

A REVISION OF THE AFRICAN TELENOMINAE
(PROCTOTRUPOIDEA, FAM. SCELIONIDAE)

By G. E. J. NIXON, B.A.

(Department of Entomology, British Museum (Nat. Hist.).)

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WITH PLATE V AND FOURTEEN TEXT-FIGURES.

EXCEPT where otherwise stated—and this applies chiefly to the species of *Telenomus*—the material forming the subject of this paper was obtained by Mr. Rowland E. Turner in Cape Province. The greater part of the revision, however, is based on bred series of insects placed at my disposal by Dr. Charles Ferrière of the Imperial Institute of Entomology.

As usual, the types of the several new species described become the property of the British Museum.

The TELENOMINAE are of considerable economic importance, as they pass their larval stage as parasites in the eggs of various insects, chiefly Lepidoptera and Hemiptera.

All the species dealt with in the following pages have been examined by me; the only two species, the identity of which I have been unable to make out are evidently *Phanurus oriplanus* Kieffer and *Aholcus monticola* Kieffer.

Throughout this paper, long descriptions have been avoided deliberately; these are tiresome and since they would involve only the enumeration of details which in my opinion are of no specific value, would seem to be superfluous. Experimental breeding will doubtless lead to the splitting up of species which I regard as homogeneous, but it is probable that the readjustments required in the systematic treatment of them will depend on the use of characters very different from those which have hitherto been employed.

Preferential treatment has been given to the female sex. Tables for the identification of the males have been omitted, for various reasons. In the case of *Telenomus*, the males tend to be so much alike in external appearance that it would have been difficult to construct a workable key for them. The species are most likely to be named from bred series, and in such series the females usually greatly outnumber the males. With regard to *Microphanurus*, there is never a marked sexual dimorphism apart from the differences in antennal structure, and the antennae, at least in the African species, vary so little that no use can be made of them. But as the key to the females, with the exception of the first couplet, is based on characters common to both sexes it can be quite well used for the males.

In descriptions, the head is measured according to its greatest width and its greatest length; the latter is defined as the distance between a line at right angles to the frons and another joining the posterior margins of the head, when this is seen from above along a line perpendicular to a line between the posterior ocelli. Not much attention has been paid to colour, no detailed

definition of the distribution of light or dark areas on the legs being given. Some species have predominately dark legs (this applies chiefly to *Telenomus*; in *Microphanurus* they are usually yellowish), others have the legs predominately pale. In my opinion, this more or less sums up the uses that can be made of colour in the group of insects under consideration.

Finally, I wish to express my indebtedness to Mr. Engel Terzi for the excellent drawings of male genitalia.

Subfamily TELENOMINAE.

Key to the Genera.

1. Thorax very strongly flattened *Platytenomus* Dodd.
 Thorax never strongly flattened 2.
2. Eyes hairy; parapsidal furrows wanting *Telenomus* Hal. (incl. *Aholcus* Kieff.)
 Eyes bare; parapsidal furrows sometimes present posteriorly 3.
3. Form narrow, markedly slender; abdomen in the ♀ with not more than 4
 visible segments *Nirupama* gen. n.
 Form stout, never slender; abdomen in the ♀ with more than 4 visible
 segments *Microphanurus* Kieff.

Platytenomus Dodd.

Platytenomus hylas sp. n.

♀. Colour black; scape of the antennae and the legs, honey-yellow; funicle brownish-yellow. Head seen along a line perpendicular to a line between the posterior ocelli, strongly transverse, a little more than $2\frac{1}{2}$ times as wide as its greatest length. Frons almost everywhere entirely smooth and shining. Vertex between the ocelli faintly and indefinitely scaly-reticulate. Antennae (fig. 12): funicle 5 slightly nearer in size to 4 than to 6 so that the club is more or less 4-segmented. Eyes hairy. Thorax remarkably flattened and exactly in the same plane as the abdomen. Mesonotum with close, indefinite, minute puncturation in front; in the middle this sculpture becomes sparser and on the posterior half or third it fades out completely leaving an entirely smooth surface. Scutellum entirely smooth and polished; postscutellum likewise smooth, about $\frac{1}{2}$ as long as the scutellum and without any trace of a medial swelling. Lateral areas of the propodeum much flattened, smooth and shining, more or less on the same plane as the rest of the thorax. Fore-wings more or less hyaline; stigmalis rather long; postmarginalis indistinct but evidently nearly twice as long as the stigmalis; hind-wing with the fringe fully as long as the width of the wing. Abdomen strongly narrowed at base; tergite 2 but little less than twice as wide apically as basally, virtually unsculptured, its striations restricted to the extreme base of the segment.

♂. Antennae brownish-yellow; funicular segments 4-9 darker in colour and more or less spherical. Otherwise like the ♀. Length: ♂♀, .8 mm. approx.

BRITISH SUDAN: Shendi (*J. W. Cowland*): large series comprising both sexes, bred, xii.1929-i.1930, from eggs of *Sesamia arctica*.

There seems to be no question that the above species is correctly placed. The only other species known is Australian. According to Dodd's description this insect differs from *hylas* in having the head presumably sculptured all over and the mesonotum entirely smooth.

Telenomus Haliday.

In dealing with *Telenomus* (s.str.) considerable difficulties have been encountered. The typical species are very closely related; they show an

almost monotonous uniformity of structure and sculpturation so that my attempt to tabulate them may fall far short of the standard at which I aimed. Great pains have been taken to search for, and to assess at their true value (admittedly a fluctuating one), those characters which I believe can form a foundation for the systematic arrangement of the species.

The genus has been accepted in a wide sense and the species which I have included in it form a somewhat unnatural assemblage. This seems the safest course to take until such time as material from other parts of the world can be examined. It might then be possible to define with more accuracy species groups within the genus and where it is both convenient and justifiable, to raise some of them to generic rank.

Telenomus merges gradually into *Microphanurus*; the readiest means of separating the two genera is to determine whether hairs are present on the eyes or not. A species such as *Telenomus atys* sp. n., in which the hairs are so minute as easily to escape detection, bridges the gulf between the genera. This particular species has been included in the keys to both *Telenomus* and *Microphanurus*.

The genitalia of most of the species are figured. They seem to show good specific characters.

The following table summarises the differences between these two genera :—

<i>Microphanurus.</i>	<i>Telenomus.</i>
Vertex frequently with a completely differentiated ridge immediately behind the posterior ocelli or sharply angled between them.	Vertex only exceptionally with a completely differentiated ridge between the posterior ocelli, but frequently sharply angled between them; typically, the vertex is rounded at this point.
Frons in greater part, usually sculptured.	Frons in greater part usually smooth and shining.
Eyes bare.	Eyes hairy but sometimes the hairs very minute.
Mesonotum rugose, rugose-reticulate, or finely scaly-reticulate and then covered with raised points.	Mesonotum usually finely granulate, the granulations not remarkably close.
Scutellum often as strongly sculptured as the mesonotum.	Scutellum normally entirely smooth and shining.
Parapsidal furrows frequently present but only posteriorly and then short.	Parapsidal furrows always wanting.
Hind-wing always broad, the fringe always many times shorter than its greatest width.	Hind-wing often narrow, the fringe hardly less than one-half to one-third its greatest width.
Abdomen at most, but little more than 1½ times as long as wide.	Abdomen usually clearly longer than wide, often much elongated.
Apical tergites often with minute puncturation.	Apical tergites without puncturation, entirely smooth as a general rule.

Key to the Species (♀♀).

1. Antennae 10-segmented. (Spp. without a trace of a ridge between the posterior ocelli; club more or less distinctly 5-segmented) 2.
- Antennae 11-segmented 4.
2. Stigmatalis markedly long (pl. V); head seen along a line perpendicular to a line between the posterior ocelli twice as wide as long, 16:8. (Large sp., 1.5 mm.; legs markedly yellowish) 1. *cybele* sp. n.
- Stigmatalis of normal length (pl. V) or if rather long then the head is less transverse 3.

3. Stigmalis of normal length; head about 6:3. (Small sp.; size .7 mm. approx.) 2. *brimo* sp. n.
 Stigmalis rather long; head less transverse, about 11:7. (Larger sp.; size 1 mm. approx.) 3. *thoas* sp. n.
4. Abdomen conspicuously longer than wide, at least $2\frac{1}{2}$ times as long as its greatest width 5.
 Abdomen not conspicuously longer than wide, less than $2\frac{1}{2}$ times as long as its greatest width 11.
5. Tergite 1 virtually without longitudinal striations, or, at the most, with them restricted to an indistinct punctured line along the basal margin of the segment. (Sp. with the hind-wing very narrow, its fringe hardly shorter than its greatest width) 6.
 Tergite 1 with the normal striations 7.
6. Tergite 1 strongly transverse, at least 3 times as wide apically as long medially, without any trace of a basal swelling, that is, without the beginnings of a horn. (Spp. with the head about twice as wide as long, 8:4; abdomen about 3 times as long as wide) 17. *nephela* sp. n.
 Tergite 1 by no means strongly transverse, at least slightly, usually quite strongly, swollen over its more basal part, so that seen from the side, it is feebly or markedly produced forwards in the direction of the propodeum to form a blunt, polished horn. (Sp. with the head more or less subcubical, about 11:7; eyes large; abdomen variable in length but usually about 3 times as long as wide, 24:7) 16. *benefactor* Craw.
7. Head dull, its sculpture very characteristic, covered everywhere with tiny raised points which on the frons are as close together as possible; mesonotum sculptured like the head, densely and very conspicuously clothed with tiny, silvery, adpressed, glistening hairs. (Sp. with the wings extending beyond the apex of the abdomen) 18. *pylades* sp. n.
 Head without such sculpture; if granulations are present, they are not close and are superimposed on a fine scaly-reticulate sculpture and the apex of the abdomen extends beyond the wings; mesonotum clothed only with the usual fine, brownish hairs 8.
8. Abdomen greatly attenuated, widest (in most examples) far proximal to the middle, about 4-5 times as long as its greatest width 20. *gowdeyi* Craw.
 Abdomen not greatly attenuated, widest in the middle, more or less. (Spp. with the head less than twice as wide as its greatest length; no trace of a ridge between the posterior ocelli) 9.
9. Posterior (declivous) part of the vertex conspicuously granulate; abdomen markedly flattened above. (Sp. with the hind-wings widest in about the apical third) 19. *iphias* sp. n.
 Posterior part of the vertex not conspicuously granulate; abdomen not markedly flattened above 10.
10. Frons in greater part smooth and shining 14. *pyramus* sp. n.
 Frons dull, very closely scaly-reticulate 13. *tilyrus* sp. n.
11. Frons almost everywhere (even in front of the anterior ocellus) dull and sculptured, the sculpture very closely scaly-reticulate, almost finely rugose; only immediately above the antennal insertions does the sculpture tend to fade out. (Stout, dumpy sp. with the head strongly transverse and wider than the thorax; the hairs on the eyes are extremely short and not readily visible). 15. *atys* sp. n.
 Frons extensively smooth, shining and polished, at least in front of the anterior ocellus; generally it is in greater part entirely smooth; whatever sculpture there is, is usually faint and narrowly restricted to the inner margin of the eye, or if it shows as a broad band along the inner margin of the eye, there is no trace of a ridge between the posterior ocelli 12.

12. Radicle of the antennae more than one-third the length of the scape.
(Sp. with the vertex sharply and completely margined behind; frons
with a conspicuous bulge on each side between the mouth and the
lower, inner margin of the eye) 11. *codrus* sp. n.
Radicle considerably or much less than one-third the length of the
scape 13.
13. Stigmatalis rather long (pl. V) 14.
Stigmatalis short (pl. V). (Spp. with the wings faintly smoky; head more
than twice as wide as its greatest length, markedly wider than the
thorax; size, .5-.6 mm.) 18.
14. Head hardly twice as wide as its greatest length, about 9:5 or less.
(Spp. with no trace of a ridge between the posterior ocelli; funicle 5
more or less intermediate in size between 4 and 6, so that the limits of
the club are not clearly defined) 15.
Head distinctly more than twice as wide as its greatest length 16.
15. Scape black almost entirely; when the head is seen from above, there is
a conspicuous notch between the posterior margin of the eye and the
raised margin bordering it. (Very dark sp. with blackish legs; meso-
notum somewhat depressed along the middle) 10. *pylus* sp. n.
Scape more or less transparent yellow or brownish-yellow; when the
head is seen from above, there is only a feeble notch between the
posterior margin of the eye and the raised margin bordering it. (Sp.
with the legs of the same colour as the scape; mesonotum evenly
convex) 9. *aleus* sp. n.
16. Funicle 5 more or less intermediate in size between 4 and 6 so that the
limits of the club are not clearly defined. (Fairly large sp., 1 mm.;
legs pale transparent yellow; vertex very sharply angled between the
posterior ocelli) 12. *sciron* sp. n.
Funicle 5 much nearer in size to 6 than to 4 so that the club is very
distinctly 5-segmented 17.
17. Tergite 2 not obviously longer than wide; length .9 mm. 8. *hyperion* sp. n.
Tergite 2 very distinctly longer than wide; length, 1.4 mm. 7. *numitor* sp. n.
18. Head more than twice as wide as its greatest length, markedly wider
than the thorax 5. *thektor* and 4. *procas* spp. n.
Head less than twice as wide as its greatest length, subcubical, 5:3;
size: .6 mm. approx. 6. *polycrates* sp. n.

The following three species fall within the genus *Aholcus* Kieffer according to Kieffer's table of genera. This is on account of the females possessing 10 segments to the antennae. Apart from this character the species are very typical of the genus *Telenomus* and the males would certainly have to be placed within this genus. I am of the opinion that the genus *Aholcus* is inconveniently artificial and that its maintenance can serve only to clutter the already overcrowded nomenclature of the Proctotrupoidea. In this paper, therefore, I propose to sink it as a synonym of *Telenomus*.

(1) *Telenomus cybele* sp. n.

♀. Black. Scape blackish-brown but markedly paler at base and apex. Legs entirely honey-yellow. Head seen from above along a line perpendicular to a line between the posterior ocelli, a little more than twice as wide as its greatest length, 11:5. Frons evenly convex, smooth and shining up to the anterior ocellus. Vertex between the ocelli, dull and very clearly scaly-reticulate; a few ill-defined punctures occur here and a short row of some six sharply defined punctures extends from the sculptured surface midway between the anterior and posterior ocellus and extends down the frons along the inner eye-margin,

very close to the eye and to about its mid-point. Cheeks with a well-marked genal depression situated close to the mouth. Eyes rather large, the shortest distance between them a little greater than their width, as seen from above. Margin bordering the eyes behind, and the surface between it and the occipital margin forming virtually a straight edge when the head is seen from above. Antennae (fig. 3): funicle 1 nearly twice as long as its greatest width; 3 nearer in size to 2 than to 4, so that the club is 5-segmented. Temples more or less smooth and shining. Thorax: mesonotum somewhat dull, extremely finely and closely scaly-reticulate, with very small, very ill-defined punctures, which are fairly close together. Scutellum virtually smooth and shining. Fore-wings yellowish, the stigmalis long (pl. V). Abdomen: tergite 2 distinctly longer than wide; abdomen otherwise typical.

♂. Antennae a little longer than the head and the thorax together; funicle blackish; funicle 4 about $1\frac{1}{2}$ times as long as wide. Genitalia rather heavily chitinised everywhere (fig. 4). Length: ♂♀, 1.5 mm. approx.

UGANDA: Kampala (*H. Hargreaves*): series of 20 ♀♀, 3 ♂♂, bred from eggs of a Saturniid.

(2) *Telenomus brimo* sp. n.

Species differing from the preceding as follows:—

Antennal scape entirely blackish. Legs in greater part blackish. Mesonotum more shining, its sculpture more vague. Genal depression feeble. Fore-wings more or less hyaline with a smoky tinge; stigmalis short, its swollen apex somewhat indistinct (pl. V).

♂. Genitalia very different from those of *cybele* (fig. 4).

UGANDA: Kingala (*H. Hargreaves*): 2 ♀♀, 2 ♂♂, bred from eggs of *Herse convolvuli*.

(3) *Telenomus thoas* sp. n.

A species intermediate in size between *cybele* and *brimo* and not readily distinguished from either of them. The genitalia of the male correspond more to those of *cybele* than to those of *brimo*.

♀. Head a little less transverse than in *cybele* and *brimo*, seen along a line perpendicular to a line between the posterior ocelli less than twice as wide as long, 11 : 6. Vertex slightly less sharply rounded than in either of the two preceding species, its surface between the ocelli more shining than in *cybele* and less definitely scaly-reticulate; in front of the ocelli the surface appears merely roughened. Antennae (fig. 3) coloured as in *brimo*. Genal depression not so well defined as in *cybele* but stronger than in *brimo*. Thorax: Mesonotum slightly more shining than in *cybele* but the sculpture closer and less definite, although not vague as in *brimo*. Fore-wings coloured as in *brimo*; the stigmalis intermediate in length between the two other species; the thickened part of the stigmalis is not ill-defined as in *brimo*. Legs coloured as in *brimo*. ♂ genitalia (fig. 4). Length: 1 mm. approx.

GOLD COAST: Aburi (*W. H. Patterson*): very large series, mostly ♀♀, bred 15.xi.1921, from (presumably?) eggs of *Pyrrhocalcia iphis* Drury. The host is a pest of coconut and other palms.

The only sure means of distinguishing this species is by an examination of the male genitalia. The description given above will be almost valueless unless one at least of the two other species is available for comparison.

(4) *Telenomus procas* sp. n.

A very small species, .6 mm. in length and chiefly characterised as follows:—

♀. *Head* strongly transverse, its width to its greatest length about 13:6, markedly wider than the thorax. Vertex rather sharply angled between the anterior ocellus and the occipital margin. Antennae entirely blackish. Legs dark, obscurely brownish. Antennal club more or less 5-segmented; funicle 1, 2 and 3 subequal and more or less spherical. *Thorax*: fore-wings with the venation pale; stigmalis short (fig. 1). *Abdomen*: tergite 1 striated all over, that is, except for the narrow, smooth apical margin which is common to all the species of the genus.

♂. Hardly distinguishable from that of *thestor* sp. n. except in size. The genitalia (fig. 1) show the two species to be very distinct from each other, however.

BRITISH SUDAN: Wad Medani (*H. B. Johnston*): two series comprising 10 ♀♀, 7 ♂♂, bred 24.xi.1927 and 29.xii.1927 from eggs of *Deiopeia pulchella*, a pest of *Cajanus indicus*.

T. procas could be confused only with the following species. From *hyperion* sp. n. it differs in having the antennal club less distinctly 5-segmented and the stigmalis markedly shorter.

(5) *Telenomus thestor* sp. n.

This species does not appear to be distinguishable from *procas* in the female sex. The male, however, has entirely different genitalia from *procas* (fig. 1), and there are slight differences in the antennae; these are slightly shorter, darker in colour and segments 5-9 are distinctly transverse whereas in *procas* they are a little longer than wide. Antennae ♀ (fig. 3), wing ♀ (pl. V).

UGANDA: Kampala (*H. Hargreaves*): large series, comprising both sexes, bred 16.vi.1930, from Lepidopterous eggs on "Mukasa"; Bukalasa (*H. Hargreaves*): series of 5 ♀♀, 1 ♂, bred ii.1932, from Lycaenid eggs, ? *Spalgis lemolea* (*H. H. Druce*), on coffee berries.

(6) *Telenomus polycrates* sp. n.

A very small species of the size of *procas*, from which it differs as follows:—

♀. *Head* much less transverse, almost subcubical, its width to its greatest length as 5:3. Vertex evenly rounded between the anterior ocellus and the occipital margin. *Frons* sometimes with a feeble furrow extending from the antennal insertion to the anterior ocellus. Antennae shorter, the club feebly 4-segmented. *Abdomen*: tergite 1 usually not striated beyond the middle, and the apical margin somewhat swollen. It should be born in mind that these two characters are difficult to appreciate and by no means reliable.

♂. Antennae shorter, stouter, all the segments of the funicle more or less spherical or the more apical ones slightly transverse and in this respect differing from *procas*, in which species the funicular segments tend to be slightly longer than wide. Genitalia (fig. 1).

BRITISH SUDAN: Wad Medani (*H. B. Johnston*): series of 11 ♀♀, 1 ♂, bred 24.xi.1927 from eggs of *Deiopeia pulchella* on *Cajanus indicus*. This series was evidently bred together with one of the series of *procas*.

The shape of the head will immediately separate this species from *procas*. It is the only character which really holds for the separation of the females of the two species.

(7) *Telenomus numitor* sp. n.

♀. Colour black. Scape blackish, but reddish towards the base. Tibiae and tarsi bright brownish-red; femora darker. *Head* strongly transverse, seen from above along a line perpendicular to a line between the posterior ocelli, with its width to its greatest

length, about 9 : 4 (fig. 2). Frons nearly everywhere entirely smooth and shining. Vertex between the ocelli, and frons between the antennal insertions and the lower margin of the eye, finely and clearly scaly-reticulate. Margin bordering the eyes behind, well raised; the head behind this margin is very sharply narrowed; the edge between the postorbital margin and the occipital margin, as seen from above, straight. The vertex behind the

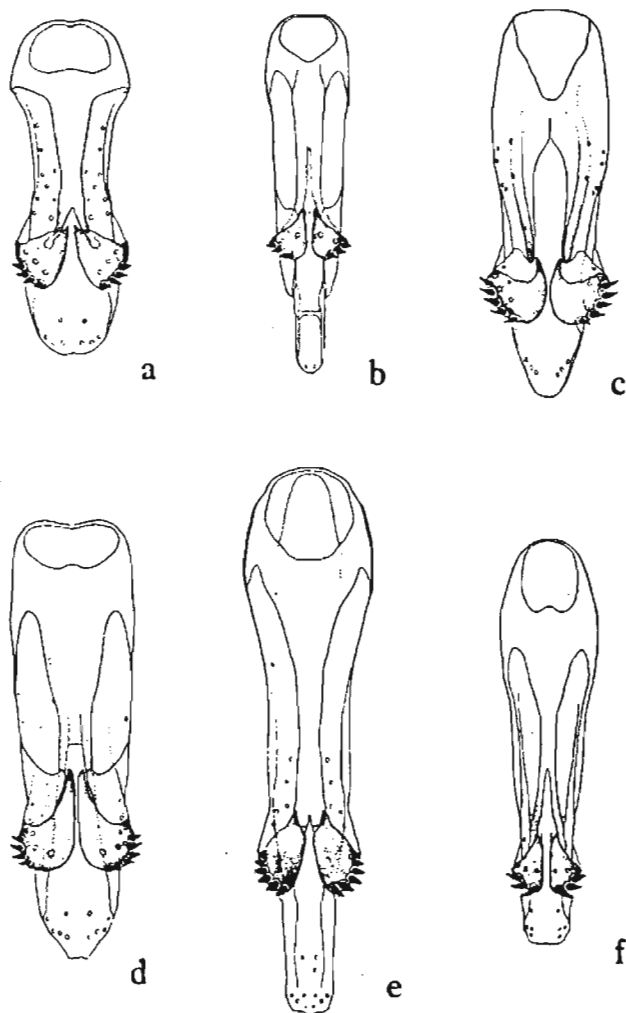


FIG. 1.—Male genitalia of a, *Telenomus thestor* sp. n.; b, *T. procas* sp. n.; c, *T. polycrates* sp. n.; d, *T. aleus* sp. n.; e, *T. numitor* sp. n.; f, *T. hyperion* sp. n.

posterior ocelli slopes almost perpendicularly away to the occipital margin. Eyes very distinctly hairy; shortest distance between them much shorter than their width. Antennae (fig. 3): funicle 1 nearly twice as long as wide; 3 and 4 subequal, more or less spherical; 4 much nearer in size to 3 than to 5, so that the club is very distinctly 5-segmented. Genal sulcus wide and gaping. Thorax less wide than the head. Mesonotum somewhat shining, very finely granulate, the sculpture typical of *Telenomus*. Wings yellowish with the venation sharply defined, especially the marginalis and the stigmalis, which are a rich

brown; the latter is long; postmarginalis about one and one-third as long as the stigmalis (pl. V). Abdomen about $1\frac{1}{2}$ times as long as wide, 14 : 9. Tergite 2 distinctly longer than wide. Length: ♂♀, 1.4–1.5 mm.

♂. Funicle blackish; funicle 2 a very little longer than 1, markedly cylindrical, fully $2\frac{1}{2}$ times as long as wide; 3 a little curved and produced beneath near the apex; 5–9 spherical. Genitalia (fig. 1).

CAPE PROVINCE: Dohne, 7 ♀♀, 8 ♂♂, bred xii.1921 from eggs of *Gonimbrasia tyrreha*.

This species is chiefly characterised by its large size, shape of the head and very distinctly 5-segmented antennal club in the female.

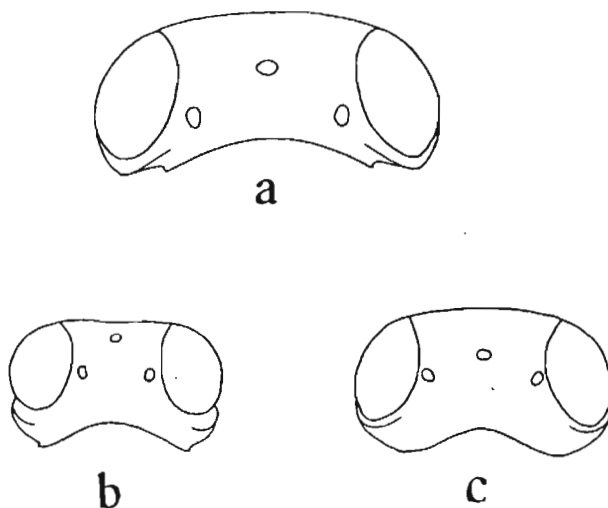


FIG. 2.—Head (from above) of a, *Telenomus numitor* sp. n.; b, *T. pylus* sp. n.; c, *T. aleus*, sp. n.

(8) *Telenomus hyperion* sp. n.

Species extremely like *numitor*, but much smaller. It differs from that species as follows:—

♀. Colour: legs darker, the tibiae and the tarsi less brightly coloured. Scape of the antennae more or less black, without the conspicuous reddish base of *numitor*, although the extreme base is pale. Head larger in proportion to the size of the thorax, and conspicuously wider than this. Antennae: funicle 1 hardly longer than wide; 2 and 3 almost spherical. Thorax: mesonotum more finely sculptured, the granulations less distinct. Fore-wings greyish with the venation less sharply defined, the veins pale testaceous. Abdomen: tergite 2 not obviously longer than wide.

♂. Funicle not so dark, yellowish-brown; funicle 2 hardly twice as long as wide. Genitalia (fig. 1). Length: ♂♀, .9 mm. approx.

SUDAN: Khartoum (H. W. Bedford): series of 9 ♀♀, 2 ♂♂, bred 16.iii.1931, from eggs of *Anadiasa obsoleta*.

(9) *Telenomus aleus* sp. n.

This species may be compared with *hyperion* as follows:—

♀. Colour: scape of the antennae more or less yellow entirely. Legs except the coxae, pale brownish-yellow. Head less transverse, about 9 : 5, when seen along a line perpendicular to the face. Length: ♂♀, .9 mm. approx.

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dicular to a line between the posterior ocelli (fig. 2). Frons smooth and shining immediately above the antennal insertions, and this smooth surface extends as a narrow band up to the anterior ocellus. Vertex somewhat dull, very clearly scaly-reticulate, this

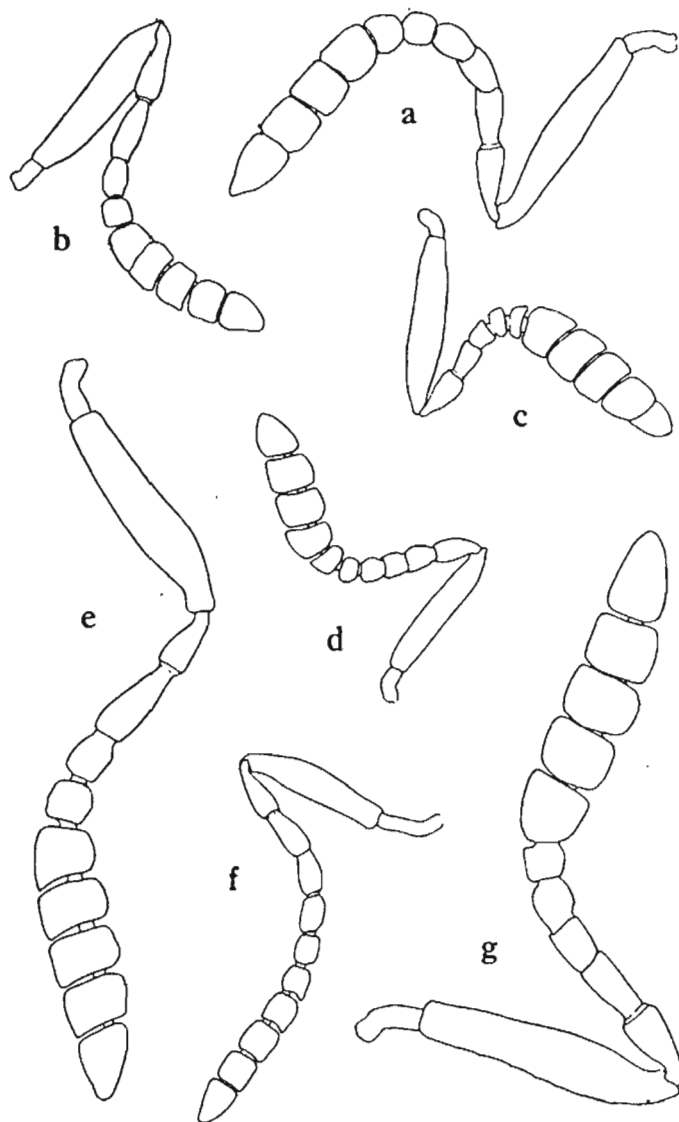


FIG. 3.—Female antenna of a, *Telenomus aleus* sp. n.; b, *T. thoas* sp. n.; c, *T. atys* sp. n.; d, *T. thestor* sp. n.; e, *T. cybele* sp. n.; f, *T. codrus* sp. n.; g, *T. numitor* sp. n.

sculpture extending as a broad band down the frons along the eye-margins; further, the vertex is evenly rounded between the anterior ocellus and the occipital margin. There are a few scattered but not sharply defined punctures along the inner eye-margin above. Antennae (fig. 3) much more slender, club not so thick; funicle 1 nearly twice as long as wide; 4 intermediate in size between 5 and 3 so that the club is not clearly 5-segmented. Thorax a little less shining. The scaly-reticulate ground-sculpture of the mesonotum

more in evidence, extremely close and fine; there is hardly any indication of granulations. Wings not distinguishable from those of *hyperion*.

♂. Antennae hardly distinguishable from those of *numitor*. Genitalia (fig. 1). Length: ♂♀, 1.1-1.2 mm.

UGANDA: Kampala (*H. Hargreaves*): series of 26 ♀♀, 3 ♂♂, bred from eggs of a Notodontid, 29.viii.1929.

(10) *Telenomus pylus* sp. n.

♀. Colour black. Antennae, including scape, entirely black. Head not twice as wide as its greatest length, seen along a line perpendicular to a line between the posterior ocelli, about 15:9 (fig. 2). There is a very distinct groove between the posterior margin of the eyes and the raised margin bordering them; this appears as a notch when the head is seen from above. Frons with a fairly deep impression and in greater part entirely smooth and shining. Along the inner eye-margin there is some indication of microscopic sculpturation. Vertex between the ocelli vaguely scaly-reticulate; on the posterior part of the vertex the surface is more shining but quite indefinitely sculptured. Eyes large, the shortest distance between them (across the anterior ocellus) about equal to their width as seen from above. There is no trace of a ridge or angulation of vertex between the posterior ocelli. Antennae: funicle 1, $1\frac{1}{2}$ times as long as wide; 3 and 4 more or less spherical; 6 nearer in length to 7 than to 5 but 5 more or less intermediate in size between 4 and 6 so that the club is not clearly defined. Thorax: mesonotum somewhat depressed along the middle, feebly shining and very finely granulate. Scutellum more or less entirely smooth and shining. Abdomen about $1\frac{1}{2}$ times as long as wide.

♂. Head more transverse than in the ♀, about 4:2. Antennae: funicle 2 a little more than twice as long as wide and a little longer than 1; 5-9 all a little longer than wide. Genitalia (fig. 4). Length: ♂♀, 1.1 mm. approx.

CAPE PROVINCE: Mossel Bay, vi.-viii., 9 ♀♀; v., 2 ♂♂ (Somerset East), xii., 1 ♂.

This species is characterised largely by the shape of the head and by the well-marked groove behind the eyes; this latter feature is not so noticeable in the males.

(11) *Telenomus codrus* sp. n.

This species is chiefly characterised as follows:—

♀. Colour: legs pale yellowish-brown. Head a little wider than the thorax. Carina bordering the eyes behind continued as a sharp, more or less smooth but not always completely differentiated ridge across the vertex. When the head is seen from above along a line perpendicular to the anterior ocellus, its width to its greatest length is as 7:4. When the head is thus seen, there is, further, a conspicuous bulge on each side of the frons between the antennal insertion and the lower margin of the eye. The entire frons and vertex in front of the margin, virtually smooth and shining. Antennae (fig. 3): long and somewhat slender; radicle more than one-third the length of the scape; funicle 2 about $1\frac{1}{2}$ times as long as wide; the club is not very thick nor is it clearly differentiated. Thorax: mesonotum somewhat shining, with an extremely fine, vague sculpture and without distinct granulations. Scutellum smooth and shining. Two hind pairs of legs with the femora unusually strongly compressed laterally. Fore-wings greyish, extending far beyond the apex of the abdomen. Abdomen about twice as long as wide, considerably narrower than the thorax. Tergite 2 distinctly longer than wide.

♂. Antennae entirely pale brownish-yellow; radicle as in the ♀; segments 4-9 of the funicle more or less spherical. Genitalia (fig. 4). Length: ♂♀, .8 mm. approx.

UGANDA: Kampala (*H. Hargreaves*): series of 4 ♀♀, 4 ♂♂, bred 16.vii.1927 from yellow Lepidopterous eggs on leaf of *Erythrina* sp.

With regard to the frontal bulges and complete vertical margin, this species is like certain species of *Microphanurus* such as *seychellensis* Kieffer. The

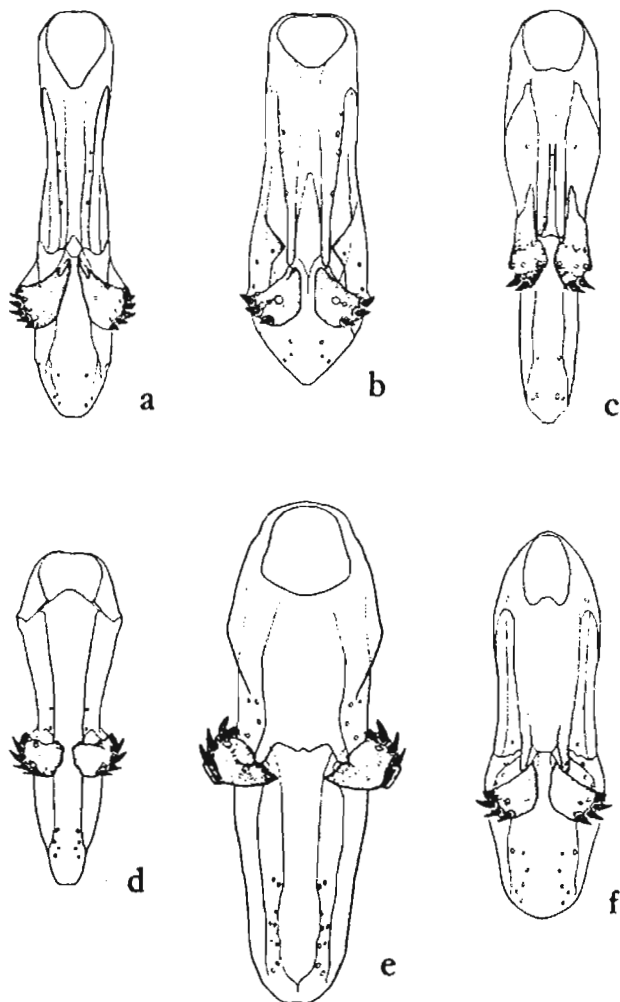


FIG. 4.—Male genitalia of a, *Telenomus codrus* sp. n.; b, *T. pylus* sp. n.; c, *T. sciron* sp. n.; d, *T. brimo* sp. n.; e, *T. cybele* sp. n.; f, *T. thoas* sp. n.

same characters (more especially the vertical margin) and long radicle of the antennae will separate it from the other species of *Telenomus* described in this paper.

(12) *Telenomus sciron* sp. n.

In general facies this species closely resembles *codrus*, with which it may be compared as follows:—

♂♀. *Head*: Frons without conspicuous bulges between the antennal insertions and the lower margin of the eye. Head somewhat flattened across the region of the anterior

ocellus. Vertex very sharply angled between the posterior ocelli, but there is no clear indication here of a sharply defined smooth ridge; the narrow strip of vertex between the angulation and the anterior ocellus is scaly-reticulate, with posteriorly the surface somewhat roughened. Antennae: radicle many times shorter than the scape. Thorax: mesonotum somewhat less shining than in *codrus*. Abdomen wider in proportion to the width of the thorax than in *codrus*. ♂ genitalia (fig. 4). Length: ♂♀, 1 mm. approx.

UGANDA: series of 7 ♂♂, 4 ♀♀, bred from eggs of *Crotolaria* sp.; NATAL: Howick (J. P. Cregoe): series of 14 ♀♀ bred from eggs of *Callioratis bellatrix*.

(13) *Telenomus tityrus* sp. n.

This is a fairly large species of elongate form.

♀. Colour: scape of the antennae and legs reddish-yellow. Pedicel and first 4 segments of the funicle a little less brightly coloured than the scape. Head thickly hairy and when seen along a line perpendicular to a line between the ocelli, less than twice as wide as its greatest length, about 5:3 (fig. 5); it is dull almost everywhere, even in front of the anterior ocellus, being very finely and closely scaly-reticulate. No narrowing whatever of the vertex between the anterior ocellus and the occipital margin; posterior part of the vertex

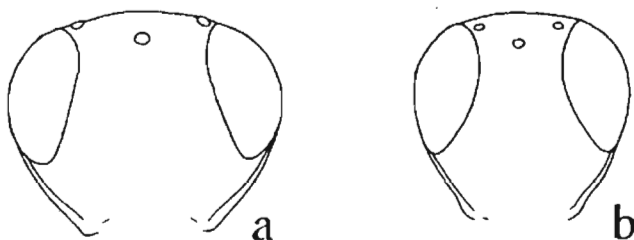


FIG. 5.—Head (from in front) of a, *Telenomus tityrus* sp. n.; b, *T. pyramus* sp. n.

slightly duller than the frons. Eyes large, the hairs hardly visible and very sparse; shortest distance between the eyes (on the frons) about equal to the length of the eye itself. Antennae: funicular segments closely articulated, and in this respect the funicle resembles the type seen in *Microphanurus*; funicle 1 fully twice as long as its apical width; 2 and 3 slightly transverse and together hardly longer than 1; 5 much nearer in length to 6 than to 4 so that if the length of the segments alone is considered, the club consists of 5 black segments; 4 strongly transverse, intermediate in width between 3 and 5. Thorax clothed with semi-erect, brownish hairs. Mesonotum somewhat shining, not dull like the head, covered with distinct granulations. Scutellum finely scaly-reticulate, without distinct granulations. Fore-wings markedly brownish, extending a little beyond the apex of the abdomen. Abdomen sharply pointed at apex; tergite 2 a very little longer than wide, its striae fairly strong and extending beyond the middle of the segment; tergites 3-5 with microscopic punctures at base and each with an ill-defined row of larger ones among these punctures. Abdomen beyond apex of 4 forming a triangle the base of which is a little shorter than its sides. Length: 1.5 mm.

CAPE PROVINCE: Port St. John, -vi., 1 ♀.

The dull sculptured head of this species, the apparent absence of hairs on the eyes and the well-marked striae of tergite 2 suggest that it were better placed in *Microphanurus*. However, the by no means strongly transverse head, the evenly rounded vertex, sculpture of mesonotum and general facies, show the insect to have a more natural affinity with *Telenomus*.

(14) *Telenomus pyramus* sp. n.

In general appearance very like the preceding species from which it differs as follows:—

♀. Funicle entirely black. *Head* seen along a line perpendicular to a line between the posterior ocelli, with its width to its greatest length as 8 : 5 (fig. 5). When thus seen, there is a distinct notch between the eye behind and the raised margin bordering it (cf. fig. 2, *pylus*); this notch is not apparent in *tityrus*. *Frons* in greater part entirely smooth and shining. Posterior (declivous) part of the vertex, although finely and closely scaly-reticulate, fairly smooth and slightly shining. *Antennae*: more slender than in *tityrus*; funicle 1 more than twice as long as wide; funicle 3 about $1\frac{1}{2}$ times as long as wide; 4 about as long as wide; club feebly 5-segmented. *Eyes* larger than in *tityrus*, distinctly hairy, closer together on the frons, where the shortest distance between them is hardly two-thirds the width of the eye. *Abdomen* a little longer, about 16 : 7; tergite 2 very distinctly longer than wide; 3 and 4 with microscopic sculpturation but not clear puncturation.

CAPE PROVINCE: Port St. John, -vi., 1 ♀.

(15) *Telenomus atys* sp. n.

A stout, dumpy species of very compact build, reminiscent of *Microphanurus*. The hairs on the eyes, on the strength of which feature the species has been placed in *Telenomus*, are by no means conspicuous and so, for the sake of convenience, the species has been included also in the key to *Microphanurus* with which genus it has perhaps a more natural affinity.

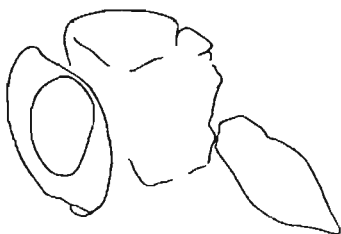


FIG. 6.—*Telenomus atys* sp. n., ♀ (head not quite lateral).

♀. Colour: scape, pedicel and first four segments of the funicle and the legs, more or less yellow-testaceous. *Head* strongly transverse, seen along a line perpendicular to a line between the posterior ocelli about $2\frac{1}{2}$ times as wide as long, 8 : 3. *Frons* dull, almost everywhere—even immediately in front of the anterior ocellus—very closely scaly-reticulate, almost finely rugose. *Vertex* sharply angled between the posterior ocelli but not showing a completely differentiated ridge. *Eyes* rather wide apart, the shortest distance between them, on the frons, more than $1\frac{1}{2}$ times as great as their width, as seen from above. *Antennae* typical of *Microphanurus* (fig. 3): funicular segments 1-4 together about half as long as 5-9 together; 4 strongly transverse, club very thick, its segments closely set, consisting more or less of 6 segments of which the first is the yellow, transverse funicular 4. *Thorax* a little narrower than the head, strongly raised above the level of the abdomen. *Mesonotum* delicately and somewhat vaguely reticulated; posteriorly the reticulations develop into fine longitudinal ridges. *Scutellum* very finely rugose. *Postscutellum* slightly raised medially, the raised part wide and longitudinally costate; there is no clearly marked central rugose swelling. *Fore-wings* nearly hyaline; venation pale; stigmalis long; postmarginalis nearly twice as long as the stigmalis; hind-wings (fig. 10). *Legs*

slender. Abdomen as long as wide; tergite 2 strongly transverse, very indistinctly and superficially striated on its basal half.

♂. Differs from the ♀ only in the antennae; these are somewhat slender; scape pedicel and first 5 segments of the funicle yellow; remaining funicular segments infuscated. Genitalia (fig. 8). Length: ♂♀, .7 mm. approx.

UGANDA: Kampala (H. Hargreaves): series of 9 ♀♀, 3 ♂♂, bred ix.1930 from eggs of *Phyrodocus lustrix* Germ.

This species is chiefly characterised by the strongly transverse head, and sculpture of frons and of mesonotum. It should be noted that, with regard to the sculpture of the mesonotum, it differs from all the other species of *Telenomus* described in this paper.

(16) *Telenomus benefactor* Crawford.

1911, *Proc. U.S. nat. Mus.*, 40: 439, ♂♀.

Microphanurus benefactor Kieffer, 1926, *Das Tierreich*, 48: 103.

♀. Colour: antennal scape in greater part blackish. Legs brownish, the femora infuscated. Head not quite twice as wide as its greatest length, about 9:5, appearing

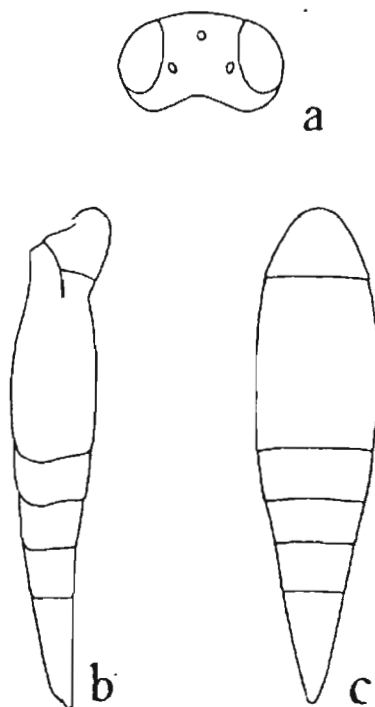


FIG. 7.—*Telenomus benefactor* Crawford, ♀; a, head, from above; b, abdomen, lateral; c, abdomen, dorsal.

much less transverse than in most other species of the genus (fig. 7). Frons above the antennal insertions with a feeble ill-defined impression; frons almost everywhere entirely smooth and shining; against the eye-margin there is some indication of fine sculpturation. Vertex above, very feebly scaly-reticulate, with some indication of minute, ill-defined punctures. Eyes rather large, apparently bare, the shortest distance between them

about equal to their width. Antennae typical of *Telenomus*, somewhat stout; club more or less 5-segmented. *Thorax*: mesonotum somewhat dull, with the same feeble and indefinite sculpture which appears on the vertex, but with a clearer indication of punctures. Fore-wings faintly smoky, not reaching the apex of the abdomen, the venation not sharply defined; stigmalis short, ill defined; hind-wings narrow, their fringe a little shorter than in following species, about $\frac{3}{4}$ to $\frac{1}{2}$ the greatest width of the wing (fig. 10). Legs slender. *Abdomen* variable in length, usually widest in front of the middle, thence tapering gradually to a point (fig. 7). Tergite 1 virtually without sculpture, smooth and shining—only at the basal lateral corners is there some trace of sculpturation. The apical tergites show traces of microscopic sculpturation. A greater length of the abdomen appears to be correlated with a more pronounced development of the horn of the first tergite. Length: 1.1–1.2 mm. approx.

♂. Remarkably unlike the ♀ in certain respects. Unless bred series had been available for study, I should not have associated the two sexes. Head yellowish-brown, becoming much paler towards the mouth, or entirely pale all over. Scape of the antennae and

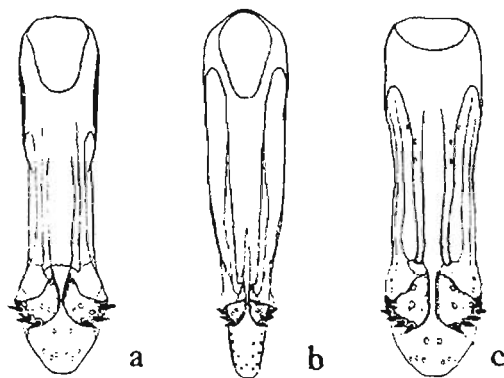


FIG. 8.—Male genitalia of a, *Telenomus atys* sp. n.; b, *T. benefactor* Craw.; c, *T. pylades* sp. n.

legs, entirely yellow (except the apical segment of the tarsi), approaching ochreous yellow and opaque. Funicle more or less blackish. Sculpture of the head like that of the ♀. Eyes not so large as in the ♀. Funicle of the antennae very short, segments 1–3 but little longer than wide; 4–9 more or less transverse. *Thorax*: legs, especially the two front pairs, short and stout, the femora and tibiae strongly thickened. *Abdomen* nearly twice as long as wide. Tergite 1 transverse, somewhat swollen, sometimes nearly smooth, but usually with indications of striations at the base, or at least towards the sides of the base. Genitalia (fig. 8). Length: .9 mm. approx.

SUDAN: Gebelein, Type series from eggs of *Tabanus tacniola* P. de B.; NYASALAND: Fort Johnston and Maiwalo (W. A. Lamborn): numerous examples, mostly females, bred from the ootheca of *Tabanus biguttatus*.

This species is very distinct in the ♀ on account of the length of the abdomen and form and sculpture of the 1st tergite. The ♂ may be known by its pale marked head and stout legs.

(17) *Telenomus nephele* sp. n.

This species shows a close relationship to *benefactor* Crawford, but in the female sex, at least, is very distinct from that species, with which it may be compared as follows:—

♀. Colour as in *benefactor* except that the legs tend to be more yellowish. Head more transverse, about 33 : 16, without the subcubical appearance characteristic of *benefactor*. Sculpture of the head similar. Eyes less large, distinctly hairy, the shortest distance between them distinctly greater than their width. Antennal club more or less 4-segmented. Thorax: mesonotal sculpture more definite than in *benefactor*, the minute punctures more numerous. Fore-wings extending beyond the apex of the abdomen. Hind-wings narrow (fig. 10); fringe hardly shorter than greatest width of the wing. Abdomen narrower than the thorax. Tergite 1, as in *benefactor*, without obvious striations; at the most, with a row of punctures (effect produced by extremely short longitudinal ridges) at extreme base of the segment; tergite 2 much longer in proportion to the remaining tergites together than in *benefactor*. Apical segments without a distinct trace of microscopic sculpturation.

♂. Not differing from the ♀ to the same degree as the ♂ of *benefactor* differs from its ♀. The ♂ of *nephela* differs from that of *benefactor* as follows:—

Form a little less elongate. Head black like the rest of the body, considerably more

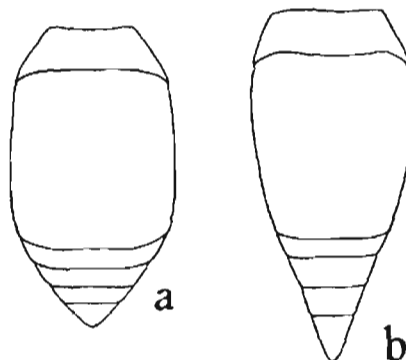


FIG. 9.—Female abdomen (dorsal view) of a, *Telenomus pylades* sp. n.; b, *T. iphias* sp. n.

transverse than in *benefactor*. Funicle pale yellowish. Thorax above more densely hairy and more transverse. Legs not much thicker than those of the ♀ and not so unusually thickened as in the ♂ of *benefactor*. Length: ♂♀, .7 mm. approx.

NYASALAND: Maiwalo (W. A. Lamborn): series 5 ♀♀, 2 ♂♂, from ? lepidopterous eggs on grass.

(18) *Telenomus pylades* sp. n.

♀. Colour: black; scape of the antennae and the legs pale yellowish; funicle entirely pale brownish-yellow. Head seen from above along a line perpendicular to a line between the posterior ocelli a little more than $1\frac{1}{2}$ times as wide as its greatest length, about 14 : 9. Temples somewhat produced backwards so that the posterior part of the vertex appears flattened and is not at all markedly declivous. In this respect, the head resembles that of, say, a typical *Macroteleia*. Frons above the antennal insertions with a feeble impression which is transversely aciculated. Frons in front of the ocelli and the vertex between the ocelli, densely granulated, the granulations unusually strong and as close together as possible. The posterior part of the vertex is clothed with tiny whitish hairs and is also conspicuously granulate, but not so closely as elsewhere. Eyes large and conspicuously hairy. Antennae: funicle 1 about $1\frac{1}{2}$ times as long as wide; 2 and 3 spherical; club feebly 5-segmented (fig. 12). Thorax: mesonotum densely and evenly granulate, the granulations strong; the mesonotum, further, appears conspicuously silvery owing to its dense clothing of minute, whitish, adpressed hairs. Scutellum sculptured and clothed

more or less like the mesonotum. Fore-wings somewhat whitish, extending well beyond the apex of the abdomen; hind-wings widest at about the apical third (fig. 10). Abdomen about twice as long as wide, markedly flattened above (fig. 9); tergite 1 longitudinally striated all over; 2 distinctly longer than wide, finely and somewhat indefinitely striated

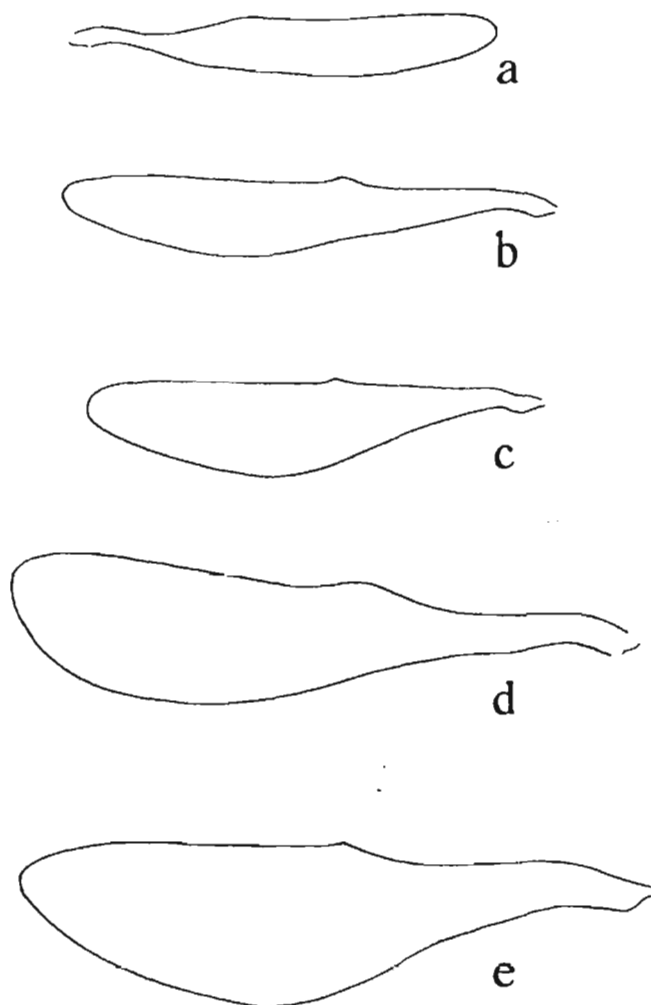


FIG. 10.—Hind-wing of female of a, *Telenomus nephela* sp. n.; b, *T. benefactor* Craw.; c, *T. atys* sp. n.; d, *T. pylades* sp. n.; e, *Microphanurus striaticeps* Dodd.

over its basal third, the striae longest at the sides and in the middle; 3, 4 and 5 subequal in length.

♂. Differs from the ♀ as follows:—

Antennae rather long, about two-thirds the length of the body, pale brownish-yellow in colour; funicle 1 and 2 twice as long as wide; 7 and 8 nearly $1\frac{1}{2}$ times as long as wide. Fore-wings distinctly brownish; the somewhat ill-defined postmarginalis is about 3 times as long as the stigmalis. Genitalia (fig. 8). Length: ♂♀, 1.1 mm. approx.

UGANDA : Kampala (*H. Hargreaves*) : series of 17 ♀♀, 15 ♂♂, bred 12.xii.1929 from eggs of *Harpacton tristis* St.

This species is by no means typical of the genus and is somewhat unnaturally placed therein. The following species has much in common with it, but in sculpture and pubescence approaches nearer to a typical *Telenomus*.

Telenomus pylades is largely characterised by the shape and sculpture of the head, which sculpture, it should be noted, differs from that of typical *Telenomus* only in degree, and by the pubescence of the mesonotum combined with the form of the abdomen.

(19) *Telenomus iphias* sp. n.

In general appearance much like *pylades*, with which it may be compared as follows :—

♀. Scape of the antennae and the legs sometimes darker. Funicle brownish-black. *Head* : frons in front of the ocelli and vertex between the ocelli, extremely finely granulate, but though the surface is dull as in *pylades*, the sculpture is indefinite. Temples hardly produced backwards, so that the posterior part of the vertex is merely evenly rounded; the surface here is very finely rugose, without the well-separated granulations characteristic of *pylades*. *Thorax* : mesonotum somewhat shining, with a very fine, indefinite sculpture and clothed with the short, brownish, adpressed hairs characteristic of *Telenomus*. Fore-wings distinctly brownish, over-reached a little by the acuminate apex of the abdomen; stigmalis sometimes very indistinct; postmarginalis better defined than the stigmalis and reaching nearly to the apex of the wing, its limits shown by the even row of short bristles which arise from it. *Abdomen* fully $2\frac{1}{2}$ times as long as wide, similar to that of *pylades* but differing in having the apex much more sharply narrowed (fig. 9). Length : 1.2 mm. approx.

♂. Like the ♀ in sculpture. It differs from the ♂ of *pylades* also as follows :—

Antennae at first sight very like those of the ♀, being distinctly clavate after funicle 3; funicle 1 is very slightly longer than wide; 4-9 strongly transverse. Abdomen slightly longer and narrower than in *pylades*. Length : 1 mm. approx.

UGANDA : Kampala (*H. Hargreaves*) : series of 7 ♀♀, 3 ♂♂, bred from eggs of *Harpacton tristis* St.

It is interesting to note that this and the preceding species were bred together on the same day and from the same host. The two series had originally been mounted as one.

Telenomus pylades and *iphias* are closely and naturally related, although very distinct from each other. It becomes rather difficult to define this relationship, which is apparent enough when the two species are seen. Both have a similar elongate form, a head which is by no means strongly transverse, rather narrow fore-wings, hind-wings broadest beyond the middle, and a similar, subtly distinctive abdomen.

(20) *Telenomus gowdeyi* Crawford.

T. gowdeyi, 1911, *Proc. U.S. nat. Mus.*, 40 : 441 (♂♀).
Liophanurus gowdeyi, Kieffer 1926, *Das Tierreich*, 48 : 72.

The female of this species is remarkable on account of the much attenuated abdomen and the shape of the apical tergites. The male departs but little from the uniformity common to nearly all the males of *Telenomus*.

Crawford's description may be amplified as follows :—

♀. *Head* a little more than twice as wide as long, 9 : 4, seen along a line perpendicular

to a line between the posterior ocelli. Frons almost everywhere entirely smooth and shining. Vertex somewhat sharply angled between the posterior ocelli; between the posterior ocelli it is finely and somewhat vaguely scaly-reticulate; this sculpture extends in front of the posterior ocelli where the surface contains some tiny punctures. *Thorax*: mesonotum with fine, indefinite sculpture; there is some indication of microscopic puncturation, but the punctures are extremely ill defined and the surface between them is scratched. Lateral, raised areas of the propodeum coarsely reticulate-rugose, especially towards the inner margin. Stigmatalis of fore-wings long; postmarginalis well defined and nearly twice as long as the stigmatalis. *Abdomen* between 4 and 6 times as long as wide, widest in its basal third and thence tapering to a point; tergite 2 with short striations at its base and with its entire apical margin conspicuously emarginate; tergites 3, 4 and 5, each with a short lateral incision (fig. 11). The length of the abdomen is variable and depends,

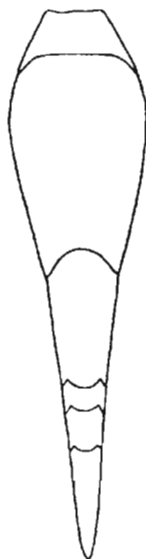


FIG. 11.—*Telenomus gowdeyi* Crawford, ♀; abdomen dorsal.

further, upon whether the apical segments are retracted or not. Length: 1.2–1.7 mm.

♂. Antennae: scape yellow; pedicel and funicle pale brownish-yellow. Lateral areas of the propodeum in large part, nearly smooth. Abdomen fully twice as long as wide, rather strongly narrowed basally; tergite 2 considerably longer than wide, its apical margin shallowly emarginate; following segments also emarginate at the apex but more feebly so than 2. Length: .9 mm. approx.

UGANDA: Entebbe (C. G. Gowdey): several series bred from eggs of *Anaphe infracta* and *Anaphe* sp.

The shape of the abdomen in the ♂ is quite distinctive.

According to Kieffer's key to the TELENOMINAE given in *Das Tierreich*, 48:15, the two following species, for which a new genus has been erected, would be placed in *Microphanurus*, and this, on the strength of having a post-marginalis to the fore-wings (though not well defined), glabrous eyes, no clearly marked parapsidal furrows and striations at the base of the second tergite.

(I have yet to see a Telenomine which is entirely without any form of striation at the base of the second tergite, such as is supposedly the case in *Phanurus* and *Liophanurus*!) The general facies, that is, the markedly narrow form, shows them to have no natural affinity with *Microphanurus*; the unusual shape of the head, the small eyes and the two extra grooves on the frons are characters not found in this genus. The narrow, cylindrical thorax, again, is peculiar and distinctive. Aberrant though the genus undoubtedly is, I freely admit that I would have preferred to include it in *Telenomus* rather than propose a new name for it, but complete absence of hairs on the eyes would not admit this.

Nirupama gen. n.

The following description is generic only in so far as it covers the two species for which it has been drawn up.

Head a little flattened antero-posteriorly and prolonged between the vertex and the mouth. An extremely fine groove extends from the anterior ocellus to the weak keel between the antennal insertions. Another, still finer groove, extends from the mandibles to the eye, just in front of the lowest point of the latter; this is quite distinct from the sharply defined genal sulcus. Eyes bare, small, not, or hardly, longer than the cheeks. Antennae 11-segmented in the ♀, 12-segmented in the ♂. *Thorax* narrow, somewhat cylindrical. Fore-wings with the stigmalis markedly short. Legs short, stout, the femora markedly dilated. *Abdomen*: segment 1 not strongly transverse, about $1\frac{1}{2}$ times as wide as long; 2 considerably longer than wide, its apical margin widely emarginate in the ♀, more or less straight in the ♂. The abdomen is sharply acuminate in the ♀ and in this sex shows 4 segments when these are in their normal position; in dried specimens the 4th tergite is frequently retracted completely beneath the 3rd. Tergite 3 in the ♂ unusually long, the following segments disproportionately short.

Genotype *N. morpheus* sp. n.

Nirupama morpheus sp. n.

♀. Colour black. Scape of the antennae in greater part light brownish with the base and apex paler; pedicel and first 5 segments of the funicle brownish-yellow; rest of the funicle darker. Legs brownish-yellow, the femora more infuscated than the other parts. Tergite 1 reddish-brown; rest of the abdomen more or less black. *Head* seen from above along a line perpendicular to a line between the posterior ocelli strongly emarginate behind. Vertex between the posterior ocelli sharply angled and falling away perpendicularly to the occipital margin; there is no differentiated ridge across the vertex. Head between the mouth and the posterior ocelli entirely smooth almost everywhere; only just in front of the posterior ocelli is there some vague scaly-reticulate sculpture. Along the inner eye-margin a row of small, ill-defined punctures is feebly indicated. Face behind the eyes scaly-reticulate, the meshes comparatively large. Frons between the antennal insertions and the lower inner margin of the eye somewhat bulging. Antennae: scape normal, not unusually widened towards the apex; funicle 4 a little nearer in size to 3 than to 5 so that the club is more or less 5-segmented (fig. 12). Clypeus appearing feebly emarginate at its apex; this is largely due to the chitin being reduced to a mere membrane here, the thick parts of the clypeus showing as a more or less semi-circular ring at the sides and base. *Thorax*: mesonotum in greater part virtually unsculptured; parapsidal furrows represented by a conspicuous but very uneven, depressed band of finely rugose or almost granulate sculpture; on the central part of the mesonotum, there is present, at the most, an extremely faint scaly-reticulate sculpture. The antero-lateral margin of the mesonotum

is punctate and the postero-lateral margin shows a costate furrow, widest in the middle. Scutellum faintly scaly-reticulate. Postscutellum with only a very feebly roughened central swelling. Mesopleurae smooth except for a row of irregular pits along the diagonal depression and a short, more or less transverse punctate groove at right angles to this. *Abdomen* elongate, normally much attenuated towards the apex, fully 3 times as long as wide; tergite 1 about $1\frac{1}{2}$ times as wide as long, its apical half somewhat swollen, especially medially; the basal striae do not extend over the swollen apical half; 3 distinctly longer than its basal width, more or less funnel-shaped and in dried specimens often completely concealing the apex of the abdomen. Length: 1.1 mm. approx.

♂. Differs from the ♀ as follows:—

Antennae: scape very slightly more widened apically. Scape, pedicel and first 3 or 4 segments of the funicle more or less yellow; rest of the funicle darker; funicle slightly

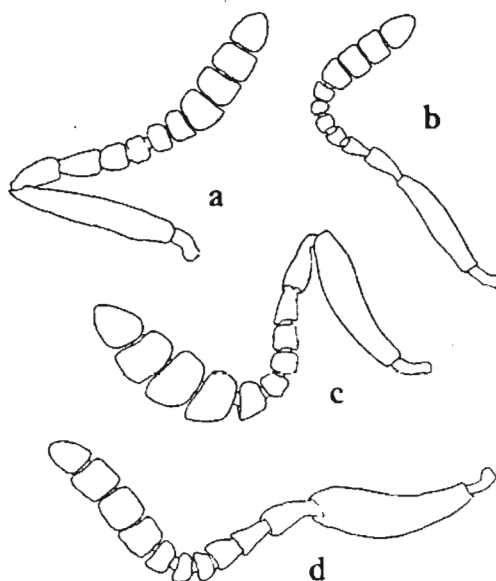


FIG. 12.—Female antenna of a, *Telenomus pylades* sp. n.; b, *Platytelenomus hylas* sp. n.; c, *Nirupama morpheus* sp. n.; d, *N. auge* sp. n.

thickened towards the apex; segments 5–9 slightly transverse; 3 produced beneath at the apex. *Abdomen* much less elongate. Tergite 1 not or hardly swollen on its apical half, the striae extending to nearly the apex of the segment; 2 fully $1\frac{1}{2}$ times as long as wide; 3 unusually long and frequently concealing the remaining segments. Length: .9 mm. approx.

GOLD COAST: Afwerase (W. H. Patterson): series of 15 ♀♀, 4 ♂♂, bred 31.i.1922 from eggs of an hemipteron.

Nirupama auge sp. n.

This species was bred with *morpheus*. It is somewhat remarkable that this should be so, since both species clearly belong to the same genus and that, an aberrant one. At first, having examined only the females, I suspected that a species was present in which the female sex was strongly dimorphic.

A study of the males, however, revealed also two forms each of which could be correlated naturally with the two groups of females.

N. auge sp. n. differs from *morpheus* only in a few details, but these are determinative enough to exclude all possibility of confusion between the two species.

Head longer, seen from above, not so hollowed out behind; seen from in front, more prolonged than in *morpheus*, its length (to apex of mandibles) to its width across the eyes in the ratio of 21:16 (fig. 13). *Antennae*: scape markedly wider, flattened and somewhat hollowed out along its entire outer side to accommodate the funicle when this is folded back on to it; funicle a little shorter, all the segments a little less elongate (fig. 12). *Thorax*: mesonotum without the depressed bands of finely rugose sculpture; at the most there is a little, very faint, scaly-reticulate sculpture and then the surface is by no means depressed; the mesonotum is hence more or less smooth, shining and glabrous all over; its antero-lateral margins are less clearly punctate and its postero-lateral margins show a much less distinctly costate furrow. Postscutellum entirely smooth medially. *Legs* with the femora slightly more dilated. *Abdomen* slightly less elongate (fig. 13); tergite 1 not so much paler than the rest of the abdomen as in *morpheus*. Length: .9 mm. approx.

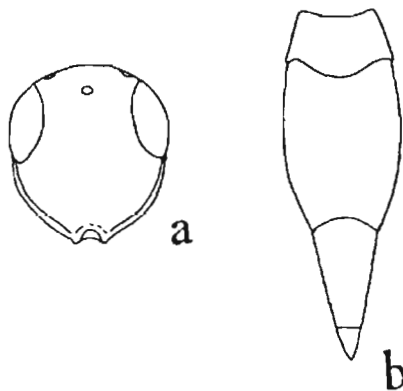


FIG. 13.—*Nirupama auge* sp. n., ♀; a, head from in front; b, abdomen dorsal.

GOLD COAST: Afwerase (*W. H. Patterson*): series of 15 ♀♀, 7 ♂♂, bred 31.i.1922 from eggs of an hemipteron.

The most readily appreciated character for separating these two species is the shape of the scape.

Microphanurus Kieffer.

In *Microphanurus* it is important to determine whether a species has a completely margined vertex (not to be confused with the occipital margin) and whether the frons is swollen between the antennal insertions and the lower, inner margin of the eye. Both these characters are easy to appreciate in the common *M. seychellensis* Kieff. (= *truncativentris* Dodd). The sculpture of the mesonotum, also, is a useful guide to the identification of the species. The degree of striation on the second tergite is unreliable as a specific character and, at best, is only of secondary importance. The shape of the abdomen is reliable for determination only within fairly broad limits. Unlike those genera of the related subfamily SCELIONINAE, with which I am acquainted, and in which the apical segments of the abdomen—with the exception some-

times of the last—are fused together, the corresponding segments in the TELENOMINAE are retractile and in death tend to be more or less telescoped one within the other.

*Key to the Species (♀♀).**

1. Segments 3 and 4 of the funicle unusually strongly transverse, saucer-shaped, much wider than their greatest length; 2, 3 and 4 together about as long as, or even shorter than, 5. (Sp. with the mesonotum and the scutellum strongly and evenly reticulate-rugose) . . . *mopsus* sp. n.
- Segments 3 and 4 of the funicle not unusually strongly transverse; 2, 3 and 4 together considerably or much longer than 5 2.
2. The carina bordering the hind margin of the eye is extended across the vertex just behind the posterior ocelli so that the vertex is divided by a sharp, smooth and more or less raised ridge into an anterior and a posterior part; the sculpture of the posterior (declivous) part is markedly different from that of the anterior part, being more or less smooth and polished. (All species have the face between the antennal insertions and the lower, inner margin of the eye conspicuously bulging when the head is seen from above) 3.
- This carina does not extend across the vertex or, if it appears to, it is ill defined and is neither smooth nor more or less raised 5.
3. Mesonotum without a trace of parapsidal furrows. (Sp. with the sculpture of the mesonotum often consisting largely of minute separated, raised points, the surface between the points somewhat smooth and shining; segment 4 of the funicle as long as wide and not fitting closely on to 5; tergite 2 considerably longer than wide, its striae extending hardly beyond the basal third) *seychellensis* Kieffer.
- Mesonotum posteriorly with short, sharply defined parapsidal furrows 4.
4. Mesonotum extremely finely and closely scaly-reticulate, so that it appears finely rugose or granulated; genal sulcus crack-like . . . *maro* sp. n.
- Mesonotum finely but very irregularly longitudinally striated on its posterior half or third; on its anterior part, the rugulosity consists of minute ripples or raised points; genal sulcus wide and gaping. (Sp. with 5 or 6 black club segments) *menecles* sp. n.
5. Face distinctly bulging between the antennal insertions and the lower, inner margin of the eye (sp. with short parapsidal furrows present posteriorly; the funicle entirely black or brownish-black; distinct, though not sharply defined punctures among the scaly-reticulate sculpture of the frons; mesonotum sometimes with distinct, raised wrinkles or reticulations) *enceladus*, sp. n.
- Face without these bulges. (Spp. without a trace of parapsidal furrows posteriorly) 6.
6. Eyes clothed with excessively short hairs. (Sp. with the entire frons very closely scaly-reticulate, almost finely rugose; mesonotum on its anterior half, delicately and vaguely reticulated) . . . *Telenomus atys* sp. n.
- Eyes bare 7.
7. Mesonotum very characteristically sculptured, being very evenly and closely reticulated. (Sp. having cheeks with some 6 clearly defined sharp ridges which converge on the mouth; stigmalis unusually short for the genus; tergite 2 virtually striated all over, the surface between the close, somewhat wrinkled ridges being transversely sculptured) *striaticeps* Dodd.
- Mesonotum with more typical sculpture, that is, either finely or strongly rugose or with a tendency to reticulate-rugose 8.

* For ♂♂ start at couplet 2.

8. Mesonotum finely rugose, the sculpture consisting largely of minute raised points but posteriorly showing longitudinal rugosities. (Sp. with the radicle of the antennae more or less black) . . . *basalis* Wollaston. 9.
Mesonotum coarsely rugose
9. Radicle of the antennae fully or hardly less than one-third the length of the scape and black. (Sp. with the genal sulcus wide and gaping) *aloyssi-sabaudiae* Fouts. 10.
Radicle much less than one-third the length of the scape
10. Genal sulcus wide and gaping, margined in front by a distinct ridge which runs parallel to it from base of clypeus to lowest point of the eye; radicle of the antennae blackish *orontes* sp. n.
Genal sulcus narrow, crack-like, not margined in front by such a ridge; radicle yellow *danaus* sp. n.

♀. Colour : first 6 segments of antennae and legs except the coxae, bright reddish-yellow. Head more than twice as wide as its greatest length, about 17 : 7. Frons with a large, shallow depression which is more or less distinctly traversed, at least above, by fine wavy lines; above, the lines tend to be closer and slightly more raised, so that the frons here has an indication of a feeble margin; frons otherwise (except towards the mouth) and the vertex in neighbourhood of the ocelli, very closely scaly-reticulate, with scattered ill-defined punctures; sometimes the surface here tends to be faintly roughened or granulated, in which case the punctures are still more ill defined. The margin bordering the eyes behind, is continued as a fairly sharply defined, raised ridge across the vertex, immediately behind the posterior ocelli. When the head is seen from above, the frons between the antennal insertions and the lower, inner margin of the eye, distinctly bulges but not so conspicuously as in the two following species. Antennae very distinctive; radicle very short; first 4 segments of the funicle together about half the length of the rest together; 3 and 4 unusually strongly transverse and short; 2, 3 and 4 much compressed together, shorter than, or as long as, greatest length of 5; 5-9 gradually and conspicuously (especially after 6) decreasing in width towards 9; 9 very narrow, its greatest width only about half that of 6 (fig. 14). Thorax dull, somewhat densely clothed with pale adpressed hairs, with a fairly strong, raised, almost reticulate sculpture, that is, the sculpture consists of raised points anteriorly which posteriorly develop into ridges and irregular rugosities. Scutellum slightly more coarsely sculptured than the mesonotum. Postscutellum with a medial swelling which is irregularly longitudinally ridged. Wings yellowish, the venation pale; stigma long. Abdomen considerably longer than wide when the apical segments are not retracted; segment 2 very slightly transverse, strongly and evenly striated almost all over; segments 3-6 finely punctate, when not retracted together nearly as long as 2. Length : 1.9-2.4 mm.

CAPE PROVINCE: Port St. John, June-July, 3 ♀♀. ABYSSINIA: Mt. Zuquala, Oct., 1 ♀ (*H. Scott*).

This species is chiefly characterised, in the female sex at all events, by the form of the antennae, by having the scutellum as strongly sculptured as the mesonotum and by the strong striations of the second tergite.

Telenomus seychellensis Kieff. 1910, *Bull. Soc. ent. Fr.*, 1910 : 294, ♂♀.
 = *Telenomus truncativentris* Dodd. 1919, *Trans. ent. Soc. Lond.*, 1919 : 353.

The types of both Kieffer's and Dodd's species are in the British Museum, but the species could only doubtfully be recognised from the descriptions given by these writers. It may further be described as follows:—

Head: frons conspicuously bulging between the antennal insertions and the lower, inner, margin of the eye; at least between the antennal insertions and the anterior ocellus, it is entirely smooth and shining; elsewhere it is delicately scaly-reticulate and usually without punctures among this sculpture. On each side of the anterior ocellus and very close to it, there is nearly always a short, longitudinal row, each of about 6 small clearly defined punctures—sometimes the 2 rows unite behind the anterior ocellus. The margin bordering the eyes behind is continued as a sharply defined ridge right across the vertex. *Antennae*: funicle hairy, somewhat slender, the segments rather loosely articulated; funicle 1 fully twice as long as wide; 2 considerably longer than wide; 4 more or less square in outline; the club is feebly 5-segmented. *Thorax*: mesonotum with its sculpture consisting nearly everywhere of minute raised granulations; posteriorly there is rarely an indication of fine longitudinal wrinkles. The sculpture is much more characteristic of *Telenomus* than of *Microphanurus*. Scutellum almost smooth and shining with long brownish hairs which are longer than those of the mesonotum and all of which tend to converge slightly. *Abdomen*: when the segments are not retracted, it is nearly twice as long as wide, about 7:4; tergite 2 very distinctly longer than wide, its striae not extending to the middle of the segment, and approaching the middle only medially. The truncate apex of abdomen mentioned by Dodd is of course the result of retraction of segments and has no specific value.

ABYSSINIA: Mt. Zuquala, ca. 9000 ft. (*H. Scott*), 1 ♀. SEYCHELLES, Type series of *seychellensis* Kieff. BRIT. E. AFRICA: Nairobi, Type series of *truncativentris* Dodd, bred from eggs of *Antestia variegata*. TANGANYIKA TERR.: Moshi (*A. H. Ritchie*): series bred from eggs of *Antestia lineaticollis*. UGANDA: Toro (*G. R. L. Hancock*): series from eggs of *Antestia lineaticollis*; Kampala (*H. Hargreaves*): series from eggs of *Agonoscelis versicolor*. CAPE PROVINCE: Mossel Bay and Port St. John: numerous examples from both localities.

The species is characterised by the frontal bulges, punctures on each side of the anterior ocellus and by the completely margined vertex.

Microphanurus menecles sp. n.

♀. Colour: first 6 segments of the antennae including the radicle, and the legs, brightly yellowish. *Head* viewed from above, along a line perpendicular to the margin behind the posterior ocelli, more than twice as wide as its greatest length, about 12:5. Frons between the antennal insertions and the lower, inner, margin of the eye conspicuously bulging; frons, except above the antennal insertions where the surface is delicately transversely striated, everywhere clearly scaly-reticulate, with scattered, ill-defined punctures, which tend to be closest together toward the eye-margin. The margin bordering the eyes behind is continued as a very sharply defined ridge right across the vertex immediately behind the posterior ocelli. *Antennae*: radicle very short; funicle 1 more than twice, sometimes nearly 3 times, as long as wide; 3 bead-like; 3 and 4 together longer than 5; 4 fits rather more closely on 5 than 3 on 4 so that the club is feebly 6-segmented; this last is somewhat slender and is slightly narrowed towards the apex. The genal sulcus, especially when seen from in front, is wide and gaping. *Thorax*: the sculpture of the posterior half of the mesonotum consists largely of very irregular, fine, raised wrinkles; anteriorly these wrinkles break up into tiny raised points and irregular rugosities; the surface everywhere between the raised sculpture is often very shining. Parapsidal furrows nearly as long as the scutellum, deep and well defined. Scutellum less strongly sculptured than the mesonotum, usually with at least some raised lines, but sometimes with only a feeble scaly-reticulate sculpture. Postscutellum with a feeble medial swelling which is longitudinally ridged, often very irregularly. Wings as in *mopsus* sp. n. *Abdomen* but little longer than

wide even when the segments are not retracted; segment 2 very delicately striated, the striae extending to within a quarter of the apex of the segment. Length: 1.2-2.2 mm.

♂. Antennae yellow, slightly infuscated towards the apex, somewhat slender; segments 5-9 of the funicle fully as long as wide. Abdomen less wide than in the female, its apex more rounded when the segments are not retracted. Length: 1.3 mm.

CAPE PROVINCE: Mossel Bay, Nov.-Jan., 9 ♀♀, 2 ♂♂; Ceres, March, 1 ♀. NATAL: Kloof, Aug.-Sept., 2 ♀♀. E. CAPE PROVINCE: Katberg, 4000 ft., March, 1 ♀.

Microphanurus maro sp. n.

This species is clearly very closely related to *menecles* sp. n. and differs from it as follows:—

♀. Colour: funicle almost entirely black; only the base of segment 1 tends to be pale; the pedicel, though generally yellowish like the scape, is sometimes darkened above. Head: frons sometimes less punctured than in *menecles*. Thorax: mesonotum on its posterior half or two-thirds, without longitudinal rugosities, the surface being very finely scaly-reticulate, sometimes very finely rugose; anteriorly the surface tends to show the normal raised points, but they are very feeble. Scutellum often nearly smooth, apparently never with raised lines or rugosities. Abdomen: striations of tergite 2 sometimes strong and distinct to a little beyond the middle, sometimes so feeble as to leave the segment almost smooth.

♂. Funicle usually entirely blackish but sometimes uniformly brownish. Otherwise like the ♀.

CAPE PROVINCE: Mossel Bay, Oct.-Feb., 27 ♀♀, 2 ♂♂; May-Aug., 5 ♀♀, 10 ♂♂; Ceres, Feb.-April, 9 ♀♀; Somerset East, Oct.-Dec., 5 ♀♀; Nov., 2 ♀♀. NATAL: Sarnia, April, 1 ♀.

This insect is readily distinguished from *Microphanurus menecles* by the sculpture of the mesonotum and of the scutellum.

Microphanurus enceladus sp. n.

Species very closely related to *maro* sp. n., and perhaps only a variety of it. It differs from that insect as follows:—

Head: frons a little less bulging between the antennal insertions and the lower margin of the eye, its sculpture closer, less delicate, and generally, much more thickly punctured, though, as in *maro*, the punctures are ill defined. The sharp margin behind the eyes fades out just behind the posterior ocelli, so that the anterior part of the vertex is separated from the posterior (declivous) part only by a very sharp angle. Thorax: mesonotum in 3 specimens with a very fine but clearly raised sculpture, approaching that seen in *menecles*, but very much finer. In one specimen (Somerset East), the sculpture is similar to that of *maro*, but, in addition, there is in this specimen, a clearly defined central carina and the surface between this carina and the short parapsidal furrows tends to be almost smooth. Scutellum in the Somerset East specimen perfectly smooth and shining, but in the others with the fine sculpture characteristic of *maro*.

CAPE PROVINCE: Somerset East, Sept., 1 ♀, Type; Port St. John, Aug.-Sept., 2 ♀♀; George, June, 1 ♀.

The sharp margin of the vertex is so constant throughout the long series of *maro*, that its absence along the distance between the posterior ocelli in the above 4 individuals would seem to justify at least a provisional separation. The type female from Somerset East might further have suggested another species on account of the sculptural variations mentioned above, but until

more material is to hand, and the limits of specific variation can be more properly estimated in so difficult a genus as *Microphanurus*, it is perhaps wiser to avoid still further division.

Microphanurus striaticeps Dodd.

Telenomus striaticeps Dodd, 1919, *Trans. ent. Soc. Lond.*, 1919 : 355.

Dodd's description may be further amplified as follows :—

♂♀. *Head* : face without frontal bulges. Frons between the antennal insertions and the eyes with sharply defined even ridges which converge on the mouth. Frons in front of the ocelli with coarse longitudinal rugosities; above the antennal insertions there are well-marked transverse ridges which merge into the longitudinal rugosities towards the eye-margin; between all these rugosities the surface is entirely smooth and shining. Vertex between the ocelli dull, with a close, even, reticulate sculpture similar to that of the mesonotum. There is no trace of a sharp ridge across the vertex and the vertex itself is by no means sharply angulate. Genal sulcus marked by a fine sharp ridge. *Thorax* : mesonotum and scutellum dull, very characteristically sculptured, everywhere very closely and evenly reticulated or thimble-punctured. Fore-wings whitish, the stigmatis shorter than in any other African *Microphanurus*. Hind-wing (fig. 10). *Abdomen* : tergite 2 quadrate, longitudinally striated or wrinkled all over, the surface transversely sculptured between the raised rugosities. The sculpture of this tergite is very characteristic and quite unlike that of any other African *Microphanurus*.

NYASALAND : Mt. Mlanje, Type series bred from eggs of a Pentatomid.

BRIT. SUDAN : Wad Medani (*H. B. Johnston*) : series from eggs of *Acanthomia brevirostris* on *Cajanus indicus*. S. NIGERIA : Ibadan, series from unknown eggs. CAPE PROVINCE : Worcester, March, 2 ♂♂.

On account of the sculpture of the head, thorax and abdomen, this is perhaps the most distinct species of *Microphanurus* dealt with in this paper. The short stigmatis of the fore-wing is also very characteristic.

Microphanurus basalis Wollaston.

Telenomus basalis Woll. 1858, *Ann. Mag. nat. Hist.*, (3) 1 : 25, ♂♀.
= *Telenomus maderensis* Woll. 1858, *Ann. Mag. nat. Hist.*, (3) 1 : 25, ♀.
= *Telenomus megacephalus* Ashm. 1894, *J. linn. Soc. Lond.*, 25 : 212, ♀.
Microphanurus megacephalus Kieff. 1926, *Das Tierreich*, 48 : 76.
= *Telenomus picipes* Dodd, 1919, *Trans. ent. Soc. Lond.*, 1919 : 354, ♂♀.

The above synonymy has been established by examination of the types, except in the case of *megacephalus* Ashm., where specimens determined by Mr. A. B. Gahan of the U.S. Bureau of Entomology have been regarded as representative of Ashmead's species.

This species is a parasite of the eggs of the hemipteron *Nezara viridula* and has been bred in Africa and U.S.A.

Wollaston's descriptions are worthless and neither Ashmead nor Dodd has, in my opinion, succeeded in describing the species adequately. The following notes will, it is hoped, fix its position at least among its African relatives.

♀. *Colour* : radicle of the scape more or less black; scape yellow; first 4 segments of the funicle brownish. *Head* more or less dull; seen from above, along a line perpendicular to a line between the posterior ocelli, nearly two and a half times as wide as its greatest length, about 12 : 5. Frons without a depression above the antennal insertions and without bulges between the antennal insertions and the eyes. Frons between the antennal insertion and the eye very closely scaly-reticulated, almost finely rugose. Above

the antennae, the surface is very delicately transversely striated or wrinkled, although the strength of these striations is variable. Frons in front of the ocelli and usually along the inner eye-margin very closely scaly-reticulated, almost finely rugose; sometimes the striations above the antennae reach the eye-margin. There is no trace of a fine, sharp ridge across the vertex. Antennae: radicle longer in proportion to the length of the

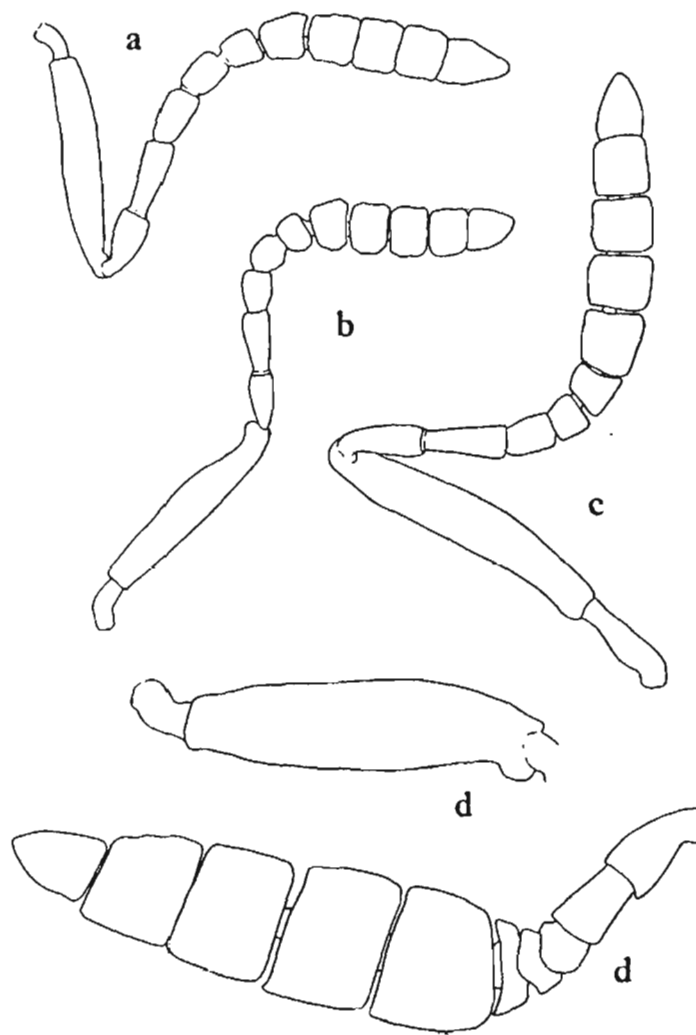


FIG. 14.—Female antenna of a, *Telenomus pyramus* sp. n.; b, *Microphanurus basalis* Wollaston; c, *M. aloysii-sabaudiae* Fouts; d, *M. mopsus* sp. n.

scape than in the other African species, except *alloysii-sabaudiae* Fouts; funicular segments closely articulated and in this respect, unlike *seychellensis* Kieff. (fig. 14). Genal sulcus narrow and crack-like. Thorax: mesonotum sculptured much as in *seychellensis*, but the sculpture is stronger and on the posterior half more or less, the raised points tend to form themselves into very distinct longitudinal wrinkles, so that longitudinal rugosities are, as a general rule, a marked feature of the mesonotal sculpture. There is no trace of parapsidal furrows. Scutellum irregularly covered with raised points. Abdomen a little

longer than wide when the segments are not retracted, about 11:8; tergite 2 distinctly transverse, its striae sometimes very feeble, sometimes strong and usually extending a little beyond the middle of the segment.

♂. Scape, pedicel and first 5 segments of the funicle more or less yellow or all the funicular segments blackish as in the type series of *picipes* Dodd; funicle 2 nearly twice as long as wide; 4 considerably longer than wide.

Distribution: U.S.A.; WEST INDIES (Type of *megacephalus* Ashm.); MADEIRA (Types of *basalis* and *maderensis* Woll.); BRIT. E. AFRICA: Songhor, Type series of *picipes* Dodd, bred from undetermined eggs on coffee; EGYPT (*H. Priesner*), bred frequently from the eggs of *Nezara viridula*; SUDAN: Wad Medani (*W. P. L. Cameron*): 1 ♀ from eggs of *Agonoscelis versicolor*; TRANSVAAL: Barberton (*G. C. Ulyett*): series from eggs of *N. viridula* on cotton; CAPE PROVINCE: Ceres, 2 ♀♀, 1 ♂; Mossel Bay, 1 ♀; Somerset East, 1 ♀.

Microphanurus basalis Woll., is at once separated from *M. seychellensis* Kieff., by its unmarginated vertex and transverse 2nd tergite. Its nearest ally appears to be *M. aloysii-sabaudiae* Fouts, from which species it is most readily separated by having the sculpture of the mesonotum finer and with longitudinal rugosities much more in evidence on this sclerite.

Microphanurus aloysii-sabaudiae Fouts.

1930, *Boll. Soc. ent. Ital.* 62: 118.

This species is closely related to *maro* and *menecles* spp. n., but agrees in sculpture more with *menecles*. It may be compared with this species as follows:—

♀. Colour: radicle of the scape black. Head: frons not at all bulging between the antennal insertions and the lower, inner margin of the eye; the head, in consequence, appears more transverse; frons between the antennal insertions and the eyes quite strongly rugose; above the antennal insertions it is strongly, irregularly ridged and these ridges tend to meet the middle of the eye-margin; frons near the ocelli, and the vertex between the ocelli, so closely scaly-reticulate as to appear almost finely rugose or granulate. Carina bordering the hind margin of the eye not continued as a sharp ridge across the vertex, although the anterior part of the vertex forms with the posterior (declivous) part an acute angle. Antennae: radicle slender, its curvature much before the middle, fully two-thirds the length of the scape (fig. 14); in ♂ cotypes, the radicle is somewhat thicker. Thorax: mesonotum strongly and fairly evenly reticulate-rugose; posteriorly, the rugosities show a tendency to become longitudinal only on the posterior quarter, but in a doubtful ♀ from Katberg, there is longitudinal sculpture extending to as far as the middle of the mesonotum.

ITALIAN SOMALILAND (*Duca Abruzzi*), Type series bred from eggs of *Nezara viridula* and *Nezara pallidoconsersa*. UGANDA: Kampala (*H. Hargreaves*): series of 8 ♀♀ and 2 ♂♂, from eggs of Hemiptera on *Crotolaria* sp. CAPE PROVINCE: Port St. John, June-July, 2 ♀♀. E. CAPE PROVINCE: Katberg, 4000 ft., Jan., 1 ♀.

This species is distinct on account of the long black radicle of the scape, the absence of frontal bulges and the coarse sculpture of the mesonotum.

Microphanurus orontes sp. n.

♀. Species differing from *alloysii-sabaudiae* Fouts, only in having the radicle of the scape very short, much less than one-third the length of the scape, curved more or less in the middle.

CAPE PROVINCE : Port St. John, April, 1 ♀; July, 1 ♀.

This species is remarkably like *aloyssi-sabaudiae*, but the difference in the shape and length of the radicle is too obvious a feature to be disregarded.

Microphanurus danaus sp. n.

This is another species closely related to *aloyssi-sabaudiae* but very clearly distinct from it.

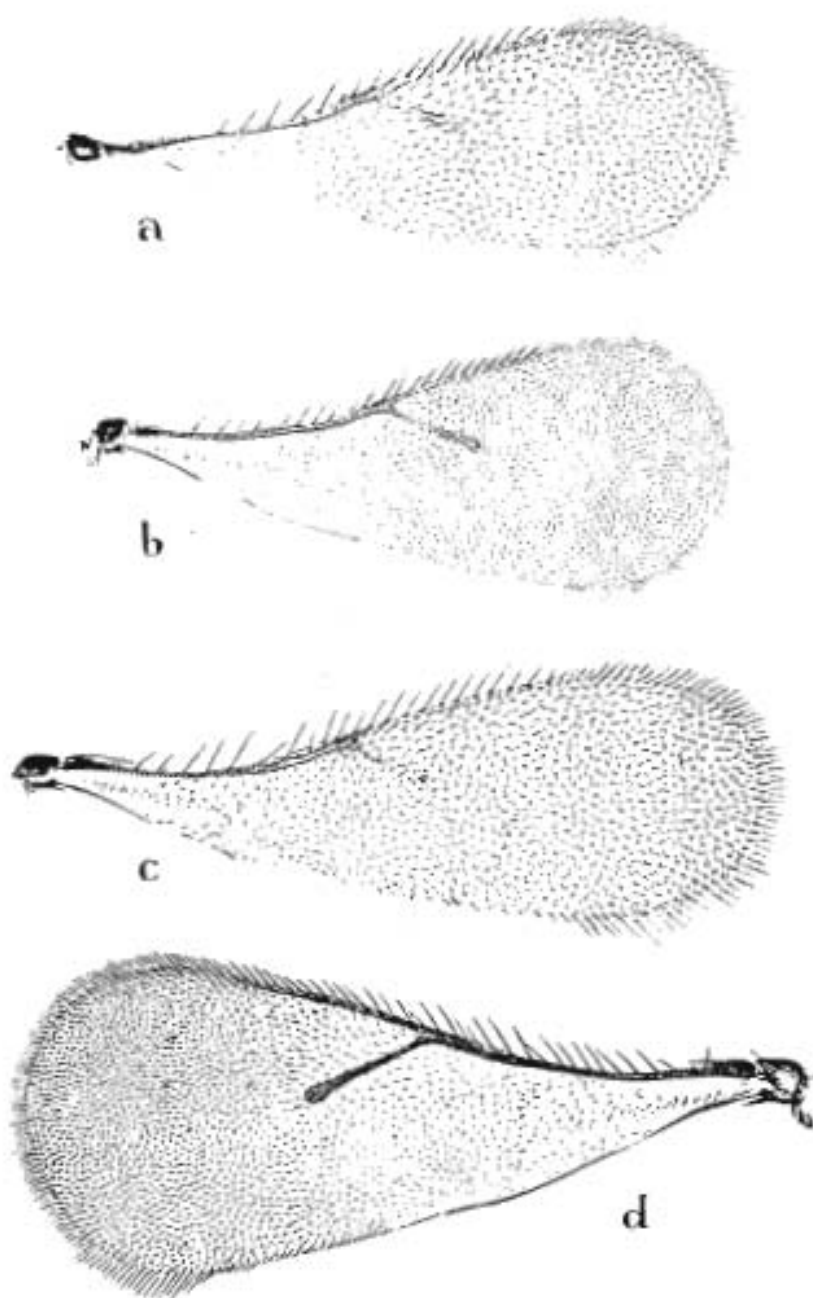
♀. Colour : legs dirty yellow. Radicle and scape of the antennae of the same colour as the legs, but the scape is infuscated on the apical quarter above; pedicel and first 4 segments of the funicle brownish. Head strongly transverse, seen from above, along a line perpendicular to a line between the posterior ocelli, nearly 3 times as wide as its shortest length. There is no trace of a bulge between the antennal insertions and the eyes. Frons duller and more characteristically sculptured than in *aloyssi-sabaudiae* though the type of head sculpture is similar in the two species; between the antennal insertions and the lower margin of the eye, the surface is almost finely granulate; in the middle of the face against the eye-margin, this sculpture merges into tiny raised wrinkles or irregular rugosities which in their turn merge into the strong, fairly regular ridges above the antennal insertions; frons towards the ocelli appearing dull and much more closely sculptured, the sculpture fine, raised, and consisting of feeble ridges and wrinkles. In the other allied species, the sculpture here tends to be predominately scaly-reticulate. Margin bordering the eyes behind not extended as a sharp ridge across the vertex although there is a very acute angle between the anterior part of the vertex and its posterior (declivous) part. Eyes rather large. Antennae : radicle many times shorter than the scape; the latter longer than in *aloyssi-sabaudiae*; club considerably more thickened in the middle than in *aloyssi-sabaudiae*. Genal sulcus narrow and crack-like. Thorax strongly and unusually evenly convex. Mesonotum strongly, closely and very evenly reticulate-rugose, the sculpture less coarse and much closer than in *aloyssi-sabaudiae*. Scutellum sculptured like the mesonotum. Abdomen : tergite 2 strongly transverse, feebly striated over its basal half. Length : 1 mm. approx.

CAPE PROVINCE : Port St. John, Aug., 2 ♀♀.

This species has a very distinctive facies, probably due to its strongly convex thorax with the even sculpture of this. It has much in common with *aloyssi-sabaudiae* from which it can be separated satisfactorily only by the shorter radicle and a different degree of sculpturation.

EXPLANATION OF PLATE V.

Fore-wing of a, *Telenomus brimo* sp. n.; b, *T. cybele* sp. n.; c, *T. thestor* sp. n.; d, *T. numitor* sp. n.



Forewings of *Telamona* spp.