

## CHRYSOMELIDAE (COLEOPTERA) OF TRIPURA (INDIA)

By

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(With two Text-figures)

Chrysomelidae comprises small to medium sized beetles, ranging from about 1 mm to 20 mm long, usually live on foliage and are commonly known as leaf beetles. Shape various, usually elongated cylindrical to flat and oval and generally brightly coloured. To agriculturists this family is very destructive, to the collectors it is very interesting and to the systematists it is very difficult. Both adults and larvae are phytophagous, usually feed on root, stems, leaves of herbaceous plant and mine the leaves of woody plant.

Chrysomelidae is one of the largest families of Coleoptera. Jacoby (1908) and Maulik (1919, 1926, 1936) dealt this family extensively from Indian subregion where they included 2101 species. Published reports show that nobody has ever made any record of Chrysomelidae from Tripura. The present report is chiefly based on the collection of 518 examples made by V. C. Agrawal and M. S. Shishodia from the Zoological Survey of India during 1969-74. The collection comprises 25 species spread over 12 genera under 6 subfamilies. All the species dealt here are being recorded for the first time from Tripura and in addition to these, two species of the genera *Longitarsus* Latreille and *Phyllotreta* Stephens are described as new to science.

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25. *Cassida* sp. nr. *conspurcata* Boheman

Subfamily CRIOCERINAE

This is a small subfamily of Chrysomelidae. Jacoby (1908) included 146 species under 7 genera from Indian subregion. The representative of this subfamily are distinguished by the following characters.

General appearance more or less elongate and size small to medium. Head often constricted behind eyes, antennal insertions widely separated and placed in front of eyes, antennae filiform and often stout. Prothorax subcylindrical or quadrate, lateral sides often constricted at middle and without distinct margin. Elytra usually with regular rows of punctures. Tarsal claws free or joined at base and rarely bifid or appendiculate.

Genus *Lema* Fabricius

*Lema* Fabricius, 1798, *Ent. Syst. Suppl.* : 90 (Type : *L. cyanea* Fabricius from India); Jacoby, 1908, *Fauna British India*, Coleoptera, Chrysomelidae, 1 : 15-71; Gressitt & Kimoto, 1961, *Pac. Ins. Mon.* 1A : 64-75.

This is the largest genus of Criocerinae. Jacoby (1908) included 116 species from Indian subregion. In the present study one species of

the genus *Lema* is recorded from Tripura. The representatives of this genus can be separated from the other genera by their head being constricted posteriorly, lateral sides of prothorax not tuberculate and tarsal claws joined at base.

#### 1. *Lema* sp. near *L. lacertosa* Lacordaire

*Material examined* : 1 ex., Chailengta, 22.xii.1972, V C. Agrawal, (Z. S. I. Coll.).

The specimen studied here is similar to *L. lacertosa* Lacordaire but differs from the latter by its antennae being black and pronotum with a few punctures.

General appearance elongated, reddish brown; antennae, labrum, sterna, posterior two pairs of legs and the tarsi of front legs black. punctures strong. Antennae long and stout. Elytral punctures strong and arranged in rows.

#### Subfamily EUMOLPINAE

This is a large subfamily, includes small to medium size, oblong, convex and brilliantly coloured beetles. Jacoby (1908) included 438 species under 51 genera from Indian subregion. The chief distinguishing characters of this subfamily are:

Head somewhat reflexed, deeply inserted into the prothorax and not usually visible from above, eyes moderately large, antennae long filiform and their insertions widely separated. Prothorax usually subglobular. Elytra often with metallic lustre, having distinct humeral angles and usually clothed with pubescence or scales.

#### Genus *Pagria* Lefevre

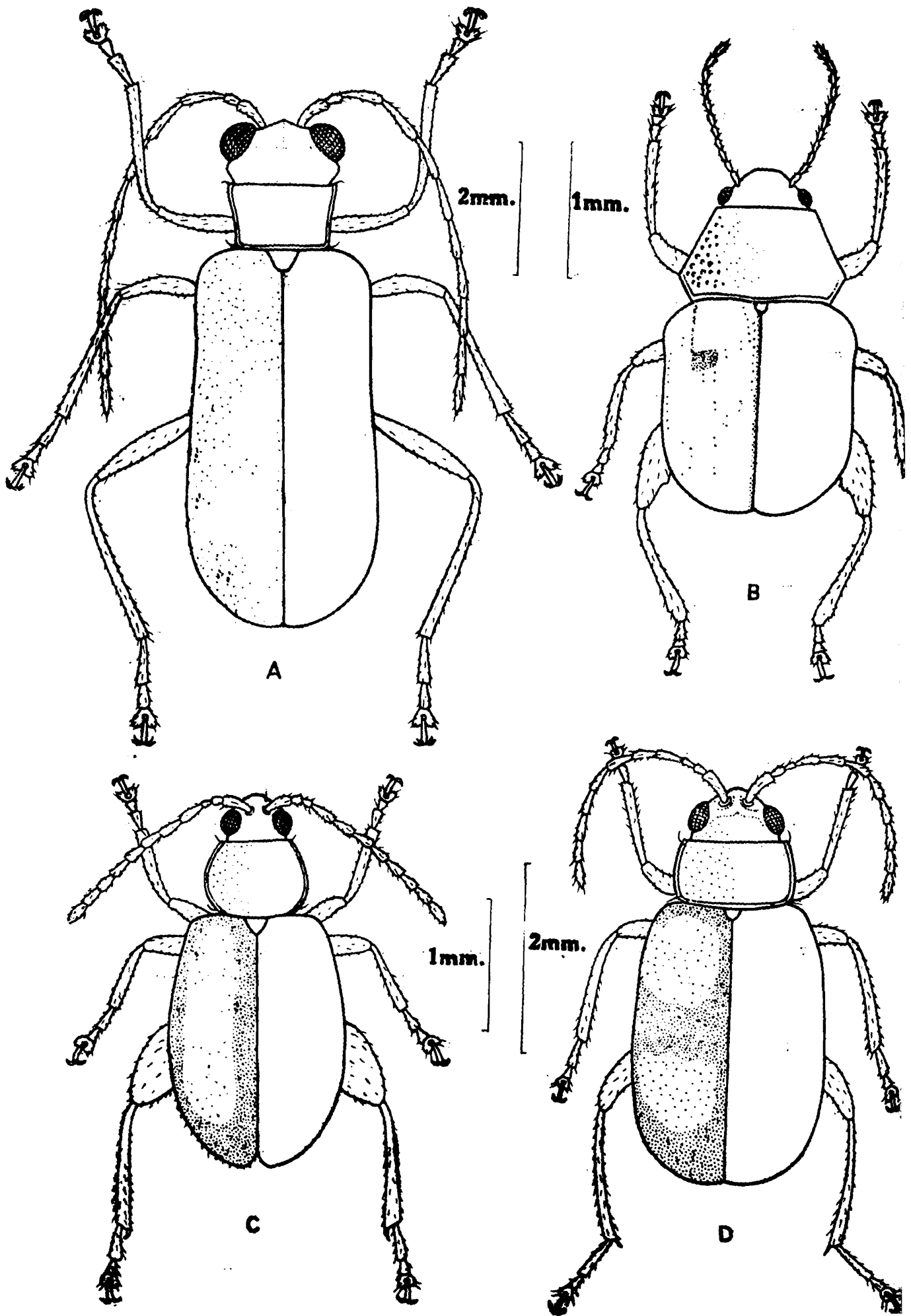
*Pagria* Lefevre, 1884, *Bull. Soc. ent. France* : 67 (Type : *P. suturalis* Lefev. from Africa); Jacoby, 1908, *Fauna British India*, Coleoptera, Chrysomelidae, 1 : 356-361.

Jacoby (1908) included 11 species from Indian subregion. In the present study one species of *Pagria* is recorded from Tripura. The representatives of this genus are characterised by the following characters:

General appearance small, ovate and convex; lateral sides of prothorax angulated at middle, femora with a small median tooth and hind tibiae emarginate apically.

#### 2. *Pagria kanaraensis* (Jacoby) (Text-Fig. 1 B)

*Nodostoma kanaraensis* Jacoby, 1895, *Ann. Soc. ent. Belg.*, 39 : 279. *Pagria kanaraensis* : Jacoby, 1908, *Fauna British India*, Coleoptera, Chrysomelidae, 1 : 360.



Text-fig. 1. Dorsal views, A. *Hoplasoma unicolor* (Illiger), B. *Pagria kanaraensis* (Jacoby), C. *Luperomorpha vittata* Duvivier, D. *Monolepta signata* (Olivier),

*Material examined* : 8 exs., Garjee, 1.xii.1969; 13 exs., Perathia, 30.xi.1969; 11 exs., Abhoya (Barpathari), 4.xii.1969; 1 ex., Abhoya Rest House, 10.xii.1969; 2 exs., Chailengta, 21.xii.1972, all collected by V. C. Agrawal, (Z. S. I. Coll.).

*Distribution* : India: Tripura, Maharashtra and Karnataka.

*Remarks* : So far, this species was recorded from southern India, in the present study this is being recorded for the first time from North East India (Tripura).

This species is near *P. signata* Motschulsky and can be easily separated from the latter species by its pronotum with distinctly golden green lustre and its front margin brownish yellow, basal part of elytra slightly raised, and punctured, and humeral callus impunctate.

General appearance small (2.00 mm) and oblong; head and pronotum black, elytra yellowish brown, its sutural margins, lateral margins and a small spot within basal depression black. Dorsal surface deeply punctured, those of elytra black and arranged in rows.

#### Subfamily GALERUCINAE

This is a large subfamily, members of which live exclusively on foliage. Maulik (1936) included 440 species under 90 genera from the Indian subregion. The representatives of this subfamily can be easily separated from the others by the following characters:

Shape usually oval or oblong; size highly variable, usually dull brown, sometimes shining black and blue or spotted. Head exposed, antennae long, slender and their insertions closely situated. Pronotum usually with distinct lateral margins, front coxae conical and contiguous. Hind femora usually slender and unlike alticinae when thickened without the jumping organ.

#### Genus *Hoplasoma* Jacoby

*Hoplasoma* Jacoby, 1884, *Notes Leyden Mus.*, 6 : 233 (Type : *H. apicalis* Jacoby from Celebes); Maulik, 1936, *Fauna British India*, Coleoptera, Chrysomelidae (Galerucinae): 151-167; Gressitt & Kimoto, 1963, *Pac. Ins. Mon.*, 1B:497-499.

This is a small genus, and Maulik (1936) included 7 species from the Indian subregion. In the present study 2 species of *Hoplasoma* are recorded from Tripura. The representatives of this genus are characterised by their shape being oblong, narrow and almost parallel-sided; prothorax markedly narrower than the base of elytra, dorsal surface shiny, elytra more or less confusedly punctured; antennae long and slender with two basal segments smooth.

### 3. *Hoplasoma nilgiriensis* Jacoby

*Hoplasoma nilgiriensis* Jacoby, 1904, *Ann. Soc., ent. Belg.*, 48 : 396; Maulik, 1936, *Fauna British India*, Coleoptera, Chrysomelidae (Galerucinae): 160-161.

*Material examined* : 1 ex., Chandmari, Agartala, 10.xi.1969, V C. Agrawal, (Z. S. I. Coll.).

*Distribution* : India: Tripura and Tamil Nadu.

*Remarks* : This species was so far known only from southern India, in the present study this is being recorded for the first time from North East India (Tripura).

This species is near *H. unicolor* (Illiger) but can be easily separated from the latter species by its abdominal process in male being short and flat, sloping apical surface of last visible abdominal sternite depressed and with a prominent median elevation; in female last visible sternite without a cavity near apex.

General appearance oblong, narrow and almost parallel-sided. Dorsal surface shining yellowish brown, antennae long and slender, head and pronotum shiny and impunctate, elytra finely and confusedly punctured.

### 4. *Hoplasoma unicolor* (Illiger) (Text-fig. 1 A)

*Galleruca unicolor* Illiger, 1800, In Weidem., *Arch. fuer Zool. u. Zoot.*, 1(2) : 135.

*Hoplasoma unicolor* : Allard, (1888), *Ann. Soc. ent. France*, (6) 8 : 327; Maulik, 1936, *Fauna British India*. Coleoptera, Chrysomelidae (Galerucinae) : 161-167; Gressitt & Kimoto, 1963, *Pac. Ins. Mon.*, 1B : 499.

*Material examined* : 1 ex., Chailengta, 20.xii.1972; 1 ex., Platian Centre F. R. H., 22.xi.1969; 1 ex., Agartala Charilom, 16.xi.1969, all collected by V. C. Agrawal, (Z. S. I. Coll.).

*Distribution* : India : Tripura, Arunachal Pradesh, Assam, Sikkim, West Bengal, Orissa, Bihar, Uttar Pradesh, Maharashtra, Karnataka, Kerala, Tamil Nadu and Andaman Islands.

This species is near *H. nilgiriensis* Jacoby but can be easily separated from the latter species in having its abdominal process of male long and rounded, sloping surface of last visible abdominal sternite not depressed and with a slightly prominent median elevation; in female, last visible sternite with a cavity near apex.

General appearance oblong, narrow and almost parallel-sided, dorsal surface shining yellowish brown and eyes black. Head and pronotum smooth and impunctate, elytra finely and confusedly punctured.

Genus *Aulacophora* Chevrolat

*Aulacophora* Chevrolat, 1842, In d'Orbigny, *Dict. Univ. Hist. Nat.* 2 : 337 (Type, *Galleruca quadraria* Oliver from Java; Maulik, 1936, *Fauna British India* Coleoptera, Chrysomelidae (Galerucinae):167-198; Gressitt & Kimoto, 1963, *Pac. Ins. Mon.* 1B : 482-490.

Maulik (1936) included 25 species from the Indian subregion. In the present study 2 species of *Aulacophora* are recorded from Tripura. The representatives of this genus can be easily separated from others by the following characters: Oblong, somewhat broadened posteriorly. Colour varies from yellowish brown to black and decorated with black spots or bands. Pronotum broader than long, epipleura abbreviated and incomplete.

5. *Aulacophora foveicollis* (Lucas)  
(Text-Fig. 2 D)

*Galeruca foveicollis* Lucas, 1849, *Explor. Alger. Ent.* : 542, pl. 44, f. 9, ♂  
*Aulacophora foveicollis* : Baly, 1879, *Cist. Ent.*, 2 : 445; Maulik, 1936, *Fauna British India*, Coleoptera, Chrysomelidae (Galerucinae) : 173-176.

*Material examined* : 1 ex., Fatik Roy (Kumarghat), 25.xii. 1972, V C. Agrawal, (Z. S. I. Coll.)

*Distribution* : India : Tripura, Assam, Bihar, Orissa, Uttar-Pradesh, Punjab, Maharashtra, Gujarat, Tamil Nadu and Andaman Islands.

This species is near *A. cornuta* Baly but can be separated from the latter species by its elytra being shiny, form smaller (6.75 mm.), and in male humerus covered with erect hairs.

General appearance oblong, moderately large size (6-7 mm), dorsal surface orange-red to brown and shiny. Eyes black and strongly convex, antennae moderately long and slender, head impunctate, pronotum and elytra minutely and confusedly punctured.

6. *Aulacophora frontalis* Baly

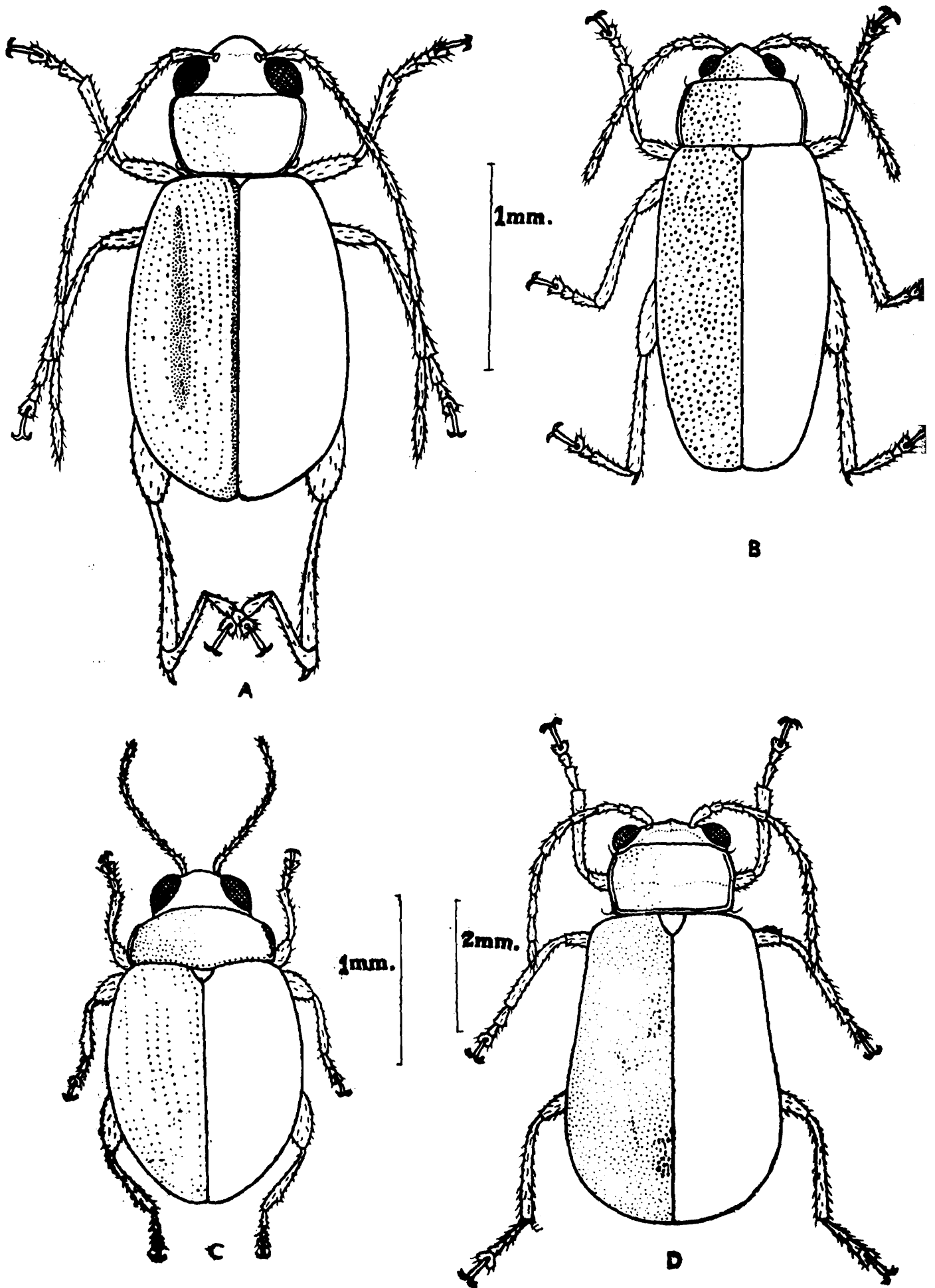
*Aulacophora frontalis* Baly, 1888, *Journ. linn. Soc. Lond.*, 20 : 176 & 181; Maulik 1936, *Fauna British India*, Coleoptera, Chrysomelidae (Galerucinae) : 183-184; Gressitt & Kimoto, 1963, *Pac. Ins. Mon.*, 1B : 487-488.

*Material examined* : 1 ex., Fatik Roy (Kumarghat), 25.xii.1972, V C. Agrawal, (Z. S. I. Coll.)

*Distribution* : India : Tripura, Maharashtra and Karnataka.

*Remarks* : This species was so far recorded from Southern India and in the present study it is recorded for the first time from North East India (Tripura).

This species is near *A. jacobyi* Weise but can be easily separated from the latter species by its antennal segments 3 being longer than segment 4, and in male, gular region of head excavated.



Text-fig. 2. Dorsal views, A. *Longitarsus indicus* sp. nov., B. *Phyllotreta tripuraensis* sp. nov., C. *Chaetocnema (Tianomo) basalis* Baly, D. *Aulacophora foveicollis* (Lucas)

General appearance oblong, moderately large (5.75 mm) head, antennae and pronotum brown elytra black. Antennae moderately long, segments 3-5 strongly thickened and dilated, vertex of head impunctate, pronotum and elytra finely and confusedly punctured.

### Genus *Monolepta* Erichson

*Monolepta* Erichson, 1843, *Arch. Naturgesch.*, 9(1) : 265 (Type : *Galeruca (Monolepta) pauperata* Erichson from Africa); Maulik 1936, *Fauna British India*, Coleoptera, Chrysomelidae (Galerucinae): 373-446; Gressitt & Kimoto, 1963, *Pac. Ins. Mon.*, 1B : 602-639.

This is the largest genus of the subfamily Galerucinae, Maulik (1936) included 78 species from the Indian subregion. In the present study 3 species of *Monolepta* are recorded from Tripura. Members of this genus are generally ovate, moderately convex, slightly narrowed in front and behind, dorsal surface smooth, shiny and finely punctured, segment 1 of hind tarsi markedly long and claws appendiculate.

#### 7. *Monolepta* sp. ~~no~~ *signata* (Olivier)

*Material examined* : 1 ex., Abhoya (Barpathari), 4.xii.1969, V. C. Agrawal, (Z. S. I. Coll.).

The single specimen studied here is similar to *M. signata* (Olivier) but differs from the latter in having antennae short and pale yellowish, scutellum broader than long with the apical margin broadly rounded, elytral puncturation fine and the sutural margin pale yellowish. No attempt is made here to establish this sole specimen as a new species.

General appearance oblong, narrow, small (2.50 mm) and pale yellowish. Antennae short and extending upto the middle of elytra. Prothorax broader than long, posterior angles rounded, surface finely punctate. Elytral pattern similar to *signata* but its suture being pale yellowish, puncturation fine and confused.

#### 8. *Monolepta lineata* Weise

*Monolepta lineata* Weise, 1915, *Ergebnisse 2. Dtsch. Zentr. Afr. Exp. Zool.*, 1 : 177; Maulik, 1936, *Fauna British India*, Coleoptera, Chrysomelidae (Galerucinae) : 398-399.

*Material examined* : 1 ex., Chailengata, 23.xii.1972, V. C. Agrawal, (Z. S. I. Coll.).

*Distribution* : India: Tripura and Tamil Nadu

*Remarks* : This species was so far known only from southern India: Tamil Nadu. Now it is being recorded for the first time from North East India (Tripura).

This species is near *M. javana* Jacoby but can be easily separated from the latter species by its pronotum being unicoloured and form larger (3 mm), elytra strongly and coarsely punctured.

General appearance oblong-ovate, small (3 mm), brown, antennae black with three basal segments dark brown and apical segments fringed with stiff hairs. Dorsal surface closely and strongly punctured, elytra with a longitudinal black stripe extending from humerus to near apex.

9. *Monolepta signata* (Olivier).  
(Text-fig. 1 D)

*Galeruca signata*. Olivier, 1808, *Entomologie*, 6 : 665, No. 93, pl. 5, fig. 85.

*Monolepta signata* : Jacoby, 1889, *Ann. Mus. Civ. stor. nat. Genova*, 27 : 229; Maulik, 1936, *Fauna British India*, Coleoptera, Chrysomelidae (Galerucinae) : 410-411; Kimoto, 1972, *Ent. Rev. Japan*, 24 ( 1-2 ) : 43.

*Material examined*: 3 exs., Perathia, 30.xi.1969, 5 exs., Abhoya Barpathari, 4.xii.1969; 11 exs., Garjee, 1.xii.1969; 2 exs., Forest Rest House, 8.xii.1969; 9 exs., Chailengta, 8.xii.1972; 9 exs., Ambassa, 4.1.1972; 10 exs., Chailengta (Manu), 23.xii.1972; 34 exs., Fatik Roy (Kumarghat), 25.xii.1972; 1 ex., Saydabari (Fatik Roy), 29.xii.1972; 1 ex., Hathalia, 5.xii.1969, all collected by V. C. Agrawal, (Z. S. I. Coll.).

*Distribution* : India : Tripura, Assam, Uttar Pradesh, Orissa, Karnataka, and Tamil Nadu.

General appearance oblong-ovate, moderately convex and dorsal surface shiny with fine punctures; head, pronotum and abdominal sternites reddish brown, antennae long and blackish with three basal segments brown, elytra usually pale brown with black stripes and a transverse band across the middle.

Subfamily ALTICINAE

This is the largest subfamily of Chrysomelidae which is commonly known as flea-beetles, and can be easily recognised for its markedly thickened hind femora which are modified for jumping. Maulik (1926) included 316 species under 70 genera from the Indian subregion. In the present study 12 species under 4 genera are being recorded from Tripura. The representatives of this subfamily can be distinguished by the following characters:

General appearance usually oval or elongate, small to medium sized. Head exposed, antennae usually long and slender, inserted on the frons between the eyes and rather closely situated. Prothorax broad, emarginate in front and lateral sides usually distinctly margined. Front coxae usually not conically prominent and their cavities open or closed behind. Hind leg markedly developed and tibiae with a distinct apical spur.

Genus *Chaetocnema* Stephens

*Chaetocnema* Stephens, 1831, *Illustr. Brit. Ent. Mandib.* 4 : 325 (Type : *Altica hortensis* Geoffroy, 1785 = *Galeruca ridella* Paykull, 1799); Maulik, 1926: *Fauna British India*, Coleoptera, Chrysomelidae (Chrysomelinae and Halticinae) : 202-220; Kimoto, 1965, *Kyushu Univ. J. Fac. Agri.*, 13(3) : 411-416.

Maulik (1926) included 21 species from Indian subregion and subsequently Scherer (1969) added 7 more species. In the present study 5 species of *Chaetocnema* are recorded from Tripura. Members of this genus are small (1.50 mm to 3.50 mm), ovate, narrowed in front and behind, generally dark, often green with bronzy reflections. Dorsal surface usually punctate. Antennae shorter than the body, prothorax broader than long, usually narrowed in front and punctate. Elytra always punctate striate. Front coxal cavities closed behind. Legs with middle and hind tibiae excavated on its outer edge near apex.

Of the two subgenera *Tlanoma* Motschulsky and *Chaetocnema* s. str., the former is characterised by its vertex of head being impunctate, inter-antennal space distinctly raised and impunctate, and subgenus *Chaetocnema* s. str. can be distinguished by its vertex of head distinctly punctate, inter-antennal space flat and strongly punctate.

Subgenus *Tlanoma* Motschulsky10. *Chaetocnema* (*Tlanoma*) *basalis* Baly  
(Text-fig. 2 C)

*Chaetocnema basalis* Baly, 1877, *Trans. ent. Soc. Lond.*: 310; Maulik, 1926, *Fauna British India*, Coleoptera, Chrysomelidae (Chrysomelinae & Halticinae): 209-210.

*Chaetocnema* (*Tlanoma*) *basalis* : Heikertinger, 1951, *Kol. Rundsch.*, 32 : 72; Kimoto, 1972, *Ent. Rev. Japan*, 24 (1-2) : 46.

*Material examined* : 25 exs., Chailengta (Manu), 17.xii.1972); 1 ex., 12.xii.1972; 1 ex., 30.xii.1972; 1 ex., 18.xii.1972; 18 exs., Chailengta, 23.xii.1972; 1 ex., 20.xii.1972; 1 ex., 21.xii.1972; 2 exs., Khowaipur, 15.xii.1972; 5 exs., Ganganagar, 15.xii.1972; 3 exs., Perathia, 30.xi.1969; 14 exs., Hathalia, 15.xii.1969; 3 exs., Abhoya Rest House, 10.xii.1969. 3 exs., Abhoya (Barpathari), 4.xii.1969; 1 ex., Ambassa, 4.i.1973; 1 ex., Garjee, 28.xi.1969; 2 exs., Kumarghat, 28.xii.1972, all collected by V C. Agrawal, (Z. S. I. Coll.).

*Distribution* : India : Tripura, Assam, West Bengal, Maharashtra and Tamil Nadu.

*Remarks* : This species was reported by Maulik (1926) as a pest of paddy.

This species is near *C. duvivieri* Jacoby but can be recognised by its size being smaller (1.50 mm to 2.00 mm), colour black, pronotum finely and uniformly punctured, and elytral interstices indistinctly punctured.

General appearance ovate, black and shiny. Head impunctate and finely granulated. Pronotum densely punctured, basal border distinctly margined and with a transverse row of strong punctures. Elytra regularly punctate-striate, punctures stronger than those on the pronotum and elytral interstices indistinctly punctured.

### 11. *Chaetocnema (Tlanoma) indica* Weise

*Chaetocnema indica* Weise, 1916, *Dtsch. ent. Z.*, : 39; Heikertinger & Csiki, 1940, *Col. Cat., Berl.*, 25 (169) : 410.

*Chaetocnema minuta* Jacoby, 1896, *Ann. Soc. ent. Belg.*, 40 : 271; Maulik, 1926, *Fauna British India, Coleoptera, Chrysomelidae (Chrysomelinae & Halticinae)* 214-215.

*Material examined* : 1 ex., Khowaipur, 10.xii.1972; 1 ex., Ganganagar, 11.xii.1972, V. C. Agrawal, (Z. S. I. Coll.).

*Distribution* : India : Tripura and Maharashtra. Nepal.

*Remarks* : This species was so far recorded only from Maharashtra (Belgaum) is now being recorded for the first time from North East India (Tripura).

This species is near *C. longipunctata* Maulik and *C. kanika* Maulik but can be separated by its pronotum being distinctly narrowed in front and its puncturation denser, and the size smaller (less than 1.75 mm).

General appearance ovate, narrowed in front and behind and bright brassy or golden green. Head finely granulate with a few punctures on the inter-ocular space, pronotum finely granulate and densely punctate. Elytra rather strongly punctate-striate, and interstices finely punctate and costate at lateral sides.

### 12. *Chaetocnema (Tlanoma) longipunctata* Maulik

*Chaetocnema longipunctata* Maulik, 1926, *Fauna British India, Coleoptera Chrysomelidae (Chrysomelinae & Halticinae)* : 215.

*Material examined* : 1 ex., Ganganagar, 11.xii.1972, V. C. Agrawal, (Z. S. I. Coll.).

*Distribution* : India : Tripura

*Remarks* : This species was recorded so far from Ceylon, it is now recorded for the first time from India (Tripura).

This species is near *C. kanika* Maulik but can be separated from the latter species by its pronotal punctures being elongated, at least those near the base.

General appearance ovate, black, and antennae with five or six basal segments brown. Head impunctate and finely granulate, pronotum granulate and finely punctate, those near the base elongated. Elytra

regularly punctate-striate, punctures larger than those on pronotum and interstices finely punctate and costate towards apex.

Subgenus *Chaetocnema* s. str.

13. *Chaetocnema* (*Chaetocnema*) *concinnipennis* Baly

*Chaetocnema concinnipennis* Baly 1877, *Trans. ent. Soc. Lond.* : 170; Maulik, 1926, *Fauna British India*, Coleoptera, Chrysomelidae (Chrysomelinae & Halticinae) : 207-208.

*Chaetocnema* (*Chaetocnema*) *concinnipennis* : Kimoto, 1972, *Ent. Rev. Japan*, 24 (1-2) : 46.

*Material examined* : 1 ex., Chailengta (Manu), 17.xii.1972; 1 ex., Ambassa, 2.i.1973; 1 ex., Chailengta, 17.xi.1969; 1 ex., Forest Rest House, 8.xii.1969; 1 ex., Garjee, 29.xii.1969; 2 exs., Abhoya Barpathari, 4.xii.1969 all collected by V. C. Agrawal, (Z.S.I. Coll.).

*Distribution* : India: Tripura, West Bengal, Sikkim, Bihar, Orissa and Tamil Nadu.

*Remarks* : Maulik (1926) noted that this species is a pest of seedling paddy.

This species is near *C. birmanica* Jacoby but can be easily separated from the latter by its size being small (3.00 mm) and elytral punctures less prominent.

General appearance ovate and shining brassy-greenish or bluish. Head finely granulated and punctured, pronotum strongly punctured, elytra strongly punctate-striate, each puncture wider than the width of interstices and latter subcostate along the lateral and apical margins.

14. *Chaetocnema* (*Chaetocnema*) *cognata* Baly

*Chaetocnema cognata* Baly, 1877, *Trans. ent. Soc. Lond.* : 168; Maulik, 1926, *Fauna British India*, Coleoptera, Chrysomelidae (Chrysomelinae & Halticinae) : 216-217.

*Chaetocnema* (*Chaetocnema*) *cognata* : Kimoto, 1972, *Ent. Rev., Japan*, 24 (1-2) : 46.

*Material examined* : 3 exs., Chailengta (Manu), 17-18.xii.1972, 1 ex., Garjee, 28.xi.1969, V. C. Agrawal, (Z.S.I. Coll.).

*Distribution* : India : Tripura, West Bengal, Bihar, Orissa, Uttar Pradesh, Karnataka and Tamil Nadu.

This species is nearest to *C. alticola* Maulik and *C. belli* Jacoby, but can be separated by its dorsal surface being shining coppery or greenish with slight bronzy tinge.

General appearance ovate, shining coppery or brassy green with slight bronzy tinge. Head finely granulate and strongly punctate, pronotum finely granulate, distinctly and sparsely punctate. Elytra punctate-striate, interstices finely granulate and impunctate, interstices towards the apex and sides somewhat costate.

Genus *Longitarsus* Latreille

*Longitarsus* Latreille, 1829, Cuvier's *Regn. Anim.* 2 ed. 5 : 155, (Type: *Chrysomela atricilla* L. from Europe); Maulik, 1926, *Fauna British India*, Coleoptera, Chrysomelidae (Chrysomelinae & Halticinae) : 333-361; Gressitt & Kimoto, 1963, *Pac. Ins. Mon.*, 1B : 851-860.

This is one of the largest genera of the subfamily Alticinae Maulik (1926) included 38 species from Indian subregion and subsequently Scherer (1969) added 4 more species. The present study records 3 species from Tripura. Members of this genus are generally small, oblong or ovate, antennae long and slender, prothorax always broader than long, pronotum usually punctate, elytra usually confusedly punctate, sometimes the punctures arranged in irregular rows. Front coxal cavities open behind. Legs slender, outer margin of hind tibiae not channelled and with a distinct well developed spine at the apex. Sometimes species are apterous.

15. *Longitarsus incicaus* sp. nov. (Text-fig. 2 A)

General appearance oblong, dorsal surface brown with elytral suture blackish, each elytron with a longitudinal blackish stripe extending to half of its length and the punctures on the elytra blackish. Antenna black with segments 1-3, 10 and the basal part of segment 11 brown. Ventral surface brown with legs pale yellowish, hind femora brown with its apical part blackish. *Head* (Text-fig. 2 A) with vertex impunctate, frontal tubercles indistinct, interantennal carina distinctly elevated and eyes moderately convex. Antennae extending almost to the apex of elytra, segment 3 distinctly longer than segment 2, segment 4 one and one-third times longer than segment 3, segment 4-10 subequal, segment 11 long and obliquely truncated. *Prothorax* (Text-fig. 2 A) one and half times broader than long, lateral margins almost straight, front angles oblique, pronotum convex and indistinctly punctate. Scutellum triangular and impunctate. Elytra (Text-fig. 2 A) broader than prothorax, disc finely punctate, puncturation forming longitudinal rows at lateral sides. Ventral surface shining. Segment 1 of hind tarsi longer than half of the corresponding tibiae.

*Measurement of holotype* : Length 2.40 mm, width of head across eyes 0.65 mm, length of antennae 2.40 mm, width of prothorax across middle 0.70 mm, length of elytra 1.75 mm and width of elytra across middle 1.20 mm.

*Holotype* 1 ex., INDIA : TRIPURA, Abhoya Rest House, 10.xii. 1969, V. C. Agrawal, *Paratype* 1 ex., INDIA : TRIPURA, Garjee, 28.xi. 1969, V. C. Agrawal (In the collection of Zoological Survey of India, Calcutta).

Kimoto (1965) described a new species *Longitarsus boharti* from

Ryukyu Island, the new species described above is closely related to this, but can be easily separated from the latter species for its pronotum being finely and indistinctly punctured, prothorax one and half times broader than long and its lateral margins almost straight, antennae almost as long as its length of the body, segment 4 and 5 subequal, segment 10 and basal part of segment 11 brown, and elytral punctures black.

16. *Longitarsus belgaumensis* Jacoby

*Longitarsus belgaumensis* Jacoby, 1896, *Ann. Soc. ent. Belg.*, 40 : 260; Maulik, 1926, *Fauna British India*, Coleoptera, Chrysomelidae (Chrysomelinae & Halticinae) : 348-349; Kimoto, 1972, *Ent. Rev. Japan*, 24 (1-2): 47.

*Material examined* : 1 ex., Chailengta (Manu), 17.xii.1972, V. C. Agrawal, (Z.S.I. Coll.).

*Distribution* : India: Manipur, Tripura, Bihar, Orissa, Uttar Pradesh, Maharashtra, Karnataka and Tamil Nadu.

This species is near *L. hina* Maulik but can be separated from the latter species by its elytra being confusedly punctured and form larger (2.50 mm).

General appearance oblong, almost parallel-sided, dorsal surface pale brown with the sutural margin blackish. Head impunctate, antennae long and slender. Prothorax slightly broader than long, pronotum with a few fine punctures and its basal part with fine longitudinal wrinkles. Elytra subcylindrical, granulate and confusedly punctured.

17. *Longitarsus* sp. nr. *pandura* Maulik

*Material examined* : 1 ex., Kumarghat, 18.xii.1972, V. C. Agrawal, (Z.S.I. Coll.).

General appearance ovate, narrow, small and brown. Head with vertex impunctate. Antennae long, densely hairy and segment 3 almost equal to segment 2. Pronotum finely and distinctly punctate. Elytra finely and confusedly punctate. Segment 1 of hind tarsi longer than half the length of tibiae.

Genus *Luperomorpha* Weise

*Luperomorpha* Weise, 1887, Weigmann's *Arch. Naturgesch.*, 53(1) : 202, (Type : *Luperomorpha trivialis* Weise from Siberia); Maulik, 1926, *Fauna British India* Coleoptera, Chrysomelidae (Chrysomelinae & Halticinae) : 361-366; Kimoto 1972, *Ent. Rev. Japan*, 24 (1-2): 47.

Heikertinger and Csiki (1939) listed 7 species from Indian subregion and subsequently Scherer (1969) added 5 more species. In the present study one species of *Luperomorpha* is recorded from Tripura. The re-

representatives of this genus are generally oblong and shiny, antennae long and its segment 2 and 3 are always small. Prothorax usually broader than head and almost quadrate, often finely granulate and punctate, pre-basal impressions absent. Elytra almost parallel-sided, usually with stronger punctures than those of pronotum, and apical part with a few scattered setae. Front coxal cavities open behind.

#### 18. *Luperomorpha vittata* Duvivier (Text-fig. 1 C)

*Luperomorpha vittata* Duvivier, 1892, *Ann. Soc. ent. Belg.*, 36 : 427; Maulik, 1926, *Fauna British India*, Coleoptera, Chrysomelidae (Chrysomelinae & Halticinae) : 365.

*Material examined* : 31 exs., Garjee bazar, 26.xi.1969; 5 exs., Garjee, 24.xi.-1.xii.1969; 8 exs., Perathia, 30.xi.1969; 9 exs., Agartala, Indranagar, 11.xi.1969; 1 ex., Chailengta, 20.xii.1972, all collected by V. C. Agrawal, (Z.S.I. Coll.),

*Distribution* : India : Tripura, Bihar and West Bengal.

General appearance oblong; head, prothorax and ventral surface fawn-coloured, elytra brownish black with an yellowish large longitudinal stripe. Head finely granulate. Prothorax almost quadrate and pronotum finely punctate. Elytra granulate and finely punctate and its apical part with a few scattered setae.

#### Genus *Phyllotreta* Stephens

*Phyllotreta* Stephens, 1839, *Manual Brit. Col.*, : 291 (Type : *Chrysomela nemorum* L., 1758, *Syst. Nat. ed. 10* : 373; Europe); Maulik, 1926, *Fauna British India*, Coleoptera, Chrysomelidae (Chrysomelinae & Halticinae) : 377-381; Kimoto, 1965, *Kyushu Univ. J. Fac. Agri.*, 13(3) : 605-609.

This is a small genus, Heikertinger and Csiki (1939) listed 7 species from Indian subregion and subsequently Scherer (1969) added 2 more species. In the present work 3 species of *Phyllotreta* are recorded from Tripura, of which one is described as new to science.

*Material examined* : 66 exs. Chailengta. 19-21.xii.1972; 2 exs., Chailengta (Manu), 19.xii.1972; 1 ex., Howaipur, 10.xii.1972, 2 exs., Ambassa 4.i.1973; 6 exs., Fatik Roy (Kumarghat) 25.xii.1972 all collected by V. C. Agrawal, (Z.S.I. Coll.).

*Distribution* : India : Tripura and Sikkim.

This species is near *P. birmanica* Harold but it can be easily separated for its dorsal surface being black with longitudinal yellowish stripe on elytra and pronotum with strong punctures.

General appearance ovate, black, each elytron with a longitudinal yellowish stripe, antennae long and black with segments 1-3 brown, dorsal surface finely and strongly punctured.

20. *Phyllotreta chotanica* Duvivier

*Phyllotreta chotanica* Duvivier, 1892, *Ann. Soc. ent. Belg.*, 36 : 426; Maulik, 1926, *Fauna British India*, Coleoptera, Chrysomelidae (Chrysomelinae & Halticinae) : 379-380; Scherer, 1969, *Pacif. Ins. Monogr.* 22 : 37.

*Material examined* : 1 ex., Fatik Roy (Kumarghat), 25.xii.1972, V C. Agrawal, (Z.S.I. Coll.).

*Distribution* : India : Tripura and West Bengal.

This species is near *P. downesi* Baly but unlike latter species elytra devoid of apical ribs.

General appearance oblong, narrow and small (2.00 mm) dorsal surface metallic bronze with greenish or bluish reflections, antennae and ventral surface black, and tarsi brownish. Head shiny and impunctate. Antennae moderately long. Pronotum finely granulate and densely punctate. Elytral puncturation similar to those on the pronotum.

21. *Phyllotreta tripuraensis* sp. nov. (Text-fig. 2 B)

General appearance oblong, small, narrow and shining black, sometimes brown or blackish brown with metallic bronze tinge on head and pronotum. Antennae short, blackish with segments 1-3 brown. Dorsal surface strongly and confusedly punctate. *Head* (Text-fig. 2 B.) narrow, vertex strongly punctate, inter-antennal carina prominent and frontal tubercles absent. Antennae short and reaching middle of the elytra, scape long and thick, pedicel thick and almost equal to segment 3 and 4, segments 5-11 subequal, segments 7-11 thicker and densely pubescent. *Prothorax* (Text-fig. 2 B.) almost twice as broad as long, distinctly narrowed anteriorly, anterior and posterior margins straight, lateral margins gently rounded, anterior angles thickened, posterior angle rounded pronotum finely granulate and strongly punctured. *Scutellum* small, triangular with apex rounded, and surface impunctate. Elytra (Text-fig. 2 B.) closely covered with strong punctures as on pronotum.

*Measurements of holotype* : Length 2.20 mm, width of head across eyes 0.45 mm, length of antennae 1.10 mm, width of prothorax across middle 0.70 mm, length of elytra 1.60 mm and width of elytra across middle 1.00 mm.

*Holotype* 1 ex., INDIA : TRIPURA, Fatik Roy (Kumarghat) 25.xii.1972, V C. Agrawal; *Paratypes* INDIA : TRIPURA, 48 exs. Ambassa, 4.i.1973; 2 exs., 7.i.1973; 58 exs., Fatik Roy (Kumarghat) 25.xii.1972; 21 exs., Chailengta, 21.xii.1972; 8 exs., 20.xii.1972; 1 ex. 23.xii.1972; 5 exs., Chailengta (Manu), 10.xii.1972, all collected by V. C. Agrawal, (In the Zoological Survey of India, Calcutta).

This species is near *P. chotanica* Duvivier but can be easily separated from the latter species by its vertex of head strongly punctate, prothorax

more transverse and distinctly narrowed anteriorly, dorsal surface more strongly punctured than those of *P. chotanica*.

#### Subfamily HISPINAE

This is a moderately large subfamily. Maulik (1919) included 236 species under 27 genera from Indian subregion. In the present study 2 species under 2 genera are recorded from Tripura. The representatives of this subfamily are distinguished by the following characters:

General appearance oblong-elongated, wedge-shaped, small to medium sized. Dorsal surface smooth or deeply punctate or with elevated costae or spines. Head exposed with prominent frons, antennae short, straight and closely inserted between the eyes. Prothorax truncate or emarginate in front. Elytra distinctly broader than prothorax and truncated at apex.

#### Genus *Rhadinosa* Weise

*Rhadinosa* Weise, 1905, *Dtsch. ent. Z.*: 318 (Type: *Rhadinosa nigrocyanea* Motschulsky from Altai, Manchuria, Japan); Maulik, 1919, *Fauna British India*, Coleoptera, Chrysomelidae (Hispinæ & Cassidinae): 164-168; Gressitt & Kimoto, 1963, *Pac. Ins. Mon.* 1B : 917-920.

This is a small genus of the subfamily Hispinæ. Maulik (1919) included 5 species from Indian subregion. In the present study one species of *Rhadinosa* is recorded from Tripura. The representatives of this genus are elongate and small. Antennae short, stout and cylindrical, and segment 1 with a dorsal spine. Pronotum usually rugose and with transverse depressions, and front margin armed with two pairs of spines and each lateral margin with three spines. Elytra spiny and punctate-striate. Tarsal claws free and equal.

#### 22. *Rhadinosa laghua* Maulik

*Rhadinosa laghua* Maulik, 1915, *Rec. Indian Mus.* : 376; Maulik, 1919, *Fauna, British India*, Coleoptera, Chrysomelidae (Hispinæ & Cassidinae) : 166-167.

*Material examined*: 3 exs., Chailengta, 23.xii.1969; 1 ex., *Abhoya Barpathari*, 4.xii.1969; 1 ex., Chailengta (Manu), 18.xii.1972; V. C. Agrawal. 1 ex., Kanjmura, Teliamura, 14.xi.1974; 1 ex., Teliamura, 11.xi.1974; 1 ex., Kanchannagar, Ambassa, 20.xi.1974. *M. S. Shishodia*, (Z.S.I. Coll.).

*Distribution* : India : Tripura, Assam and West Bengal.

This species is near *R. lebongensis* Maulik but can be separated from the latter species by its last five segments of antennae being distinctly clubbed and segment 3 not longer than segment 5 but of almost equal in length, and species black.

General appearance oblong, small, black and covered with white adpressed hairs. Antennae short and cylindrical, segment 1 with a dorsal spine, segments 7-11 forming a club. Prothorax quadrate with 5 pairs of spines and rugosely punctate. Elytra punctate-striate and with long spines.

### Genus *Dicladispa* Gestro

*Hispa* Chapuis (nec. Linnaeus), 1875, *Gen. Col.*, 11 : 334; Maulik, 1919, *Fauna British India*, Coleoptera, Chrysomelidae (Hispinæ & Cassidinae) : 247-256. *Dicladispa* Gestro, 1897, *Ann. Mus. Civ. stor. Nat. Genova*, 38 : 81 (Type : *Hispa testacea* L. from Europe); Gressitt & Kimoto, 1963, *Pac. Ins. Mon.* 1B : 935.

This is a small genus, and Maulik (1919) included 7 species from Indian subregion. In the present study one species of this genus is recorded from Tripura. The representatives of this genus are somewhat oblong and subparallel-sided. Antennae 11-segmented, prothorax with a group of spines at lateral sides near apical angles and a single near basal angles. Elytra broader than prothorax, punctate-striate and with spines.

### 23. *Dicladispa armigera* (Olivier)

*Hispa armigera* Olivier, 1808, *Ent.*, 6 : 763; Maulik, 1919, *Fauna British India*, Coleoptera, Chrysomelidae (Hispinæ & Cassidinae) : 249-250. *Dicladispa armigera*: Uhmman, 1952, *Treubia*, 21 : 236; Gressitt & Kimoto, 1963, *Pac. Ins. Mon.*, 1B : 936; Kimoto, 1972, *Ent. Rev. Japan*, 24 (1/2) : 48.

*Material examined* : 1 ex., Abhoya Barpathari, 4.xii.1969; 1 ex., Lakshmipur, 6.xii.1969; 1 ex., Nandnagar, 13.xi.1969; 1 ex., Hathalia, 5.xii.1969; 1 ex., Garjee, 1.xii.1969; 1 ex., Chailengta, 16.xi.1969; 1 ex., Sheikh Bari, 3.xii.1969, all collected by V C. Agrawal, (Z.S.I. Coll.).

*Distribution* : India : Tripura, Assam, West Bengal, Orissa and Tamil Nadu.

*Remarks* : This species is recorded by Maulik (1919) as a serious pest of paddy.

This species is near *D. birendra* (Maulik) but can be easily separated from the latter species by its prothoracic spines being straight, short and almost equal in length with the two basal segments of the antennae.

General appearance oblong, shiny and blue black. Head longitudinally sulcated, antennae moderately long, slender and slightly thickened towards apex. Prothorax broader than long, subcylindrical and rugosely punctate. Elytra strongly punctate-striate with strong and erect spines.

### Subfamily CASSIDINAE

This is a small subfamily, in which 152 species under 16 genera were recorded by Maulik (1919) from Indian subregion. Present study

includes 2 species under 1 genus from Tripura. The representatives of this subfamily are commonly known as Tortoise beetles as their shape are broadly oval or circular with an explanate margins. Head deflexed and the whole body hidden under the explanate margin of prothorax and elytra, and its epipleura markedly broad.

### Genus *Cassida* Linnaeus

*Cassida* L., 1758, *Syst. Nat. ed.*, 10, 1 : 362 (Type : *Cassida nebulosa* L. from Europe); Maulik, 1919, *Fauna British India*, Coleoptera, Chrysomelidae (Hispinæ & Cassidinae) : 361-411; Gressitt & Kimoto, 1963, *Pac. Ins. Mon.*, 1B : 963-983.

This is the largest genus of the subfamily Cassidinae in which 58 species were recorded by Maulik (1919) from Indian subregion. In the present study 2 species of *Cassida* are recorded from Tripura. The representatives of this genus are usually ovate and convex. Head concealed under explanate front margin of prothorax, and without any channel for antennal reception, prothorax elliptical and transverse. Elytra convex, generally punctate-striate, interstices usually plain and never strongly costate or rugose. Tarsal claws devoid of comblike structure at base.

#### 24. *Cassida* (*Taiwania*) *circumdata* Herbst

*Cassida circumdata* Herbst, 1799, *Natursyst. Kaf.*, 8 : 268, pl. 132, f. 11; Maulik, 1919, *Fauna British India*, Coleoptera, Chrysomelidae (Hispinæ & Cassidinae): 404-405.

*Cassida* (*Taiwania*) *circumdata* : Gressitt, 1952, *Proc. Calif. Acad. Sci. ser. 4*, 27 : 489, pl. 28, fig. 2, pl. 36, figs. 6, 9; Gressitt & Kimoto, 1963, *Pac. Ins. Mon.* 1B : 970.

*Material examined* : 1 ex., Abhoya (Barpathari), 4.xii.1969, V. C. Agrawal, (Z.S.I. Coll.).

*Distribution* : India : Tripura, West Bengal, Orissa and Tamil Nadu.

This species is near *C. varians* Herbst but can be separated from the latter species by its elytra with a U-shaped black marking and with a short black stripe at base along the suture, which sometimes extending on the pronotum.

General appearance ovate, yellowish brown, sometimes with greenish tinge, elytra with a U-shaped black stripe. Head and clypeus flat, smooth and impunctate, elytra strongly punctate-striate.

#### 25. *Cassida* sp. nr. *conspurcata* Boheman

*Material examined* : 2 exs., Saydabari (Fatik Roy), 29.xii.1972, V. C. Agrawal, (Z.S.I. Coll.).

The specimens studied here are similar to *C. conspurcata* Boheman, but it differs from the latter in having transparent disc of pronotum just above head being finely punctate and in its explanate margins without honeycomb structure as in *C. conspurcata*.

General appearance ovate, shining yellowish brown with several black spots on elytra, pronotum finely and confusedly punctate, elytra strongly punctate-striate.

#### SUMMARY

The present study deals with 25 species spread over 12 genera under 6 subfamilies. Two new species *Longitarsus indicus* and *Phyllotreta tripuraensis* are described. The diagnostic characters of the subfamilies, genera and species, and their relationship and distribution are given. All the species, included in this paper, are being recorded for the first time from Tripura.

#### ACKNOWLEDGEMENTS

The authors are grateful to the Director, Zoological Survey of India, Calcutta, for providing laboratory facilities during this work.

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