

STUDIES ON INDIAN PARASITIC HYMENOPTERA—II*

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The types of the new forms described in this paper are deposited in the Imperial Pusa Collection, Laboratory of the Imperial Entomologist, Imperial Agricultural Research Institute, New Delhi.

Superfamily SERPHOIDEA

Family SCELIONIDAE

Subfamily TELENOMINAE

***Liophanurus samueli*, sp. nov.**

Female.—0.8 mm. long. Black, 'lederartig', finely punctate, pubescent. Head viewed in front transverse, one-fourth wider than long, lateral ocelli contiguous with orbital border. Mandibles bidentatae as in figure 1. Antennae as in figure 3, club penta-articulate. Cheek finely striate. Scape, pedicel and three segments of funicle, the first two segments of club yellowish-brown, rest of club black. Mesonotum and scutellum finely punctate, parasidal furrows absent; mesopleura glossy and smooth. Fore-wing somewhat browned in the region of radial vein in the middle. Legs: figures 6, 7, coxae concolourous with body, mid and hind legs honey-brown, except the brownish terminal segment of tarsi, fore femora dark brown, rest of hind legs as in others. Abdomen oval, longer than rest of body, first apparent segment with the usual longitudinal striations, second apparent segment devoid of the same.

Male.—Antennae as in figure 2, with a darker colour, except scape, which is brown, rest of antennae black. Fore wing as in figure 4, 5, the brownning more prominent than in female, and distinctly transverse in the middle of the lamina.

Holotype one female, allotype one male, paratypes several males and females in spirit and some mounted on slides; bred from the eggs of *Bagrada picta* laid in soil, C. K. Samuel, New Delhi, 1. iv. 1942.

This is the first record of a parasite of *Bagrada picta*; the only other species of *Liophanurus* known from the Indian region was bred from the eggs of a Pentatomid bug on sugarcane leaves.

Superfamily CHALCIDOIDEA

Family TORYMIDAE

SUBFAMILY MONODONTOMERINAE

***Holaspis indicus*, sp. nov.**

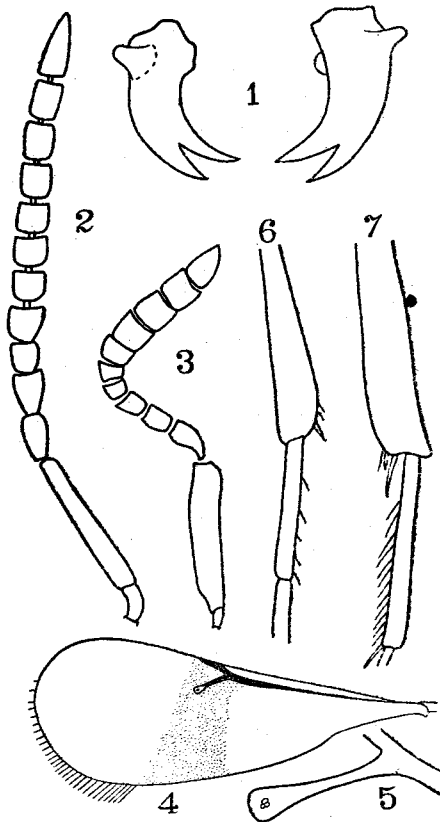
Female (figure 8).—2.5 mm long. Bright metallic green. Head viewed in front as in figure 9, the shaded area below the level of the lower orbital borders punctate and densely setose; viewed from above ocellular space equal to ocellar diameter; lateral ocellar interspace thrice the ocellular. Space between

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antennal sockets equal to that between the orbital border and the sockets, with a distinct carina between the sockets. Antennae : scape yellowish-brown; not reaching the front ocellus; rest shiny black and as in figure 10. Legs : coxae and femora concolourous with the body, knees and rest of legs except the slightly fumated tibiae yellowish-brown, terminal tarsal segment somewhat darker; subapical tooth of femur as in figure 11. Propodeum smooth, shiny. Ovipositor equal to length of abdomen.

Male.—2.0 mm long. Punctuation on face extending up to the middle of face. Legs entirely yellowish-brown.

Holotype one female on card, allotype one male on card; paratypes several females and males on card and one female on a slide. Received from the Forest



Figs. 1-7—*Liophanurus samueli*, sp. nov. 1. mandibles of female; 2. antenna of male; 3. antenna of female; 4. wing of male; 5. venation more highly magnified; 6, 7. mid & hind legs of female.

Entomologist, Dehra Dun, labelled : "Bred from the flower bud galls of *Dalbergia sissoo*; Dehra Dun, P. N. Chatterjee II. iv. 1941."

The galled flower bud is shown in figure 12.

Family EUCHARIDE

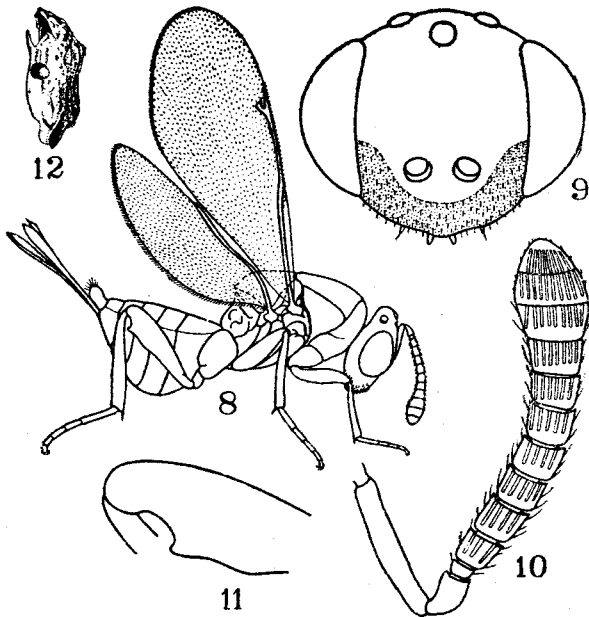
Kapaloides, gen. nov.

This new genus differs from *Kapala*, *Neokapala* and *Lasiokapala* in having one additional antennal segment, *i.e.*, 12 instead of 11. It approaches *Lasiokapala* very closely in the structure of scutellum and pubescence of thorax. The antennae are unequally biramose. In other respects resembling the three above-mentioned genera. The 12 segments of the antennae are as below: scape 1, pedicel 1, funicular segments 9, club 1, funicular segments all branched or the first simple, branches single or unequally forked in some segments. Scutellar processes with the forks broad and carinate.

Genotype.—*Kapaloides travancorensis*, sp. nov.

Kapaloides travancorensis, sp. nov.

Male (Fig. 13).—4 mm. long. General colour of body dark metallic green. Head metallic green, uniformly pubescent, with a height about five-sevenths of the greatest breadth and somewhat broader than thorax, longitudinally striate in front between the eye and the antennal foveae, the striations near the inner borders of the eye much longer and reaching lower down than those near the antennal foveae (fig. 14) face below antenna and sides of cheek below eye smooth and not striated, antennal fovea transversely striate, sides of cheek below the eye densely punctate in the posterior aspect, the back of head transversely striate. Eyes brown. Antennae dark brown, finely pubescent, as in (fig. 15). Sculpture in the middle lobe of mesonotum reticulale and in the



FIGS. 8-12.—*Holaspis indicus*, sp. nov. 8. female lateral view; 9. head viewed in front; 10. antenna of female; 11. hind femur of female showing the subapical dentation; 12. galled flower of *Dalbergia sissoo*, showing the exit hole (about $\times 2$).

lateral lobes transversely reticulo-striate. Pleura sculptured as in figure 13. Scutellum relatively small, sculptured similar to middle lobe of mesonotum, the median furrow not very deep. Scutellar process (fig. 16) narrow, not extremely widely separated, the carina moderately large. Except coxae, which are metallic green, petiole of abdomen moderately long and longitudinally striate.

Holotype one male on pin, with antennae mounted on a slide. Maddatharay, base of Western Ghats, Travancore, 17. xi. 1908.

***Kapaloides andamanensis*, sp. nov.**

Male.—3.5 mm. long. General colour of body mostly dark green or very dark metallic green, somewhat relatively less thickly pubescent than the fore-going species. Head dark metallic green, somewhat more densely pubescent above than below, about as broad as thorax, with a height about three-fifth the greatest breadth; longitudinally striate in front between eyes and antennal fovea, above the level of attachment of antenna and never as low down as the lower level of eyes, the antennal fovea transversely striate; back of head transversely striate;

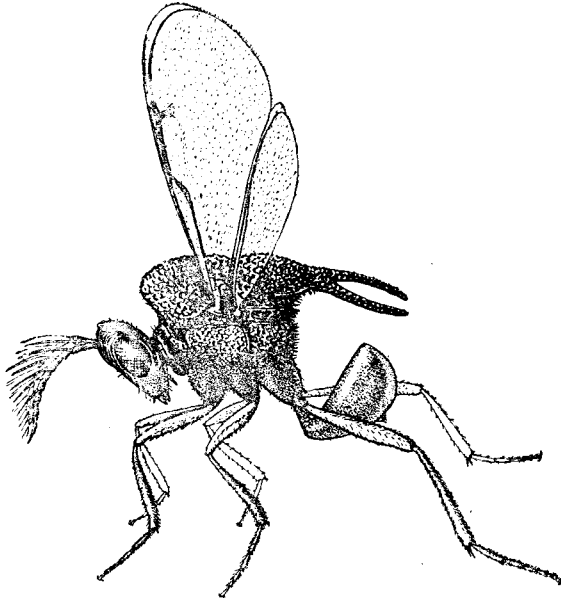


Fig. 13.—*Kapaloides travancorensis*, sp. nov.

sides obliquely striate behind, the striae continued as the transverse striations of the back, not punctate, smooth elsewhere. Eyes dark brown. Antenna as in figure 17. Mesonotum metallic green or greenish-black, coarsely sculptured, scutellum with a distinct median furrow and sculptured similar to mesonotum; scutellar processes broad and with rather broad carinae, widely separated from each other. Coxae dark testaceous brown, rest of legs brown. Abdomen dark coppery-brown, petiole black and irregularly longitudinally striate.

Holotype one male on pin, with antenna mounted on slide. Port Blair, Andamans, iii. 1915.

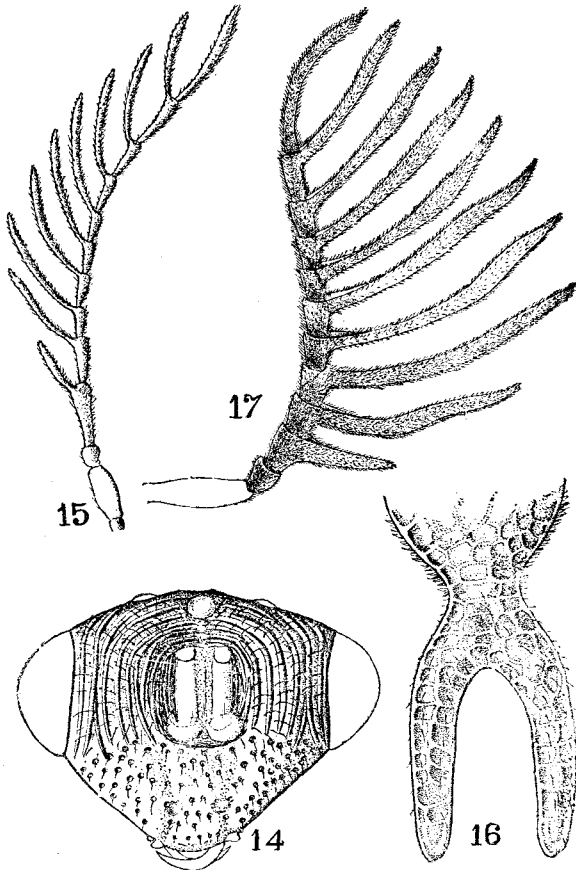
Key to species

- Body mostly dark metallic green, antennae with 9 branches, the branches not exceedingly flattened, first segment of funicle simple; scutellum with the median furrow not very deep, processes relatively one-fifth shorter, without an abnormally broad carina; striae on face descending down to lower level of eye well on the attachment of antennae.....*K. travancorensis*, sp. nov.
- Body metallic greenish-black; antennae with 9 branches, the branches rather greatly flattened, first segment of funicle with a short, stout branch, some of the other funicular segments with a supplementary short branch; scutellum with median furrow rather deep, processes relatively longer with broad carinae; striae on face well above the level of attachment of antennae and never descending below.....*K. andamanensis*, sp. nov.

Family MISCOGASTERIDAE

Systasis dalbergiae, sp. nov.

Female.—1.6 mm. long. Bright metallic green. Head viewed in front (fig. 19) broadly rounded, interorbital space, height of head and width of head in the ratio of 21 : 28 : 35; lateral ocellular space about one and one-fourth



FIGS. 14-16—*Kapaloides travancorensis*, sp. nov. 14. head viewed in front; 15. antenna; 16. scutellar forks viewed above. FIG. 17. antenna of *Kapaloides andamanensis*, sp. nov.

the ocellar diameter when viewed from above. Mandible tridentate, face rugosely punctate between scape and inner orbital border, just below insertion of antennae transversely reticulate. Antennae: scape dark brown ventrad and almost black dorso-apically, rest of antennae very dark brown, other characters as shown in figure 18, inserted a little above the lower borders of eyes. Wing as in figure 20. Coxae, fore and hind femora concolourous with body, rest of legs yellow, except the paler hind tarsi.

Male.—Legs pale yellow, except the dark tips of tarsi and metallic hind femora.

Holotype one female on a slide, allotype one male on card, paratypes on cards. Received from the Forest Entomologist, Dehra Dun, labelled: Parasitic on larva of *Contarinia dalbergiae* Mani, infesting flower buds of *Dalbergia sissoo*, Dehra Dun, P. N. Chatterjee, 30. iii. 1938, 15. iv. 1941.

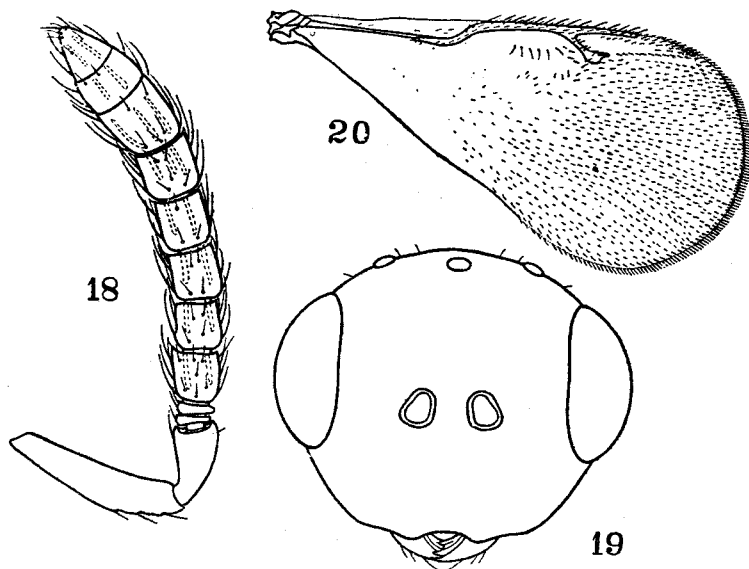
Family *EULOPHIDAE*

Tetrastichus xanthomelaenae (Rondani)

1870. *Oomyzus gallerucae*, Rondani, *Bull. Com. agr. Padova*, p. 5 (preoc.).
 1872. *Oomyzus xanthomelaenae*, Rondani, *Boll. Soc. ent. ital.*, p. 73 (nom. nov.).
 1905. *Tetrastichus xanthomelaenae*, Marchal, *Bull. Soc. ent. France*, p. 82.

I provisionally refer to this species a number of specimens in the Imperial Pusa Collection labelled: Bred from the eggs of *Galerucella singhara*, Delhi, M. Bose, 18. iv. 1942.

The species was originally described from Italy as parasitic in the eggs of *Galerucella luteola* and is being recorded here for the first time from India.



Figs. 18-20—*Systasis dalbergiae*, sp. nov. 18. antennae of female; 19. head viewed in front; 20. wing.

Silvestri¹ describes the species as below : "Femmina corpo di color verde molto scuro, lucente, cogli occhi rosso-scuro, le antenne giallo-scure grigiastre ; le zampe giallastre coi femori bruno-neri eccetto che all' estremità. L'ultimo articolo del tarso è pure alle volte di color bruno. Le ali sono trasparenti colla nervatura grigio azzurrognola. Lunghezza del corpo mm 0.65-0.75. Maschio : Differisce della femmina per le proporzioni minori, le antenne diversamente conformate, per l'addome più ristretto del torace, per le zampe un poco più allungate, coi femori posteriori del colore delle tibie." He has also briefly described the egg and larval stages. The species is widely distributed in France and Italy and was introduced into the United States of America by Howard in 1907 but failed to get established there².

The adults feed on the juice of the host eggs which are punctured for oviposition. The parasite develops for about 10-12 days in the host eggs and emerges as adult.

Family MYMARIDAE

Subfamily GONATOCERINAE

Tribe Gonatocerini

***Alaptus ramakrishnai*, sp. nov.**

Male.—0.25 mm long. Dark brown. Head viewed from above subpyriform, ocelli in a wide obtuse angle, interocellar space twice the ocellular, the later also about twice the ocellar diameter. Antennae as in figure 21, scape

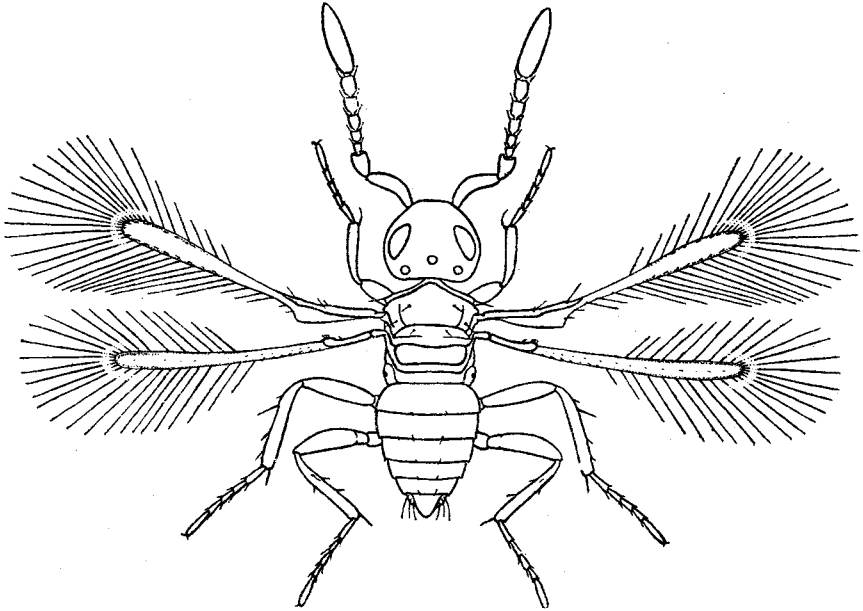


FIG. 21.—*Alaptus ramakrishnai*, sp. nov.

1. Silvestri, *Ann. R. Scuola sup. Agr. Portici*, p. 29.

2. The species was more fully redescribed by Masi in *Boll. Lab. Zool., Agr. Portici*, 1908: 48-50.

equal to the first four funicular segments combined, club equal to the combined length of the preceding four funicular segments, pedicel equal to the first two segments of funicle.

Holotype one male on a slide. T. V. Ramakrishna Ayyar, parasitic on mealy-bug on cocoanut, Coimbatore, i-xii-1934.

***Alaptus delhiensis*, sp. nov.**

Female.—0.25 mm long. Dark brown. Viewed from above head length half the width. Ocellocular space twice the ocellar diameter and interocellar space two and a half times the ocellocular. Antennal pedicel about half the scape. Club relatively more stout than in *Alaptus ramakrishnai*, equal to the funicle in length. Otherwise as in figure 22.

Holotype one female on a slide. On glass window pane in the laboratory of the Imperial Entomologist, New Delhi, M. S. Mani, 23.ix.1940.

Key to species

Pedicel equal to the combined length of first two funicular segments, club equal to the combined length of the four preceding segments.....*A. ramakrishnai*, sp. nov.
 Pedicel shorter, club equal to the funicle.....*A. delhiensis*, sp. nov.

Subfamily MYMARINAE

***Mymar indica*, sp. nov.**

Male.—0.8 mm long. Brown. Antennae about twice the length of body, segments 13, scape and pedicel brown, rest of antennae very dark brown, pedicel about one-third the first funicular segment and somewhat more than one-fourth the length of scape. Ocellocular space is equal to the distance between the lateral ocelli and front ocelli, interlateralocellar space one and two-thirds of ocellocular. Fore wings as in figure 23. Length of abdominal petiole twice

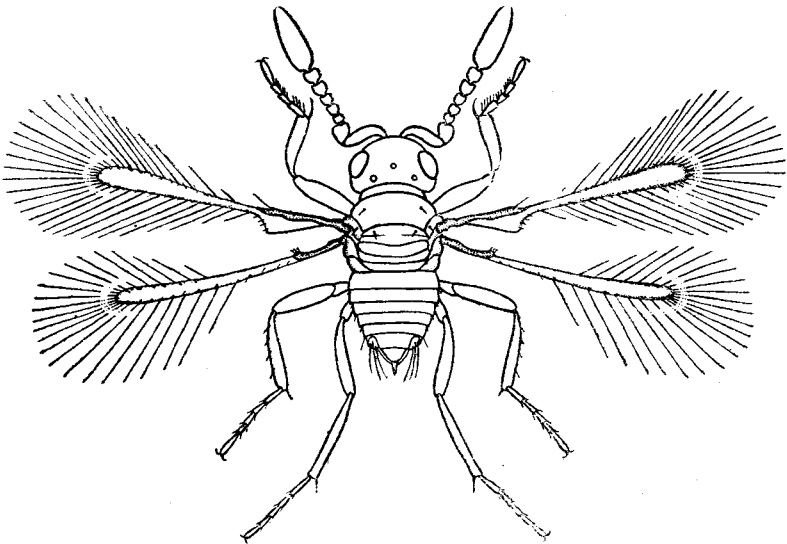


Fig. 22.—*Alaptus delhiensis*, sp. nov.

its diameter. The forked apical spur of fore legs and the pectinate setation of fore metatarsus as separately shown in figure 23.

Holotype one male on a slide. Found along with thrips collected in dandelion flowers, Shumsher Singh, Delhi, 12.x.1940.

The genus *Mymar* is being recorded here for the first time from India.

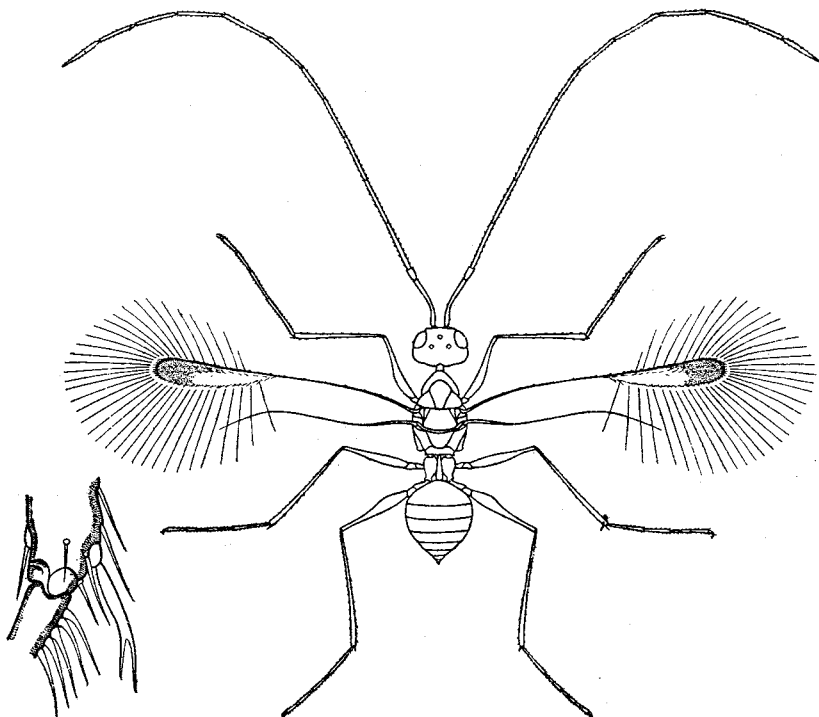


Fig. 23.—*Mymar indica*, sp. nov.

Superfamily BETHYLOIDEA

Family ANTEONIDAE

Subfamily GONATOPIDINAE

***Pseudogonatopus pyrillae*, sp. nov.**

Female.—Length 3.5 mm. Dark reddish-brown, with extremely scattered, fine setae. Head: Darker above than below. Viewed above about twice as long medially; conspicuously excavated; interorbital space in front nearly two-thirds that behind, *i.e.*, median orbital borders diverge strongly behind, also slightly sinuate; orbito-occipital space about one-third orbital length; ocelli very close to each other in the middle of the deeply excavated vertex; vertex smooth, shiny or obscurely sculptured, in the ocellar area very finely striate, with very fine scattered setae; median longitudinal carina prominent and touching front ocellus; occipital area excavated. Viewed in front transverse, finely lederartig; frons yellowish by median orbital border; median longitudinal carina faint

below, more prominent above and continued into vertex; clypeus obscurely finely lederartig, nearly twice as wide as long. Gena smooth. Mandible: yellow, 4-dentate, teeth dark brown, apical tooth largest, blunt; second smaller, acute; third and fourth smaller, blunt. Antenna about five sixths the length of body; scape yellowish-brown, ventrally yellowish, compressed, finely densely pubescent; pedicel about four-fifths of scape; third segment fully thrice the scape; rest of antenna paler.

Thorax without erect hairs; very distinctly divided; transverse carinae prominent; finely lederartig in front; smooth, glossy behind; narrowed part lederartig, $1\frac{1}{2}$ times as long as broad, with a small, shiny area behind; propodeum finely lederartig in front and finely transversely striate behind, with a median longitudinal impressed line; about $1\frac{1}{2}$ times as long as broad and five times as wide as narrowed part of thorax. Pleura matt.

Legs: F coxa about $\frac{3}{4}$ the trochanter; F femora equal to F tibia; tarsal terminal pincer claw of the usual structure, with eight lamellae and a minute sub-apical tooth on the lateral process; ten close-set lamellae on the inner process; tarsi pale brown. H femur dark brown at the clavate base, rest of H legs light brown.

Abdomen: Black, smooth, shiny, with transverse rows of fine short setae in the middle of each tergite; petiole black, shiny about half the H coxae.

Male:—Length 2.5 mm. Head: Viewed above transverse; occipital margin strongly curved; more than twice as wide as long; interorbital space $\frac{2}{3}$ the head width; occipito-orbital space $\frac{2}{5}$ th head length; interocellar space twice ocellular. Viewed in front sub-triangular, nearly twice as wide as long; median orbital borders slightly converging above. Gena $\frac{3}{5}$ th orbital length; posteriorly carinately raised. Frons medially, longitudinally raised; sculpture matt. Antennae dark brown, inserted opposite the lower orbital border. Scape ovate; pedicel slightly shorter than scape.

Thorax: Matt, coarsely lederartig; parapsidal furrows complete, distinct; scutellum distinct; matt; metanotum and propodeum matt.

Legs: Except the black coxae and the paler tarsi, fuscous-brown. Wings: hyaline; veins colourless; pterostigma colourless. Abdomen: nearly as long as thorax; smooth, shiny.

Holotype—One female on a card labelled: "P.C.S. 710. Parasite on nymph of *Pyrilla* spp. Karnal, K. Lakshmanan Coll. 7-x-1941". Allotype one male on card labelled "P.C.S. 190, parasite on nymph of *Pyrilla* spp., Daurala Farm (Meerut). K. Lakshmanan Coll. 23-x-1938. Paratypes three females on cards.