

ON SOME SCELIONIDAE (PROCTOTRUPOIDEA : HYMENOPTERA)  
FROM INDIA\*

By

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(With 12 Text-figures)

INTRODUCTION

This paper deals with thirteen species of Scelionidae from India, collected by Dr. M. S. Mani and party, in the course of Field Surveys with PL-480 financial grant by the U. S. Department of Agriculture. Of the thirteen species dealt with here, nine are described as new, one known species has been redescribed and additional distributional data for other three species are also included. The type specimens are for the present retained in the School of Entomology, pending final disposal.

My thanks are extended to Dr. Lubomir Masner, Biosystematics Research Institute, Agriculture Canada, Ottawa, Ontario, Canada, for help in interpretation of the species of *Gryon*. I also express my cordial thanks to Prof. M. S. Mani, for guidance and encouragement.

1. *Anteromorpha glabra* sp. nov.

(Text-fig. 1)

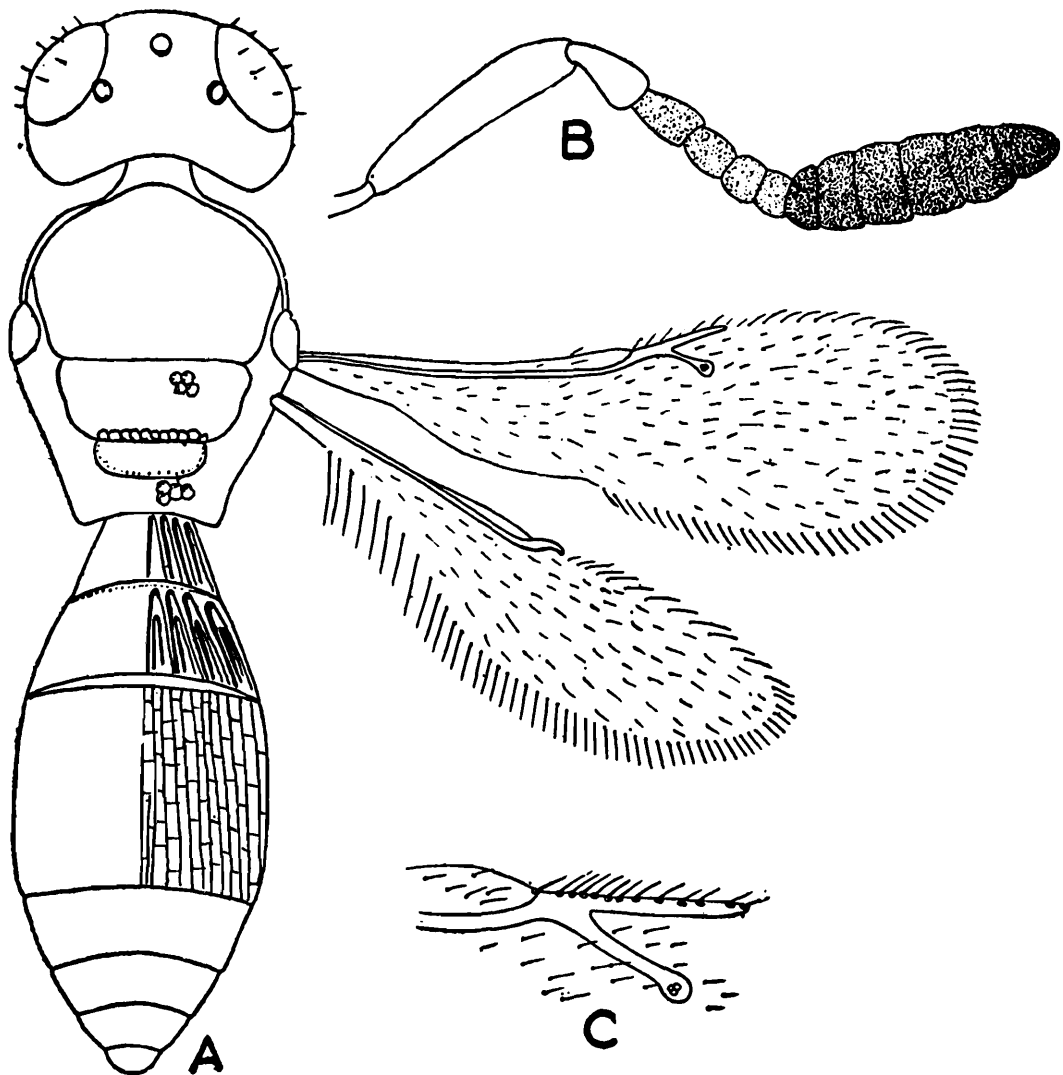
*Female* : Body length of holotype 2.00 mm (range 2.00-2.10 mm) ; fore wing 1.36 mm, reaching to sixth tergite ; hind wing 1.22 mm ; abdomen 1.12 mm. Head black ; eyes black with brown tinge ; scape and pedicel brown, funicular segments brownish-black, club black ; scutellum and metanotum very dark brown, rest of thorax ferruginous brown ; legs yellowish-brown ; wings faintly brown ; abdomen brownish-black, somewhat darkened at the tip.

*Head* as wide as thorax ; frons without impression ; viewed from above (Text-fig. 1 A) length to width 26 : 15 ; seen laterally higher than long ; vertex reticulately punctate : frons reticulately striate and with punctae, with silvery-white hairs ; occiput strongly sinuate, margined ; mandibles long, bidentate ; lateral ocelli contiguous with the eyes, front ocellar space about 3.00 times the ocellar diameter, interocellar space about 4.00 times the ocellar diameter ; eyes with short, conspicuous

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hairs, eye to head length 12 : 15. *Antenna* (Text-fig. 1 B) to body length 43 : 100 ; segments 12, 1.1.4.6 ; scape 4.00 times as long as thick, equal to the following four segments combined ; pedicel somewhat less than twice as long as thick, 0.33 of the scape ; first funicular segment slightly shorter than pedicel, 1.70 times as long as thick ; second segment 1.25 times as long as thick, 0.70 of the first ; third globose, somewhat shorter than second ; fourth subglobose, very slightly shorter



Text-fig. 1. *Anteromorpha glabra* sp. nov. Female A. body dorsal view, B. antenna, C. veins enlarged.

than third ; club segments transverse except the terminal segment being oval ; first segment half of its width, nearly equal to preceding segment ; segment second somewhat longer than first, nearly half of its width ; segments third to fifth subequal, 0.62 of their width, slightly longer than second ; terminal segment as long as wide, 1.40 times the preceding segment.

*Thorax* (Text-fig. 1 A) length to width 33 : 16 ; with white pubescence ; notauli absent ; mesonotum to scutellum 17 : 9 ; mesonotum

minutely punctate ; scutellum semi-circular, unarmed, punctate ; metanotum medially expanded to form a plate that is slightly wider in the middle than at sides, with hexagonal reticulations ; propodeum reticulately striate in middle, matt laterally. *Fore wing* (Text-fig. 1 A & C) length to width 68 : 21 ; venation *sm* : *m* : *pm* : *st* 33 : 3 : 5 : 5 ; basalis absent ; marginal fringe well developed. *Hind wing* (Text-fig. 1 A) to fore wing 61 : 68 ; length to width 61 : 13.

*Abdomen* (Text-fig. 1 A) to body 56 : 100 ; segments 7 ; length to width 56 : 21 ; fusiform ; first, second and third tergites 7 : 8 : 22 ; first tergite without tubercle ; first and second tergites longitudinally striate ; third tergite finely, reticulately, longitudinally striate ; other tergites smooth, matt, with scattered white pubescence and setigerous punctures.

*Holotype* : Female mounted on card, 20.11. Maldare Teak Forest : Karnataka Survey, Coll. *M. S. Mani, S. K. Sharma & G. G. Saraswat*, 25.v.-1,6.vi. 1978. *Paratypes* ; 1 female on card, with same data as for holotype ; 2 females on cards, 20.13 Hudukeri, other data as for holotype.

This species differs from *A. deccanensis* Sharma<sup>1</sup>, in general body colour ; frons being reticulately striate ; metanotum not like a subtriangular plate but with a simple plate ; sculpture of third and other tergites also differ.

## 2. *Calliscelio coorgensis* sp. nov.

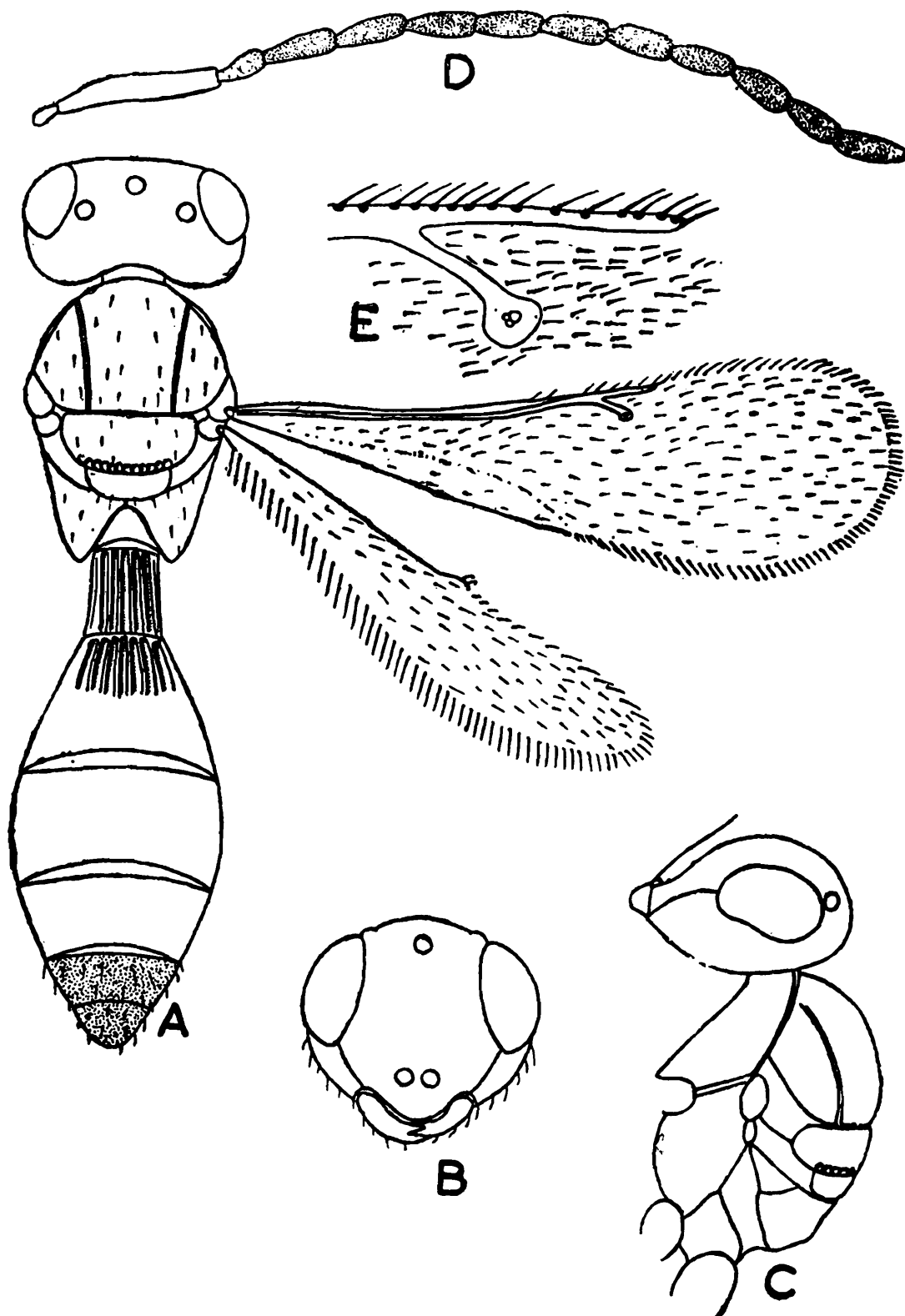
(Text-fig. 2)

*Male* : Body length 3.20 mm ; fore wing surpassing the abdomen, 2.20 mm ; hind wing 1.90 mm ; abdomen 1.80 mm. General colour of body yellowish-brown except last two black tergites ; eyes black ; ocelli blackish ; scape yellowish-brown, pedicel brownish-black, rest of antennal segments black ; wings hyaline, veins brown ; legs yellowish-brown.

*Head* somewhat wider than thorax ; sub-quadrangle ; frons without fovea, with minute shallow well separated punctae ; vertex matt, with leathery sculpture and fine pubescence ; gena smooth, shiny, with distinct carina and fine pubescence ; mandibles tridentate ; viewed from above (Text-fig. 2 A) length to width 40 : 20 ; seen from front (Text-fig. 2 B) length to width 36 : 40 ; seen laterally (Text-fig. 2 C) somewhat higher than long ; ocellular space nearly half the ocellar diameter, front ocellar space somewhat more than twice the ocellar diameter, interocellar space 5.00 times the ocellar diameter ; eyes bare,

1 Sharma, S. K. 1978. *Mem. Sch. Ent.*, 5 : 20.

oval, eye to head length (Text-fig. 2 A) 15 : 20. Antenna (Text-fig. 2 D) to body 100 : 160 ; antennal hairs much shorter than the thickness of segments ; segments 12, 1.1.9.1 ; scape cylindrical, somewhat more than



Text-fig. 2. *Calliscelio coorgensis* sp. nov. Male. A. body dorsal view, B. head front view, C. head and thorax in profile, D. antenna, E. veins enlarged.

5.00 times as long as thick, subequal to 2.75 of the following segments combined ; pedicel twice as long as thick, 0.30 of the scape ; first funicular segment longer than the following segments except the terminal,

2.57 times as long as thick, 1.50 times the pedicel ; segments 2-9 subequal, gradually becoming slightly shorter, 2.60 times as long as thick, 0.90 of the first ; terminal segment 3.00 times as long as thick, 1.12 times the preceding segment.

*Thorax* viewed dorsally (Text-fig. 2, A) length to width 45 : 35 ; with close, minute, shallow punctae ; notauli distinct, complete, widely separated behind and slightly diverging in front ; mesoscutum to scutellum 25 : 10, with scattered setigerous punctures ; scutellum unarmed, rounded behind, with a row of sulci ; mesopleura obscurely transversely rugulose ; metanotum lamellate, lamella medially wider than at the sides, with white pubescence ; propodeum with a 'λ'-shaped carina, forked behind and with dense, white, short pubescence. *Fore wing* (Text-fig. 2 A & E) length to width 110 : 34 ; venation *sm* : *m* : *pm* : *st* 55 : 4 : 9 : 6 ; basalis absent ; discal ciliation well developed ; marginal fringe short. *Hind wing* (Text-fig. 2 A) to fore wing 86 : 100 ; length to width 100 : 18.

*Abdomen* (Text-fig. 2 A) to body 100 : 177 ; fusiform ; first tergite cylindrical, slender, somewhat longer than wide, longitudinally striate, with white pubescence ; first, second and third tergites 15 : 23 : 18 ; second tergite basally longitudinally striate, otherwise smooth and shiny ; other tergites smooth and shiny, with scattered setigerous punctures ; conspicuous silvery-white hairs on the last two tergites.

*Holotype* : Male mounted on card, *paratype* 1 male on card, 20.6. Walayar Forest : Kerala (South India), Coll. *M. S. Mani & S. K. Sharma*, 9-11. v. 1976.

Differs from *C. orientalis* Sharma<sup>1</sup>, in body colour ; vertex not aciculate punctate but matt ; gena without punctae ; mesoscutum and scutellum not smooth but with shallow punctae ; *pm* being shorter ; second tergite not completely longitudinally striate. This species also differs from *C. coromandelensis* Sharma<sup>2</sup>, in body colour not being black ; vertex and gena not punctate ; frons above antennal sockets without fine transverse striations.

### 3. *Calliscelio orientalis* Sharma

1978. *Calliscelio orientalis* Sharma, In : Saraswat & Sharma. *Mem. Sch. Ent.*, 5 : 34, figs. 17-18.

This species was originally described from material mounted on slides. I have since then before me additional material mounted on cards.

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1. Sharma, S. K. 1978. *Mem. Sch. Ent.*, 5 : 36.

2. Sharma, S. K. 1978. *Mem. Sch. Ent.*, 5 : 32.

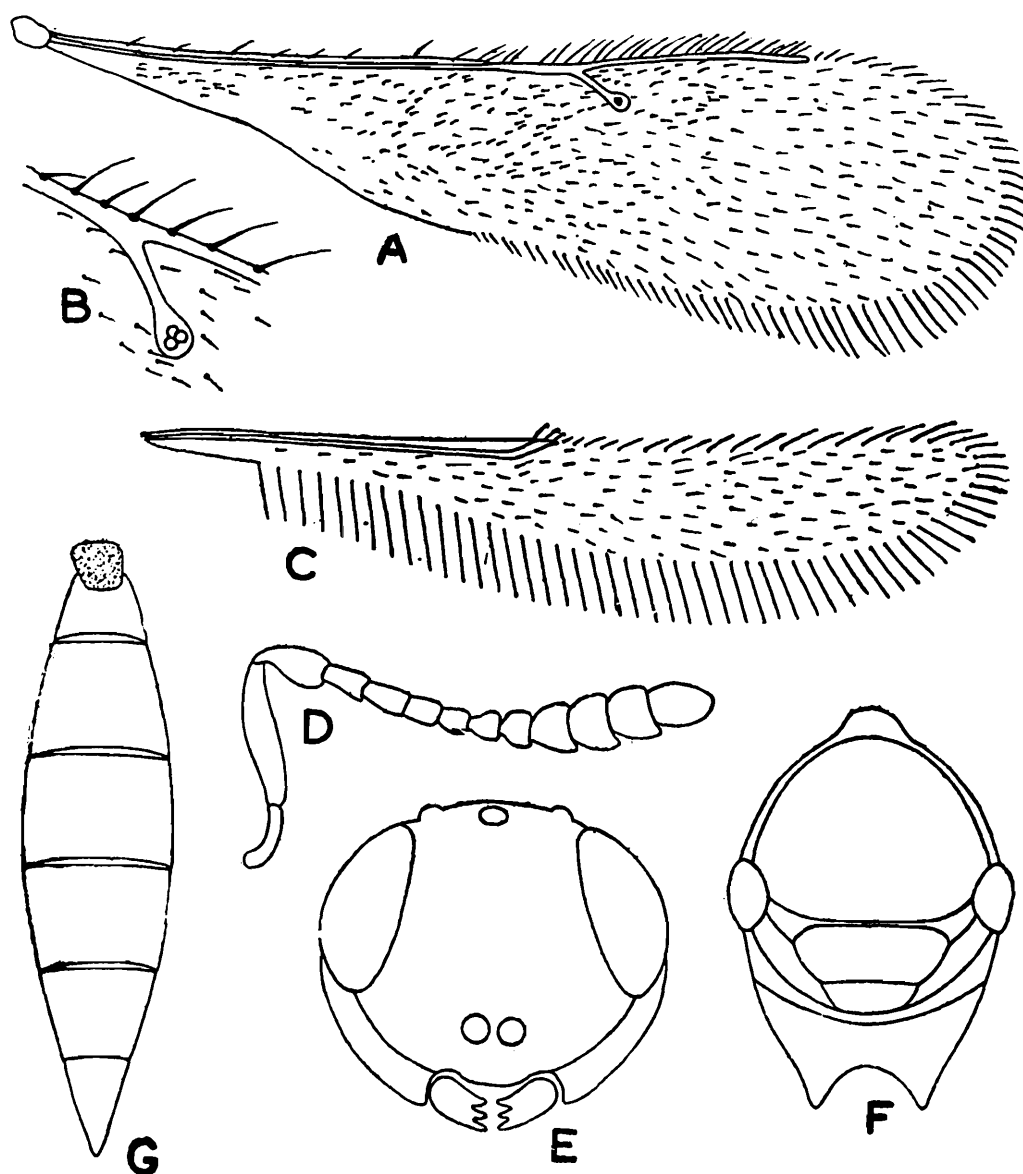
The original description may be amended to read that the metanotum is expended in a lamina medially wider than at sides.

*Material studied* : 3 females and 4 males on cards, 20.9. Attur Reserve Forest ; 2 females and 8 males on cards, 20.11. Maldare Teak Forest ; 1 male on card, 20.12. Dubare Forest, Karnataka Survey, Coll. *M. S. Mani, G. G. Saraswat & S. K. Sharma*, 20. v.-10. vi. 1978.

#### 4. *Calotelea immaculata* sp. nov.

(Text-figs. 3 & 4)

*Female* : Body length 1.82 mm ; fore wing 1.18 mm ; hind wing 1.04 mm ; abdomen 1.20 mm. General colour of body yellowish-brown



Text-fig. 3. *Calotelea immaculata* sp. nov. Female. A. fore wing, B. veins enlarged, C. hind wing, D. antenna, E. head front view, F. thorax, G. abdomen.

except the head being black ; eyes blackish-brown ; antennae light brown except for the dark brown pedicel and club ; wings hyaline ; legs

yellowish ; tubercle, sixth and seventh tergites blackish-brown, fifth brown, other tergites yellowish-brown.

*Head* as wide as thorax ; vertex smooth and shiny ; frons without impression, minutely and closely punctate ; gena longitudinally striate ; mandibles tridentate with small middle tooth ; viewed from front (Text-fig. 3 E) length to width 30 : 25 ; lateral ocelli contiguous to the eyes, front ocellar space 1.50 times the ocellar diameter, interocellar space more than 4.00 times the ocellar diameter ; eyes naked, eye to head length 10 : 15. *Antenna* (Text-fig. 3 D) to body 38 : 100 ; segments 12, 1.1.5.5 ; scape cylindrical, 4.65 times as long as thick, subequal to following two segments combined ; pedicel 2.66 times as long as thick, 0.57 of the scape ; funicular segments first and second subequal, longer, twice as long as thick, 0.60 of the pedicel ; third segment less than twice as long as thick, somewhat shorter than preceding segment ; club transverse except the terminal ; first segment slightly wider than long, subequal to preceding segment ; second segment as long as wide, 1.33 times the first ; segments third and fourth subequal, slightly wider than long, somewhat longer than second ; terminal segment oval, 1.30 times as long as thick, somewhat longer than preceding segment.

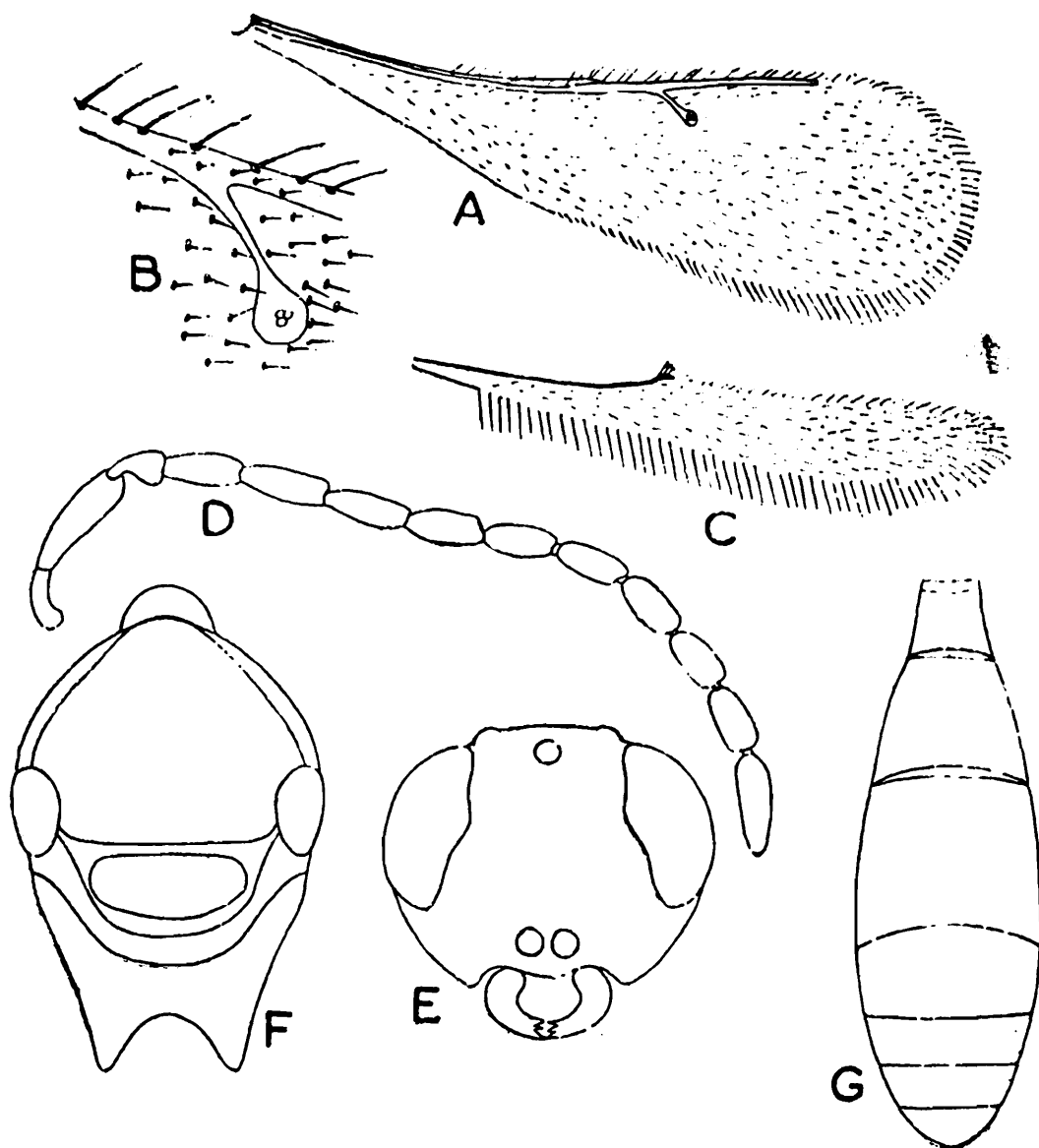
*Thorax* (Text-fig. 3 F) length to width 22 : 17 ; smooth and shiny ; notauli absent ; mesonotum to scutellum 12 : 4 ; metanotum and propodeum unarmed. *Fore wing* (Text-fig. 3 A & B) narrow, elongate and unspotted ; length to width 100 : 26 ; venation *sm* ; *m* ; *pm* : *st* 28 : 5 : 15 : 3.5 ; basalis absent. *Hind wing* (Text-fig. 3 C) to fore wing 88 : 100 ; length to width 100 : 15.

*Abdomen* (Text-fig. 3 G) to body about 50 : 100 ; first tergite with a short, broad tubercle and with fine longitudinal striations ; rest of abdomen smooth and shiny ; first, second, third and fourth tergites 9 : 11 : 11 : 10.

*Male* : Body length 1.76 mm ; fore wing 1.24 mm ; hind wing 1.10 mm ; abdomen 0.96 mm. General colour of body yellowish-brown ; head yellow ; eyes blackish-brown ; scape yellowish-brown, rest of antennae blackish-brown ; thorax brown ; legs yellowish-brown ; wings faintly yellow ; first, second and third tergites yellow, with black patches at sides in second and third, rest of abdomen black.

*Head* as wide as thorax ; viewed from front (Text-fig. 4 E) length to width 15 : 19 ; frons finely punctate ; vertex smooth and shiny ; gena finely longitudinally striate ; lateral ocelli close to the eyes, front ocellar space nearly equal to the ocellar diameter, interocellar space about 3.00 times the ocellar diameter ; mandibles tridentate ; eyes bare, eye to head length 9.5 : 15. *Antenna* (Text-fig. 4 D) to body 65 : 100 ;

segments 12, 1.1.9. 1 ; scape cylindrical, somewhat thicker apically, 3.50 times as long as thick, subequal to following two segments combined ; pedicel 1.50 times as long as thick, 0.43 of the scape ; first funicular segment twice as long as thick, 1.33 times the pedicel ; second segment 2.50 times as long as thick, 1.25 times the first ; third segment somewhat more than twice as long as thick, slightly shorter than second ;



Text-fig. 4. *Calotelea immaculata* sp. nov. Male. A. fore wing, B. Veins enlarged, C. hind wing, D. antenna, E. head front view, F. thorax, G. abdomen.

segments 4-9 subequal, about 2.00 times as long as thick, slightly shorter than preceding segment ; terminal segment 3.00 times as long as thick, 1.50 times the preceding segment.

*Thorax* (Text-fig. 4 F) length to width 27 : 15 ; notauli absent ; mesonotum to scutellum 13 : 5, smooth and shiny ; scutellum unarmed ; metanotum and propodeum unarmed. *Fore wing* (Text-fig. 4 A & B) length to width 100 : 29 ; narrow, elongate ; venation *sm* : *m* : *pm* ; *st* 29 : 6 ;



11 : 4 ; basalis indicated by brown discolouration. *Hind wing* (Text-fig. 4 C) to fore wing 88 : 100.

*Abdomen* (Text-fig. 4 G) to rest of body 50 : 40 ; 7 segmented ; first tergite without tubercle, longitudinally striate ; second tergite smooth and shiny except the impressed area in front with short striae ; other tergites smooth and shiny ; first, second and third tergites 6 : 9 : 13.

*Holotype* : Female mounted on slide, 17.6. Kollimalai Hills : Eastern Ghats Survey, Coll. *M. S. Mani & S. K. Sharma*, 20. i-3. ii. 1977. *Allotype* : Male mounted on slide, with same data as for holotype.

This species differs from *C. auriventria* Sharma<sup>1</sup>, in *m* being longer than *st* ; fore wing without brown transverse band.

### 5. *Gryon fulviventris* (Crawford)

1912. *Hadronotus fulviventris* Crawford, *Proc. U. S. nat. Mus.*, 42 : 2.

I have before me 1 female labelled as "17.8. Hogenakal ; Karnataka, Coll. *S. K. Sharma & G. G. Saraswat*, 1. ii. 1976" ; 4 females labelled as "9.15. Thanjavur, 9.9. Achankovil, 9. 1. Mallapuram, Cardomom Hills, Coll. *M. S. Mani & party*, 1-15. iv. 1973" ; 1 female labelled as "20.12. Dubare : Karnataka Survey, Coll. *M. S. Mani, G. G. Saraswat & S. K. Sharma*, 26-v. 4-7.-vi. 1978".

This species was originally described from Bangalore as parasitic on the eggs of *Clavigralla gibbosa*. The identification of this species was confirmed by Dr. Masner.

### 6. *Gryon gonikopalensis*. sp. nov.

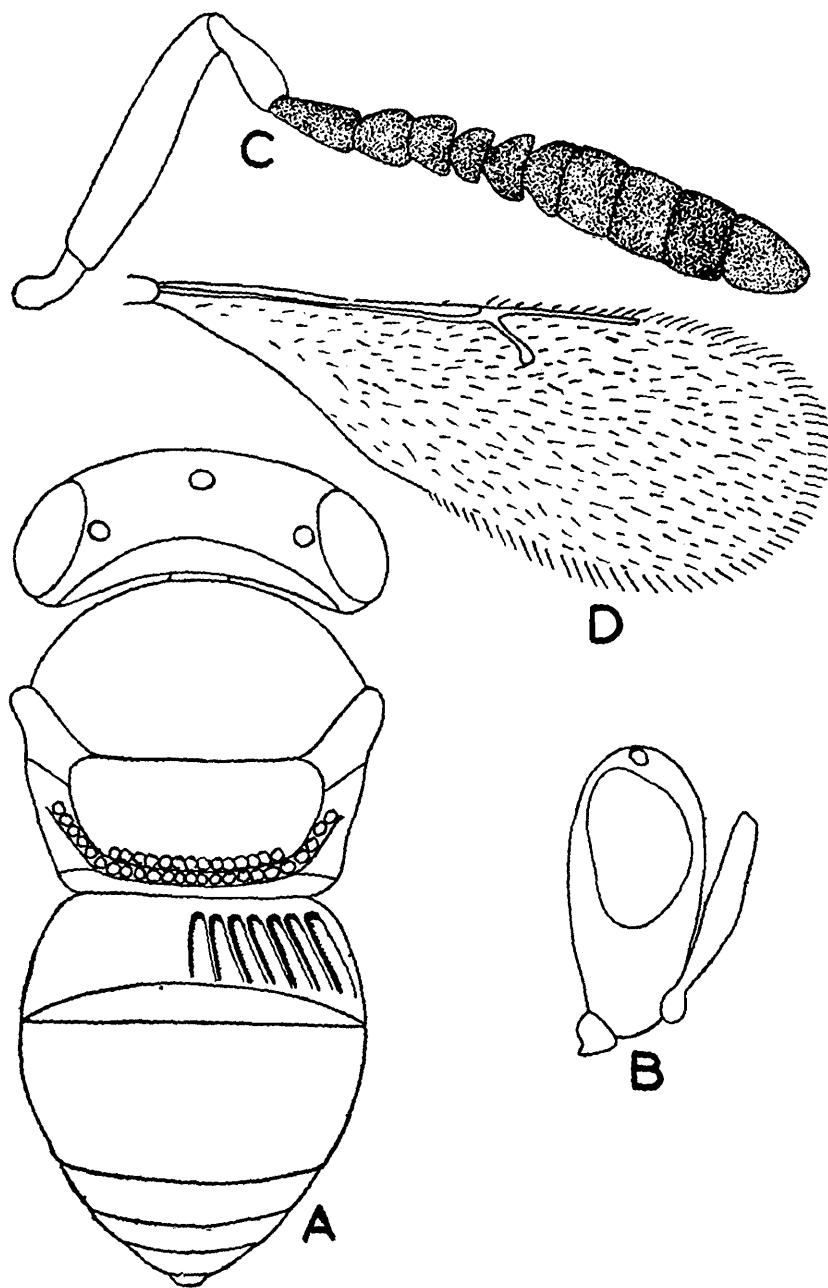
(Text-fig. 5)

*Female* : Body length 1.68 mm ; fore wing 1.36 mm ; abdomen 0.80 mm. General colour of body black ; eyes brownish-black ; scape and pedicel brown, rest of antennae black ; wings hyaline, veins brown ; legs brown except the black coxae.

*Head* transverse, as wide as thorax ; vertex and frons very finely, minutely and closely reticulate ; gena with very fine, longitudinal striations and with scattered pubescence ; scrobe shallow, obscurely defared with a fine median longitudinal carina, on the sides of carina reticulately transverse striations ; viewed from above (Text-fig. 5 A) length to width 33 : 100 ; seen laterally (Text-fig. 5 B) length to height 16 : 30 ; viewed from front somewhat wider than long ; lateral ocelli close to eyes,

1. Sharma, S. K. 1978. *Mcm. Sch. Ent.*, 5 : 40.

interocellar space about 7.00 times the ocellar diameter, front ocellar space about 4.00 times the ocellar diameter; eyes perfectly bare, oval. *Antenna* (Text-fig. 5 C) to body 60 : 100; segments 12, 1.1, 4.6; scape cylindrical, 5.50 times as long as thick, equal to following six segments combined; pedicel somewhat more than twice as long as thick, 0.30 of



Text-fig. 5. *Gryon gonikopalensis* sp. nov. Female. A. body dorsal view, B. head in profile, C. antenna, D. fore wing.

the scape; first funicular segment 1.50 times as long as thick, 0.60 of the pedicel; second segment slightly shorter than first, somewhat longer than wide; third transverse, somewhat wider than long, 0.80 of the second; fourth segment transverse, 1.50 times as wide as long, 0.80 of the preceding segment; club segments transverse except the terminal; first and second segments subequal, 1.50 times as wide as long, equal to preceding segment; segments third to fifth subequal,

1.33 times as wide as long, 1.50 times the preceding segment ; terminal segment oval, 1.28 times as long as thick, 1.66 times the preceding segment.

*Thorax* with short white pubescence ; seen from above (Text-fig. 5 A) depressed, length to width 32 : 36 ; seen laterally somewhat wider than high ; notauli absent ; mesonotum to scutellum 18 : 13, finely reticulate ; scutellum semi-circular, elevated ; mesopleura with double row of well separated minute punctae ; metanotum very narrow, strip-like, with a row of sulci. *Fore wing* (Text-fig. 5 D) length to width 100 : 48 ; venation  $sm : m : pm : st$  64 : 4 : 24 : 11 ;  $sm$  reaching nearly half the front margin of wing ;  $m$  punctiform ; other veins absent ; marginal fringe short ; discal ciliation well developed.

*Abdomen* (Text-fig. 5 A) to rest of body 40 : 44 ; length to width 40 : 35 ; seen laterally height to width 20 : 40 ; first tergite very finely longitudinally striate ; second tergite largest, anteriorly with fine longitudinal striations, posteriorly minutely, closely punctate ; third tergite anteriorly with close minute punctae ; other tergites narrow.

*Holotype* : Female mounted on card, 14. 4. Gonikopal : Western Ghats Survey, Coll. *M. S. Mani & party*, 12. iii. 1975.

## 7. *Gryon hogenakalensis* sp. nov.

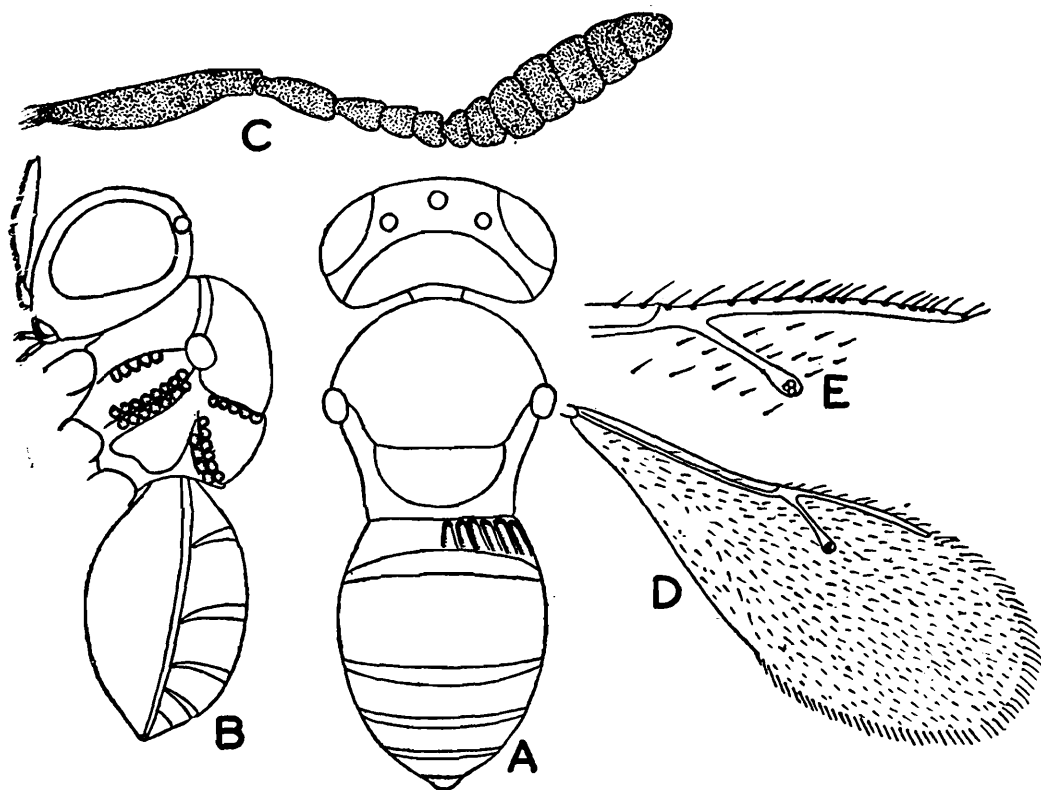
(Text-fig. 6)

*Female* : Body length 1.36 mm ; forewing 1.20 mm ; hind wing 0.80 mm ; abdomen 0.64 mm. General colour of body black ; eyes brownish-black ; antennae black, scape at the base brown ; coxae and femora black, tibia and tarsus brown ; wings hyaline.

*Head* slightly wider than thorax ; viewed dorsally (Text-fig. 6 A) length to width 12 : 26 ; seen laterally (Text-fig. 6 B) length to height 16 : 23 ; frons without fovea ; vertex strongly margined behind ; head finely, closely, minutely reticulate ; gena finely reticulate ; ocellocular space slightly less than the ocellar diameter, front ocellar space 2.50 times the ocellar diameter, interocellar space about 5.00 times the ocellar diameter ; eyes oval, perfectly bare. *Antenna* (Text-fig. 6 C) to body 60 : 100 ; segments 12, 1.1.4. 6 ; scape long, slightly thickens in middle, cylindrical, about 5.00 times as long as thick, slightly more than following five segments combined ; pedicel 2.25 times as long as thick, 0.32 of the scape ; first funicular segment 1.50 times as long as thick, 0.66 of the pedicel ; second segment as long as thick, 0.66 of the first ; third and fourth segments subequal, subglobose, somewhat thicker than long, slightly shorter than second ; club segments transverse except the last, equal

to scape; first segment 0.80 of its width, 1.33 times the preceding segment; segments second to fifth subequal, 1.40 times as wide as long, slightly longer than preceding segment; terminal segment oval, slightly longer than preceding segment.

*Thorax* seen dorsally (Text-fig. 6 A) length to width 26 : 25; seen laterally (Text-fig. 6 B) slightly higher than wide; notauli absent;



Text-fig. 6. *Gryon hogenakalensis* sp. nov. Female A. body dorsal view, B. body in profile. C. antenna, D. fore wing, E. veins enlarged.

mesonotum to scutellum 18 : 10, with fine reticulate sculpture; mesopleura with scattered punctae; metanotum very narrow. *Fore wing* (Text-fig. 6 D & E) length to width 60 : 23; venation  $sm : m : pm : st$  25 : 3 : 15 : 7.5; other veins absent; marginal fringe short; fore wing to hind wing 60 : 40.

*Abdomen* (Text-fig. 6 A & B) to rest of body 32 : 36; length to width 32 : 25; abdomen dorsoventrally bulging; first tergite longitudinally striate; second and third tergites closely, minutely, reticulate; other tergites with very fine sculpture and with scattered setigerous punctures; second tergite largest.

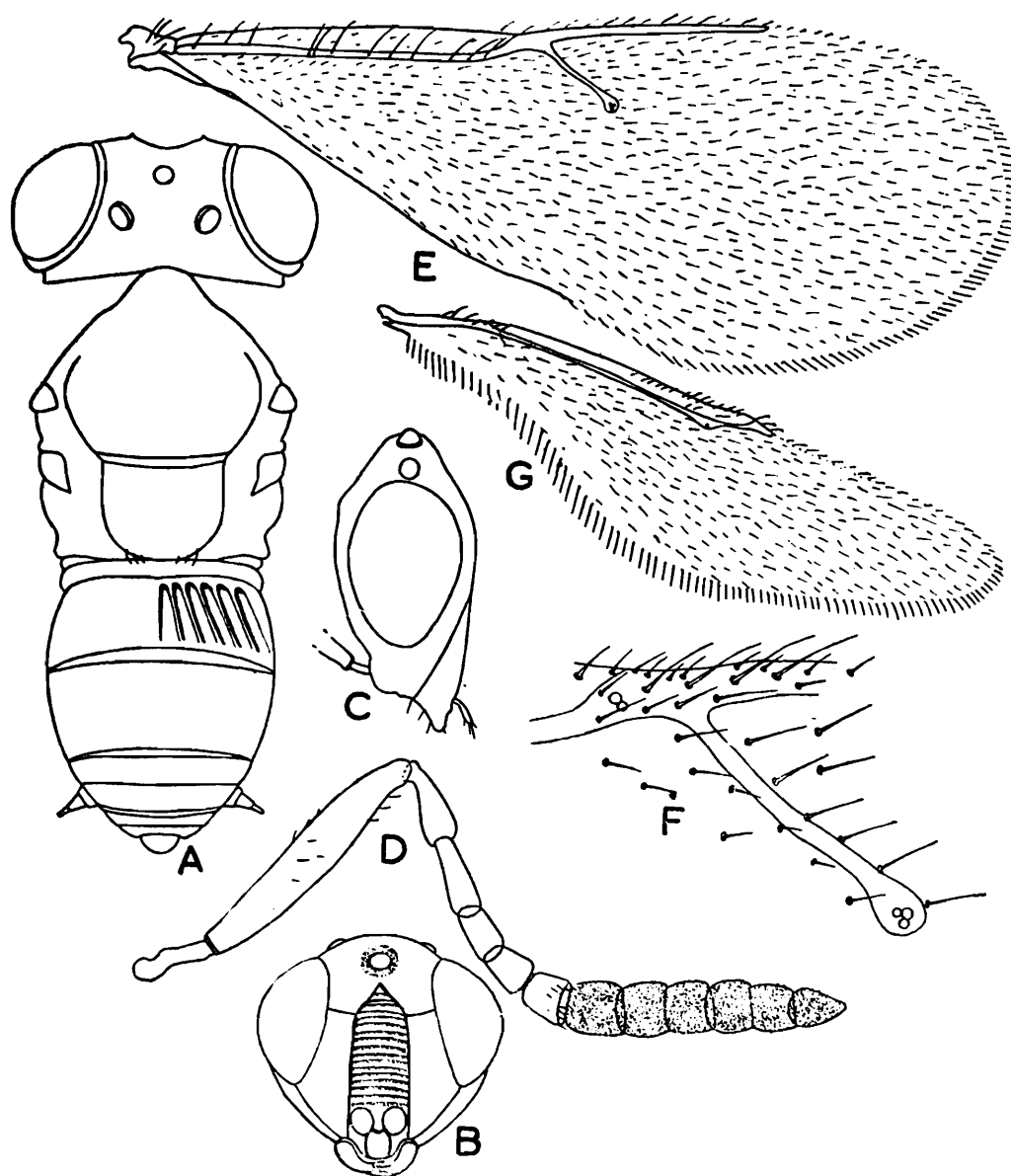
*Holotype*: Female mounted on card, 17.8. Hogenakal : Karnataka (Eastern Ghats Survey), Coll. *S. K. Sharma & G. G. Saraswat*, 1. ii. 1977. *Other material examined*: 2 females on cards, labelled as "9. 1. Mallapuram and 9.9. Achankovil, Cardamom Hills, Coll. *M. S. Mani & party*, 1-5. iv. 1973."

8. *Gryon homoeoceri* (Nixon)

(Text-fig. 7)

1984. *Hadronotus homoeoceri* Nixon, *Stylops* (B) 3 : 4.

I have before me 2 females (wings and antenna of 1 female on slide, the rest on card strips) labelled as "12.4. Ponmudi : Kerala Survey, Coll. M. S. Mani & party, 23. viii. 1974", which apparently belong to this species (this view is shared by Dr. Masner in a letter). The species was originally described from Java as parasitic in the eggs of



Text-fig. 7. *Gryon homoeoceri* (Nixon). Female A. body dorsal view, B. head front view, C. head in profile, D. antenna, E. fore wing, F. veins enlarged, G. hind wing.

*Homoeocerus marginellus*. This is the first record of the species from India. The original description by Nixon is not complete and the following additional notes may be useful.

*Female* : Body length 2.24 mm ; fore wing 2.00 mm ; hind wing 1.60 mm ; abdomen 1.00 mm. General colour of body black ; eyes blackish-brown ; scape brown, antennal segments second to sixth brown with blackish tinge, rest of antennal segments black : wings hyaline, veins yellowish-brown ; coxae black, rest of legs brown.

*Head* transverse, with scattered moderate silvery-white pubescence ; wider than thorax (51 : 47) ; scrobe deep, coarsely, transversely striate and strongly carinately margined, connected by a transverse carina above with the eye ; vertex coarsely reticulate, with the carinae ring round the front ocellus ; frons on either side of scrobe transversely rugose ; sculpture of gena like that of frons ; viewed from above (Text-fig. 7 A) length to width 23 : 51 ; seen from front (Text-fig. 7 B) globose ; seen laterally (Text-fig. 7 C) higher than long ; ocelli very conspicuous, ocellocular space somewhat less than half the ocellar diameter, front ocellar space slightly less than twice the ocellar diameter, interocellar space 3.30 times the ocellar diameter ; eyes oval, naked.

*Antenna* (Text-fig. 7 D) to body 74 : 100 ; segments 12, 1.1.4.6 ; scape cylindrical, slightly thickened in the middle, 6.00 times as long as thick, equal to 4.50 of the following segments combined ; pedicel 2.70 times as long as thick, 0.31 of the scape ; first funicular segment 3.00 times as long as thick, somewhat shorter than pedicel ; second segment 2.00 times as long as thick, 0.67 of the first ; third segment 0.80 of the second, 1.33 times as long as thick ; fourth segment quadrate, equal to third ; club segments transverse except the first and terminal segments ; first segment somewhat longer than wide, 1.20 times the preceding segment ; segments second and third subequal, slightly wider than long, 0.80 of the first ; fourth very slightly wider than long, nearly equal to the preceding segment ; fifth quadrate, equal to fourth ; terminal segment oval, 1.60 times as long as thick, very slightly longer than preceding segment.

*Thorax* (Text-fig. 7 A) with moderate silvery-white pubescence ; seen laterally somewhat higher than wide ; notauli absent ; mesonotum to scutellum 25 : 18, reticulately rugose ; scutellum strongly convex, rounded behind, unarmed, overlapping the metanotum, elevated ; mesopleura reticulately rugose ; metanotum narrow, strip like. *Fore wing* (Text-fig. 7 E & F) length to width 100 : 41 ; venation *sm* : *m* : *pm* : *st* 45 : 5 : 25 : 12 ; other veins absent ; marginal fringe short ; discal ciliation moderate. *Hind wing* (Text-fig. 7 G) to fore wing 80 : 100 ; length to width 100 : 26.

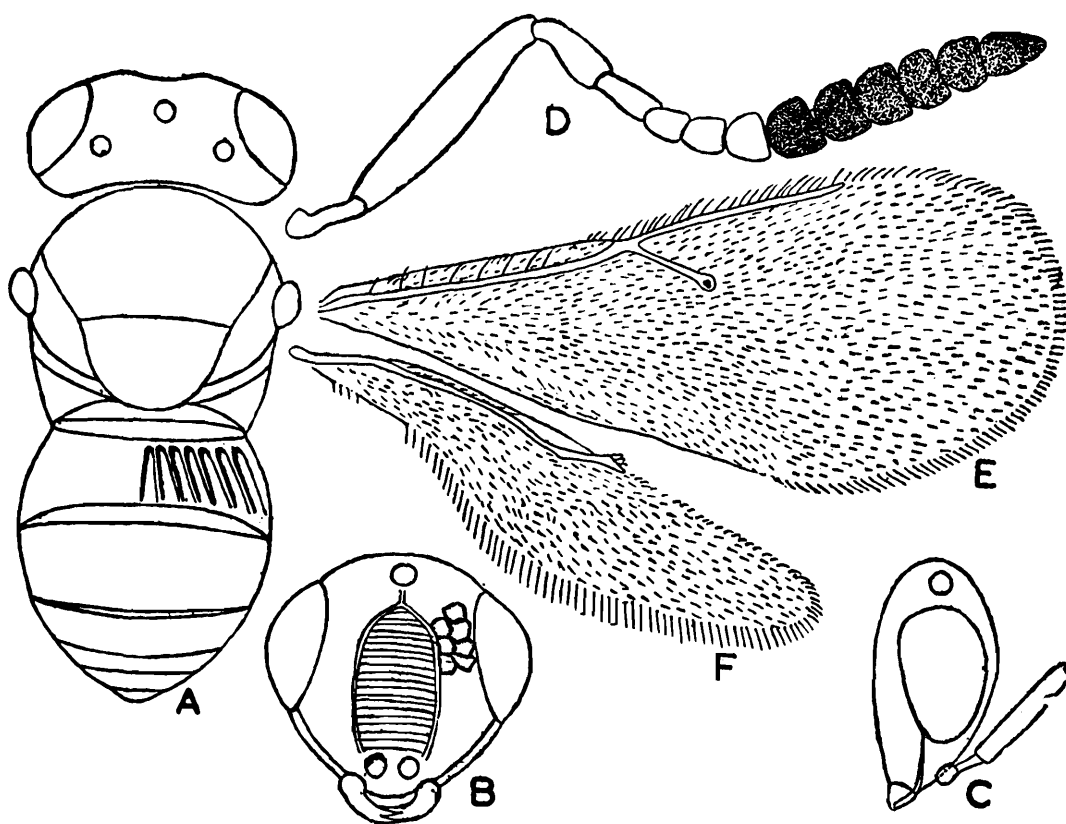
*Abdomen* (Text-fig. 7 A) to body 50 : 12 ; length to width 100 : 84 ; first tergite coarsely longitudinally striate, posterior margin smooth and shiny ; second tergite reticulately striate ; other tergites matt ; first, second and third tergites 14 : 18 : 16.

9. *Gryon krishnagiriensis* sp. nov.

(Text-fig. 8)

*Female* : Body length of holotype 1.80 mm, range 1.80-2.00 mm ; fore wing 1.70 mm ; hind wing 1.34 mm ; abdomen 0.76 mm. General colour of body black ; eyes brownish-black ; club black, rest of antennal segments brown ; legs brown , coxae dark brown ; wings hyaline.

*Head* very slightly wider than thorax ; frons and vertex with striations and reticulately rugose ; frontal scrobe finely transversely striate and margined laterally with keels ; with a conspicuous transverse carina between the lateral ocelli ; gena rugose ; viewed in front (Text-fig. 8 B) length to width 87 : 100 ; seen from above (Text-fig. 8 A) length to



Text-fig. 8. *Gryon krishnagiriensis* sp. nov. Female A. body dorsal view. B. head front view, C. head in profile, D. antenna, E. fore wing, F. hind wing.

width 45 : 100 ; seen laterally (Text-fig. 8 C) higher than long ; ocellular space equal to the ocellar diameter, front ocellar space twice the ocellar diameter, interocellar space about 5.00 times the ocellar diameter ; eyes oval, with very few scattered hairs. *Antenna* (Text-fig. 8 D) to body 100 : 150 ; segments 12, 1.1.4. 6 ; scape cylindrical, 5.50 times as long as thick, almost equal to following five segments combined ; pedicel about 2.40 times as long as thick, 0.30 of the scape ; first funicular segment longest, twice as long as thick, 0.66 of the pedicel ; second segment somewhat longer than thick, 0.75 of the first ; third segment

subequal to second, subequal in length and thickness ; fourth segment transverse, 0.83 of its thickness, subequal to third ; club segments transverse except the terminal ; segments 1-4 subequal, first being somewhat larger, 0.75 of their width, 1.20 times the preceding segment ; fifth segment 0.80 of its width, subequal to fourth ; terminal segment 1.66 times as long as thick, 1.66 times the preceding segment.

*Thorax* (Text-fig. 8 A) as long as wide ; clothed with short silvery-white pubescence ; notauli absent ; mesonotum to scutellum 17 : 12, coarsely reticulately sculptured ; scutellum semi-circular, extremely projecting behind over the metanotum and propodeum ; mesopleura transversely rugose ; metanotum narrow ; propodeum unarmed. *Fore wing* (Text-fig. 8 E) surpassing the abdomen ; length to width 100 : 40 ; *m* punctiform ; *pm* : *st* 100 : 46 ; discal ciliation well developed ; marginal fringe short. *Hind wing* (Text-fig. 8 F) to fore wing 100 : 127 ; length to width 100 : 24.

*Abdomen* (Text-fig. 8 A) to body 42 : 100 ; length to width 37 : 35 ; first tergite longitudinally striate ; second tergite irregularly rugulose ; third tergite finely, closely, minutely reticulate ; rest of abdomen finely, closely reticulate ; first, second and third tergites 11 : 14 : 7.

*Holotype* : Female mounted on card, 5.24. Thana Hill : Krishnagiri-Bombay, Coll. *M. S. Mani & party*, 17-21. iv.1972. *Paratypes* : 13 females (7 specimens mounted on cards and 6 on slides), with same data as for holotype. *Other material examined* : 2 females, 5.11. Parikatti Hill : South India Survey, Coll. *M. S. Mani & party*, 26. iii. 1972 ; 2 females (one on slide), 14.9. Mudugeri : Western Ghats (Mysore-Coorg) Survey, Coll. *M. S. Mani & party*, 9-21. iii. 1975.

#### 10. *Gryon mudugeriensis* sp. nov.

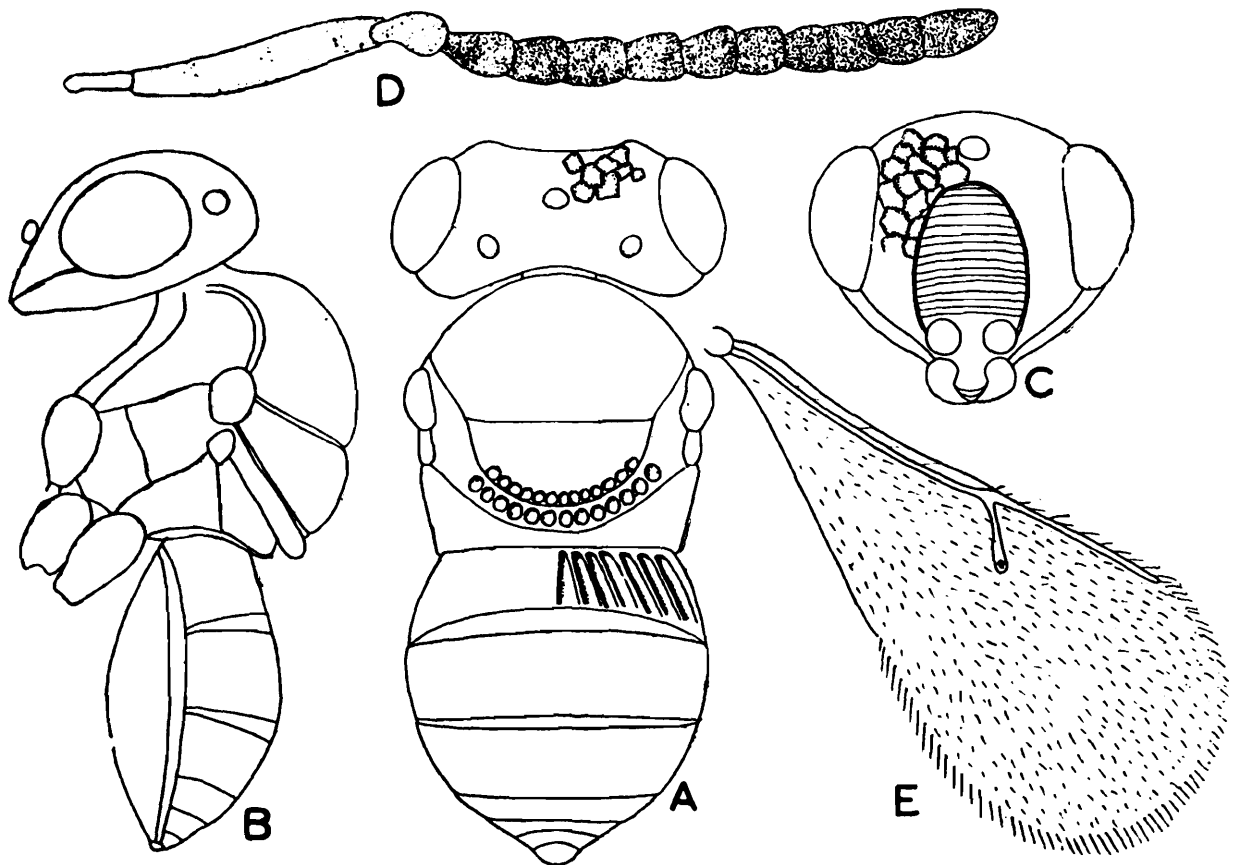
(Text-fig. 9)

*Male* : Body length 1.80 mm ; fore wing 1.60 mm ; hind wing 1.20 ; abdomen 0.74 mm. General colour of body black ; eyes black ; scape and pedicel brownish-black, rest of antennae black ; coxae and femora black, tibia and tarsus brown ; wings hyaline.

*Head* in front with a margined shallow scrobe, scrobe being transversely striate with a short median carina ; vertex and frons reticulately rugose, with scattered short silvery-white hairs ; gena rugosely punctate ; viewed from above (Text-fig. 9 A) length to width 15 : 38 ; viewed laterally (Text-fig. 9 B) length to height 22 : 32 ; viewed from front (Text-fig. 9 C) length to width 31 : 38 ; ocellular space about 1.25 times the ocellar diameter, front ocellar space 2.50 times the ocellar diameter, interocellar



space 4.00 times the ocellar diameter ; eyes perfectly bare. *Antenna* (Text-fig. 9 D) to body 60 : 100 ; segments 12, 1.1.9.1 ; scape cylindrical, times as 5.00 long as thick, subequal to the following four segments combined ; pedicel 1.60 times as long as thick, 0.25 of the scape ; first funicular segment longest, 1.66 times longer than thick, 1.25 times the



Text-fig. 9. *Gryon mudugeriensis* sp. nov. Male A. body dorsal view, B. body in profile, C. head front view, D. antenna, E. fore wing.

pedicel ; funicular segments 2-9 almost subequal, nearly as long as thick, of the first ; terminal segment 2.00 times as long as thick, 1.66 times 0.65 the preceding segment.

*Thorax* nearly as wide as head ; seen dorsally (Text-fig. 9 A) length to width 35 : 40 ; seen laterally (Text-fig. 9 B) as high as long ; notauli absent ; mesonotum to scutellum 18 : 11, closely reticulately rugulose and with setigerous punctures ; scutellum unarmed, with a row of sulci along the posterior margin ; mesopleura longitudinally rugose ; metanotum narrow, strip like, with a row of sulci ; propodeum sculptured like the rest of thorax. *Fore wing* (Text-fig. 9 E) length to width 80 : 36 ; venation *sm* : *m* : *pm* : *st* 35 : 3 : 20 : 10 ; *m* punctiform ; marginal fringe moderate ; fore wing to hind wing 100 : 75.

*Abdomen* (Text-fig. 9 A & B) 0.41 of the body ; length to width 38 : 34 ; abdomen dorso ventrally flattened ; tergites 7 ; first tergite with wide

longitudinal striations ; second and third tergites with close, irregular, longitudinal striations ; other tergites matt ; first, second and third tergites 9 : 13 : 10.

*Holotype* : Male mounted on card, 14.9. Mudugeri : Karnataka (Western Ghats Survey), Coll. *M. S. Mani & party*, 21. iii. 1975. *Paratype* : 1 male on card, with same data as for holotype. *Other material examined* : 2 males on cards, 9.15. Thanjavur : Coramondal Coast, Coll. *M. S. Mani & party*, 5. v. 1973.

## KEY TO SPECIES

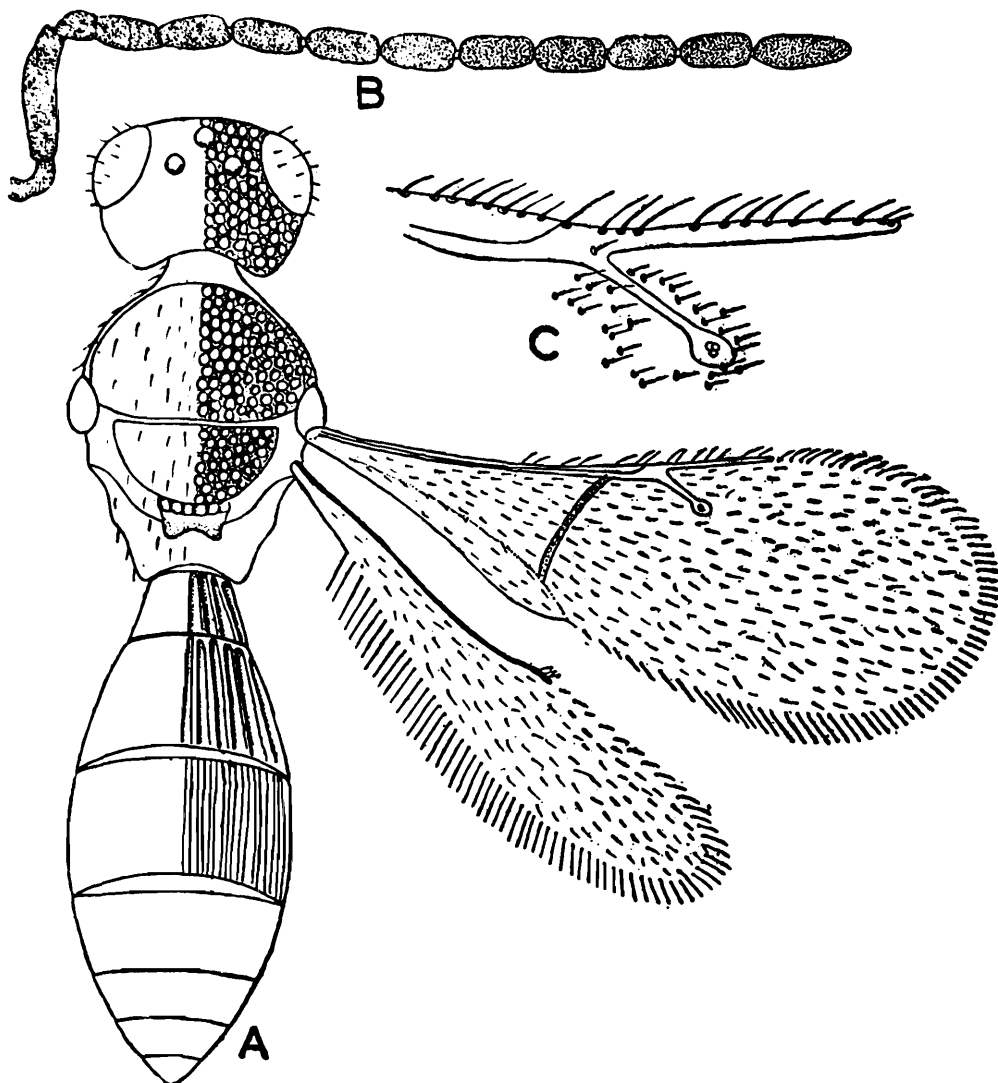
1. General colour of body black	...	...	3
— General colour of body not wholly black	...	...	2
2. Reddish-brown ; antenna with 7 segments	...	<i>G. dunensis</i> Mani	
— Head and thorax black ; abdomen ferruginous ; antennae with 12 segments.	...	<i>G. fulviventris</i> (Crawford)	
3. Frons without conspicuous fovea ; mesopleura with scattered punctae	...	<i>G. hogenakalensis</i> sp. nov.	
— Frons with fovea	...	...	4
4. Lateral ocelli with conspicuous carina	...	...	5
— Lateral ocelli without carina	...	...	6
5. Front ocellus with a carinate ring ; mesopleura reticulately rugose	...	<i>G. homoeoceri</i> (Nixon)	
— Front ocellus without carinate ring ; mesopleura transversely rugose	...	<i>G. krishnagiriensis</i> sp. nov.	
6. Mesopleura with a double row of well separated punctae ; second tergite anteriorly with fine longitudinal striations, posteriorly minutely, closely punctate ; third tergite anteriorly with close minute punctae	...	<i>G. gonikopalensis</i> sp. nov.	
— Mesopleura longitudinally rugose ; second and third tergites with close irregular longitudinal striations	...	<i>G. mudugeriensis</i> sp. nov.	

11. *Paridris dubeyi* sp. nov.

(Text-fig. 10)

*Male* : Body length of holotype 2.32 mm, range 1.95-2.32 mm ; fore wing 1.44-1.70 mm, surpassing the abdomen ; abdomen 1.00-1.26 mm. General colour of body yellowish-brown to honey brown ; eyes and ocellar area blackish ; wings hyaline ; antennae brownish-black to black ; legs brown ; first, second and third tergites yellowish-brown, fourth tergite blackish-brown, other tergites brownish-black.

*Head* somewhat narrower than thorax ; cuboid, with moderate white pubescence ; frons without fovea, smooth and shiny, with one or two scattered punctae ; vertex aciculate punctate ; gena aciculate punctate , occiput sinuately margined ; mandibles bidentate, conspicuous and long ; head viewed from above (Text-fig. 10 A) length to width 17 : 28 ; seen from front length to width 25 : 28 ; ocellular space subequal to ocellar diameter, front ocellar space 1.25 times the ocellar diameter, interocellar space twice the ocellar diameter ; eyes oval, with scattered fine pubescence, eye to head length 10 : 17. *Antenna* (Text-fig. 10 B) to



Text-fig. 10. *Paridris dubeyi* sp. nov. Male. A. body dorsal view, B. antenna, C. veins enlarged.

body 73 : 100 ; segments 12, 1.1.9.1 ; white antennal hairs dense, shorter than the thickness of the segments ; scape cylindrical, 2.33 times as long as thick, equal to 2.50 of the following segments combined ; pedicel 1.35 times as long as thick, 0.30 of the scape ; funicular segments 1-9 cylindrical, slender, subequal, 2.30 times as long as thick, 1.75 times the pedicel ; terminal segment 3.00 times as long as thick, 1.30 times the preceding segment.

*Thorax* (Text-fig. 10 A) length to width 37 : 30 ; seen laterally length to height 37 : 26 ; notauli absent ; mesonotum to scutellum 18 : 9, finely, minutely, aciculate punctate and with moderate white pubescence ; scutellum unarmed, rounded behind ; mesopleura punctate like the rest of thorax ; metanotum with a bilobed plate behind ; propodeum unarmed. *Fore wing* (Text-figs. 10 A & C) length to width 100 : 33 ; venation *sm* : *m* : *pm* : *st* 40 : 3.5 : 12 : 7 ; basalis present ; medialis very faintly indicated ; discal ciliation moderate ; marginal fringe well developed. *Hind wing* (Text-fig. 10 A) to fore wing 80 : 100 ; length to width 100 : 20.

*Abdomen* (Text-fig. 10 A) to body 54 : 100 ; 7 segmented, fusiform ; first and second tergites longitudinally striate ; third tergite finely longitudinally striate ; other tergites smooth, matt, with scattered setigerous punctures and pubescence ; first, second, third and fourth tergites 8 : 14 : 16 : 12 ; fifth tergite half of the fourth.

*Holotype* : Male mounted on card, 20.11. Maldare Teak Forest : Karnataka Survey, Coll. *M. S. Mani, S. K. Sharma & G. G. Saraswat*, 20.v.-6.vi. 1978. *Paratypes* : 3 males on cards, same data as for holotype ; 1 male 20.9. Attur Reserve Forest, other data same as for holotype.

This species differs from *P. coorgensis* Sharma<sup>1</sup>, in the absence of notauli ; *pm* much longer than *st* ; basalis absent. This species also differs from *P. mahadeonsis* Sharma<sup>2</sup>, in head being punctate ; *pm* much longer than *st* ; third tergite not smooth but longitudinally striate ; ocellular space not twice the ocellar diameter but subequal.

This species is named after Dr. O. P. Dubey, Parasitologist, Cardamom Regional Station of the Central Plantation Crops Research Institute, Marcara, who helped in collecting many Proctotrupids.

## 12. *Paridris karnatakensis* sp. nov.

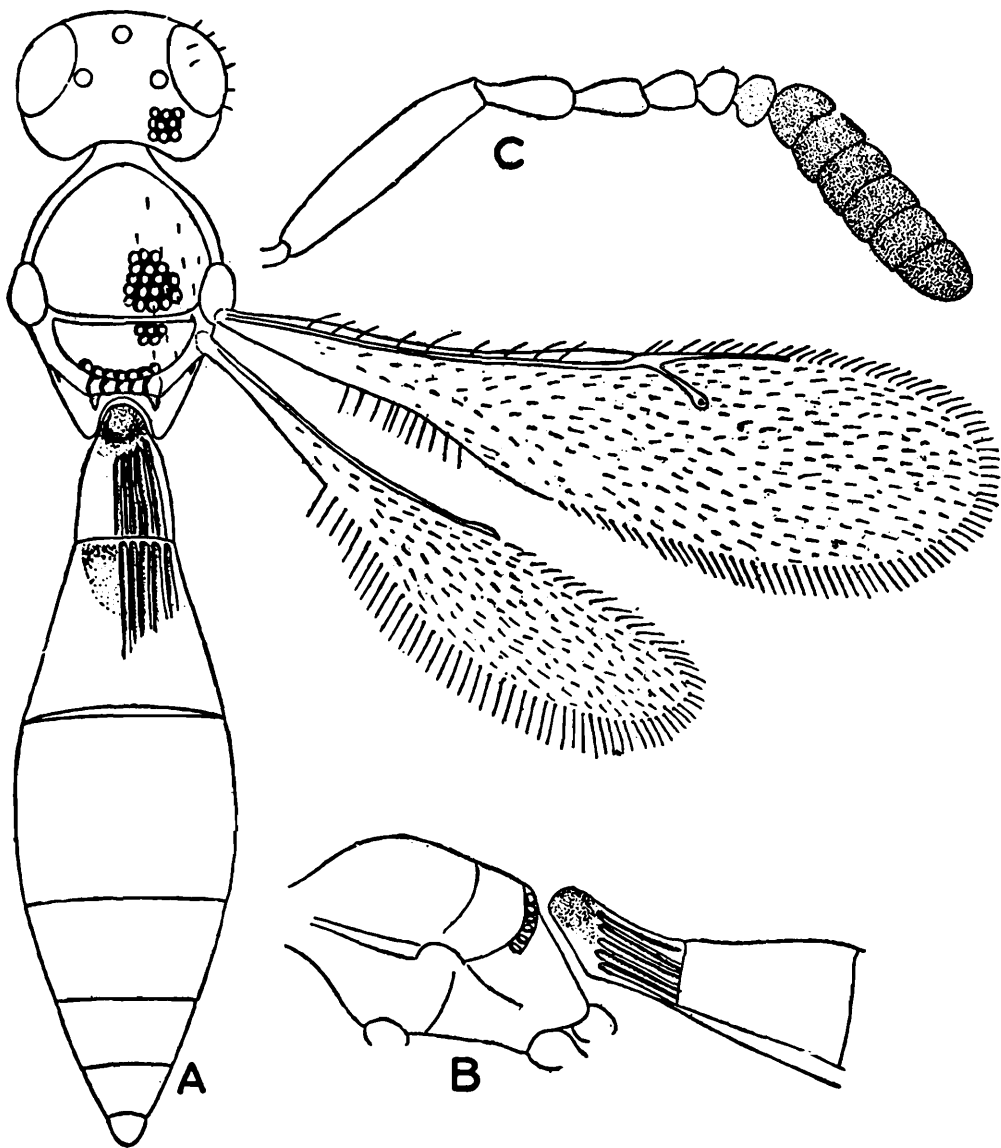
(Text-figs. 11 & 12)

*Female* : Body length 2.84 mm ; fore wing 1.82 mm, not reaching beyond fifth tergite ; hind wing 1.38 mm ; abdomen 1.84 mm. General colour of body black ; head black, thorax and abdomen with slight brown tinge ; eyes black ; scape and fifth antennal segment dark brown, segments 2-4 brown, sixth segment brownish-black, club black ; legs yellowish-brown ; wings hyaline, veins brown.

1. Sharma, S. K. 1978. *Mem. Sch. Ent.*, 5 : 26.

2. Sharma, S. K. 1978. *Mem. Sch. Ent.*, 5 : 28.

*Head* nearly as wide as thorax ; with silvery-white pubescence ; frons without fovea ; vertex and frons closely aciculate punctate ; vertex weakly margined behind ; occiput sculptured like vertex, gena aciculate punctate ; viewed from above (Text-fig. 11A) cuboid, length to width 16 : 25 ; seen from front globose ; lateral ocelli contiguous with the eyes, front ocellar space about 2.50 times the ocellar diameter, interocular space about 4.00 times the ocellar diameter ; eyes oval, with sparse pubescence, eye to head length 13 : 16. *Antenna* (Text-fig. 11 C) to body 36 : 100 ;



Text-fig. 11. *Paridris karnatakensis* sp. nov. Female. A. body dorsal view, B. thorax in profile, C. antenna.

segments 12, 1.1.4.6 ; scape cylindrical, 5.00 times as long as thick, 3.30 of the following segments combined ; pedicel 3.00 times as long as thick, 0.40 of the scape ; first funicular segment longest, about 2.00 times as long as thick, 0.75 of the pedicel ; second segment 1.50 times as long as thick, 0.60 of the first ; third segment subglobose, somewhat thicker than long, 0.66 of the second ; fourth subglobose, 1.50 times as wide as

long, subequal to third ; club segments transverse, except the terminal ; first segment 0.75 of its width, 1.50 times the preceding segment ; segments 2-5 subequal, about 0.60 of their width, slightly longer than first ; terminal segment oval, as long as thick, 1.60 times the preceding.

*Thorax* (Text-fig. 11 A & B) length to width 32 : 26 ; notauli absent ; metanotum to scutellum 20 : 8, closely, aciculate punctate, with white pubescence ; scutellum unarmed, rounded behind ; mesopleura closely, aciculate, punctate ; metanotum with bidentate plate medially and with a minute tooth-like projection at the sides ; propodeum unarmed, irregularly rugose. *Fore wing* (Text-fig. 11 A) length to width 100 : 28 ; venation  $sm : m : pm : st$  48 : 3 : 12 : 8 ; basalis absent or very indistinct ; discal ciliation and marginal fringe well developed. *Hind wing* (Text-fig. 11 A) to fore wing 76 : 100 ; length to width 100 : 22.

*Abdomen* (Text-fig. 11 A) to body 65 : 100 ; length to width 100 : 27 ; fusiform ; first tergite with a conspicuous tubercle, 1.55 times as long as thick, longitudinally striate as in figure ; second tergite anteriorly longitudinally striate, otherwise smooth ; rest of abdomen smooth and shiny, with scattered silvery-white pubescence ; first, second, third and fourth tergites 17 : 21 : 23.5 : 12 ; ovipositor very long, exerted but lost in the specimen.

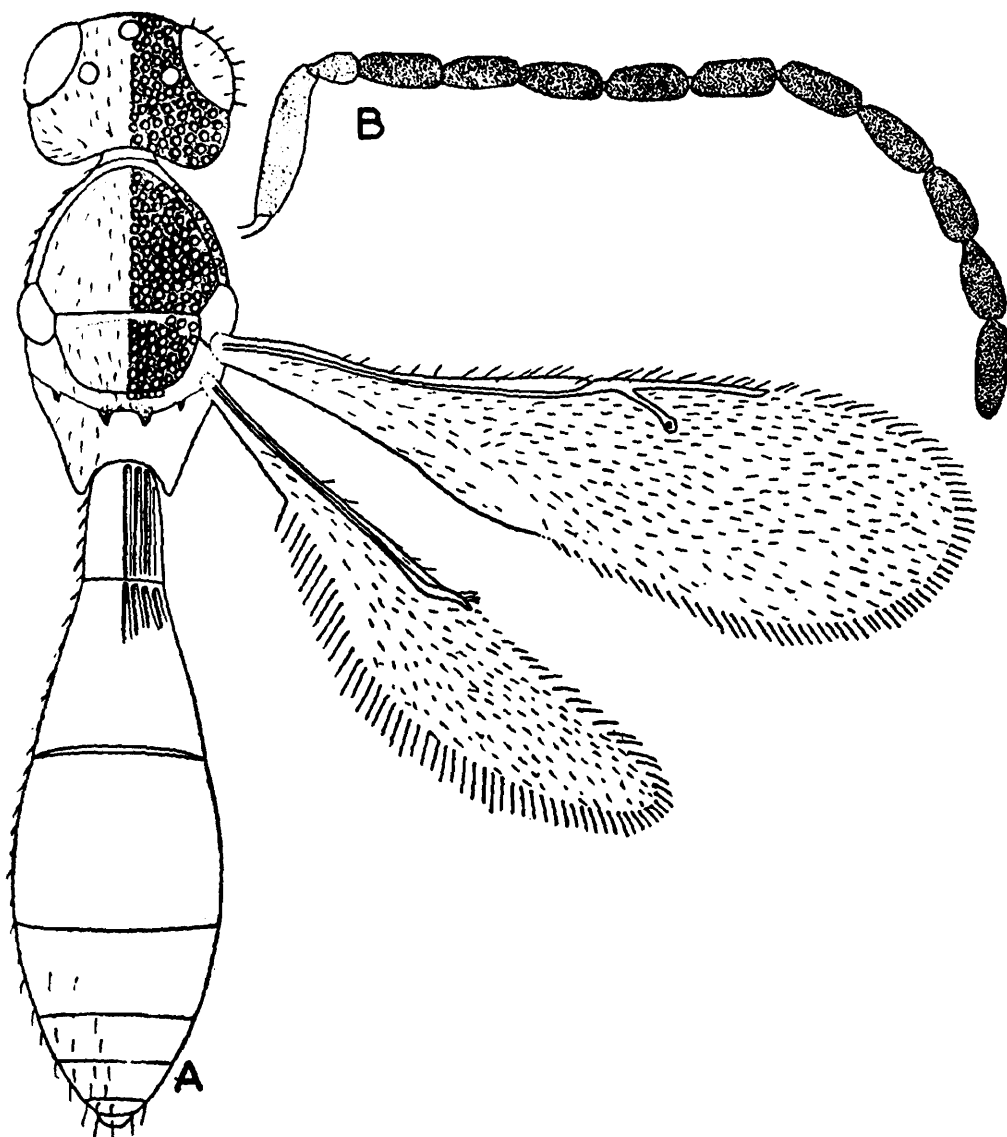
*Male* : Body length 2.66 mm ; fore wing 1.86 mm, reaching to the tip of abdomen ; hind wing 1.52 mm ; abdomen 1.60 mm. General colour of body brownish-black to black ; head black ; eyes blackish ; scape and pedicel brownish-black, rest of antennae black ; thorax honey brown to brownish-black ; legs brown ; wings hyaline ; first and second tergites blackish-brown, third tergite brown, other tergites black.

*Head* as wide as thorax ; frons without fovea ; aciculate punctate as in female ; viewed from above (Text-fig. 12 A) length to width 16 : 26 ; lateral ocelli contiguous with the eyes, front ocellar space less than twice the ocellar diameter, interocellar space more than thrice the ocellar diameter ; mandibles tridentate, the middle tooth smaller ; eyes sparsely pubescent. *Antenna* (Text-fig. 12 B) to body 100 : 133 ; cylindrical, slender, segments 12, 1.1.9.1 ; antennal hairs shorter than the thickness of the segments ; scape somewhat less than 4.50 times as long as thick, slightly longer than the following two segments combined ; pedicel 1.61 times as long as thick, 0.36 of the scape ; funicular segments 1-9 subequal, 2.67 times as long as thick, 1.60 times the pedicel ; terminal segment 3.00 times as long as thick, 1.10 times the preceding segment.

*Thorax* (Text-fig. 12 A) viewed dorsally length to width 37 : 26 ; notauli absent ; mesonotum to scutellum 18 : 10, aciculate punctate as

in female ; metanotum with a conspicuous bidentate plate medially and with a very minute tooth at the sides ; propodeum unarmed, irregularly rugose. *Fore wing* (Text-fig. 12 A) length to width 100 : 30 ; venation  $sm : m : pm : st$  46 : 5 : 15 : 8 ; basalis indistinct. *Hind wing* (Text-fig. 12 A) to fore wing 82 : 100 ; length to width 100 : 18.

*Abdomen* (Text-fig. 12 A) to body 60 : 100 ; length to width 80 : 25 ; fusiform ; first tergite without tubercle, longitudinally striate ; second tergite anteriorly longitudinally striate, other wise smooth and shiny ; rest of abdomen as in female ; first, second, third and fourth tergites 15 : 20 : 22 : 10.



Text-fig. 12. *Paridris karnatakensis* sp. nov. Male. A. body dorsal view, B. antenna.

*Holotype* : Female mounted on card, 20.9. Attur Reserve Forest : Karnataka Survey, Coll. *M. S. Mani, G. G. Saraswat & S. K. Sharma*, 20-31. v.-8-10.vi. 1978. *Allotype* : Male mounted on card, with same data as for holotype. *Paratypes* ; 8 males mounted on cards, with same data as for holotype ; 1 male on card, 20. 13. Hudukeri and 1

female on card, 20. 11. Maldare Teak Forest, other data same as for holotype.

This species differs from *P. coorgensis* Sharma<sup>1</sup>, in notauli being absent ; *pm* much longer than *st* ; third tergite not longitudinally striate ; lateral ocelli close to eyes. Differs from *P. mahadeonsis* Sharma<sup>2</sup>, in larger body size ; in body colour ; head not smooth ; metanotum with distinct bidentate plate. This also differs from *P. dubeyi* Sharma, in the frons not smooth ; third tergite not finely striate ; lateral ocelli very close to eyes ; absence of basalis.

### 13. *Probaryconus cauverycus* Saraswat

1978. *Probaryconus cauverycus*, Saraswat, In : Saraswat & Sharma. *Mem. Sch. Ent.*, 5 : 22, fig. 11.

I have before me 1 female on card labelled as "20.11. Maldare Teak Forest : Karnataka Survey, Coll. M. S. Mani, G. G. Saraswat & S. K. Sharma, 25. v.-1-6. vi. 1978".

This species was originally described from a single specimen. The specimen before me is slightly larger than the holotype. Ovipositor is not exerted.

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1. Sharma, S. K. 1978. *Mem Sch. Ent.*, 5 : 26.

2. Sharma, S. K. 1978. *Mem. Sch. Ent.*, 5 : 28.