

STUDIES ON SOME INDIAN CRICKETS WITH NEW
DISTRIBUTIONAL RECORDS OF THE SUB-FAMILY
GRYLLINAE (GRYLLIDAE ORTHOPTERA)

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(With 1 Text-figure)

INTRODUCTION

(a) *General*

The paper deals with new taxonomic characters and new distributional records of 14 species spread over 7 genera of the subfamily Gryllinae of Indian fauna. The material studied in this paper includes the unnamed materials collected by the Zoological Survey of India tour parties from different parts of the country including the South Andaman Island.

All material examined hereinunder are deposited in the National Collection of the Zoological Survey of India, Calcutta. All measurements used in the paper are in mm. The number of specimens measured in each case is indicated, wherever measurements are given.

(b) *Acknowledgements*

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SYSTEMATIC ACCOUNT

Genus (1) *Gryllus* Linnaeus, 1758

1. *Gryllus bimaculatus* De Geer

1773. *Gryllus bimaculatus* De Geer, *Mem. Ins.*, 3 : 521.

1961. *Gryllus bimaculatus* Chopard, *Eos*, 37 : 269; Randell, 1964, *Canad. Ent.*, 96 : 1592.

Material.—1 ♀, Sanglichu, (5500m.) Kameng, Arunachal Pradesh; 2 ♂♂, 3 ♀♀, North Sikkim; 1 ♂, 7 ♀♀, Dehra Dun, 3 ♂♂ 5, ♀♀, Raipur, Dehra Dun, 1 ♀, Mall, Mussorie, Uttar Pradesh; 1 ♂, 1 ♀, Mettur Dam Survey, Yercand Shevroy Hills; 2 ♂♂, 1 ♀, Machalla, Dist. Guntur, Andhra Pradesh; 2 ♂♂, 2 ♀♀, Tamil Nadu; 2 ♂♂ (without labels); 1 ♀, Mysore city, Karnatak; 2 ♂♂, 1 ♀, Pilani, Rajasthan, (at light); 2 ♂♂, 1 ♀, South Andaman Island; 1 ♂, Hoshiarpur, Punjab; 1 ♀, Kangra, 2 ♀♀, Sirmor Forest Division, Himachal Pradesh.

Remarks.—The species (22—25.5) has the frontal rostrum convex, more than one and half times as wide as the first antennal segment; clypeo frontal suture slightly but broadly arched in males and almost straight in females. Size and shape of the two yellow spots at base of elytra may be very prominent or very inconspicuous, sometimes the entire basal region upto a distance of 1.5 is yellowish.

The species is a new record for Arunachal Pradesh, Sikkim, Himachal Pradesh and Rajasthan.

Genus (2) *Lenigryllus* Chopard, 1961

2. *Lenigryllus quadrimaculatus* (Saussure) (Text-fig. 1A)

1877. *Gryllus quadrimaculatus* Saussure, *Me'm. Soc. Phys. Hist. nat. Geneve*, 25 : 340.

1961. *Lenigryllus quadrimaculatus* Chopard, *Eos*, 37 : 270.

Material.—2 ♂♂, 1964, Mysore University campus, Karnatak, S. Vasantha.

Remarks.—The male specimens have the frontal rostrum one and half times as wide as the first antennal segment. Clypeo frontal suture almost straight. The male genitalia shows more affinity to the genus *Teleogryllus* but differs from the genus *Gryllus* in not having trilobed epiphallus and more or less tuberculated posterior portion of ectoparameres rather than the digitiform one. The species is known from Rajasthan, Karnatak, Tamil Nadu and also from Assam.

Measurements.—Length of body 24—24.5; length of pronotum 5.9—6.2; posterior femora 18—18.2; posterior tibiae 12.7—13.2; (measured 2 males only).

Genus (3) *Modicogryllus* Chopard, 1961

3. *Modicogryllus confirmata* (Walker) (Text-fig. 1B)

1859. *Acheta confirmata* Walker, *Ann. Mag. nat. Hist.*, 3(4) : 221.

1877. *Gryllus consobrinus* Saussure, *Mem. Soc. Phys. Hist. nat. Geneve*, 25 : 356.
 1961. *Modicogryllus confirmata* Chopard, *Eos*, 37 : 272; Randell, 1964, *Canad., Ent.*, 96 : 1584.

Material.—4 ♂♂, 2 ♂♂, Rajasthan; 4 ♂♂, 3 ♀♀, Dhamni, Santal Parganas, Bihar; 2 ♀♀, Rajpur, Madhya Pradesh; 10 ♂♂, 16 ♀♀ Imphal valley, Manipur; 9 ♂♂, 17 ♀♀, Dehra Dun, U. P., 2 ♂♂ Bhiwani Tehsil, Dist. Hissar, Haryana; 1 ♂, 1 ♀, Kurukshetra, Dist. Karnal, Haryana.; 3 ♂♂, 2 ♀♀, Mysore city, Karnatak; 30 ♂♂, 42 ♀♀, Calcutta.

Remarks.—The species has the frontal rostrum convex, a little wider than the width of first antennal segment. Ventral view of male, genitalia as in fig. Among the allied species of the genus, it is more close to *M. clarellus* (S.) which is separable from the present species by its somewhat hook-like apical end of ectoparamere and shorter ovipositor. This species is recorded herewith for the first time from Rajasthan, Haryana, Santal Parganas and Manipur.

Measurements.—Length of body ♂♂ 11.5—12.5, ♀♀ 11-12.3; length of pronotum ♂♂ 2-2.2, ♀♀ 2.3—2.5; width of pronotum ♂♂ 3.6—3.9, ♀♀ 4—4.5; elytra ♂♂ 7.5—8, ♀♀ 8.5—8.8; posterior femora ♂♂ 6.5—7.5, ♀♀ 7.7—8; posterior tibia ♂♂ 4.8—5, ♀♀ 7.7—8, ovipositor 8.5—10 (measured 10 examples of both sexes, taken at random.)

4. *Modicogryllus clarellus* (Saussure)

1877. *Gryllus clarellus* Saussure, *Me'm Soc. phys. Hist. nat. Geneve*, 25 : 360.
 1954. *Acheta clarella* Chopard, *Verh. Naturf. Ges. Basel*, 65 : 34.
 1954. *Acheta meyeri* Chopard, *Idem* : 35.
 1961. *Modicogryllus clarellus* Chopard, *Eos*, 37 : 273.

Material.—1 ♂, 3 ♀♀, Humprygunj, South Andaman Island, 3-3-1964 B. S. Lamba; 1 ♂, Gudha, Rajasthan, 21-3-1958. T. G. Vazirani.

Remarks.—The male specimens at hand show the clypeo frontal suture variable—it may be almost straight or strongly arcuate. In females the elytra shorter than the abdomen by 2 to 2.5 mm.

Chopard (1954) created the species, *Acheta meyeri*, suggesting its resemblance to *M. clarellus* but separated from the former by its different colouration of head and very little undulating clypeo frontal suture inspite of similarity in genital complex. I consider *meyeri* Ch. as a synonym of *clarellus* Sauss. in view of similarities in genital complex as in my opinion it is considered a more important character for the purpose of separation of the species than either colouration or shape

of clypeo frontal suture. The species was known so far from Java, Sumba, Burma and Timor. It is recorded herewith for the first time from India.

Measurements.—Length of body ♂♂ 9-11, ♀♀ 11-11.5; length of pronotum ♂♂ 1.8-2.5, ♀♀ 2.3-2.7; maximum width of pronotum ♂♂ 2.8—3.8, ♀♀ 3.8—4; posterior femors ♂♂ 5.6—7, ♀♀ 7-7.5. posterior tibia ♂♂ 3.8—5, ♀♀ 5-5.6; ovipositor 5-5.5. (measured 2 ♂♂ and 3 ♀♀).

5. *Modicogryllus blennus* (Saussure)

1877. *Grylloides blennus* Saussure *Me'm. Soc. phys. Hist. Nat. Geneve*, 25 : 215.
1961. *Modicogryllus blennus* Chopard, *Eos*, 37 : 274.

Material.—1♀, Pilani, Rajasthan, 5.vi.1967. *H. L. Kundu* (at light); 1 ♀ Behala, Calcutta, 5. viii.1967. *H. K. Bhowmik*.

Remarks.—The female specimens (8—9.5, elytra 5—6.5, ovipositor 5.5—6) studied have the frontal rostrum about one and half times as wide as the first antennal segment. Dorsal field of elytra with three clear veins and a sort of two branches from the discoidal and these are irregularly disposed; lateral field with second vein distinctly curved and widely separated from the rest. The species is recorded here for the first time from Rajasthan.

Genus (4) *Platygryllus* Chopard, 1961

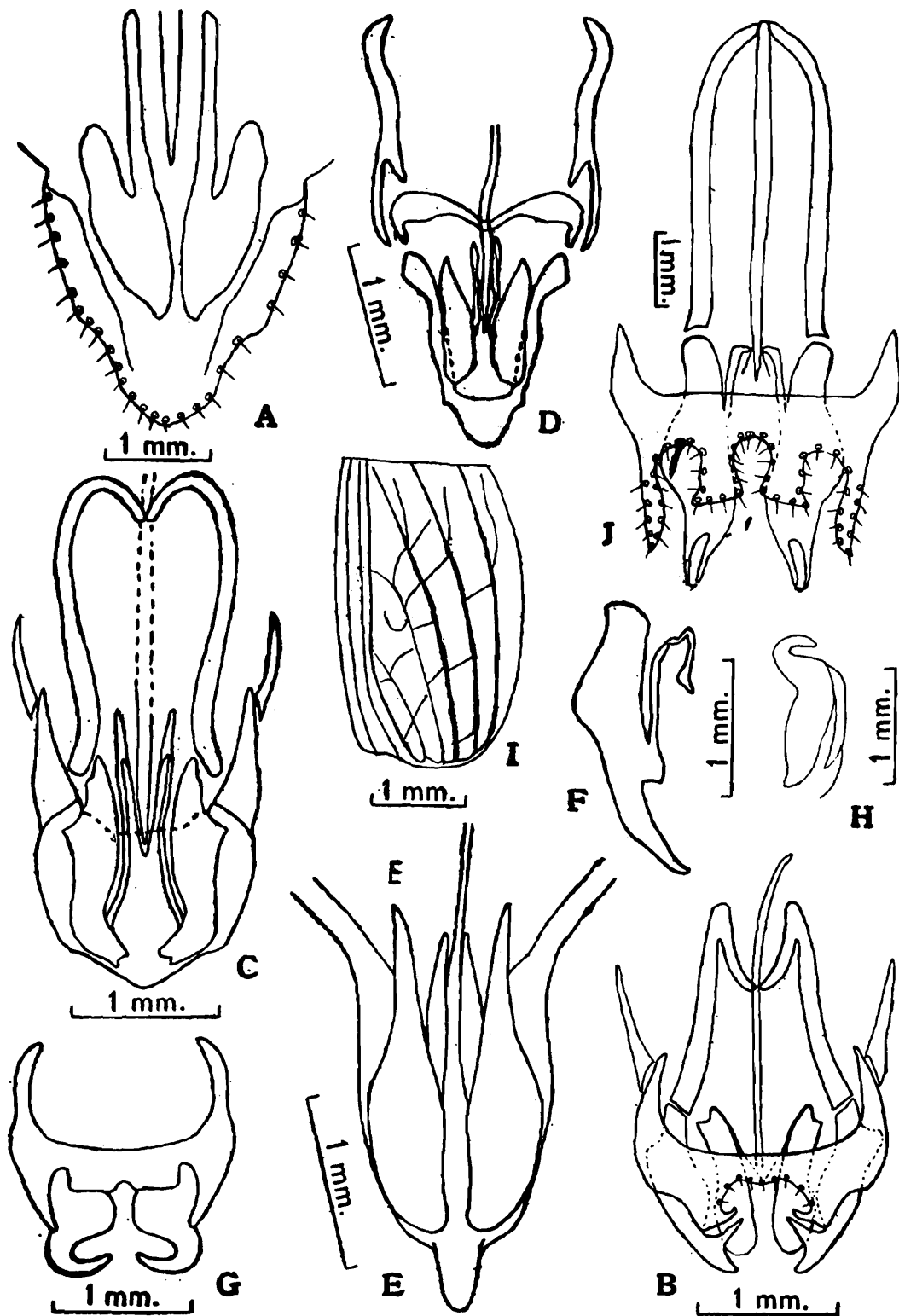
6. *Platygryllus melanocephalus* (Serville)

(Text-fig. 1C)

1839. *Gryllus melanocephalus* Serville, *Ins. Orth.*, 342.
1961. *Platygryllus melanocephalus* Chopard, *Eos*, 37 : 276; Randell, 1964, *Canad. Ent.*, 96 : 1598.

Material.—1 ♂, Hazaribagh, Bihar, ix-x. 1938; *H. S. Rao*. 1 ♂, Rajpur, Madhya Pradesh, xii. 1939; *H. S. Rao*. 1 ♂, Chhoma, Dist, Almorah, 1 ♂, Garhwal and 1 ♂, Dehra Dun, Uttar Pradesh; 4 ♀♀. Jawalamukhi, Dist. Kangra, Himachal Pradesh.

Remarks.—There is some confusion about the identity of the species, the type which is a female specimen from Bengal, being lost. The male is described here. Chopard (1969) gives the figure of genitalia and gives a very short description of a specimen which he considers as the male of the species. My observations supplement, however, his findings. Male: Body varies from deep wine to shiny black. Head small, smooth, shiny black, as wide as the pronotum in front; vertex not ornamented, moderately convex; frontal rostrum about one and half times as wide as the first antennal segment, converging at the



Text-fig. 1A. *Lenigryllus quadrimaculatus*, ♂ genitalia, apical portion, ventral view; B. *Modicogryllus confirmata*, ♂ genitalia, ventral view; C. *Platygryllus melanocephalus*, ♂ genitalia, ventral view; D. *Plebeiogryllus guttiventris*, ♂ genitalia, ventral view; E. *Teleogryllus testaceus*, ♂ genitalia, apical portion, ventral view; F. *Velarifictorus aspersus*, ectoparamere showing its attachment with mesal lobe, lateral view; G. & H. *Velarifictorus ceylonicus*, (G) ♂ genitalia, apical portion, dorsal view; (H) ectoparamere showing its attachment with mesal lobe, lateral view; I. & J. *Velarifictorus fallax*, (I) ♀ elytron; (J) ♂ genitalia, ventral view.

middle. Lateral ocelli prominent and rufous. Face, maxillary palpi and antennae concolourous with head but less shiny, transverse with a median longitudinal suture, pubescent with very fine hairs, evenly widened at posterior end, anterior margin concave, posterior one nearly straight or slightly obtuse; lateral lobes with somewhat rounded angles at both ends, concolourous with pronotum. Anterior tibia with a small round internal and a big oval external tympanum in each; posterior femora moderately stout; posterior tibiae with six external and five internal spines. Elytra brownish on the dorsal field except the humeral edge and a part of the basal anal field which are yellowish; mirror obliquely disposed, wider than long; supero-anterior and inferoposterior angles with somewhat rounded corners but other two more or less angulated, divided by a curved vein much below the middle, not united with the chords; four oblique veins, the first of which distinctly sinuate, other three slightly curved; diagonal almost straight; apical field prominent, clearly reticulated and with four curved veins and two false veins; the mediastinal vein with three to four branches; lateral field with six regularly spaced curved veins. Previously known from Bengal, Kashmir, Nepal and Burma, the species is reported here for the first time from Himachal Pradesh, Uttar Pradesh, Madhya Pradesh and Bihar.

Measurement.—Length of body ♂♂ 9.7—15.5, ♀♀ 11.0—16.0; length of pronotum ♂♂ 1.9—3, ♀♀ 2.5—3.3; width of pronotum ♂♂ 4—4.9, ♀♀ 4.3—5.3; elytra ♂♂ 7.2—12, ♀♀ 7.2—12.2; ovipositor 6.0—8.0. (measured 5 ♂♂ and 4 ♀♀).

7. *Platygyryllus brunneri* (Saussure)

1877. *Gryllus brunneri* Saussure, *Mem'm. Soc. phys. Hist. nat. Geneve*, 25 : 170.

1961. *Platygyryllus brunneri* Chopard, *Eos*, 37 : 276; Randell, 1964, *Canad. Ent.*, 96 : 1598.

Material.—1 ♀, Jodhpur, Rajasthan; 1 ♂, Taljhari, Santal Parganas, Bihar, 1 ♂, Muki, Dist. Balaghat, Madhya Pradesh.

Remarks.—This species is closely allied to *P. guttiventris* (Walk.) from which it differs in having a rufous tint on the occiput, frontal rostrum nearly twice as wide as the first antennal segment and with a median longitudinal suture, strongly arcuate clypeofrontal suture, more number of oblique veins (six) and also in the structure of the genitalia. The species is a new record for Bihar and Rajasthan.

Genus (5) *Plebeigyryllus* Randell, 1964

8. *Plebeigyryllus guttiventris* (Walker) (Text-fig. 1D)

1871. *Gryllus guttiventris* Walker, *Cat. Derm. Salt. Br. Mus.* 5, suppl, 6.

1961. *Platygyryllus guttiventris* Chopard, *Eos*, 37 : 276.

1964. *Plebeigyryllus guttiventris* Randell, *Canad. Ent.*, 96 : 1598.

Material.—1 ♂, 1 ♀, Jabalpur, 1 ♂, Rajpur, and 1 ♂, Muki, Dsti. Balaghat, Madhya Pradesh; 9 ♂♂, 13 ♀♀, Dehra Dun, Uttar Pradesh; 1 ♂, Ajoy River, Santal Parganas, 3 ♂♂, 6 ♀♀, Chotanagpur, 1 ♂ Talihari, Santal Parganas (at light), 19.xii.1938. *H. S. Rao & H. A. Hafiz* 1 ♀, Hazaribagh, Bihar, 9.x.1938 *H. S. Rao*. 8 ♂♂, 8 ♀♀, Barasat, Calcutta, 3 ♂♂, 9 ♀♀, Hastings, Calcutta; 2 ♂♂, Botanical Garden, Calcutta; 1 ♂, 1 ♀, Anantapur, Dist. Hooghly, West Bengal; 11 ♂♂, 23 ♀♀, Behala, Calcutta (at light); 4 ♂♂, 1 ♀, Mysore University campus, Karnatak.

Remarks.—This is the only Indian representative of the genus. The members of the species are found in abundance in West Bengal during rainy season. The species differs in colouration depending on ecological conditions. The specimens (♂♂ 14-16, ♀♀ 13-14) at hand show the frontal rostrum more than one and half times as wide as the first antennal segment. Though the species is more or less common throughout oriental region, it is a new record for Uttar Pradesh, Madhya Pradesh and Santal Parganas.

Genus (6) *Teleogyryllus* Chopard, 1961

9. *Teleogyryllus mitratus* (Burmeister)

1838. *Gryllus mitratus* Burmeister, *Hand ent.*, 2 : 734.

1961. *Teleogyryllus mitratus* Chopard, *Eos*, 37 : 277; Randell, 1964, *Canad. Ent.*, 96 : 1596.

Material.—6 ♂♂, 8 ♀♀, Subansiri Division (alt. 1585m.), 2 ♂♂, Kameng, (alt. 6500m), Arunachal Pradesh; 5 ♂♂, 4 ♀♀, 16 miles North of Imphal on Dimapur Road, Manipur; 2 ♂♂, Benaras, Uttar Pradesh; 1 ♀, Monghyr Fort, Bihar, 1 ♀, Chongpung, Sikkim.

Following specimens were collected from the South Andaman Island by B. S. Lamba, in March, 1964. Detailed localities are as follows: 3 ♂♂, 17 ♀♀, Manarghat, Mt. Harriet Range; 1 ♂, 4 ♀♀, Wright Myo, Mt. Harriet Range; 1 ♂, 1 ♀, Katan, Baratang; 1 ♂, 3 ♀♀, Rajahgarh, Baratang; 2 ♂♂, 6 ♀♀, Wrafters creek, Baratang; 1 ♂, Humphrygunj; 5 ♀♀, Mannarghat, Wright Myo; 1 ♂, 1 ♀, Burmal Nallah; 1 ♀, Renachang; 1 ♂, Port Blair; and 8 ♂♂, 7 ♀♀ nymphs from different localities.

Remarks.—The specimens studied exhibit the frontal rostrum narrower than one and half times as wide as the first antennal segment; clypeo frontal suture distinct and almost straight; eyes encircled by a characteristic yellowish band. Posterior femora longer than the

posterior tibia, each tibia with six internal and seven external spines, the superoexternal spur remarkably shorter than the intermediate external one (about half the size). Specimens from Arunachal Pradesh are usually shorter in size but darker in colouration and with more clear colour pattern on head.

Though the species is common throughout the oriental region, it has never been recorded earlier from Arunachal Pradesh, Manipur, Sikkim and South Andaman Island.

10. *Teleogryllus testaceus* (Walker)
(Text-fig. 1 E)

1869. *Gryllus testaceus* Walker, *Cat. Derm. Salt. Br. Mus.*, 1 : 38.

1961. *Teleogryllus testaceus* Chopard, *Eos*, 37 : 277; Randell 1964, *Canad. Ent.*, 96 : 1956.

Material.—1 ♂, 1 ♀, Harjuga, Jabalpur, Madhya Pradesh; 1 ♂ Sahastra Dhara Hills, Dehra Dun, 3 ♂♂, Rajaji Sanctuary, Dist. Saharanpur, Uttar Pradesh; 1 ♂, 1 ♀, Mysore University campus, Karnatak, 1 ♀; Rajatgarh, Baratang, South Andaman; 1 ♂, 1 ♀, Port Blair.

Remarks. The species has the frontal rostrum convex, on profile narrowed at the middle, nearly as wide as the first antennal segment; clypeo frontal suture very slightly arched.

Genus (7) *Velarifictorus* Randell, 1964

11. *Velarifictorus aspersus* (Walker)
(Text-fig. 1F)

1869. *Gryllus aspersus* Walker, *Cat. Derm. Salt. Br. Mus.*, 1 : 39.

1936. *Scapsipedus aspersus* Chopard, *Spol. Zeyl.* 20 : 29; B. Bienko, 1956, *Zool. Zh.*, 35., 2 : 224.

1964. *Velarifictorus aspersus* Randell, *Canad. Ent.*, 96 : 1587.

Material.—2 ♂♂, from Tudder Nala, Jammu and Kashmir, 12.ix.1964; R. Tilak. 1 ♂, Dehra Dun, Uttar Pradesh, 9.viii.1961. S. Lal.

Remarks.—The male specimens (12.7-13.2) studied have the frontal rostrum convex and about twice as wide as the first antennal segment; in posterior tibia the supero-internal spur subequal to supero-intermediate spur but the supero-external spur almost half of the supero-intermediate one. The species is reported here for the first time from Uttar Pradesh and Jammu-Kashmir.

12. *Velarifictorus ceylonicus* (Chopard)
(Text-fig. 1 G & H)

1928. *Scapsipedus ceylonicus* Chopard, *Rec. Indian Mus.*, 30 : 18; Chopard, 1969. *Fauna Ind. Grylloidea*, 2 : 113.

Material.—1 ♂, Mysore University campus, Karnatak, 1964, *S. Vasantha* and the types (deposited in Z.S.I.).

Remarks.—The specimens examined show the frontal rostrum about one and half times as wide as the first antennal segment. Clypeo frontal suture moderately arched at the middle. Male genitalia almost identical to that of *V. aspersus* but differs in the structure of ectoparamere and in the point of attachment of mesal lobe with it. Since its publication from Sri Lanka, it is the first reference of its occurrence in a place other than its type locality and is a new record from India.

13. *Velarifictorus bhadurii* (Bhowmik)

1967. *Scapsipedus bhadurii* Bhowmik, *Proc. zool. Soc. Calcutta*, 20 : 127.

The species was described from Dehra Dun and is now one more example of male specimen, has been available from Noorpur Forest Division, Dist. Gurdaspur (Punjab) which is identical to type.

14. *Velarifictorus fallax* (Chopard)
(Text-figs. 1 I & J)

1969. *Scapsipedus fallax* Chopard, *Fauna Ind Grylloidea*. 2 : 117.

Material.—3 ♂ ♂, 1 ♀, Mysore University campus, Karnatak, 1964, *S. Vasanth*.

Remarks. The species has the frontal rostrum slightly more than twice as wide as the first antennal segment and rounded when viewed from above, on profile slightly concave in the middle. Clypeo frontal suture moderately arcuate; ante clypeus concolourous with head and pronotum, but the apical portion of clypeus and mandibles rufous. Chopard (1969) described the species from Karnatak. The specimens examined here tally closely with original description save for their smaller size, shorter elytra and ovipositor.

SUMMARY

The paper deals with the studies of 14 species of Crickets distributed over 7 genera of the subfamily Gryllinae (Gryllidae: Orthoptera) of Indian fauna. *Modicogryllus calarellus* (Saussure) and *Velarifictorus*

ceylonicus (Chopard) are new records for India. The male of *Platygryllus melanocephalus* (Serville) is described in full for the first time and a number of new distributional localities are recorded for most of the species. *Acheta meyeri* (Chopard) is synonymised with *M. Clarellus* (Sours).

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