

SOME NEW OR A LITTLE KNOWN SPECIES OF COCCINELLIDAE (INSECTA : COLEOPTERA)

PART 1—FOUR NEW SPECIES OF EPILACHNINAE FROM

INDIA AND BURMA

By

A. P. KAPUR

Zoological Survey of India, Calcutta

(With 4 Text-figures)

While identifying the unnamed and rearranging the named collections of the subfamily Epilachninae (Coccinellidae, Coleoptera) in the Zoological Survey of India, I came across some interesting material belonging to four new species which are described in the following pages. Of these, two species come exclusively from India, namely, *Epilachna ornata* from Anaimalai Hills (southern India), and *Afissa cherrapunjensis* from Khasi Hills (Assam). *Afissa sureilica* comes from Darjeeling district (West Bengal); its variety *marginotata* occurs in Ruby Mines (northern Burma) and was found in the unnamed collections on loan with me from the British Museum (N. H.), London. The fourth species, namely, *Afissa gokteika*, is known only from Gokteik, northern Burma.

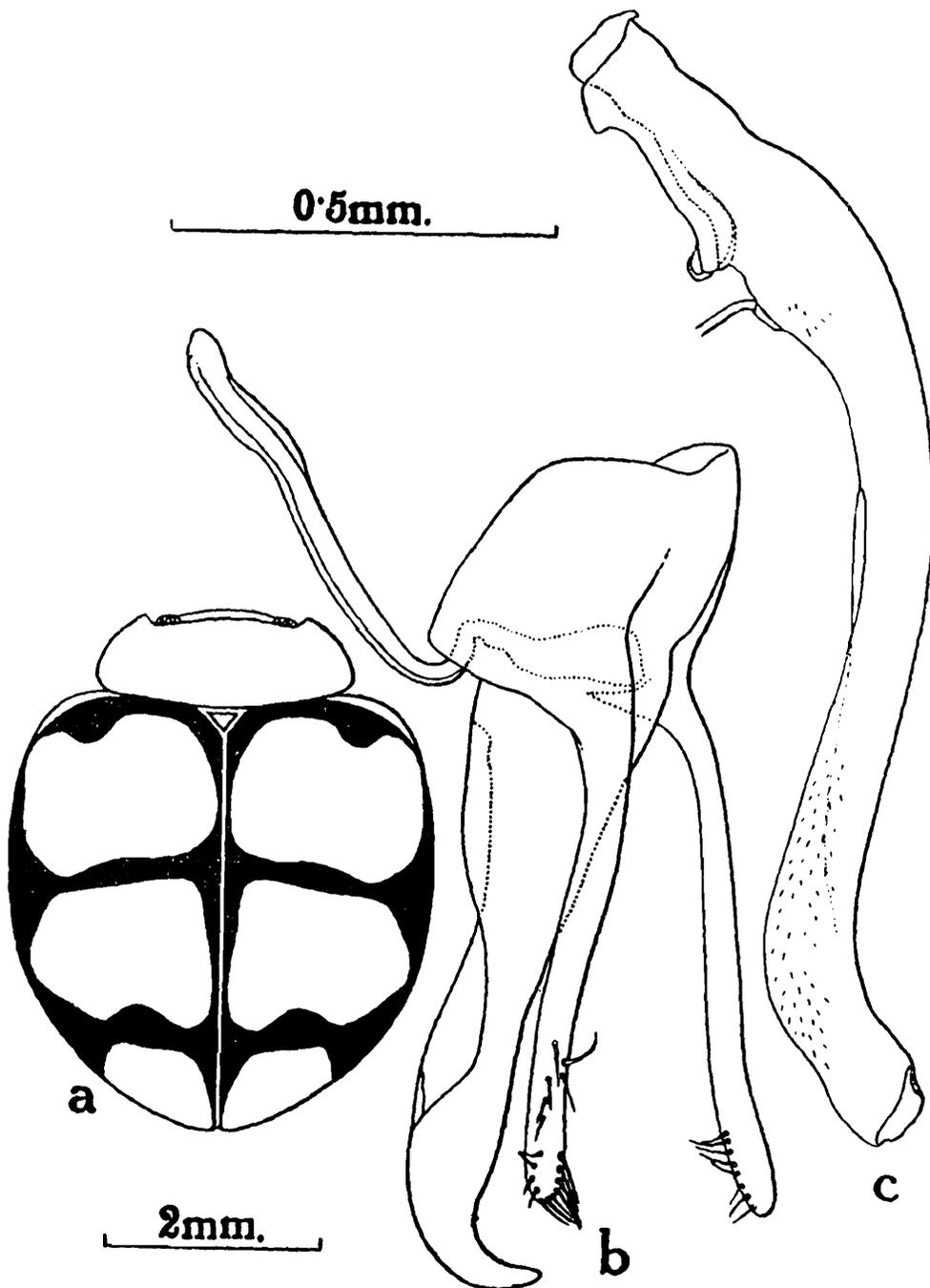
I am grateful to Dr. M. L. Roonwal, Director of this Survey for kindly providing facilities for this work.

Epilachna ornata, sp. nov.

(Text-fig. 1)

Body shortly oval (Text-fig. 1*a*) and moderately convex; pubescence yellowish grey except in the black areas of the elytra, metasternum, etc. Head testaceous except the black eyes and the dark brown apices of mandibles. Pronotum testaceous in the middle, light testaceous laterally, especially near the anterior angles; without spots or markings. Scutellum testaceous. Elytra also testaceous except for the narrow, black areas as shown in text-fig. 1*a*. Greater part of the basal margin, the suture, and the basal three-fourths of the lateral margin are bordered black; a narrow black fascia runs across the middle of body and reaches the lateral black borders on the elytra; another, though slightly bent and irregularly wide, fascia runs across at three-fourths of the length of elytra. Thus, each elytron is ornamented with one large, basal cell, one large sub-median cell, and one small apical but incomplete cell. Under-side testaceous, excepting most of the basal parts of the metasternum and the first two abdominal sternites.

Head with the eyes finely faceted, punctation fine and rather sparse, pubescence very fine and moderately long; antennae nearly as long as the width of head and with the terminal three segments formed into a subserrate club; labrum wide, about three times as wide as long, covering the mandibles except the apices. Pronotum a little over twice as wide as long, subrounded and narrowly margined laterally, rather deeply emarginate in the front; finely and fairly closely punctured; pubescence fine, fairly close, moderately long and semierect. Scutellum



TEXT-FIG.—1. *Epilachna ornata*, sp. nov.

(a). Outline and colour-pattern of the beetle. (b). Male genitalia except the siphon. (c). Siphon. (2 mm. scale for fig. a; 0.5 mm. scale for figs. b and c).

small, triangular, nearly as wide at base as at the sides, with about eight fine punctures and hair. Elytra widely rounded at the shoulder angles, with rather well-defined shoulder-boil, narrowly margined laterally except towards the apex which is rounded; punctation of the mixed type, coarser punctures impressed, sparse, and interspersed all over

among the more closely placed, fine and shallower punctures ; pubescence moderately long, fairly close and sub-erect. Underside with fine and close punctation and subdepressed, generally short, and fairly close pubescence except on the thoracic sternites where the punctures are relatively coarse and sparse. Elytral epipleurae slightly but uniformly depressed, without foveae ; legs (when in repose) not extending beyond the elytra, claws bifid, the outer division being a little longer than the inner, basal tooth subtriangular and short ; abdominal lines subrounded, complete, subterminal, reaching as far as the apical four-fifths of the length of the abdominal sternite ; the second to fifth sternite subequal, the sixth sternite subrounded, notched at the apex in the male. Male genitalia (Text-fig. 1*b, c*), asymmetrical ; siphon tubular, slightly twisted, sigmoid, with an ill-defined and narrow siphonal capsule ; basal piece distinctly wider than long, median-lobe distinctly asymmetrical, twisted in the middle, narrowed towards the apex which is bent towards the parameres ; the latter rather narrow throughout, slightly curved proximally and provided with a few small setae near the apices.

Length 5.00 mm. ; width 4.00 mm.

Holotype.—A male from INDIA, Anaimalai Hills, Cinchona, 3,500 ft. iv. 1957 (P.S. Nathan coll.) ; in the Zoological Survey of India, Calcutta (Regd. No. 1159/H4).

Remarks.—This species is very attractive in the colour pattern of the elytra and reminds one of several other species which occur in the hills and other places in southern India, and which have similar coloration though different in exact design of the markings and other details of the structure. It may be distinguished from *Epilachna delessertii* (Guerin) by its smaller size (*E. delessertii* is 7.8-8.3 mm. long and about 6.1 mm. wide), relatively coarser punctures and sparse and long pubescence. The male genitalia in the two are very distinct and the median lobe of aedeagus in *E. delessertii* is symmetrical. *E. ornata* bears superficial resemblance to *Afissa andrewesi* (Gorham), *Afissa endomycina* (Gorham), and *Afissa loculosa* (Sicard) in as much as all these species have black fasciae and stripes on the elytra instead of the usual black spots, etc., so common in other species of the genus. However, *E. ornata* has a distinctive elytral pattern and could also be easily distinguished from the above-mentioned three species of *Afissa* on account of the presence of the tooth at the base of bifid claws. Incidentally it may be mentioned that hitherto *Afissa loculosa* has been placed in the genus *Epilachna* but an examination of a fairly long series shows that it does not belong to that genus (*sen. str.* as revised by Dieke¹) but to the genus *Afissa* Dieke.

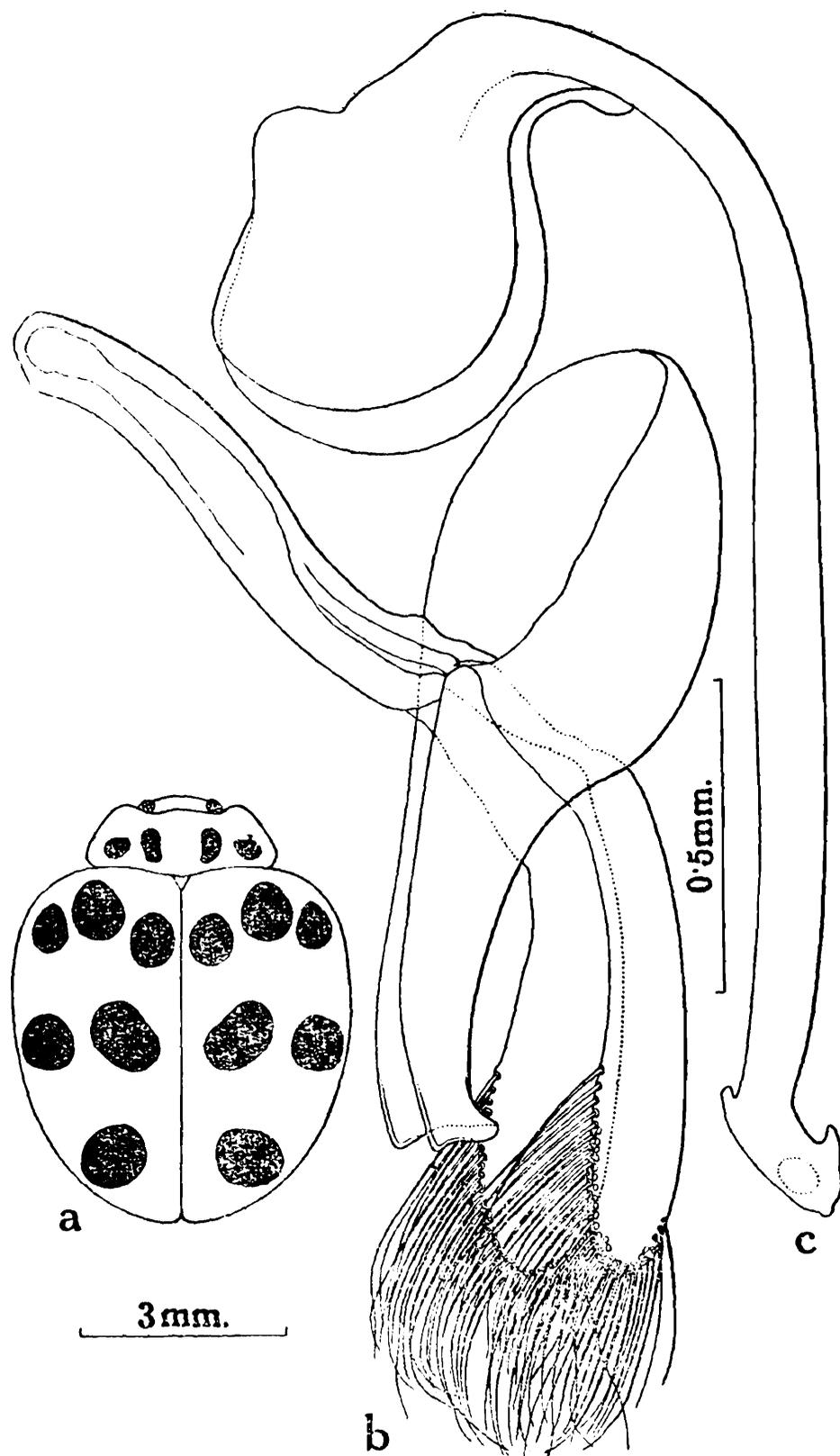
Afissa cherrapunjiensis, sp. nov.

(Text-fig. 2)

Body shortly oval (Text-fig. 1*a*) ; moderately convex, most so in the middle ; pubescence greyish except on the black elytral spots where it is black. Head reddish testaceous except the dark brown apices of mandibles and the black eyes. Pronotum reddish testaceous with four black to dark fuscous spots arranged in a transverse row, the median pair oblong, situated at equal distance from the longitudinal median line

¹Dieke, G.H. *Smithson. misc. Coll.*, Washington, 106 (15), p. 22 (1947).

and the lateral pair which is subrounded. Scutellum reddish testaceous. Elytra also reddish testaceous except for six spots on each elytron arranged as 3, 2, 1; the outermost of the basal three spots roundish, situated



TEXT-FIG. 2.—*Afisa cherrapunjiensis*, sp. nov.

(a). Outline and colour-pattern of the beetle. (b). Male genitalia except the siphus. (c). Siphus. (3 mm. scale for fig. a; 0.5 mm. scale for figs. b and c).

below and external to the shoulder-boil and narrowly separated from the external margin; the central spot larger, subovate, situated lateral to the shoulder-boil and closer to, though not touching, the basal margin; the

inner spot roundish like the outer one, situated closer to the suture and more distant from basal margin than either of the other two spots. The next two spots on the elytron lie in a row on the median transverse line; the inner of these spot subquadrangular, situated a little away from the suture, and directed obliquely towards the shoulder-angle of the elytron, the outer spot a little smaller, rather transverse-oval, close to, but not quite touching the external margin. The subapical or the sixth spot largest, sub-rounded, situated at equal distance from the sutural and external margin. Underside dark-brown, excepting the metathorax and the first two abdominal sternites which are fuscous medially.

Head finely and closely punctate on the front, the punctures becoming slightly coarser near the vertex; pubescence short and fairly close; eyes finely faceted; antennae long, extending a little beyond the apex of prosternum, the club subserrate on the inner side; mouth-parts with the labrum relatively short, transverse, about three times as wide as long. Pronotum transverse, widely emarginate in front, distinctly narrower anteriorly, anterior and posterior angles rounded, lateral margins almost straight; punctation similar to that on the vertex of the head, close and uniform; pubescence moderately long and fairly close. Scutellum equilaterally triangular, with fine, fairly close punctation and pubescence. Elytra widely rounded at the anterior angle, shoulder-boil moderately defined, external margin forming a shallow channel except in the apical one-fourth of its length; punctation of the mixed type, coarser punctures fairly impressed, sparse and interspersed among the more closely finer and impressed punctures; pubescence moderately long and subdepressed. Underside with fine, to moderately coarse and sparse punctures and thin, rather short and depressed pubescence; elytral epipleurae shallowly foveolate, the foveae not separately defined for the femora; legs (when in repose) not extending beyond the elytral epipleurae; inner division of the bifid claws slightly shorter than the outer which is otherwise similar; abdominal lines widely curved, terminal and incomplete; the second to sixth abdominal sternites subequal, the last being truncate apically. Male genitalia (Text-fig. 2*b,c*) relatively short, the siphon gradually bent proximally, narrow and straight in the middle and obliquely bent near the apex as shown in the figure, the siphonal capsule roundish; basal-piece cup-shaped, median-lobe like an incomplete tube, open ventrally for the most part, about 0.75 mm. long and 0.25 mm. wide at the base, the apex truncate to slightly emarginate, slightly bent towards parameres; the latter subspatulate, gently bent at one-third their length, distinctly longer than the median lobe and provided with many long setae at the apical one-third, especially along the margin; trapes also well developed, somewhat sigmoid. Length 5.5 mm., width 4.6 mm.

Holotype.—A male from INDIA: Assam, Cherrapunji, 4,400 ft., 2-8.x.1914, (S.W. Kemp Coll.); in the Zoological Survey of India, Calcutta (Regd. No. 11600/H4).

Remarks.—This species is easily distinguished from all other species of the genus *Afissa* by its unique colour-pattern of the pronotum and elytra, namely, the four black spots in a transverse row on the pronotum and the elytral spots arranged as 3, 2, 1. Its nearest ally may be *Afissa intermixta* Dieke² described from Dibrugarh, Assam, which has three spots on the pronotum (one central and one each close to the lateral

²Dieke, G.H., *loc. cit.*, p. 156.

margin) and seven dark spots on each elytron, *i.e.*, it has an additional apical spot ; the arrangement and relative size of the spots is, however, different from those in *A. cherrapunjiensis* ; moreover, *A. intermixta* is a smaller species, being 4.8 mm. in length. From the shape of the male genitalia *A. cherrapunjiensis* would appear to belong to the *complicata* group of the species of *Afissa*, and not to the *fallax* group to which *intermixta* belongs. In respect of colour-pattern and details of structure of the male genitalia *cherrapunjiensis* is distinct from all other known species of the *complicata* group.

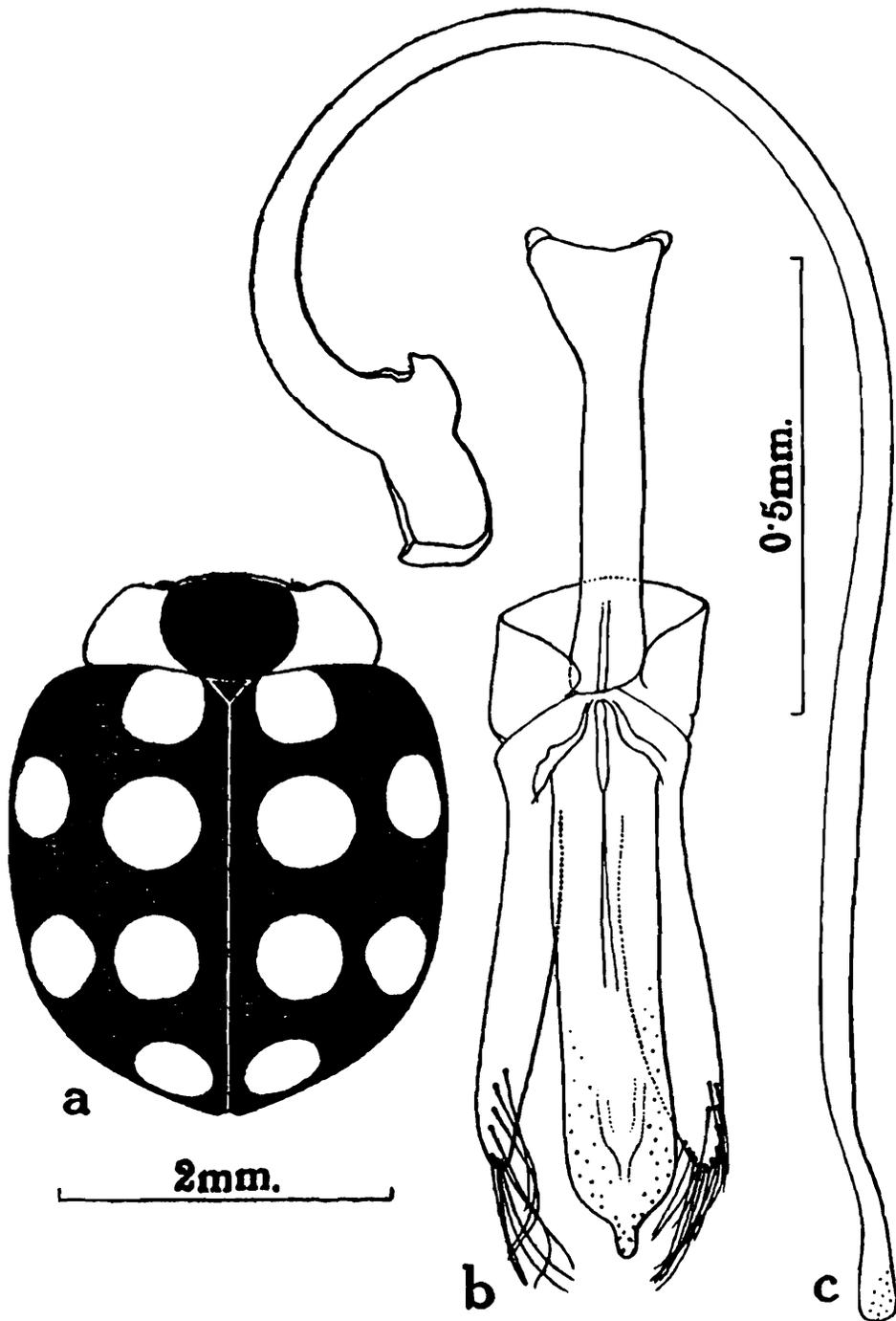
***Afissa sureilica*, sp. nov.**

(Text-fig. 3)

Body shortly oval (Text-fig. 3a), rather strongly convex, pubescence uniformly dirty-grey. Head in the male mostly reddish testaceous excepting the greyish black eyes, dark-brown club of antennae, and apices of mandibles ; vertex also piceous in the female. Pronotum reddish testaceous laterally, black, fading into dark-brown, in the median one-third. Scutellum black. Elytra black excepting six testaceous or reddish testaceous, roundish spots on each elytron, arranged as 1, 2, 2, 1 (Text-fig. 3a). Spot No. 1 situated at the base, close to scutellum but not touching the latter, extending to about one-sixth the length of elytron and much beyond the apex of scutellum ; spot No. 2 (near suture) and No. 3 (near external margin) situated slightly anterior to the transverse median line ; spot No. 2 roundish, lies close to, but not touching, the suture ; spot No. 3 roundish to rather transverse-oval, a little variable in size and outline, not touching the external margins in the type ; spot No. 4 (near suture) and No. 5 (near external margin) situated a little posterior to the transverse median line of the elytron, spot No. 4. subrounded, not touching the suture ; spot No. 5 similar and not touching the lateral margin in the type ; spot No. 6 roundish, subapical not touching the sutural, nor, the apical margins in the type. Underside reddish testaceous excepting the meso- and metasternum, and the basal two or three abdominal sternites which are black to piceous ; the femora sometime fumeus.

Head with the punctation fine, impressed and fairly close ; the pubescence fine, moderately short and close ; eyes finely faceted ; antennae nearly as long as the width of head, club subserrate with the apical segment obliquely truncate ; labrum a little over twice as broad as long, a little emarginate in front and not covering the apices of mandibles, the latter with a pair of unequal apical teeth. Pronotum nearly twice as broad as long, slightly narrowed anteriorly, widely emarginate in front, anterior and posterior angles rounded, lateral margins slightly so ; punctation and pubescence similar to that of the head. Scutellum small, like an equilateral triangle in outline, with very fine punctation and pubescence. Elytra strongly convex, without any well-defined shoulder-boil ; external margin marked with a narrowly channelled border except near the apex ; apical angle rounded ; punctation of the mixed type, finer punctures moderately close but less impressed, coarser punctures fewer, shallow, irregular in outline, interspersed

between the finer punctures ; pubescence short, subdepressed and moderately close. Underside with the prosternum finely and sparsely punctate, meso- and metasternum with moderately coarse punctures except in the middle of the latter where these are coarse and much impressed ; pubescence on the thoracic sternites very fine and sparse, legs (in repose)



TEXT-FIG. 3.—*Afissa sureilica*, sp. nov.

(a). Outline and colour-pattern of the beetle. (b). Male genitalia except the siphus. (c). Siphus. (2 mm. scale for fig. a ; 0.5 mm. scale for figs. b and c).

not extending beyond the epipleurae, the inner two divisions of the bifid claws subequal in length, the inner division slightly stouter ; elytral epipleurae shallowly depressed, without any foveae ; abdominal sternites with coarse, fairly close, and impressed punctures on the first sternite and finer and close punctures on the remaining sternites which

are subequal ; abdominal lines semicircular rather incomplete and sub-terminal, reaching as far as four-fifths of the length of the first sternite ; the terminal, or the sixth sternite rounded apically in both sexes. Male genitalia (Text-fig. 3*b*, *c*) with the basal-piece wider than long, trapes very much elongate, sigmoid in outline when seen in profile, median-lobe of aedeagus about five times as long as broad, narrowed and rounded distally and produced forward a little into a narrow apex ; parameres a little shorter than the median lobe, with long hair near the apices ; siphon (Text-fig. 3*c*) long, widely curved in the proximal half, almost straight distally, siphonal capsule subrectangular, apex of siphon slightly rounded and clubbed. Female with the genital plates elongate but not quite so narrow distally, a little over twice as long as wide.

Length 3.3 mm. ; width 2.6 mm.

Holotype.—A male from INDIA : Sureil, (ca. 5,000 ft.), (near, "Mangpu" [Mongphu], Darjeeling district, northern West Bengal, iv-v. 1917 (S. W. Kemp coll.), in the Zoological Survey of India (Regd. No. 11603/H4).

Allotype.—A female with the same data as the holotype, also in the Zoological Survey of India (Regd. No. 11604/H4).

Paratype.—One with the same data as the holotype ; in the Zoological Survey of India (Regd. No. 11605/H4).

Remarks.—The general colour pattern and arrangement of elytral spots of *A. sureilica* are like those in *Afissa lugubris* Dieke known from Kiautschau, China. The latter species is, however, larger, measuring, 6.0 mm. in length and has an indistinct lighter margin all round the pronotum ; the reddish-brown elytral spots (1, 2, 2, 1) are relatively smaller and indistinct in outline. Dieke³ compares *Afissa pembertoni* (Crotch) (originally described from Bhutan but further example seen by me from Cherrapunji, ca. 4,000 ft., Khasi Hills, Assam) with *A. lugubris*. *A. pembertoni* is also a larger species, being about 6.0 mm. long, and has reddish-brown elytral marking but its apical elytral spots are united and occupy the suture ; in outline of the body, *pembertoni* is distinctly narrowed posteriorly unlike *A. sureilica* in which the sides are rather subparallel ; the pronotum in *A. pembertoni* is black except for a small reddish patch near each anterior angle. *A. sureilica* is, therefore, easily separable from *A. lugubris* and *A. pembertoni*. It can also be easily distinguished from *Afissa marginicollis* (Hope) which is a larger species (6.7-7.5 mm. long and 4.5-5.2 mm. wide) and which has seven testaceous spots on each elytron instead of the six as in *A. sureilica*. The two species also differ in the character of punctation (more impressed in *A. marginicollis*) and structure of male genitalia.

Afissa sureilica var. *marginotata*, var. nov.

This variety differs in the elytral pattern from the typical form described above. In all the five examples from Ruby Mines, Burma, the external three testaceous spots (No. 3, 5 and 6) are so enlarged as to reach the external margin of the elytron unlike the case in all the three examples from Sureil, district Darjeeling, India. In all other respects the material from the two countries looks alike. It is quite possible that

³Dieke, G.H., *loc. cit.*, p. 157.

when more material becomes available from several parts of north-eastern India and northern Burma intermediate examples may be found but for the present, it seems desirable to regard the Burmese examples as belonging to a distinct variety.

Material. Five examples from BURMA : Ruby Mines (*Doherty* coll.) ; three in the British Museum (N.H.), London, and two (one dissected and partly on slide) in the Zoological Survey of India, Calcutta.

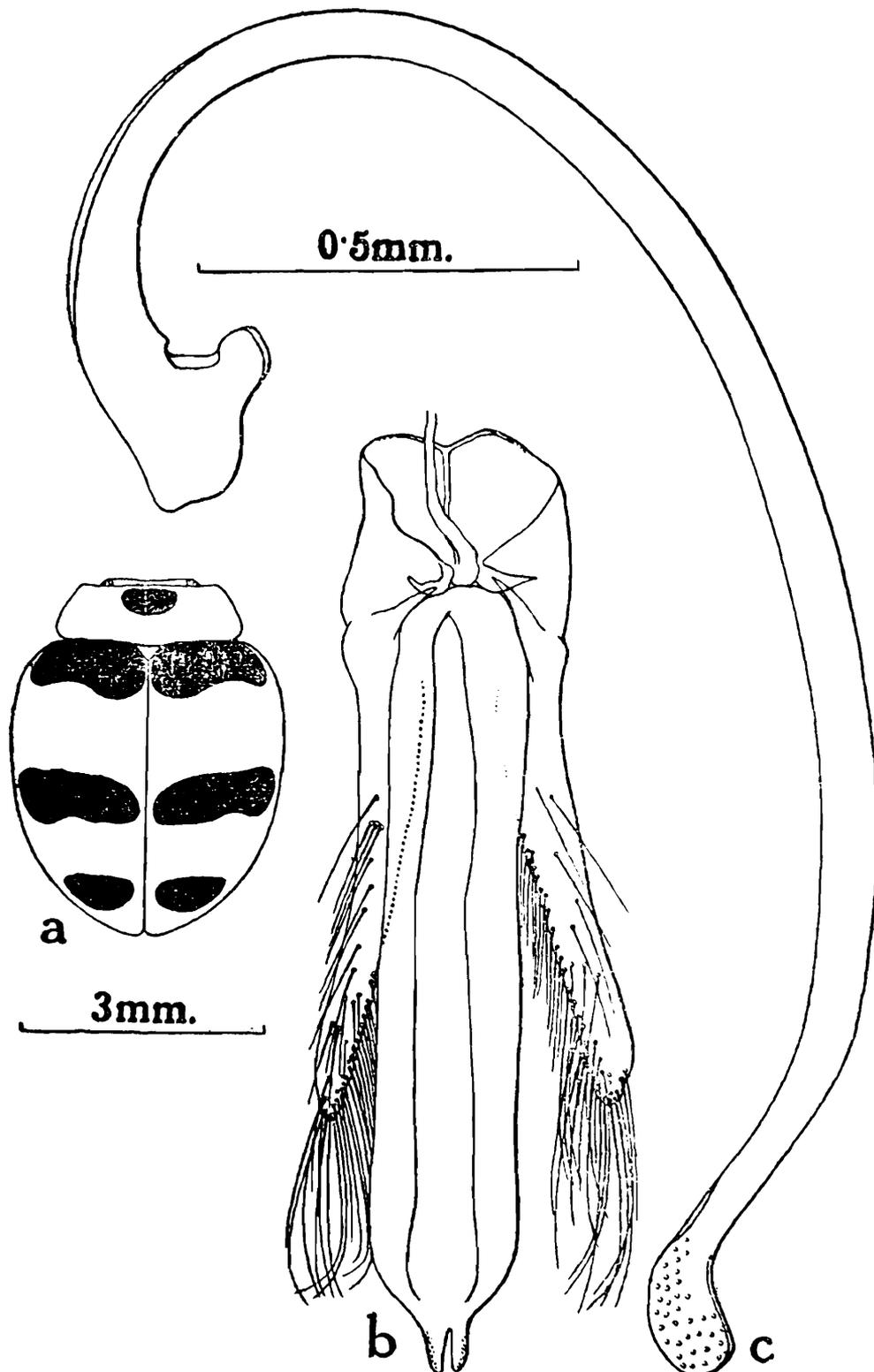
***Afissa gokteika*, sp. nov.**

(Text-fig. 4)

Body oval, (Text-fig. 4a) and moderately convex ; pubescence yellowish grey except on the black areas where it is piceous. Head testaceous except for the black eyes, dark-brown apices of the mandibles and the two or three ill-defined black markings on the frons in the male ; in the female examples the frons uniformly testaceous, without such markings. Pronotum testaceous, with a transverse oval black spot near the middle of the anterior margin. Scutellum testaceous. Elytra testaceous, with three transverse bands or subfasciae ; the first or the basal band extends from the base to about one-fifth the length of the elytron, is slightly emarginate distally and runs transversely from about the sutural margin to cover the shoulder but not touching the lateral margin ; the second band situated along the middle of elytron, equal in width to the basal band but slightly narrowed near the suture ; the third or the subapical band transverse-oval, not reaching the sutural and lateral margins. Underside testaceous except the piceous metasternum, the median parts of first three abdominal sternites, and a narrow streak on each femora.

Head minutely and fairly closely punctate, punctures impressed ; pubescence fine, moderately long and close ; eyes finely faceted, antennae nearly as long as the width of the head, the terminal three segments forming a sub-serrate and obliquely truncate club ; labrum short, partly covering the distal half of the mandibles. Pronotum twice as wide as long, weakly emarginate in front, anterior and posterior angles rounded, the lateral margin slightly rounded ; punctation fine, impressed, and fairly close ; pubescence also fine, rather short, close and directed anterolaterally. Scutellum small, equilaterally triangular, with punctation and pubescence like that of pronotum. Elytra with clearly defined shoulder-boils, the shoulder angles rounded, external margin narrowly and rather shallowly channelled except near the apex where it is plain, the apical angles rounded ; punctation of the mixed type, the finer punctures like those on the pronotum though less impressed, the coarser punctures sparse, irregularly dispersed and moderately impressed ; pubescence fine, rather shorter and closer than that on the pronotum. Underside with the prosternum finely and fairly closely punctate and pubescent ; the meso- and metasternum with slightly coarser and sparser punctation ; legs with the outer division of the bifid claws slightly narrower and longer than the inner division ; elytral epipleurae shallowly depressed but without any foveae ; abdominal sternites unequal with mostly fine punctures and pubescence except in the middle where the

punctures are coarse; abdominal lines subrounded, incomplete and subterminal; the second, third and fourth abdominal sternites subequal the fifth sternite slightly longer and truncate distally in the male, subrounded in the female; the sixth sternite smaller and subrounded apically in both the sexes.



TEXT-FIG. 4.—*Afissa gokteika*, sp. nov.

(a). Outline and colour-pattern of the beetle. (b). Male genitalia except siphon. (c). Siphon. (3 mm. scale for fig. a; 0.5 mm. for figs. b and c).

The male genitalia (Text-fig. 4b, c) with the basal-piece nearly quadrangular in outline, widely open proximally, median lobe or aedeagus tubular, nearly five times the length of the basal piece, nearly uniformly

wide throughout except near the apex which is distinctly bifida (*b*); parameres short, about two-thirds the length of median lobe, with long setae mainly in the distal half; siphon widely curved with the siphonal capsule subtriangular and the apex slightly enlarged into a narrow bulb. Female genitalia typical of the genus *Afissa*, with the pair of genital plates subtriangular and elongate distally.

Length 4.0 mm.; width 3.0 mm.

Holotype.—A male from Burma (Upper): Gokteika, 1. iv. 1918 ("A. G. R." coll.), in the Zoological Survey of India, Calcutta (Regd. No. 11601/H4).

Allotype.—A female from the same locality as the holotype, 31. iii. 1918. ("Boy" coll.), in the Zoological Survey of India (Regd. No. 11602/H4).

Remarks.—This species seems to fall in the *fallax* group of the genus *Afissa* Dieke, as defined by Dieke⁴ and comes near *Afissa gedeensis* Dieke known from Mount Gede, Java. It can, however, be at once distinguished from the latter by the presence of pronotal black spot and other differences in the outline of the elytral fasciae. In *A. gedeensis* the distal margin of the basal fascia is straight but the median fascia always touches the sutural margin, owing to the incorporation of the sutural spot into the median fascia. The male genitalia differ considerably in the two species; in *A. gedeensis* the parameres and siphon are relatively long and the median lobe is not bifid at the apex. The female genitalia of *A. gedeensis* remain undescribed and are not available to me for comparison.

SUMMARY

Four new species and one new variety of the subfamily Epilachninae (Coccinellidae, Coleoptera) mostly in the collection of the Zoological Survey of India are described. These are: *Epilachna ornata* from Anaimalai Hills, southern India; *Afissa cherrapunjiensis* from Cherrapunji, Khasi Hills, Assam; *Afissa sureilica* from Sureil, near Mongphu, Darjeeling district, northern West Bengal; *A. sureilica* var. *marginotata*, from Ruby Mines, northern Burma; and *Afissa gokteika* from Gokteik, northern Burma.

⁴Dieke, G. H., *loc. cit.*, p. 124.