

RECORDS

of the

INDIAN MUSEUM

(A JOURNAL OF INDIAN ZOOLOGY)

Vol. IV, No. I.

Issued February 26th, 1910.

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Calcutta:

PUBLISHED BY ORDER OF THE TRUSTEES OF THE INDIAN MUSEUM,
PRINTED AT THE BAPTIST MISSION PRESS.

1910.

Price One Rupee.

RECORDS
of the
INDIAN MUSEUM

(A JOURNAL OF INDIAN ZOOLOGY)

Vol. IV, 1910—1912.

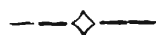
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INDIAN MUSEUM.



Calcutta :
PUBLISHED BY ORDER OF THE TRUSTEES OF THE INDIAN MUSEUM,
BAPTIST MISSION PRESS.

1912,

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PREFATORY NOTE TO VOLUME IV.

So many papers have been received and promised for the *Records of the Indian Museum* this year that it has been decided to publish a special volume (vol. iv) devoted to the systematic and geographical study of Diptera proved to be or likely to prove of economic or medical importance. The papers that constitute this volume will be issued as they are ready, concurrently with the parts of volume v, which will be devoted to general zoology.

The preparation of vol. iv has been rendered possible by the untiring industry of Mr. E. Brunetti, by the assistance generously given by private collectors (notably by Lt.-Col. E. A. W. Hall, I.M.S.) and by the liberality with which the Trustees of the Indian Museum have permitted their scientific officers to travel through India to collect and observe. These circumstances have combined to render our collection of Indian Diptera one of great importance and have enabled the Museum to resume the position as a centre of entomological work that it held in the days of Wood-Mason and de Nicéville.

In addition to Mr. Theobald's report on recent additions to the collection of mosquitoes with which it commences, this volume will contain a revision of the Oriental Gad-flies by Miss Ricardo, a revision of the Oriental blood-sucking Muscidae by Mr. Brunetti, an account of the Indian Papataci flies (*Phlebotomus*) by Dr. Annandale, a revision of the Oriental Diptera Pupipara by Dr. Speiser, a revision of the Oriental Trypetidae (fruit-flies) by Prof. Bezzi, and other papers and notes. An account of the Indian Chironomidae (including many blood-sucking species) has been received from Prof. Kieffer and is now in the press, but as the group is a large one and has hitherto been almost completely neglected so far as Indian forms are concerned, this paper will be published in the *Memoirs of the Indian Museum*.

N. ANNANDALE,
Superintendent.

Indian Museum,
Calcutta :
Feb. 9th, 1910.

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ERRATA.

Page 438, line 10 from bottom. For "magnificus" read "magnifica" and line 16 from bottom for "funestus" read "funesta."

Page 487, line 9 from bottom. For "Aedeomyinae" read "Aedinae."

Culicidae and Corethridae in the Indian Museum. *Miscellanea* :—Measurements of the skeletons of two large Indian elephants in the Indian Museum. The young of *Aelurus fulgens*. Some Batrachia recently added to the collection of the Indian Museum. Breeding habits of *Tylototriton verrucosus*. The occurrence of *Rhinodon typicus* at the head of the Bay of Bengal. Note on *Ephydatia meyeri* (Carter).

Part IV.—Aquatic animals from Tibet, I. Aculeate Hymenoptera in the Indian Museum, I. Indian Psychodidae. A new species of mouse from the Madura District, Madras. Some Cleridae of the Indian Museum. The Fauna of Brackish Ponds at Port Canning, Lower Bengal, XII. A new species of Saw-Fish captured off the Burma Coast. A new Sting Ray of the genus *Trygon* from the Bay of Bengal. New Microlepidoptera from India and Burma. Chrysomelid Beetles in the Indian Museum. Six new Cicindelinae from the Oriental Region. A new Slug from Tibet.

Part V.—Revision of the Oriental Leptidae. Revised and annotated Catalogue of Oriental Bombylidae.

Vol. III, 1909.

Part I.—The races of Indian rats.

Part II.—Freshwater Sponges, X. Aquatic animals from Tibet, II. Some amphibious Cockroaches. Quelques nouvelles Cécidomyies des Indes. New land and marine shells from Ceylon and S. India. Two new species of *Caranx* from the Bay of Bengal. Some little known Indian Ophidia. Some forms of *Dipsadomorphus*. A pelagic Sea-Anemone without tentacles. Rhynchota Malayana, II.

Part III.—The Neuroptera in the Indian Museum. New Indian Leptidae and Bombylidae. The Trichoptera in the Indian Museum. New species and varieties of Freshwater Crabs, 1—3. Lizards from Travancore. Three new Cicindelinae from Borneo. The relation between fertility and normality in Rats. A Barnacle of the genus *Scalpellum* from Malaysia. The Hemipterous family Polytectenidae. Freshwater Sponges, XI. Two new shells from S. India. A new genus of Phylactolaematous Polyzoa. *Miscellanea* :—Major Wall on some forms of *Dipsadomorphus*. Notes on Indian Batrachia. Notes on Indian Freshwater Fish. Field notes on Indian Insects. The habits of Indian King-Crabs. The rate of growth in *Conchoderma* and *Lepas*. Large colonies of *Hislopia lacustris*. *Branchiocerianthus imperator* von der Küste von Oman und Baluchistan.

Part IV.—A minute Hymenopterous insect from Calcutta. The Insect Fauna of Tirhut, No. 1. New species of *Botia* and *Nemachilus*. New Oriental Sepsinae. A new species of *Fredericella* from Indian lakes. New species and varieties of freshwater crabs, 4. Some new or little known Mygalomorph spiders from the Oriental region and Australasia.

Vol. IV, 1910-1911.

No. I.—Second report on the collection of Culicidae in the Indian Museum.

Nos. II and III.—The Indian species of Papataci Fly (*Phlebotomus*). Taxonomic values in Culicidae.

No. IV.—Revision of the Oriental blood-sucking Muscidae.

No. V.—A new arrangement of the Indian Anophelinae.

No. VI.—A revision of the species of *Tabanus* from the Oriental Region, including notes on species from surrounding countries.

No. VII.—New Oriental Nemocera. *Miscellanea* :—Synonymy in Corethrinae. Indian *Phlebotomi*.

Nos. VIII and IX.—A revision of the Oriental species of the genera of the family Tabanidae other than *Tabanus*. Contributions to the fauna of Yunnan, Part VII.

Vol. V, 1910.

Part I.—The Hydroids of the Indian Museum, I. Freshwater Sponges, XII. New Shells in the Indian Museum from Burma, Siam and the Bay of Bengal. Materials for a revision of the Phylactolaematous Polyzoa of India. Studies on the aquatic Oligochaeta of the Punjab. An undescribed Burmese Frog allied to *Rana tigrina*. *Miscellanea* :—The occurrence of *Vultur monachus* in Calcutta. An albino Owl. "*Matla bengalensis*": a correction.

Part II.—Description d'Ophiures nouvelles provenant des dernières campagnes de "l'Investigateur" dans l'Océan Indien. Description d'Holothuries nouvelles appartenant au Musée Indien. The races of Indian rats, II. A new species of *Scalpellum* from the Andaman sea. Five new species of marine shells from the Bay of Bengal. Fish from India and Persia.

- Part III.**—A new genus of Psychodid Diptera from the Himalayas and Travancore. The Indian barnacles of the subgenus *Smilium*, with remarks on the classification of the genus *Soalpellum*. A subspecies of *Soutigerella unguiculata*, Hansen, found in Calcutta. The distribution of the Oriental Scolopendridae. Decapoda in the Indian Museum, I. A new species of *Nemachilus* from Northern India. The larvae of *Toxorhynchites immisericors*, Wlk. A South Indian frog allied to *Rana corrugata* of Ceylon. Contributions to the fauna of Yunnan, Introduction and Part I. *Miscellanea*:—The Darjiling skink (*Lygosoma sikkimense*). Cockroaches as predatory insects. Note on *Aedeomyia squammipenna*, Arribalzaga. Named specimens of Chrysomelidae in the Indian Museum. Two barnacles of the genus *Dichelaspis* new to Indian seas. Slugs from the Eastern Himalayas.
- Part IV.**—Indian Microlepidoptera. Some aquatic oligochaete worms commensal in *Spongilla carteri*. *Bothrioneurum iris*, Beddard. Nudibranchs from the Indian Museum. The classification of the Potamonidae (Telphusidae). Catalogue of the pheasants, peafowl, jungle fowl and spur fowl in the Indian Museum. Species of *Palaemon* from South India. *Alluaudella himalayensis*, a new species of degenerate (♂) cockroach, with an account of the venation found in the genera *Cardax* and *Alluaudella*. Rhynchota Malayana, III.

Vol. VI, 1911.

- Part I.**—A Rhizocephalous Crustacean from fresh water and on some specimens of the order from Indian seas. Decapoda in the Indian Museum, II. Contributions to the fauna of Yunnan, Parts II to V. Pedipalpi in the Indian Museum, I and II. Six new species of shells from Bengal and Madras. *Miscellanea*:—Fleas from India and China. Flies found associated with cattle in the neighbourhood of Calcutta. Mosquito sucked by a midge. Large egg laid by a beetle.
- Part II.**—Some sponges associated with gregarious molluscs of the family Vermetidae. Aquatic animals from Tibet, III. Cyprinidae from Tibet and the Chumbi Valley, with a description of a new species of *Gymnocypris*. New species and varieties of Crustacea Stomatopoda in the Indian Museum. The development of some Indian Ascalaphidae and Myrmeleonidae. *Miscellanea*:—The occurrence of *Dactylopius citri*, Risso, in the Himalayas. Note on Aquatic Rhynchota.
- Part III.**—Nouveaux Chironomides de l'Indian Museum de Calcutta.
- Part IV.**—Indian Isopods. Systematic notes on the Ctenostomatous Polyzoa of fresh water. Some aquatic Oligochaeta in the Indian Museum. Contributions to the fauna of Yunnan, Part VI. Asiatic species of Crustacea Anostraca in the Indian Museum. Freshwater sponges, XIII. *Miscellanea*:—Synonymy in Corethrinae. The distribution of the different forms of the genus *Ibla*.
- Part V.**—Revision of the Oriental Tipulidae. Five new Indian species of Clavicorn Coleoptera. Les Chironomides (Tendipedidae) de l'Himalaya et d'Assam. The occurrence of *Apus* in Eastern Asia.

Vol. VII, 1912.

- Part I.**—Deep-sea Fish obtained by the R.I.M.S.S. "Investigator" during 1910-11. Decapoda in the Indian Museum, III. Fauna of Paresnath Hill. Observations on the shallow-water Fauna of the Bay of Bengal made on the "Golden Crown," 1908-09. Coccidae in the Indian Museum, I. On the nervous system of *Ampullaria globosa*. Description of a species of Phoridae that causes Myiasis in man. *Miscellanea*:—Mimicry of a Mutillid by a spider. Capture of *Limulus* on the surface. Development of the larva of *Lingula*. Distribution of some Indian and Burmese Lizards.

I. SECOND REPORT ON THE COLLECTION OF CULICIDÆ IN THE INDIAN MUSEUM, CALCUTTA, WITH DESCRIPTIONS OF NEW GENERA AND SPECIES

By FRED. V THEOBALD, *M.A., etc.*

NOTE.

The following report and descriptions of new species of Culicidæ is based on further collections belonging to the Indian Museum, Calcutta, sent me in 1908.¹ The types will be found in that Museum, but some co-types, where possible, have been retained for the British Museum of Natural History. Twenty new species are described and four new genera, also one new variety of an Anopheline.

The series of banded-proboscis *Culex* provisionally placed as *Culex impellens*, Walker, must be specially worked out, as I find such wide variation that it is impossible to separate them and it is likely that several of the more recently described banded-proboscis species will have to sink as subspecies under one of the older names. This cannot be settled off-hand, males and females must be bred and the genitalia of the former and the larvæ examined before any further advance can be made in this group of *Culex*.

SPECIES IN THE COLLECTION.

Family CULICIDÆ.

I. *Anopheles lindesayi*, Giles, var. *maculata*, var. nov.

A very distinct variety of this marked species. The wings have a dense black spot of scales at the base of the long vein, a dense black spot of scales at the cross-veins, another at the base of the first fork-cell, a smaller one at the base of the second fork-cell and the outer edge of the costa, the first long vein and the base of the branches of the first fork-cell all very dark. There are no pale spots on the wing fringe.

Habitat Kurseong, 5,000 feet, Darjiling district, E. Himalayas (*Annandale*).

Time of capture 5-vii-08.

¹ The first report was published in the *Records of the Indian Museum*, vol. ii, part iii, Oct. 1908, pp. 287—302. The species figured in the plates accompanying this report were described in the former report.—ED., *Rec. Ind. Mus.*

Observations.—A single perfect female. Evidently only a variety of Giles's species, but the marked maculation of the wings gives it a very different appearance.

2. *Myzomyia rossii*, Giles.

Journ. Trop. Med., Oct., 1899.

Additional Localities and Dates.

Bengal.—Calcutta, "in house," 10 and 11-viii-08 (*R. E. Lloyd*) and 28-viii-08 (2) (*I. H. Burkill*); "common below leather hoods of hired carriages and in public galleries of Indian Museum," vii-08 (*Annandale*); Balliganj, near Calcutta, 9-x-08 (2) (*T. Bentham*); Bamungachi, Howrah, near Calcutta, 2 and 9-ix-08 (*J. Caunter*); Port Canning, Lower Bengal (2), 9-x-08. Katihar, Purneah district, N. Bengal, 6-viii-07 and 4-5-x-08 (2) (*C. Paiva*). Sur lake, near Puri, Orissa, 25 and 26-x-08 (2), "biting by day when disturbed from old wells" (*Annandale*).

E. Bengal and Assam.—Chittagong, E. Bengal, 7-viii-08, 19 and 21-ix-08 (*Lt.-Col. Hall*).

Madras Presidency.—Gopkuda Id., Chilka lake, Ganjam district, near Bengal frontier, 7-15-viii-07 (*R. Hodgart*).

Travancore State.—Trivandrum, Vaikum (coastal region), Shencottah on the Madras frontier (e. side of W Ghats), Kulattupuzha (w. base of W Ghats): all collected by Dr. Annandale between 5 and 25-xi-08.

The Punjab—Ferozepore (*Lt.-Col. Adie*) (34).

At sea.—On board ship 10 miles off Coconada on the Madras coast, 17-iv-08 (*C. Paiva*).

NOTE.—One specimen from Calcutta, quite typical, with label stating that it was determined by Giles as *Anopheles costalis*; he does not mention this in his Handbook.

3. *Myzomyia culicifacies*, Giles.

Entomologist's Monthly Magazine, p. 197, 1901.

Localities and Dates.

Bengal.—Rajmahal, 31-viii-07 (*R. Hodgart*).

Burma.—Mandalay, ♂ and ♀ "in bathroom," 13 and 14-iii-08 (*Annandale*).

The United Provinces—Lucknow, 21-I-08 (*R. Hodgart*).

The Punjab.—Ferozepore (*Lt.-Col. Adie*).

4. *Myzomyia christophersi*, Theob.

Proc. Royal Soc., lxix, p. 378, Jan. 1902.

Localities and Dates.

Bengal.—Calcutta (*Lt.-Col. Alcock*).

E. Bengal and Assam.—Meenglas, Dooars, Jalpaiguri, 13-viii-07 (*C. Wallich*) (1); Sylhet, Assam, 2-v-05 (*Lt.-Col. Hall*).

5. *Nyssorhynchus jamesii*, Theob.

Mono. Culicid., i, p. 134, 1901.

Localities and Dates.

Bengal.—Calcutta, 5-viii-08 (*Annandale*) ; Shamnagar, 3-viii-05 (*C. A. Gourlay*) (3).

6. *Nyssorhynchus fuliginosus*, Giles.

Handbk. Gnats, p. 160, 1st Edit., 1900.

Additional Localities and Dates.

Bengal.—Calcutta (Museum premises), 15-vii-08 and 12-viii-08, "at light in house," 14-viii-08, "in bungalow at light" (*Annandale*) ; Balighai near Puri, Orissa, 23 and 24-x-08, "numerous in old wells, resting by day" (*Annandale*).

The Punjab.—Ferozepore (20) (*Lt.-Col. Adie*).

7. *Nyssorhynchus maculatus*, Theob.

Mono. Culicid., i, p. 171, 1901.

Localities and Dates.

Nepal.—Nara Ghat, Bengal frontier, 25 and 26-11-08 ; Thamaspur, Bengal frontier, 18 and 20-11-08 (*mus. collr.*), ♂ and ♀

Three rather large specimens but otherwise quite typical; the apical abdominal scales quite distinct.

One ♂ from the Punjab (?) has the outer costal border very dark, showing no third pale costal spot.

8. *Nyssorhynchus willmori*, James-Theobald.

Mono. Culicid., iii, p. 100, 1903.

E. Bengal.—Meenglas, Dooars, Jalpaiguri, 13-vii-07 (*C. Wallich*).

9. *Nyssorhynchus stephensi*, Liston.

Ind. Med. Gaz., xxxvi, No. 12, 1901.

Bengal.—Calcutta, "flying by day in Museum garden," 15-vii-08 (*Annandale*).

10. *Cellia pulcherrima*, Theob.

Proc. Royal Soc., p. 369, vol. lxix, 1902.

The Punjab.—Ferozepore (*Lt.-Col. Adie*).

11. *Myzorhynchus barbirostris*, Van der Wulp.

Leyden Museum Notes, vi, p. 46, 1884.

Localities and Dates.

E. Bengal and Assam.—15-i-07, Chittagong, 15-viii-08 (*Lt.-Col. Hall*).

Travancore State.—Nedumangad, ten miles N.E. of Trivandrum, 14-xi-08 (*Annandale*).

12. *Myzorhynchus sinensis*, Wiedemann.

Ausser. Zweifl. Ins., p. 547, 1828.

Additional Localities and Dates.

Bengal.—Calcutta (Museum premises), 9-vi-08, 28-vii-08, and viii-08, "in bathroom" (*Annandale*); Damukdia Ghat, R. Ganges, 30-iv-08, "at light on board steamer" (*Annandale*).

Assam.—Sylhet, 13-i-03, 13-i-04, 20-i-03, 26-i-03, 23-ii-05, 27-v-00, 4 and 7-vi-05, 24-vii-08 (*Lt.-Col. Hall*); Ukhrul, Manipur, 6,400 feet, lat. 25° N., long. 94-95° E., viii-08 (*Rev. W. Pettigrew*) (16).

The Punjab.—Ferozepore (*Lt.-Col. Adie*).

Travancore State.—Maddathorai, w. base of W Ghats, 18-ix-09 (*Annandale*).

13. *Toxorhynchites immisericors*, Wlk.

Journ. Proc. Linn. Soc. Lond., p. 91, 1860.

♀ Thorax clothed with metallic green and bronze scales, pale apple-green and pale blue at the sides in front and up to the base of the wings; pleuræ dense'y silvery white-scaled, dark above and below; head with a rich brown tinge in some lights, green in others, paler around the eyes; palpi and proboscis metallic purple and violet with mauve scales at the apex of the palpi. Abdomen as in the male but the tail tuft more pronounced. Fore legs with the metatarsals and first tarsal segments creamy white, rest dark; mid legs with the base of the metatarsals creamy white and all the first three tarsals; hind legs with the first two tarsals white.

NOTE.—The ♀ is redescribed here as the specimen in the British Museum was too damaged to do so.

Additional Localities and Dates.

Bengal.—Calcutta (Museum compound), 6-i-07, 2, 16, 28 and 31-vii-07 (6), 2, 5, 6 and 26 viii-07 (19) (*Annandale*); (Zoological Gardens), 9-vii and 12-viii-08 (2) (*Annandale*).

E. Bengal and Assam.—Chittagong, 3-ix-08 (*Lt.-Col. Hall*); Sylhet, Assam, 5-v-05 (*Lt.-Col. Hall*).

The Himalayas.—Bhim Tal, 4,500 feet, Kumaon, 19 and 22-ix-06 (*Annandale*).

14. *Mucidus scataphagoides*, Theob.

Mono. Culicid., i, p. 277, 1901.

N. Bengal.—Purneah, 5-viii-07 (1 ♀) (*C. Paiva*).

15. *Desvoidea obturbans*, Wlk. (and varieties).

Proc. Linn. Soc. Lond., iv, p. 91, 1860.

Additional Localities and Dates.

Bengal.—Calcutta, 21-i-08, 13-iii-07, 16-iii-07, 15-vii-07, 22-vii-07, 2-viii-07, 6-viii-07 (5), 28-i-08 (*Annandale*), 3 and 4-viii-07 (2), 15-viii-07, 2-viii-07, 23-viii-07, 4, 7 and 15-xii-08, "biting by day" (*C. Paiva*); Balliganj, near Calcutta, 30-ix, 9 and 11-x-08 (*T. Benth*); Rajmahal, 30-vii-07 (*R. Hodgart*).

The Himalayas.—Sukna, 500 feet, base of E. Himalayas, Darjiling district, 1-vii-08, "in deep jungle" (*Annandale*); Kurseong, 5,000 feet, Darjiling district, E. H. malayas, 5-vii-08 (*Annandale*).

Trancore.—Trivandrum, 14-xi-08 (*Annandale*).

"Numerous specimens of this species were reared in July, 1909, by Mr. G. H. Tipper, from a glass of water left standing on a table in the office of the Geological Survey of India, Calcutta" (*Annandale*).

16. *Desvoidea panalectros*, Giles.

The co-type (Reg. No. $\frac{8986}{13}$) is nothing but an immature large *Culex fatigans*, Wied., with distinct abdominal banding.

17. *Desvoidea apicalis*, sp. nov.

Head dark brown, paler around the eyes; palpi and proboscis black. Thorax bronzy brown, with a pale line around the front and sides; pleuræ brown with silvery white-scaled areas. Abdomen black with prominent apical yellow bands and snowy white lateral spots. Legs black, unbanded, bases and venter of femora white.

♀ Head clothed with flat violet-black scales, some white ones forming a central line and small creamy curved ones forming a border around the eyes; a tuft of pale golden chætæ projecting between the eyes, dark ones at the sides; clypeus black with small creamy spindle-shaped scales; palpi and proboscis deep violet-black; antennæ black, the basal segment testaceous and black with small creamy scales, base of the second segment bright ferruginous.

Thorax black with narrow-curved almost hair-like bronzy scales, broader and pale ones forming a border around the front and sides of the mesothorax, the scales longer, broader and larger before the scutellum; a dense tuft of brown chætæ over the roots of the wings; scutellum clothed with flat violet scales, border bristles rich brown; metanotum brown; pleuræ brown with patches of flat white scales.

Abdomen black with violet reflections, all the segments but the first and last two with broad yellow apical bands, narrowed at the sides, and not passing quite to the edges; posterior border bristles small, brown with pale reflections; large lateral white spots, most marked on the apical segments.

Legs black, unbanded, femora pale beneath, the hind pair white below and at the base; chætæ dark (in some lights the legs have a brassy sheen); fore and mid unguis equal and uniserrate, hind equal and simple.

Wings with short fork-cells, nearly equal in length; the first submarginal narrower than the second posterior, its base a little nearer the apex of the wing, its stem nearly as long as the cell, stem of the second posterior as long as the cell, about one-and-a-half times its own length distant from the mid. Halteres with a pale testaceous stem, fuscous scales towards the white knob.

Length 6 mm.

Habitat Balighai near Puri, Orissa.

Time of capture 24-x-08 (*Annandale*).

Observations.—Described from a single perfect ♀. It is a typical *Desvoidia* and can be told at once by the very pronounced apical yellow abdominal bands.

18. *Brevirhynchus magnus*, Theob. (Pls. ii and iii, wing and wing scales.)

Rec. Ind Mus., ii, p. 293, 1908.

Additional Localities and Dates.

The Himalayas.—Sukna, 500 feet, base of E. Himalayas, Darjiling district, i-vii-08, "in thick jungle" (*Annandale*).

Travancore.—Maddathorai, w. base of W. Ghats, 17-xi-08 (*Annandale*) (1 ♀).

19. *Brevirhynchus annulipalpis*, sp. nov.

Thorax black with scanty dull golden scales, arranged in rather obscure lines, sides and front of the mesonotum pale scaled; pleuræ with patches of white scales. Head black, pale in middle. The rather long black palpi with a snow-white band. Proboscis black, unbanded. Abdomen black with snowy white bands near the apex of some of the segments and with long thin lateral creamy spots. Legs dark with basal pale bands and pale chætæ.

♀ Head clothed with rather large, loose, flat dark scales, showing dull violet reflections, similar creamy ones forming a narrow median area, some creamy ones around the eyes and small almost white lateral flat scales, a few thick black chætæ at the eye borders and golden ones between the eyes; clypeus dark with small flat pale scales; proboscis rather short, thick and uniformly black, metallic. Palpi about half the length of the proboscis, black with metallic violet reflections, a broad white band about the middle and a narrow creamy one nearer the base; antennæ black, basal segment and base of the second bright testaceous, the former with small flat dark and creamy scales. Thorax black, clothed with long narrow-curved black, coppery and creamy scales, the latter in rather indistinct lines, sides of the mesonotum with rather broader pale creamy curved scales, which also pass around the front; the scales are larger, long and lanceolate over the roots of the wings, creamy and violet; dense dark brown chætæ also over the roots of the wings; scutellum large, clothed with loosely applied flat violet and creamy scales and with rich brown border

bristles; metanotum shiny black, shagreened over its surface; pleuræ brown with irregular patches of creamy white scales, which extend up to the edge of the pale areas of the mesonotum; prothoracic lobes with flat creamy white scales.

Abdomen black with violet reflections, the first segment unbanded, with very fine pale hairs, second segment with a large creamy median basal spot, traces of a pale area on each side near the apex, but not nearly forming a band, the third to fifth segments with almost complete white bands towards the apical borders; a trace of pale scales on the sixth, similar to the second; apical segment with a brassy sheen and some golden brown chætæ, a yellow lateral line on each segment; venter black and white.

Legs black with white basal bands; femora black, pale beneath, in the hind pair white at the base and below except at the apex; a pale, almost white spot at the base of the fore metatarsals and first two tarsi, in the mid legs the banding is slightly more pronounced, especially on the metatarsi, in the hind legs all the tarsi have basal white bands and the chætæ are prominently pale, ungues equal and simple.

Wings with dense brown scales; the first submarginal cell longer and narrower than the second posterior cell, its base nearer the base of the wing, its stem less than one-third the length of the cell; stem of the second posterior not quite as long as the cell; posterior cross-vein nearly twice its own length distant from the mid; halteres with the stem grey, then fuscous and the knob creamy white.

Length 5.5 mm.

Habitat Maddathorai, w. base of W. Ghats, Travancore (*Annandale*).

Time of capture 16-xi-08.

Observations.—Described from a single perfect ♀. At once told from any other known member of the genus by the banded palpi. The abdomen is relatively long and thin. The proboscis is short and thick but not so bent as in the type of the genus.

20. *Brevirhynchus apicalis*, sp. nov.

Head ochreous with a median and two lateral black patches; proboscis and palpi black. Thorax deep golden brown scaled with a pale ochreous border around the sides and front; pleuræ brown with creamy patches of scales; abdomen black, with apical yellow bands, showing some faint traces of a median pale line, lateral median white spots and ochreous venter. Legs brown with narrow apical pale bands.

♀ Head with flat ochreous scales, a small median dark-scaled patch in front, then a large and then a small dark-scaled lateral patch, borders of the eyes ochreous, golden chætæ projecting between them, brown ones at the sides; eyes coppery red; clypeus brown, palpi long and thin, black, traces of a narrow pale

band towards the base; proboscis black; antennæ brown, basal segment bright ferruginous, with small flat grey and fuscous scales, base of the second segment ferruginous.

Thorax black, thickly clothed with narrow-curved deep golden brown to bronzy scales, with a distinct ochreous border surrounding the sides and front, some paler broader scales and golden brown chætæ over the roots of the wings; scutellum clothed with flat black and ochraceous scales, mixed together; border bristles golden; metanotum chestnut-brown; pleuræ brown with patches of small flat creamy scales.

Abdomen black, the second to sixth segments with prominent broad yellow apical bands, expanded in the middle but not continued quite to the edge of the segments, seventh with a few pale scales, eighth mostly ochreous scaled; each segment with a median lateral pale spot; venter ochreous. Legs brown, hind femora pale beneath, apex of tibiæ with a pale ochreous spot continued on to the base of the metatarsus, the tibiæ with narrow apical and basal pale yellow bands; fore and mid unguis uniserrate, hind equal and simple.

Wings with rather short fork-cells; the first submarginal cell a little longer and narrower than the second posterior cell, its base slightly nearer the apex of the wing, its stem more than half the length of the cell, stem of the second posterior not quite as long as the cell; posterior cross-vein long, twice its own length distant from the mid. Halteres with pale stem and fuscous knob.

Length 8 mm.

Habitat Sylhet, Assam (*Lt.-Col. Hall*).

Time of capture 26-vi-5.

Observations.—Described from a single ♀. It is a large and distinct species easily identified by the apical and basal leg banding, apical abdominal bands and ochreous venter. The length of the palpi and short thick proboscis agree with *Brevirhynchus*, but the head and thoracic scales, although of the same general form, are not so large as in the other two species. I see no reason however to separate it from that genus.

21. *Stegomyia fasciata*, Fabricius.

Syst. Antl., p. 36, 13, 1805.

Additional Localities and Dates.

Bengal.—Calcutta, 27-vii-07, 27-viii-07 (*C. Paiva*), 28-vii-08 (*I. H. Burkill*), "in Museum building," vii-08 (*T. Bentham*), July and August 07 (*mus. collr.*); Puri, Orissa coast, 18 and 19-i-09 (*Annandale*). "Not so common in Calcutta as *S. scutellaris*" (*Annandale*).

E. Bengal and Assam.—Chittagong, 21-ix-03 (*Lt.-Col. Hall*).

Madras Presidency.—Madras town, 31-x-08 (*R. Hodgart*).

Burma.—Rangoon, "in house, biting by day," 25-ii-08; Mandalay, 12-iii-08 (*Annandale*).

At sea.—On board ship, Bay of Bengal, between mouth of R. Hooghly and Rangoon, 22 and 23-ii-08 (*Annandale*); on board ship, 10 miles off Coconada on the Madras Coast, 15-iv-08 (*C. Paiva*). "I found this species common on board ship all the way from Calcutta to Rangoon in February" (*Annandale*).

22. *Stegomyia scutellaris*, Wlk.

Journ. Proc. Linn. Soc. Lond., iii, p. 77 (1859).

Additional Localities and Dates.

Bengal.—Calcutta, 11-iii-08 (2), 15 and 23-vii-07, 6-viii-07 (1), 19-ix-07 (6), 31-vii-07, 5-viii-07, (Zoological Gardens) 12-vii-08, 2-viii-07 (*Annandale*); Purneah, N. Bengal, 5-viii-07, Bhogaon, Purneah district, N. Bengal, 7-x-08 (8), 9-x-08 (1) (*C. Paiva*); Balighai near Puri, Orissa, 23 and 26-x-08 (*Annandale*). "Very abundant in Calcutta between March and November" (*Annandale*).

The Himalayas.—Sukna, 500 feet, base of F. Himalayas, Darjiling district, 1 and 2-vii-08 (7), "only troublesome during day" (*Annandale*); Bhim Tal, 4 500 feet, Kumaon, "breeds in hollow trees in jungle," ix-06 (*Annandale*).

Madras.—Madras town, 30-x-08 (7) (*R. Hodgart*).

Travancore State.—Trivandrum, 14-xi-08 (2), Maddathorai (w. base of the Western Ghats), 18-x-08 (*Annandale*).

The United Provinces.—Shahjahanpur, "day biting" (*G. M. Giles*), one ♀ named by Giles *Culex albopictus*, Skuse.

Burma.—Mandalay, 11-iii-08, "not uncommon in house" (*Annandale*).

Ceylon.—Colombo, Victoria Gardens, 26-iv-08 (*C. Paiva*).

23. *Culex mimeticus*, Noë.

Bull. Soc. Ent. Ital., xxxi, p. 240, 1899.

The Himalayas.—Theog, 8,000 feet, Simla Hills, 2-v-07 (1 ♀) (*Annandale*).

Nepal.—Thamaspur, Bengal frontier; 18 and 20-ii-08 (1 ♂), large specimen (*mus. collr.*).

24. *Stegomyia minutissima*, sp. nov.

Head black, a white border to eyes and white median spot in front between them; palpi black with white apices; proboscis black. Thorax deep brown with a small grey-scaled area in front, grey scales in front of the roots of the wings and three short creamy lines behind. Abdomen black with narrow white basal bands and white lateral spots. Legs dark brown with basal white bands; mid femora with a marked median white spot and white apex; hind femora white at base. Very small species.

♀ Head clothed with flat black scales, a large median triangular white-scaled area in front and a pale border to the eyes; clypeus dark brown; palpi black with snowy white apices;

proboscis black; antennæ deep brown, basal segment with white scales; some golden brown chætæ project between the eyes.

Thorax black, the greater surface clothed with bronzy brown longer narrow-curved scales, a small area near the head and a small wedge-shaped area on each side in front of the wings with dull white scales, some pale creamy scales which form three indistinct lines behind in some lights; scutellum with flat black scales with dull violet reflections and some white ones on the lateral lobes; pleuræ brown with flat white-scaled spots. Chætæ brown and black. Abdomen black with narrow basal white bands and basal snowy white lateral spots. Legs deep brown; the first pair with a basal white band to the first tarsal, the mid with a median white spot on the femora, the apex white and a basal white band to the metatarsal and first tarsal; the hind with the femora white at the base, and all the segments with a basal white band except the last; some large black chætæ at the apices of the segments in the hind legs; fore and mid unguis uniserrate, hind simple.

Wings with typical large brown Stegomyian scales on the basal region, dense narrow linear ones on the apical areas of the veins; the first submarginal cell longer and narrower than the second posterior, their bases nearly level. Stem of the first fork-cell about half the length of the cell, stem of the second posterior about two-thirds the length of the cell: posterior cross-vein twice its own length distant from the mid.

Length 2.5 mm.

Habitat Sukna, 500 feet, base of E. Himalayas, Darjiling district (*Annandale*).

Time of capture 1-vii-08.

Observations.—Described from 3 ♀'s. One of the smallest *Stegomyia* I have seen. It can easily be told by the thoracic ornamentation and the white round spot on the femora of the mid legs. One specimen was taken in a bungalow.

25. *Stegomyia annandalei*, sp. nov.

Head black with a large median white patch; palpi black with snowy white apices; proboscis black. Thorax black-brown with a snowy white patch in front and one over the roots of the wings.

Abdomen jet-black with snowy white basal bands which gradually swell out laterally. Legs black banded with snowy white, the hind legs with a band at the base of the metatarsals, first tarsals and the whole of the third white.

♀ Head clothed with flat black scales, with a large median triangular snowy white patch and a small dull white lateral patch, some black chætæ in front; palpi black-scaled with broad snowy white apices: proboscis black; antennæ deep brown, basal segment with dense snowy white scales.

Thorax shiny black, clothed with long bronzy brown narrow-curved scales, except for a small snowy white patch of similar scales in front and a patch of flat snowy white scales over the base

of the wings on each side; supra-alar chætæ dense, black and long; scutellum with the mid lobe clothed with flat black scales, the lateral lobes with flat white scales; border bristles black; metanotum deep brown; pleura dark with numerous white patches of scales.

Abdomen black with four snowy white basal bands on the last four segments, which broaden out laterally, the two preceding segments with basal white lateral spots.

Legs black, the fore and mid with basal white bands on the metatarsi and first tarsal; the hind with a basal white band on the metatarsi and first tarsal segments, the second all dark, the third nearly all white, the fourth dark; ungues *apparently* all simple.

Wings with brown scales; fork-cells short, the first submarginal longer and narrower than the second posterior, its stem a little nearer the base of the wing than that of the second posterior, its stem about two-thirds the length of the cell; stem of the second posterior nearly as long as the cell; posterior cross-vein rather more than twice its own length distant from the mid

Length 2·8 mm.

Habitat Sukna, 500 feet, base of E. Himalayas, Darjiling district (*Annandale*).

Time of capture vii-08.

Observations.—Described from a single perfect ♀. It resembles *Stegomyia minutissima* but can at once be told by the banding of the posterior legs and still more definitely by the *flat* white scales forming the lateral thoracic patches. The specimen was taken in a bungalow.

26. *Stegomyia albipes*, sp. nov.

Thorax brown, a small silvery white patch in front and a white-scaled line running down to the base of the wings where there is a large snowy white patch extending on to the dorsum and scutellum. Head black, white in the middle; palpi black with snowy apex; proboscis black. Abdomen black with narrow basal white bands and large snowy white lateral basal spots. Legs with broad basal white bands, last two hind tarsi white; mid femora and tibiæ with a median white round spot.

♀ Head black, clothed with flat black scales at the sides, white in the middle; chætæ black; proboscis and clypeus black; palpi black with snowy white apices; antennæ dark brown, basal segment with dense flat snowy white scales.

Thorax dark with narrow-curved deep bronzy brown scales, snowy white ones forming a broadish line in front and extending laterally towards the wings before which they spread out into a large white patch, which passes on to the dorsum; this is composed of narrow-curved scales above and flat ones below; there is also a white line of narrow-curved scales on each side just past the roots of the wings and a few white scales here and there before the scutellum; supra-alar chætæ black; scutellum clothed with rather

large flat snowy white scales; metanotum black; pleuræ black with silvery white puncta.

Abdomen black with narrow basal snowy white bands and very large basal lateral white spots; posterior border bristles pale, short.

Legs black with white bands and spots; the fore femora pale at the base ventrally, fore tibiæ with a white median spot; knee spot white; white bands to metatarsi and first tarsals; mid femora with prominent white median spot (almost a band), a smaller one basally and a white apex, metatarsi and first tarsal basally white; hind femora white basally, and on most of the venter, apex white; tibiæ with a white band on the apical half, metatarsi and first two tarsi basally snowy white, and all the last two tarsi; chætæ black; unguis equal and simple.

Wings with dark scales, base pale; first submarginal cell longer and narrower than the second posterior, its base nearer the base of the wing, its stem about half the length of the cell; stem of the second posterior about as long as the cell; posterior cross-vein rather more than twice its own length distant from the mid. Halteres with testaceous stem and deep fuscous knob.

Length 3 mm.

Habitat Maddathorai, w. base of W Ghats, Travancore (*Annandale*).

Time of capture 17-xi-08.

Observations.—Described from a perfect ♀. At once separated from any other *Slegomyia* by the last two hind tarsi being white and by the thoracic ornamentation, especially by the prealar white patch being composed of narrow-curved scales above, flat ones below. The femoral and tibial markings are also very distinctive.

27. *Stegomyia assamensis*, Theob.

Rec. Ind. Mus., ii, p. 290, 1908.

Travancore.—Pallode, twenty miles N.E. of Trivandrum, 15-xi-08 (*Annandale*), 1 small ♀

Genus PSEUDOCARROLLIA, gen. nov.

Head clothed with flat scales and upright forked scales, a border of spindle-shaped scales around the eyes. Palpi of ♀ about one-fourth the length of the proboscis. Thorax with narrow-curved scales; scutellum with flat scales. Abdomen with dense ventral scale tufts on some of the apical segments. Fork-cells rather short, vein-scales rather thick.

Allied to *Carrollia* (Lutz) but differs in having the scutellum with all flat scales and in the absence of narrow-curved scales forming a median basal area on the head.

The marked ventral abdominal scale tufts resemble those of *Carrollia* and *Hæmagogus*.

28. *Pseudocarrollia lophoventralis*, sp. nov.

Head black, a white border to eyes, eyes silvery above; proboscis and palpi jet-black; thorax with the front bright silvery white, also the scutellum, the posterior half of the mesonotum rich brown; pleuræ with silvery white puncta. Abdomen black with a dull greenish tinge, basal lateral snow-white spots and basal white ventral bands, and ventral black scale tufts. Legs banded with white, base and apex of metatarsi white, also base of the front and hind first tarsal, base and apex of the mid; femora white at base and with a white apical spot on hind pair.

♀ Head black, clothed with flat black scales and a narrow border of spindle-shaped white ones around the eyes; narrow black upright forked scales and black chætæ projecting forwards; clypeus, palpi, antennæ and proboscis all deep black; eyes silvery around the edges, black in the centre.

Thorax black, clothed on the front half with dense long narrow-curved snowy white scales, not quite extending to the pleuræ on each side, forming more of a large round patch, remainder of mesonotum with rich bronzy scales except for a few snowy white ones over the roots of the wings; supra-alar chætæ long and black; scutellum black, thickly clothed with snowy white flat scales and golden border bristles; pleuræ rich brown, with six or seven white spots; metanotum black.

Abdomen black, with the scales black, showing in some lights green and peacock-blue reflections, the green mainly at the tips of the scales; the segments with prominent basal lateral snow-white spots, six on each side, last segment small, basally white; posterior border bristles pale; venter black with snow-white basal bands, the fifth to the seventh segments with dense black outstanding scales, giving a tufted appearance. Legs black with white bands; front legs with apex of tibiæ and metatarsi white, and base of first tarsal; mid legs with femora white at the base ventrally, a small white apical spot, a white spot at the apex of tibiæ, a white band at base and apex of metatarsi, also base and apex of first tarsal and a trace at the base of the second tarsal; in the hind legs the base of the femora are snowy white and there is a large white apical band and the base and apex of the metatarsi banded white, also base of first tarsal; leg bristles black; fore and mid unguis uniserrate, hind simple.

Wings with short fork-cells, the first submarginal narrow but no longer than the second posterior, its stem more than half the length of the cell; stem of the second posterior also more than half the length of the cell; posterior cross-vein about twice its own length distant from the mid, the latter and the supernumerary are in a straight line; scales brown, rather dense on the branches of the fork-cells. Halteres with testaceous stems and fuscous knobs.

Length 5.5 mm.

Habitat Purneah, N. Bengal (*C. Paiva*).

Time of capture 6-viii-07, "resting on under side of leaf of lichi tree during day" (C. Paiva) (1 ♀).

Observations.—Described from a single perfect ♀. It clearly comes in a new genus, related to Lutz's *Carrollia*. The very marked thoracic, abdominal and leg ornamentation will at once separate it from any species coming in the Stegomyian group. The ventral abdominal tufts are very marked.

29. *Hulecæteomyia trilineata*, Leicester.

The Entomologist, xxxvii, p. 163, 1904.

E. Himalayas.—Kurseong, 5,000 feet, Darjiling district, 3-vii-08 (Annandale), 1 ♂ and 2 ♀'s.

NOTE.—These answer exactly to Leicester's carefully described species, but one ♀ shows distinct white abdominal basal bands and also the ♂; the second ♀ is quite typical.

[30. *Grabhamia pulcripalpis*, Rondani.

Bull. Soc. Ent. Ital., iv, p. 31, 1872.

Egypt.—On board ship at night, Suez Canal, 9-x-07 (Reg. Nos. $\frac{1.8+1.5}{1.5}$ and $\frac{1.8+1.6}{1.5}$), 2 ♀'s (Annandale). Rather small specimens.]

31. *Pseudograbhamia maculata*, Theobald.

Journ. Bomb. Nat. Hist. Soc., xvi, p. 244, 1905.

Madras.—Madras town, 30-x-08 (R. Hodgart), 1 ♀

32. *Culex vagans*, Wiedemann.

Ausser. Zweifl. Ins., p. 545.

♂ Head brown with pale scales; palpi longer than proboscis by about the apical segment, which is slightly shorter than the penultimate, deep brown, the last two segments with bright basal creamy bands and flaxen brown and brown hair tufts, long on the inner side of the penultimate segment and a long dark tuft on the apex of the ante-penultimate, which is swollen, two other broad pale bands below. Antennæ brown with pale internodes and flaxen brown plume hairs.

Thorax deep, rich brown with small narrow-curved golden brown scales; scutellum with paler narrow-curved scales, larger in size, with brown border bristles; metanotum brown. Abdomen deep brown, almost black, with basal white bands; hairy, hairs pale brown; basal lobes of genitalia very hairy, claspers broadish, with a large spine on the side near apex giving a bifurcate appearance and with dense fine hairs all along the outer edge. Legs deep brown, paler at the base with basal pale bands, ungues of fore and mid pairs unequal, uniserrate, the mid pair large (hind? uniserrate). Wings with rather short fork-cells, the first longer and narrower than the second which is rather broad, their

bases about level, the stems nearly as long as the cells; mid cross-vein about twice as long as the supernumerary and in a straight line with it; posterior cross-vein about the same length as the mid, about its own length distant from it.

Length 5.2 mm.

Habitat Madras town (*R. Hodgart*).

Time of capture 31-x-08.

NOTE—This is the only ♂ of this species I have seen, so I have redescribed it.

33. *Culex impellens*, Wlk. (?).

Proc. Linn. Soc. Lond., iv, 91.

Localities and Dates.

Bengal.—Calcutta, 31-i-08, 5 and 7-iii-07, 3-vi-08, 12-vii-08, 21-vii-08, 27 and 28-vii-08, 30-vii-07, 31-vii-08, 2—6-viii-07, 10-viii-08, 13 and 14-viii-08, "in bungalow" (*Annandale*), 18-viii-08, 22-viii-08, "in bathroom" (*Annandale*), 19-ix-07, 26-ix-08; Balliganj, near Calcutta, 20-vi-08 (3) (*T. Bentham*); Port Canning, Lower Bengal, 19-x-08 (*Annandale*); Rajmahal, 31-vii-07 (2) (*R. Hodgart*); Purneah, N. Bengal, 6-viii-07, Bhogaon, Purneah district, N. Bengal, 3-x-08 (2), 6-x-08 (1) (*C. Paiva*); Bettiah, Champaran, 7-iii-08 (*R. Hodgart*); Balighai near Puri, Orissa, 25-x-08 (3), 26-x-08 (8), 24-x-08 (2), "in house, bites occasionally by day," 23-x-08 (6), "in house, comes to light" (*Annandale*).

E. Bengal and Assam.—Chittagong, E. Bengal, 26-vii-08 (*Lt.-Col. Hall*).

The Himalayas.—Sukna, 500 feet, base of E. Himalayas, Darjiling district, 1 and 2-vii-08 (5), "in deep jungle, biting by day" (*Annandale*).

Nepal.—Thamaspur, Bengal frontier, 10—14-ii-08, Sukwani, Bengal frontier, 15 and 16-ii-08 (*Butchu, mus. collr.*).

Burma.—Moulmein, L. Burma, 27-ii-08, "abundant in house," Rangoon, 24 and 25-ii-08, Mandalay, 11 and 12-iii-08 (*Annandale*).

The United Provinces.—Lucknow, 21-iv-07 (1) (*Annandale*).

Travancore and Cochin States.—Shencottah, Madras frontier (e. side of W Ghats) (4); Pallode, twenty miles N.E. of Trivandrum; Shasthancottah, twelve miles N.N.E. of Quilon; Trivandrum; Nedumangad, ten miles N.E. of Trivandrum (2); Vaikun (coastal region); Kulattupuzha (w. base of W Ghats); Tenmalai, W Ghats (w. side); Ernakulam, Cochin State. All collected by Dr. Annandale between 4 and 25-xi-08.

At sea.—At light on board ship five miles off Aleppey, Travancore, 4-v-08 (2) (*C. Paiva*).

34. *Culex pettigrewii*, sp. nov.

Head brown with pale scales; palpi brown, pale-scaled apices; proboscis pale except for a small dark band at the apex and base; thorax rich brown, ornamented with a paler curved line on each

side, another short one over the roots of the wings and two indistinct median pale lines in front, each with a central dark line. Abdomen deep brown, with basal grey bands, two grey median spots to the segments, almost joining on to the bands, sixth to eighth segments with many scattered ochreous scales; venter bright ochreous with scattered pale scales. Legs dark, minutely banded, apically and basally on the tarsi, the femora and tibiae with a pale creamy ventral line. *Wings with the subcostal vein pale-scaled.*

♀ Head dark, clothed with rather large narrow-curved creamy scales and flat creamy lateral ones and dark chætæ in front; upright forked scales dark, a few pale ones in front; clypeus brown with grey sheen; palpi brown with creamy scales at the apex and some nearer the base; proboscis dark at base and apex, the median creamy area with some scattered dark scales; antennæ dark brown, base of the second segment bright testaceous. Thorax dark brown clothed with rich brown narrow-curved scales; a pale-scaled twice curved line on each side and a pale-scaled short line on each side in front and over the roots of the wings; in middle (in front) are traces of two parallel narrow dark lines with somewhat paler scales on each side; supra and prealar chætæ brown with pale apices, the supra-alar long and darker than the others; scutellum pale brown with narrow-curved pale scales and long brown posterior border bristles; the scales at the back of the mesonotum are similar in colour to those of the scutellum; metanotum bright brown; pleuræ brown with patches of pale scales.

Abdomen with the basal segment ochreous with pale scales, the second to fifth segments dark with grey basal bands which spread out in the middle and with two ochreous spots nearly touching them, most pronounced on the fourth and fifth segments, the sixth with many ochreous scales dotted over the dark area, the seventh and eighth almost entirely ochreous; posterior border bristles thin and pale golden; venter bright ochreous-yellow with pale scales, a few dusky ones in the mid region.

Legs rather long, dark, femora and tibiae pale below, those of the fore and mid legs with a pale-scaled line in addition; faint traces of very narrow apical and basal pale banding to the hind tibiae, metatarsi and tarsi, scarcely perceptible on the fore and mid legs; bases of the legs pallid; femora and tibiae slightly spinose, pallid; ungues equal and simple.

Wings with brown scales, a few creamy ones at the base of the costa and on all the subcostal vein and a few pale scales on the first long vein; first submarginal cell much longer and narrower than the second posterior cell, its base much nearer the base of the wing, its stem about one-third the length of the cell, stem of the second posterior nearly as long as the cell, posterior cross-vein not quite its own length distant from the mid cross-vein.

Halteres ochreous with some fuscous scales on the knob.

Length 6 mm.

Habitat Ukhrul, Manipur, 6,400 feet, lat. 25° N., long. 94—95° E. (Rev. W. P. Pettigrew).

Time of capture viii-08.

Observations.—Described from a perfect ungorged ♀. Three other ♀'s were fully gorged and black. The marked character of this species is the pale-scaled subcostal vein. The pale scales also occur here and there on the upper surface of the first long vein. The abdomen in the type is very marked but in two of the others, which are somewhat rubbed, the spots on the segments are not so distinguishable.

35. *Culex fuscocephala*, Theobald.

Mono. Culicid., iv, p. 420, 1907.

Travancore.—Pallode, twenty miles N.E. of Trivandrum, 15-xi-08 (Annandale), 1 ♀

36. *Culex fatigans*, Wiedemann.

Ausser. Zweifl. Ins., p. 10, 1828.

Additional Localities and Dates.

Bengal.—Calcutta, 7, 13 and 22-i-08, 31-i-08, 1-ii-07, 17-ii-08, 13-iii-07 (3), 29-iii-08, 4-iv-08, 1-v-08 (6), 21-vi-08, 21, 27 and 28-vii-07 (4), 3—7-viii-07, 25-iii and 22-vii-08, "common in Museum premises" (Annandale), Balliganj, near Calcutta, 5 and 6-ii-08 (12) (J. B. Richardson); Rajmahal, 31-viii-07 (3) (R. Hodgart); Bettiah, Champaran, 4-iii-08 (27), 5-iii-08 (8) (R. Hodgart); Puri, Orissa coast, 18 and 19-i-08 (7), 20 and 21-i-08 (1) (Annandale), 2-iii-08 (2) (C. Paiva); Balighai near Puri, Orissa, 25-x-08 (Annandale).

E. Bengal and Assam.—Rajshahi, 1—6-ii-07 (Annandale); Ukhrul, Manipur, 6,400 ft., lat. 25° N., long. 94—95° E., viii-08 (Rev. W. Pettigrew).

The Himalayas.—Naini Tal, Kumaon, 6—7,000 feet, 1908 (R. E. Lloyd); Dharampur, 5,000 feet, Simla hills, 13 and 14-v-08 (Annandale); Kurseong, 5,000 feet, E. Himalayas, Darjiling district, 3—5-vii-08, Sukna, 500 feet, base of E. Himalayas, Darjiling district, 1-vii-08 (Annandale).

Nepal.—Thamaspur, Bengal frontier, 18—20-ii-08 (2), Dahanwahary Hill, near Bengal frontier, 16-ii-08 (Butchu, collr.); Khatmandu (two ♀'s), Oct. 1906 (R. Hodgart).

Burma.—Mandalay, 6-iii-08, 11, 12, 13 and 17-iii-08 (Annandale), Rangoon, 1-i-05 (3), 3-i-05, 23-ii-05 (8) (Brunetti), 24-ii-08 (3), 25-ii-08 (3), 15-iii-08, in house (Annandale); base of Dawna hills, 4-iii-08, Moulmein, 27-i-08 (11), 7-ii-08, 27-ii-08 (2), 28-ii-08, 6-iii-08 (4), 12-iii-08 (2) (Annandale).

Travancore State.—Tenmalai (w. side of W Ghats), 22-xi-08 (Annandale).

The United Provinces.—Lucknow, 21 and 27-i-08 (2), 5-ii-08 (R. Hodgart), 21-iv-07 (4) (Annandale), 7-viii-07 (Brunetti); Agra,

4-iv-05 (*Brunetti*); Dhikala, Naini Tal district, 22-iv-08 (4), 26-iv-08 (5), Chuharwala, Naini Tal district, 15-iv-08 (3), Patair Naini Tal district, 27-iv-08 (3) (*Hodgart*).

The Punjab (plains).—Lahore, 8-v-08 (11) (*Annandale*); Ferozepore (*Lt.-Col. Adie*).

At sea.—Bay of Bengal, on ship between mouth of R. Hooghly and Rangoon, 22 and 23-ii-08 (*Annandale*).

Java.—Soerabaya, 16—25-vii-06 (*Brunetti*).

Philippines.—Manilla, 10—16-iii-06 (*Brunetti*).

37. *Culex parascelos*, sp. nov.

Thorax golden brown, and with three paler median parallel lines, the areas between them darker than the sides; head, palpi and proboscis bright ochreous, apex of the latter black. Abdomen entirely clothed with ochreous scales. Legs ochreous-brown above, pale ochreous below with dark and ochreous linear ornamentation. Wings with ochreous and brown scales on the veins near costa; fork-cells short; unguis large, all uniserrate.

♀ Head brown with small narrow-curved pale golden scales, ochreous upright forked scales, somewhat darker behind; ochreous chætæ; clypeus and palpi bright ochreous, almost golden yellow, the latter with prominent black chætæ; proboscis the same colour, dark at the apex, with black chætæ. Antennæ brown, ochreous at base. Thorax deep brown, clothed with scanty small narrow-curved pale golden and rich golden brown scales, the former making two prominent lateral median lines and an indistinct median one; chætæ bright golden brown; scutellum brown with narrow-curved pale golden scales and golden brown chætæ; metanotum brown; pleuræ brown with patches of flat ochraceous scales. Abdomen dark, densely clothed with bright ochreous-yellow scales and pale border bristles; venter pale ochreous.

Legs ochreous with dusky scales above, femora pale below; a marked yellow and black line showing on the femora and tibiæ; unguis dark, all equal and uniserrate, rather thick.

Wings tinged with yellow, some pale scales on the costa and sub-costal, remainder dark, except for a few creamy ones on the base of the first long vein; first submarginal cell much longer and narrower than the second posterior cell, its base slightly nearer the base of the wing, its stem about two-and-a-half times the length of the cell; stem of the broad second posterior as long as the cell; posterior cross-vein about the same length as the mid, not its own length distant from it.

Length 5.5 mm.

Habitat Madras town (*R. Hodgart*).

Time of capture 30-x-08.

Observations.—Described from two ♀'s. A very marked species easily told by the thoracic ornamentation, ochreous-scaled abdomen and lined legs.

38. *Culex longifurcatus*, sp. nov.

Thorax uniformly fuscous and smoky; head much the same colour but with some paler scales; palpi, proboscis and antennæ smoky brown; abdomen deep brown, with basal pale bands spreading out in the middle to form median patches; legs uniformly smoky brown; wings rather long and narrow, fork-cells long, the veins and scales very thin. Male palpi thin, no hair tufts.

♀ Head dark, clothed with dull creamy narrow-curved scales, small flat creamy lateral ones, numerous dark upright forked scales, some paler ones in front; palpi, clypeus, proboscis and antennæ brown.

Thorax dark brown with fuscous-brown scanty narrow-curved scales and brown chætæ; scutellum brown with similar narrow-curved scales; metanotum brown and testaceous; pleuræ dark brown and grey. Abdomen deep brown, with basal, almost white bands which are enlarged in the middle forming more or less pronounced spots; border bristles pallid; venter all grey-scaled. Legs long and thin, uniformly brown, except the venter of the femora which is completely creamy white; ungues equal and simple. Wings large and long; fork-cells long; first submarginal cell longer and narrower than the second posterior, their bases nearly level, its stem about one-third the length of the cell; stem of the second posterior less than one-third the length of the cell; posterior cross-vein longer than the mid about one-and-a-half times its own length distant from it; lateral vein scales on the apical areas of the veins long and thin.

Length 5 mm.

♂ Palpi long and thin, dark brown, acuminate, no hair tufts, a few dark hairs and chætæ; apex of proboscis swollen. Wings with relatively long fork-cells; first submarginal cell narrower and longer than the second posterior, its stem less than one-third the length of the cell; stem of the second posterior rather more than half the length of the cell; posterior cross-vein nearly twice its own length distant from the mid. Fore and mid ungues unequal, both uniserrate, the larger with a large tooth, hind equal and simple.

Length 4 to 4.5 mm.

Habitat Dahawangahary Hill, near Bengal frontier, Nepal (*Butchu, mus. collr.*).

Time of capture 16-ii-08.

Observations.—Described from two ♀'s and one ♂. A very marked *Culex* with obscure ornamentation, easily told by the long fork-cells, very thin veins and large wings and long legs. The male genitalia seem very marked but there is not enough material to dissect them.

39. *Culex tigripes*, Grandpré.

Additional Localities and Dates.

The Himalayas.—Kurseong, 5,000 feet, E. Himalayas, Darjiling district, 4-viii-08 (*Annandale*).

Burma.—Mandalay, 11-iii-08 (*Annandale*).

40. *Culex concolor*, Desvoidy.

Mem. Soc. d'Hist. Nat. de Paris, iv, 405.

Localities and Dates.

Bengal.—Calcutta (Museum compound), 7-iii-07, 4-vii-07, 5-vii-07 (6), 15-vii-07, 23-vii-07, 31-vii-07, 3, 4 and 5-viii-07 (*Annandale*), also in June, September, October and November (*Annandale*), (Zoological Gardens), 12-vii-08 (2) and 26-vii-08 (6) (*Annandale*); Balliganj near Calcutta (*T. Benthams*); Port Canning, Lower Bengal, December; Purneah, N. Bengal, 4—6-viii-07 (*C. Paiva*); Damukdia Ghat, R. Ganges, July.

Assam.—Sylhet, February, April, May, December (*Lt.-Col. Hall*); Manipur, August (*C. A. Gourlay*).

Travancore State.—Kulattupuzha (w. base of W Ghats), 19-xi-08, "in bungalow" (*Annandale*).

41. *Leucomyia gelida*, Theob.

Mono. Culicid., ii, p. 21, 1901.

Additional Localities and Dates.

Bengal.—Calcutta (Museum premises), 3—4-viii-07, 5-viii, 7-viii and 9-viii-07 (*Annandale*); Bhogaon, Purneah district, N. Bengal, 30-ix-08 (5), 1-x-08 (2), 3-x-08 (2), 7-x-08 (*C. Paiva*).

E. Bengal.—Rajshahi, 1—6-ii-07 (*Annandale*).

Burma.—Rangoon, 25-ii-08 (*Annandale*).

Madras Presidency.—Madras town, 30-x-08 (2), 31-x-08 (1) (*Hodgart*).

Travancore and Cochin States.—Kulattupuzha (w. base of W Ghats); 19-xi-08, coastal region, 5-xi-08; Ernakulam, 4-xi-08 (*Annandale*).

42. *Leucomyia gelida*, var. *cuneata*, Theob.

Mono. Culicid., ii, p. 22, 1901.

Localities and Dates.

Bengal.—Balighai near Puri, Orissa, 23-x-08, "at light" (*Annandale*).

Travancore State.—Vaikum, coastal region, 5-xi-08; Kulattupuzha (w. base of W Ghats), 19-xi-08 (*Annandale*).

43. *Leucomyia sinensis*, Theob.

Syn. *L. gelida* var. *sinensis*, Theob.

Mono. Culicid., iii, p. 180, 1903.

Bengal.—Balighai near Puri, Orissa, 23-x-08, "at light in house, becoming active after dark" (*Annandale*).

44. *Culicada suknaënsis*, sp. nov.

Thorax ornamented with rich brown and dull golden yellow scales, the latter forming a curved line on each side in front and two rather indistinct median lines in front, the rich brown showing up as four obscure spots. Head dull golden yellow with two dark spots. Abdomen deep brown with basal creamy bands and large basal creamy lateral spots. Legs brown, pale at the base, with narrow basal yellow bands. Wings with a brownish yellow tinge.

♀ Head dark brown, with small narrow-curved golden scales in the middle, dark upright forked scales behind, rich ochreous ones in front, a patch of dark flat scales at the sides bordered along the eyes with pale creamy scales and flat creamy ones placed still more laterally, the pale scales bordering the eyes are small narrow-curved ones; chætæ between the eyes bright golden brown, followed by some darker ones at the sides; clypeus, palpi and proboscis deep brown; antennæ brown, basal segment bright golden yellow, with some small pale flat scales, base of second segment pale testaceous.

Thorax deep rich brown, clothed with golden yellow and rich brown curved scales, the former as two obscure curved lateral lines and two broad median ones (the latter almost in one) and scattered irregularly over the posterior portion; a few paler ones in front of the roots of the wings and some short pale golden and brown chætæ; supra-alar chætæ brown; scutellum brown with small narrow-curved pale scales; metanotum almost black; pleuræ deep brown, with patches of pale flat scales and tufts of golden brown chætæ.

Abdomen deep brown, with basal yellow curved bands, and yellow prominent lateral spots; posterior border bristles pale golden; venter mostly clothed with large flat yellowish scales, almost white towards the base. Legs brown, femora pale ventrally, metatarsi and all the tarsi with narrow pale yellow bands, pale knee spots, femora and tibiæ spinose, spines dusky and golden; unguis all equal and uniserrate.

Wings with short fork-cells; the first submarginal longer and narrower than the second posterior, its stem about two-thirds the length of the cell; its base nearly level with that of the second posterior cell; stem of the latter as long as the cell; posterior cross-vein longer than the mid, nearly twice its own length distant from it; *the base of the subcostal and first long vein prominently densely scaled with black scales*. Halteres with ochreous stems, fuscous knobs with pale creamy apical scales.

Length 4 to 5 mm.

Habitat Sukna, 500 feet, Darjiling district, E. Himalayas (*Annandale*).

Time of capture 1 and 2-vii-08.

Observations.—Described from four perfect ♀'s. It comes near *Culicada nipponii*, Theobald, but can be told by the absence of pale apical abdominal scales and median grey scales and dark flat-scaled lateral cephalic patches. The abdomen in all four is

thick and short, but this may be due to ingested blood. The ornamentation of the thorax varies in different lights. The dark thick-scaled area at the base of the wing is very characteristic. The specimens were taken in dense jungle and bit during the day.

45. *Mansonioides annulifera*, Theob.

Mono. Culicid., ii, p. 183, 1901.

N. Bengal.—Bhogaon, Purneah district, 7-x-08 (9) (C. Paiva).

46. *Mansonia uniformis*, Theob.

Mono. Culicid., ii, p. 180, 1901.

Additional Localities and Dates.

Bengal.—Calcutta, 2-vii-07 (*mus. collr.*); Bhogaon, Purneah district, N. Bengal, 30-ix-08 (2), 1-x-08; Katihar, Purneah district, N. Bengal, 4—5-x-08 (4) (C. Paiva); Balighai near Puri, Orissa, 23-x-08 (3) (Annandale).

Burma.—Rangoon, 25-ii-08 (Annandale).

Travancore and Cochin States.—Maddathorai (w. base of W Ghats), 19-xi-08; Kulattupuzha (w. base of W Ghats), 19-xi-08; Ernakulam, Cochin State, 4-xi-08 (8), “very common in bungalow” (Annandale).

47. *Tæniorhynchus ager*, Giles.

The Entomologist, p. 196, July 1901.

Additional Localities and Dates.

Bengal.—Calcutta, 2-ii-08 (Annandale); Balighai near Puri, Orissa, 26-x-08 (2) (Annandale).

Burma.—Mandalay, 12-ii-08 (Annandale).

Travancore State.—Pallode, twenty miles N. E. of Trivandrum, 14-xi-08; Kerumadi, s. end of Vimbana Lake, 6-xi-08 (Annandale).

48. *Tæniorhynchus tenax*, Theob.

Mono. Culicid., ii, p. 198, 1901.

Bengal.—Balighai near Puri, Orissa, 23-x-08, one ♀ “at light” (Annandale). Rather smaller than the type.

49. *Tæniorhynchus epidesmus*, sp. nov.

Thorax brown, mottled with creamy scales and some grey ones in front of the roots of the wings; proboscis pale with a narrow black base and broader black apex. Abdomen black with very narrow golden ochraceous basal bands and very broad apical ones, a dark lateral line on each side of the segments, most pronounced on the apical ones, the penultimate all golden ochreous, the apical with two deep black spots. Legs ochreous brown with apical and basal pale banding on the darker tarsi. Wings with a

yellowish tinge, brownish scales and a pale spot towards the tip on the costa.

♀ Head brown, clothed with pale creamy and ochreous narrow-curved scales and broadly expanded black upright forked scales, paler in the middle of the head, chætæ brown and pale ochreous; clypeus ochreous; palpi black-scaled with some ochreous scales and creamy scaled apices; proboscis with a very broad ochreous pale band, base and apex black; antennæ brown towards the apices, testaceous towards the base.

Thorax deep brown, clothed with creamy and brown narrow-curved scales, some paler before the roots of the wings, giving it a mottled appearance; some short thick black chætæ just before the roots of the wings, long brown and ochreous ones over the roots and behind them; scutellum brown, with small narrow pale scales and golden brown long border bristles; metanotum pale ochreous with a grey sheen; pleuræ brown and ochreous with patches of flat pale scales and golden hairs.

Abdomen brown with violet reflections, basal segment golden ochreous with two small dark patches of scales; the remaining segments with narrow basal and very broad apical bright golden ochreous bands, except the last segment which has two prominent black spots; the other segments have more or less marked thin black lateral lines, except on the last two or three apical segments where there are pale creamy lateral spots; venter ochreous-yellow. Legs ochreous with scattered dark scales, prominent at the apices of the femora and tibiæ and on their upper surfaces; tarsi slightly darker with apical and basal pale bands except on the last tarsal; ungues equal and simple.

Wings with brown scales, a pale ochreous spot towards the tip on the costa and first long vein; the first submarginal cell longer and narrower than the second posterior, its base slightly nearer the base of the wing, its stem nearly one-fourth the length of the cell; stem of the second posterior not quite half the length of the cell; posterior cross-vein about twice its own length distant from the mid. Halteres pale ochreous, with some small flat pale ochreous scales on the knob.

Length 5.5 mm.

Habitat Bhogaon, Purneah district, N. Bengal (C. Paiva).

Time of capture 2-x-08.

Observations.—Described from a single perfect female. The very bright and marked abdominal banding will at once separate this from other *Tæniorhynchi*, together with the marbled thorax

50. *Tæniorhynchus luteoabdominalis*, sp. nov.

Thorax brown, marbled with bright yellowish brown and grey scales on the front two-thirds, the rest bright brown-scaled, the pale scales most prominent on the posterior edge of the brown and pale-scaled area, also traces of a dark curved lateral line on each side before the wings. Head yellowish brown, slightly darkened

at the sides, pale around the eyes; proboscis with a broad pale band, slightly darkened at the base and apex. Abdomen entirely clothed with golden ochreous scales. Legs unbanded, ochreous with slightly darkened tarsi. Wings with yellowish brown scales, the apex paler above.

♀ Head brown, clothed with narrow-curved pale scales, especially around the eye border, bright ochreous upright forked scales in the middle, darker ones at the sides; small flat pale lateral scales; clypeus brown; palpi clothed with brown scales, a few pale ones dotted about and many at the apex; proboscis with a broad pale band, the dark base and apex with a few scattered pale scales; antennæ brown, basal half gradually becoming bright testaceous. Thorax brown, the front two-thirds mainly clothed with very pale grey narrow-curved scales, particularly prominent on the posterior border of this region, two ochreous-brown-scaled spots in front amongst the pale scales and a somewhat nude dark curved line on each side in front of the roots of the wings, the hinder region of the mesothorax with mostly golden brown narrow-curved scales, but some pale ones arranged in lines; two prominent lines of rich golden brown chætæ behind and similar coloured chætæ over the roots of the wings; scutellum pale ochreous with small narrow-curved pale scales and nine bright golden brown posterior border bristles to the mid lobe; metanotum brown; pleuræ brown and bright ochreous with some patches of small dull creamy flat scales.

Abdomen clothed with bright golden ochreous scales, the second, third and fourth segments with a band towards their bases of similar coloured scales, darker at their apices, not forming distinct bands, last segment with two median lateral dark spots; venter all golden ochraceous, also the whole of the first segment which has many pale golden thin hairs; posterior border bristles pale golden.

Legs uniformly ochreous but with some dark scattered scales on the femora, with very pale reflections, no trace of banding; ungues equal and simple.

Wings with yellowish brown scales, the outer part of the apex slightly pale-scaled; first submarginal cell longer and narrower than the second posterior cell, its base nearer the base of the wing, its stem not quite half the length of the cell, stem of the second posterior nearly two-thirds the length of the cell; posterior cross-vein about twice its own length distant from the mid; halteres very pale ochreous, almost creamy white.

Length 5.8 mm.

Habitat Katihar, Purneah district, N. Bengal (*C. Paiva*).

Time of capture 4 or 5-x-08.

Observations.—Described from a single perfect ♀ It comes very near *Tæniorhynchus epidesmus*, described previously, but the total absence of leg banding, the more marked thoracic ornamentation and more marked pale wing spot separate it probably from that species. If it is the same it is a most marked variety.

51. *Chrysoconops pygmæus*, Theobald. Pls. i and iii, wing and wing scales.

Rec. Ind. Mus., ii, p. 300, 1908, ♀

♂ Head ochreous-brown with small narrow-curved golden scales and rich golden brown upright forked scales and golden chætæ; palpi and proboscis black, the apical segment a little more than half the length of the penultimate, bluntly acuminate. long dark hairs on the last two segments. Antennæ brown with white internodes and dark brown plume hairs. Thorax shiny bright brown with narrow-curved golden scales and golden chætæ. Abdomen ochreous when pointed from the light, dark when to the light, of violet hue, the lat'er showing only on the apical borders in some lights. Genitalia with the claspers curved on themselves, broader and flat apically with a short, thick subapical dark spine. Legs uniformly dark brown with ochreous reflections, pale at their bases; fore unguis unequal, the larger with a small lateral basal tooth and a very large one near the middle, the smaller simple; mid unguis unequal, the smaller simple, the larger with a large basal tooth and a narrower and more basal central one; hind unguis equal and simple. Wings with short fork-cells, the first longer and narrower than the second, its base nearer the apex of the wing, its stem as long as the cell; stem of the second posterior as long as the cell; posterior cross-vein as long as the mid, about twice its own length distant from it.

Length 5 mm.

Habitat Purneah, N. Bengal (*C. Paiva*); Rajmahal, Bengal (*R. Hodgart*); and Calcutta (*Annandale*).

Time of capture 6-viii-07 31-vii-07, 17-vii-07.

Observations.—The ♀ was described in the first report. One ♂ has been retained as a co-type for the British Museum collection.

Dr. Annandale says the eyes of the male are iridescent green in life.

52. *Lophoceratomyia bicornuta*, sp. nov.

Head of male very similar to *L. fraudatrix* but the antennal organs quite distinct. Thorax rich brown. Abdomen dark brown unbanded, ochreous ventrally. Legs brown unbanded, base of femora paler. Two prominent lateral horn-like processes on the basal segments of the antennæ.

♂ Head similar to that of *L. fraudatrix*. Palpi brown, a little longer than the proboscis, bluntly acuminate, the apical segment slightly longer than the penultimate, the whole palpi with short, scanty hairs; no trace of the basal process seen in *fraudatrix*.

Antennæ plumose, plume hairs brown, internodes pale, basal segment with a large horn-like process on the inner side as in *brevipalpus*, with a series of fine hairs on the upper side; antennal organs on four segments.

Thorax rich brown, showing two median parallel brighter brown broad lines; covered scantily with very small curved

brown to bronzy scales; brown to deep brown chætæ; scutellum paler with similar scales and four black border bristles to the mid lobe; metanotum brown. Abdomen deep brown, unbanded, pale hairs; venter ochreous brown. Legs brown, unbanded, fore and mid unguis unequal, the former uniserrate, the mid simple; hind small, equal and simple.

Wings with rather short fork-cells, the first submarginal longer and narrower than the second posterior, its base very little nearer the apex of the wing than that of the latter, its stem slightly longer than the cell, stem of the second posterior cell longer than the cell; mid cross-vein longer than the supernumerary, the posterior longer than the mid, not quite twice its own length distant from it.

Length 4.5 mm.

Habitat Dawna Hills (base) near Kawkareik, Lower Burma.

Time of capture 4-iii-08 (*Annandale*).

Observations.—Described from a single dissected ♂ Closely related to *L. fraudatrix*, Theobald, but differs in the antennal organs, the absence of the accessory process at the base of the palpi and in wing venation.

53. *Radioculex clavipalpus*, Theobald. (Pls. i and ii, wing and head.)

Rec. Ind. Mus., ii, p. 295, 1908.

Additional Localities and Dates.

Bengal.—Katihar, Purneah district, N. Bengal, 4—5-x-08 (*C. Paiva*).

Burma.—Rangoon, 25-ii-08 (*Annandale*).

Travancore State.—Vaikum, coastal region, 5-xi-08 (*Annandale*).

54. *Uranotænia testacea*, Theobald.

Ann. Mus. Nat. Hist. Hung., iii, p. 113, 1905.

Burma.—Base of Dawna Hills, 4-iii-08 (2 ♀ 's), "in thick but dry jungle" (*Annandale*).

55. *Ædeomyia squammipenna*, Arribalzaga.

El. Nat. Arg., i, 151, 3, 1878.

Burma.—Base of Dawna Hills, L. Burma, 2-iii-08, "in bungalow at light" (*Annandale*).

At sea.—At light on board ship four miles off Tuticorin, S. India, 25-v-08 (*C. Paiva*).

Genus PSEUDOGRAHAMIA, gen. nov

Head clothed with flat scales; proboscis more than half the length of the body, curved upwards, slightly swollen at the apex; palpi of the ♀ very small and densely scaly.

Thorax densely clothed with large narrow-curved scales, closely appressed and with a median line of *flat* metallic scales, and a patch of flat scales on each side in front; scutellum clothed with flat scales, large and rounded apically; metanotum apparently nude.

Apex of hind tibiæ and base of metatarsi with rather dense short outstanding scales. First fork-cell slightly expanded basally and the veins densely scaled apically, considerably larger than the second posterior cell.

A very marked genus coming near *Grahamia*, Theobald, but at once distinguished from it by the more normal form of proboscis.

56. *Pseudograhamia aureoventer*, sp. nov.

Head black, with a central silvery white spot; proboscis and antennæ deep brown; palpi pale creamy, very small. Thorax black with a broad silvery white line in front, silvery white prothoracic lobes and a creamy patch in front at the sides. Abdomen black with large basal triangular creamy lateral patches which extend upwards almost to form narrow dorsal bands; venter pale dull golden. Legs deep black.

♀ Head covered with flat closely appressed blackish brown scales with a large median triangular silvery white area with two long black straight chætæ projecting forwards between the eyes, a few small black ones curved inwards on each side and a large black one laterally, along the ocellar rim; proboscis deep black, curved upwards, slightly swollen apically; palpi very small, densely clothed with creamy scales; antennæ deep brown; clypeus bright rich brown.

Thorax deep rich brown, densely clothed with long narrow-curved closely appressed deep blackish brown scales, a median line in front of flat scales, semi-transparent, with white and pale mauve and silvery reflections, a large area of flat dull creamy to ochreous scales on each side in front reaching up to the base of the wings; prothoracic lobes with flat silvery white scales with pale blue reflections in certain lights; scutellum clothed with large flat silvery white scales, some appearing dusky on the lateral lobes; metanotum deep brown; pleuræ brown with flat creamy scales.

Abdomen flattened laterally with large basal silvery white lateral patches, extending upwards to the dorsum as narrow areas; base and venter of the abdomen pale dull golden, with metallic sheen.

Legs deep blackish brown; coxæ pale ochreous with white scales; femora pale ochreous below; tibiæ with the scales expanded apically and with some incurved chætæ; base of metatarsi with the scales slightly projecting, particularly on the hind legs; ungues equal and simple.

Wings with moderately long fork-cells; the first submarginal much longer and about the same width as the second fork-cell, its

base much nearer the base of the wings than that of the latter, its stem half the length of the cell; the cell somewhat expanded basally and each branch densely scaled apically, stem of the second fork-cell longer than the cell; supernumerary cross-vein longer than the mid, the mid the same length as the posterior; the latter about its own length distant from the mid.

Halteres with long stem, base ochreous, apex and knob fuscous.

Length 4.8 mm.

Habitat Pallode, twenty miles N.E. of Trivandrum, Travancore (Annandale).

Time of capture 16-xi-08.

Observations.—Described from a single ♀. A very marked and beautiful species which cannot be confused with any other Culicid.

Genus SQUAMOMYIA, gen. nov.

Head clothed with flat scales and upright forked ones behind; *clypeus densely scaled, scales long and broad*; antennæ of male plumose; palpi small and thin, proboscis long and thin, not as long as the body.

Thorax with spindle-shaped scales, small flat ones at the sides in front; broad spindle-shaped ones on the prothoracic lobes, densely covering them; scutellum with flat scales. Wings of male with short fork-cells. Abdomen clothed with very large flat scales, somewhat loosely applied.

This forms a very distinct genus easily told by the densely scaled clypeus. The male genitalia also seem very marked, but have not been dissected.

A male only occurs in the collection.

57. *Squamomyia inornata*, sp. nov.

Head deep brown, a pale border around the eyes; clypeus prominently pale-scaled; palpi, proboscis and antennæ deep brown. Thorax deep brown, grey in front and at the sides in front, pleuræ white. Abdomen deep blackish brown above, white below and at the sides. Legs deep brown.

♂ Head clothed with flat brown scales with violet reflections, a border of flat white ones around the eyes, spreading out laterally, dull ochreous-brown upright forked scales behind; two bright golden chætæ projecting between the eyes in front, and a few short dark ones at the sides; clypeus ochreous with long white scales, especially dense in front; proboscis thin, black, not as long as the whole body, curved downwards; palpi ochreous, dark-scaled above, thin, very short; antennæ very pale brown, with dark plume hairs; basal segment bright ochreous except on the inner side where they are dark.

Thorax black with bronzy brown spindle-shaped scales, white in front near the head and small flat white scales on each side in

front, prothoracic lobes densely clothed with white spindle-shaped scales; scutellum brown with brown flat scales, those at the sides with pale ochreous reflections; pleuræ black with flat white scales.

Abdomen narrow, clothed with deep blackish brown scales with violet reflections and with white scales laterally and ventrally.

Legs deep brown with violet reflections, unbanded, coxæ pale with white scales; venter of femora white; fore and mid unguis unequal; simple; hind equal and simple.

Wings with short fork-cells; the first very little longer but narrower than the second, its base nearer the apex of the wing, its stem more than two-thirds the length of the cell, stem of the second posterior two-thirds the length of the cell; posterior cross-vein as long as the mid and more than its own length distant from it.

Length 5 mm.

Habitat w. slopes of Dawna Hills, L. Burma, 2,000—3,000 feet (*Annandale*).

Time of capture 2 or 3-iii-08.

Observations.—Described from a single ♂. It is a very marked *Ædine* at once told by the densely long-scaled clypeus.

58. *Orthopodomyia maculata*, sp. nov.

Thorax rich brown, ornamented with golden and creamy scales; head with pale creamy scales; proboscis with one small median white band; palpi of male about three-fourths the length of the proboscis, white at base and apex and with two median white bands. Abdomen black with basal white bands and two median white spots to some segments. Wings with dark scales and white spots. Fore and mid legs unbanded, hind with prominent white bands and last segment all white.

♂ Head brown with narrow-curved and upright forked scales of a pale creamy to almost white hue, the fork scales numerous and uniformly scattered over the head; antennæ with pale creamy and brown bands, plume hairs brown to flaxen, basal segment black with small broad creamy scales dotted over it; the first few segments of the flagellum with long white and creamy scales; palpi black, white-scaled at the apex, a few white scales at the base and two median white bands, one near the apex, golden chætæ at the apex, about three-fourths the length of the proboscis, the latter black with one median narrow white band.

Thorax black, clothed with large narrow-curved creamy scales, the majority golden, but some white ones in front, at the sides and over the roots of the wings and before the scutellum and some areas of dark bronzy ones; chætæ long, golden and brown; scutellum black with long silvery white scales and long golden border bristles; metanotum black; pleuræ brown with patches of flat white scales and some long thin ones beneath the wings; prothoracic lobes with flat white scales.

Abdomen jet-black with snowy white basal bands and on some of the segments two small white median spots; venter black with basal white bands and all the bristles golden.

Legs black, femora and tibiæ speckled with pale creamy scales, fore legs unbanded, but the apex of the tibiæ white; mid legs with two pale bands involving the joints of the metatarsal and first tarsal, and first and second tarsals; hind legs with a narrow band involving the metatarsal and first tarsal joint, a very broad one involving the first and second tarsal joint, a narrower one the second and third, apex of third white and all the fourth.

Wings with black scales over most of the veins but with white spots as follows:—four large ones on the costa and three small basal ones; the first two spread on to the first and second veins, the third on to the first, second, third and fourth, the fourth on to the first and second, the basal ones small and irregular, there is also a spot on the first between the third and fourth costal spots, one on the base of the second fork-cell and at the tips of the branches, one at the apex and another near the base of the outer branch of the fifth and one at its base, and a small one just past the cross-vein on the fourth. Halteres all pale. Fork-cells rather short, the first narrower and about the same length as the second, its stem about half as long again as the cell; stem of the second as long as the cell; cross-veins pale, the posterior about twice its own length distant from the mid.

Length 5 mm.

Habitat Maddathorai, w. base of W Ghats, Travancore (Annandale).

Time of capture 17-xi-08.

Observations.—Described from a single ♂, taken resting on a tree trunk in jungle. A very marked and beautiful species near *O. albipes*, Theobald, but easily told by having only the last hind tarsal white.

59. *Mimomyia minuta* Theobald. (Pls. i and iii, wing and wing scales.)

Rec. Ind. Mus., ii, p. 301 (♂), 1908.

Thorax shiny brown; head pale creamy yellow; abdomen brown with basal pale yellow bands spreading out laterally. Legs with apical and basal pale banding; last hind tarsal pale creamy.

♀ Head clothed with flat pale creamy scales and some black upright forked ones at the back; two long pale chætæ projecting forwards in the middle in front and some dark incurved ones at the sides; antennæ deep brown, basal segment black.

Thorax shiny black, with scattered long curved black scales and very long black chætæ; scutellum shiny black with long curved black scales and black border bristles; metanotum black; pleuræ ochreous.

Abdomen ochreous with deep brown scales, rather scanty basally giving a false banded appearance, with basal lateral areas of pale scales; border bristles pale.

Legs brown to almost black; coxæ and venter of femora pale; apex of femora and tibiæ white, the remaining segments with apical and basal pale creamy bands, last hind tarsal with all pale scales, in the other legs pale in certain lights.

Wings with the first fork-cell very little longer and narrower than the second, its stem nearly as long as the cell; stem of the second fork-cell not quite as long as the cell; posterior cross-vein longer than the mid, rather more than its own length distant from it; scales large and brown.

Length 2.5 mm.

Habitat Calcutta (*Annandale*).

Time of capture 30-vii and 3 or 4-viii-07.

Observations.—One ♀ and one ♂. The ♂ was described from Sylhet, Assam (*Records Indian Museum*, vol. ii, p. 301, 1908). In the description of the proboscis it reads as if it were long and thin as in *Culex*; this is not so, it is very swollen apically, almost club-shaped in some views, with a long thin stem.

Genus BOLBODEOMYIA, gen. nov.

Head clothed with flat scales; palpi very short in the ♀ slightly longer in the ♂, antennæ pilose in both sexes; thorax with spindle-shaped scales; prothoracic lobes with small flat scales, scutellum with flat scales; metanotum with a bunch of chætæ posteriorly. Wings with normal venation with rather long lateral vein scales on the apical areas of the veins and with very prominent long dense lateral vein scales on the fifth vein, along the stem and one branch. Complex ♂ genitalia, the claspers ending in a bulbous process. A very marked genus.

60. *Bolbodeomyia complex*, sp. nov.

Head, thorax, legs, antennæ and palpi and proboscis brown. Abdomen brown above, pale grey below in ♀, ochreous in the ♂.

♂ Head clothed with flat brown scales with violet reflections and a pale creamy border around the eyes and at the sides; chætæ dark; clypeus, palpi and proboscis deep brown, palpi very small; antennæ deep brown, basal segment brown, pilose.

Thorax shiny deep brown with scattered brown and paler spindle-shaped scales; prothoracic lobes covered with small flat creamy scales, scutellum ochreous-brown with flat dull scales; metanotum brown with a large area of pale hairs posteriorly, arising from black points; pleuræ ochreous-brown with flat white scales. Abdomen deep brown, traces of some pale scales at the bases of the apical segments; venter pale grey, the integument ochreous.

Legs deep brown, coxæ ochreous with white scales, venter of femora pale.

Wings with short fork-cells, the first longer, but slightly narrower than the second, its base slightly nearer the base of the wing, its stem two-thirds the length of the cell; stem of the second as long as the cell; posterior cross-vein about two-and-a-half times its own length distant from the mid.

Male genitalia very complex; the clasper thick, long, ending in a rounded knob, with a group of small curved hairs; lateral process at apex short, very thick and dark; a blunt long, finger-like process from near base of clasper; on the inner corner of the basal lobes four flat chætæ.

Length 3.8 mm.

♀ Very similar to the male, but rather more white scales in front of the head, and the palpi smaller.

The abdomen has some traces of basal white lateral spots and the venter has some narrow apical black bands. Wings with the first fork-cell slightly longer and about the same width as the second, its stem about half the length of the cell; stem of the second rather more than half the length of the cell; posterior cross-vein rather more than twice its own length distant from the mid, some long lateral vein scales, the fifth long vein, except on its upper branch, *densely clothed with long thin scales*.

Length 3 mm.

Habitat Dawna Hills, 2,000—3,000 feet, L. Burma (♂), and jungle at base of Dawna Hills (♀) (*Annandale*).

Time of capture 1 and 2 or 3-iii-08.

Observations.—Described from one ♂ and one ♀, practically perfect, but with slightly rubbed thorax. A small obscure *Ædine*, but at once told when examined microscopically by the complex male genitalia and the long lateral scales along one side of the fifth vein.

61. *Skusea pseudodiurna*, sp. nov.

Head dusky or pale according to the light. Thorax bright reddish brown. Abdomen with basal white lateral spots. Legs brown unbanded.

♂ Head dark, clothed with a mixture of flat dusky and pale grey scales and numerous dark upright forked scales and many black chætæ projecting forwards; antennæ with dark plume hairs, and pale grey internodes, dusky at the tip; palpi very small, dark brown; proboscis deep brown. Thorax bright deep reddish brown, with scanty, scattered bronzy narrow-curved scales and with black chætæ, especially thick over the roots of the wings; scutellum testaceous with narrow-curved dull creamy and bronzy scales to the mid lobe, dark ones to the lateral lobes; metanotum bright chestnut-brown.

Abdomen black with basal white lateral spots, most prominent on the last few segments, with pale brown border bristles; venter dusky. Legs uniformly deep brown, except the coxæ and venter of the femora which are pale; fore and mid ungues unequal and uniserrate; hind equal and simple. Wings with short fork-

cells, the first longer and narrower than the second, stem of the first nearly as long as the cell, stem of the second longer than the cell; posterior cross-vein its own length distant from the mid.

Length 4 mm.

Habitat Sukna, base of E. Himalayas, 500 feet, Darjiling district (*Annandale*).

Time of capture 1-vii-08.

Observations.—Described from a single ♂ Very near *Skusea diurna*, but the bright reddish brown thorax at once separates it.

62. *Skusea uniformis*, sp. nov.

Head black with a pale border around the eyes. Thorax rich brown.

Abdomen deep brown, unbanded, dull ochreous below. Legs uniformly deep brown, but the femora pale ochreous below.

♀ Head black with small flat black scales, except for a pale area around the eyes and at the sides and some dark upright forked scales; clypeus, palpi and proboscis black; antennæ deep brown, basal segment black, base of segment pale ochreous. Thorax rich deep brown with narrow-curved bronzy brown scales scattered over its surface; scutellum shiny black with narrow-curved bronzy black scales, the surface pale in some lights, four dark median posterior border bristles; metanotum chestnut and dull brown; pleuræ brown with dull flat white scales.

Abdomen deep brown with dull brown scales, dull ochreous to grey-scaled venter.

Legs uniformly deep brown except the coxæ and venter of femora which are ochreous; ungues equal and simple.

Wings with short fork-cells, the first slightly longer and narrower than the second posterior, their bases about level, the stem about two-thirds as long as the cell; stem of the second posterior as long as the cell; posterior cross-vein longer than the mid, about one-and-a-half times its own length distant from it.

Length 4 mm.

Habitat Pallode, twenty miles N.E. of Trivandrum, Travancore (*Annandale*).

Time of capture 15-xi-08.

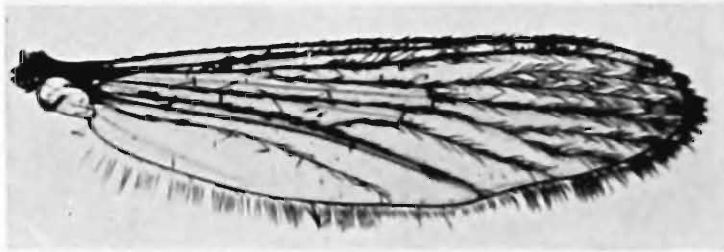
Observations.—Described from a single ♀ The abdomen somewhat denuded, but there is no trace of any pale scales.



Plate I.



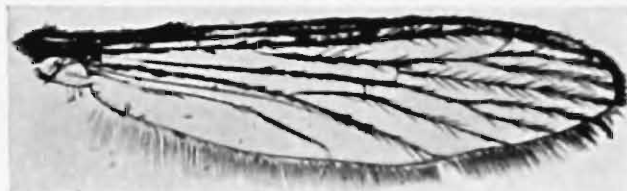
STEGOMYIA TRIPUNCTATA. N.SP. (♀).



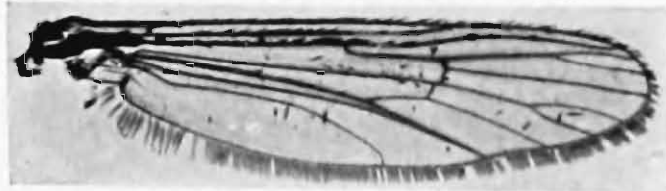
CULEX MINOR. N.SP. (♀).



CHRYSOCONOPS PYGMÆUS. N.SP. (♀).



STEGOMYIA ALBOLATERALIS. N.SP. (♀).



RADIOCULEX CLAVIPALPUS. N.SP. (♀).



MIMOMYIA MINUTA. N.SP. (♂).

WINGS OF NEW INDIAN CULICIDÆ.

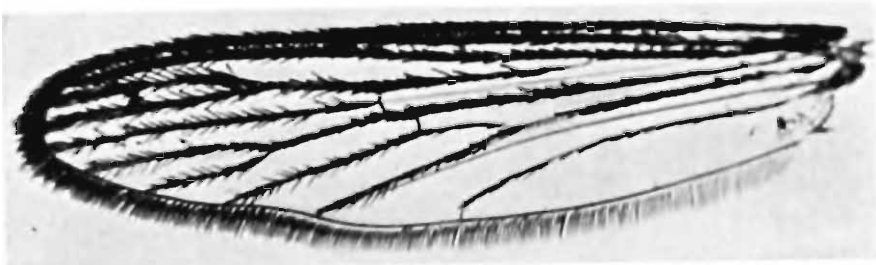
Plate II.



WING OF *BREVIRHYNCHUS MAGNUS*. N.SP. (♀).



HEAD OF *RADIOCTELIX CLAVIPALPUS*. N.SP. (♂).

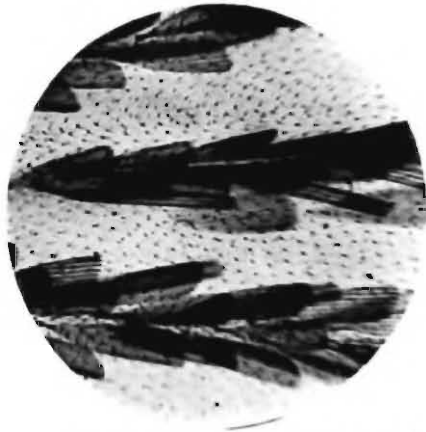


WING OF *LEICESTERIA APICALIS*. N.SP. (♀).

PLATE III.



STEGOMYIA TRIPUNCTATA, N. SP. (♀)



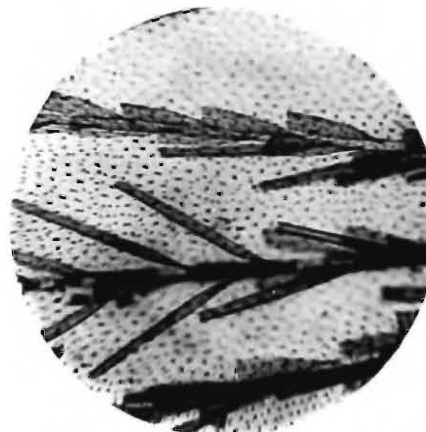
LEICESTERIA APICALIS, N. SP. (♀)



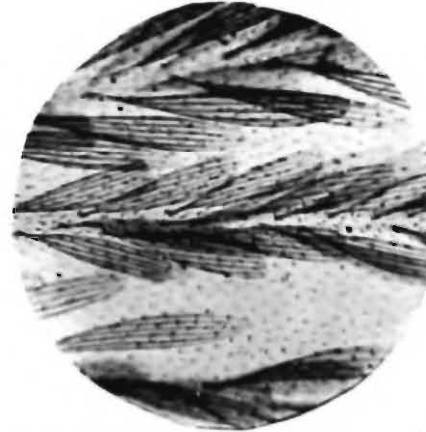
BREVIRHYNCHUS MAGNUS, N. SP. (♀)



MIMOMYIA MINUTA, N. SP. (♂)



STEGOMYIA ALBOLATERALIS, N. SP. (♀)



CHRYSOCONOPS PYGMAEUS, N. SP. (♀)

ENLARGED WING SCALES.

Miscellaneous Zoological Publications.

	Rs. As.		Rs. As.
Account of the Deep-sea Brachyura collected by the R.I.M.S. "Investigator." By A. Alcock, M.B., C.M.Z.S. ..	6 0	Echinoderma of the Indian Museum: Littoral Holothurioidea collected by the R.I.M.S. "Investigator." By R. Koehler and C. Vaney ..	2 0
Account of the Deep-sea Madreporaria collected by the R.I.M.S. "Investigator." By A. Alcock, M.B., C.M.Z.S. ..	4 0	Echinoderma of the Indian Museum: Deep-sea Ophiuroidea collected by the R.I.M.S. "Investigator." By R. Koehler ..	10 0
Account of the Triaxon (Hexactinellid) sponges collected by the R.I.M.S. "Investigator." By F. E. Schulze, Ph.D., M.D. ..	16 0	Echinoderma of the Indian Museum: Shallow-water Ophiuroidea collected by the R.I.M.S. "Investigator." By R. Koehler ..	4 0
Account of the Alcyonarians collected by the R.I.M.S. "Investigator." Part I. By J. Arthur Thomson, M.A., and W. D. Henderson, M.A., B.Sc. ..	16 0	Echinoderma of the Indian Museum, Part V: An account of the Deep-sea Asteroidea collected by the R.I.M.S. "Investigator." By R. Koehler ..	12 0
Account of the Alcyonarians collected by the R.I.M.S. "Investigator." Part II. By J. Arthur Thomson, M.A., and J. J. Simpson, M.A., B.Sc. ..	20 0	Figures and Descriptions of nine Species of Squillidæ from the Collection of the Indian Museum. By J. Wood-Mason, F.Z.S., etc., edited by A. Alcock, M.B., C.M.Z.S. ..	2 0
Aids to the identification of Rats connected with Plague in India. By W. C. Hossack, M.D. ..	0 8	Guide to the Zoological Collections exhibited in the Bird Gallery of the Indian Museum. By F. Fynn, B.A., F.Z.S. ..	0 12
Catalogue of Indian Crustacea. Part I.—Introduction and Brachyura Primigenia. By A. Alcock, M.B., LL.D., F.R.S. ..	7 0	Guide to the Zoological Collections exhibited in the Fish Gallery of the Indian Museum. By A. Alcock, M.B., C.M.Z.S. ..	0 8
Catalogue of the Indian Decapod Crustacea. Part II.—Anomura. Fasciculus I.—Pagurides. By A. Alcock, M.B., LL.D., F.R.S., C.I.E. ..	14 0	Guide to the Zoological Collections exhibited in the Invertebrate Gallery of the Indian Museum. By A. Alcock, M.B., C.M.Z.S. (<i>Out of print.</i>)	
Catalogue of the Indian Decapod Crustacea. Part III.—Macrura. Fasciculus I.—The Prawns of the Peneus Group. By A. Alcock, M.B., LL.D., F.R.S., C.I.E. ..	7 0	Guide to the Zoological Collections exhibited in the Reptile and Amphibia Gallery of the Indian Museum. By A. Alcock, M.B., C.M.Z.S. (<i>Out of print.</i>)	
Catalogue of Indian Deep-sea Crustacea: Decapoda Macrura and Anomala in the Indian Museum. By A. Alcock, M.B., LL.D., C.M.Z.S. ..	10 0	Hand List of Mollusca in the Indian Museum, Parts I and II, and Fasciculus E. By G. Nevill, C.M.Z.S., etc. Index, Parts I and II. By W. Theobald ..	7 4
Catalogue of Indian Deep-sea Fishes in the Indian Museum. By A. Alcock, M.B., C.M.Z.S. ..	5 0	List of Batrachia in the Indian Museum. By W. L. Sclater, M.A., F.Z.S. ..	1 0
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