting beyond the antennal sockets. Anterior border of collum straight, posterior border weakly sinuate, sides broadly rounded with narrow anterior marginal thickening, behind the margin a second furrow and between this furrow and margin a short furrow.

Anterior zone of prozonite with a network of minute striae, finely punctate ; free part smooth. Metazonite very regularly and densely and sharply striate ; 2nd segment not striate, in segments 3-5 striae reaching more and more dorsally, in segment 6 some striae above the pores, from 7th segment entire dorsum striate. Transverse suture distinct also dorsally. Diameter of pro-and metazonite equal. Pores beginning in 6th segment, situated in metazonite near the suture, in segments 6 and 7 suture curves away before the pores, in the following segments not so. Near the pore no smooth spot, striae diverging only a little. Posterior border of metazonite longitudinally striate, but entire and not fringed.

Sternites smooth ; stigmal grooves short, triangular.

Anal segment not striate, tail strong, hooked, curving upwards ; valves vaulted, marginal thickening rising gradually ; anal scale free, angular.



TEXT-FIG. 76.—*Ktenostreptus debilis*, sp. nov. *a*. ♂ 7th leg ; *b*. ♂ 1st leg (anterior view) ; *c*. ♂ 2nd leg (anterior view) ; *d*. *e*. gonopod (anterior and posterior views), *N*. lateral knob of coxa, *St*. sternite, *T*. spatula on the median side of coxa ; *f*. gonopod telopodite (posterior view), T_1-T_4 spines, lamellae, etc., at the apex of tibio-tarsus ; *g*. terminal branch enlarged.

Legs of ♂ not padded, also the 7th pair (text-fig. 76*a*) ; praefemur and femur flatly excavated. 1st legs of ♂ (text-fig. 76*b*) with a large coxosternum, limit between sternite and

coxa distinct on the anterior side, except in the middle, where it is obliterated. Modified tracheal stalks moveable at the base of sternite ; coxae coalesced in the basal half of their medial side ; laterally some short bristles.

Short buckle-shaped sternite of 2nd legs (text-fig. 76*c*) separated from coxa, base of the coxa enlarged, on each joint from the femur some bristles.

Sternite (*St*) of gonopods (text-figs. 76*d*, *e*) narrow and triangular, coxa with large lateral knob (*N*), gonocoel beginning on oral surface, medial lamella much longer than the lateral lamella ; on the median side of coxa a spatula (*T*), tip broadly rounded. At the tip of femur 2 very short knobs, one rounded, other acute. At the apex of tibio-tarsus (text-fig. 76*f*) a two-pointed lateral lobe (T_1), a straight and pointed spine (T_2), a ladle-like lamella (T_3) and the terminal branch (T_4) as a hollowed-out lamella, its posterior border bluntly toothed, its terminal border with several simple, bifid or trifid teeth ; the canal opens near these teeth (text-fig. 76*g*).

Distribution.—South India, Benhope, Nilgiris (Dr. S. L. Hora ; 23.x.25 ; 1 ex.).

Anurostreptus Att.

Anurostreptus feae Poc.

1893. *Anurostreptus feae*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 402.

Distribution.—Burma, Rangoon.

Drepanopus Verh.

Drepanopus einsleinii Verh.

1930. *Drepanopus einsleinii*, Verhoeff, *Zool. Anz.* LXXXIX, p. 193, figs. 1-5.

The gonopods of *D. einsleinii* are very similar to those of *Ktenostreptus specularis*. Verhoeff based the genus *Drepanopus* principally upon the absence of teeth in the labrum, but much stress cannot be laid upon this character because it varies in specimens of the same species ; for example, in *Ktenostreptus costulatus* the labrum is generally tridentated, yet sometimes there are specimens with labrum not dentated. The teeth of the labrum are produced by small incisions of the anterior border and if it happens that these incisions are absent, the labrum also remains undentate. I have not seen *Drepanopus einsleinii* and cannot, therefore, remark on the exact position of this genus.

Distribution.—Burma, Rangoon.

Harpurostreptus, gen. nov.

Gonopod with a long straight femoral spine, tibio-tarsus long, band-like, twisted in spirals, tip simple, not branched ; canal ending beside the row of bristles ; all bristles or a part of them colourless with tips a little broader. Metazonites dorsally only weakly or not sculptured, below the pores longitudinally striated. Prozonites with usual encircling striae occupying nearly the entire prozonites. Pores small, beginning in 6th segment, remote from the suture. Suture sharply defined. Sternites transversely striated. Stigmal grooves triangular, not or only a little longer than the sternite. Anal segment with a long acute tail, evenly curved downwards and gradually tapering. Marginal thickening of anal valves simple or with a fine furrow near the median border as in the genus *Charactopygus* or divided by a longitudinal furrow in two equal, rounded keels. Anal scale free, broadly rounded or

nearly straight. Postfemur and tibia of ♂ padded. Distal part of *stipites gnathochilarii* with a low, rounded protuberance in ♂. Basal joint of mandibles with an acute process directed medially.

Genotype.—H. hamifer (Humb.).

Key to the Species.

1. Width 2·5 mm. Thickening of anal valves divided by a furrow into two nearly equal narrow sharp keels	*H. hamifer* (Humb.).
Width 4 mm. or more. Marginal thickening of anal valves simple or with a fine furrow near the medial border in the depth, as in *Charactopygus*	2.
2. Dorsum with a reddish yellow longitudinal stripe. Striae of the metazonite present only on the ventral side, the uppermost stria widely remote from the pore. Marginal thickening of anal valves with a fine furrow as in *Charactopygus*	*H. virgatus*, sp. nov.
Dorsum without bright stripe. Striae of metazonite reaching to near the pores.	3.
3. Marginal thickening of anal valves with a fine furrow near the median border. Dorsum of metazonites with irregular short or long, straight or oblique, striae. Marginal thickening of collum divided by a furrow parallel to the margin	*H. exaratus*, sp. nov.
Marginal thickening of anal valves simple. Metazonites dorsally without distinct sculpture, only finely punctate. Marginal thickening of collum simple	*H. robustior*, sp. nov.

Harpurostreptus hamifer (Humb.).

1866. *Spirostreptus hamifer*, Humbert, *Mém. Soc. Genève*, XVIII, p. 52, pl. iv, fig. 22.

Colour yellowish brown ; each metazonite with a dark brown circle in the middle, sharply limited behind and gradually vanishing anteriorly. In the middle of the dorsum a row of small, circular, yellowish white spots, more or less distinct according to the individuals.

Width ♂ 2·5 mm.; 54-57 segments (Humbert says 60).

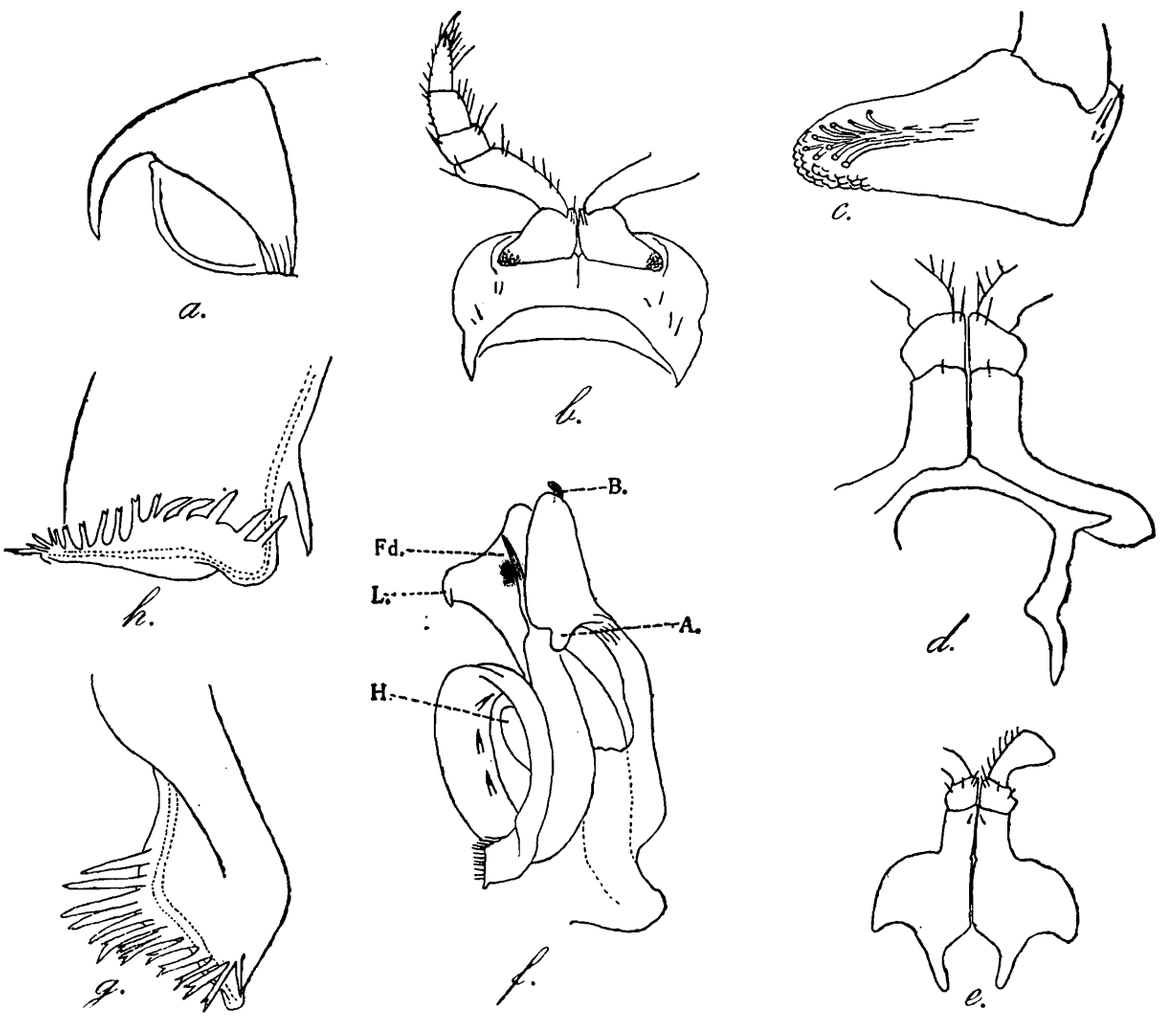
Head smooth, labral sinus moderately deep with 3 teeth, 5 large supralabral setiferous equidistant foveolae. Vertical line very fine, no interocular line, median angle of eyes not reaching as far medially as the antennal groove. The sensitive rods of 5th and 6th joints of antenna partially projecting out of the groove. *Stipites gnathochilarii* in ♂ anteriorly with a low, rounded protuberance bearing a short bristle. Basal joint of mandible of ♂ with an acute hook directed medially.

Sides of collum broad, anterior border weakly curved forwards ; angle broadly rounded, from eyes to the posterior angle a broad sharply limited marginal thickening. No furrows laterally.

Prozonite with fine, punctate, encircling striae, running straight to sternite, distances between striae increasing gradually backwards. Free part of prozonite and dorsum of metazonite dull but without distinct sculpture. Segments cylindrical ; suture sharp, in the suture dorsally a row of minute punctures. Below the pores metazonites striated ; 3 or 4 of the striae immediately below the pore are reduced to very short striae at the suture. Sternites transversely striated, striae regular and like the striae on the ventral side of prozonite.

Stigmal grooves triangular, lateral border nearly in line with the lateral border of sternite. Anal ring with a long pointed evenly curved tail (text-fig. 77*a*) ; anal valves well arched ; marginal thickening separated from surface by a furrow and divided by a sulcus into two nearly equal narrow acute keels ; anal scale nearly straight, without distinct median angle.

In coxosternum of 1st legs of ♂ (text-fig. 77*b*) no limits visible between sternite and coxae ; in distal half of coxosternum a median suture. Base of praefemur broadly expanded laterally, with fine squamous sculpture. In the interior of praefemur a bundle of cuticular gland-canals diverging finally with openings scattered over the lateral expansion (text-fig. 77*c*).



TEXT-FIG. 77.—*Harpurostreptus hamifer* (Humb.). *a.* anal segment ; *b.* ♂ 1st leg ; *c.* ♂ praefemur of 1st leg ; *d.* ♂ 2nd leg ; *e.* ♀ 2nd leg ; *f. g. h.* gonopod, *A.* rounded lobe near knee of telopodite, *B.* curved spine on medial lobe of coxa, *Fd.* femoral spine in the knee of telopodite, *H.* lappet of posterior lamella, *L.* hook of lateral lobe of coxite ; *h.* spines of gonopod-tarsus.

Sternite of 2nd legs of ♂ (text-fig. 77*d*) a small transverse buckle coalesced with tracheal stalks or supports. Bases of coxae widely expanded laterally, praefemur not coalesced with coxa. Postfemur and tibia of anterior legs padded, posterior legs not padded. 2nd legs of ♀ (text-fig. 77*e*).

The gonopod gonocoel opens at the postero-lateral side. Posterior lamella (text-fig. 77*f*) ending in a bluntly rounded lappet (*H*). Tip of coxa divided by a sinus into a medial and a lateral lobe ; on the anterior surface of medial lobe near its tip a short, blunt, curved

spine (*B*). Near the knee of telopodite a rounded lobe (A) directed basally ; lateral lobe expanded laterally, with an acute hook (*L*) at the top of the expansion. In the knee of the telopodite a long, straight, slender and pointed femoral spine (*Fd*). Tibio-tarsus broad, band-like, twisted in a spiral ; in the middle 3 acute spines, tip not branched, on the terminal border a row of spines ; some spines are colourless and slightly broader at the tip, others dark coloured and pointed. The canal runs along the terminal border and ends in a small process (text-figs. 77*g. h*).

Distribution.—Ceylon, Kandy (Coll. *Wiener Naturh. Museum*, collected during the expedition of Erzherzog Franz Ferdinand).

Harpurostreptus robustior, sp. nov.

Dark reddish brown, segments with a broad, gold-yellow posterior border ; head to vertex, legs and ventral side yellowish brown ; antennae black.

Width 4 mm.; 54 segments.

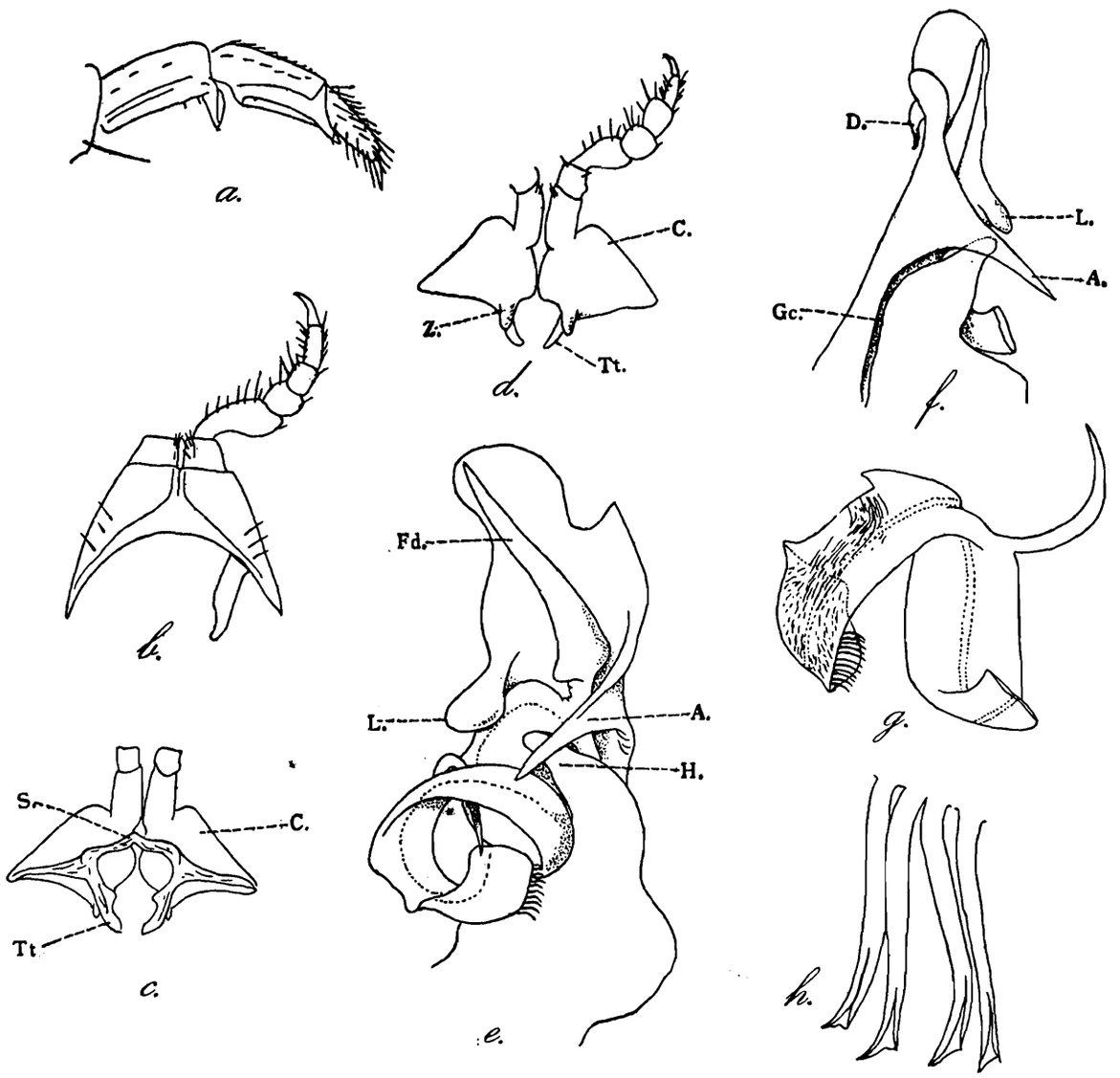
Head smooth, labral sinus moderately deep, with 3 teeth, 3+3 small supralabral foveolae ; vertical line very fine, no interocular line, median angle of eyes projecting a little beyond the antennal groove ; ocelli moderately convex. Tip of antennae a little compressed, in cross section oval, sensitive rods of 5th and 6th joints concealed in grooves. *Stipites gnathochilari* in ♂ with a low protuberance as in *H. hamifer* ; in the ♀ the *stipites* are even, without a protuberance. Basal joint of mandibles in ♂ with an acute hook, directed medially.

Sides of collum broad, with broad simple marginal thickening, posterior border very slowly sinuate, laterally no furrows. Segments cylindrical.

Prozonites with numerous, regular, punctate encircling striae, running straight to sternite, distance between last stria and suture short, only a little longer than the preceding. Suture sharp ; in the suture or immediately behind it dorsally a row of minute punctures ; below the pore one puncture, followed by the regular longitudinal striae. Dorsum of metazonites with microscopical openings of cuticular glands, without distinct sculpture. Pores small, situated a little before the middle. Sternites transversely striated. Stigmal grooves triangular. Anal segment with a long evenly downwardly curved tail as in *H. hamifer*. Marginal thickening of anal valves rather small, simple without sulcus, etc., separated from surface by a shallow broad groove ; anals cale nearly straight ; ventral side of anal ring transversely striate similar to sternites.

In ♂ postfemur and tibia of legs padded. The pads are present near the posterior end of body, the last legs are wanting and the number of unpadded legs, therefore, cannot be determined. In anterior legs pads large, with top curved down at a right angle (text-fig. 78*a*). Bristles of the legs generally sparse ; coxa, praefemur and femur each with one long tactile bristle, postfemur, tibia and tarsus above with short hairs, tarsus also below with bristles. 1st legs of ♂ as in *H. hamifer*. In ♀ 1st legs (text-fig. 78*b*) with a similar coxosternum, its distal half divided by a suture, no distinct limit between coxa and sternite. Praefemora sitting on the straight distal border of the coxosternum. Sternite (text-fig. 78*c*) of 2nd legs of ♀ a small narrow buckle coalesced with the tracheal stalks or supports (*Tt*) ; coxae (*c*) separated, basal part of each coxa widely expanded laterally and well set down from the distal cylindrical part ; it appears as if every part belongs to a different

joint ; at posterior basal border a short blunt process (text-fig. 78*d* ; *Z*). Praefemur short, distinctly separated from coxa both anteriorly and posteriorly.



TEXT-FIG. 78.—*Harpurostreptus robustior*, sp. nov. *a*. ♂ 7th leg ; *b*. ♀ 1st leg ; *c*. ♀ 2nd leg (anterior and posterior views), *C*. coxae, *S*. sternite, *Tt*. tracheal stalks, *Z*. blunt process at posterior basal border ; *e*. *f*. *g*. *h*. gonopod, *A*. *D*. *L*. processes of coxite, *Fd*. femoral spine, *Gc*. gonocoel, *H*. rounded lobe of posterior lamella of coxite.

The gonocoel (text-fig. 78*e-h* ; *Gc*) opens near the lateral border on the posterior side. Tip of coxite divided in a smaller medial and a larger lateral lobe ; on the anterior surface of the lateral lobe, an acute hook, directed basally (*D*), in the middle of lateral side a rounded lobe (*L*), at the medial side a long, pointed, straight process (*A*), directed obliquely laterally and corresponding to the small rounded lobe of *H. hamifer*. Posterior lamella ending in a rounded lobe (*H*). In the knee of telopodite a strong straight pointed femoral (*Fd*) spine (text-fig. 78*f*), as long as the tip of coxite. Tibio-tarsus broad, band-like,twisted in a spiral, in the middle of the spiral a long very slender acute curved spine (text-fig. 78*g*). Tip simple, not branched, with a row of spines laterally, all spines colourless and a little broader at tips (text-fig. 78*h*).

Distribution.—Ceylon (Coll. *Wiener Naturhist. Museum*).

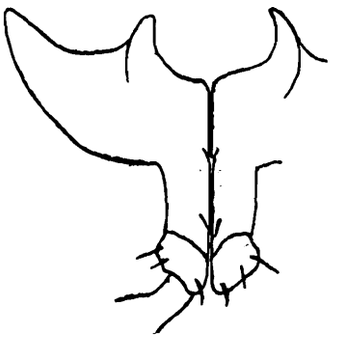
Harpurostreptus virgatus, sp. nov.

Dark reddish brown with a yellowish band in the middle of dorsum, beginning in 3rd-7th segments and comprising the whole tail ; segments with broad gold-yellow posterior border ; antennae, marginal thickening of collum and legs yellowish brown.

Width 4·8 mm.; 51 segments.

Labral sinus semicircular with 3 very small teeth, 3+3 setiferous supralabral foveolae. Head smooth, vertical line very weak, no interocular line, median angle of eyes greatly surpassing the antennal grooves. *Stipites gnathochilarii* without protuberance (♀).

Sides of collum broad, anterior angle broadly rounded, marginal thickening of anterior border very broad but not high, lateral thickening much narrower with some longitudinal furrows on under side, no furrows behind the thickening on dorsal side. Prozonites with numerous punctate striae, running straight to sternite, distance between last stria and suture short. Suture sharp. Contiguous to the suture dorsally a row of minute punctures, smaller and less distinct than in *H. robustior* ; below the pores these punctures are nore distinct. Longitudinal striae of metazonites confined to ventral side, and the first stria is, therefore, widely remote from the pore. Dorsal surface of metazonites dull, with microscopic punctures—openings of cuticular glands—and very weak irregular longitudinal or oblique, short or longer striae, not indentical with the striae below the pores. Pores small, situated before the middle. Sternites strongly striated transversely. Stigmal grooves triangular ; lateral border in line with the lateral border of sternite.



TEXT-FIG. 79.—*Harpurostreptus virgatus*, sp. nov. ♀ 2nd leg (posterior view).

Anal segment with a tail like that of *H. hamifer* or *H. robustior*. Marginal thickening of anal valves separated from the surface by a transversely wrinkled zone ; near the median border of thickening a fine furrow. The fine ridge separated by the furrow lies much deeper than the rest of the thickening, as in the genus *Charactopygus* ; in *H. hamifer* the thickening is divided by a sulcus and the two resulting keels are equal. Anal scale nearly straight ; ventral side of anal ring transversely striated.

1st legs of ♀ as in *H. robustior*. Basal half of second legs of ♀ widely expanded laterally ; at the base no rounded tap-like process but this part only a little curved (text-fig. 79). ♂ unknown.

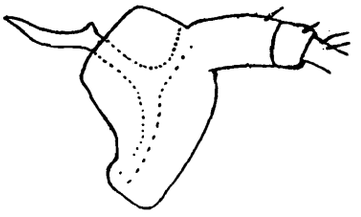
Distribution.—South India, Genji, Coromandel (Coll. *Wiener Naturhist. Museum*).

Harpurostreptus exaratus, sp. nov.

Black or blackish brown, broad posterior border of segments golden yellow ; antennae and legs reddish brown.

Width 4·2 mm.; 68 segments.

Head smooth, labral sinus shallow with 3 teeth, 3+3 setiferous supralabral foveolae, vertical line very fine ; no interocular line, median angle of eyes not extending beyond the antennal grooves ; sensitive rods of 5th and 6th joints of antennae concealed in the grooves. *Stipites gnathochilarii* without protuberance (♀). Marginal thickening of collum divided by a furrow into a smaller anterior and a broader posterior roll, anterior roll sometimes further divided by a second furrow, the under side of lateral thickening longitudinally striated, on dorsum in the sides some short furrows. Prozonites with usual punctate, encircling striae, distance between last stria and suture short. Dorsum of metazonites with distinct, irregular, longitudinal or oblique, short or long striae and a row of small punctures close to sharp suture. Immediately below the pores begin the usual, regular, longitudinal striae. Pores small, situated before the middle. Sternites transversely striated, anterior striae fine, last two striae stronger. Stigmal grooves triangular. Entire anal segment finely wrinkled, ventral side of ring transversely striated. Tail like that of *H. robustior* or *H. virgatus*. In the thickening of the anal valves near the median border a fine furrow as in *Charactopygus*. Anal scale broadly arcuate, nearly straight.



TEXT-FIG. 80.—*Harpurostreptus exaratus*, sp. nov. ♀ 2nd leg.

1st legs as of ♀ of *H. robustior*, etc. Basal half of coxa of 2nd legs of ♀ (text-fig. 80) widely expanded, at the base no process. 2nd legs of all species of *Harpurostreptus* are somewhat different and the females of this genus can be distinguished only by the second legs. ♂ unknown.

Distribution.—South India, Genji, Coromandel (Coll. *Wiener Naturhist. Museum*).

Leptostreptus, gen. nov.

Pores beginning in 5th segment. Gonopods with one femoral spine rising before the knee. Canal opens in the branch bearing a row of strong, hooked bristles or soft, irregular hairs. Tibio-tarsus moderately long, curved in a circle or semicircle, not twisted in a spiral, cylindrical to the terminal lamellae.

Stigmal grooves short, triangular. Anal ring bluntly angled, not surpassing the anal valves. Segments cylindrical ; suture sharp ; dorsally with a row of minute foveolae or costulae. Metazonites dorsally smooth ; prozonites with the usual encircling striae. Mentum of ♂ and ♀ with a groove, sharply limited posteriorly by an edge. *Stipites gnathochilarii* of the ♂ with a rounded protuberance. Basal joint of mandible of ♂ with a triangular, acute process. Postfemur and tibia of legs of ♂ padded.

Genotype.—L. fuscus, sp. nov.

The two species can be distinguished as follows :—

L. fuscus, sp. nov.—Metazonites striated only ventrally, first stria widely remote from the pore. Sternites transversely striated. 6 supralabral foveolae. ♂ 71 segments. Gonopod with a row of strong, hooked bristles, in the middle of gonopod tibio-tarsus a very large lobe.

L. leviventer, sp. nov.—Metazonites striated up to the pores. Sternites smooth. 4 supralabral foveolae. ♂ 50 segments. Terminal lobe of gonopod with numerous, soft hairs instead of hooked bristles. Tibio-tarsus without such large lobe in the middle.

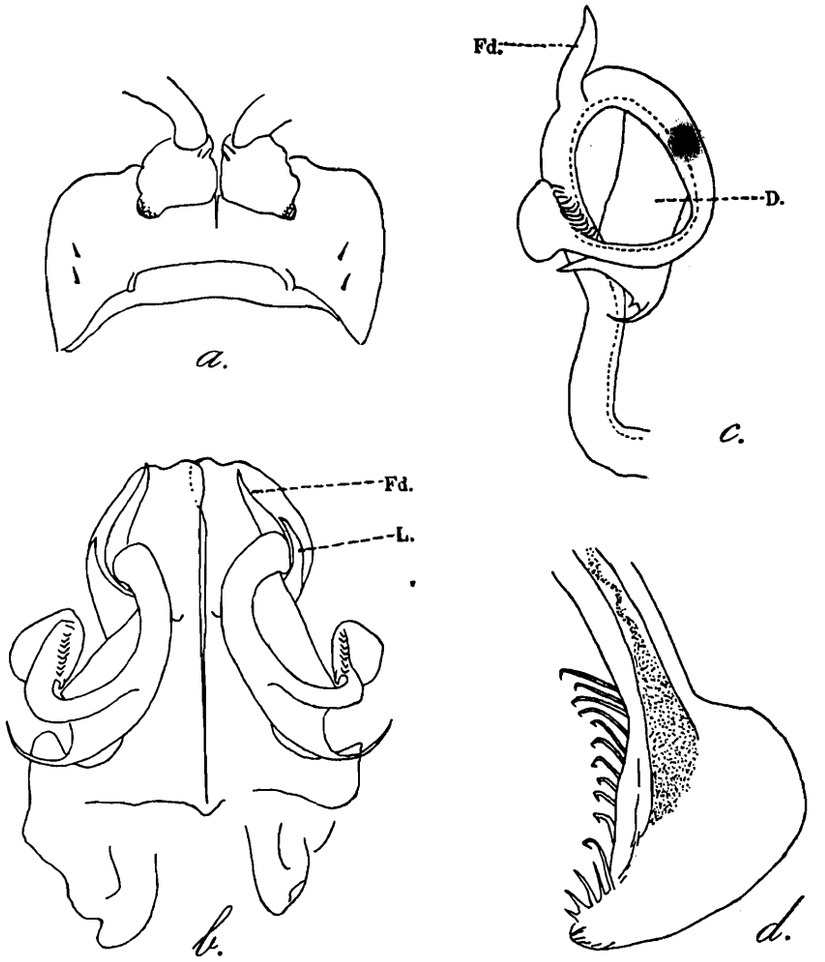
Leptostreptus fuscus, sp. nov.

Dorsum fuscous, posterior half of each metazonite olive, trunk therefore more or less annulated, ventral side and legs yellowish brown.

Width ♂ 2·5 mm., ♀ 3 mm.; body very slender ; ♂ 71 segments.

Labral sinus moderately deep, 3 teeth, 6 supralabral foveolae, head smooth, vertical line very fine, scarcely visible, no interocular line, median angle of eyes not surpassing the antennal groove. *Stipites gnathochilarii* of ♂ with a low, rounded protuberance ; mentum of ♂ and ♀ with a broad groove, sharply limited posteriorly by an edge. Basal joint of mandible of ♂ with a triangular, acute process.

Sides of collum broad, with narrow marginal thickening and a fold behind the margin ; in the sides some short fine striae. Segments cylindrical ; fine, punctate, encircling striae of prozonite occupying the anterior two thirds and running straight to sternite. Free part



TEXT-FIG. 81.—*Leptostreptus fuscus*, sp. nov. *a.* ♂ 1st legs coxosternum ; *b. c. d.* gonopod, *D.* lobe of tibio-tarsus, *Fd.* femoral spine, *L.* horn of posterior lamella of coxite.

of prozonite and dorsum of metazonite smooth ; suture sharp, dorsally with a row of small foveolae or costulae. Longitudinal striae of the metazonites present only on ventral side,

the uppermost stria, therefore, widely remote from the pore. Pores small, in 5th segment near the suture ; in succeeding segments further removed ; suture not sensibly curved away before the pores.

Sternites with several transverse striae ; stigmal grooves triangular. Dorsal border of anal segment bluntly angulated, without any tail. Marginal thickening of anal valves thick, moderately high, simple, beside the thickening a shallow furrow. Anal scale broadly angulated. Anterior legs of ♂ padded, posterior legs not padded. Coxosternum of 1st legs of ♂ (text-fig. 81*a*) broader than long, with lateral shoulders ; no distinct limits between coxae and sternite, praefemur with rounded anterior basal lobe. In ♀ coxosternum with oblique lateral borders, and therefore without shoulders. Praefemur without basal lobe. Sternite of 2nd legs a small buckle coalesced with the tracheal stalks or supports ; base of coxa broadly expanded laterally, on the aboral side small intercalar plates, praefemur distinctly separated. In ♀ coxa longer on the aboral side but no intercalar plates.

Gonopods (text-fig. 81*b*)—tip of coxite forms a broad, rounded lamella ; posterior or lateral lamella ends in an acute horn (*L*), projecting close on the lateral side of the telopodite knee. Strong femoral spine (*Fd*) rises before the knee. Tibio-tarsus cylindrical, curved, in its middle (text-fig. 81*c*) a long and broad lobe (*D*) with parallel sides, and a very slender acute horn in each angle. At the tip of telopodite a rounded lamella bearing a row of strong hooked bristles ; the canal opens beside these bristles (text-fig. 81*d*).

Distribution.—Ceylon (Coll. *Wiener Naturhist. Museum*).

Leptostreptus leviventer, sp. nov.

Original colour not distinguishable, preserved specimens gray and dark brown, annulated.

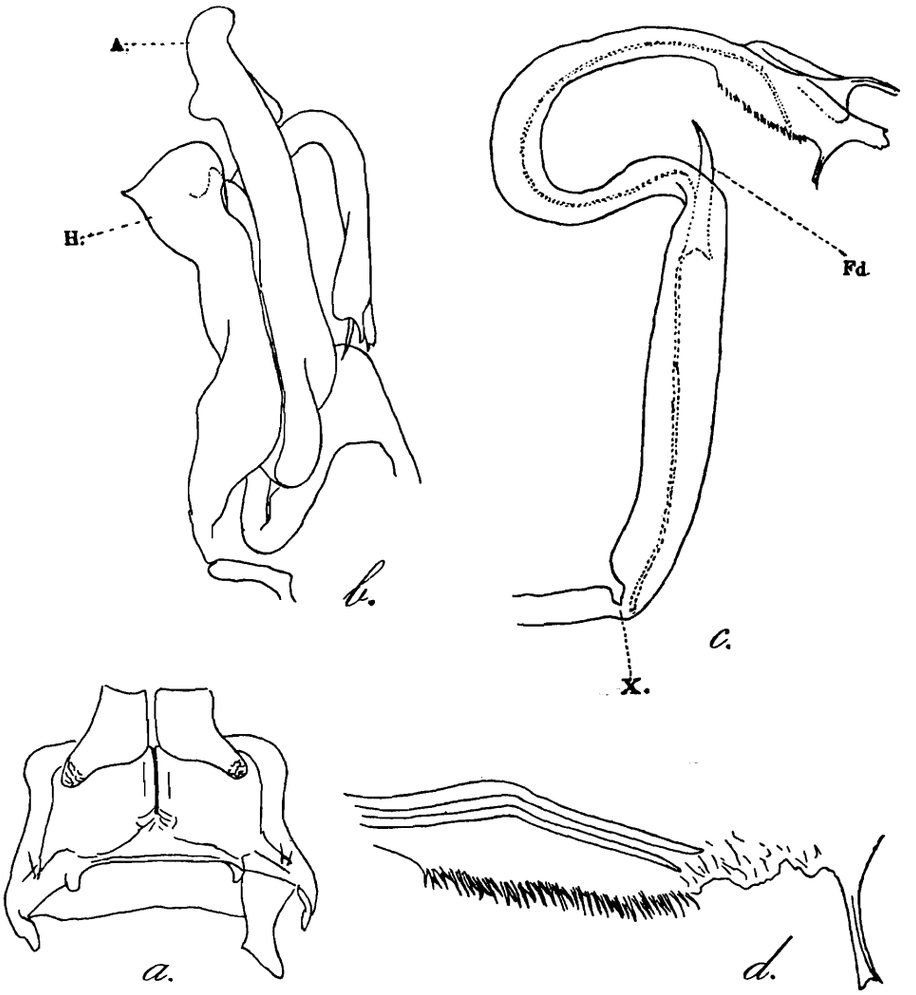
Antennae black, legs brownish yellow.

Width ♂ 2·2 mm., ♀ 3 mm. ; ♂ 50 segments, ♀ 49-52 segments.

Head smooth, labral sinus shallow, 3 labral teeth ; 4 supralabral foveolae ; vertical line very weak, no interocular line, median angles of eyes a little projecting beyond the antennal grooves. *Stipites gnathochilarii* of ♂ with a rounded protuberance in distal half. Mentum in ♂ and ♀ with a broad groove sharply limited posteriorly by an edge. Basal joint of mandible of ♂ with a triangular, acute process. Terminal joints of antenna oval in cross-section, sensitive rods of 5th joint a little longer than the groove. Sides of collum with broad anterior and lateral borders at right angle, corner rounded, marginal thickening narrow, behind it a strong fold. Anterior half of prozonite with few, regular, finely punctate, encircling striae running straight to sternite, posterior half of prozonite and entire metazonite smooth. Segments cylindrical. Suture sharp, with a row of fine punctures dorsally, below the pore one puncture, further on the metazonites are finely striate. Pores small, beginning in 5th segment, first pores near the suture, then gradually remote from it but remaining widely remote from the middle. Sternites not transversely striate, with a polygonal network of microscopical fine striae. Stigmal grooves triangular.

Dorsal border of anal segment bluntly angulated, without a tail. Marginal thickening of anal valves simple, thick, moderately high, rising suddenly, no furrow beside the thickening. Anal scale rounded.

Postfemur and tibia of anterior legs padded, pads large, acutely lobate at tip. Coxosternum of 1st legs of ♂ (text-fig. 82*a*) relatively narrow, nearly quadrate, anterior basal lobe of the praefemur long, with squamous structure.



TEXT-FIG. 82.—*Leptostreptus leviventer*, sp. nov. *a*. ♂ 1st legs coxosternum ; *b*. *c*. *d*. gonopod, *A*. medial lamella, *Fd*. femoral spine, *H*. lateral or posterior lamella, *X*. limit between praefemur and femur.

Gonopods—the gonocoel (text-fig. 82*b*) opens at the posterior side ; longer anterior or medial lamella (*A*) slender, tip rounded and slightly curved medially, laterally a rounded knob ; lateral or posterior lamella (*H*) divided by a sinus into a broad rounded posterior and a small anterior lobe, posterior lobe with a lateral acute triangle. Limit between praefemur and femur very distinct (text-fig. 82*c* ; *X*). Before the knee a slender, acute femoral spine (*Fd*) visible only when the telopodite is drawn out of the coxite. Tibio-tarsus cylindrical, curved, at the tip 3 lamellae. The lateral border of one branch is beset with numerous soft hairs, distributed irregularly and not in a row (instead of a regular row of strong hooked bristles) and the canal opens in the same branch (text-fig. 82*d*).

Distribution.—Peninsular India, Bombay Presidency, Matheran near Bombay (Coll. *Wiener Naturhist. Museum*).

Stenurostreptus Carl.

Stenurostreptus falcatus, sp. nov.

Black, anterior stripe of the head, antennae and legs testaceous.

Width 3·5 mm. ; 75 segments.

2+2 supralabral foveolae, vertical sulcus distinct, no interocular line, median angle of eyes acute, not projecting beyond the antennal socket; labral sinus and labral teeth normal.

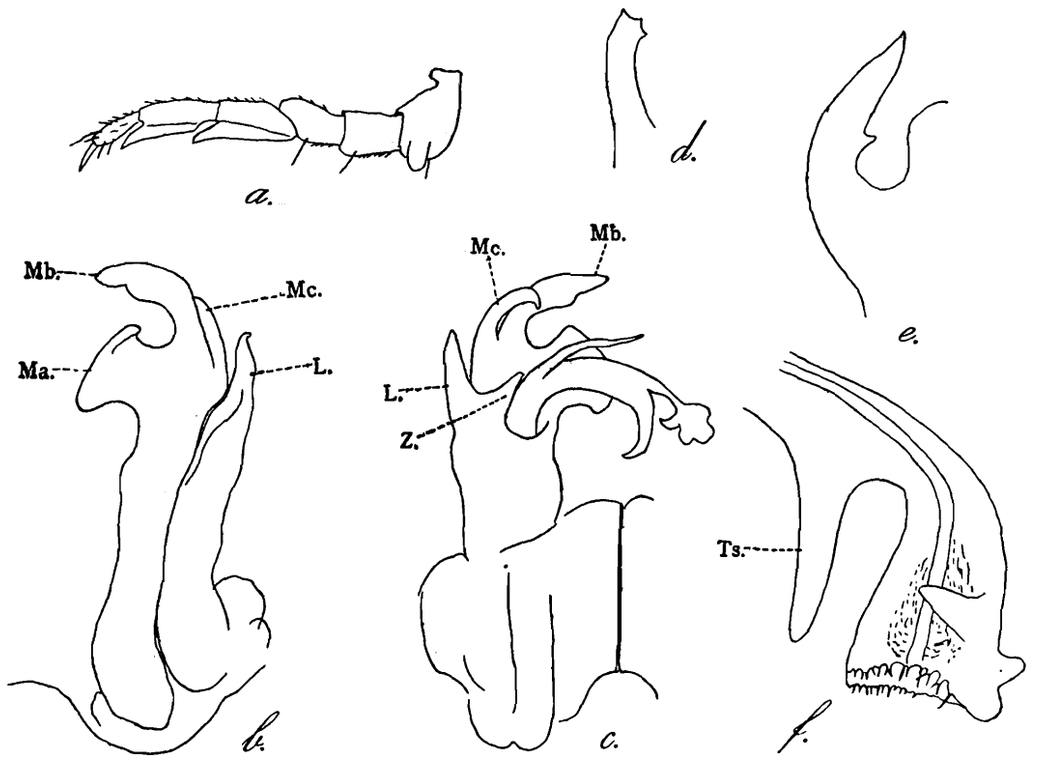
Anterior border of collum sinuate laterally, rounded and thickly marginated, anterior angle a little protruding; a strong furrow remote from margin.

Anterior half of prozonite with some finely punctate, transverse striae; posterior half smooth. Metazonite dorsally very finely punctate, smooth and polished, fine longitudinal striae nearly reaching the pores. In the transverse suture very short edges, resembling those of *S. crenulatus*. Pores very small, in the anterior segments the suture curves away before the pores, in the posterior segments the pores are widely remote from the suture.

Sternite with a network of fine striae, but not deeply sulcate. Stigmal grooves short, triangular, not longer than the coxa.

Dorsal border of anal ring flatly angular; marginal thickening of the anal valves moderately high and broad, not sharply limited; anal scale short, rounded, free.

Coxa of 7th legs with a short and broad process. Tibia and postfemur of all legs from 3rd pair padded (text-fig. 83*a*).



TEXT-FIG. 83.—*Stenurostreptus falcatus*, sp. nov. *a.* ♂ 7th leg; *b. c. d. e. f.* gonopod, *L.* lateral lamella, *Ma, Mb, Mc.* the three branches of the medial lamella, *Ts.* tibial spine, *Z.* aboral tooth of lateral lamella.

Coxa of gonopod (text-figs. 83*a, c*) laterally without large knob. The lamella (*L*) limiting the gonocoel laterally terminated by a large tooth, in addition on the aboral side a small tooth (*Z*). The medial lamella is divided into 3 branches, one branch (*Ma*) broad, hatchet-like, other two branches (*Mb, Mc*) slender, simple or with a little lateral tooth (text-figs. 83*d, e*). One long femoral spine in the knee. Tibio-tarsus (text-fig. 83*f*) short, one large tibial spine (*Ts*) present, middle hook smaller, terminal lamella irregularly dentate, fringed and striate, without spines; the canal opens in the terminal lamella.

Distribution.—Assam, Tura, 1,200-1,500 feet, Garo Hills (Dr. S. W. Kemp; vi-vii.17; 1 ex.).

Stenurostreptus crenulatus, sp. nov.

Black ; a broad anterior stripe of head dark brown ; antennae dark brown, legs testaceous.

Width 4 mm. ; 68 segments.

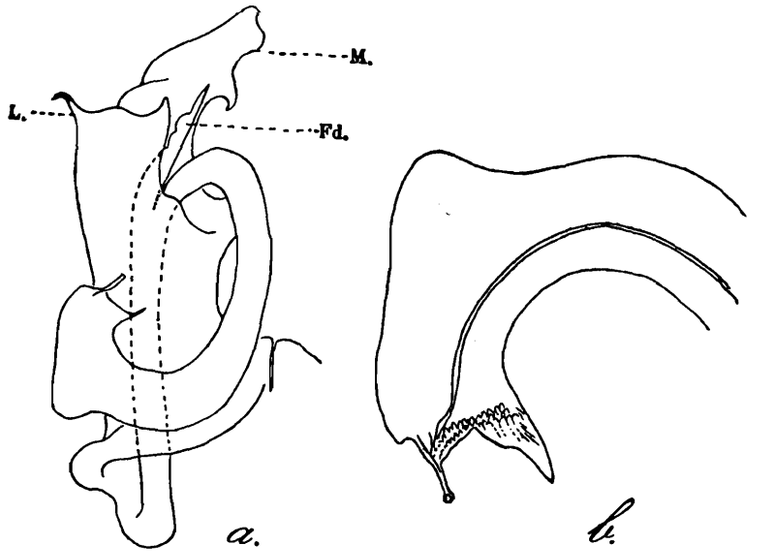
Anterior part of clypeus finely punctate and longitudinally wrinkled, wrinkles very rough in the middle ; 2+2 supralabral foveolae ; vertex smooth and shining ; vertical sulcus deep, interocular line very fine ; median angle of eyes not projecting beyond the antennal socket. Basal joint of mandible with a triangular acute process. Anterior border of collum distinctly sinuate, rounded anterior corners, therefore, more or less protruding, lateral marginal thickening narrow ; behind the margin one strong furrow.

Anterior half of prozonites with few, *ca.* 6, finely punctate, irregular but not anastomosing transverse striae, posterior half smooth. Metazonites below the pores striate, each stria ending anteriorly with a little edge ; these edges alone are continued over the whole dorsum ; the rest of the metazonites dorsally finely punctate, smooth and shining. Pores beginning in 6th segment, behind and near the transverse suture, suture curving away before the pores of 6th segment, not distinctly curving away on the succeeding segments. No transparent punctures.

Sternites smooth. Stigmal grooves short, triangular, only slightly longer than half the coxa.

Dorsal border of anal ring bluntly angled, reaching to the base of marginal thickening of valves ; valves vaulted, densely punctate ; marginal thickening low ; anal scale free.

Coxa of the posterior legs of each segment with a low rounded knob. Tibia of all legs from the third pair with a large pad, pad of postfemur vanishing on some of the last legs.



TEXT-FIG. 84.—*Stenurostreptus crenulatus*, sp. nov. *a. b.* gonopod, *Fd.* femoral spine ; *L.* lateral lamella, *m.* medial lamella.

Proximal part of the gonocoel opening on anterior side of the coxa, distal part on posterior side. Lateral (*L*) lamella (text-fig. 84*a*) limiting the gonocoel, much shorter than medial ; medial lamella (*M*) with a curved tooth. No lateral knob at the base of the coxa. Femoral spine rising (*Fd*) before the knee, straight, bluntly notched. Tibio-tarsus describing three quarters of a circle, tip enlarged with a triangular lappet and a slender canal branch ; distal stripe squamous ; no spines (text-fig. 84*b*).

Distribution.—Bombay Presidency, Panchgani, 4,000-4,500 feet, Western Ghats (Rev. E. Blatter, S. J. ; 1925-29 ; 4 exs.).

In agreement with Carl I suppose that the absence of spines on the gonopods is a secondary character and that the genus *Stenurostreptus* belongs to the family Harpagophoridae. Although the principal character of this family is wanting, all other characters and the geographical distribution prove its affinity with the Harpagophoridae. It may be noted here that hitherto no species of Spirostreptidae have been found in India.

The new species are easily distinguishable from *S. stenorhynchus*. The latter has a tail curving upwards, the sternites are strongly sulcate, the width of the body is much larger, 11 mm., the short edges beginning in the transverse suture present in the new species are wanting in *S. stenorhynchus*. The gonopods of all 3 species are quite different.

Stenurostreptus stenorhynchus (Poc.)

1893. *Spirostreptus stenorhynchus*, Pocock, *Ann. Mag. Nat. Hist.* (6) XI, p. 250, pl. xvi, fig. 1.

1917. *Stenurostreptus stenorhynchus*, Carl, *Rev. Suisse Zool.* XXV, p. 398, figs. 19-22.

Distribution.—Ceylon, Punduloya.

Doubtful species of Harpagophoridae.

Gonoplectus Chamb.

Gonoplectus carletoni Chamb.

1921. *Gonoplectus carletoni*, Chamberlin, *Ann. Mag. Nat. Hist.* (9) VII, p. 66.

Distribution.—N. India.

Remarks.—Without drawings the position of the genus *Gonoplectus* cannot be properly determined.

The following species, described as *Spirostreptus* but undoubtedly not belonging to this genus, are undistinguishable.

Spirostreptus allevatus Karsch

1881. *Spirostreptus allevatus*, Karsch, *Zeitschr. Ges. Naturw.* LIV, p. 27.

Distribution.—Siam.

Spirostreptus asthenes Poc.

1892. *Spirostreptus asthenes*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 161.

Distribution.—South India, Madras.

Spirostreptus bowringii Poc.

1893. *Spirostreptus bowringii*, Pocock, *Journ. Linn. Soc. London*, XXIV, p. 321.

Distribution.—Siam.

Spirostreptus caudiculatus Karsch

1881. *Spirostreptus caudiculatus*, Karsch, *Zeitschr. Ges. Naturw.* LIV. p. 27.

1892. *Spirostreptus caudiculatus*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 160.

Distribution.—Ceylon ; South India, Madras.

Spirostreptus ceilanicus Brandt.

1841. *Spirostreptus ceilanicus*, Brandt, *Rec. Mem.* p. 92.

Distribution.—Ceylon.

Spirostreptus cinctatus Newp.

1844. *Spirostreptus cinctatus*, Newport, *Ann. Mag. Nat. Hist.* XIII, p. 271.

Distribution.—India.

Spirostreptus contemptus Karsch

1881. *Spirostreptus contemptus*, Karsch, *Zeitschr. Ges. Naturw.* LIV, p. 29.

Distribution.—Ceylon.

Spirostreptus doriae Poc.

1896. *Spirostreptus doriae*, Pocock, *Ann. Mus. Genova*, XXXVI, p. 405.

Distribution.—Burma, Bia-Po.

Spirostreptus gestri Poc.

1896. *Spirostreptus gestri*, Pocock, *Ann. Mus. Genova*, XXXVI, p. 402.

Distribution.—Burma, Blapoo, Mt. Mooleyit.

Spirostreptus insculptus Poc.

1892. *Spirostreptus insculptus*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 163, pl. ii, fig. 8.

Distribution.—Ceylon.

Spirostreptus jerdani Poc.

1892. *Spirostreptus jerdani*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 161.

Distribution.—South India, Madras.

Spirostreptus kandyanus Humb.

1866. *Spirostreptus kandyanus*, Humbert, *Mém. Soc. Genève*, XVIII, p. 49, pls. iv, v, fig. 20.

Distribution.—Ceylon, Peradeniya, Kandy.

Spirostreptus maculatus Newp.

1844. *Spirostreptus maculatus*, Newport, *Ann. Mag. Nat. Hist.* XIII, p. 270.

Distribution.—India, Bengal, Calcutta.

Spirostreptus malabaricus Gerv.

1847. *Spirostreptus malabaricus*, Gervais, *Ins. Apt.* IV, p. 165.

1892. *Spirostreptus malabaricus*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 158.

Distribution.—South India, Malabar, Courtallum.

Spirostreptus modestus Humb.

1866. *Spirostreptus modestus*, Humbert, *Mém. Soc. Genève*, XVIII, p. 53, pl. v, fig. 23.

Distribution.—Ceylon, Peradeniya.

Spirostreptus oatesi Poc.

1893. *Spirostreptus oatesi*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 404.

Distribution.—Burma, Double Island, S. of Amherst.

Spirostreptus regis Poc.

1889. *Spirostreptus regis*, Pocock, *Journ. Linn. Soc. London*, XXIII, p. 397, pl. xxv, fig. 3.

Distribution.—Mergui Arch., King Island.

Spirostreptus tavoiensis Poc.

1893. *Spirostreptus tavoiensis*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 405.

Distribution.—Burma, Reef Island off Tavoy.

Spirostreptus opinatus Karsch

1881. *Spirostreptus opinatus*, Karsch, *Zeitschr. Ges. Naturw.* LIV, p. 23.

1889. *Spirostreptus opinatus*, Pocock, *Journ. Linn. Soc. London*, XXI, p. 294.

1889. *Spirostreptus andersoni*, Pocock, *Journ. Linn. Soc. London*, XXI, p. 299, pl. xxv, fig. 5.

1893. *Spirostreptus opinatus*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 400.

Distribution.—Burma, Mergui.

Order SPIROBOLOIDEA.

Of the so far described species of Indian Spiroboloidea only 14 can be distinguished. There are in addition a large number of species described under the old generic name *Spirobolus*, but which can only be referred to the order " Spiroboloidea " The Indian Spiroboloidea are as yet as incompletely explored as the remaining Diplopod groups, and the list of species of this order will increase considerably on intensive exploration. The genera *Trigoniulus*, *Chersastus*, etc., which are represented by numerous species in the Sunda Archipelago and New Guinea region, are wanting except for the widespread species *Trigoniulus lumbricinus*.

The collection of the Indian Museum, Calcutta, contains only 3 of the species already described : *Trigoniulus lumbricinus*, *Aulacobolus excellens*, and *Aulacobolus variolosus*, and 5 new species, two of which have to be referred to new genera. A new species from the collections of the *Wiener Naturh. Museum* is also described here.

Family SPIROBOLIDAE.

Key to the Indian Genera.

1. Pores upon the prozonite	*Spirobolus* Brdt.
Pores upon the metazonite	2.
2. Posterior gonopods slender, acute sickles, as in the genus *Rhinocricus*	*Pseudospirobolellus* Carl.
Posterior gonopods broad, boat-like	3.
3. In the base of the posterior gonopod no *receptaculum seminis*. Anal segment without tail	*Cyclothyrophorus* Poc.
In the base of the posterior gonopod *receptaculum seminis* is present. Anal segment with a tail	*Physobolus*, gen. nov.

Spirobolus Brdt.

Spirobolus joannisi Bröl.

1896. *Spirobolus joannisi*, Brölemann, *Mém. Soc. Zool. France*, IX, p. 359, pl. iii, figs. 1-8.

1914. *Spirobolus joannisi*, Brölemann, *Ann. Soc. Ent. France*, LXXXIII, p. 2.

Distribution.—China, Kiang Nan.

Pseudospirobolellus Carl.

Pseudospirobolellus elevatus (Poc.).

1893. *Spirobolus elevatus*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 399.

1914. *Pseudospirobolellus elevatus*, Brölemann, *Ann. Soc. Ent. France*, LXXXIII, p. 23.

Distribution.—Burma, Bhamo.

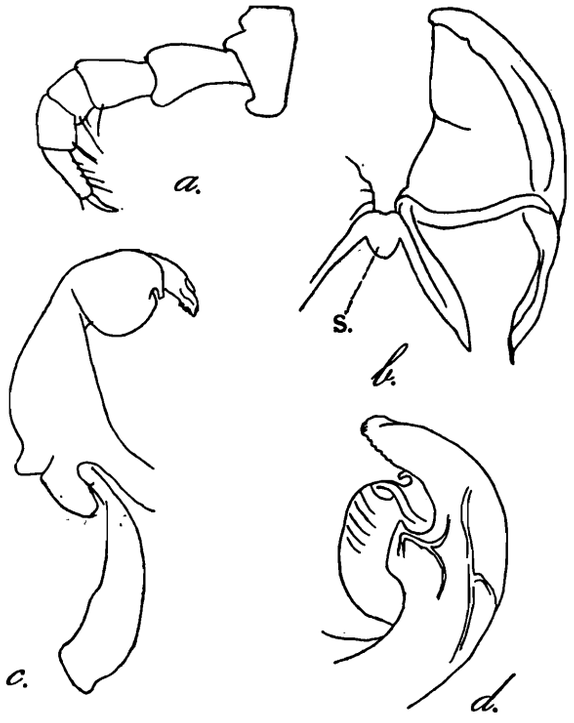
Cyclothyrophorus Poc.

Cyclothyrophorus siamensis, sp. nov.

Dark olive green to black; posterior stripe of the segments, a narrow anterior margin of the head and the anterior and posterior margin of the collum yellowish brown. 2nd to 5th joint of antennae yellowish brown, the remaining joints greenish-black, legs reddish brown.

Width 3·5 mm.; 66 segments.

Labral sinus shallow; 3 labral teeth; 4+4 supralabral foveolae, distances between the foveolae only slightly increasing laterally. Clypeus with median sulcus; vertical sulcus weak; head smooth; antennae short and thick; eyes rounded, ocelli moderately convex. Mandibular cheeks with a short, finely bordered process.



Text-fig. 85.—*Cyclothyrophorus siamensis*, sp. nov. *a.* ♂ 5th leg; *b.* anterior gonopod, *S.* sternite; *c. d.* posterior gonopod.

Sides of collum broadly rounded asymmetrically, posterior border weakly sinuate, sides of collum reaching somewhat deeper ventrally than the blunt keel of second segment; the latter not prolonged anteriorly. Transverse suture only a weak constriction, also below the pores no sharp sulcus. Prozonites dorsally with numerous pits of variable sizes and shapes, rounded or horse-shoe shaped. Metazonites dorsally with short, irregular,

longitudinal wrinkles, ventrally pro- and metazonites longitudinally striated. Pore in the middle between transverse sulcus and posterior border. No scobina. Sternites transversely striated.

Dorsal border of the anal segment sharply angulated, but without a tail ; valves without marginal thickening ; borders lying in the depth of a narrow median furrow ; anal scale flatly rounded.

Coxa of 5th legs (text-fig. 85*a*) with a large thick rounded process, no tarsal pads.

Sternite (*S*) of anterior gonopods small (text-fig. 85*b*) ; anterior gonopods consisting of a hollowed-out, distally narrowed and rounded lamella ; posterior gonopod (text-fig. 85*c*) not distinctly segmented, of a broad sickle-like shape, at the tip a broad rounded lamella and a triangular tooth (text-fig. 85*d*).

Distribution.—Siam, Koh Samesan Island (C. Boden Kloss ; x.16 ; 1 ex.).

Remarks.—I assign this species, with some doubt, to the Mexican genus *Cyclothyrophorus* Poc., as I can see no characters justifying generic separation. The gonopods of only one species of *Cyclothyrophorus* have so far been figured.

Physobolus, gen. nov.

Sternite of anterior gonopods forming a short buckle, gonopods two-jointed, both joints broad, simple lamellae. Posterior gonopods two-jointed, in the basal joint a large ovoid receptaculum seminis opening in a short medial process and giving off the canal running to the second joint. Coxa of anterior legs of ♂ with a process, no pads, no scobina. Pores in the metazonite. Anal ring with a tail, anal valves without marginal thickening, the borders lying in the depth in a narrow channel. 3+3 supralabral foveolae.

Genotype.—P. olivaceus, sp. nov.

Remarks.—This genus is undoubtedly nearly related to the genera *Chelogonobolus*, *Messicobolus* and *Cyclothyrophorus*. In all these genera the pores open in the metazonite, the sternite of the anterior gonopods is a short buckle, not V-shaped as in other genera, the posterior gonopods are broad, boat-like, and in all the 3 genera cited above the receptaculum seminis of *Physobolus* is wanting (or possibly it has not been described so far) ; this difference justifies the establishing of a new genus.

Physobolus olivaceus, sp. nov.

Head and anal valves brownish olivaceous, prozonites blackish olivaceous, metazonites greenish black, antennae and legs testaceous.

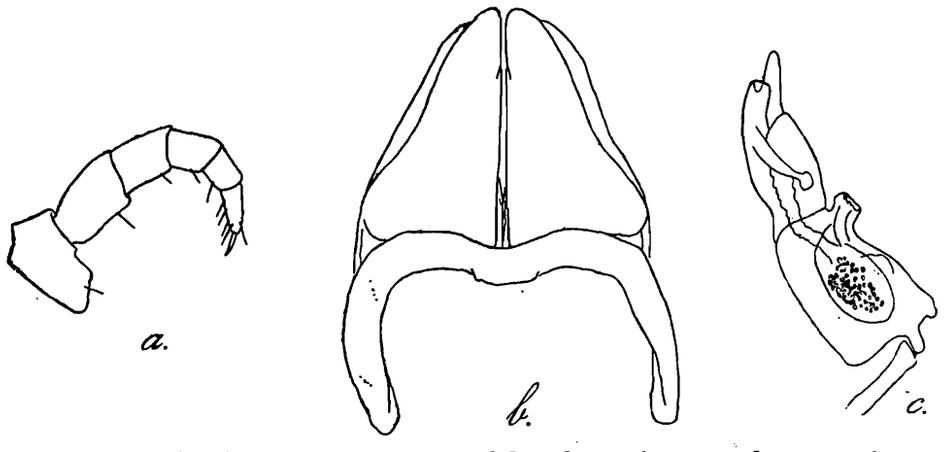
Width ♂ 4·2 mm., ♀ 4·5 mm. ; ♂ and ♀ 44 segments.

Labral sinus broad, 3 labral teeth, 3+3 supralabral foveolae, lateral ones smaller than the others ; a fine median sulcus reaching up to the antennae. Mandibular cheeks with triangular process.

Second segment without lateral edges. Prozonites dorsally, between the pores, punctate, and with short irregular striae ; metazonites dorsally, irregularly, longitudinally striate ; below the pores the striae are more regular and the striae of the metazonites and prozonites are continuous, curving obliquely dorsally on the prozonite. Anterior zone of prozonite smooth. Transverse suture somewhat indistinct here and there, curving away before the large pores. No scobina. Sternites transversely striate, margins in the middle smooth.

Anal segment with a short triangular tail, a little longer than the valves ; latter vaulted, without marginal thickening, borders sinking into the depth of a narrow channel ; anal scale broadly rounded.

Coxae of 3rd to 5th legs with a dark coloured process, its length increasing from the 3rd to the 5th pair. 1st to 5th joints with one bristle, 6th joint with several bristles. No tarsal pads (text-fig. 86*a*).



Text-fig. 86.—*Physobolus olivaceus*, sp. nov. *a*. ♂ 5th leg ; *b*. anterior gonopod ; *c*. posterior gonopod.

Sternite of anterior gonopods (text-fig. 86*b*) a short buckle, coalesced completely with the modified tracheal stalks, and weakly sinuate in the middle. Anterior gonopod consisting of two distally narrowed lamellae, coxite somewhat longer than telopodite. Posterior gonopod (text-fig. 86*c*) distinctly two-jointed, in the basal joint a large ovoid bladder, filled with dark granules and opening by a broad canal on a short cylindrical process ; margin of the opening irregularly and finely dentate ; from the bladder a canal runs to the second joint. It seems that the sperms are taken by the opening in the cylindrical process into the bladder and then conducted forward by the canal in the distal joint, and from there to the vulva. I could not see a prostata gland in the single male.

Distribution.—Eastern Himalayas, Pashok, 5,500 feet, Darjeeling District (Dr. F. H. Gravely ; 26.v-14.vi.16 ; 1 ex.).

Family Trigoniulidae.

Key to the Indian Genera.

1. Pores in the prozonite	2.
Pores in the metazonite	4.
2. Posterior gonopods without medial arm, coxite and telopodite in the same line	*Stenobolus* Carl.
Posterior gonopods with a medial arm	3.
3. Coxite and telopodite of the posterior gonopod at a right angle. Medial arm of posterior gonopod densely and finely hairy. Dorsum without bright stripe or patches	*Trigoniulus* Poc.
Coxite and telopodite of posterior gonopod nearly in the same line. Medial arm not hairy. Dorsum with a broad, bright stripe or with a row of bright patches	*Xenobolus* Carl.
4. Scobina present	*Cingalobolus* Carl.
No scobina	*Epombrophilus*, gen. nov.

Trigoniulus Poc.

Trigoniulus lumbricinus (Gerst.).

A well known species, widely spread in the tropical countries of India, America and Africa.

In the Museum Collection from : Behala (S. Ribeiro ; 2.vii.25) and Dakhindari near Calcutta, Bengal (M. Sharif ; 15-16.v.26) ; Pusa, Bihar (Dr. H. S. Pruthi ; 26-30.viii.25 ; several exs.) ; Andamans.

Stenobolus Carl.

Stenobolus insularis Carl.

1918. *Stenobolus insularis*, Carl, *Rev. Suisse Zool.* XXIV, p. 453, figs. 33-36.

Distribution.—Malé Atoll ; Maldive Islands.

Xenobolus Carl.

Xenobolus acuticonus, sp. nov.

Black, dorsum with a row of hour-glass-like reddish spots ; head up to antennae, collum and antennae brown ; anal segment reddish brown.

Length 50 mm., width 4 mm. ; 50 segments.

Labral sinus shallow ; 3 labral teeth ; 2+2 large supralabral foveolae, median ones near the median sulcus, lateral ones distant from median ones. Anterior median clypeal sulcus reaching upwards between antennae ; vertical sulcus scarcely visible. Eyes spherical-triangular, medial angle not reaching as far as the antennal socket ; ocelli moderately convex. Mandibular cheeks with short triangular process, surface somewhat hollowed out with fine marginal area, antennae lie in this groove and in the deepened sides of head-capsule.

Sides of collum regularly narrowed and broadly rounded, finely bordered by a sulcus from eyes to posterior margin.

Covered part of prozonite dorsally with fine, undulate, transverse striae ; free part dorsally punctate; most punctures horse-shoe shaped. Metazonites dorsally densely and finely punctate, laterally smooth, ventrally with longitudinal striae, continued also on prozonite, where they become more and more oblique, curving to the undulate transverse striae. Transverse suture distinct only below the pores. Pores from 6th segment in front of the suture, separated from the latter by less than the diameter of the pore. No scobina.

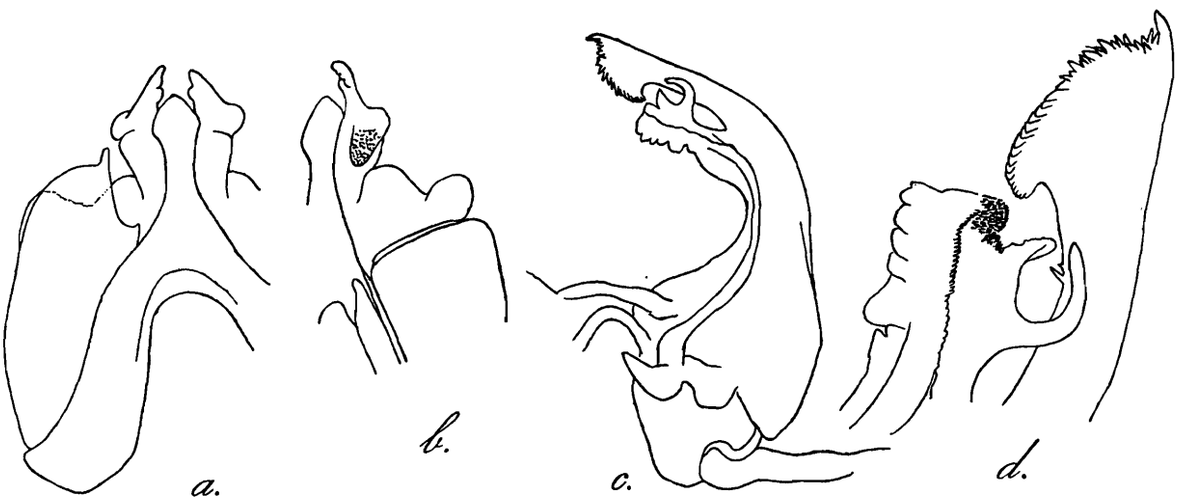
Sternites with 3 strong, finely punctate, arched striae ; opening of arch caudal.

Posterior border of the anal segment roof-like, projecting the anal valves, but beyond without a tail. Valves strongly vaulted and punctate ; marginal thickening sharply limited, neither broad nor high. Anal scale short and rounded.

Coxa of 3rd legs with a long process, incrassate at tip and curved anteriorly. Coxa of 4th legs with a shorter, straight process. 5th legs with broadly lamelliform process. Coxae of 6th and 7th legs with an edge ending in a small cone, a similar cone also on the praefemur of the 4th to 7th legs. No tarsal pads.

Sternite of anterior gonopods (text-fig. 87*a*) shorter than telopodite, V-shaped, with a lancet lamella in middle and a median edge in basal half of posterior side. Coxite shorter

than telopodite with a small process at tip. Telopodite with a narrow lobe, with fine squamous structure (text-fig. 87*b*). Finger-like process and bladder in posterior gonopod distinct;



TEXT-FIG. 87.—*Xenobolus acuticonus*, sp. nov. *a. b.* anterior gonopod (anterior and posterior views); *c. d.* posterior gonopod.

medial branch with several conical points and a hooked, lateral arm directed to terminal branch. In middle of terminal branch a cushion covered with small, blunt points; between cushion and medial branch a thin lamella (text-fig. 87*c*, *d*).

Distribution.—South India, Madras (Dr. F. H. Gravely; vii.22; 1 ex.).

Xenobolus carnifex (Fabr.)

1775. *Julus carnifex*, Fabricius, *Syst. Ent.* p. 428.
1841. *Julus carnivex*, Brandt, *Rec, Men.*, p. 188.
1847. *Julus carnifex*, Gervais, *Ind. Apt.* IV, p. 163.
1863. *Julus carnifex*, C. Koch, *Die Myr.* I, p. 62, pl. xxvii, fig. 53.
1866. *Julus carnifex*, Humbert, *Mém. Soc. Genève*, XVIII, p. 57.
1892. *Spirobolus carnifex*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 166, pl. x, fig. 9.
1919. *Xenobolus carnifex*, Carl, *Rev. Suisse Zool.* XXVII, p. 394, figs. 23-31.

Distribution.—Madras; Tranquebar; Ceylon. In the Indian Museum collection from Yercaud, Shevaroy Hills, Madras Presidency (W. M. Daly), Chanda, Central Provinces (W. T. Blanford).

Cingalobolus Carl.

Cingalobolus carli, sp. nov.

Head up to antennae, the latter and legs bright testaceous; prozonites brighter, metazonites darker brown, metazonites with a narrow whitish yellow posterior stripe; anal segment dark brown.

Width 3·5 mm.; 43 segments.

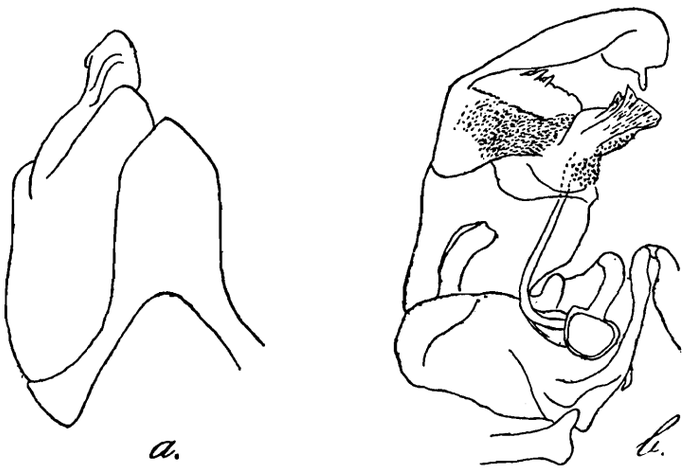
Labral sinus angular; 3 labral teeth; 1+1 supralabral foveolae; a fine median sulcus up to antennae; vertical sulcus fine beginning between eyes. Median angle of eyes rounded, ocelli flat. Sides of clypeus not hollowed out. Antennae short, moderately thick, lying on the broadly rounded process of cheeks, this process with a narrow marginal thickening, 4 sense cones.

Sides of the collum broadly rounded, anterior border from eyes with narrow marginal thickening.

Transverse suture indistinctly visible only on ventral side, not reaching the pores. Anterior part of prozonite with a fine network of striae, free part dorsally roughly punctate, most punctures horse-shoe shaped. Prozonites laterally and ventrally obliquely striate. Metazonites dorsally and laterally smooth, ventrally with fine, longitudinal striae ; these striae are not the continuation of the striae of the prozonite. Pores close behind the limit between pro- and metazonite (suture not visible here). Scobina present in the posterior segments ; without destroying the single male I could not be definite as to where the scobina begin ; distance between the two scobina of each segment as broad as the scobina ; behind each scobina a dull triangle. Sternites with deep, irregular, transverse striae.

Posterior border of anal segment bluntly angled, without any tail ; valves vaulted, without marginal thickening ; anal scale flat and rounded. Coxae of all legs without processes, joints 4-6 of anterior legs hemispherical, without pads.

Ventral buckle of segment 7 of male in the middle shorter than laterally, strongly arched ventrally.



TEXT-FIG. 88.—*Cingalobolus carli*, sp. nov. *a*. sternite and anterior gonopod ; *b*. posterior gonopod.

Middle part of sternite of anterior gonopods (text-fig. 88*a*) broad, tongue-shaped, bluntly pointed, a little shorter than coxite. Telopodite longer than coxite. Coxa of posterior gonopod (text-fig. 88*b*) like that of *Trigoniulus*, two bladders and the digitiform process distinct. Limit between coxa and telopodite visible. Telopodite very broad, well developed median branch finely squamous in basal half ; terminal branch with a blunt straight tooth.

Distribution.—Madras Presidency, Vizagapatam (Dr. H. S. Rao and G. Varugis ; v-vi.26 ; 1 ex.).

Remarks.—*C. bugnioni* is quite distinct from *C. carlii*. The sternite of the anterior gonopods of *C. bugnioni* is widened at the tip and cut transversely, in *C. carlii* it is tongue-shaped and acuminate ; the posterior gonopod of *C. bugnioni* has no median branch. *C. bugnioni*, further, has a big straight tail and the sutures of the segments are very distinct, dorsally also.

Cingalobolus bugnioni Carl.

1918. *Cingalobolus bugnioni*, Carl, *Rev. Suisse Zool.* XXVI, p. 449, figs. 29-32.

Distribution.—Ceylon.

Epombrophilus, gen. nov.

Coxa of posterior gonopods with 2 bladders and a digitiform process similar to the coxa of *Trigoniulus*. Telopodite of posterior gonopod with a long and very slender medial branch, the canal ending at the tip of the branch. Sternite of anterior gonopods large, V-shaped, gonopods not meeting over the sternite. No scobina. Pores on the metazonite; transverse suture distinct below the pores, indistinct dorsally. Anal segment without tail, valves with marginal thickening. Tarsal pads present; coxae without long processes.

Genotype.—E. rufipes, sp. nov.

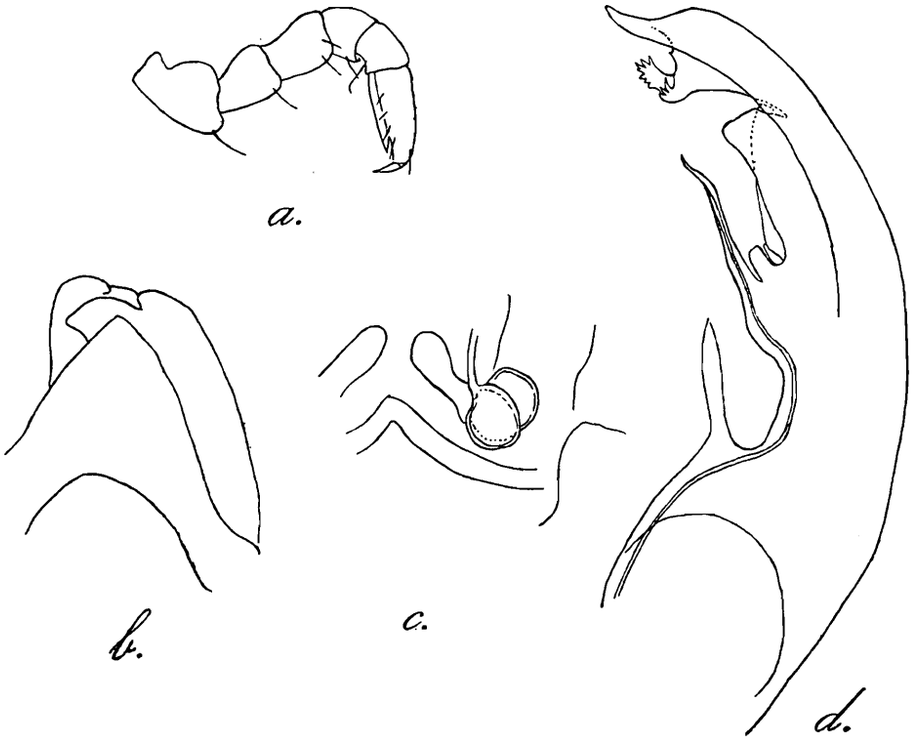
Remarks.—This genus resembles *Cingalobolus* and *Arolus* in the position of the pores on the metazonite. In *Cingalobolus* scobina are present. From *Arolus* which is without scobina, the new genus differs in the following points;—the sternite of the anterior gonopods of *Arolus* is reduced in size; the coxae are broad, meeting over the sternite; coxae of legs 3-6 of ♂ in *Arolus* have ventrally directed processes. The single known species of *Arolus* was discovered in Guatemala.

Epombrophilus rufipes, sp. nov.

Prozonites bright testaceous, metazonites blackish; anterior part of head, antennae and legs reddish brown.

Width 2·5 mm.; ♂ and ♀ 44 segments.

Labral sinus very shallow; 2+2 supralabral foveolae. Mandibular cheeks somewhat incrassate but without process. Antennae moderately thick and long. Collum laterally gradually narrowed. Prozonite with numerous horse-shoe-shaped pits, on the ventral side the



TEXT-FIG. 89.—*Epombrophilus rufipes*, sp. nov. *a*. ♂ 3rd leg; *b*. sternite of anterior gonopod; *c*. basal part of posterior gonopod; *d*. posterior gonopod.

pits become more and more like oblique striae. Metazonite dorsally densely punctate and irregularly striate, below the pores very regular, fine striae; these striae are not continuous

with the striae of the prozonite ; pores on the metazonite somewhat remote from the transverse suture ; suture very distinct below the pores, scarcely visible dorsally. No scobina.

Sternites deeply, transversely striate.

Anal segment without tail ; valves with broad, moderately high, marginal thickening ; anal scale rounded.

Legs of ♂ excepting the first 2 and last 8 pairs with tarsal pads (text-fig. 89*a*). Coxae of 3rd and 4th pair with a low knob but without long process. Each joint of the legs with one bristle and several minute hairs.

Sternite of anterior gonopod (text-fig. 89*b*) large, V-shaped, somewhat longer than coxite in size, coxite shorter than telopodite ; gonopods without any peculiarities. The 2 bladders and the digitiform process of the posterior gonopod (text-fig. 89*c*) similar to those of *Trigoniulus*. Telopodite slender, sickle-shaped, median branch long, very slender, the canal ending at its tip. Proximally to the median branch and the terminal branch 2 lappets. The terminal branch divided into two lamellae, one of them laciniated (text-fig. 89*d*).

Distribution.—South India, Tope, Palni Hills (Dr. S. W. Kemp ; 26.ix.22 ; 2 exs.).

Family PACHYBOLIDAE.

Aulacobolus Poc.

1903. *Aulacobolus*, Pocock, *Ann. Mag. Nat. Hist.* (7), XII, p. 530.
1916. *Aulacobolus*, Silvestri, *Rec. Ind. Mus.* XII, p. 41.

Pocock erected the genus *Aulacobolus* with *A. uroceros* as type and based the genus especially upon the sculpturing of the dorsum, the metazonites of *A. uroceros* being longitudinally grooved and furnished with a series of tubercles. Silvestri has since described several species undoubtedly belonging to the same genus but with a different sculpture : the metazonites of these species are wrinkled or punctate ; while I describe here a species with smooth and shining metazonites. It is thus clear that the sculpture of the metazonites cannot be used as a generic character, the sculpture changes gradually from *A. uroceros* to *A. levissimus*, but the gonopods and other important characters are similar in all species and *Aulacobolus* is surely a natural genus.

I have not seen *Eucentrobolus* Poc., perhaps it will have to be united with *Aulacobolus*.

Key to the Species of Aulacobolus.

1. Dorsum of metazonites smooth and polished. Tail long, pointed, curved downwards. Marginal thickening of anal valves projecting in the middle, profile of valves not a regular semicircle . *A. levissimus*, sp. nov.
   Dorsum of metazonites grooved, wrinkled or punctate, sometimes furnished with tubercles. Profile of anal valves a regular semicircle . . . . . 2.
2. Tail pointed and long, more or less curved downwards . . . 3.
   Tail short, blunt, straight . . . . . 4.
3. Dorsum of metazonites grooved and furnished with a series of low tubercles equal in size and evenly spaced, situated upon the areas between the grooves . . . . . *A. uroceros* Poc.
   Dorsum of metazonites coarsely wrinkled, without tubercles . . *A. excellens* Silv.

4. Lateral shoulder of the sternocoxites of 2nd legs of ♂ long and pointed. Under side of lateral keels of 2nd segment notched. Width 9 mm.; 45 segments. Metazonites punctate and roughly wrinkled . . . . . *A. variolosus* Silv.

Lateral shoulder of 2nd legs rounded. Ventral edge of 2nd segment smooth . . . . . 5.

5. Sternite of anterior gonopods pointed. Top of posterior gonopods not hooked. Metazonites finely punctate. Width 11 mm. . *A. gravelyi* Silv.

Sternite of anterior gonopods broad, tip weakly sinuate. Tip of posterior gonopods hooked. Metazonites punctate and wrinkled. Width 7·6 mm. . . . . *A. newtoni* Silv.

Aulacobolus excellens Silv.

1916. *Aulacobolus excellens*, Silvestri, *Rec. Ind. Mus.* XVI, p. 41.

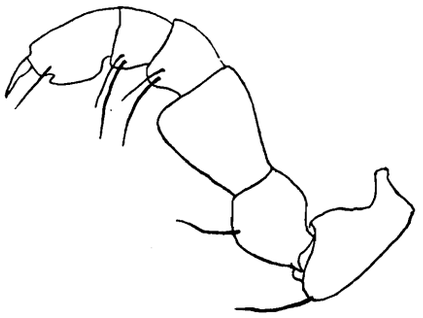
Black; anterior part of head, antennae and legs reddish brown.

Width ♂ 11·3 mm.; ♀ 12 mm.

Labral sinus flat and angular; 3 labral teeth; 2+2 supralabral foveolae, median ones near the median sulcus, lateral ones remote. Median sulcus anteriorly very deep, then fine and shallow; vertical sulcus beginning between eyes. Clypeus transversely striate in the middle, finely punctate laterally. Eyes rounded, projecting a little beyond the antennal socket; ocelli flat.

Anterior border of collum straight; anterior angle blunt; surface with a network of fine striae. Sides of collum reposing upon a shallow groove of the lateral edge of second segment; under side of this edge smooth.

Prozonites dorsally, very finely wrinkled; below the pores posterior zone obliquely striate and ventrally entire prozonite very finely obliquely striate. Metazonite near transverse suture very finely wrinkled like prozonite, towards the posterior border more and more roughly wrinkled and punctate; diameter of the metazonite largest near the posterior border. Wrinkles weaker in posterior segments. No scobina. Transverse suture a fine sulcus in a shallow depression. Pores on prozonite, distance from the suture equal to the diameter of the pore.



TEXT-FIG. 90.—*Aulacobolus excellens* Silv. 3rd leg.

Anal segment finely wrinkled and punctate, with a long, pointed, ventrally curved tail; valves with strong, marginal thickening, not limited by a sulcus; anal scale flat and angular.

Femur of 4th pair of legs strongly incrassate, of 3rd legs less so (text-fig. 90).

Tarsal pads present on legs 2-25.

Distribution.—South India, Kavalai, 1,300-3,000 feet, Cochin State (Dr. F. H. Gravely; 24-27.ix.14; 3 exs.).

Aulacobolus variolosus Silv.

1916. *Aulacobolus variolosus*, Silvestri, *Rec. Ind. Mus.* XII, p. 46.

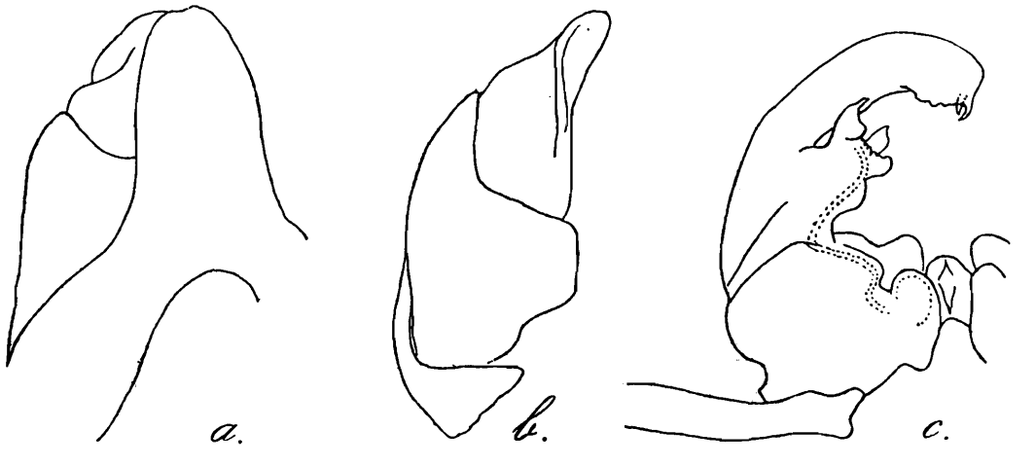
Length ♂ 80 mm., ♀ 90 mm. ; width ♂ 7 mm., ♀ 7·5 mm. ; ♂ and ♀ 46 segments.

Head densely wrinkled and punctate. Labral sinus deep, semicircular ; 2+2 supralabral foveolae ; median ones near the weak median sulcus, lateral ones remote. On sides of clypeus a deep pouch-like excavation, covered above by the part of clypeus before and near the antenna. Eyes rounded, median angle reaching medially as far as the antennal socket ; ocelli convex ; vertical sulcus distinct.

Collum large, anterior border straight, lateral and posterior borders forming an arch. Sides of collum repose upon the edge of the second segment ; this edge is prolonged anteriorly and notched below. Anterior zone of prozonite with fine, undulate striae, remaining part with a raised network ; ventrally this network becomes separated into more and more oblique striae. Pores beginning in 6th segment, before the suture and somewhat remote from it. Metazonites dorsally punctate, roughly wrinkled, ventrally longitudinally striate. No scobina. Diameter of metazonites is visibly larger than the diameter of the prozonites.

Sternites with dense irregular transverse striae, anterior striae arched, posterior straight. Anal segment punctate but not wrinkled. The tail large, obtuse and straight ; marginal thickening of the valves moderately high and broad ; anal scale flatly arched.

Coxae of anterior legs with a big rounded knob but without slender process. Tarsus except that of the first and last two pairs with large pads, occupying the entire under side ; claw very long, slender.



TEXT-FIG. 91.—*Aulacobolus variolosus* Silv. *a. b.* anterior gonopod (anterior and posterior views) ; *c.* posterior gonopod.

Sternite of anterior gonopods (text-figs. 91*a*, *b*) large, tongue-shaped, as long as telopodite. Coxae of posterior gonopods separated by sternite and coalesced with it, well chitinized ; the bladder from which the canal begins, somewhat indistinct owing to the thick chitinous wall ; no digitiform process ; limit between coxa and telopodite distinct, telopodite with a short and broad median branch, neither hairy nor squamous, terminal branch curved, with 2 small teeth near apex (text-fig. 91*c*).

Distribution.—South India, near Neutral Saddle, 4,200 feet, Palni Hills (Dr. S. W. Kemp ; 14.ix.22 ; under stones in dense jungle ; 1 ex.).

Aulacobolus levissimus, sp. nov.

Head, antennae, legs and anal segment reddish brown ; prozonites of ♂ grey, of ♀ dark reddish brown, metazonites of ♂ and ♀ pitch black.

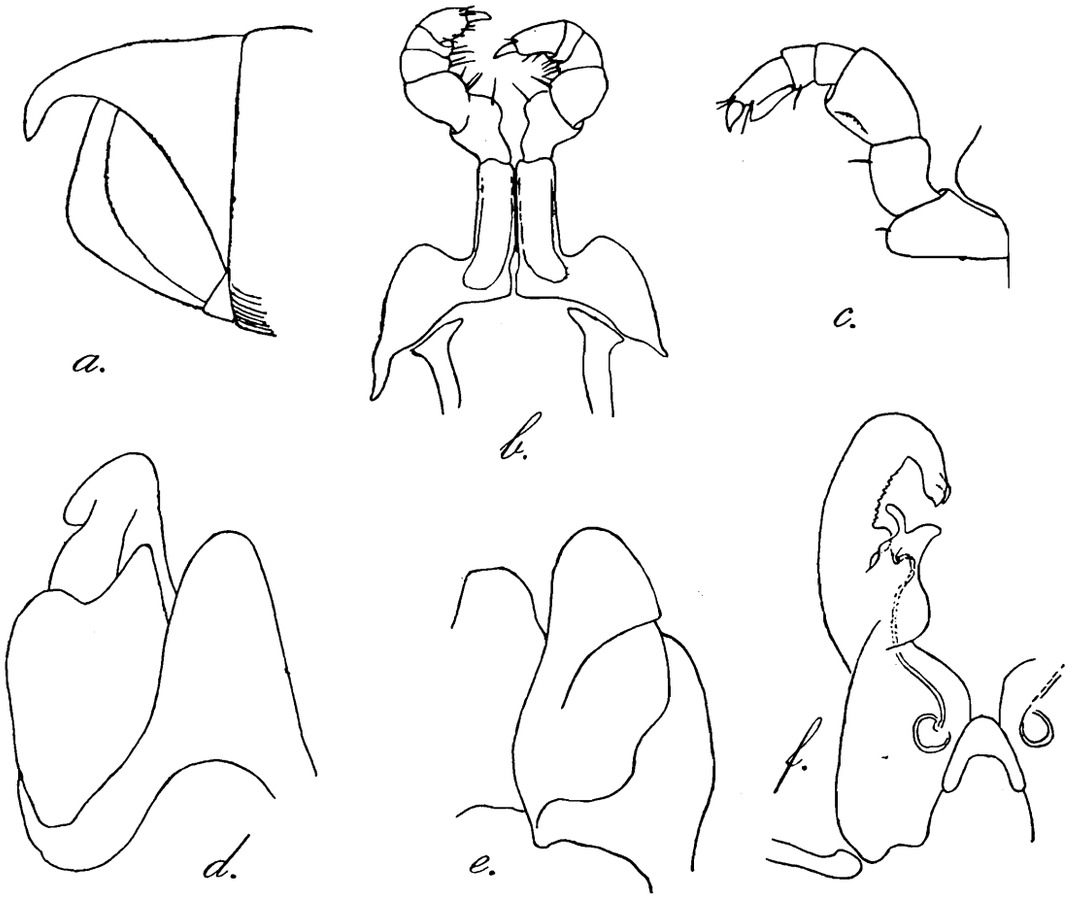
Width ♂ 5·7 mm., ♀ 7·5 mm. ; ♂ and ♀ 47 segments.

Labral sinus bluntly angulated, with 3 thick, blunt teeth ; 2+2 supralabral foveolae. Anterior median sulcus vanishing between antennae. Vertical sulcus sharp. No interocular line. Median angle of eyes projecting a little beyond the antennal grooves. Head finely punctate. Antennae short and thick, concealed in a groove below eyes and half covered by sides of collum.

Sides of collum elliptically rounded, lying upon lateral lobes of second segment, which are directed forwards like keels, under side of the keels smooth.

Anterior part of prozonites dorsally with a fine network of transverse meshes, meshes become more and more rounded and finally they are horse-shoe shaped foveolae as in the genus *Trigoniulus*. Below the pores the prozonites are irregularly, densely and obliquely striated. Suture visible only below the pores, vanishing dorsally. Pores large, surrounded by a ring, situated upon prozonite, a little remote from suture. Dorsum of metazonites smooth and polished, like a mirror, ventral side longitudinally striate. No scobina.

Sternites irregularly striate. Stigmal grooves rounded, only a little longer than the sternite.



TEXT-FIG. 92.—*Aulacobolus levissimus*, sp. nov. *a*. anal segment ; *b*. ♂ 2nd legs ; *c*. ♂ 3rd leg ; *d*. sternite and anterior gonopod ; *e*. coxite of anterior gonopod ; *f*. posterior gonopod.

Anal ring and valves punctate ; ring with a long pointed tail (text-fig. 92*a*), evenly curved downwards ; greatly resembling the tail of *Harpurostreptus* (Harpagophoridae). Marginal

thickening of valves higher in the middle than below or above, as a result the profile of the valves is not a regular semicircle. Anal scale weakly rounded.

Tarsus of ♂ padded, tip of the pad tooth-like. Sternite of 2nd legs (text-fig. 92*b*) of ♂ divided in the median line, each half coalesced with one coxa into a sternocoxite, both sternocoxites solidly connected ; lateral shoulder of sternocoxite broadly rounded. Coxa of 3rd legs of ♂ with a broad, short, rounded process ; femur inflated, without bristles, a little hollowed out beneath (text-fig. 92*c*).

Gonopods.—Sternite of anterior gonopods (text-fig. 92*d*) tongue-shaped, distally evenly narrowed, tip rounded. Coxite a little shorter than sternite, tip anteriorly acutely lobate (text-fig. 92*e*) ; telopodite much longer than sternite, tip a short, broad, smooth hook turned laterally. Sternite of posterior gonopods small, V-shaped. Posterior gonopods two-jointed, coxite well chitinized with a bladder ; telopodite with a median arm forking into 2 diverging lobes, distally to the median arm a small rounded lobe, median border of last part finely, irregularly dentate, tip evenly hooked, near the top a small curved tooth (text-fig. 92*f*).

Distribution.—South India, Nilgiris (Ccll. *Wiener Naturhist. Museum*).

Aulacobolus uroceros (Poc.)

1892. *Spirobolus uroceros*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 169.

1903. *Aulacobolus uroceros*, Pocock, *Ann. Mag. Nat. Hist.* (7) XII, p. 530.

Distribution.—Madras.

Aulacobolus gravelyi Silv.

1916. *Aulacobolus gravelyi*, Silvestri, *Rec. Ind. Mus.* XII, p. 43, fig. 3.

Distribution.—South India, vicinity of Kodaikanal, Palni Hills.

Aulacobolus thurstoni (Poc.).

1892. *Spirobolus thurstoni*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 167.

1916. *Aulacobolus thurstoni*, Silvestri, *Rec. Ind. Mus.* XII, p. 41.

This species undoubtedly belongs to the genus *Aulacobolus* but cannot be included in the key until it has been studied in detail.

Distribution.—South India, Madras.

Eucentrobolus Poc.

Eucentrobolus maindroni (Bouv.).

1903. *Acanthiulus maindroni*, Bouvier, *Bull. Mus. Hist. Nat. Paris*, IX, p. 26.

1903. *Acanthiulus maindroni*, Brölemann, *Ann. Soc. Ent. France*, LXXII, pl. viii, figs. 5, 6.

1913. *Eucentrobolus maindroni*, Brölemann, *Rec. Austr. Mus.* X, p. 108.

Distribution.—Peninsular India, Western Ghats, Malabar.

Eucentrobolus hamulus Poc.

1903. *Eucentrobolus hamulus*, Pocock, *Ann. Mag. Nat. Hist.* (7) XIII, p. 528.

Distribution.—South India, Tinnevelly ; Travancore, Trivandrum.

LIST OF DOUBTFUL SPECIES OF SPIROBOLOIDEA.

In the literature there is a large number o doubtful species ; probably some of these, when properly studied, will prove to be good species, new to the Indian fauna, but the descriptions are so inexact that it is impossible to place them in any of the modern genera. It is, however, improbable that all the species referred to *Spirobolus* really belong to this genus.

Spirobolus bungii Brandt

1833. *Spirobolus bungii*, Brandt, *Bull. Soc. Nat. Moscou*, VI, p. 203.

1841. *Spirobolus bungii*, Brandt, *Rec. Mém.*, p. 117.

Distribution.—China borealis

Spirobolus crebrestriatus Humbert

1866. *Spirobolus crebrestriatus*, Humbert, *Mém. Soc. Genève*, XVIII, p. 55, pl. v, fig. 24.

Distribution.—Ceylon Peradeniya.

Spirobolus exquisitus Karsch

1881. *Spirobolus exquisitus*, Karsch, *Zeitschr. Ges. Naturw.* LIV, p. 57.

Distribution.—China, Peking.

Spirobolus dollfusii Poc.

1893. *Spirobolus dollfusii*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 397.

Distribution.—Cochin China.

Spirobolus feae Poc.

1893. *Spirobolus feae*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 398.

Distribution.—Burma, Yado.

Spirobolus gestri Poc.

1893. *Spirobolus gestri*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 399.

Distribution.—Burma, Malewoon.

Spirobolus greeni Poc.

1892. *Spirobolus greeni*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 170.

Distribution.—Ceylon, Punduloya.

Spirobolus longicollis Poc.

1892. *Spirobolus longicollis*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 172.

Distribution.—Ceylon, Punduloya.

Spirobolus macrurus Poc. (*nec* Humbert *et* Saussure 1870).

1893. *Spirobolus macrurus*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 396.

Distribution.—Burma, Kawkareet, Tenasserim.

Spirobolus punctidives Karsch

1881. *Spirobolus punctidives*, Karsch, *Zeitschr. Ges. Naturw.* LIV, p. 65.

Distribution.—Cochin China, Saigon.

Spirobolus spiculifer Poc.

1893. *Spirobolus spiculifer*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 397.

Distribution.—Burma, Tenasserim.

Spirobolus spirostreptinus Karsch.

1881. *Spirobolus spirostreptinus*, Karsch, *Zeitschr. Ges. Naturw.* LIV, p. 55.

Distribution.—Ceylon.

Spirobolus taprobanensis Humb.

1866. *Spirobolus taprobanensis*, Humbert, *Mém. Soc. Genève*, XVIII, p. 56, pl. v, fig. 25.

Distribution.—Ceylon, Peradeniya.

Spirobolus obtusospinosus Vog.

1878. *Spirobolus obtusospinosus*, Voges, *Zietschr. Wiss. Zool.* XXXI, p. 189.

Distribution.—Ceylon.

Spirobolus longicornis Poc.

1892. *Spirobolus longicornis*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 171, pl. x, fig. 11.

Distribution.—Ceylon, Punduloya (Scobina present).

Spirobolus maculifer Poc.

1893. *Spirobolus maculifer*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 400.

Distribution.—Burma, Mt. Mooleyit, Plapoo.

Spirobolus caudulanus Karsch

1881. *Spirobolus caudulanus*, Karsch, *Zeitschr. Ges. Naturw.* LIV, p. 60.

1889. *Spirobolus caudulanus*, Pocock, *Journ. Linn. Soc. London*, XXI, p. 297, pl. iii, fig. 4.

1893. *Spirobolus caudulanus*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 394.

Distribution.—Burma, Reef Island ; S. Tenasserim ; Malewoon ; Plapoo ; Pynimana.

Spirobolus phranus Karsch

1881. *Spirobolus phranus*, Karsch, *Zeitschr. Ges. Naturw.* LIV, p. 65.

1888. *Spirobolus phranus*, Pocock, *Journ. Linn. Soc. London*, XXI, p. 298, pl. xxv, fig. 6.

1898. *Trigoniulus phranus*, Attems, *Semon Zool. Forsch. Reise*, V, p. 511.

Distribution.—Siam, Bangkok, King Island, Owen Island, Mergui ; Tjibodas.

Spirobolus moulmeinensis Poc.

1893. *Spirobolus moulmeinensis*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 395.

Distribution.—Burma, Moulmein.

The last 3 species are probably to be referred to the genus *Trigoniulus*.

Titsonobolus uncopygus Chamb.

1920. *Titsonobolus uncopygus*, Chamberlin, *Univ. Calif. Public.* XIX, p. 396, pl. xxviii, figs. 29, 30.

Distribution.—South India, Coonoor.

Spirobolus walkeri Poc.

1895. *Spirobolus walkeri*, Pocock, *Ann. Mag. Nat. Hist.* (6) XV, p. 367.

Distribution.—China, Ningpo.

Trigoniulus corallipes Poc.

1896. *Trigoniulus corallipes*, Pocock, *Ann. Mus. Genova*, XXXVI, p. 352.

Distribution.—Minhla.

COLOBOGNATHA.

Siphonophora Brdt.

Siphonophora coniceps, sp. nov.

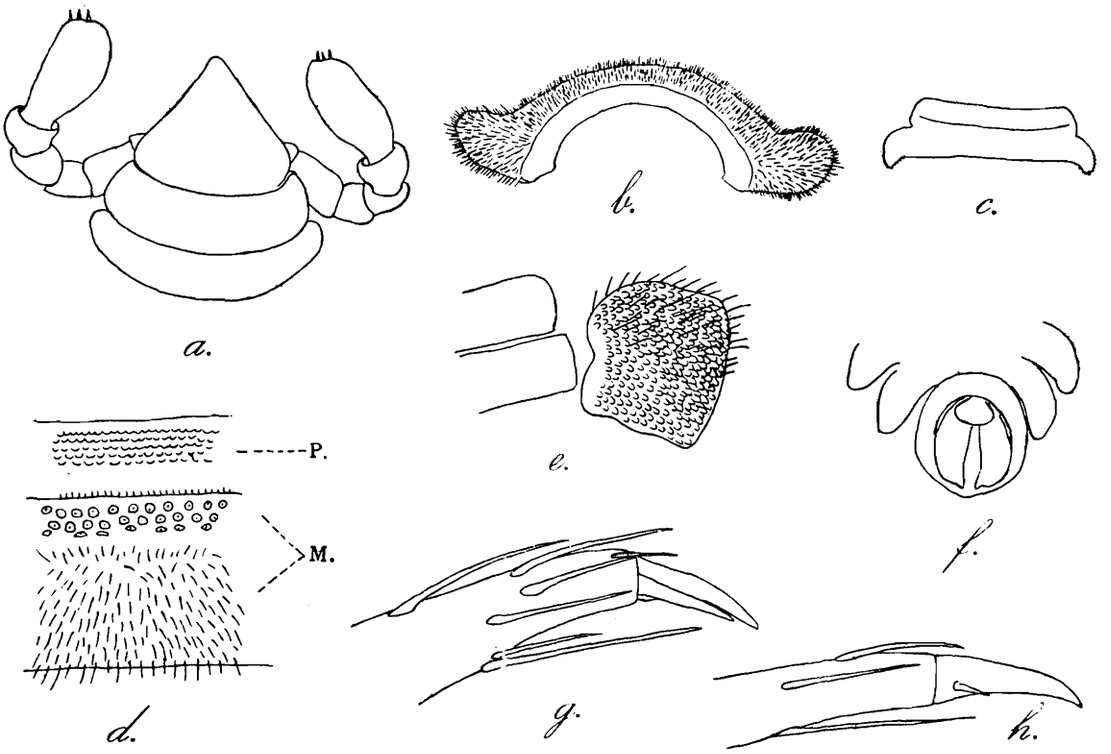
Yellowish brown.

Width 2 mm. 68 segments.

Head a regular, relatively short cone (text-fig. 93*a*), densely covered with short hairs. Eyes wanting (mark of the genus). Antennae weakly clubbed, surface with fine, squamous structure, densely hairy ; 7th joint not freely visible, only the sensitive cones of the last segment. Anterior and posterior border of collum concave, parallel, sides projecting bluntly forwards on sides of head.

Metazonites with well developed lateral keels (text-fig. 93*b*), in the anterior segments keels form rounded knobs, in posterior segments short blunt cones (text-fig. 93*c*), they are horizontal or in the posterior segments slightly turned upwards. Pores on upper side of keels near the lateral border. Dorsum of the metazonites more arched in anterior than in posterior segments. Prozonites with fine squamous structure, short longitudinal striae in front of transverse suture and beginning in it. First zone of metazonite of the same diameter as the prozonite, covered with 2 or 3 rows of rounded or angled tubercles, each bearing a minute point but no long hairs (text-fig. 93*d*). Diameter of the rest of metazonite is a little larger ; this part bears the keels and is densely covered with short hairs also on the under side of the keels. Tergite, pleurite and sternites connected by membrane, not coalesced, pleurites (text-fig. 93*e*) with squamous structure and dispersedly hairy, inferior border weakly sinuate, angles rounded. Sternites transversely rectangular. The anal segment

is a regular diplopod anal segment with anal ring, anal scale and 2 valves (text-fig. 93*f*), scale and valves connected by membrane with ring. Tail broadly rounded posteriorly. Entire anal segment densely hairy.



TEXT-FIG. 93.—*Siphonophora coniceps*, sp. nov. *a*. anterior end ; *b*. tergite of 12th segment ; *c*. one of the last tergites ; *d*. pro-(*P*) and metazonite (*M*) ; *e*. pleurite of 10th segment ; *f*. anal segment (ventral view) ; *g*. anterior leg ; *h*. posterior leg.

Legs with 2 claws, in anterior legs (text-fig. 93*g*) secondary claw relatively long, in posterior segments (text-fig. 93*h*) minute. All joints of legs abundantly bristled on under side, tarsus also on upper side. Praefemur with a long tactile bristle.

Distribution.—India, Eastern Himalayas, Pashok, 5,000 feet, Darjeeling District (Dr. F. H. Gravely ; 26.v.-14.vi.16 ; 1 ex.).

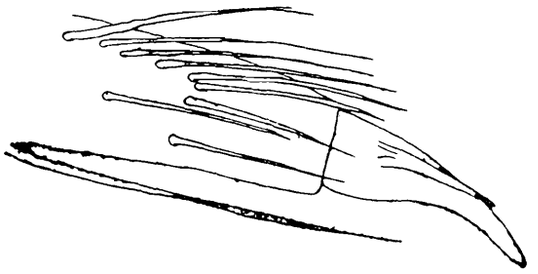
Siphonophora cingulata, sp. nov.

Reddish brown with 3 darker stripes, one in the median line and one on each side at the base of the keel ; head, antennae and legs pale yellow.

Width 4·5 mm. ; 83 segments.

Head regularly and shortly conical, like that of *S. coniceps*, densely covered with short hairs. Antennae reaching to 8th segment, distinctly clubbed, 6th joint incrassate, 7th segment free, not fused with 6th. Dorsum well arched, keels rising in middle of sides, a little larger than in *S. coniceps*, horizontal ; anterior part more pronounced, less conical than in *S. coniceps*. Anterior part of the metazonite granular not hairy, of the same diameter as prozonite, forming a sharp constriction between the posterior thicker parts of the succeeding metazonites, which are densely covered with short hairs, as in *S. coniceps*. Pleurite like that of *S. coniceps*. Tail short, broader than long, shovel-shaped.

Anterior secondary claw of legs (text-fig. 94) somewhat shorter than in *S. coniceps*, bristles on upper side of tarsus very dense. Secondary claw of the posterior legs minute.



Text-fig. 94.—*Siphonophora cingulata*, sp. nov. Anterior leg.

Distribution.—South Annam, Dalat, 5,000 feet, Langbian Province (C. Boden Kloss; iii-v.18; 1 ex.); India, Eastern Himalayas, Pashok, 1,500 and 2,600 feet, Darjeeling District (Dr. F. H. Gravely; 26.v.-14.vi.16; Dr. S. L. Hora; 16.xii.26; 2 exs.).

From India 3 species of *Siphonophora* were described previously; *S. picteti* Humb. and *S. humberti* Poc. from Ceylon, and *S. feae* Poc. from Burma. The new species belongs, like *S. picteti*, to the species with well developed lateral keels (Subgenus *Siphonophora*), while *S. humberti* and *S. feae*, which are without keels, to the group named *Rhinosiphora* Verh. Unfortunately the new species are represented by females only and their descriptions are, therefore, incomplete. The external differences in the species, not based on the gonopods, are considerable and we can differentiate the species to some degree in female specimens also. The metazonites of *S. picteti* are hairless, the segments are very finely granulated, only the head, the antennae and legs are finely and not densely hairy. The head of *S. picteti* is longer and much more pointed, while the lateral keels seem to be much smaller.

In *S. cingulata* the constriction between the posterior hairy parts of two succeeding metazonites, formed by the anterior lower granular part of the metazonite and the prozonite is deeper than in *S. coniceps* and the keels are somewhat larger. When compared in nature these differences are easily visible. A study of the males will surely furnish better characters for the distinction of the species.

Siphonophora picteti Humb.

1866. *Siphonophora picteti*, Humbert, *Mém. Soc. Genève*, XVIII, p. 59, pl. v, fig. 26.

Distribution.—Ceylon, Peradeniya.

Siphonophora feae Poc.

1893. *Siphonophora feae*, Pocock, *Ann. Mus. Genova*, XXXIII, p. 386.

Distribution.—Burma, Mt. Mooleyit.

Siphonophora humberti Poc.

1892. *Siphonophora humberti*, Pocock, *Journ. Bombay Nat. Hist. Soc.* VII, p. 43.

Distribution.—Ceylon, Punduloya.

Alphabetical Index of the Species and Genera.

(The names of valid species are printed in ordinary Roman type, while the synonyms and the names of doubtful species are in italics.)

MGIPC—M—III-8-21—17-8-36—500.