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PRELIMINARY DISTRIBUTIONAL RECORDS WITH REMARKS ON LITTLE KNOWN SPECIES OF ACRIDIDAE (ORTHOPTERA : INSECTA) FROM THE WESTERN HIMALAYAS (HIMACHAL PRADESH)

By

H. K. Bhowmik and P. Haldar

Zoological Survey of India, Calcutta

(With 22 Text-figures)

Introduction

General

The interesting orthopteran fauna of Himachal Pradesh (Western Himalayas) is little known. Uvarov (1929 : 233, para 2) stated that the acridid faunas of the Western Himalayas and deserts of India are of particular scientific interest. The ecosystems and topography of West Bengal and Himachal Pradesh show marked contrast. The authors are currently comparing the acridid faunas of these two regions as a contribution towards a modern account of the Indian representatives of this economically important group of insects.

The present paper is based mainly on a collection of Acrididae made by us during September, 1980, and some material collected earlier by one of us (H. P.). Although a very small part of the fauna that has been sampled, interesting tentative zoogeographical conclusions can be drawn.

The distribution of species of Himachal Pradesh admits an admixture of species almost from all corners of India. But the palaearctic elements in it are predominent. The presence of an Africa genus (*Orthochtha*) is unique. The results confirm the theory that Palaearctic species originated in the Angara continent and involved a movement from the western Himalayas eastwards. The availability of the southern and northern Indian elements are rather poor ; presence of a few species of southern origin in the area suggest overlapping through the million years of geological ages. There is no endemic or localized species. The study further suggests that more thorough searches are required to find out a clear picture of distribution pattern of these insects along the Himalayas.

An analysis of the species treated here shows that 18 species are both common in the Himachal Pradesh and the Himalayan districts of North Bengal. Of these *Ceracris nigricornis nigricornis* is of South Chinese origin. There are 3 Himalayan species, *Sikkimiana darjeelingensis*, *Chondracris rosea*, and *Sphingonotus longipennis*; the first two being Himalayan origin, and the last representing the eastward extension of a palaearctic species. *Tylotropidia varicornis* is a south Indian element (including Sri Lanka and Burma) and *Pachyacris vinosa* a north Indian species (including Burma and China).

Ten species have been found in the H. P. region but not in the eastern Himalayas. Thus *Heteracris nobilis* is from N. W. India (including Punjab); *Eyprepocnemis rosea* is from Western Himalayas (also from Shillong but not from N. Bengal). *Scintharista blanchardiana*, special to the semi-desert of Southern Asia, is also represented in the region including Bombay. *Orthochtha indica* representing a largely African genus, is also prominent to the area. *Chorthippus* (*Glyptobothrus*) *hammerstroemi*, a truly palaeartic species, is reported here for the first time from India. Of the truly Indian elements, *Choroedocus illustris* and *Pachyacris violascens* are of South Indian origin, *Hieroglyphus banian* from western India (also from Burma) and *Paraconophyma scabra* from northern India (Burdwan; U. P., *Aularches punctatus* (from Tibet, Kashmir, Garhwal (U. P., and Java & Malay) is also abundantly recorded.

The present communication contains only exact records of localities of the relatively well-known species; new data in the form of remarks of systematic value including variability of species and subspecies, additional descriptions with suitable illustrations etc., and measurements are given for little known ones.

All species recorded here for the first time are marked with an asterik.

All material studied will be deposited to the National collections of the Zoological Survey of India, Calcutta.

All measurements are given in millimetres.

Following abbreviations are used in the text :-

H. P. — Himachal Pradesh

U. P. — Uttar Pradesh

J. & K. — Jammu and Kashmir

W. B. — West Bengal

T. N. — Tamil Nadu

SYSTEMATIC ACCOUNT

Order INSECTA

Family ACRIDIDAE

Subfamily ACRIDINAE

Genus (1) **Acrida** Stål, 1873

1. **Acrida exaltata** (Walker, 1859)

Truxalis exaltata Walker, 1859. *Ann. Mag. nat., Hist.*, **4** (3) : 222.

Material : H. P. : 1 ♀ ; Solan, 9.9.71. 3♂, (and nymph) ; Solan, 28.8.77. 8♂, 6♀ ; Pandoh, Mandi, 18.9.80. 3♂, 2♀ ; Near Lake, Bilaspur, 29.9.80. 4♂ ; Chakkar, Mandi, 20.9.80. 1♂ ; River side, Mandi, 23.9.80. 3♂, 1♀ ; Sundar Nagar, Bilaspur, 2.10.80.

Remarks : One of the commonest grasshoppers of India. Also known from Saudi Arabia, Iran, Afganistan, Pakistan, S. E. Tibet.

Genus (2) **Sikkimiana** Uvarov, 1940

*2. **Sikkimiana darjeelingensis** (Bolivar, 1914)

Sjoestedtia darjeelingensis Bolivar, 1914. *Trab. Mus. nac. Cienc. nat. Madr.* (*Zool.*)., **20** : 110.

Material : H. P. : 10♂, 1♀ ; Drang, Mandi, 21.9.80. 2♂ ; Mandi river side, Mandi, 23.9.80. 2♂ ; Pandoh, Mandi, 18.9.80. 1♂ ; Solan, 18.9.71.

Remarks : Bolivar's (1909) unique genus *Sjoestedtia* is now synonymised with Uvarov's (1940) genus *Sikkimiana* (vide Jago, 1971 : 216).

This species was described from Darjeeling and later was recorded from Sikkim, Assam and Kumaon (U. P.). The availability of present series of specimens from H. P. is not only a new records but also extends its distribution to most western part. The identification of the specimens has been confirmed by Dr. N. D. Jago, C.O.P.R., London.

Following additional morphological characters need special mentioning—From 3rd to 9th segments antennae more or less ensiform, remaining segments elongate, some of middle segment 2.5 to 3 times longer than their width. Metazona distinctly shorter than prozona. Tegmen elongate, about one third of it surpassing tip of posterior femora, opaque except radial sector veins which are subhyaline ; with apices angulated at apex. Wings prominently bluish basally. Male cerci thin, conical. Ovipositor valves short, curved. Posterior tibiae, in both sexes, with 10 to 11 testaceous, brownish tipped spines on each margin. Lower lobe of posterior "Knee" somewhat acute.

Measurements : Length of body ♂ 29-32, ♀ 41-42 ; antennal length ♂ 16-17, ♀ 14-17 ; head length ♂ 4-4.5, ♀ 5.2-5.8 ; maximum width of head ♂ 2.5-3.5, ♀ 4-4.2 ; maximum width of face (at clypeus point) ♂ 4-4.25, ♀ 5-5.5 ; minimum width of inter ocular distance ♂ 1-1.25 ; ♀ 1.5-1.7 ; width of frontal ridge at median ocellus ♂ .8, ♀ 1 ; pronotal length ♂ 5-5.5, ♀ 7.1-7.3 ; length of prozona ♂ 2.5-3, ♀ 3.5-3.6 ; length of metazona ♂ 2.5-2.75, ♀ 3.6-3.7 ; maximum width of pronotum ♂ 3.6-4, ♀ 5-6.5 ; minimum width of pronotum ♂ 2-2.2, ♀ 3-5.5, length of tegmen ♂ 31-33, ♀ 39-41 ; maximum width of tegmen ♂ 4, ♀ 5.2-6 ; length of post. femur ♂ 17-18, ♀ 22-22.5 ; maximum depth of post. femur ♂ 3.5-3.8, ♀ 4-4.5 ; length of post tibia ♂ 15-15.5, ♀ 20-21.

Genus (3) **Phlaeoba** Stál, 1860

*3. **Phlaeoba panteli** Bolivar, 1902

Phlaeoba panteli Bolivar, 1902. *Annls. Soc. ent. Fr.*, **70** : 589.

Material : H. P. : 2 ♂ ; Chakkar, Mandi, 20.9.80. 1 ♀ ; Drang, Mandi, 21.9.80. 1 ♂ ; Pandoh, Mandi, 18.9.80. 2 ♂, 1 ♀ ; Mandi, 23.9.80. 1 ♀ ; P.W. D.R.H., Mandi, 17.9.80. 1 ♂ ; Renuka Lake, Srimour dist., 11.4.74. 1 ♂, 1 ♀ ; Bilaspur. 8.4.72.

Remarks : So far was known from T. N., Bihar, Wast Bengal and also from Afganistan. This species seems to be common throughout the oriental region. It is also a pest to agricultural crops. It is recorded here for the first time from H. P.

Genus (4) **Ceracris** Walker, 1870

*4. **Ceracris nigricornis nigricornis** (Walker, 1870)

Ceracris nigricornis Walker, 1870. *Cat. Derm. Salt. Br. Mus.*, **4** : 791.

Ceracris nigricornis nigricornis : Uvarov, 1925. *Ent. Mitt.*, **14** : 13-14.

Material : H. P. : 4 ♂, 5 ♀ ; Glen, Simla, 12.9.80. 2 ♂, 5 ♀ ; Kufri, Simla, 15.9.80. 3 ♀ ; Taradevi, Simla, 14.9.80. 1 ♂, 1 ♀ ; Saproon, Solan, 7.9.73. 1 ♂ ; Solan, 8.10.76.

Remarks : This small subspecies occurs in N. E. India, in the middle regions of the Himalayas. In H. P., it is one of the commonest grasshoppes. However, it is a new record for H. P.

The present series tally nicely with Walker's description and Uvarov's (1925) revisional characters.

Genus (5) **Orthochtha** Karsch, 1891

5. **Orthochtha indica** Uvarov, 1942

Orthochtha indica Uvarov, 1942. *Ann. Mag. nat. Hist.*, 9 (11) : 587, fig. 1.

Material : H. P. : 7♂ ; Solan, 15.10.76. 1♂ ; Solan, 19.3.77. 1♀ ; Solan, 24.8.77. 1♂ ; Saproon Office, Solan, 30.7.76.

Remarks ; This unique species was described from Delhi and Nagpur but seems rather abundant throughout the Western Himalayan ranges. The specimens at our disposal nicely agree with the original description except in a few points. Lateral carinae of pronotum not appreciably divergent in metazona in females. "Knees" of posterior femora of females black on sides and brown on upper carina like males.

Measurements : Length of body ♂ 25-26, ♀ 38 ; antennal length ♂ 12-13, ♀ 19 ; head length ♂ 3.5-4, ♀ 5 ; maximum width of head ♂ 3.5, ♀ 4 ; maximum width of face ♂ 2.3-2.5, ♀ 4.5 ; minimum width of interocular distance ♂ 1-1.25, ♀ 2.2 ; width of frontal ridge at median ocellus ♂ .6-.7, ♂ 1 ; pronotal length ♂ 5-5.5, ♀ 7 ; length of prozona ♂ 3-3.5, ♀ 4.5 ; length of metazona ♂ 2-2.2, ♀ 2.5 ; maximum width of pronotum ♂ 2.5-2.7, ♀ 4 ; minimum width of pronotum ♂ 2-2.3, ♀ 3.8 ; length of tegmen ♂ 18-19, ♀ 30 ; maximum width of tegmen ♂ 3.5-3.6, ♀ 5 ; length of post. femur ♂ 16-16.5, ♀ 21.5 ; maximum depth of post. femur ♂ 3-3.2, ♀ 3.5 ; length of post. tibia ♂ 15-15.5, ♀ 20 (measured seven males and one female).

Subfamily GOMPHOCERINAE

Genus (6) **Dnopherula** Karsch, 1896

6. **Dnopherula (Aulacobothrus) luteipes** (Walker, 1871)

Stenobothrus (?) *luteipes* Walker, 1871, *Cat. Derm. Salt. Br. Mus.*, 5 : 82.

Material : H. P. : 1♂, 2♀ ; Pandoh, Mandi, 18.9.80. 2♀ (and 3 nymphs) ; Bilaspur, 2.10.80. 1♂, 4♀ ; Chakkar, Mandi, 20.9.80. 5♂ ; Glen, Simla, 12.9.80. 2♂, 1♀ ; Sundarnagar, 2.10.80. 1♂ ; Rohtang pass, Manali, Kulu, 26.9.80. 2♂ (5 nymphs) ; Vaist, Manali, 25.9.80. 8♂, 7♀ ; Solan, 30.11.76. 12♂, 13♀ ; Solan, 15.11.76. 4♂, 3♀ ; Solan, 9.9.77.

Remarks : Very common species all over India (as well as in H. P.). Also known from Burma, China, Japan, Europe and N. America.

Genus (7) **Chorthippus** Fieber, 1852

* 7. **Chorthippus (Glyptobothrus) hammerstroemi** (Miram, 1906)

(Text-fig. 13)

Chorthippus hammerstroemi Miram, 1906-1907. *Ofvers Finska Vetensk—Soc. Forh., XLIX.* **6** : 5 ; G. Ya Bei-Bienke and Mishchenko, 1951. *Zoo. Inst. USSR. Acad. Sci. No. 2 Part II* : 171.

Material : H. P. : 2♂ (9 nymphs) ; Sundarnagar, 2.10.80. 4♂, 8♀ ; Dhungri, Manali, 27.9.80. 14♂, 6♀ (& 3 nymphs) ; Vaist, Manali, Kulu, 25.9.80. 5♂ ; Rohtang pass, Manali, Kulu, 26.9.80. 1♀ ; Mandi, 23.9.80. 3♂ ; Solan, 20.4.77. J. M. Julka & P. Haldar.

Remarks : This is a palaearctic species occurring in Siberia and China and is popularly known as Siberian 'Little Horse' grasshopper. In H. P. it is available from rather low-lying areas to alpine, barren locality like Rohtang Jot (ca. alt. 3965 m). The species is thus not only a new record for India but also interesting from the point of its zoogeographical distribution.

The identification of the species has been kindly confirmed dy Dr. Jogo.

Subfamily OEDIPODINAE

Genus (8) **Aiolopus** Fieber, 1853

8. **Aiolopus thalassinus tamulus** (Fabricius, 1798)

Gryllus tamulus Fabricius, 1798. *Ent. Syst. Suppl.* : 195.

Material : H. P. : 5♂, 1♀ (& 1 nymph) ; Bilaspur Lake, 29.9.80. 2♂, 1♀ ; Chakkar, Mandi, 20.9.80.

Also from -3♂, 1♀ (& 1 nymph) ; Bagauri, Belgaum dist., 20.6.80 ; M. Prasad. 2♂, 1♀ ; Gandhi Nagar, Belgaum dist., 28.9.80 ; M. Prasad. 2♂ ; Kittur, Belgaum, 27.6.80 ; M. Prasad. 1♀ ; Sukiapokri, Darjeeling, 29.6.80 ; P. Haldar.

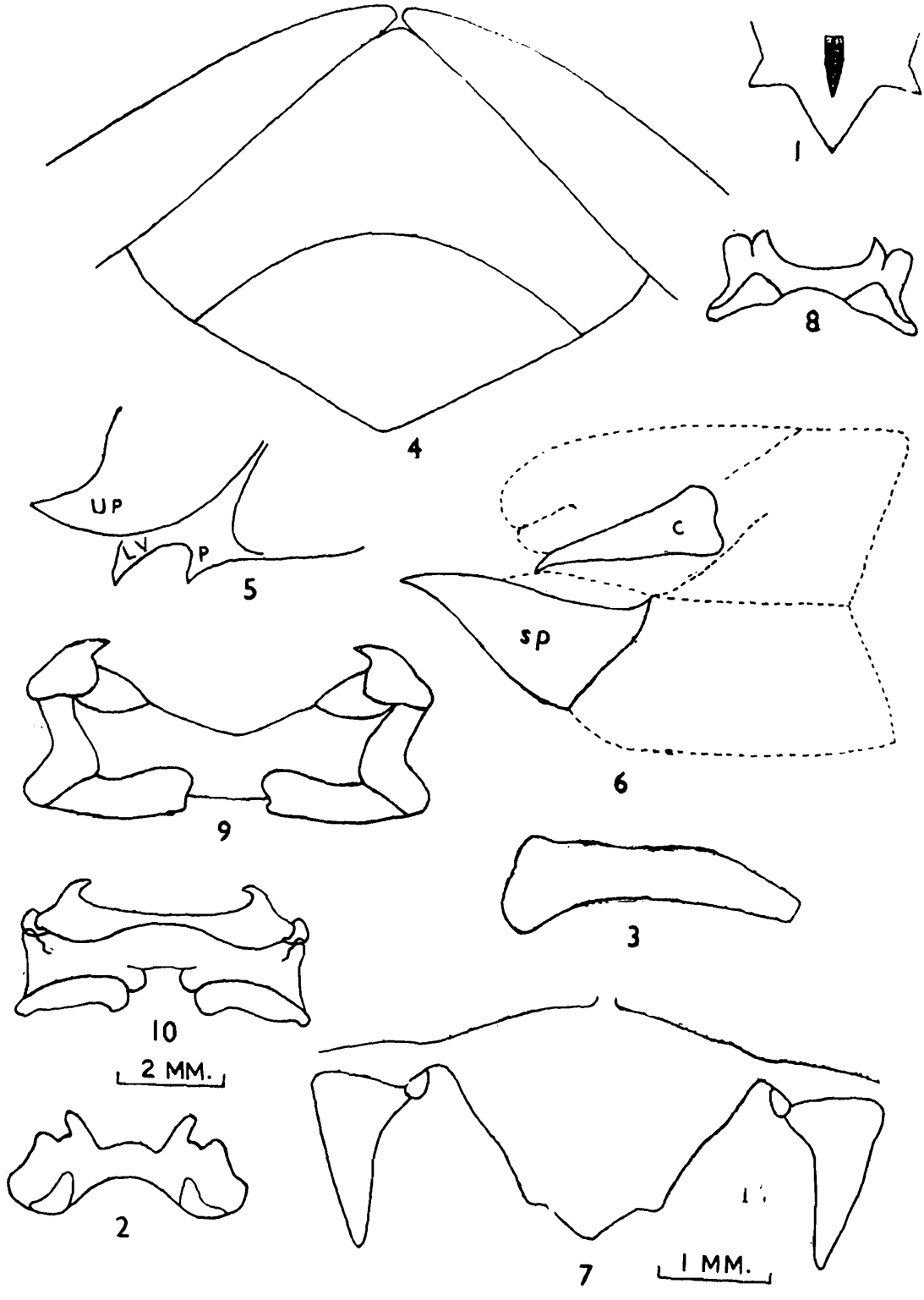
Remarks : A very common pest of our agricultural crops found throughout oriental region and extends up to Australia. Recently Hollis (1968) has revised the genus.

Genus (9) **Trilophidia** Stål, 1873

9. **Trilophidia annulata** (Thunberg, 1815)

Gryllus annulatus Thunberg, 1815. *Mem. Acad. Sci St. Petersb.*, **5** : 235.

Material : H. P. : 1♂ ; Near Lake, Bilaspur, 29.9.80. 3♀ ; River side, Mandi, 23.9.80. 3♂, 1♀ ; Chakkar, Mandi, 20.9.80. 2♂, 1♀ ; Pandoh, Mandi, 18.9.80. 2♂ ; Bilaspur, 29.9.80.



Paraconophyma scabra, male.

Text-fig. 1. Apical portion of supra-anal plate, dorsal view.
Pachyacris violascens, male.

Text-fig. 2. Epiphallus, dorsal view.
Pachyacris vinosa, female.

Text-fig. 3. Anal cercus, lateral view.

Text-fig. 4. Supra-anal plate, dorsal view.
Pachyacris vinosa, male.

Text-fig. 5. Ovipositai valves, lateral view. (U. V.—Upper valve ; L. V.—Lower valve ; P.—ventral projection).

Text-fig. 6. Anal cercus (C) and sub-genital plate (S. P.), lateral view.

Text-fig. 7. Supra-anal plate and anal cercus, dorsal view (1, 3, 4, 5, 6 and 7 same scale).
Choroedocus illustris, male.

Text-fig. 8. Epiphallus, dorsal view.
Heteracris nobilis, male.

Text-fig. 9. Epiphallus, dorsal view.

Text-fig. 10. Epiphallus, dorsal view (2, 8, 9 and 10 same scale).

Also from -1 ♂ ; Anmod, Belgaum dist., 24.6.80 ; M. Prasad. 1 ♂ ; Rango, Andhrikhola, Darjeeling, 5.7.79 ; P. Haldar & Party. 1 ♂ ; Naxalbari, Bijoynagar Tea Estate, Darjeeling, 19.6.79 ; P. Haldar.

Remarks : A common grasshopper found throughout oriental region.

Genus (10) **Oedaleus** Fieber, 1853

10. **Oedaleus abruptus** (Thunderg, 1815)

Gryllus abruptus Thunberg, 1815. *Mem. Acad. Sci, St. Petersb.*, **5** : 233.

Material : H. P. : 1 ♂, 1 ♀ ; Kunihar, Solan ; 19.9.70. 6 ♂, 2 ♀ ; Sundar Nagar, Bilaspur ; 2.10.80. 1 ♂, 1 ♀ ; River side, Mandi, 23.9.80, J. & K. : 1 ♂, 1 ♀ ; Jammu Tawi, 12.9.79.

Also from -1 ♂ ; Kittur, Belgaum dist ; 27.6.80. ; M. Prasad.

Remarks : A common Indian species, usually found in rocky areas near river beds. Also known from Sri Lanka, China and Eastern Nepal. Lately Ritchie (1981) has revised the genus.

Measurements : Length of body ♂ 12.5-13.5-17, ♀ 18.5-20.5-21.5 ; antennal length ♂ 8-8.8-9, ♀ 8-9-10 ; head length ♂ 2-2.2-2.6, ♀ 2.7-2.8-3 ; maximum width of head ♂ 1.4-1.5-1.8, ♀ 2-2.2-2.3 ; maximum width of face ♂ 1.8-2.1-2.3, ♂ 2.8-2.9-3 ; minimum width of interocular distance ♂ .6-.8-.9. ♀ 1-1.1-1.2 ; width of frontal ridge at median ocellus ♂ .4, ♀ .4-.6 ; pronotal length ♂ 2.9-3, 3-3.3, ♀ 3.8-4-4.2 ; length of prozona ♂ 1.3-1.4-1.5, ♀ 1.5-1.7-1.8 ; length of metazona ♂ 1.5-1.8-1.9, ♀ 2.2-2.4 -2.5 ; maximum width of pronotum ♂ 2.4-3, 3-6, ♀ 3.2-3.4-3.6 ; minimum width of pronotum ♂ 1.4-1.6-1.8, ♀ 2.2-2.4-2.5 ; length of tegmen ♂ 14-15-16.5, ♀ 20-21.22 ; maximum width of tegmen ♂ 2.8-3-3.2, ♀ 3.2 -3.8 ; length of hind femur ♂ 9-10-11, ♀ 11.8-12.5-13 ; maximum depth of hind femur ♂ 1.8-2-2.5, ♀ 3-3.2-3.4 ; length of post. tibia ♂ 7.5-8.5-9, ♀ 10-19.5-11.

Genus (11) **Gastrimargus** Saussure, 1884

11. **Gastrimargus africanus africanus** (Saussure, 1888)

Oedaleus (*Gastrimargus*) *marmoratus* var. *africana* Saussure, 1888. *Mem. Soc. Phys. Hist. nat. Geneve*, **30** (1) : 39.

Gastrimargus africanus africanus : Richie, 1982, *Bull, Br. Mus. nat. Hist.* (*Ent.*), **44** (4) : 248.

Material : H. P. : 5 ♂, 1 ♀ ; Glen, Simla, 12.9.80. 1 ♂ ; River side, Mandi, 23.9.80. 1 ♀ ; Vaist, Manali, 25.9.80.

Remarks : A very common Indian subspecies.

Genus (12) **Scintharista** Saussure, 1884

12. **Scintharista blanchardiana** (Saussure, 1888)

Quiroguesia brullei, var. *blanchardiana* Saussure, 1888. *Mem. Soc. Phys. Hist. nat. Geneve*, **30** (1) : 35.

Quiroguesia blanchardiana : Kirby, 1914. *Fauna British India, Orth.*, 1 : 133, fig. 96.

Material : H. P. : 1 ♀ ; Pandoh, Mandi dist.. H. K. Bhowmik & party. 1 ♀ ; Arki Solan, 17.9.70 ; M. Chandra.

Remarks : The specimens tally nicely with the description and the figure given by Kirby (1914), but it is a rare species which has not been recorded for the region since 1914.

The species was previously known from N. W India and Bombay and also from Somaliland, Arabia and Palestine.

Kirby gives very brief measurements of the species as "Length 23-43 ; expanse of wings 45-78." So we add below detailed measurements of the specimen.

Measurements : Length of body 42 ; antennal length 16 ; head length 5.2 ; maximum width of head 6 ; maximum width of face 6.5 ; minimum width of interocular distance 3.5 ; width of frontal ridge at median ocellus 8 ; pronotal length 10 ; length of prozona 5 ; length of metazona 5 ; maximum width of pronotum 7 ; minimum width of pronotum 6 ; length of tegmen 36 ; maximum width of tegmen 8 ; length of posterior femur 24 ; maximum depth of posterior femur 7 ; length of post. tibia 20.2 (measured one female).

Genus (13) **Sphingonotus** Fieber, 1852

*13. **Sphingonotus longipennis** Saussure, 1884

Sphingonotus longipennis Saussure, 1884. *Mem. Soc. Phys. Hist. nat. Geneve*, **28** (9) : 197, 203.

Material : H. P. : 4 ♂, 5 ♀ ; River side, Mandi, 23.9.80. 3 ♂, 2 ♀ ; Drang, Mandi, 21.9.80. 1 ♂, 1 ♀ ; Pandoh, Mandi, 18.9.80. J. & K. : 1 ♂, 2 ♀ ; Bhadawar, 21.9.76.

Remarks : The specimens at hand are smaller than the measurements given for the type (viz., length 32-35 ; expanse of tegmina 62-79). [The tegminal measurement given in Kirby (1914) (p. 157, fig. 100] is wrong.]

Detailed measurements and additional description of the species are given elsewhere by the authors (Bhowmik & Haldar, yet unpublished). Howevet, it is a new record from H. P.

Subfamily Oxyinae

Genus (14) **Oxya** Serville, 1839

14. **Oxya hyla hyla** Serville, 1831

Oxya hyla Serville, 1831. *Annls. Sci. nat.*, **22** : 287.

Oxya hyla hyla : Hollis, 1971. *Bull. Br. Mus. nat. Hist.* (*Ent.*) **26** (7) : 282-284, figs. 1-11, 12-14, 18, 21, 27-32, 41-46, 54.

Material : H. P. : 5♂, 10♀ ; Vaist, Manali, Kulu dist., 25.9.80. 3♂, 1♀ ; Mandi river side, Mandi, 23.9.80. 1♂ ; Drang, Mandi, 21.9.80. 2♀ ; Pandoh, Mandi, 18.9.80.

Remarks : This subspecies is a common grasshopper of India, Sri Lanka and African countries. It is a highly variable subspecies and the specimens at hand show all intermediate grades specially in respect to male cerci. Hollis's (1971) revision of it, however, thoroughly summarises its morphology.

15. **Oxya velox** (Fabricius, 1787)

Gryllus velox Fabricius, 1787. *Mant. Ins.*, **1** : 239.

Material : H. P. : 2♀ ; Drang, Mandi, 21.9.80. 3♀ ; Vaist, Manali, 25.9.80.

Also from—W. B. : 2♀ ; Sankril, Hooghly, 22.7.80 ; P. Haldar.

Remarks : It is a very common Indian grasshopper. Hollis's (1971) revisional work adequately describes its morphology.

Subfamily Hemiacridinae

Genus (15) **Hieroglyphus** Krauss, 1877

*16. **Hieroglyphus banian** (Fabricius, 1798)

Gryllus banian Fabricius, 1793. *Ent. Syst., Suppl.* : 194.

Acridium furcifer Serville, 1839. *Ins. Orth.*, : 677, pl. 14, fig. 12.

Hieroglyphus banian : Kirby, 1914. *Fauna British India, Orth.*, **1** : 204.

Material : H. P. : 11♂, 10♀; Pandoh, Mandi dist., 18.9.80. 6♂, 11♀ ; Chakkar, Mandi, 20.9.80. 2♂; Vaist, Manali, 25.9.80.

Remarks : The species was previously known from Bombay, M. P. (Bilaspur) and Burma. It is a serious pest to paddy and probably to other agricultural corps. Specimens were collected from ripe paddy fields where hundreds of them were seen feeding on the crop.

Mason's (1973) revisional work adequately describes its morphology.

Measurements : Length of body ♂ 30-31, ♀ 44-55 ; antennal length ♂ 14-17, ♀ 13-16 ; head length ♂ 3.4-3.5, ♀ 5.5-6 ; maximum width of head ♂ 3-3.2, ♀ 5-6.5 ; maximum width of face ♂ 3-3.5, ♀ 5-7 ; minimum width of interocular distance ♂ 1-1.2, ♀ 3-4 ; width of frontal ridge at median ocellus ♂ 1-1.5, ♀ 1.5-2 ; pronotal length ♂ 5.5-5.7, ♀ 8-11.5 ; length of prozona ♂ 3.5-3.6, ♀ 5-6.5 ; length of metazona ♂ 2-2.2, ♀ 3-5 ; maximum width of pronotum ♂ 4-4.5, ♀ 5.5-8 ; minimum width of pronotum ♂ 3.5-4, ♀ 5-7 ; length of tegmen ♂ 22-23, ♀ 29-30 ; maximum width of tegmen ♂ 4-4.5, ♀ 5-9 ; length of post. femur ♂ 17-17.7, ♀ 22-24 ; maximum depth of post. femur ♂ 3.5-4.8, ♀ 4-5 ; length of post. tibia ♂ 14-15, ♀ 20-22.

Genus (16) **Spathosternum** Karsch, 1877

17. **Spathosternum prasiniferum prasiniferum** (Walker, 1871)

Heteracris (?) *prasinifera* Walker, 1871. *Cat. Derm. Salt. Br. Mus.*, **5** : 65.

Material : H. P. : 2 ♂, 4 ♀ ; Pandoh, Mandi, 18.9.80. 2 ♀ ; near water supply office, Mandi, 22.9.80. 10 ♂, 4 ♀ ; near Lake, Bilaspur, 29.9.80. 3 ♂, 3 ♀ ; Chakkar, Mandi, 20.9.80. 3 ♀ ; Solan, 24.8.77.

Also numerous examples from Mandi and Bilaspur.

Remarks : A very common subspecies of grasshoppers to be met with everywhere in India.

Subfamily CATANTOPINAE

Genus (17) **Xenocatantops** Dirsh & Uvarov, 1953

*18. **Xenocatantops karnyi** (Kirby, 1910)

Catantops karnyi Kirby, 1910. *Syn. Cat. Orth.*, **3** : 483 ; Kirby 1914. *Fauna British India, Orth.*, **1** : 151-152.

Catantops pulchellus Karny (nec. Walker), 1907. *S. B. Akad. Wiss. Wien.*, **116** : 317, 339.

Xenocatantops karnyi : Jago, 1982. *Trans. Amer. ent. Soc.*, **108** (3) : 454-455, figs. 58, 59, 72, 73, 88-90.

Material : H. P. : 1 ♀ ; Konihar, Solan, 19.9.80. 1 ♀ ; Bilaspur, 2.4.72. 1 ♂, 1 ♀ ; Mandi, 19-22.9.80.

Remarks : Described from Nepal (Termani), the species is now known from northern, western and southern India.

The specimens at hand agree nicely with the known description and is distinctly seperable from all other species of the genus by its posterior femora being with a row of black dots on the lower outer carina for the whole length.

18. **Xenocatantops humilis** (Serville, 1839)

Acridium humile Serville, 1839. *Ins. Orth.* : 662.

Material : H. P. : 1♂, 6 ♀ ; P. W. D. Rest House, Mandi, 17.9.80. 1 ♀ ; Arki, Solan, 24.10.71.

Remarks : A species of sub-tropical areas ranging into hills, up to about 2000 m. (eg. Kurseong). Jago (1982 : 455) gives its differential diagnosis.

Genus (18) **Catantops** Schaum, 1853

20. **Catantops pinguis innotabilis** (Walker, 1870)

Acridium innotabile Walker, 1870. *Cat. Derm. Salt. Br. Mus.*, **3** : 629.

Material : H. P. : 4♂, 8♀ ; Drang, Mandi, 21.9.80. 4♂, 17♀ ; Pandoh, Mandi, 18.9.80. 3♀ ; PWD Rest House, Mandi, 17.9.80. 3♂ ; Near water supply office, Mandi, 22.9.80. 1♂, 6♀ ; Dhungri, Manali, Kulu dist., 27.9.80.

Remarks : The subspecies is very common in the Nengrahar province of Afganistan (Cejchan, 1969 : 250), India, Sri Lanka, China and Korea (?).

Genus (19) **Paraconophyma** Uvarov, 1921

*21. **Paraconophyma scabra** (Walker, 1870)

(Text-figs. 1, 2, 14)

Catoptenus scaber Walker, 1870. *Cat. Derm. Salt. Br. Mus.*, **4** : 707.

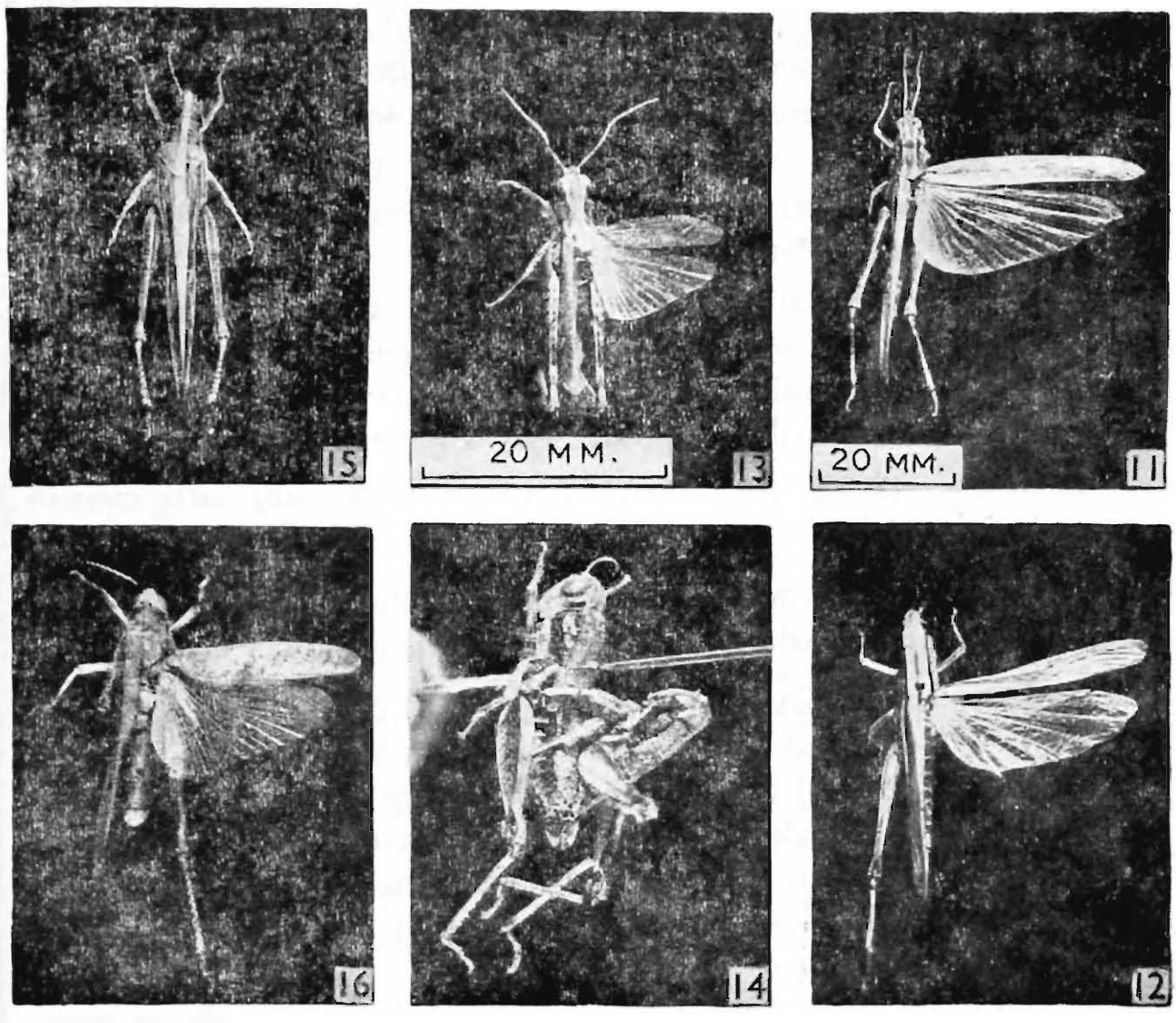
Mesambria scabra : Kirby, 1914. *Fauna British India, Orth.*, **1** : 221.

Paraconophyma scabra : Uvarov, 1921. *Ann. Mag. nat. Hist.*, **7** (9) : 501-502.

Material : H. P. : 20♂, 18♀ ; Glen, Simla, 12.9.80. 1♂ ; Rohtang Jot, Manali, 26.9.80. 2♂, 3♀ ; Kufri, Simla, 15.9.80. 1♂ ; Solan, 13.8.80. 1♀ ; Solan, 9.9.86. 1♂, 1♀ ; Near Water Supply Office, Mandi, 22.9.80.

Remarks : The species (♀) was described from Burdwan (W. B.) and was later recorded from Mussoorie and Kumaon (U. P.). It is now recorded from the H. P. and J. & K. where it is rather very common and abundant.

From the distribution records of the species, it shows that the species exhibits good ecological tolerance. From the subtropical semi evergreen locality of the type, it is now known in the western Himalayas where it is subjected to severe cold, scanty annual rainfall and winter snow in barren, cold and windy places like Rohtang Jot (alt. above 3965 m.).



Profiles of—

Text-fig. 11. *Sikkimiana darjeelingnensis,* female.

Text-fig. 12. *Orthochtha indica,* female. (11, 12 and 19 same scale)

Text-fig. 13. *Chorthippus* (*Glyptobothrus*) *hammerstroemi,* male.

Text-fig. 14. *Paraconophyma scabra,* male and female in natural copulating pose. (13, 14, 21 sama scale).

Text-fig. 15. *Pachyacris violascens,* female.

Text-fig. 16. *Pachyacris vinosa,* female. (15, 16 same scale).

During September many pairs were observed in copulation.

Though the specimens at hand tally fairly well with the known description, opportunity for additional description is taken here.

Additional description : Males : Antennae filiform, as long as head and pronotum together. A median carinula divides fastigium and continues back over vertex. Metazona less than half of prozona. First and second transverse sulcus of pronotal disc sometimes actually not crossing median carina. Mesosternal interspace longer than broad ; sides lightly divergent in posterior half. Male cercus short, conical ; supra-anal plate longitudinally sulcate in middle, with angulated apex and with

one latteral, spine-like projection on each side (Text-fig. 1), about two-thirds along its length ; subgenital plate rounded and strongly upcurved. Epiphallus (of specimen from Rohtang) as figured (2). Posterior tibiae greenish or slightly very pale yellowish, with 7 to 8 external and 8 to 9 internal spines.

Legs densely pilose, less so on lateral pronotal lobes and ventral parts of body and abdomen.

Females : Identical to males except larger in size and differences in genital parts. Supra-anal plate almost tongue-shaped with a curved transverse sulcus two-thirds along its length and with a median longitudinal groove in basal half. Ovipositor valves short, curved.

In some specimens from Simla, posterior tibiae and tarsi reddish instead of greenish.

Discussion : The two distinctive, brown, transverse, femoral bands indicated in the original description were not visible in our material.

Measurements : Length of body ♂ 14-15, ♀ 19-20 ; antennal length ♂ 7-7.5, ♀ 4-7 ; head length ♂ 3-3.2, ♀ 2.2-3 ; maximum width of head ♂ 3-3.1, ♀ 2.2-3 ; maximum width of face ♂ 3-3.1, ♀ 3 ; minimum width of interocular distance ♂ 1-1.2, ♀ 1-1.1 ; width of frontal ridge at median ocellus ♂ .8-.9, ♀ .8-.9 ; pronotal length ♂ 4-4.2, ♀ 4.5-5 ; length of prozona ♂ 3-3.2, ♀ 3-3.5 ; length of metazona ♂ 1-5, ♀ 1.5-2 ; maximum width of pronotum ♂ 3.5-3.75, ♀ 5-5.5 ; minimum width of pronotum ♂ 2.5-2.8, ♀ 4-4.2 ; length of post. femur ♂ 9-10, ♀ 10-11 ; maximum depth of post. femur ♂ 3-3.5, ♀ 3.8-4, length of post. tibia ♂ 7-7.5, ♀ 8-9.

Subfamily—Cyrtacanthacridinae

Genus (20) **Chondracris** Uvarov, 1923

*22. **Chondracris rosea** (de Geer, 1773)

Acrydium roseum de Geer, 1773. *Mem. Ins.*, **3** : 488, pl. 41, fig. 1.

Cyrtacanthacris rosea : Kirby, 1914. *Fauna British India, Orth.*, **1** : 231.

Chondracris rosea ; Uvarov, 1923. *Ann. Mag. nat. Hist.*, **11** (9) : 139 ; Tandon, 1975 : *Dr. B. S. Chauhan Comm. Vol.* : 395-402.

Material : H. P. : 1 ♀ ; Pandoh, Mandi, 18.9.80. 2♂, 1 ♀ (and 2 nymphs) ; P. W. D. Rest House, Mandi, 17.9.80.

Remarks : As in Darjeeling, this species was seen hovering over wild herbs bordering on the bank of the river Beas. It is a new record for H. P.

Genus (21) **Pachyacris** Uvarov, 1923

*23. **Pachyacris violascens** (Walker, 1870)

(Text-figs. 3, 15)

Acridium violascens Walker, 1870. *Cat. Derm. Salt. Br. Mus.*, 3 : 387.

Orthacanthacris violascens : Kirby, 1914. *Fauna British India, Orth.*, **1** : 229.

Pachyacris violascens : Uvarov, 1923. *Ann. Mag. nat. Hist.*, **11** (9) : 478 ; Uvarov, 1927. *Spolia zeylan.*, **14** (1) : 112.

Material : H. P. : 1 ♀ ; Chakkar, Mandi, 20.9.80. 1 ♂ ; Vaist, Manali, 25.9.80.

Remarks : The species was previously recorded from Sri Lanka and Karnatak. It is recorded here from North western India for the first time.

In our material pronotal prozona is shorter than metazona, latter having its posterior margin markedly more rounded than in typical series of *P. vinosa*. Lateral pronotal lobes compressed at prozonal area. Pronotal disc almost saddle-shaped ; median carina thin, low, interrupted by punctuation. Tegmina sub-hyaline, brownish spots indistinct ; violet colour of wing not detectable. Posterior tibia pale bluish, with 8 to 9 internal and 11 to 12 external whitish, black tipped spines. Male cercus laterally compressed, widen, gradually and regularly narrowed posteriorly, apex pointed, incurved (Text-fig. 3). Subgenital plate laterally compressed, acute pointed, upcurved, long. Prosternal spine cylindrical.

*24. **Pachyacris vinosa** (Walker, 1870)

(Text-figs. 4-8, 16)

Acridium vinosum Walker, 1870. *Cat. Derm. Salt. Br. Mus.*, 3 : 588.

Cyrtacanthacris wingatei Kirby, 1900. *Ann. Mag. nat. Hist.*, **7** (6) : 381.

Orthacanthacris vinosa : Kirby, 1914. *Fauna British India, Orth.*, **1** : 288.

Pachyacris vinosa : Uvarov, 1923. *Ann. Mag. nat. Hist.*, **11** (9) : 478 ; Uvarov, 1927. *Rec. Indian Mus.*, **29** (4) : 236.

Material : H. P. : 1 ♂, 3 ♀ ; Pandoh, Mandi dist., 18.9.80. 1 ♂ ; P. W. D. Rest House, Mandi, 17.9.80. 1 ♀ ; Mandi 19.9.80.

Remarks : More or less distributed throughout India (W. B. including North Bengal ; Lushi Hills ; Ajhal ; Kumaon ; Chota Nagpur) ; Nepal (Monda) ; and also in China and Burma. It is however, a new record for H. P.

The specimens at hand provide opportunity for addition of some morphological characters.

Eyes elongated, lateral and in male with 8 clear longitudinal stripes. Pronotum somewhat tectiform; metazona distinctly shorter than prozona, its posterior margin broadly angulated. Posterior tibia with 11 internal (in both sexes) and 6 external (in female) and 7 external (in males) spines; spines yellowish in one side but their tips and backsides black; internal spines usually longer. Female supra-anal plate transverse, broadly angulated apically (Text-fig. 4); valves of ovipositor short, curved; lower valves with a pair of ventral projections (Text-fig. 5). Male cerci conical, thin, very acute, spinelike, incurved (Text-fig. 6). Subgenital plate compressed, short, acutely pointed (Text-fig. 6). Supra-anal plate and epiphallus as in Text-figures 7 and 8. Prosternal spine pyramidal.

Posterior margin of head (bordering pronotum) of vermillion colour. Body pilose.

Subfamily EYPREPOCNEMIDINAE

Genus (22) **Choroedocus** Bolivar, 1914

* 25. **Choroedocus illustris** (Walker, 1870)

(Text-figs. 9, 17, 18)

Heteracris illustris Walker, 1870. *Cat. Derm. Salt. Br. Mus.*, **4** : 622, 623.

H (eteracris) illustris : Kirby, 1910. *Syn. Cat. Orth.*, **3** : 555.

Heteracris illustris : Kirby, 1914. *Fauna British India, Orth.*, **1** : 263.

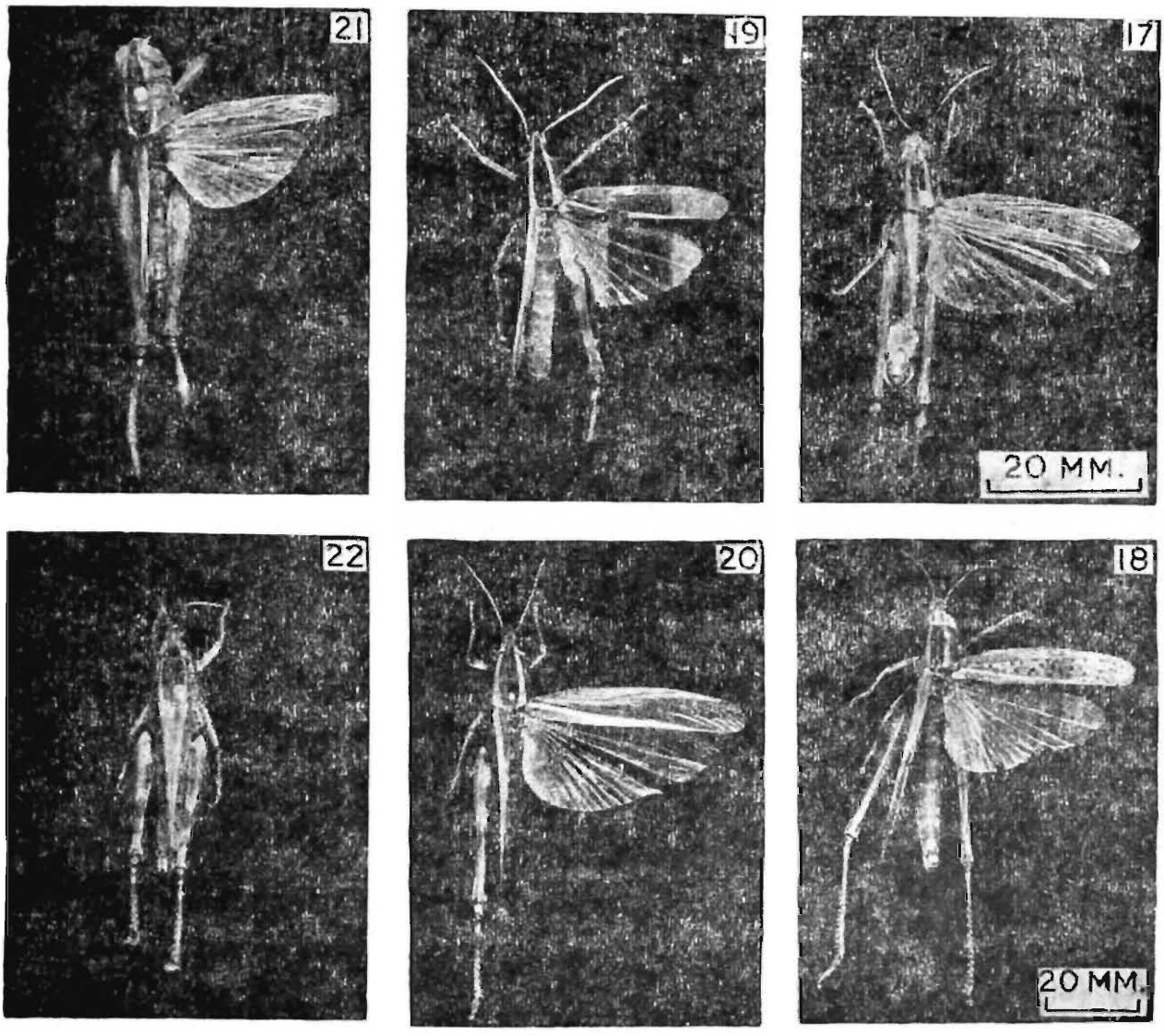
Choroedocus illustris : Uvarov, 1921. *Trans. R. ent. Soc. Lond.*, **69** (1 & 2) : 109.

Material : H. P. : 4♂, 4♀ ; Mandi, 17-19.9.80. 2♂, 1♀ ; Pandoh, Mandi, 18.9.80. 4♂, 3♀ ; P. W. D. Rest House, Mandi, 20-22.9.80. 1♂ ; Drang, Mandi, 21.9.80. 1♂ ; Solan, 8.12.75.

Remarks : Description of this species was based on a single female from South India. Later Uvarov (1921) referred to 1♂, 2♀ from India without mentioning exact locality data.

The availability of the present series of specimens from Mandi is, therefore, not only very interesting from zoogeographical point of view but also provides scope to fill up the lacunae of taxonomic features of the species.

Males (previously undescribed) : Size moderate (Text-fig. 17). Antennae filiform, such longer than head and pronotum taken together. Fastigium of vertex distinctly depressed, obtusely and roundedly angulate in front, laterally carinated and curved inwards in between eyes, a median carinula starts from middle of it and continues backwards to vertex. Frontal ridge constricted just below vertex and then gradually widened towards clypeus, punctured but hardly sulcate. Pronotum tri-



Text-fig. 17. *Choroedocus illustris*, male. (17, 22 same scale).
Text-fig. 18. *C. illustris*, female.
Text-fig. 19. *Heteracris nobilis*, male.
Text-fig. 20. *H. nobilis*, female. (18, 20 smae scale).
Text-fig. 21. *Eyprepocnemis rosea*, male.
Text-fig. 22. *E. rosea*, female.

carinate, but lateral carinae distinct only up to end of prozona, in metazona it is obsolete or indicated by irregular punctuation only ; prozona shorter than metazona ; three transverse, equidistant, clear sulci cross pronotal disc. Prosternal tubercle cylindrical, slightly inclined back ; mesosternal interspace longer than wide, lobes with their angles at inner margin rounded ; metasternal lobes contiguous. Tegmina a little surpassing posterior femora, subhyaline, with rounded apices and elongated cells at radial sector ; with small scattered brownish dots throughout disc excluding costal and anal areas. Wings a little shorter than tegmina, bluish basad and hyaline in remaining area. Abdominal tip highly inflated. Supraanal plate and cercus typical for the genus. Subgenital plate conical, upcurved. Epiphallus as in

Text-fig. 9. Posterior femora yellowish except sides of "knees" which are slightly dark at sides ; slender, apical half filiform ; posterior tibiae as long as femora, uniformly light rose in colour, with 11 internal and 12 external yellowish-white spines, tipped with black ; internal spines more longer than external ones. Legs pilose, posterior tibiae more densely.

Females : Identical to males. External spines of posterior tibiae varies from 12 to 14 in number. Description of colour patterns of both sexes agrees broadly with Walker's narration.

Sexual dimorphism in size of this species is very striking.

Measurements : Measurements of type (♀), as given by Kirby (1914), is as follows :- Length of body 70 ; posterior femur 43 ; expanse of tegmen 116.

The present series shorter than the type and measure as follows :—

Length of body ♂ 30-34, ♀ 51-60 ; antennal length ♂ 12-13, ♀ 17-18 ; head length ♂ 4-4.5, ♀ 5-6 ; maximum width of head ♂ 3.8-4, ♀ 4.8-5.8 ; maximum width of face ♂ 4-4.25, ♀ 6-7 ; minimum width of interocular distance ♂ 1.5-2, ♀ 2.8-3 ; width of forntal ridge at median ocellus ♂ 1-1.5, ♀ 1.8-2 ; pronotal length ♂ 6-6.25, ♀ 10-11 ; length of prozona ♂ 3.8-4, ♀ 5.5-6 ; length of metazona ♂ 2.2-2.5, ♀ 4.5-5 ; maximum width of pronotum ♂ 4.5-5, ♀ 7-8 ; minimum width of pronotum ♂ 4-4.2, ♀ 5.5-6 ; length of tegmen ♂ 24-27, ♀ 42-46 ; maximum width of tegmen ♂ 4-4.5, ♀ 7-8.8 ; length of post. femur ♂ 19-21, ♀ 33-34 ; maximum depth of post. femur ♂ 4-4.5, ♀ 6-7 ; length of post. tibia ♂ 17-19, ♀ 29-31.

Genus (23) **Heteracris** Walker, 1870

*26. **Heteracris nobilis** (Uvarov, 1942)

(Text-figs. 10, 19, 20)

Thisoicetrus nobilis Uvarov, 1942. *Ann. Mag. nat. Hist.*, **9** (11) : 596.

Heteracris nobilis : Dirsh, 1958. *Tijdschr. Ent.*, **101** : 54.

Material : H. P. : 4♂, 2♀ ; Pandoh, Mandi, 18.9.80. 4♂, 4♀ ; Drang, Mandi, 21.9.89. 8♂, 3♀ ; P. W. D. Rest House, Mandi, 17.9.80. 1♀ ; Vaisti, Manali, 25.9.80.

Remarks : This species must be very close to *H. pulchra* (Bolivar, 1902) from which it differs chiefly in the absence of brownish spots on the tegmina. The tegmina of pulchra—are with fairly defined brownish spots which are more or less confluent. But in the present species it is spotless.

The epiphallaus of male genitalia is added here for the first time (Text-fig. 10). Otherwise the species tally nicely with the original description of Uvarov (1942).

The species is recorded here for the first time from a place other than its type locality Baluchistan and Sind (Pakistan) ; Lyallpur (Punjab).

Measurements : Length of body ♂ 29-30.5, ♀ 58-60 ; antennal length ♂ 13.5-15, ♀ 17-18 ; head length ♂ 3.8-4, ♀ 5.8-6 ; maximum width of face ♂ 3-3.25, ♀ 5-5.3 ; maximum width of face ♂ 4-4.1, ♀ 6-6.2 ; minimum width of interocular distance ♂ 1.2-1.5, ♀ 2.2-2.5 ; width of frontal ridge at median ocellus ♂ 1.2-1.5, ♀ 2-2.5 ; pronotal length ♂ 5.8-6.5, ♀ 11-11.1 ; length of prozona ♂ 3-3.5, ♀ 5.5-5.6 ; length of metazona ♂ 2.8-3, ♀ 5.5-5.75 ; maximum width of pronotum ♂ 4-4.2, ♀ 7-7.5 ; minimum width of pronotum ♂ 3.5-3.6, ♀ 5-5.2 ; length of tegmen ♂ 24-29, ♀ 41-44 ; maximum width of tegmen ♂ 4-5, ♀ 7-8 ; length of post. femur ♀ 19-22, ♀ 32-33 ; maximum depth of post. femur ♂ 4-5, ♀ 7-7.5 ; length of post. tibia ♂ 16-19, ♀ 30-31.

Genus (24) **Eyprepocnemis** Fieber, 1853

27. **Eyprepocnemis rosea** Uvarov, 1942
(Text-figs. 21, 22)

Euprepocnemis roseus Uvarov, 1942. *Ann. Mag. nat. Hist.*, 9 (11) : 597, fig. 4 R.

Eyprepocnemis rosea : Dirsh, 1958. *Proc. R.ent. Soc. Lond.*, (8) 27 (3-4) : 42, fig. 7.

Material : H. P. : 1 ♂, 2 ♀ ; P. W. D. Rest House, Mandi, 17.9.80. 2 ♂, 2 ♀ ; Mandi, 23.9.80. 3 ♂, 3 ♀ ; Water supply office, Mandi, 18.9.80. 5 ♂, 2 ♀ ; Chakkar, Mandi, 20.9.80. 2 ♀ ; Drang, Mandi, 22.9.80. 3 ♂, 6 ♀ ; Pandeh, Mandi, 18.9.80. 5 ♂, 2 ♀ ; Chakkar, Mandi, 20.9.80. 2 ♀ ; Drang ; Mandi, 21.9.80. 1 ♂, 2 ♀ ; River side, Mandi, 23.9.80. 1 ♂, 4 ♀ ; Pandeh, Mandi, 18.9.80. 6 ♂, 7 ♀ ; Mandi, 17-23.9.80. 1 ♂, 2 ♀ ; Deoghat and its vicinity, Solan, 8.11.73. 16 ♂, 12 ♀ ; Saproon, Solan, (on difference dates). 3 ♂, 1 ♀ (and 2 nymphs) ; Solan, 8.10.76. 6 ♂, 2 ♀ ; Solan, 22.11.76.

Remarks : The species was described from Simla, Dehra Dun and Shillong. We have noticed it throughout H. P. as a very common grasshopper in almost all habitats. During September we observed innumerable pairs in copulation (by mounting). Some of the females were found already gravid. Early instar nymphs were also collected.

The original description of the species holds good for the specimens at our disposal. Shortened tegmina, wings with red tinge basad and red coloured posterior tibiae are distinguishing characteristics for spot identification of the species.

Photos of both male and female added here for the first time.

Measurements : Length of body ♂ 18.2-19, ♀ 25-29 ; antennal length ♂ 8-8.5, ♀ 9-10 ; head length ♂ 2.5-3, ♀ 3.8-4 ; maximum width of head ♂ 2.2-2.8, ♀ 3-3.5 ; maximum width of face ♂ 2.5-2.6, ♀ 4-4.3 ; minimum width of interocular distance ♂ .6-.8, ♀ 1.5-1.7 ; width of frontal ridge at ocellus ♂ 1-1.2, ♀ 1-1.5 ; pronotal length ♂ 3.9-4, ♀ 5.2-5.5 ; length of prozona ♂ 2.3-2.4, ♀ 3-3.2 ; length of metazona ♂ 1.5-1.7, ♀ 2-2.5 ; maximum width of pronotum ♂ 3-3.5, ♀ 4-4.2 ; minimum width of pronotum ♂ 2.5-3.1, ♀ 3.5-3.7 ; length of tegmen ♂ 12-13, ♀ 16-17 ; maximum width of tegmen ♂ 3-3.2, ♀ 3-3.4 ; length of post. femur ♂ 12-12.5, ♀ 16-17 ; maximum depth of post. femur ♂ 3-3.5, ♀ 4.2-4.5 ; length of post. tibia ♂ 10-10.5, ♀ 13.5-14.

Genus (25) **Tylotropidius** Stål, 1873

*28. **Tylotropidius varicornis** (Walker, 1870)

Heteracris varicornis Walker, 1870. *Cat. Derm. Salt. Br. Mus.*, **4** : 667.

Tylotropidius ceylonicus Brunner, 1893. *Annali Mus. Civ. Stor. nat Genova, Giacomo Doria, Ser.* 2, **13** (33) : 164, pl. 5, fig. 57.

E. (uprepocnemis) varicornis : Kirby, 1910. *Syn. Orth. Cat.*, **3** : 561.

Tylotropipius varicornis : Kirby, 1914. *Fauna British India, Orth.*, **1** : 265, fig. 140.

Material : H. P. : 3 ♂, 3 ♀ ; Saproon, Solan ; 15.11.76. 1 ♂ ; Deoghat, Solan ; 27.12.73. 1 ♂ ; Dharidural, Solan ; 5.11.74. 4 ♂ ; Solan, 15.11.76. 1 ♀ ; Solan, 5.4.77. 2 ♂ ; Solan, 31.12.76. 1 ♀, Solan, 17.2.77. 1 ♂, 1 ♀ ; Solan, 6.5.71.

Remarks : The species is common in South India, Sri Lanka, Burma and Nepal. It is also very abundant in Solan district (H. P.).

Other details of the species are given by us elsewhere.

Family Pyrgomorphidae

Tribe Tapronotini

Subtribe Aularchina

Genus (26) **Aularches** Stål, 1873

*29. **Aularches punctatus** Drury, 1773

Gryllus (Locusta) punctatus Drury, 1773, *Ill. Exot. Ent.*, **2**, fig. 4.

Aularches punctatus : Kirby, 1914. *Fauna British India, Orth.*, **1** : 169, fig. 112.

Material : H. P. : 7 ♂, 1 ♀ ; Near Water Supply Office, Mandi, 22.9.80. 4 ♂, 11 ♀ ; Mandi, 19.9.80. 1 ♀ ; Sallaghat, Bilaspur, 30.9.80.

Remarks : This species was known from Tibet ; Kashmir ; Garhwal (U. P.) and also from Malaya and Java. It is recorded here for the first time from the H. P.

The species was found to be abundant on the hill at Mandi P. W. D. Rest House. This locality is situated in a subtropical zone, at an altitude not more than 1200m, with very rare winter snow. The specimens of the species were very lethargic, and unlike other grasshoppers, were incapable of jumping even though touched. They remained still, making a low hissing sound while emitting white froth from their thoracic regions.

Specimens collected fit published information.

SUMMARY

The paper deals with the studies of grasshoppers of H. P. The material examined belongs to 28 species and subspecies, distributed over 25 genera and 7 sub-families of Acrididae. It also contains one species of the family Pyrgomorphidae. 14 species are new records from the state, 18 species are common with the eastern Himalayan fauna ; 10 species are present in H. P. but yet unreported from the eastern Himalayas. The male sex of *Choroedocus illustris* is described for the first time. Remarks of systematic value for other little known species have been provided. The zoogeographical significance of distribution of species have been analysed in brief. *Chorthippus* (*Glyptobothrus*) *hammerstroemi* is recorded here for the first time from India.

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