

STUDIES ON INDIAN CRICKETS (ORTHOPTERA :
INSECTA) WITH DESCRIPTIONS
OF TWO NEW SPECIES

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(With 3 Text-figures)

INTRODUCTION

The paper enlists faunistic informations in the form of new taxonomic characters, of zoogeographical ranges and records of 26 species (14 genera) distributed over 9 subfamilies of Indian crickets (Gryllidae). The material examined in this paper included the unnamed collections of the Zoological Survey of India, Calcutta, collected by different tour parties. Some of the material was also sent by private person or was purchased by the author.

All material studied hereinunder are deposited in the National Collection of the Zoological Survey of India.

All measurements used in the paper are in mm. The figures indicated for the ranges of measurements are based on a random choice of specimens that could be found in the available material. The number of specimens measured in each case is indicated, wherever measurements are given.

ACKNOWLEDGEMENTS

The writer owes his indebtedness to Dr. D. N. Raychaudhuri, Reader, Calcutta University, for enthusiastic guidance and to late Prof. L. Chopard of Paris and late Prof. G. J. Bey-Bienko of Leningrad for many liberal helps in many occasions.

SYSTEMATIC ACCOUNT

Subfamily GRYLLINAE

Genus (1) *Gymnogryllus* Saussure, 1877

1. *Gymnogryllus humeralis* (Walker)

1871. *Gryllus humeralis* Walker, *Cat. Derm. Salt. Br. Mus.*, 5, suppl., 5.

Material.—1 ♂, Nilgiris, Tamil Nadu, 2.x.1963, *S. K. Nath*; 3 ♂ ♂, 5 ♀ ♀, Chembra Peak area (1075 m.), Calicut Dist., Kerala, IV. 1970 (purchased).

Remarks.—The specimens at hand have the frontal rostrum twice the width of first antennal segment; clypeo frontal suture almost straight. Lateral field of elytra with six regularly spaced veins, mediastinal vein having two branches in male and one branch in females. Posterior femur with only one undefined brownish area on the external face. In India, so far, the species has a restricted distribution in South India only. Also recorded from Sri Lanka.

2. *Gymnogryllus kashmirensis* Bhowmik

1967. *Gymnogryllus kashmirensis* Bh., *Sci. Cult.*, 33 : 244-246.

Material.—1 ♂, 1 ♀, Mysore University campus, Karnatak, 1964, *S. Vasantha*; 2 ♀ ♀, Dehra Dun, Uttar Pradesh, 1964, *S. Lal*; 1 ♂, 2 ♀ ♀, Pilani, Rajasthan (at light), 19-20. ix. 1967, *H. L. Kundu*; 1 ♂, Penang Malay (at light), 9.ii. 1968, *H. T. Pagden* (B. M.).

Remarks.—The species was described from Jammu and Kashmir, The present localities are new records for the species.

Based on my study of specimens, deposited in the Nat. Hist. Mus., London, I am confident that the species, *G. minor* Chopard (1969), is a synonym of the present species.

3. *Gymnogryllus erythrocephalus* (Serville)

1839. *Gryllus erythrocephalus* Serville, *Ins. Orth.*, 339.

Material.—1 ♂, Rajasthan, x. 1941, *B.N. Chopra and M. L. Roonwal*.

Distribution.—Known from Bihar, Uttar Pradesh, Karnatak and Tamil Nadu. Also recorded from Pakistan and Sri Lanka.

Remarks.—The male specimen at hand (length 12.8 mm, elytra 9.3 mm) has the frontal rostrum about twice as wide as the first antennal segment; clypeo frontal suture feebly arched at the middle.

The species is recorded here for the first time from Rajasthan.

Genus (2) *Loxoblemmus* Saussure, 1877

4. *Loxoblemmus animae* Bhowmik

1967. *L. animae* Bh., *Sci. Cult.*, 33 : 244-245.

Material.—1 ♂, 1 ♀, Rohtak Road, Dist. Rohtak, 12. ix. 1963 and 1 ♂, Kurukshetra, Dist. Karnal, 16. ix. 1963, Hariyana—all by R. K. Bhatnagar.

Remarks.—Since the species was described from Jammu and Kashmir, the present localities of occurrence extend the distributional ranges of the species.

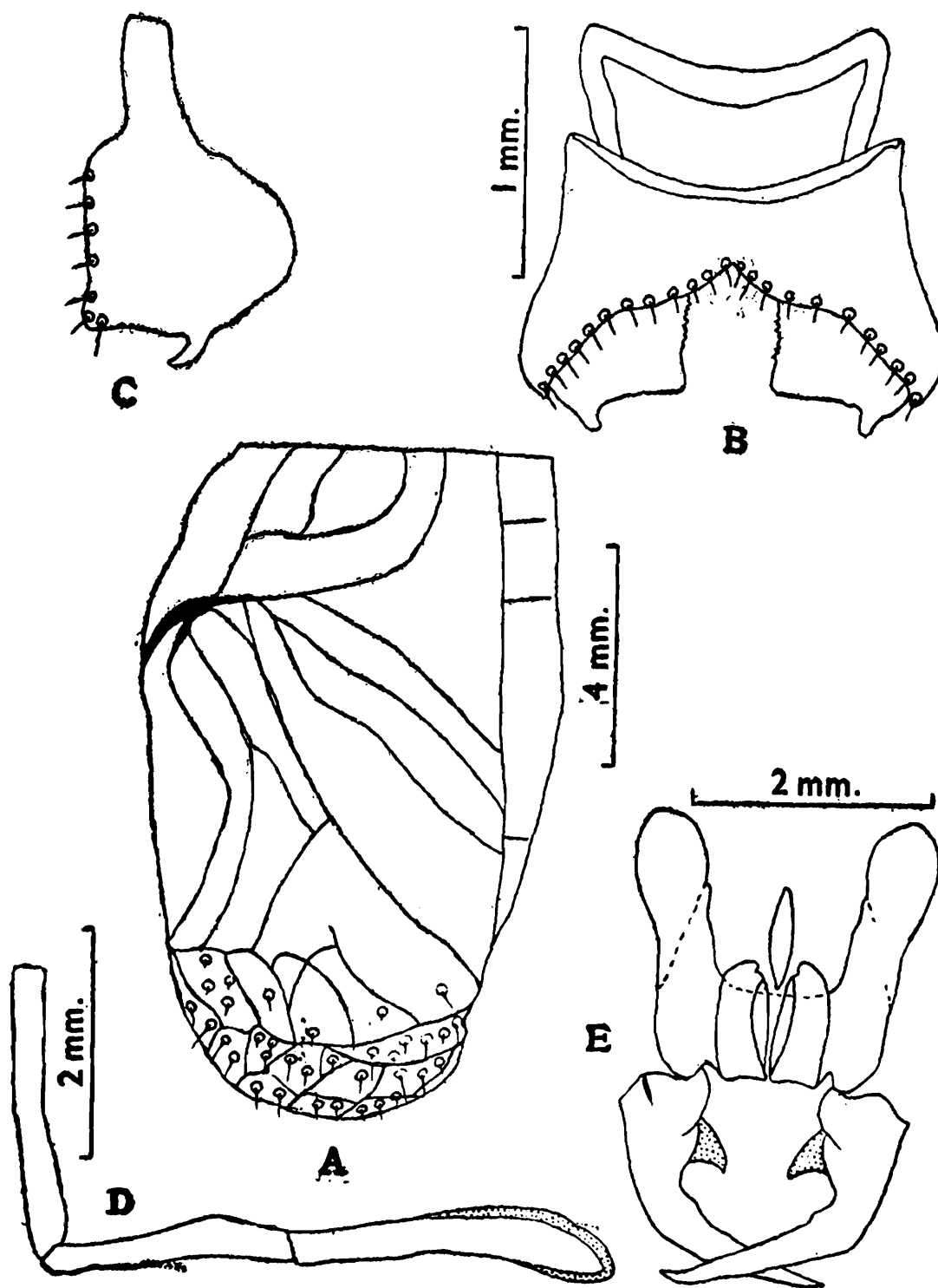
Loxoblemmus hamulifer Chopard (1969) seems to be a synonym of the species.

5. *Loxoblemmus beybienkoi* n. sp.

(Text-fig. 1, A)

Material.—Holotype: 1 ♂: Bir area, Dist. Hissar, Hariyana, 8. ix. 1963, R.K. Bhatnagar; Allotype: 1 ♀ : Same data as the holotype.

Description.—Male.—Size small, general colouration brownish. Head small, brown, glossy; lateral ocelli yellow, connected by a very thin rufous transverse line; frontal rostrum large, convex, thrice as wide as first antennal segment. Face concolourous with head except the post clypeus and mandibles which are yellowish, enlarged at the middle, oblique and moderately grooved longitudinally in the middle; clypeo-frontal suture straight; ante and postclypeus demarcated by a nearly straight suture which is, however, effaced at the middle. Antennae brownish, hairy and with smooth first segment. Pronotum concolourous with head, dull, and with scattered small yellowish areas, covered with dense fine pubescence, both anterior and posterior margins straight, a little widened at anterior end; disc convex with two coloured pyriform impressions and a longitudinal suture at the middle; lateral lobes concolourous with pronotum and with a distinct yellow space at the anterior angle which is rounded, posterior angle rounded and a little ascending. Legs densely hairy. Anterior and middle legs testaceous varied with brownish spots; posterior legs almost concolourous with head. Anterior tibia with a prominent external and a small internal tympanum in each. Posterior femora stout; each of the posterior tibia with five spines on each margin; supero-intermediate spurs a little longer than the supero-internal ones. Elytra brownish, shorter than the abdomen, truncated at apex; mirror large, longer than wide, distinctly triangular, undivided but a little overspread by the reticulation of apical field, connected with the first chord by a very oblique veinlet near at its anterior angle; three obliques, all originating nearly from the same point; diagonal short and straight; apical field reduced to a new indistinct arcolae, and covered with short silky hairs; lateral field much lighter in colour and with five regularly spaced curved veins; mediastinal vein unbranched. Wing as long as the tip of posterior tibiae.



Text-fig. 1 A. *Loxoblemmus beybienkoi*, male elytron; B. *Modicogryllus pallipes*, male genitalia, dorsal view; C. Ectoparamere (diagrammatic); D. *Homoeogryllus cincicornis*, male maxillary palpus; E. male genitalia, ventral view.

Female.—Differs from male in having six longitudinal yellowish lines on the occiput and vertex, with the most external line in continuation with the yellowish post ocular area; frontal rostrum flat, almost twice as wide as the first antennal segment. Facial parts flat and slightly oblique; clypeo frontal suture almost straight. Pronotum more varie-

gated with yellowish spaces; inferior half of lateral lobes yellowish and is clearly distinguished from its black superior half. Ovipositor rufous brown, short and with acute apical valves. Elytra brownish with five somewhat distinct oblique veins; mediastinal vein with a branch.

Measurements.—Length of body ♂ 11.0, ♀ 10.0; length of pronotum ♂ 2.4, ♀ 2.0; width of pronotum ♂ 3.5, ♀ 3.3; elytra ♂ 5.5, ♀ 7.2; wings ♂ 14, ♀ 14.3; posterior femora ♂ 7.2, ♀ 6.9; posterior tibiae ♂ 5.5, ♀ 5.1; ovipositor 5.0. (measured male holotype and female allotype).

Remarks.—Among the oriental species, the present species is close to *L. truncatus* Brunner (1893), for having three oblique veins but can be differentiated by its reduced elytra in male, with triangular mirror and reduced apical field, and colouration of head. The species is named in honour of late Prof. G. J. Bey-Bienko, Leningrad.

Genus (3) *Modicogryllus* Chopard, 1961

6. *Modicogryllus pallipes* (Chopard) (Text-fig. 1, B and C)

1925. *Gryllus pallipes* Ch., *Ann. Mag. nat. Hist.*, 15(9) : 510.

Material.—1 ♂, Chembra Peak area, Calicut Dist., Kerala, iv. 70 (purchased).

Remarks.—The species was described from Sri Lanka on a single female specimen. The male is described here for the first time.

Male (previously undescribed).—Colouration deep blackish brown with yellowish-rufous legs. Ocelli distinctly yellowish. Front slightly wider than the width of first antennal segment; clypeo-frontal suture straight. Anteriorly the pronotum is as wide as the head, distinctly widened behind; lateral lobes with rounded angles, concolourous with the pronotum except a yellowish patch on the antero-inferior angle. Elytra wide, testaceous hyaline, cover the abdomen; mirror prominent, obliquely disposed, longer than wider, divided in the middle by a curved vein; diagonal short, slightly curved; two chords, first united with mirror by a veinlet; 2 obliques; apical field short with 2 clear and 2 false veins, areolae irregular; lateral field with 5 regularly spaced veins, mediastinal having one branch. Genitalia as in figure. Posterior femora short, almost twice the length of posterior tibiae.

Measurements.—Length of body 11.3; elytra 10.5; pronotal length 2.0; maximum and minimum widths of pronotum 3.5 and 2.8

respectively; posterior femora 8.0; posterior tibia 5.0 (measured 1 male only).

Subfamily NEMOBIINAE

Genus (4) *Pteronemobius* Jacobson and Bianchi, 1904

7. *Pteronemobius fascipes* (Walker)

1869. *Eneoptera fascipes* Walker, *Cat. Derm. Salt. Br. Mus.*, 1: 67.

1962. *Pteronemobius fascipes* Uvarov, *Ann. Mag. nat. Hist.* 11 (9): 287; Chopard, 1932, *Ark. Zool.* 23A (9) : 5; Bey-Bienko, 1956, *Zool. Zh.* 35 (2) : 230.

Material.—7 ♂♂, 7 ♀♀, Jhajjar Nala, Udhampur, Jammu and Kashmir; 1 ♀, Teh Darmasala. Dist. Kangra and 1 ♂, 2 ♀♀, Mandikulu Road, 2 ♀♀, Guglihud, Jagindrnagar, Dist. Mandi, Himachal Pradesh; 1 ♀, Hissar, Hariyana Pradesh; 2 ♂♂, 9 ♀♀, Rishikesh, 1 ♀, Dehra Dun and 1 ♂ Rajaji Game Sanctuary, Uttar Pradesh; 5 ♂♂, 2 ♀♀ Mysore University campus, Karnatak; 1 ♀, Muki Balaghat dist., Madhya Pradesh; 1 ♀, Chembra Peak area, Dist. Calicut, Kerala; numerous males and females from Calcutta (at light).

Remarks.—Male specimens from Calcutta have their pronotal disc concolourous with lateral lobes (dark black).

The species is recorded here for the first time from Jammu & Kashmir, Hariyana, Himachal Pradesh and Uttar Pradesh.

Measurements.—Length of body ♂♂ 4.8-5.0, ♀♀ 4.5-5.3; elytra ♂♂ 2.9-3.0, ♀♀ 2.2-2.3; posterior femora ♂♂ 3.5-3.8, ♀♀ 3.8-4.0; ovipositor 2.5-3.0. (measured 10 examples of both males and females).

8. *Pteronemobius csikii* (Bolivar)

*1901. *Nemobius csikii* Bolivar, *Zich. Zool. Ergebn.*, 2: 243.

1926. *Pteronemobius csikii* Uvarov, *Ann. Mag. nat. Hist.*, 11(9) : 285; Bey-Bienko, 1956. *Zool. Zh.*, 35 (2): 230.

Material.—2 ♂♂, 2 ♀♀ (and 1 ♂, 2 ♀♀ nymphs) Mysore University campus, Karnatak; 2 ♂♂, Pilani, Rajasthan (at light); 1 ♂, Kanhaur village., Dist. Rohtak, Hariyana; 1 ♂, Saharanpur, Uttar Pradesh.

Remarks.—In immature insects fifth segment of maxillary palpi completely brown, and band on head and on posterior femora lacking but the pronotum with strong brown setae.

The species is a new record for Rajasthan, Hariyana and Uttar Pradesh.

9. *Pteronemobius taprobanensis* (Walker)

1869. *Trigonidium taprobanense* Walker, *Cat. Derm. Salt. Br. Mus.*, 1: 102.

Material.—2 ♂♂, Kosi Dam, Bihar; 4 ♂♂, 9 ♀♀ (at light), Calcutta, W. Bengal; 2 ♀♀, (at light) Pilani, (Rajasthan).

Remarks.—The species has been recorded from Rajasthan for the first time.

10. *Pteronemobius concolor* (Walker)

1871. *Eneoptera concolor* Walker, *Cat., Derm., Salt. Br. Mus.*, 5, suppl. 10.

Material.—1 ♂, Barasat, 24-Parganas, 1 ♂, Krishnanagar and 1 ♂, 4 ♀♀, Calcutta, West Bengal; 5 ♂♂, 8 ♀♀, Manipur; 1 ♀, Rishikesh, 1 ♀, Chamba, Uttar Pradesh; 1 ♀, Mayurbang, Orissa; 2 ♂♂, 1 ♀, Mysore University campus, Karnatak; 2 ♀♀, Pilani, Rajasthan (at light); 1 ♂, Galathea Bay, Great Nicobar Island (Bay of Bengal).

Remarks.—It is one of the most common and wide spread species of *Nemobiinae*. In Calcutta, members of this species are often found to visit houses at light. They show variations in colouration depending on ecological factors and due to this fact were named differently by previous workers. The species is a new record for Manipur, Uttar Pradesh, Rajasthan, Karnatak and Great Nicobar Island.

11. *Pteronemobius bicolor* (Saussure)

1877. *Nemobius bicolor* Sauss., *Mem. Soc. phys. Hist. nat. Geneve* 25: 266.

Material.—2 ♀♀, Coimbatore, Tamil Nadu, iv. 1970 (purchased).

Remarks.—The specimens (6-6.3 mm) at hand have the antennae brownish throughout (not whitish at tips); fifth maxillary palpi longer than fourth and dilated.

The species has a wide distribution in India. Also reported from Burma and Sri Lanka.

Genus (5) *Paranemobius* Saussure, 1877

12. *Paranemobius pictus* (Saussure)

1877. *Pseudonemobius pictus* Saussure, *Mem. Soc. phys. Hist. nat. Geneva*, 25 : 235-236.

1906. *Paranemobius pictus* Kirby, *Syn. Cat. Orth.*, 2 : 13.

Material.—1 ♂, 2 ♀♀, Shandol, Madhya Pradesh, 10. vii. 1968, *M. N. Saxena*.

Distribution.—The species was described from Kashmir and is now known from Bombay and Nagpur (Maharashtra), Bihar, and also from Sri Lanka.

Remarks.—The specimens (8mm to 9mm) at hand show the clypeo frontal suture hardly arcuate. Frontal rostrum narrower than the width of first antennal segment and with a few strong, brown bristles.

13. *Paranemobius vicinus* Chopard

1928. *Paranemobius vicinus* Chopard, *Rec. Ind. Mus.*, 30:4.

Material.—1 ♀ (nymph) from Kellar stream, 25 miles North East of Trivandrum (Kerala), *Hora & Menon*, iii. 1950.

Distribution.—Kerala, Maharashtra, Karnatak.

Remarks.—The specimen examined was a nymph and hence the characters given here are those of the nymph. Elytra small, ill developed and completely cover the abdomen, variegated with yellow and brown, separated from one another by a gap which is nearly 1 mm in width. Clypeo frontal suture arcuate. Pronotum like that of *pictus* (Sauss.) and not angulated at posterior margin.

Measurements.—Length of body 5.5; length of pronotum 1.3; clytra 3.0; posterior femora 6.0; posterior tibiae 4.0; ovipositor 3.3. (measured 1 ♀ nymph).

Subfamily PHALANGOPSINAE

Genus (6) *Homoeogryllus* Gurein, 1847

14. *Homoeogryllus cincticornis* (Walker)
(Text-fig. 1, D & E)

1870. *Meloimorpha cincticornis* Walker, *Cat. Derm. Salt. Br. Mus.*, 3 : 469.

Material.—2 ♂♂, Dorsh, Chitral, North West Province (Pakistan), June-Sept., 1929, *B. N. Chopra*.

Remarks.—The species was previously known from Bombay (Maharashtra) and Tamil Nadu only. The present record of the species from Pakistan is, therefore, interesting from the point of zoogeographical distribution. The male specimens studied have the frontal rostrum less than half the width of first antennal segment; clypeo frontal suture feebly arched. Male genitalia as shown in figures. Elytra with five to six oblique veins; mediastinal vein with eighteen to twenty-one branches.

Measurements.—Length of body 14-19; length of pronotum 2-2.8; maximum width of pronotum at posterior end 4-4.5; clytra 15.5-17.5; posterior femora 11.2-14; posterior tibia 11-13.8. (measured 2 ♂♂).

Subfamily MOGOPLISTINAE

Genus (7) *Ornebius* Guerin, 1844

15. *Ornebius nigripalpis* Guerin

1844. *Ornebius nigripalpis* Guerin, *Icon. R. amin. Ins.*, 332.

Material.—1 ♂, Bindaban Forest Block, Noorpur Forest Range,

Dist. Gurdaspur (Punjab), 19, vi, 1963, *R. K. Bhatnagar*; 1 ♀, Narendra Nagar & environs (U. P.), 23. ii. 1965. *T. D. Soota*; 7 ♀ ♀, Molichur Forest Range, Dehra Dun, 25. ii. 1965, *T. D. Soota*.

Remarks.—So far the species was known from Pondicherry and Tamil Nadu only. Its occurrence in the Punjab and Uttar Pradesh is interesting from the point of its distribution in India. Females have been described herewith for the first time.

Females (previously undescribed).—Apterous. Frontal rostrum slightly more than twice the width of first antennal segment; clypeo frontal suture distinct and straight; fourth and fifth segments of maxillary palpi subequal, third smaller than fourth. Pronotum with both anterior and posterior margins distinctly concave, the posterior being more strongly so. Ovipositor testaceous and straight with brownish apical valves which are acute apically.

Measurements.—Length of body ♂ 7.0, ♀♀ 8-9; length of pronotum ♂ 2.9, ♀♀ 2.7-2.8; width of pronotum ♂ 2.3, ♀♀ 2.3-2.5; posterior femora ♂ 5.3, ♀♀ 6-6.3; posterior tibiae ♂ 3.5, ♀♀ 3.6-3.9; ovipositor 7.5-8.0. (measured 1 ♂ and 8 ♀♀ specimens).

SUBFAMILY SCLEROPTERINAE

Genus (8) *Acanthoplistus* Saussure, 1877

16. *Acanthoplistus birmanus* Saussure

1877. *Acanthoplistus birmanus* Saussure, *Mem. Soc. phys. Hist. nat. Geneve*, 25 : 490.

Material.—1 ♂, Botanical Garden, F.R.I., Dehra Dun, Uttar Pradesh, 26. vii. 1961, *S. Lal*.

Remarks.—The female specimen (9.5 mm) has the frontal rostrum about two and half times as wide as the first antennal segment; Clypeo frontal suture somewhat straight.

In India the species was known from Tamil Nadu, Karnatak and Himachal Pradesh. Dehra Dun is a new distributional record for it.

Genus (9) *Scleropterus* Haan, 1842

17. *Scleropterus coriaceus* (Haan)

1842. *Gryllus (Scleropterus) coriaceus* Haan, *Temm. Verhandl. Orth.*, 232.

Material.—1 ♀ (at light), Kaziranga Game Sanctuary, Assam, 7. ix. 1961, *R. N. Katiyar*.

Distribution.—Kerala. Also recorded from Burma, Thailand, Malaya and Java.

Remarks.—The female specimen (length 8.6 mm, elytra 5.0 mm, ovipositor 4.2mm) has a densely punctate, fusiform body. Ocelli arranged along a feebly curved line; clypeo frontal suture indistinct, moderately arcuate.

The species is reported here for the first time from the eastern India.

18. *Scleropterus punctatus* Brunner

1893. *Scleropterus punctatus* Brunner, *Ann. Mus. Geneva*, 13(2) : 204; Chopard, 1932, *Ark. Zool.*, 23A, 9: 9-10.

Material.—1 ♀, Sonai-Rupai Forest, Missamari, Arunachal Pradesh, 29 iii. 1965; 1♀, Rajaji Sanctuary, Dist. Saharanpur (U. P.), 13. vii. 1963, *T. D. Soota*.

Distribution.—Karnatak, Assam (Iedo), Burma, Japan, Vietnam and Sumatra.

Remarks.—The two female specimens (length 9.5-9.6 mm, elytra 4.7-4.9 mm, ovipositor 5.2-5.6 mm) studied have the clypeo frontal suture slightly arcuate at the middle; pronotum not distinctly narrowed at anterior end and anterior margin clearly straight; ovipositor rather longer.

The species is a new record for Arunachal Pradesh and Uttar Pradesh.

Subfamily OECANTHINAE

Genus (10) *Oecanthus* Serville, 1831

19. *Oecanthus indicus* Saussure

1878. *Oecanthus indicus* Saussure, *Mem. Soc. phys. Hist. nat. Geneve*, 25 : 594.

Material.—2 ♀♀, Changland, Tirap Div., Arunachal Pradesh; 1♂, Tamil Nadu (purchased).

Distribution.—Bombay, Pusa, Kodaikanal, Nilgiris, Coimbatore, Port Blair. Also from Sri Lanka and S. E. Asian countries.

Remarks.—Head of one female specimen with a median velvety band on the vertex.

The species is reported here for the first time from the eastern India.

Measurements.—Length of body ♂ 11.5, ♀♀ 11.5-12; length of pronotum ♀♀ 1.9-2; elytra ♂ 12.0, ♀♀ 10.8-11.3; posterior femora ♂ 10.0, ♀♀ 8-8.3; posterior tibiae ♀♀ 8.0; ovipositor 8-8.5. (measured 1 male and 2 female specimens).

20. *Oecanthus bilineatus* Chopard

1937. *O. bilineatus* Ch., *Rec. Ind. Forest (N. S.)*, 3 (1): 26.

Material.—2 ♀ ♀, Pilani, Rajasthan, v. 1965, H. L. Kundu.

Distribution.—Tamil Nadu.

Remarks.—The female specimens have no black spot on first and second antennal segments.

The species is a new record from Rajasthan.

Measurements.—Length of body 10-10.5; length of pronotum 2.0; elytra 10.5-11; posterior femora 7.3; posterior tibiae 6.8-7; ovipositor 4.3. (measured 2 ♀ ♀ specimens).

Subfamily CACOPLISTINAE

Genus (11) *Cacoplistes* Brunner, 187321. *Cacoplistes rogenhoferi* (Saussure)
(Text-fig. 2, A-C)

1878. *Cachoplistus rogenhoferi* Saussure, *Mem. Soc. phys. Hist. nat. Geneve*, 25 : 497.

Material.—1 ♂, Kaziranga Game Sanctuary, Assam, 7.x. 1961, R. N. Katiyar.

Distribution.—Kashmir, West Bengal (Darjeeling), Assam (Gauhati).

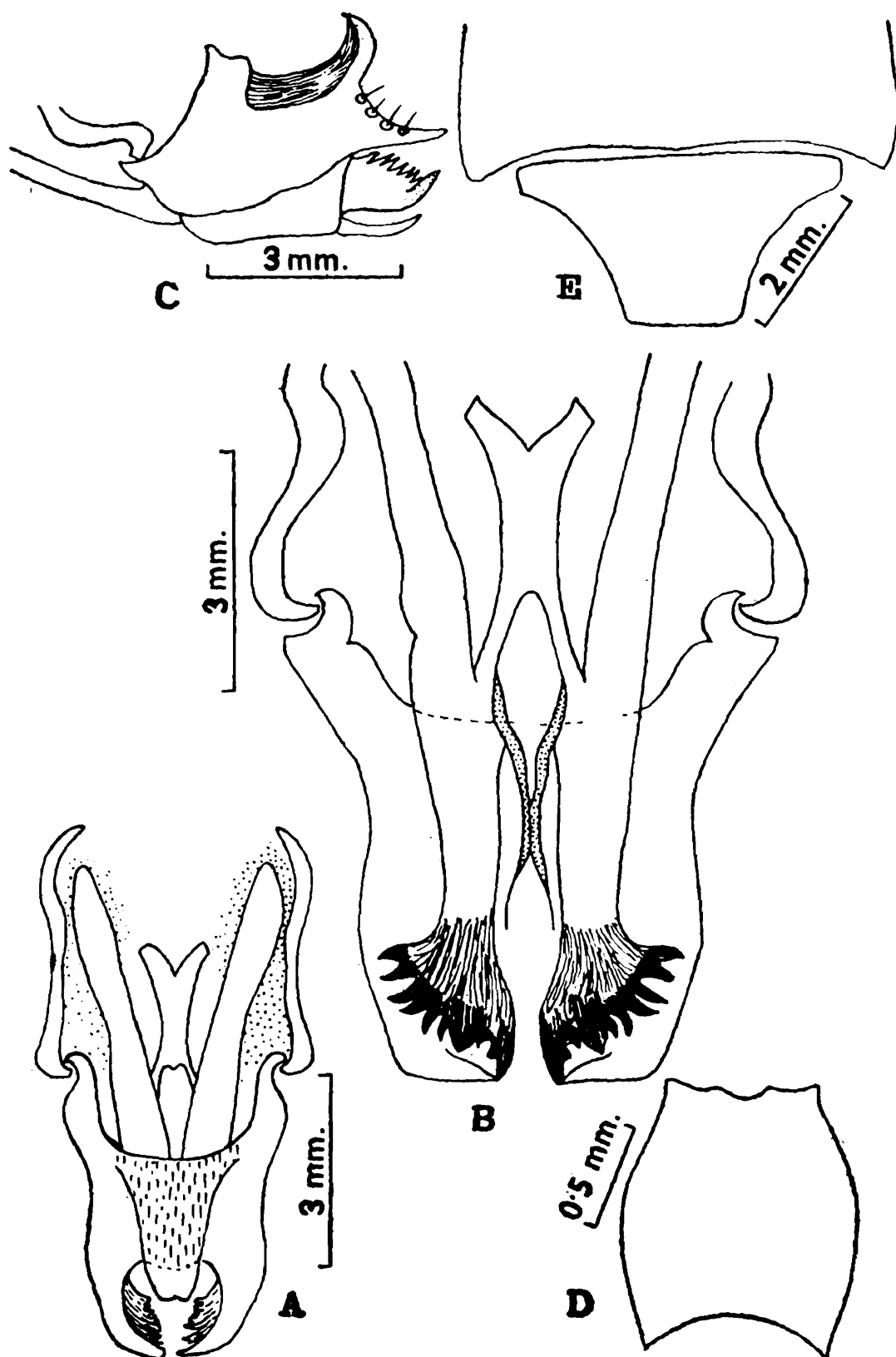
Remarks.—The male genitalia of the specimen was studied and described here for the first time.

Epiphallus more or less H-shaped; anterior margin broadly emarginate; posterior margin with three lobes, the apex of median lobe strongly curved dorsally, this curved end is united with the anterior emargination with a membranous structure. The apices of ectoparameres fan shaped and consist of nearly a dozen of teeth-like projections; from the middle of each ectoparamere come out two offshoots which ultimately unite to form a median dumb-ball shaped structure, perhaps the representative of virga as can be assumed from its position. The rami connect directly with the epiphallus by hook-like arrangements, there being no ramal plate.

Subfamily ITARINAE

Genus (12) *Itara* Walker, 186922. *Itara minor* Chopard

1925. *Itara minor* Ch., *Ann. Soc., ent. Fr.*; 94.: 312, figs 38, 39.



Text-fig. 2. A. *Cacoplistes rogenhoferi*, male genitalia, dorsal view; B. male genitalia, ventral view; C. male genitalia, lateral view; D. *Calyptotrypus roonwali* n. sp. subgenital plate, E. supraanal plate.

Material.—1 ♂, 1 ♀, Chembra Peak area, Calicut, Kerala, v. 1970 (purchased).

Distribution.—Darjeeling (West Bengal), Garo Hills (Meghalaya). Also from Malaya, Tonkin.

Remarks.—Clypeo frontal suture very feebly curved. Male elytra with 4 curved and irregularly spaced oblique veins; lateral field having 4 regularly spaced veins, mediastinal biramous.

The species is reported here for the first time from south India.

Subfamily PODOSCIRTINAE

Genus (13) *Calyptotrypus* Saussure, 1878

23. *Calyptotrypus bimaculatus* (Chopard)

1928. *Madasumma bimaculata* Ch., *Rec. Indian Mus.*, 30 : 32, figs. 49-51.

Material.—2 ♂♂, North Sikkim (Teng & Singhek) alt., 1515 m, viii. 1959, A. G. K. Menon; 1 ♂, Dirong Dzong, Kameng, Arunachal Pradesh, 7. viii. 61, S. Biswas.

Remarks.—This species was described from Bhutan. Its occurrence in Sikkim and Arunachal Pradesh exhibits its probable availability throughout the Eastern Himalayas.

In the three male specimens (17-18 mm) studied the number of oblique veins vary from 5 to 6 and the mediastinal veins bear 12 to 13 branches.

24. *Calyptotrypus roonwali* n. sp.
(Text-figs. 2, D, E, & 3, A)

Material.—Holotype. 1 ♂ : Imphal valley, alt. 715 m., Manipur, India, 11.x.1945, Maj. M. L. Roonwal.

Description.—Holotype: Large, testaceous brown; finely pubescent. Head rather big, pale brown, as wide as the pronotum in front; occiput moderately convex and ornamented with six fairly clear yellow stripes and an incomplete median stripe; frontal rostrum depressed, furrowed, darker than head, about one and half times as wide as the first antennal segment. Eyes prominent and adorned with longitudinal stripes; ocelli light brown. Face yellow; facial shield prominent, convex, broader than frontal rostrum, variegated with numerous brown dots. Fourth segment of the maxillary palpi slightly smaller than third; third, fourth and fifth widening at apex-fifth more distinctly so. Pronotum widened posteriorly, anterior margin distinctly concave, bordered with a light brown band, rest of the disc pale yellowish variegated with brownish spots, posterior margin very feebly convex, pronotal disc with a median black band; lateral lobes concolourous with head, posterior angles of lateral lobes rounded and feebly ascending. Legs ochraceous yellow, posterior femora with pale brown striations (post. tibiae wanting). Elytra covering the apex of abdomen, light yellowish hyaline, archet and humeral edges blackish brown; speculum about

one and a half times longer than wide, with rounded angles, divided by a curved vein, connected to the first chord by a long veinlet at the level of the antero-superior angle and also by a small veinlet in the proximity of antero-inferior angle; two more or less straight oblique veins present, and a short incomplete vein also present between the first oblique and the diagonal veins; two chords present; diagonal vein long, straight and bifurcated at base; apical field long, clearly reticulated in large areolae; mediastinal vein with fifteen parallel branches, the last branch bifurcated. Wings a little longer than the abdomen. Abdomen blackish brown; tenth tergite with irregular margins, posterolateral angles convex and somewhat projecting, supra anal plate vertical, furrowed at apex; distal margin of the sub-genital plate with posterolateral angles rounded, notched in the middle and projecting much beyond the supra anal plate. On the ventral view, the genitalia consists of a median structure which is bilobate distally—each lobe curved inwards apically, and, with a lateral denticle-like projection.

Measurements.—Length with elytra 30.8; elytra 22.6; length of pronotum 2.7; posterior femora 20.8. (measured the holotype).

Remarks.—The species can easily be separated by its ornamented head, shape of facial shield, elytral venation, viz., presence of two oblique veins, shape of tenth abdominal tergite, sub-genital plate and genitalia.

The species is named in honour of Dr. M. L. Roonwal, collector and Ex-Director, Zoological Survey of India, and one of the leading entomologists of India.

25. *Calyptotrypus hofmanni* Saussure (Text-fig. 3 B-G)

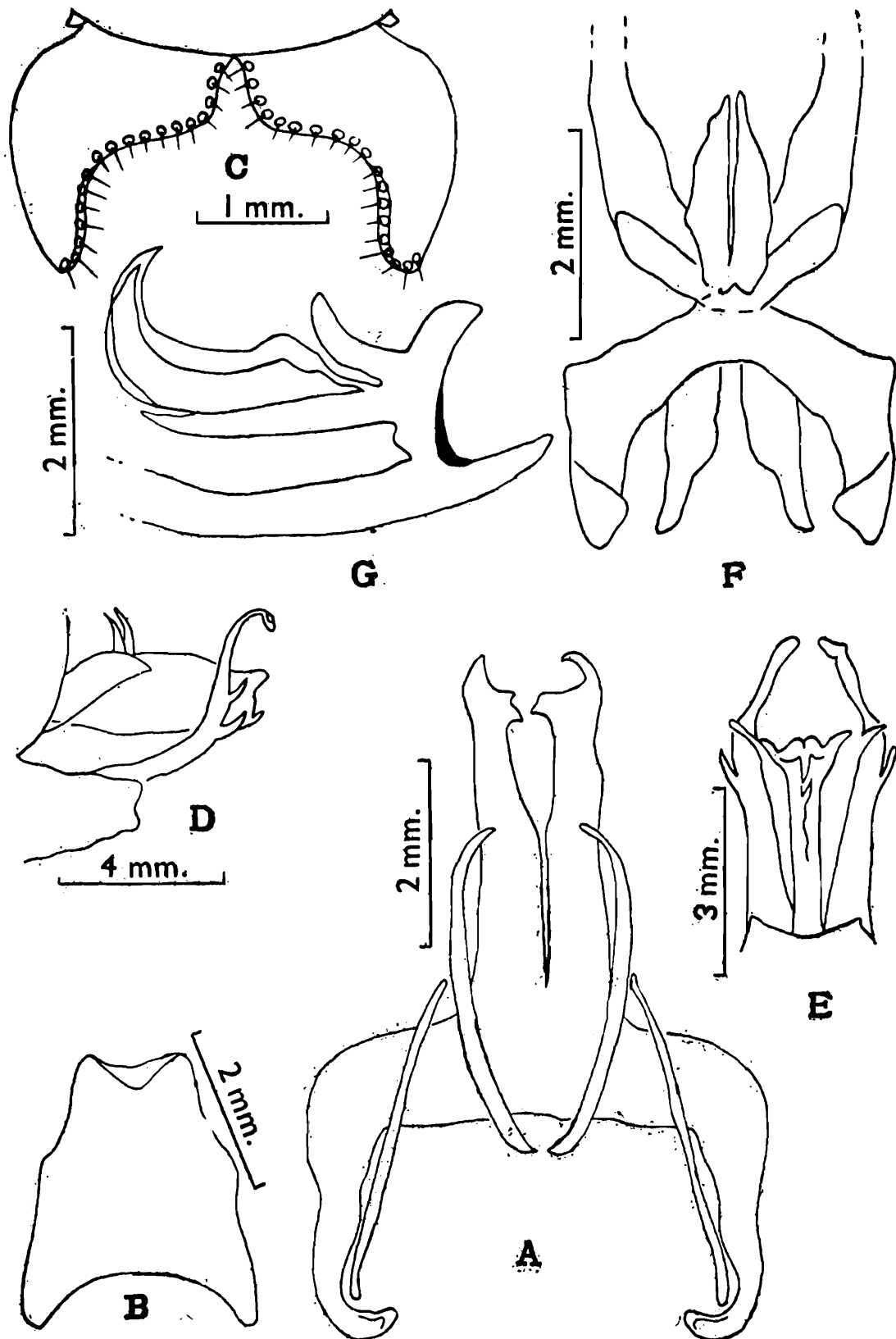
1878. *C. hofmanni* Sauss., *Mem. Soc. phys. Hist. nat. Geneve*, 25 : 569, Pl 189 figs. 2, 2a.

Material.—1 ♂, Pamir Bridge, Subansiri Div., (564m), Arunachal Pradesh, 8. v. 66; 1 ♂, Didi Camp, Chukm, Subansiri Div., (1128m) Arunachal Pradesh, 2. v. 1966.

Distribution.—Upper Burma, Java.

Remarks.—The species is reported here from the Indian region for the first time. The male genitalia is figured and described hereinafter.

Sub-genital plate as in figure. The genitalia is characteristic in having a pair of incurved titulatory organs, each of which is with a pair of spines in the middle; a pair of slender processes, curved upwards through the notch of 10th tergite is also remarkable. In between the titulatory organs and ventral to the slender processes, there is a prominent com-



Text-fig. 3. A. *Calyptotrypus roonwali* n. sp. male genitalia ventral view; B. *Calyptotrypus hofmanni*, subgenital plate; C. Tenth abdominal tergite; D. Lateral view of male genitalia, (exposed); E. Ventral view of male genitalia (exposed), F. Dorsal view of male genitalia (internal); G. Lateral view of male genitalia (internal).

posite structure which having apically one denticle-like offshoot on each lateral corner. The internal genitalia, on dorsal view, shows those parts comparable to epiphallus giving off two compressed laterally

directed structures, ventral to this, there is also a pointed, compressed pair of processes (distal ends of ectoparameres).

Measurements.—Length of body 20-21; length of pronotum μm 4.5; maximum width of pronotum (posterior margin) 5.7; minimum width of pronotum (anterior margin) 4.0; length of elytra 24.0; maximum width of elytra 6-6.3; posterior femora 12.0; posterior tibiae 11.0. (measured 2 male specimens)

Genus (14) *Madasumma* Walker, 1869

26. *Madasumma saussureana* (Chopard)

1878. *Calyptotrypus marginipennis* Saussure, *Mem. Soc. phys. Hist. nat. Geneve*, 25 : 583. (Non Guerin)

Material.—1 ♂, Annamalai Hills, on Cinchona, Tamil Nadu, v. 1968 (purchased).

Distribution.—Sri Lanka.

Remarks.—The male specimen (19mm) at hand is the first record of its kind from the mainland of Indian region.

SUMMARY

The paper comprises of 26 species of Gryllidae of which *Loxoblemmus beybienkoi* and *Calyptotrypus roonwali* are new to science; *C. hofmanni* and *Madasumma saussureana* are new records for India; male of *Modicogryllus pallipes* and female of *Ornebius nigripalpis* are described for the first time, and the male genitalia of *Cacoplister rogenhoferi* and of *Calyptotrypus hofmanni* are figured and described for the first time. Besides, a number of species has been recorded from new localities of India.

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**Denotes references not seen in original