

THE COCCINELLIDAE (COLEOPTERA) OF THE ANDAMANS

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Hitherto only three species of Coccinellidae (Coleoptera) have been recorded from the Andaman and Nicobar Islands. In the present paper, based on a study of nearly 1,550 specimens, 26 more species are recorded. The following five new species, all from the South Andaman, are described: *Scymnus andamanensis*, *Nephus roonwali*, *Pseudaspidimerus lambai*, *Telsimia postocula* and *Chilocorus coelosimilis*. Of these, *N. roonwali* has also been recorded from near Calcutta (West Bengal). *Illeis bistigmosa* (Mulsant), previously not known from any part of the Indian Union, is recorded for the first time. *Epilachna processa* Weise, originally described as a variety of *Epilachna wissmanni* Mulsant from Burma, is regarded here as a distinct species, and recorded from both the Andaman and Nicobar Islands. *Epilachna keiseri* Bielawski (1957) is regarded as a synonym of *Epilachna septima* Dieke (1947) (*Syn. nov.*).

The taxonomic account is followed by a key to the identification of the Andaman species. A brief account of the zoogeography of the species is also given.

I. INTRODUCTION

The Coccinellidae, popularly called the lady-bird beetles, are of economic importance because some phytophagous species occur as pests of plants, while many others, mostly predacious species, help in regulating populations of several crop pests.

Very little is known of these beetles from the Andaman and Nicobar Islands which form an arcuate chain, about 700 miles long, in the Bay of Bengal. They cover a land area of over 31 square miles; the climate is humid tropic and the vegetation consists mostly of ever-green forests with sparsely cultivated fields and coconut plantations.

The first Coccinellid ever to be recorded from these islands was *Epilachna nevillei* Dohrn, which was described in 1880 by Dohrn as a new species from the Andamans. In 1901 Weise described another new species, called *Rodolia andamanica* Weise, also from the Andamans. Korschefsky (1931) in his catalogue of the family recorded the third species, namely, *Epilachna pytho* Mulsant, from the Andamans, but a subsequent examination of the type of this species, borrowed from Crotch's collection in the University Zoology Museum, Cambridge (U.K.), shows that, in all probability, the record by Korschefsky was based on misidentification; the long series of specimens before me from the Andamans, while resembling *E. pytho* in external form and colouration (including elytral spots), differs from the latter in the genitalic structure which is identical with *Epilachna kaszabi* Bielawski and Fursch, a species described in 1960 from Burma. Thus, so far, only three species appear to have been recorded from the Andamans but none from the Nicobar Islands.

In the present paper, based on a study of nearly 1,550 specimens, 29 species are dealt with. Except for one species, *Epilachna processa* Weise, which is also recorded from the Nicobars, all the species are from the Andaman

Islands. The author has seen the material of all the species except one, *i.e.* *E. nevilli* Dohrn. Five species are being described as new and their holotypes are deposited in the National Zoological Collection at the Zoological Survey of India (Z.S.I.), Calcutta. The majority of specimens studied belong to the Survey; with the exception of certain examples of six species that were already present in the Survey's collections, the material was collected in 1959, 1961 and 1964 by the departmental parties led by Dr. K. K. Tiwari, Dr. A. Daniel and Mr. B. S. Lamba, respectively. In addition, several examples of two species of *Epilachna* Chevrolat and one species of *Rodolia* Mulsant, belonging to the British Museum (N.H.), London, were also studied. It is believed that with further surveys of the terrestrial fauna of the islands, many more species of the family would be discovered.

II. TAXONOMIC ACCOUNT

Subfamily I. EPILACHNINAE

1. *Epilachna dodecastigma* (Wiedemann)

(Figure 1A-C)

Coccinella dodecastigma Wiedemann 1823, *Zool. Mag., Tokyo*, 2, 73-74 (*Type-loc.*—Bengal).

Epilachna dodecastigma (Wiedemann): Mulsant 1850, *Annls. Soc. Agric. Lyon.*, 2, 789.

Epilachna dodecastigma (Wiedemann), (Mulsant in error): Korschefsky 1931, *Coleoptm. Cat.*, 16, 28.

Epilachna dodecastigma (Wiedemann): Kapur 1963, *Bull. Br. Mus. nat. Hist. (Ent.)*, 14, 6-7.

Material.—345 examples: INDIA: Little Andaman: Tokoibuea, 13-2-1961 (19 exs.), 1-3-1961 (5 exs.); Laitora, 9 miles N. of Tokoibuea, 14-2-1961 (10 exs.); Entije, 10 miles W. of Tokoibuea, 15-2-1961 (20 exs.); Bedeabdalua, 16-2-1961 (27 exs.); Kwatetukwage, 18-2-1961 (24 exs.); Tailanda, 19-2-1961 (31 exs.); Boogena, 20-2-1961 (51 exs.); Ingoie, 21-2-1961 (14 exs.); Benyaboi, 23-2-1961 (34 exs.); Gaje, 25-2-1961 (38 exs.); Tula, 7 miles N. of Gaje, 26-2-1961 (16 exs.); Nauchuge, 27-2-1961 (37 exs.); Kwateneabo, near Bumila Creek, 28-2-1961 (19 exs.) (all A. Daniel coll.).

Remarks.—This species occurs as a pest of cucurbits, especially luffa (*Luffa cylindrica*), in north-eastern India. It is widely distributed in the neighbouring eastern countries and in SE. Asia. Brief notes on its colour variation and important diagnostic characters have been given earlier by the author (Kapur 1963). In respect of the number of elytral spots the material from the Andaman Islands is almost akin to the material from the plains of West Bengal (Calcutta and environs).

The species is characterized by the dentulate dorsal margin of the median lobe, and the presence of an eyelet near the apex of siphon in the male genitalia (Fig. 1A, B). In the female there is a circular notch on the inner margin of

the genital plates (ix sternite) (Fig. 1C). Further characters for distinguishing it from other species are given in the Key to the Species on p. 182.

2. *Epilachna septima* Dieke

(Figure 1D-F)

Epilachna septima Dieke 1947, *Smithson. misc. Collns.*, **106** (Type-loc.—Indochina, Annam, Phuc-son).

Epilachna keiseri Bielawski 1957, *Verh. Naturf. Ges. Basel*, **68**, 73-76 (Type-loc.—Ceylon) (*Syn. nov.*).

Material.—329 examples: INDIA: South Andaman, Cha-Bagicha, 29-2-1964 (35 exs.); Bamboo Flat Road, 6-3-1964 (1 ex.); Shoal Bay, 29-3-1964 (47 exs.), 3-4-1964 (12 exs.); Mannar Ghat, 30-3-1964 (30 exs.), 1-4-1964 (16 exs.), 2-4-1964 (17 exs.); Wright Myo, 2-4-1964 (44 exs.); Renga Chang, 7-4-1964 (10 exs.); Cowria Ghat, 8-4-1964 (53 exs.), 9-4-1964 (30 exs.); Chiria Tapu, 9-4-1964 (33 exs.); Burmah Nallah, 14-4-1964 (1 ex.) (all *B.S. Lamba* coll.).

Remarks.—This species is very widely distributed in India, its examples from the hilly parts of the Punjab, and from Uttar Pradesh, Bihar, West Bengal, Assam, Madhya Pradesh, Maharashtra, Andhra Pradesh, Mysore and Madras States being present in our collection. It is found commonly on bitter-gourd (*Momordica charantia*) in the country and superficially resembles *E. dodecastigma* (Wied.) in size and colouration. Generally speaking, the persistent median spot near the external margin does not touch the margin in *E. septima*, whereas it touches or lies over the external margin in *E. dodecastigma*. The apex of the elytron in the two species is rounded, while it is sharply angular at the tip in *E. vigintioctopunctata* (F.), a character by which the latter species can easily be distinguished from the other two species. In respect of their genitalic structures, the above-mentioned three species are quite distinct and have been referred to in the key to the species. Examples of this species from Malaya and Sumatra have also been seen by me and I believe that *Epilachna keiseri* Bielawski described from Ceylon is synonymous with this species. Bielawski (1957) described *E. keiseri* from two female examples and the two sketches of female genital plates given by him are in all essential details identical with those of *E. septima*; moreover, the two figures of the male genitalia (Figs. 11 and 12, lateral and ventral views respectively on p. 77 of Bielawski's paper) given by Bielawski for *Epilachna quinta* Dieke (originally described only from a female example) are identical with those of the male genitalia of *E. septima*. Obviously, Bielawski had placed the examples of the two sexes into two different species. I have checked up this point with the large number of examples of this species mentioned above and also with an equally large number from the other parts of India. It has, thereafter, been proposed to regard *E. keiseri* as a synonym (*Syn. nov.*) of *E. septima*.

3. *Epilachna vigintioctopunctata* (Fabricius)

(Figure 1G-I)

- Coccinella 28-punctata* Fabricius 1775, *Systema entomologiae* . . . (*Type-loc.*—Tranquebar).
Epilachna vigintioctopunctata (Fabricius): Mulsant 1850, *Annls. Soc. Agric. Lyon*, 2, 834.
Epilachna vigintioctopunctata (Fabricius): Crotch 1874, *Revision of Coccinellidae*, 87.
Epilachna vigintioctopunctata (Fabricius): Korschefsky 1931, *Coleoptm. Cat.*, 16, 26.
Coccinella sparsa Herbst 1786, in Fuessly's *Arch. Insectengesch.*, 6, 160 (*Type-loc.*—East Indies).
Epilachna sparsa (Herbst): Mulsant 1850, *Annls. Soc. Agric. Lyon*, 2, 837 (*Synonymy*).
Epilachna sparsa (Herbst): Korschefsky 1931, *Coleoptm. Cat.*, 16, 27.
Epilachna sparsa (Herbst): Dieke 1947, *Smithson. misc. Collns.*, 106, 32.

Material.—1 example (♂): Andaman Islands (Z.S.I. coll.; no further data).

Remarks.—The above-mentioned example is a male and its genitalia resemble the typical examples of the species from Karikal in the Tranquebar area (at lat. *ca.* 11° N., long. 79° 5' E.) on the east coast of India, south of Madras. The species is widely distributed in India and in most other countries in the east. It is variable in the number of spots (both elytral and pronotal) but can easily be distinguished from the preceding species, by the sharp and distinct sutural angle at the apex of the elytron and by the structure of the male and female genitalia.

Epilachna sparsa (Herbst) was synonymized with *E. vigintioctopunctata* (Fabricius) by Mulsant in 1850 and this synonymy was considered valid until 1947 when Dieke proposed the revival of the name *E. sparsa* and the application of the name *E. vigintioctopunctata* to the material before him from Australia, Bougainville Islands, Ceram Islands, Ceylon, Fulkora Islands, New Guinea and Samoa, although the type-locality of the latter was Tranquebar in India, as stated above. Besides, he did not examine types of these species. Under the circumstances it seems more appropriate to be guided by the type-locality and retain the name *E. vigintioctopunctata* (Fabr.) for the Indian material and continue to regard *E. sparsa* as its synonym.

In 1961 Li (*vide* Li and Cook 1961) erected the genus *Henosepilachna* with *Epilachna sparsa* (Herbst) as the type of the genus principally on the ground that the sixth visible abdominal sternite of the female was longitudinally divided, while this was not so in the case of *Epilachna borealis* (Fabricius), the type species of the genus *Epilachna* Chevrolat (1837). He further synonymized *Afissa* Dieke (1947) with *Epilachna* chiefly on the basis that the sixth abdominal sternite in *Afissa* Dieke (1947) was not divided longitudinally and that the basal tooth of the tarsal claw was absent. He admitted that (p. 32), 'One of the serious problems confronting the students is that of nomenclature in the subfamily.' This problem did not escape the notice of Dieke (1947, p. 8) who remarked as follows: 'The American species *E. borealis* (Fabricius), the genotype of *Epilachna*, has toothless claws but has the sixth abdominal

segment of the female divided. The question as to which of the Eurasian subdivisions should retain the name *Epilachna* rests, therefore, on whether the

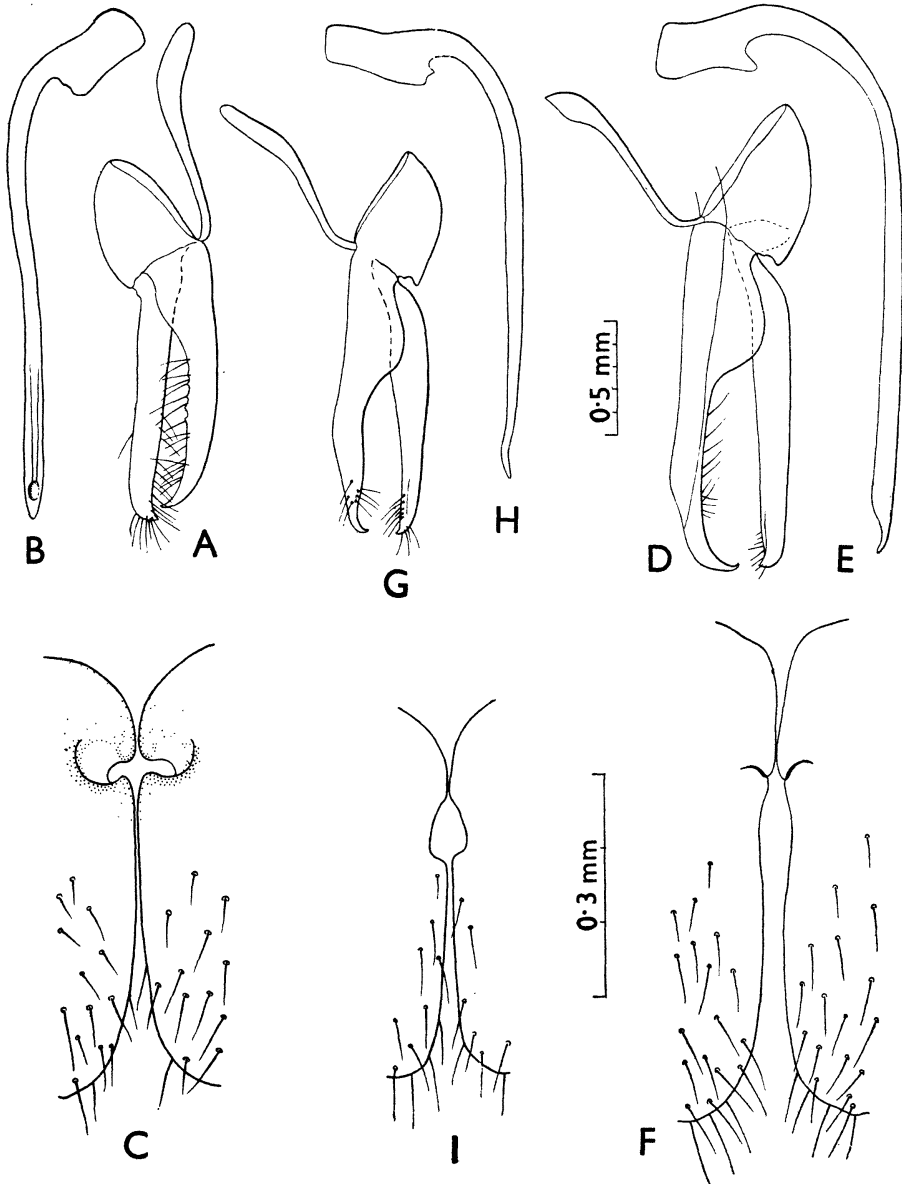


FIG. 1. A-C: *Epilachna dodecastigma* (Wied.). A, male genitalia except siph; B, siph; C, inner margins of the female genital plates showing the notch. D-F: *E. septima* Dieke. D, male genitalia except siph; E, siph; F, inner margins of the female genital plates. G-I: *E. vigintioctopunctata* (Fabr.). G, male genitalia except siph; H, siph; I, inner margins of the female genital plates. (0.5 mm scale for Figs. A, B, D, E, G, H; 0.3 mm scale for Figs. C, F, I).

structure of the claws or the structure of the female sixth segment is considered more important to make it the key character of the two genera. In order to change as little as possible in the present nomenclature, I shall adopt the division of the sixth segment of the female as the distinguishing character, which makes the toothed species congeneric with the type *borealis*, so that they will retain the name *Epilachna*. For the Eurasian species with undivided sixth female segment and toothless claws (equivalent to Weise's *Solanophila*), I propose the new name *Afissa*.⁷ On a re-examination of the female example of *E. borealis* it has been observed that the last or sixth abdominal sternite *appears* to be longitudinally divided in the middle, as the lateral parts are strongly chitinized and the median portion is soft and membranous. This subtle difference has obviously led Li to propose the new name *Heno-sepilachna*. There are, however, certain Asian species of the subfamily (e.g. *Epilachna enneactica* Mulsant) in which the sixth visible sternite in the female is partly divided, or divided to a large extent but joined at the middle of the base by a bridge (e.g. *Epilachna ocellata* Redtenbacher; *vide* Kapur 1952, p. 27 and Fig. 3b). Similarly, there appears to be little justification regarding *Afissa* Dieke as a synonym of *Epilachna* Chevrolat, as these show many points of distinction in the adult as well as in the larval stages (*see* larval descriptions of *Afissa dumerili* Mulsant and of *E. borealis* (Fabr.), *vide* Kapur 1950). The genital plates (ix sternite) in the female of *Afissa* are distinctly elongated and tubular whereas these are broad and flat in *Epilachna*. Until further detailed studies of the subfamily on a wider basis are conducted, I prefer to follow the classification and definitions of various genera given by Dieke (1947) and regard both *Epilachna* and *Afissa* as valid genera for the Eurasian and Australian species.

4. *Epilachna nevillei* Dohrn

Epilachna nevillei Dohrn 1880, *Stettin ent. Ztg*, **41**, 369 (*Type-loc.*—Andaman Islands).

Epilachna nevillei Dohrn : Korschefsky 1931, *Coleoptm. Cat.*, **16**, 30.

Remarks.—According to the original description given by Dohrn this species is stated to be superficially resembling *Epilachna chrysomelina* (F.). It is further stated that a close study shows considerable differences. The four black spots of elytra situated behind the thorax are not in a straight line but on a curve, the outer two spots are not advanced towards the shoulders but are placed more towards the apex; the inner two spots are not near or by the side of the scutellum but behind it. Dohrn further states that whereas the six inner spots in *E. chrysomelina* are situated at a distance from the suture in a straight line, in the Andaman *Epilachna* these lie as if on an almost oval ring. Besides, in the latter species there is an additional or seventh elytral spot which is somewhat smaller and situated near the shoulder-bole and close to the margin, but not touching it.

There is so much of variation in the spots of *Epilachna* species occurring in South Asia and South-East Asia that the above description would be applicable to a number of *Epilachna* species. It is quite possible that this species may have been described under another name.

5. *Epilachna processa* Weise

(Figure 2)

Epilachna wissmanni Mulsant ab. *processa* Weise 1908, *Stettin. ent. Ztg.*, 69, 217 (*Type-loc.*—

Tharrawaddy, Burma; described under the general title 'Coleoptera of East India').

Epilachna wissmanni Mulsant ab. *processa* Weise: Korschevsky 1931, *Coleoptm. Cat.*, 16, 32.

Henosepilachna processa (Weise): Li and Cook 1961, *Pacif. Insects*, 3, 45-46 (in part).

Material.—25 examples: 9 exs. from the Z.S.I. collection, as follows: INDIA: Andaman Islands (no further data available). 16 exs. from the British Museum (N.H.), London, collection as follows: Andaman Islands, 1 ex. (with no further data); (*Roepstroff* coll.) 4 exs.; (*Atkinson* coll.) 3 exs.: (*Capt. Wimberley* coll.) 5 exs. (no further data in any case); Nicobars (*Roepstroff* coll.) 3 exs. (no further data available).

Six more examples as follows: MALAYA: Penang; (*Pascoe* coll.) 1 ex.; Perak, Batang, Padang, Jor Camp, 1,800 ft., 13-6-1926; (*I. Kedit* coll.) 1 ex. BURMA: Rangoon; (*Atkinson* coll.) 1 ex. (with no further data); Tenasserim; (*Adamson* coll.) 1 ex.; (*Doherty* coll.) 1 ex. INDIA: Bombay, 1 ex. (all *B.M.* material).

Remarks.—*Epilachna processa* Weise (*Type-loc.*—Tharrawaddy) was originally described as an aberration of *Epilachna wissmanni* Mulsant (*Type-loc.*—Celebes). It has recently been regarded as a distinct species by Li and Cook (1961). The ♀ co-type of *processa* in Mr. H. E. Andrews' collection from Tharrawaddy is present in the British Museum (N.H.), London. Li and Cook's figures (No. 49 and 50) of the female genitalia, based on the Taiwan material, are stated to have been checked with the female genitalia of the said co-type. While these agree *generally* with those of the female examples in the material enumerated above in this paper, the male genitalia do not tally with the figures and description given for the material from Taiwan by Li and Cook. The main difference lies in the fact that the median lobe bears a number of large (generally one to three) to small (two to three) teeth in the middle which are clearly seen in the lateral view (Fig. 2E, F, G). The female genital plates (Fig. 2L) are rather rectangular, unlike the somewhat different and rather subtriangular plates in the Taiwan material; the two resemble, however, in respect of the outline of the notch on the inner margin of abdominal plates. On account of these structural differences in the genitalia, especially of the male, and to some extent due to the differences in the elytral spots referred to below, the present author is of the opinion that the Taiwan material, and the Indian and Burmese examples belong to different species

and, keeping in view that the co-type (the only example of type series so far studied or available for study) comes from Burma, it would be more appropriate to apply the name of *Epilachna processa* Weise to the material from the same or neighbouring geographical area, including the one under report.

Although the colouration, especially the number of elytral spots in this and similar other groups of species of the genus *Epilachna*, is very variable, it would be worth while stating briefly the description given by Weise for the material of *processa* examined by him. He stated that the pattern of the elytra was remarkable; there were seven black spots on each elytron arranged

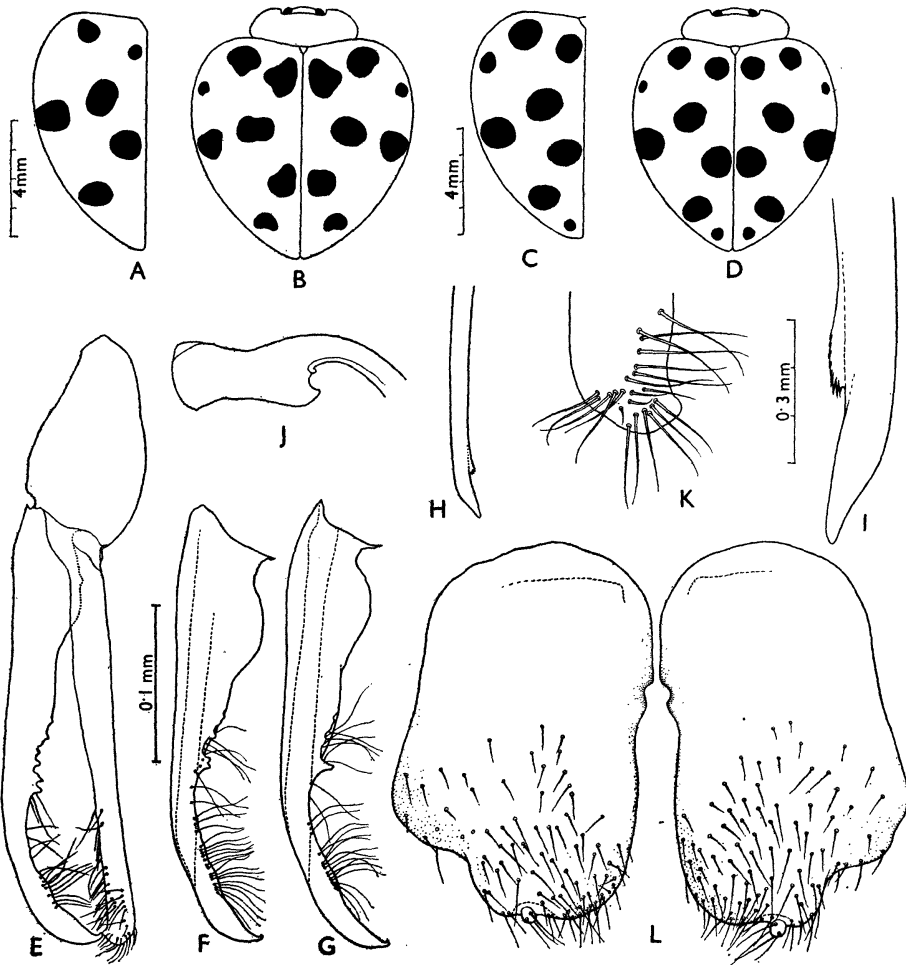


FIG. 2. *Epilachna processa* (Weise). A, C, right elytron showing pattern; B, D, outline of the beetle showing colour pattern; E, male genitalia except the siphus; F, G, median lobe of the male genitalia showing dentations; H, tip of the siphus; I, the same enlarged; J, the siphonal capsule; K, tip of the paramere, enlarged; L, female genital plates. (4 mm scale for Figs. A-D; 0.3 mm scale for Figs. E, I, K, L; 0.1 mm scale for Figs. F-H, J).

as 2, 1, 2, 2, of which one spot was located behind the shoulder-boil (*vide* Fig. 2B). He further stated that the variation of the pattern was towards two directions, as follows—the number of black spots gradually increases to 12 on each elytron, mostly in the following order: there appears a spot close to the apex (Fig. 2C, D); further there appears a spot each between the discal spot and the suture (Fig. 2C). Weise further states that three additional spots appear in the distal half, one near the suture and two in a straight line towards the external margin. All such examples were called by him as *ab. processa*. In the material before me from India and Burma (Tenasserim), certain examples with such arrangements of spots are present but these, being from the mainland, have not been sketched for the present paper.

The other direction mentioned by Weise, in which the elytral spots show variation, is by way of the union of different spots; as for example the coalescence of spots No. 3 and 5 or of Nos. 3 and 4, etc. For this set of examples or aberrations Weise had proposed the name *ab. forsteri*, but this problem does not confront us at present, as no example with this type of variation is present in the collection under report.

6. *Epilachna kaszabi* Bielawski and Fursch

(Figure 3)

Epilachna kaszabi Bielawski and Fursch 1960, *Mitt. münch. ent. Ges.*, 50, 68, Figs. 1-8 (*Type-loc.*—Burma: Rangoon).

Material.—18 examples: Andaman Islands—9 exs. in Z.S.I. coll. (no further data available); 9 exs. in *B.M.* material (*Capt. Wimberley* coll.), 6 exs.; (*Roepstroff* coll.), 1 ex.; 19-3-1904 (*G. Rogers* coll.), 1 ex.; (without further data) 1 ex.

Remarks.—*E. kaszabi* Bielawski and Fursch has been described in 1960 from Rangoon, Burma, from a couple of examples which nevertheless showed variation in the elytral pattern. The latter was illustrated together with the sketches of the male and female genitalia. All the 18 examples from the Andamans, however, show a relatively uniform elytral pattern which differs from the Burmese material in that the sutural spots on the two elytra are large and lie so close to their counterparts on the other elytron so as to appear as single, round spots (Fig. 3A). All other elytral spots are, in general, similar to those described for the Burmese material; as for instance the outer median spot broadly touches the external margin of the elytron. In respect of both the male and the female genitalia (Fig. 3B-D), the examples from Burma and the Andamans are comparable easily; the dorsal knife-blade on the median lobe as well as the shape of siphon in the male genitalia are similar. The female genital plates in the two are without any notch but rather plain on the inner margin and the genital papillae are prominent. In view of the

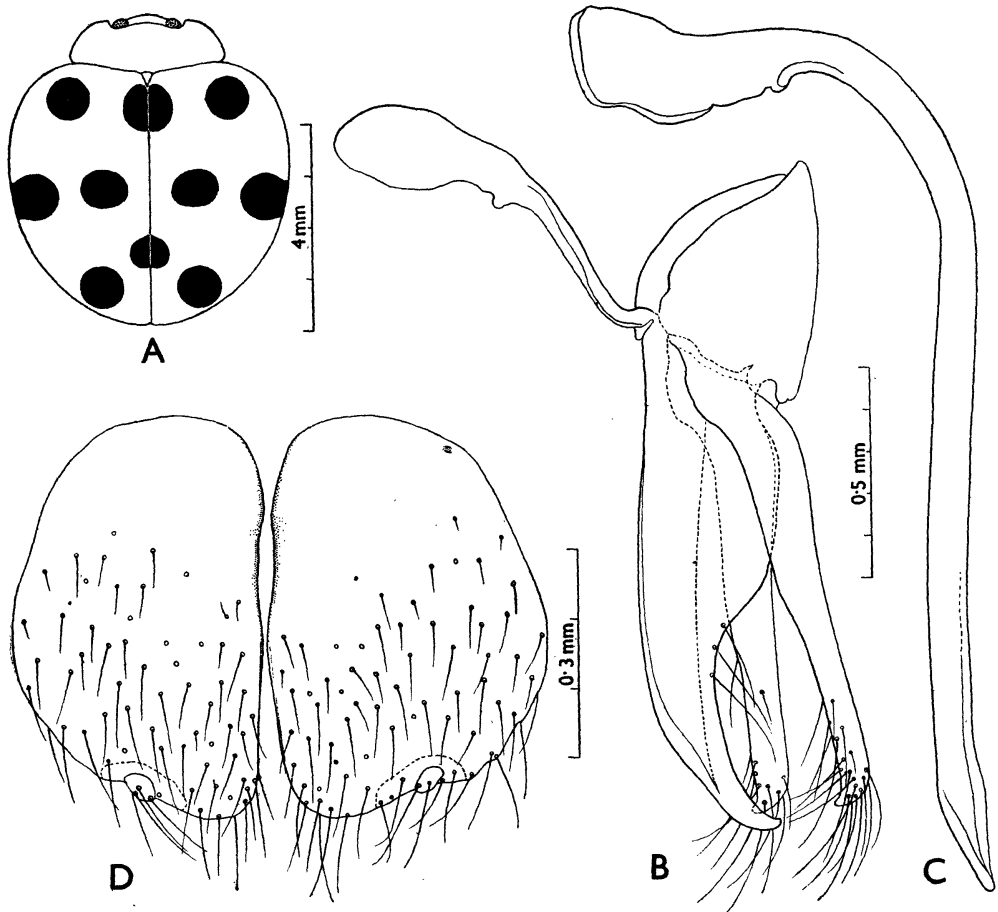


FIG. 3. *Epilachna kaszabi* Bielawski and Fursch. A, outline showing pattern; B, lateral view of the male genitalia except the siphon; C, siphon; D, female genitalia. (4 mm scale for Fig. A; 0.5 mm scale for Figs. B-C; 0.3 mm scale for Fig. D).

importance of genitalic characters in distinguishing species on the one hand, and the variability of elytral spots on the other, especially in the subfamily Epilachninae, I am inclined to regard the Andaman material as a species of *E. kaszabi*. Further collections, especially from the type-locality (Rangoon) would be necessary, however, for studying the extent of variation of the elytral pattern in the species.

It has been mentioned earlier that Korschefsky (1931) recorded *Epilachna pytho* Mulsant from the Andamans. The elytral pattern of *E. pytho* is similar to that in *E. kaszabi* mentioned above, *i.e.* there are two common, sutural spots and eight other distinct spots on the two elytra. I have examined the type of *E. pytho* Mulsant, now in Crotch's collection at the University Zoology Museum, Cambridge (U.K.), and find that the male genitalia of

the latter are quite distinct from those of *E. kaszabi*. It is quite possible that Korschefsky who did not examine the type or the genitalia of *E. pytho* may have misidentified the Andaman material as *E. pytho*. In fact, there is one specimen in the Z.S.I. collection mentioned above which bears the label *Epilachna pytho* but this is not in Korschefsky's handwriting, and does not bear the determiner's name.

7. *Epilachna pytho* Mulsant

Epilachna pytho Mulsant 1850, *Annls. Soc. Agric. Lyon*, 2, 777 (Type-loc.—Java).

Epilachna pytho Mulsant: Crotch 1874, *Revision of Coccinellidae*, p. 85.

Epilachna pytho Mulsant: Korschefsky 1931, *Coleoptm. Cat.*, 16, 31.

Remarks.—This species has been recorded from the Andamans by Korschefsky (1931). I have not seen an example of it from the Andamans although I have examined its type from Java, in Crotch's collection at Cambridge. There is one example in the collection of the Zoological Survey of India which bears the label *E. pytho* Muls., but on closer examination, including a dissection of the male genitalia, it has proved to be *Epilachna kaszabi* Bielawski and Fursch (see further remarks under that species).

8. *Afidenta mimetica simplex* Dieke

Afidenta mimetica subsp. *simplex* Dieke 1947, *Smithson. misc. Collns.*, 106, 110-11 (Type-loc.—Indo-China: Anam Province).

Material.—One example (♂): South Andaman, Ranikhari, 7-3-1961 (*A. Daniel* coll.).

Remarks.—The above-mentioned example has six spots in each elytron. It is a characteristic of the species that all the four pronotal spots are present in a row; these spots are rather faint in the present specimen. In Calcutta this subspecies feeds on bean leaves (Leguminaceae). The Indian material of the species is characterized by the presence of six spots on an elytron and therefore belongs to the subspecies *simplex* Dieke which is regarded here as a valid subspecies.

9. *Afissa dumerili* (Mulsant)

Epilachna dumerili Mulsant 1850, *Annls. Soc. Agric. Lyon*, 2, 801 (Type-loc.—East Indies).

Epilachna dumerili Mulsant: Crotch 1874, *Revision of Coccinellidae*, p. 82.

Epilachna dumerili Mulsant: Gorham 1901, *Stettin. ent. Ztg.*, 62, 213-14.

Afissa dumerili (Mulsant): Dieke 1947, *Smithson. misc. Collns.*, 106, 137.

Material.—One example: Andaman Islands (in Z.S.I. coll., no further data available).

Remarks.—The above example agrees with most of the material of the species from various parts of India and Burma and the East Indies, and agrees

with the revised description of the species given by Dieke. It bears an old and faded identification label reading *Epilachna dumerili* without the name of the determiner.

Subfamily II. COCCINELLINAE

Tribe (1)—NOVIINI

10. *Rodolia andamanica* Weise

Rodolia andamanica Weise 1901, *Annls Soc. ent. Belg.*, **45**, 93 (*Type-loc.*—Andaman Islands).

Rodolia andamanica Weise : Korschevsky 1931, *Coleoptm. Cat.*, **16**, 98.

Rodolia andamanica Weise : Kapur 1949, *Bull. ent. Res.*, **39**, 535.

Remarks.—The only examples of this species from the Andamans that I have examined are in the collection of the British Museum (N.H.), London. The species has been described by me earlier (Kapur 1949) and the important genitalic (♂ and ♀) characteristics of the species have been sketched. It is subhemispherical and uniformly rusty or light testaceous in colour, 4.8–5.2 mm long and 4.5–4.8 mm wide. It is further characterized by the median lobe of the male genitalia being constricted before its apex. The female is characterized by the spermatheca being transverse-oval distally and long and narrow proximally.

Tribe (2)—SCYMNINI

11. *Scymnus (Pullus) brunnescens* Motschulsky

Scymnus brunnescens Motschulsky 1863, *Bull. Soc. Nat. Moscou*, **36**, 425 (*Type-loc.*—Ceylon).

Pullus brunnescens (Motschulsky) : Weise 1900, *Dt. ent. Z.*, 437.

Scymnus (Pullus) brunnescens Motschulsky : Korschevsky 1931, *Coleoptm. Cat.*, **16**, 122 (in part).

Material.—24 examples : S. Andaman, Humphrygunj, 7-3-1964 (1 ex.); Wrafters Creek, Baratang, 12-3-1964 (1 ex.), 17-3-1964 (3 exs.); Katan, Baratang, 21-3-1964 (1 ex.); Mannar Ghat, 2-4-1964 (15 exs.); Chiria Tapu, 9-4-1964 (3 exs.) (all *B. S. Lamba* coll.).

Remarks.—Originally described from Ceylon, the species has since been recorded from India and several other Asian countries. I have seen its examples from Ceylon and the southern, central and eastern India, including West Bengal and Assam. It is distinct in its male genitalia from the Japanese material sometimes erroneously referred to this species.

12. *Scymnus (Pullus) pyrocheilus* Mulsant

Scymnus (Pullus) pyrocheilus Mulsant 1853, *Annls. Soc. Linn. Lyon*, **1**, 281 (*Type-loc.*—Calcutta).

Scymnus pyrocheilus Mulsant : Crotch 1874, *Revision of Coccinellidae*, London, p. 256.

Scymnus (Pullus) pyrocheilus Mulsant : Korschevsky, 1931, *Coleoptm. Cat.*, **16**, 144.

Scymnus pyrocheilus Mulsant : Kapur 1963, *Bull. Br. Mus. nat. Hist. (Ent.)*, **14**, 22.

Material.—16 examples (♂, ♀): South Andaman, Ranikhari, 7-3-1961 (*A. Daniel* coll.).

Remarks.—The above-mentioned material resembles very much the examples from the type-locality, *i.e.* Calcutta, where this species feeds on the lachanine scale-insects and occasionally on aphids.

13. *Scymnus andamanensis* sp. n.

(Figure 4)

Body subrounded, rather strongly convex, the maximum convexity being at a distance before the middle of the elytra. Head with frons reddish-testaceous, antennae and mouth-parts paler, eyes grey, pronotum black and the anterior angles castaneous. Scutellum and the basal two-thirds of elytra black, the apical one-third testaceous, its boundary line on each elytron convex, *i.e.* the convexity faces the base of elytra (Fig. 4A). Underside with prosternum and pronotal epipleurae dark to light castaneous, meso- and metasternum and elytral epipleurae black to almost piceous, legs testaceous except the castaneous coxae of the second and third pairs; abdominal sternites piceous in the middle, castaneous externally.

Head with frons having fine and fairly close punctation and moderately long, sparse and greyish pubescence which is directed towards the longitudinal median line. Pronotum about twice as broad as long, moderately convex in the middle and more so laterally; anterior angles subrounded, base very narrowly margined, punctation relatively large, not much impressed and rather sparse; pubescence grey, longer and sparser than that on the head, directed backwards in the middle and the basal parts, and rather irregularly wavy on the sides. Scutellum subtriangular, with straight base, pubescence and punctation similar to that on pronotum. Elytra fairly strongly punctate compared to that on pronotum but relatively less sparse; pubescence also similar to that on pronotum, mostly directed postero-laterally, more so near the apex. Underside with pubescence short, moderately close and depressed, the prosternal carinae subparallel and as wide apart as the base of prosternum; punctation on prosternum very fine and sparse; mesosternum with coarse and fairly close punctation; metasternum conspicuously convex except in the middle where it is flattened, punctation almost similar to that on mesosternum; abdominal lines incomplete; punctation on the abdominal sternites coarse in the median part but fine laterally.

Male genitalia with the basal piece and median lobe well developed (Fig. 4B); viewed from the side, the basal piece appears as long as the median lobe (Fig. 4C); parameres slightly longer than the median lobe, narrower in the apical half which also bears a few setae in a row (Fig. 4D); trapes slightly curved, nearly as long as the basal piece and median lobe combined, slightly knobbed at the apex; siphon (Fig. 4E) relatively slender, curved in the basal half, more or less straight distally, siphonal capsule with the outer arm

expanded and subequal to the narrower inner arm; thin, wing-like expansions (*w*) present at two-thirds the length of siphon.

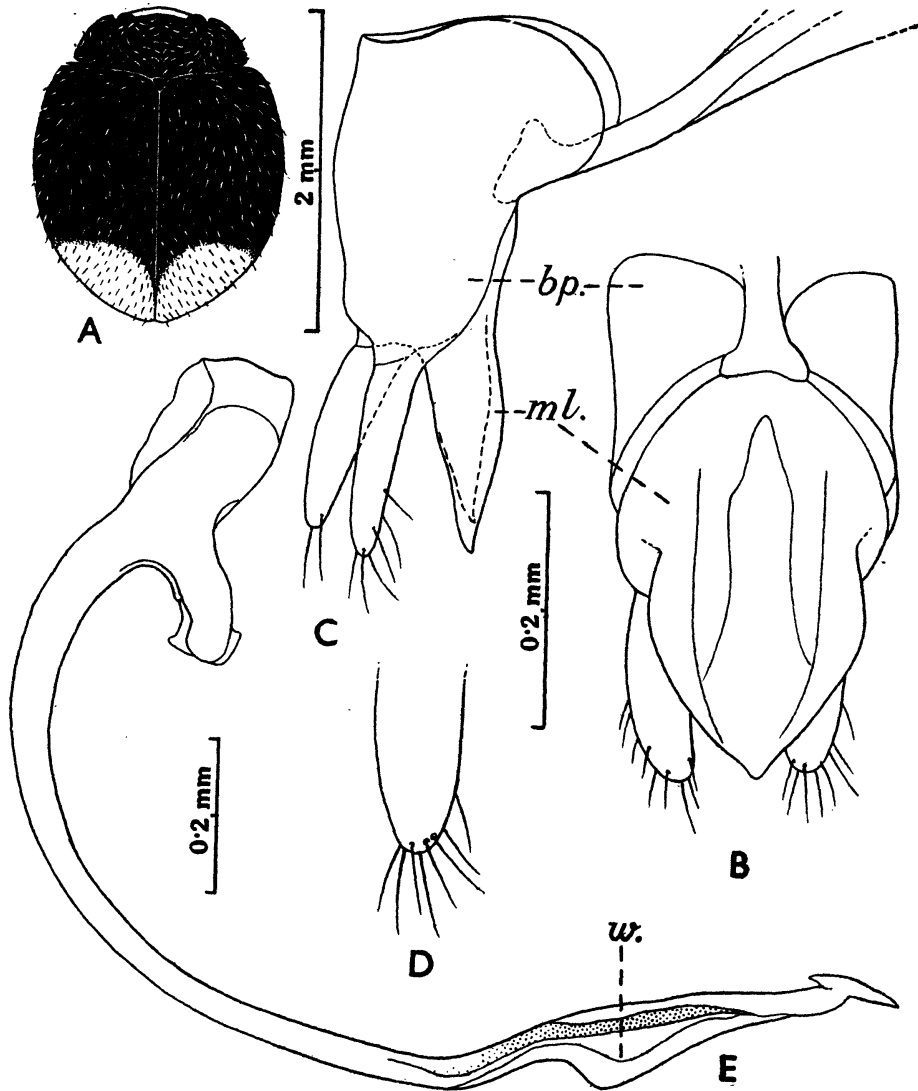


FIG. 4. *Scymnus andamanensis* sp. n. A, outline of the beetle showing pattern; B, front view of the male genitalia without the siphon; C, lateral view of the same (*bp.*, basal piece; *ml.*, median lobe); D, front view of the apical tip of the paramere; E, siphon (*w.*, wing-like expansions). (2 mm scale for Fig. A; 0.2 mm scale for Figs. B-E).

Length, 1.95 mm; breadth, 1.50 mm; altitude, 0.90 mm.

Holotype.—A male: INDIA: South Andaman, Humphrygunj (West of Port Blair), altitude 100 ft, 7-3-1964 (*B. S. Lamba* coll.); in the National

Zoological Collection, Z.S.I., Calcutta; Regd. No. 2284/H4A. Genitalia mounted between two cover-slips and attached to the same pin as the specimen.

Remarks.—This species is distinct in colour pattern from all the known oriental species of *Scymnus* (*Sens. str.*) but is quite similar in this respect to *Scymnus (Pullus) pyrocheilus* Mulsant (which also occurs locally and in eastern India) except that in the latter the pronotum is testaceous with a median, piceous, semicircular spot situated at the basal margin, whereas in *S. andamanensis* the pronotum is black except for the small castaneous area of the anterior angles. The two species are further distinguished by the abdominal lines on the first sternite; these are complete, *i.e.* these turn back to the basal margin in an even sweep, or a semicircle, in *pyrocheilus*, whereas in *S. andamanensis*, they are short of a semicircle and incomplete. The male genitalia in the two species are quite distinct; the basal piece and the median lobe are distinctly narrower in the case of *S. (P.) pyrocheilus* and its siphon is without any lateral, or wing-like, expansions that are so characteristic of the siphon in *S. andamanensis*.

14. *Nephus roonwali* sp. n.

(Figure 5)

Body small, oblong and moderately convex. Head light castaneous with dark grey eyes and light grey pubescence; pronotum almost uniformly light castaneous, with grey pubescence; scutellum castaneous; elytra for the most part testaceous to reddish-testaceous but dark brown to piceous at the base and along one-half to three-fourths the length of the median and lateral margins, dimensions of the dark brown area variable, when viewed from above, it appears like an elongate triangle with the vertex running along the suture (Fig. 5A); elytral pubescence grey. Underside mostly castaneous, with the meso- and metasternum and the median part of abdominal sternites darker; legs lighter than the latter.

Head with frons moderately fine, impressed and close punctation, and fine, moderately long and anteriorly directed pubescence; eyes finely faceted, with short, upright pubescence. Pronotum broadly emarginate anteriorly, posterior and anterior angles rounded, sides moderately so, the base narrowly margined; punctation similar to that on the frons but slightly coarser; pubescence fine and rather short, moderately close, directed postero-medially in the median area and postero-laterally on the sides. Scutellum relatively well developed, equilaterally triangular; with sparse and fine punctation and pubescence. Elytron with the shoulder-boil not prominent, a little over twice as long as wide, the apical and shoulder angles rounded; punctation similar to that on the pronotum but a little sparser; pubescence also similar but directed postero-laterally. Prosternum without carinae but with a

number of large but shallow punctures and a few short, sub-erect hairs; meso- and metasternum with small and sparse punctures in the middle and close punctures laterally. Abdominal sternites with a number of fairly close, large

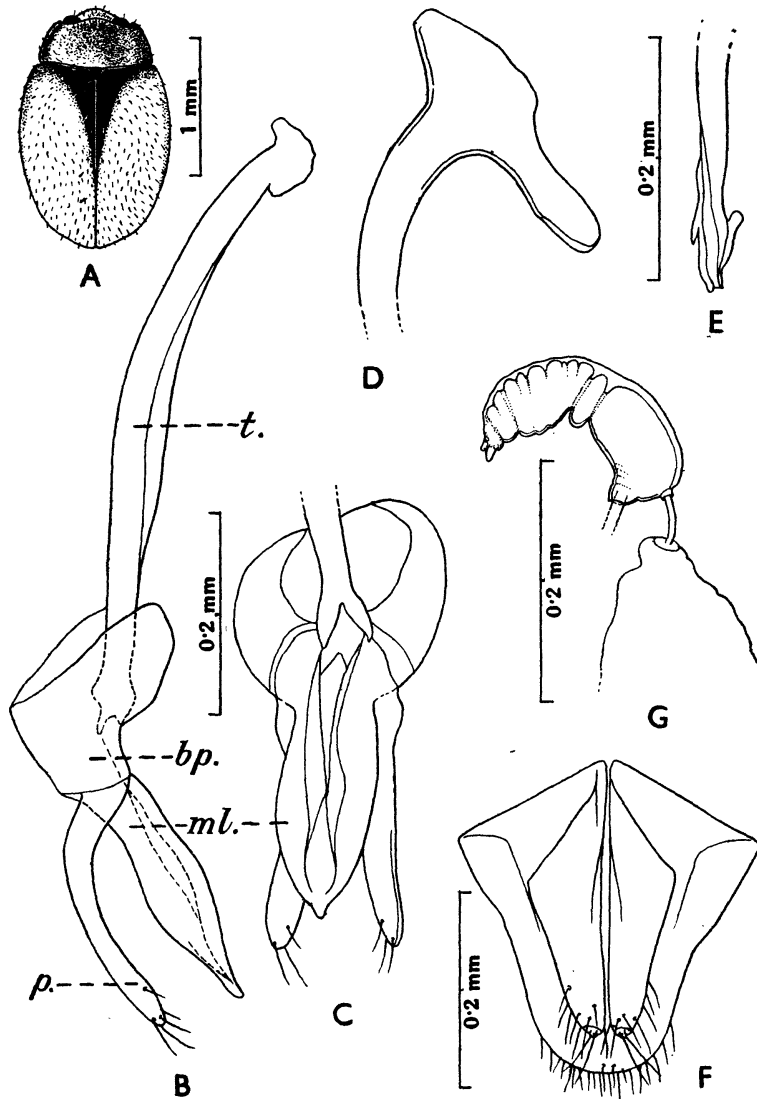


FIG. 5. *Nephus roonwali* sp. n. A, outline of the beetle showing pattern; B, lateral view of male genitalia except siphon (*t.*, trapes; *bp.*, basal piece; *ml.*, median lobe; *p.*, paramere); C, front view of the same; D, siphonal capsule enlarged; E, tip of the siphon; F, female genital plates; G, spermatheca. (1 mm scale for Fig. A; 0.2 mm scale for Figs. B-G).

to small punctures, size of the latter decreasing towards the apical sternites; abdominal lines almost semicircular but incomplete with the distal end neither

reaching the sides nor extending much towards the base of the sternite; punctuation on the lateral part of the sternite uniform.

Male genitalia (Fig. 5B) with the basal plate (*bp*) subrounded, trabes (*t*) long and slender, median lobe (*ml*) elongate, nearly twice as long as wide, gradually narrowed in the distal one-fourth of the length to a pointed apex; parameres (*p*) also elongate, nearly as long as the median lobe, and with a few setae at the apex; siphon (Fig. 5D, E) regularly curved in the proximal two-thirds and straight distally, the siphonal capsule rather bulbous, with the inner arm narrow and long compared to the outer one which is short and subtriangular; the pre-apical part of siphon slightly enlarged and almost lancet-shaped. Female with the genital plates (ix sternite) triangular, elongated (Fig. 5F), with the base about one-third the length of the plate; spermatheca (Fig. 5G) well developed, almost semicircular but constricted in the middle, with the apical half having a few circular striations and a pair of pointed projections at the apex.

Length, 1.70 mm; breadth, 1.05 mm.

Holotype.—A male: INDIA: Calcutta (Nelgunge, environs of north Calcutta), 13-11-1957 (*A. P. Kapur* coll.); in the National Zoological Collection, Zoological Survey of India, Calcutta; Regd. No. 2301/H4A. Genitalia mounted between two cover-slips and borne on the same pin as the specimen. *Paratype*.—A female (*Allotype*): INDIA: South Andaman, Chiria Tapu, south of Port Blair, lat. 11° 27' N., long. 92° 43' E., 9-4-1965 (*B. S. Lamba* coll.); also in the Zoological Survey of India, Calcutta; Regd. No. 2302/H4A; ♀ genitalia dissected and mounted as above.

Remarks.—The above-mentioned two examples compare with each other very well on the basis of external characters and as the species in this genus are recognized more readily by the male genitalic characters, the male example from the environs of Calcutta has been selected as the holotype.

In so far as other known Indian species of *Nephus* Mulsant are concerned, these are quite distinct in colour pattern from *N. roonwali*. *Nephus bistillatus* Mulsant, for instance, has an obtriangular black spot of about two-thirds the length of the pale testaceous elytron; its body is also relatively rounded. *Nephus regularis* Sicard (1929) is also more rounded and is light brown in body colour with a roundish, dark brown and rather large median spot on the elytra. *Nephus severini* Weise has distinct ornamental colouration on the elytra. Among the exotic species which may be of some interest in relation to the presently described species, mention may be made of the following two species. *Nephus luteus* Sicard, described from Celebes, is pale brown throughout, larger in body size (2.8 mm) and has the punctuation of elytra coarser than that on the pronotum. *Nephus roonwali* resembles somewhat in colour pattern and body form *Nephus adenensis* Kapur (1951), described from Aden and Yemen. In *N. adenensis* the colouration along the

base and suture of the elytra is brown and the rest of the elytra light brown, but it is a smaller species (1.5 mm long and 1.0 mm wide) and has the male genitalia different from the presently described species, particularly in respect of its stouter paramere which are slightly shorter than the median lobe; the siphonal capsule has a long outer arm, unlike the case in *N. roonwali*.

Tribe (3)—STETHORINI

15. *Stethorus gilvifrons* (Mulsant)

Scymnus gilvifrons Mulsant 1850, *Annls. Soc. Agric. Lyon*, 2, 995 (*Type-loc.*—Derbent).

Stethorus gilvifrons (Mulsant) : Weise 1885a, *Bestimm. Tabour. Coleopt.*, 2, 74.

Stethorus gilvifrons (Mulsant) : Kapur 1948b, *Bull. ent. Res.*, 39, 303.

Material.—One example (σ) : S. Andaman, Port Blair, Horticulture garden, Hadoo, 2-3-1964 (*B. S. Lamba* coll.).

Remarks.—It is a widely distributed species in India and Pakistan and is a well-known predator of plant mites. Its fuller description including the cardinal genitalic characters by which it could be recognized was given by me earlier (Kapur 1948a).

Tribe (4)—ASPIDIMERINI

16. *Pseudaspidimerus circumflexa* (Motschulsky)

Platynaspis circumflexa Motschulsky 1858, *Étud. Ent.*, 7, 118 (*Type-loc.*—Ceylon).

Aspidimerus circumflexa (Motschulsky) var. *testacea* Weise 1900, *Dt. ent. Z.*, 28, 423 (*Type-loc.*—Ceylon).

Pseudaspidimerus circumflexa (Motschulsky) var. *testacea* (Weise) : Kapur 1948, *Trans. R. ent. Soc. Lond.*, 99, 122.

Material.—Two examples : South Andaman, Ranikhari, 7-3-1961 (*A. Daniel* coll.).

Remarks.—These two examples belong to the variety *testacea* Weise which is found both in Ceylon and India. The former is the type-locality of the nomino-typical form as well as of the variety *testacea*. The species has been recorded earlier by me from Burma.

17. *Pseudaspidimerus lambai* sp. n.

(FIGURE 6)

Body subhemispherical, slightly longer than wide (Fig. 6A). Front of head and antero-lateral angles of pronotum testaceous in the male and reddish testaceous in the female. Elytra black except apical reddish testaceous margin. Underside also black except the clypeus, antennae,

mouth-parts, legs and elytral epipleurae which are reddish brown in the male and piceous in the female.

Head finely and sparsely punctate, pubescence fine and sparse, clypeus narrow and widely emarginate anteriorly, not covering the labrum fully.

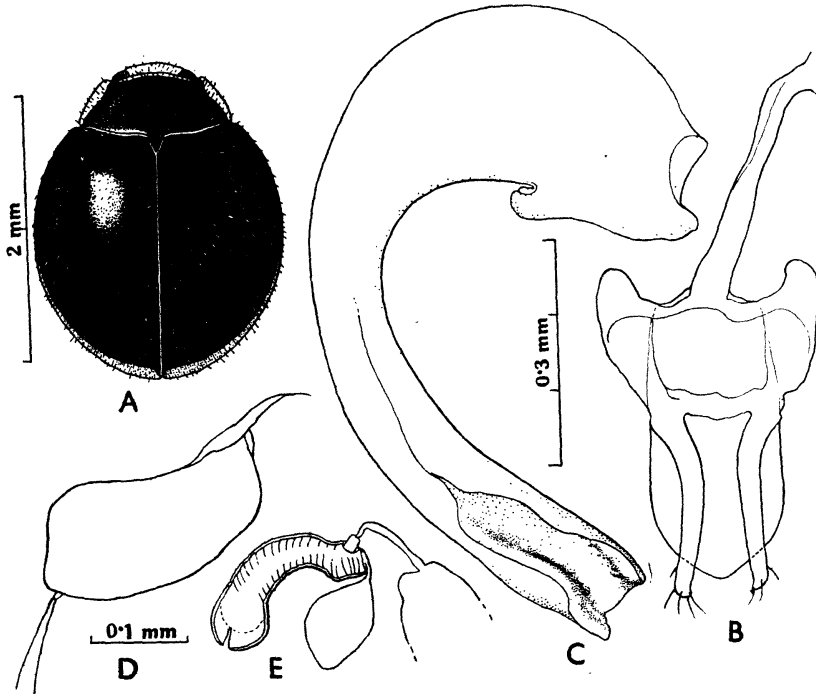


FIG. 6. *Pseudaspidimerus lambai* sp. n. A, outline of the beetle showing pattern; B, male genitalia except siphon; C, siphon; D, female genital plate; E, spermatheca. (2 mm scale for Fig. A; 0.3 mm scale for Figs. B, C; 0.1 mm scale for Figs. D, E).

Pronotum with moderately close, rather impressed and navel-like punctures, and short, greyish, moderately close, semi-erect, and laterally directed pubescence; narrowly margined at the base. Scutellum with sparse, very fine and less impressed punctation but with pubescence similar to that on pronotum. Underside with prosternal carinae subparallel, as wide apart as the base of prosternum, reaching the anterior margin, the enclosed area finely punctate; mesosternum finely and sparsely punctate; metasternum unevenly punctate, its median part with very fine and sparse punctures, the lateral parts with coarse, close and impressed punctures; inversely, in the basal four abdominal sternites, the coarse punctations are in the middle and the fine ones on the sides; pubescence fine, sparse, short and subdepressed throughout; the last visible abdominal sternite in the male moderately emarginate at the apex, rounded and entire in the female.

Male genitalia with the median lobe flattened, slightly narrower than the

basal piece and slightly longer than the width; sides subparallel for three-fourths the length, gradually narrowed to a broadly rounded apex in the apical one-fourth of the length (Fig. 6B); paramere filiform, a little longer than median lobe, with three or four fine and short setae at the apex; trabes long, narrow and dark at the base; siphonal capsule (Fig. 6C) large and swollen but not forming a bulb, slightly curved, opening at base of the capsule wide, remainder part of siphon also quite wide, with a very finely striated and sclerotized area near the apex opening. Female with genital plates (ix sternite) subquadrate (Fig. 6D), each bearing a very small papilla at the apex; spermatheca (Fig. 6E) strongly chitinized, with the cornu over four times as long and broad, slightly swollen towards the apex.

Length, 2.25 mm; width, 1.85 mm; altitude, 1.1 mm.

Holotype.—A male: INDIA: South Andaman, Burmah Nallah, altitude 100 ft, 14-4-1964 (*B. S. Lamba* coll.), in the National Zoological Collections, Zoological Survey of India, Calcutta; Regd. No. 2306/H4A. Male genitalia dissected and mounted between two coverslips and attached to the same pin as the specimen. *Paratype*.—A female (*Allotype*): INDIA: South Andaman, Humphrygunj, altitude 100 ft, 7-3-1964 (*B. S. Lamba* coll.), also in Z.S.I., Regd. No. 2307/H4A; ♀ genitalia dissected and mounted as above.

Remarks.—In general shape and outline the species resembles *Pseudaspiderus circumflexa* (Motschulsky), but is slightly smaller and quite distinct in colouration. *P. circumflexa* is brown in body colouration with at the most a semicircular basal spot on the pronotum and three black, roundish spots on the two elytra, as against the mostly black colouration in *P. lambai*.

In respect of the genitalia also the two species differ from each other: in *P. circumflexa* the median lobe is as broad as long, slightly narrowed near the apex, with the lateral margins subrounded and the apical median part broadly sinuate; its spermatheca is also larger, with a U-bend, and greatly expanded distal half (*vide* Kapur 1948, pp. 120-21, Pl. 1, Fig. 7). The shape of these structures is quite different in *P. lambai*. The only other species with which *P. lambai* may be compared is *P. flaviceps* (Walker 1859), on account of its body colouration, but here again the apical brownish part of the elytra is more conspicuous than that in *P. lambai*. In the latter species, the punctation is coarse, impressed and navel-like on the pronotum, and finer, shallower, and simple on the elytra; in *P. flaviceps* the punctation on the pronotum and elytra is similar to each other, being moderately fine, close, and well impressed. The genitalia in these two species are also easily distinguishable; the median lobe in *P. flaviceps* is nearly twice as long as broad, subparallel in the basal half and gradually narrowed in the apical half to form a conical apex (*vide* Kapur 1948, p. 123, Pl. 1, Fig. 9); the spermatheca in the latter is also more robust than that in *P. lambai* and swollen for three-fourths of its length. These two species are thus easily distinguished from each other.

Tribe (5)—TELSIMIINI

18. *Telsimia postocula* sp. n.

(Figure 7)

Body small nearly hemispherical, being slightly longer than wide (Fig. 7A). Head black except the reddish testaceous margin of clypeus and pale testaceous antennae and palpi. Pronotum and scutellum black; elytra also black except for a roundish, testaceous spot of approximately 0.4 mm diameter, situated just behind the middle of each elytron. Underside black; legs reddish testaceous.

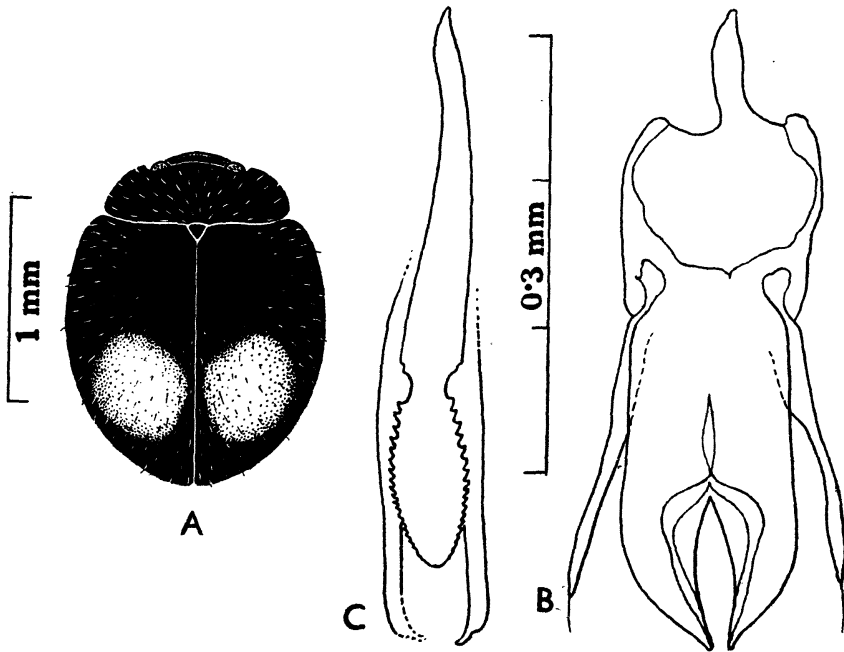


FIG. 7. *Telsimia postocula* sp. n. A, outline of the beetle showing pattern; B, male genitalia except siphon; C, siphon. (1 mm scale for Fig. A; 0.3 mm scale for Figs. B, C).

Head with punctation on frons very fine, moderately close and impressed; the pubescence greyish, fine, short, rather sparse and directed antero-laterally. Scutellum very small, triangular, with a few, very fine punctures. Elytra with the maximum convexity just before the middle, shoulder-boil indistinct, external margin very narrowly bordered from the shoulder-angle to the apex; punctation very fine, irregularly impressed and moderately close; pubescence similar to that on the pronotum but directed postero-laterally. Underside with fine and sparse punctation except on the lateral parts of metasternum where it is relatively coarse and close; metasternum moderately

convex; abdominal lines incomplete, running parallel and close to the posterior margin of the first abdominal sternite before reaching the lateral margins; the second, third and fourth sternites each with scattered punctures which are small and not arranged in one or more rows; the last or fifth visible abdominal sternite large, in the male slightly truncate at the apex.

Male genitalia with the basal plate subquadrate, narrowly projected forward (Fig. 7B); median lobe tubular, nearly as broad as the basal piece and nearly twice as long, subparallel laterally except for the apical one-fourth of the length, where it is gradually narrowed and curved, the apex bifid to almost as far as one-third the length of median lobe; parameres slightly shorter than the latter, very slender and each with a short hair at the apex; siphon (Fig. 7C) well developed, trifid in the apical half, the median part being oblong and finely serrate at the lateral margins, the lateral parts subequal but slender.

Length, 1.60 mm; width, 1.25 mm; altitude, 0.70 mm.

Holotype.—A male: INDIA: South Andaman, Port Blair, Hadoo, Horticultural Garden, on coconut plant, 2-3-1964 (*B. S. Lamba* coll.); in the National Zoological Collections, Zoological Survey of India, Calcutta; Regd. No. 2308/H4A. Male genitalia dissected and mounted between two coverslips and attached to the same pin which bears the specimen.

Remarks.—The species comes close to *Telsimia ceylonica* (Weise) in body-size and form, but is easily distinguishable from it by the following characters. The elytra in *T. ceylonica* are entirely black, whereas in *T. postocula* there is a pair of testaceous, post-median spots on the elytra. In the former the punctation on the pronotum is fine in the middle and coarse laterally, while it is uniformly fine in the present species. The second, third and fourth abdominal sternites each has a *single row* of large punctures in *T. ceylonica*, while in *T. postocula* the punctures are small and irregular. The male genitalia of the genus *Telsimia* which have apparently not been studied before also offer very useful characters for distinguishing the various species. In *T. ceylonica* the median lobe is elongate and not bifid at the apex and the siphon is long, thin and with a bulbous apex, while in *T. postocula* the genital structures are more compact and differently shaped, as already described above.

The genus *Telsimia* Casey (1899) is an old-world genus; some members of which have been reported to be valuable predators on armoured or diaspidine scale-insects. For example, *Telsimia nitida* Chapin feeds on the coconut scale, *Aspidiotus destructor* Signoret, in Guam; *Telsimia emarginata* Chapin, introduced from Foochow (China) into California, feeds on various diaspidine scale-insects infesting citrus fruits (*vide* Chapin 1926). The species described here has been collected from coconut plants; which are usually attacked by scale-insects, and observations on its feeding habits in the Andamans are likely to be of interest.

Tribe (6)—CHILOCORINI

19. *Chilocorus nigritus* (Fabricius)

Coccinella nigrita Fabricius 1798, *Suppl. Ent. Syst.*, p. 79 (*Type-loc.*—East Indies).

Chilocorus nigritus (Fabricius): Mulsant 1850, *Annls. Soc. Agric. Lyon*, 2, 463.

Chilocorus nigritus (Fabricius): Crotch 1874, *Revision of Coccinellidae*, p. 184.

Chilocorus nigritus (Fabricius): Korschefsky 1932, *Coleoptm. Cat.*, 16, 240.

Material.—20 examples: South Andaman, Port Blair, Horticulture garden, Hadoo, 2-3-1964 (3 exs.); Humphrygunj, 4-3-1964 (11 exs.); Wright Myo, 31-3-1964 (5 exs.); Burmah Nallah, 12-4-1964 (1 ex.) (all *B. S. Lamba* coll.).

This species is widely distributed in India and neighbouring countries in the east.

Remarks.—It is an important predator on armoured or diaspidine scale-insects some of which are pests of plantations. Its presence, therefore, in the Andamans is worthy of note. In all the examples the lateral parts of the pronotum are testaceous while the median surface is shining black.

20. *Chilocorus coelosimilis* sp. n.

(Figure 8)

Body subhemispherical; distinctly larger than *Chilocorus nigritus* (Fabricius) but a little smaller than *Chilocorus circumdatus* (Schönherr 1808); reddish testaceous except the dark grey eyes, the black, oblique, oval, apical spot which extends narrowly for a short distance along the external margin of each elytron (Fig. 8A). Underside testaceous except the piceous distal one-third of the elytral epipleurae.

Head with moderately fine, impressed and rather sparse punctation, and very fine, short and depressed pubescence which is directed anteriorly; eyes finely faceted with the inner margins subparallel, and the apical angles subrounded (Fig. 8B); clypeus weakly emarginate in the middle. Pronotum strongly convex, lateral margins slightly rounded and narrowly bordered; punctation very fine and sparse in the median part, rather coarse, impressed and relatively close on the sides which have a few short hairs. Scutellum small, triangular and almost impunctate. Elytra strongly convex, shoulder-boil indistinct, shoulder-angles rounded and slightly relieved or elevated in relation to the base of the pronotum, very narrowly bordered externally; glabrous; punctation fine and sparse, for the most part, similar to that on the median part of pronotum, coarse, impressed and relatively close towards the external margin. Underside with the thoracic epipleurae shallowly impressed, elytral epipleurae quite deep; meso- and metasternum finely and sparsely punctate except that in the latter case the punctations are coarse and rather close on the sides; the area basal to the abdominal lines (on the

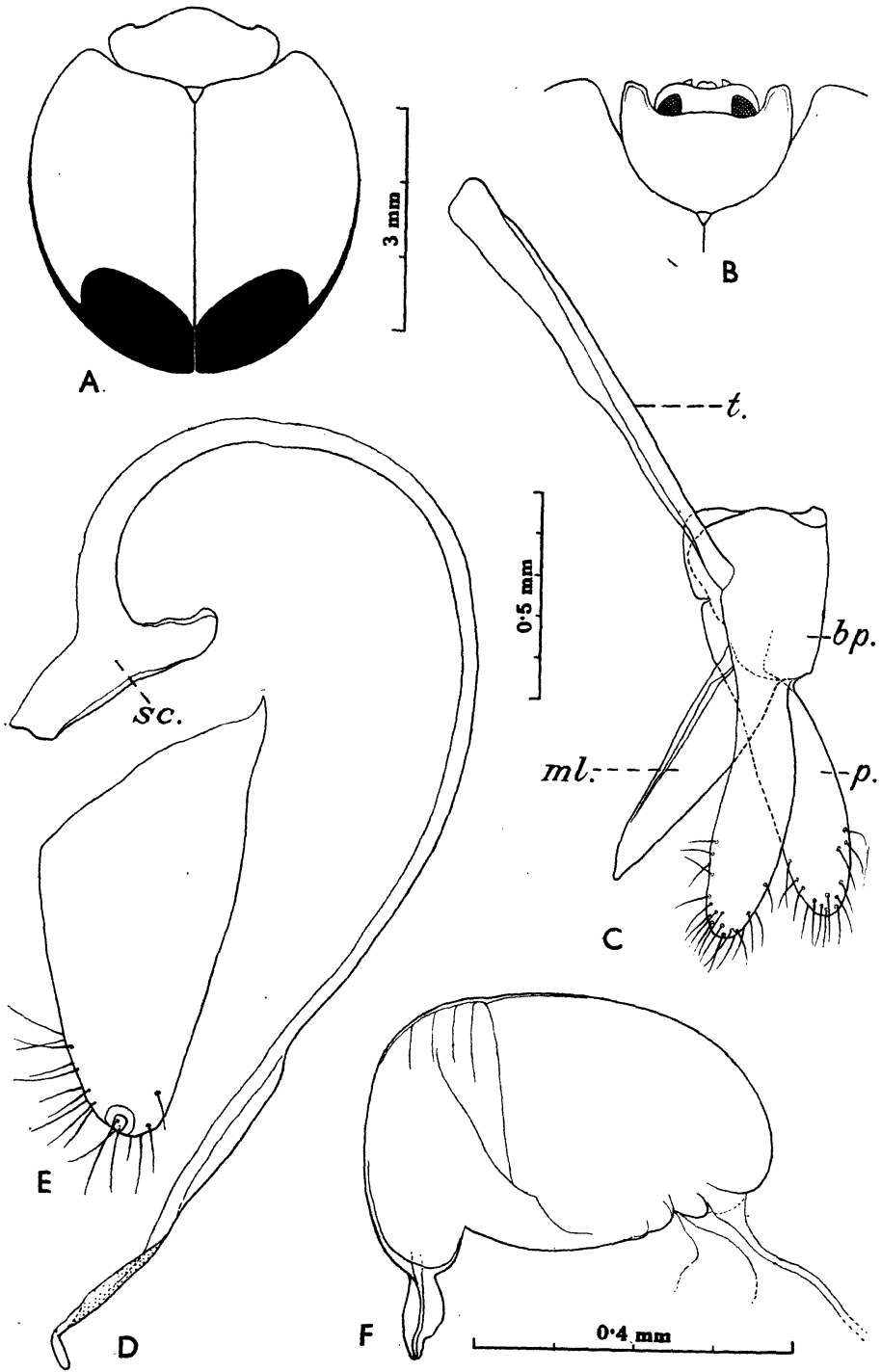


FIG. 8.

1st abdominal sternite) impunctate; the remainder of the first sternite and all the other sternites having fine and sparse punctation; the last visible sternite slightly truncate at apex in the male, entire in the female; pubescence on the underside very short, sparse and depressed.

Male genitalia (Fig. 8C) with the median lobe (*ml*) moderately long, about four times as long as broad at the base, subconical, gradually narrowed to a pointed apex; parameres (*p*) elongate and nearly as long as the median lobe, with a few moderately long hairs in the apical half; trabes (*t*) long and straight; siphon (Fig. 8D) semicircular in the basal half, straight distally, the inner arm of siphonal capsule a little shorter and narrower than the outer arm. Female with each genital plate subtriangular (Fig. 8E), with a subrounded apex; papilla small, bearing a few long setae; spermatheca (Fig. 8F) suboval, about three-fourths as long as wide, slightly broadened at the distal end which has a short and narrow protuberance.

Length, 4.0–5.2 mm; width, 3.6–4.6 mm; altitude 2.0–2.3 mm.

Holotype.—A male: INDIA: South Andaman, Port Blair, Burmah Nallah, altitude 150 ft, 12-4-1964, on coconut plant (*B. S. Lamba* coll.); in the National Zoological Collections, Zoological Survey of India, Calcutta; Regd. No. 2309/H4A. Male genitalia dissected and mounted between two coverslips and on the same pin as the specimen. *Paratypes*.—33 specimens in all as follows: A female (*Allotype*), with the same data as the holotype, also in the Zoological Survey of India; Regd. No. 2310/H4A; female genitalia dissected and mounted as above. Other paratypes as follows: 14 specimens (males and females) with the same data as the holotype; 1 specimen, Port Blair, 2-3-1964, on coconut plant; 6 specimens, Port Blair, Humphrygunj, 150 ft, 4-3-1964, on coconut plant; 4 specimens, Port Blair, Burmah Nallah, 100 ft, 14-4-1964; 4 specimens, Port Blair, Burmah Nallah, 150 ft, on coconut plants (all *B. S. Lamba* coll.). 1 male, Mimie Bay, near Port Blair, 25-2-1925, 'feeding on yellow scale on coconut' (*P. V. Isaac* coll.); 1 male, North Bay, Port Blair, 18-28-2-1925 (*P. V. Isaac* coll.); 1 ex. Port Blair, 1-3-1925 (*Shafi* coll.). Most of the types are in Z.S.I., some will be deposited in the Indian Agricultural Research Institute, New Delhi, the Forest Research Institute, Dehra Dun, and elsewhere.

Remarks.—The species is similar to *C. circumdatus* (known from eastern and southern India, Ceylon and Indonesia) in colouration except that in *C. circumdatus* the external margins of elytra are bordered black throughout and that the apical black spot on each elytron is absent. The punctation is relatively fine and sparse in *C. circumdatus* and the interspaces are smooth and

FIG. 8. *Chilocorus coelosimilis* sp. n. A, outline of the beetle showing pattern; B, front view of head and pronotum, enlarged; C, male genitalia except siphon (*t*, trabes; *bp*, basal piece; *ml*, median lobe; *p*, paramere); D, siphon (*sc*, siphonal capsule); E, female genital plate; F, spermatheca. (3 mm scale for Figs. A, B; 0.5 mm scale for Figs. C, D; 0.4 mm scale for Figs. E, F).

shining. In respect of the male genitalia the two species also differ. In *C. circumdatus* the median lobe is narrower, being about five times as long as its width at the base; the siphon is moderately curved throughout including the distal half, and the siphonal capsule is more or less funnel-shaped. The spermathecae in the two species differ in their outlines; in *C. circumdatus* it is widest in the middle and not broadened distally—unlike the case in *C. coelosimilis*.

It is likely that *C. coelosimilis* may prove to be of some economic interest as a predator of the yellow scale-insects.

21. *Brumus lineatus* Weise

(Figure 9A)

Brumus lineatus Weise 1885b, *Stettin. ent. Ztg.*, **46**, 229 (Type-loc.—Burma).

Brumus lineatus Weise 1900, *Dt. ent. Z.*, **28**, 422.

Brumus lineatus Weise : Korschefsky 1932, *Coleoptm. Cat.*, **16**, 265.

Material.—Two examples : South Andaman, Mannar Ghat, 3-4-1964 (*B. S. Lamba* coll.).

Remarks.—Recorded earlier by Weise (1885, 1900) from Burma and Ceylon, this species is closely related to *B. suturalis* (Fabr.) which is widely distributed in the Oriental Region. It is, however, darker in colouration (Fig. 9A), generally smaller and, above all, more coarsely punctate than *B. suturalis*. The male genitalia in the two also show differences in the size and outline of the median lobes and siphon.

Tribe (7)—SYNONYCHINI

22. *Synonymyha grandis* (Thunberg)

(Figure 9B)

Coccinella grandis Thunberg 1781, *Novae Insectorum Species*, **1**, 12 (Type-loc.—China).

Synonymyha grandis (Thunberg) : Mulsant 1850, *Annls. Soc. Agric. Lyon*, **2**, 230.

Synonymyha grandis (Thunberg) : Crotch 1874, *Revision of Coccinellidae*, p. 171.

Synonymyha grandis (Thunberg) : Korschefsky 1932, *Coleoptm. Cat.*, **16**, 268.

Material.—One example : Andaman Islands. (No further data available; in Z.S.I. coll.).

Remarks.—This large and beautiful species is widely distributed in the Oriental Region and is also found in Japan. In India it has been recorded from Madras State (Coimbatore) and Mysore State (Bangalore, Belgaum and Kanara). In the Z.S.I. collection examples from Darjeeling district and Sikkim are also present.

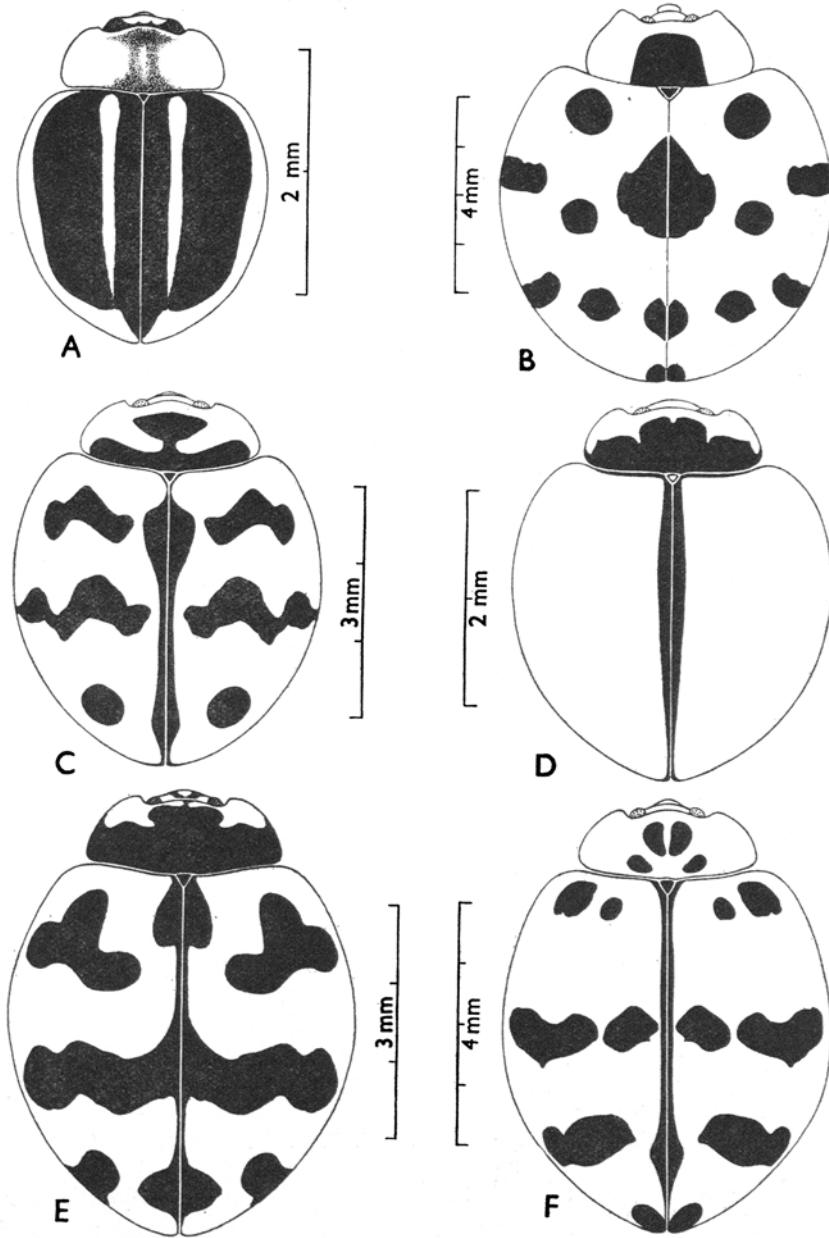


FIG. 9. Outlines showing pattern—A, *Brumus lineatus* Weise; B, *Synonycha grandis* (Thunberg); C, *Menochilus sexmaculatus* (Fabricius); D, *Verania discolor* (Fabricius); E, *Coccinella transversalis* Fabricius; F, *Harmonia arcuata* (Fabricius). (2 mm scale for Figs. A, D; 3 mm scale for Figs. C, E; 4 mm scale for Figs. B, F).

23. *Coelophora unicolor* (Fabricius)

(Figure 10)

Coccinella unicolor Fabricius 1792, *Ent. Syst.*, 1, 267 (*Type-loc.*—India).*Coelophora unicolor* (Fabricius) : Mulsant 1850, *Annls. Soc. Agric. Lyon*, 2, 413.*Coelophora caliginosa* Mulsant 1850, *Annls. Soc. Agric. Lyon.*, 2, 414 (*Type-loc.*—Pondicherry).*Coelophora unicolor* (Fabricius) var. *caliginosa* Mulsant : Weise 1892, *Annls. Soc. ent. Belg.*, 36, 21.*Coelophora unicolor* (Fabricius) var. *cinctipennis* Weise 1892, *Annls. Soc. ent. Belg.*, 36, 20 (*Type-loc.*—Chota Nagpur).*Coelophora unicolor* (Fabricius) var. *signata* Weise 1892, *Annls. Soc. ent. Belg.*, 36, 21 (*Type-loc.*—Chota Nagpur).*Coelophora unicolor* (Fabricius) : Korschefsky 1932, *Coleoptm. Cat.*, 16, 297.

Material.—Nine examples : South Andaman, Mannar Ghat, 25-3-1964 (B. S. Lamba coll.).

Remarks.—This species is widely distributed in different parts of India and is so variable in colour that some nine varieties have already been named and recorded in Korschefsky's catalogue (1932); besides, there exist several intermediate forms which have not been named at all. Some of these varieties were earlier described as distinct species but were subsequently (as more material came to hand for study) reduced to varietal status. In the nomotypical form the colour is uniformly reddish-brown but this has not so far been collected from the Andamans. The nine examples from Mannar Ghat, S. Andaman, have each more or less different patterns (Fig. 10A-F) and seem to belong to the varieties *caliginosa* (Mulsant), *signata* (Weise) and *cinctipennis* (Weise). The male and female genitalia are as in the nomotypical form. In the collection of the Zoological Survey of India there are a number of further examples of this species from other parts of India and the genitalic characters in the material examined are similar.

24. *Menochilus sexmaculatus* (Fabricius)

(Figure 9C)

Coccinella sexmaculata Fabricius 1781, *Spec. Ins.*, p. 96 (*Type-loc.*—East Indies).*Menochilus sexmaculatus* (Fabricius) : Timberlake 1943, *Bull. Hawaiian Sug. Plrs' Ass. Exp. Stn. (Ent. series)*, No. 22, 47, 40-41.*Menochilus sexmaculata* (Fabricius) : Kapur 1958, *Rec. Indian Mus.*, 53, 333.

Material.—31 examples : North Andaman, Mayabundar, 21-2-1959 (2 exs.) (K. K. Tiwari coll.); South Andaman, Port Blair, Horticulture garden, Hadoo, 2-3-1964 (3 exs.); Mannar Ghat, 23-3-1964 (1 ex.), 25-3-1964 (11 exs.); Shoal Bay, 2-93-1964 (2 exs.); Cowria Ghat, 9-4-1964 (6 exs.); Burmah Nallah, 12-4-1964 (6 exs.) (B. S. Lamba coll.).

Remarks.—This Oriental species is widely distributed in India and generally in the Indo-Malayan subregion. Its size and colour-pattern are very

variable. The examples from the Andamans resemble those from eastern India where it is a common aphidivorous species. A commonly found pattern of the species is shown in Fig. 9C.

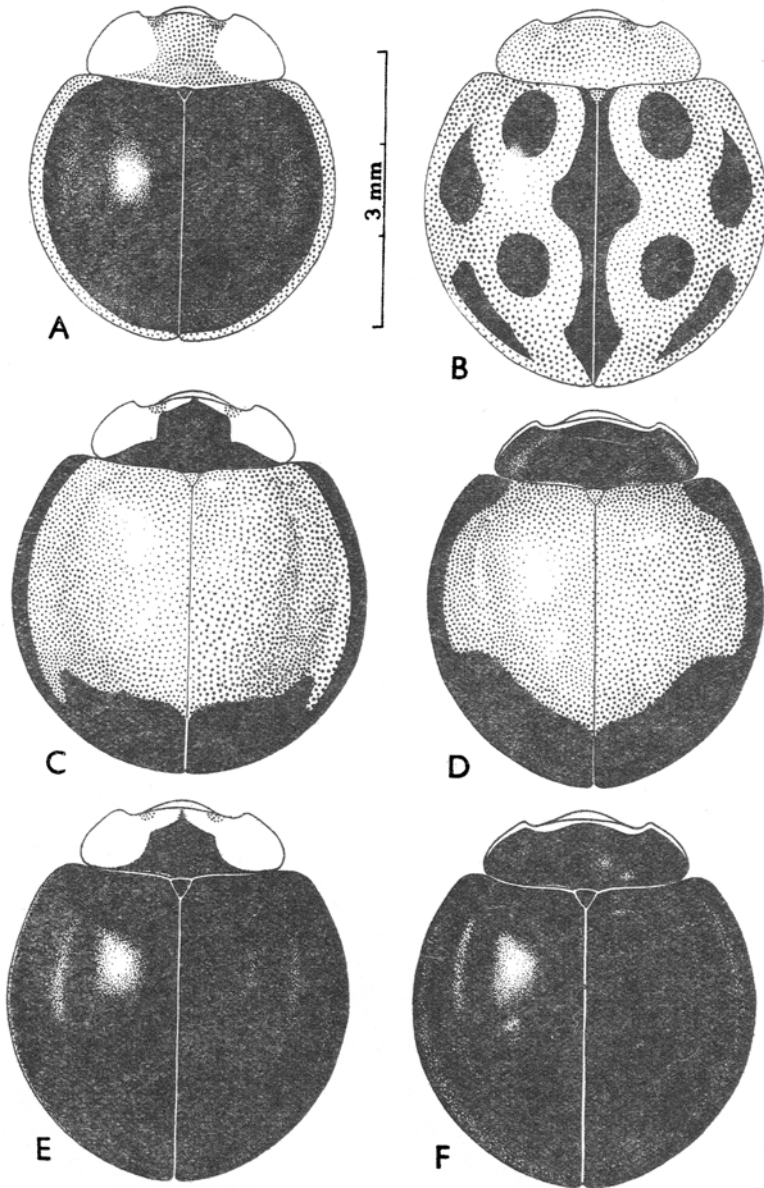


FIG. 10. *Coelophora unicolor* (Fabricius). A-F, outlines of the beetle showing variation in colour-pattern. (3 mm scale for Figs. A-F). (A, var. *caliginosa*; B, var. *signata*; C, var. *cinctipennis*).

25. *Verania discolor* (Fabricius)

(Figure 9D)

Coccinella discolor Fabricius 1798, *Suppl. Ent. Syst.*, p. 77 (*Type-loc.*—India).*Verania discolor* (Fabricius) : Mulsant 1850, *Annls. Soc. Agric. Lyon*, 2, 369.*Verania discolor* (Fabricius) : Korschefsky 1932, *Coleoptm. Cat.*, 16, 308.

Material.—533 examples : South Andaman, Port Blair, from paddy-field, 5-3-1959 (27 exs.); South Point, 6-3-1959 (4 exs.); Aberdeen Bay, 12-3-1959 (1 ex.); Sippighat, 15-3-1959 (50 exs.) (*K. K. Tiwari* coll.). Port Blair, Dairy Farm, 29-2-1964 (1 ex.); Jungli Ghat, 29-2-1964 (7 exs.); Horticulture garden, Hadoo, 2-3-1964 (13 exs.); Mannar Ghat, 24-3-1964 (76 exs.), 25-3-1964 (5 exs.); Shoal Bay, 29-3-1964 (1 ex.); Wright Myo, 1-4-1964 (55 exs.); Mannar Ghat, 3-4-1964 (25 exs.); Chiria Tapu 9-4-1964 (84 exs.), 11-4-1964 (26 exs.); Cowria Ghat 11-4-1964 (51 exs.); Burmah Nallah, 12-4-1964 (54 exs.), 13-4-1964 (18 exs.), 14-4-1964 (1 ex.) (*B. S. Lamba* coll.). Aberdeen Bay, 5-3-1961 (7 exs.); Ranikhari, nine miles from Port Blair, 7-3-1961 (18 exs.) (*A. Daniel* coll.). Little Andaman, Nachuge, 27-2-1961 (9 exs.) (*A. Daniel* coll.).

Remarks.—Described originally from India, the species is widely distributed in the Oriental Region and extends into the Palaearctic Region as far north as Japan. Its colour-pattern on the pronotum is variable. In India I have come across it more commonly in the coastal districts, generally near paddy-fields and on aquatic and semiaquatic vegetation. It generally feeds on aphids. The large number in which this species has been collected by all the three parties of Z.S.I. mentioned earlier is worthy of note. Its body outline and colour-pattern is shown in Fig. 9D.

Tribe (8)—COCCINELLINI

26. *Coccinella transversalis* Fabricius

(Figure 9E)

Coccinella transversalis Fabricius 1781, *Spec. Ins.*, p. 97 (*Type-loc.*—Coromandel).*Coccinella transversalis* Fabricius : Timberlake 1943, *Bull. Hawaiian Sug. Plrs'. Ass. Exp. Stn.* (Ent. series), No. 22, p. 14.*Coccinella transversalis* Fabricius : Kapur 1962, *Proc. 1st All-India Congr. Zool.*, Calcutta, pp. 479-92.*Coccinella repanda* Thunberg 1781, *Novae Insectorum Species*, 1, 18.

Material.—74 examples : South Andaman, Port Blair, 16-3-1959 (1 ex.) (*K. K. Tiwari* coll.). Port Blair, Horticulture garden, Hadoo, 2-3-1964 (4 exs.); Humphrygunj, 8-3-1964 (2 exs.); Mannar Ghat, 25-3-1964 (14 exs.), 2-4-1964 (38 exs.), 3-4-1964 (7 exs.); Rengachang, 7-4-1964 (3 exs.); Cowria Ghat, 9-4-1964 (2 exs.); Burmah Nallah, 12-4-1964 (1 ex.), 13-4-1964 (2 exs.) (*B. S. Lamba* coll.).

Remarks.—Originally described from southern India, the species is very widely distributed in South-East Asia; it also extends to Japan in the north and Australia in the south. Its colour-pattern is variable and in certain populations it can be correlated with the geographical distribution of the species (see Kapur 1962). The material from the Andamans resembles in general the examples from Calcutta and environs.

27. *Harmonia arcuata* (Fabricius)

(Figure 9F)

- Coccinella arcuata* Fabricius 1787, *Mantissa Insectorum*, 1, 55 (Type-loc.—China Dom.).
Harmonia arcuata (Fabricius) : Mulsant 1850, *Annls. Soc. Agric. Lyon*, 2, 77.
Harmonia arcuata (Fabricius) : Dobzhansky 1925, *Zool. Anz.*, 67, 244.
Harmonia arcuata (Fabricius) : Korschefsky 1932, *Coleoptm. Cat.*, 16, 440.
Harmonia arcuata (Fabricius) : Kapur 1956, *Rec. Indian Mus.*, 52, 332, Fig. 1.

Material.—43 examples : South Andaman, Port Blair, from paddy-field, 5-3-1959 (1 ex.) (*K. K. Tiwari* coll.). Port Blair, Humphrygunj, 8-3-1964 (22 exs.); Mannar Ghat, 24-3-1964 (3 exs.), 2-4-1964 (7 exs.); Cowria Ghat, 9-4-1964 (7 exs.); Burmah Nallah, 13-4-1964 (3 exs.) (*B. S. Lamba* coll.).

Remarks.—Observations on the wide range of its colour-variation and distribution in South Asia, South-East Asia and Australia and colour-pattern were made earlier by me (Kapur 1956). The above-mentioned material from the Andamans resembles both in size and extent of colour-variation with the examples from Calcutta and environs (Fig. 9F).

Tribe (9)—PSYLLOBORINI

28. *Illeis bistigmata* (Mulsant)

(Figure 11)

- Psyllobora bistigmata* Mulsant 1850, *Annls. Soc. Agric. Lyon*, 2, 168 (Type-loc.—Penang).
Psyllobora simplex Mulsant 1866, *Monogr. Coccinellidae*, p. 128 (Syn. by Crotch 1874).
Thea bistigmata (Mulsant) Crotch 1874, *Revision of Coccinellidae*, p. 135.
Illeis bistigmata (Mulsant) : Korschefsky 1932, *Coleoptm. Cat.*, 16, 558.
Illeis bistigmata (Mulsant) : Timberlake 1943, *Bull. Hawaiian Sug. Plrs' Ass. Exp. Stn.* (Ent. series), No. 22, p. 60 (Key to species; from Sumatra).
Illeis bistigmata (Mulsant) : Bielawski 1961, *Annls. Zool., Warsz.*, 19, 366.

Material.—17 examples : South Andaman, Port Blair, Horticulture garden, Hadoo, on bitter-gourd, 2-3-1964 (*B. S. Lamba* coll.).

Remarks.—Originally described from Penang, this species was recorded from Sumatra by Timberlake (1943) and further from Ceylon, Celebes and Philippines by Bielawski (1961). The typical example of the species has two large and black spots present on the pronotum (Fig. 11C, D) and the scutellum is also generally black. The species is further characterized by the fact that it is more convex and rounded than most other species of the genus.

Its male genitalia are very characteristic and have been described and figured by Bielawski (1961). The tip of siphon offers a useful character in this connection and is figured for convenience of reference (Fig. 11E). The 17 examples from S. Andaman differ from the typical material in that the pronotal pair of black spots is very much reduced in size (Fig. 11A, B). It may be mentioned here that this constitutes the first record of this species from any part of the Indian Republic.

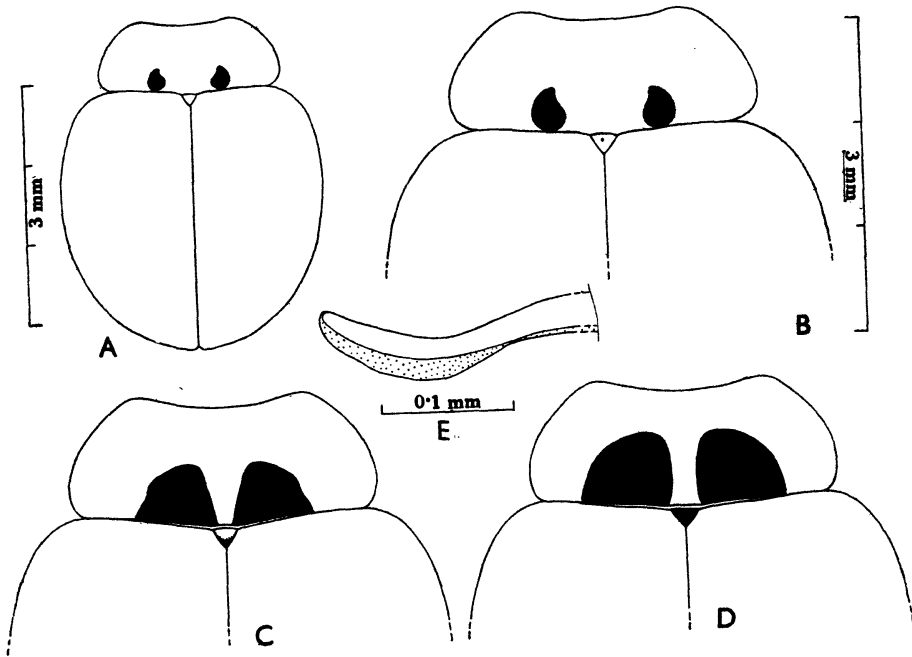


FIG. 11. *Illeis bistigmosa* (Mulsant). A, outline of the beetle; P-D, pronotum and the anterior part of the elytra, enlarged; E, tip of the siphon. (3 mm scale for Figs. A-D; 0.1 mm scale for Fig. E).

The species of the genus *Illeis*, like other genera of the tribe Psylloborini, feed on mildew and other fungi attacking leaves, etc., of green plants. It is possible that in the case of this and the succeeding species the plant concerned was bitter-gourd.

29. *Illeis indica* Timberlake

(Figure 12)

Illeis indica Timberlake 1943, *Bull. Hawaiian Sug. Plrs'. Ass. Exp. Stn.* (Ent. series), No. 22, p. 61
(Type-loc.—Lahore; formerly in India, now in West Pakistan).

Illeis indica Timberlake : Bielawski 1961, *Annls. Zool., Warsz.*, 19, 364.

Material.—14 examples: South Andaman, Port Blair, Horticulture garden, Hadoo, on bitter-gourd, 2-3-1964 (*B. S. Lamba* coll.).

Remarks.—The species is relatively larger and rather elongate posteriorly (Fig. 12A) and less convex than the preceding species. The spots on

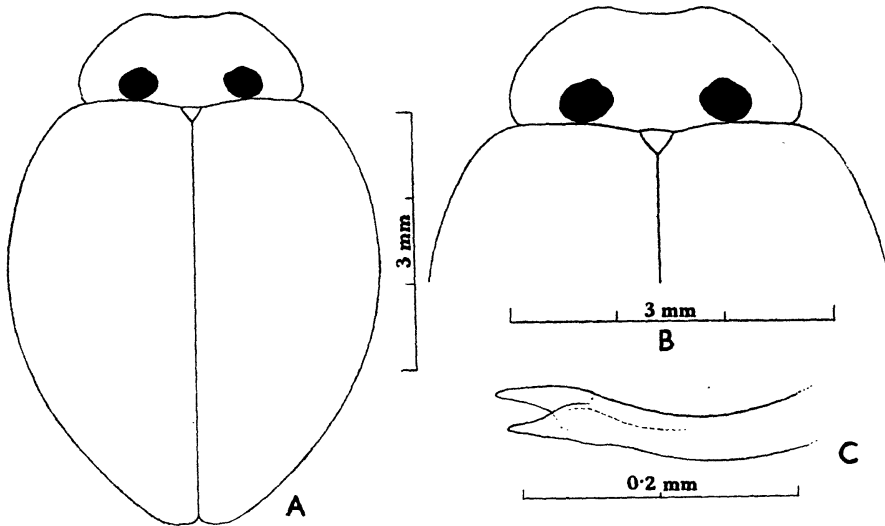


FIG. 12. *Illeis indica* Timberlake. A, outline of the beetle; B, outline of pronotum and part of elytra, enlarged; C, tip of the siphus. (3 mm scale for Figs. A-B; 0.2 mm scale for Fig. C).

the pronotum are of medium size. Its male can be easily recognized by the distinctly bifurcate apex of the siphus (Fig. 12C). The species was first described from Lahore, but has since been recorded from New Delhi and Calcutta by Bielawski (1961).

III. KEY TO THE IDENTIFICATION OF THE SPECIES

E. nevilli Dohrn and *E. pytho* Mulsant have not been included in the following key as the author has not seen examples of these from the Andamans; moreover, the record of *E. pytho* from Andamans is doubtful, as explained earlier in the text.

- | | | |
|---|--|---|
| 1 | Antennae inserted between rather than in front of the eyes.
Mandible without a basal tooth and with usually multi-
dentate apex. Episterna of the metathorax obliquely trun-
cate in front. Phytophagous (Subfam. EPILACHNINAE).... | 2 |
| | Antennae inserted in front of rather than between the eyes.
Mandible with a basal tooth and with bifid or simple apex.
Episterna of the metathorax transversely truncate in front.
Carnivorous or fungivorous (Subfam. COCCINELLINAE).... | 8 |
| 2 | (1) The last visible abdominal sternite in the female divided, or
apparently divided, longitudinally in the middle; tarsal claw
with a basal tooth (Genus <i>Epilachna</i> Chevrolat)..... | 3 |

- The last visible abdominal sternite in the female not divided as above, but entire; tarsal claw with or without the basal tooth..... 7
- 3 (2) Each elytron usually with six to 14 black spots, none of which being common to both the elytra..... 4
- Each elytron with six spots, two of which are sutural spots, being common to both the elytra (Fig. 3A) (Burma, India).. *Epilachna kaszabi* Bielawski and Fursch
- 4 (3) Body large, nearly 8.0-9.0 mm long, strongly convex, the shoulder-boils indistinct (Fig. 2A-D) (Indo-Malayan Subregion)..... *E. processa* Weise
- Body relatively small, generally 6.0-7.0 mm long, moderately convex, shoulder-boils distinct..... 5
- 5 (4) Elytral apex angular (*i.e.*, the external and sutural margins meet to form a sharp point or angle at the apex); male genitalia with the blade of median lobe nearly half the length of the latter (Fig. 1G); siphon slightly bent at the apex (Fig. 1H); the genital plate in the female with a subtriangular notch on the inner margin (Fig. 1I) (Oriental and Australian Regions and Japan)..... *E. vigintioctopunctata* (F.)
- Elytral apex rounded; genitalia not as above..... 6
- 6 (5) The external, median, black spot (the persistent spot No. 4) of the elytra generally touching the external margin of elytron; male genitalia with the median lobe dentulate dorsally (Fig. 1A); siphon nearly straight at the apex which has an eyelet (Fig. 1B); female genital plate with a rounded notch on the inner margin (Fig. 1C) (Oriental Region).... *E. dodcastigma* (Wied.)
- The external median, black spot of elytra generally not touching the external margin of elytron; median lobe not dentulate but with a dorsal blade, or knife-edge, of nearly half the length of median lobe (Fig. 1D); apex of siphon sharply narrowed on one side and pointed (Fig. 1E); female genital plate rather deeply notched, with notched parts almost overlapping (Fig. 1F) (Indo-Malayan Subregion).... *E. septima* Dieke
- 7 (2) Body subhemispherical, 5.0-5.5 mm long; four pronotal black spots, when present, situated in a row; elytron each with six black spots, arranged as 2, 2, 2 (Oriental Region).. *Afidenta mimetica simplex* Dieke
- Body oval, less convex, usually larger, being about 6.0-6.5 mm long; pronotal spots absent; elytron each with 5 black spots, arranged as 2, 2, 1 (Indo-Malayan Subregion)..... *Afissa dumerili* Mulsant
- 8 (1) Body pubescent dorsally..... 9
- Body glabrous dorsally, or at the most with sparse setae at the sides of pronotum, etc..... 17

- 9 (8) Body comparatively large, 4.8-5.2 mm long and 4.5-4.8 mm wide; upper and underside uniformly rusty brown; pubescence yellowish, short and dense; eyes entire and not bisected by the epistoma; median part of prosternum narrowed and raised anteriorly (The Andamans)..... *Rodolia andamanica*
Mulsant
- Body relatively small, less than 3.0 mm long; colouration not as above; pubescence grey, sparse or dense; eyes entire or partly bisected by epistoma; prosternum not raised as above..... 10
- 10 (9) Eyes partly bisected by the expanded epistoma which conceals the antennal base; with five visible abdominal sternites, the first and fifth of which are distinctly large; pubescence sparse and erect (*Telsimia* Casey); dorsal surface shining black except for a pair of testaceous, round, post-median spots (Fig. 7A) on the elytra. Body 1.6 mm long (S. Andaman)..... *Telsimia postocula* sp. n.
- Eyes not bisected by the epistoma, base of antennae visible; abdominal sternites six in number..... 11
- 11 (10) Body very small, usually between 1.0 and 1.5 mm long; prosternum without carinae, medially produced forward in the form of a broad convex arch which partly covers the mouth-parts; colour black or piceous, except for the frons which is light brown; pubescence grey, rather sparse and suberect (Caucasus to throughout the Indian subcontinent). *Stethorus gilvifrons*
(Muls.)
- Body relatively large, prosternum with or without carinae, not produced forward medially in a convex arch so as to cover the mouth-parts..... 12
- 12 (11) Body mostly subhemispherical, clypeus narrowly and partly margining the eyes; antennae 9-segmented, geniculate (the first and second segments large, subquadrate and sub-triangular respectively, the remainder segments short, together forming a club); prosternal carinae present; trochanter and femur much expanded to completely conceal the tibia and tarsi in repose; the first abdominal sternite large, dilated apically in the middle as an arch into the second sternite; elytral epipleurae foveolate for the reception of the second and third pairs of tibio-femoral joints (Tribe Aspidimerini)..... 26
- Body briefly oval, eyes extend to the underside of head and not margined in any manner by the clypeus; antennae 10- or 11-segmented, not geniculate, first and second segments and the antennal club of normal size and shape; legs also normal and not expanded as above; first abdominal sternite not expanded as above; elytral epipleurae without foveae (Tribe Scymnini)..... 14

- 13 (12) Body reddish testaceous above and pale brown below. (In the nomino-typical form a black spot each is present on the pronotum and on the disc of elytron) (India, Burma).... *Pseudaspidimerus circumflexa* (Motschulsky) (var. *testacea* Weise)
- Body mostly black except for the (i) testaceous and reddish-brown frons in the male and female, respectively, (ii) testaceous lateral margins of pronotum and (iii) reddish-brown apical margin of elytra (Fig. 6A) (S. Andaman)..... *Pseudaspidimerus lambai* sp. n.
- 14 (12) Prosternum without carinae; abdominal lines incomplete, body oblong, moderately convex; head, pronotum and scutellum light castaneous, elytra mostly testaceous except for the dark brown area extending from the base to about three-fourths the length of suture, and the castaneous border along basal three-fourths of external margin (Fig. 5A) (S. Andaman)..... *Nephus roonwali* sp. n.
- Prosternum with a pair of longitudinal carinae; abdominal lines incomplete or complete; body subrounded to shortly oval and relatively more convex..... 15
- 15 (14) Abdominal lines incomplete; the head, anterior angles of pronotum, and the apical one-third of elytra testaceous; body subrounded and rather strongly convex, length 2.1 mm, breadth 1.5 mm (Fig. 4A) (S. Andaman)..... *Scymnus andamanensis* sp. n.
- Abdominal lines complete, *i.e.* these turn back in an even sweep to the basal margin of the first abdominal sternite.. 16
- 16 (15) Body with the head, pronotum and elytra reddish testaceous; pubescence suberect and rather sparse (Indo-Ceylonese Subregion)..... *Scymnus (Pullus) brunescens* Mots.
- The head testaceous, pronotum also testaceous except for a semi-circular median black spot at the base; elytra black except the apical 1/3-1/4 the length which is testaceous (Indian Subregion)..... *Scymnus (Pullus) pyrocheilus* Mots.
- 17 (8) Clypeus in front of the eyes with a flat lateral expansion forming a shield which cuts deep into the eyes and conceals the base or place of origin of the antenna (Tribe Chilacorini)..... 18
- Clypeus in front of the eyes not expanded laterally to form a shield; eyes not cut into, even partly, by the clypeus; bases of antennae exposed..... 20
- 18 (17) Body subhemispherical; pronotum almost emarginate towards the outer corners where it does not lie against the elytral margins; elytral epipleurae deeply incurved; antennae 8-segmented..... 19

- Body shortly oval, moderately convex, pronotum lies for the most part against the elytral margin; antennae 9-segmented; pronotum piceous in the middle; elytra with three broad, partly confluent stripes (Fig. 9A) (India, Burma, Ceylon)..... *Brumus lineatus* Weise
- 19 (18) Body approx. 3.0-3.5 mm long; black and shining dorsally except the lateral testaceous parts of pronotum (Oriental Region)..... *Chilocorus nigrinus* (F.)
- Body between 4.0 and 5.2 mm long; reddish testaceous except the dark grey eyes, the black, oval, apical elytral spot which extends narrowly for a short distance along the external margin of the elytron (Fig. 8A) (S. Andaman).... *Chilocorus coelosimilis* sp. n.
- 20 (17) Base of elytra in front of the shoulder-boil with a slightly elevated angle and obliquely produced outward and in front of the shoulder-boil; epipleurae strongly curved, usually distinct as far as apex (Fig. 9B-D) (Tribe Synonychini)..... 21
- Base of elytra as a rule rounded in front of the shoulder-boil and produced at the corners of the shoulder-boil rather than in front of it; epipleurae even (plain) or with only a narrow, inclined, external margin, generally fading out before the apex (Fig. 9E, F)..... 24
- 21 (20) Body large, usually 10.05 mm long; tarsal claws bifid, without the basal tooth; ground colour of the dorsal surface of body reddish testaceous; pronotum with a large medial spot at the base; scutellum black; elytra with three common, black spots on the suture and five other black spots on each elytron (Fig. 9B) (Oriental Region and Japan)..... *Synonymcha grandis* (Thunberg)
- Body relatively small, usually not more than 5.0 mm long; tarsal claws not bifid, each with a basal tooth..... 22
- 22 (21) Pronotum with a black basal band connected by a short narrow constriction; with a transverse-oval, black discal spot; elytra with a black sutural stripe which is dilated once behind the scutellum and again before the apex, each elytron with two wavy, post-humeral and median, black bands and a rounded, black, sub-apical spot, the bands not normally connected with sutural stripe (Fig. 9C) (Oriental Region)..... *Menocheilus sexmaculatus* (Fabr.)
- Pronotum without or with black markings, but without the narrow constriction between the discal and basal black markings; elytra without wavy bands..... 23
- 23 (22) Pronotum with its basal half black which has two to three dentations anteriorly; the sutural margin black and slightly and gradually widened in the middle (Fig. 9D) (Oriental Region)..... *Verania discolor* (Fabr.)

Pronotum entirely testaceous (Fig. 10B) to black except for the narrow external margins (10D, F); in the former area, the lateral parts sometimes fulvous (10A); elytra entirely testaceous or testaceous with a black border, and the apex (10C, D) black with testaceous border, or entirely black; sometimes there are on an elytron four black, round to oval spots and a pair of common spots on the black sutural border (10B) (Indo-Malayan Subregion).....

Coelophora unicolor
(Fabr.)

24 (20) Antennal club compact, the pre-apical segment broader than long; apices of mandibles bifurcate and with the inner margins entire; maxillary palps and labium normal. Body reddish testaceous with usually black markings on the elytra (Tribe Coccinellini; habit carnivorous).....

25

Antennal club loosely segmented, the pre-apical segment longer than wide; apex of mandibles bifurcate but with the inner margins finely serrate; maxillary palps and prementum expanded. Body yellowish or light testaceous; pronotum with a pair of black spots but elytra without any black markings (Tribe Psyllorborini; habit fungivorous)....

26

25 (24) Body rather rounded and convex, prosternum with a pair of carinae which hardly extend beyond the level of the front coxae; abdominal lines forked like a 'V' in the external part; hind tibia with distinct apical spur [Genus *Coccinella* L.]; elytra with a triangular black marking on the sub-humeral area, with a wavy, black, post-median band, confluent with the black sutural margin; a subquadrate black spot at three-fourths the external margin, further two common spots present, one immediately behind the scutellum and another before the apex (Fig. 9E) (Oriental Region).....

Coccinella transversalis
Fabr.

Body relatively less rounded and less convex; prosternum without carinae; abdominal lines incomplete; hind tibia without an apical spur (Genus *Harmonia* Mulsant); colouration very variable, pronotum black in the middle or with one or two pairs of black spots, elytron normally with a pair each of black, humeral, median and post-median spots and a sub-apical spot; scutellum and suture also usually black; the different pairs of spots may become confluent or disappear except generally a pair of spots (Fig. 9F) (Oriental Region).....

Harmonia arcuata (Fabr.)

26 (24) Body relatively small (ca 4.3 mm), more convex and orbicular, not distinctly narrowed towards the apex; pronotum relatively broad, pair of black pronotal spots variable, large (in Indonesian material) to very small (in the Andaman material); elytral punctation relatively coarser; tip of siphon (male genitalia) entire, and not bifurcate (Fig. 11E) (Indo-Malayan Subregion).....

Illeis bistigmosa Mulsant

Body relatively large (over 50 mm); less convex and distinctly narrowed towards the apex; pronotum also narrowed anteriorly, size of pronotal black spot median, not very variable; elytral punctation fine; the tip of siphon bifurcate (Fig. 12C) (India and Pakistan)..... *Illeis indica* Timberlake

IV. ZOOGEOGRAPHY OF THE ANDAMAN COCCINELLIDAE

Zoogeography of the Andaman and Nicobar group of islands is a fascinating subject. Very recently Roonwal and Bose (1965) have dealt with this subject on the basis of their studies on termite fauna of the islands. They noted a high degree of endemism (58.8 per cent) of the species which suggests that the islands had been relatively long-isolated from the mainland. In the case of the Coccinellidae, however, the degree of endemism is not so high, as these beetles can travel with plant material and are generally good fliers.

Briefly stated the composition of the Coccinellid fauna is as follows:

No. of subfamilies represented	..	..	..	2
No. of tribes	..	..	..	9
No. of genera	..	..	..	18
No. of species	..	..	..	29

Both the subfamilies and all the tribes and genera are also represented on the Indian mainland and in other countries in the Indo-Malayan or Oriental Region. Of the 29 species, only the following six species are endemic:

1. *Epilachna nevillei* Dohrn
2. *Rodolia andamanica* Mulsant
3. *Scymnus andamanensis* sp. n.
4. *Pseudaspidimerus lambai* sp. n.
5. *Telsimia postocula* sp. n.
6. *Chilocorus coelosimilis* sp. n.

Nephus roonwali sp. n. also occurs in Eastern India. There are a few other species to which a reference may be made on account of their wide distribution extending beyond the Oriental Region. *Epilachna vigintioctopunctata* (Fabr.) (*Type-loc.*—Tranquebar, Southern India) and *Coccinella transversalis* Fabr. (*Type-loc.*—Coromandel, Southern India) occur widely in the Oriental Region and extend into the Palaearctic Region (Japan) on the one hand and Australia on the other. *Stethorus gilvifrons* Mulsant (*Type-loc.*—Derbent, Caucasus) and *Illeis indica* Timberlake (*Type-loc.*—Lahore, West Pakistan) are distributed from the Palaearctic or near Palaearctic Region, through the Indian mainland, to the South Andaman island. *Synonycha grandis* (Thunberg) (*Type-loc.*—China) and *Verania discolour* (Fabr.) (*Type-loc.*—India), which are widely distributed in the Oriental Region, extend as far as Japan in the Palaearctic Region.

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