

Asiatic Species of Microphanurus (Hym., Proctotrupoidea).

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APART from two species from the Seychelles, which he includes in the same region, Kieffer records in his monograph of the Scelionidæ (1926) only one species of *Microphanurus* as Asiatic; this is *M. catacanthæ* Ashm. There has since been described only one further Asiatic species in the genus, *M. painei* Ferrière, from the Solomons. On the other hand, Dodd has described many Australian species of *Telenomus*, some of which Kieffer, correctly in my opinion, has transferred to *Microphanurus*. It is probable that in so wide a ranging genus as this there will be among these Australian forms species identical with some of those I deal with in this paper.

Two Indian species placed by Dodd (1920) in *Telenomus* are here transferred to *Microphanurus*. They are *T. barrowi* Dodd and *T. carinifrons* Cameron.

The types of all new species are in the British Museum.

Subfamily *TELENOMINÆ*.

MICROPHANURUS.

Key to Species (♀♀).

1. Front and middle coxæ contiguous, the mesosternum having no free surface between them. (Sp. with the vertex evenly rounded from the anterior ocellus to the occipital margin; stigmalis very short; mesonotum very characteristically sculptured, being evenly and closely reticulated without indication of punctures.) 2. *striaticeps* Dodd.
- Front and middle coxæ widely separated, the mesosternum between them having a free, though short, surface. 2.
2. Mesonotum posteriorly with, short sharply defined notauli. (Spp. with the frons distinctly bulging between the antennal insertions and the lower inner margin of the eye; vertex immediately behind the ocelli with a sharp, almost completely differentiated ridge; mandibles small, bidentate; longitudinal impression of mesopleura not margined below in front.) 3.
- Mesonotum posteriorly without notauli. 4.
3. Mesonotum and scutellum dull, having an extremely fine, even sculpture 5. *vinticius*, sp. n.
- Mesonotum on about posterior half and scutellum all over, shining, unsculptured. 4. *trophonius*, sp. n.
4. Sculpture of mesonotum very fine, that is, closely and evenly scaly-reticulate with indications of weak punctures. (Sp. with funicle 1 only about 1½ times as long as wide apically; 2 transverse; frons without a bulge between the antennal insertions and the lower inner margin of the eye.) 3. *sulmo*, sp. n.
- Sculpture of mesonotum coarse; if fine, as above, then the frons has a bulge between the antennal insertions and the lower inner margin of the eye and the vertex has a completely differentiated smooth ridge 5.
5. Vertex immediately behind the posterior ocelli with a clearly differentiated, smooth margin, which passes behind the posterior ocelli and joins up with the post-orbital carina; behind this ridge the vertex has a sculpture markedly different from that immediately in front of it, being very shining and nearly smooth 6.
- Vertex immediately behind the ocelli without such a margin, at most very

- sharply angled here, and then the resulting ridge joins the posterior ocelli instead of passing *behind* them, and the sculpture of the posterior part of the vertex is not markedly different from that of the anterior part 8.
6. Frons in greater part smooth and shining, with at most a feeble scaly-reticulate sculpture against the eye-margins. (Sp. with funicle 1 less than twice as long as its apical width; frons with a conspicuous bulge between the antennal insertions and the lower inner margin of the eye.) 1. *seychellensis* Kieffer.
- Frons sculptured all over 7.
7. Frons without bulges; sculpture of frons, especially in the region of the anterior ocellus, close and fine; vertex unusually sharply, almost perpendicularly, cut away behind the margin; longitudinal impression of mesopleuræ margined in front as far as the coxæ; funicle 1 only about twice as long as its apical width 9. *stoicus*, sp. n.
- Frons with bulges; sculpture of frons coarse, with strong rugæ within the impression and large, fairly sharply defined punctures elsewhere; longitudinal impression of mesopleura not margined below in front; funicle 1 nearly four times as long as its apical width; vertex less sharply cut away 10. *barrowi* Dodd.
8. Radicle of antenna nearly half as long as the scape, about 5:12. (Strongly sculptured sp., the frons above the antennal insertions with a central irregular keel and with strong transverse rugæ on either side of it; elsewhere the frons is coarsely reticulate-rugose overlaid with a fine scaly-reticulate surface and with no indication of punctures.) 11. *carinifrons* Cameron.
- Radicle of antenna at most nearly one-third the length of the scape. (Spp. without frontal bulges; mesopleural impression completely margined in front right down as far as the middle coxæ.) 9.
9. Vertex very sharply angled between the posterior ocelli, the resulting ridge joining them; mandibles of usual form, feebly 3-toothed, their curvature forming with the cheeks an unbroken line. (Sp. with the sculpture between the ocelli, *i. e.*, anterior to the angle of the vertex, very fine; mesonotum, roughly on posterior half, somewhat coarsely longitudinally rugose.) 6. *artabazus*, sp. n.
- Vertex without such a sharp angulation, showing no trace of a ridge either

- between or immediately behind the posterior ocelli; mandibles large, clearly widened towards apex and provided with three strong, sharply pointed teeth..... 10.
10. Scutellum (except for the normal crenate, posterior margin) evenly striate-reticulate all over; head behind the eyes and the genal sulcus, smoothly, obliquely striate. (Sp. with the mandibles projecting well away from the head, so that in a front view of the latter their curvature does not, by any means, form with the cheeks an unbroken line.) 8. *painei* Ferrière.
- Scutellum roughly divided into a very coarsely rugose-reticulate and somewhat raised anterior half and a less strongly sculptured, somewhat concave posterior half; head behind the eyes and the genal sulcus more or less closely scaly-reticulate. (Mandibles not projecting so much away from the head as in *painei*.) 7. *priapus*, sp. n.

1. *Microphanurus seychellensis* Kieffer. (Fig. 4, g.)

Microphanurus seychellensis Kieffer, Nixon, 1935, Trans. R. Ent. Soc. London, lxxxiii. p. 97.

CEYLON (Passara), *J. C. Hutson*: series bred July 1929 from eggs of *Cantheconidea robusta* Dist.

I can find no difference between this series and the numerous African examples of *seychellensis* that I have examined. The species is widely distributed in Africa, ranging from Abyssinia through Uganda to Cape Province. I have recorded it from the following hosts:—*Antestia orbitalis* Westw. (= *variegata* Thunb.); *Antestia orbitalis* var. *lineaticollis* Stål; *Agonoscelis pubescens* Thunb. (= *versicolor* Fabr.).

2. *Microphanurus striaticeps* Dodd.

Microphanurus striaticeps (Dodd) Nixon, 1935, Trans. R. ent. Soc. London, lxxxiii. p. 100.

PUNJAB (Lyallpur), *U. Bahadur*: 3 ♀♀, 1 ♂, bred from eggs of Pentatomid on leaf of Brinjal, *Solanum Melanogena* L.

So far known only from Africa, where I have recorded it from Nyasaland; Brit. Sudan (bred from eggs of *Acanthomia brevirostris* Stål); Nigeria; Cape Province.

In my revision of the African Telenominæ (1935), I failed to mention the important feature in the structure

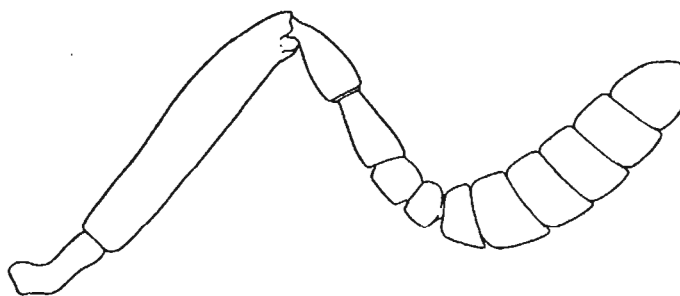
of the mesosternum, given in the key in this paper. When the already described genera of the Telenominæ come to be known more thoroughly it may be necessary to make a new genus for *striaticeps* Dodd.

3. *Microphanurus sulmo*, sp. n.

♀.—Black. Legs, except coxæ, ochreous yellow. Radicle of antennæ dark brown, nearly black; scape a little less bright in colour than the legs; pedicel and first three segments of the funicle brown, paler than the club.

Head strongly transverse, clearly wider than the thorax, about 7 : 6 (fig. 3, d). Frons weakly but evenly convex. No bulge between the antennal insertions and the lower

Fig. 1.



Antenna of *M. sulmo*, sp. n., ♀.

inner margin of the eye; hence no supra-antennal impression. Frons above the antennæ (roughly lower half), with delicate, transverse, wavy striations; elsewhere dull, finely, evenly, closely scaly-reticulate with indication of very feebly defined punctures; in the region immediately in front of the anterior ocellus the sculpture becomes somewhat weaker, and the surface in consequence less dull. Vertex sharply angled between the ocelli, its sculpture between them similar to that of the frons; that of its posterior (declivous) surface hardly different. Shortest distance between the eyes compared with their width, as seen from above, as 3 : 2. Back of the head between the temples and the mandibles dull, evenly scaly-reticulate. Antenna (fig. 1); radicle about one-third as long as the scape; funicle 1 about one and a half times as long as its apical width; 2 transverse.

Thorax raised high above the abdomen, much as in *vindicatus*, sp. n. (cf. fig. 2, f). Mesonotum feebly shining, with a fine even sculpture, similar to that of the upper part of the frons, but a little less strong. Scutellum over its greater medial part, strongly shining and virtually smooth. Postscutellum with the usual, strongly transverse, delimited area, which is evenly longitudinally costate. Mesopleural depression smooth and shining; its posterior margin with a row of pits which is obliterated just below middle; the depression is not margined on its lower half in front. Metapleura over their greater surface flat, smooth, and shining. Legs somewhat short. Fore wings decidedly darkened; stigmalis short for the genus.

Abdomen exactly as long as wide (fig. 4, i). Tergite 1 very strongly transverse; its striations tending to break up on apical half; 2 striated almost to apex.

Length, ♀, .9 mm.

CEYLON (Talawakelle), C. B. R. King: 7 ♀♀ bred 1932 from eggs of a Pentatomid bug, *Cantheconidea robusta* Dist.

This species seems to be largely characterized by the shortness of the basal funicular segments, lack of frontal bulges, fine, even sculpture of mesonotum and short stigmalis. It is quite distinct from the other species I am dealing with in this paper. Nor is it like any African species of *Microphanurus* that I have described.

4. *Microphanurus trophonius*, sp. n.

♀.—Black. Legs brownish yellow. Scape of antennæ infuscated on apical half.

Head (fig. 3, g): Frons without a depression above the antennal insertions, almost everywhere predominantly smooth and shining; there is an indication of feeble, irregularly arranged, transverse striations, but on the central part of the frons these are virtually absent; between the lower, inner margin of the eye and the antennal insertions (on the swollen part) there is a patch of scaly-reticulate sculpture. To the sides of the anterior ocellus the surface is scaly-reticulate with a few ill-defined punctures. Head cut away at right angles behind the eyes. Vertex immediately behind the ocelli with a sharp, almost completely differentiated ridge; surface posterior

to the ridge very shining, in greater part smooth. Antennæ: funicle 1 slightly longer than the pedicel, about twice as long as apically wide; 2 as long as wide; club strongly narrowed to apex, the apical segment only about three-fifths as wide as the penultimate.

Thorax as in *vindicus*, sp. n. (cf. fig. 2, f). Mesonotum shining, very irregularly punctured, almost rugose, without a fine surface sculpture, such as is characteristic of *vindicus*; after about middle, the sculpture fades out altogether, leaving a highly polished surface, smooth save for scattered, minute, setiferous punctures. Notauli deep and very conspicuous, extending over slightly more than half their possible length. Scutellum smooth except for the foveate posterior margin. Postscutellum showing as an evenly foveate furrow and without rugosities posterior to the foveæ, the surface falling away very sharply. Mesopleural depression smooth except for a row of foveæ along its posterior margin; the depression is not margined in front below. Metapleura without any flat surface, being much intersected by raised ridges and rugæ. Fore wings with a brownish tint; venation pale brown, sharply defined. *Abdomen* of same shape as *sulmo*, sp. n. (cf. fig. 4, i); as wide as the thorax without tegulæ. Tergite 1 evenly striated, the spaces between the ridges smooth; 2 striated nearly to apex.

Length: ♀, about 1 mm.

SUMATRA (Asahan), *F. Schneider*: 3 ♀♀, bred 1934-36 from eggs of a Hemipteron, "Raubwanze," probably Reduviidæ on *Uncaria Gambir* Roxb.

This is one of the most distinctive looking Microphanuri that I have ever seen. It is characterized essentially by the polished posterior part of the mesonotum combined with the strong notauli.

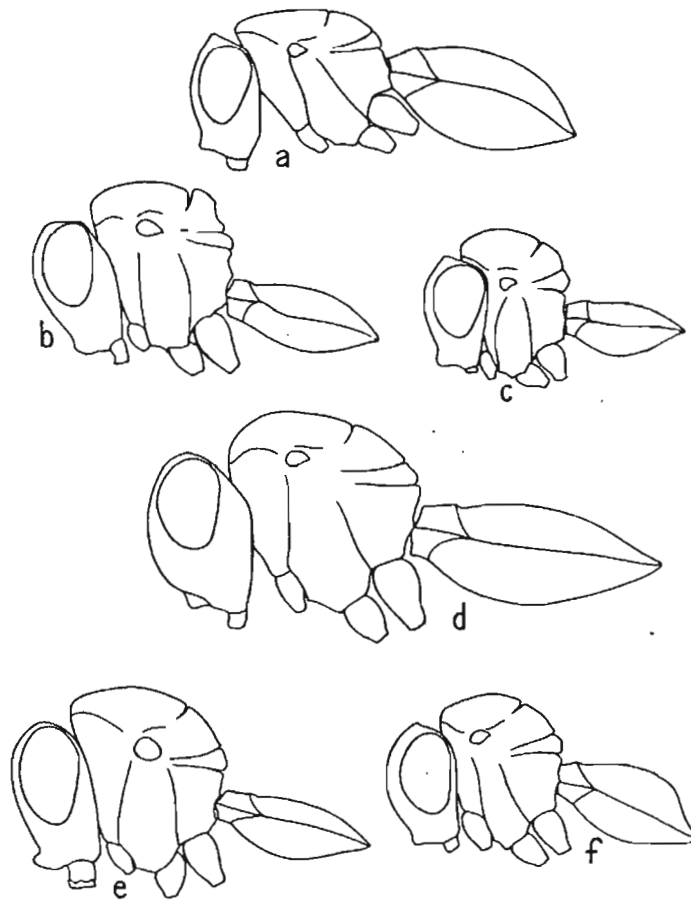
5. *Microphanurus vindicus*, sp. n. (Fig. 2, f.)

♀.—Black. Legs, except coxæ, radicle, and scape of antennæ dull honey-yellow (the lack of brightness in the colour may be due to the insects having been in spirit); pedicel and first three segments of the funicle darker than the scape.

Head (fig. 4, a): Frons feebly bulging between the lower, inner margin of the eye and the antennal insertions,

hardly with a depression above the antennæ and here with only a simple scaly-reticulate sculpture, the meshes of which tend to be larger than elsewhere. Along the

Fig. 2.



Body (lateral) of :—a, *M. artabazus*, sp. n., ♀; b, *M. priapus*, sp. n., ♀; c, *M. stoicus*, sp. n., ♀; d, *M. barrowi* Dodd, ♀; e, *M. painei* Ferrière, ♀; f, *M. vindicius*, sp. n., ♀.

inner eye-margins, right up as far as the posterior ocelli, there is the usual indication of punctures, but they are very ill-defined and weak and by no means as close as

possible; generally speaking, the predominating sculpture of the frons and vertex is one of scaly-reticulation. Vertex sharply angled immediately behind the posterior ocelli but without a differentiated ridge; surface of posterior (declivous) part with a scaly-reticulate sculpture hardly different from that of the frons. Shortest distance between the eyes on the frons not much greater than their width as seen from above, about 11:9. Antennæ: radicle only about one-fifth as long as the scape; funicle 1 about twice as long as apically wide; 2 clearly a little longer than wide. Back of head between the temples and the mandibles somewhat feebly scaly-reticulate.

Thorax raised less high above the level of the abdomen than in *stoicus*, sp. n., for example. Mesonotum a little flattened on its anterior half, its sculpture essentially like that of the frons and the vertex, but considerably closer, the punctures less in evidence; at first sight the sculpture appears finely shagreened. Notauli present posteriorly, short, but well defined. Scutellum sculptured all over, but more finely so than the mesonotum. Post-scutellum with the usual longitudinally costate delimited area. Mesopleural depression not margined below in front and with a row of pits along its entire posterior border. Metapleura in greater part intersected by much raised ridges and rugæ; on its upper half there is a small, flat, shining space. Fore wings: marginalis of normal length for the genus.

Abdomen very slightly longer than wide when the segments are not retracted, about 10:9. Tergite 2 obviously transverse, 12:7, striated almost to apex, but the striæ somewhat weak.

Length, ♀, 1.2 mm. approx.

JAVA (Mt. Salak, near Buitenzorg), *J. S. Philipps*: 3 ♀♀ bred, Sept. 1937, from eggs, probably hemipterous, found at 2000 ft. (Wonogiri Dist., 2000 ft. *Type-l.c.*). *J. S. P.*: 4 ♀♀, bred 1937, from eggs of *Dasynus manihotis* Blöte.

This species is characterized, among the Asiatic species that I know, by the comparatively fine sculpture of the mesonotum in combination with the short notauli. On the other hand, it is very similar to two species known

so far only from S. Africa ; these are *Microphanurus maro* Nixon (1935) and *M. enceladus* Nixon (1935). *M. vindicius* differs from *maro* in lacking a differentiated vertical margin, though it resembles it very closely in sculpture ; from *enceladus* it differs in having funicle 1 distinctly shorter, the head more transverse, with the vertex less scooped out behind and the mesonotum without raised rugulosity. These three species, together with *Microphanurus menceles* Nixon (1935), another S. African species, clearly belong to the same species-group which is characterized chiefly by the presence of bulges on the frons, short notauli, with sculpture of frons and vertex.

6. *Microphanurus artabazus*, sp. n. (Fig. 2, a.)

♀.—Legs (except coxæ) and antennal scape reddish yellow. Radicle of antenna virtually black ; pedicel and first four segments of the funicle slightly darker in colour than the scape.

Head seen along a line perpendicular to a line between the posterior ocelli more than two and a half times as wide as its greatest length, about 23 : 9 (fig. 3, f). Frons of normal convexity between the lower inner margin of the eye and the antennal insertions, not at all bulging here ; further, the frons almost everywhere, right up to the anterior ocellus, is very shining and is without a fine surface sculpture but has fairly strong, mostly very irregular, striations which extend as far as the eye margins ; towards the genal sulcus they break up to form raised reticulation which against the sulcus itself merges into close scaly-reticulation. Vertex very sharply angled between the posterior ocelli, the resulting ridge not differentiated ; it meets more or less the middle point of the inner side of each posterior ocellus before curving round behind them to be continuous with the post-orbital carina ; between the ocelli and to the sides of the anterior ocellus the vertex is very finely and closely scaly-reticulate, this sculpture forming a sharp contrast with that of the frons ; posterior (declivous) part of the vertex dull, roughened. Shortest distance between the eyes one and a half times as great as their width as seen from above, about 3 : 2. Antennæ (fig. 3, c) : radicle about one-third the length of the scape ; funicle 1 about

two and a half times as long as apically wide; 2 slightly longer than wide. Back of head between the temples and the mandibles evenly scaly-reticulate, as in most species.

Thorax not raised conspicuously high above the level of the abdomen (fig. 2, *a*). Mesonotum somewhat flattened, with a well-defined raised sculpture which on posterior half develops into irregular longitudinal striations. Scutellum with irregular longitudinal rugosities which are wider apart than those of the mesonotum. Postscutellum with the usual longitudinally costate delimited area. Mesopleural depression sharply margined in front right down as far as the middle coxæ; the depression tends to be finely transversely striated on its lower half. Metapleura deeply intersected everywhere by much raised ridges and rugæ. Fore wings: stigmalis of normal length.

Abdomen clearly longer than wide, about 5:4, when the segments are not retracted; otherwise about as long as wide. Tergite 2 with strong striations medially extending nearly to apex; this segment is broadly smooth on each side.

♂.—Funicle pale brownish yellow; segments 4-9 very slightly longer than wide. Otherwise like the ♀.

Length, ♂♀, 1.35 mm. approx.

MALAYA (Setapak, *Type-loc.*), G. H. Corbett & B. A. R. Gater: series of 8 ♀♀, 1 ♂ (Ref. no. 1858), bred 13. x. 1921 from eggs of *Scotinophara* sp. (Hemiptera); (Serdang), N. C. E. Miller: 5 ♀♀, bred 14. iv. 1932, from unknown eggs of *Pentatomid* bug.

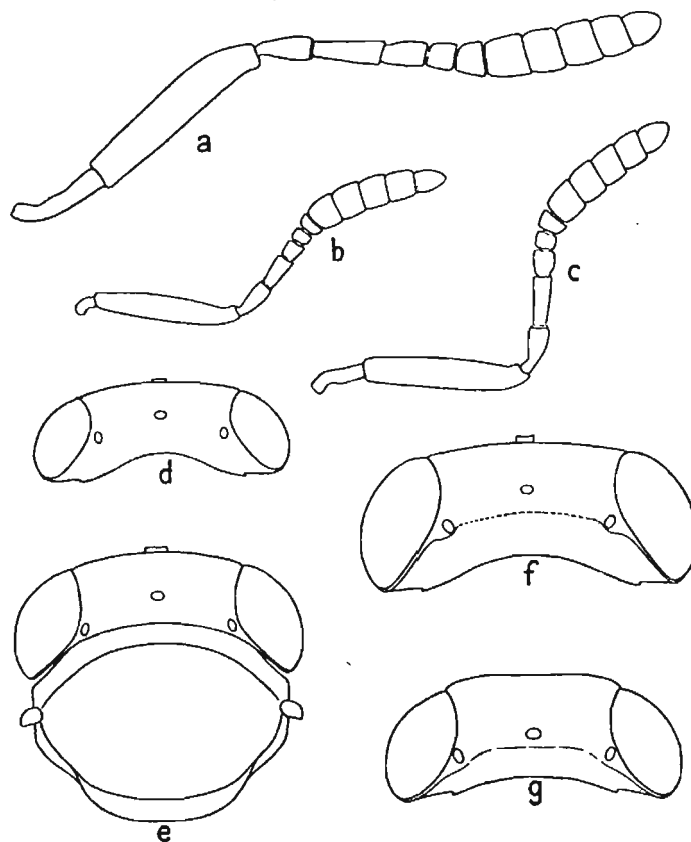
Fig. 2, *a*, shows the abdomen of the female somewhat swollen.

This species is chiefly characterized by the sculpture of the head, when the comparison is restricted to Asiatic forms. It is closely and naturally related to *Microphanurus aloysii-sabaudiæ* Fouts (Nixon, 1935), an African species. In this insect the fine sculpture of the vertex extends well down over the frons; there is no sharp ridge between the ocelli, and the thorax is less flattened; its mandibles, too, are larger with the teeth more distinct than in *artabazus*. The close relationship between the two species rests on facies, sculpture, and long radicle of the antenna.

7. *Microphanurus priapus*, sp. n. (Fig. 2, b.)

♀.—Black. Legs (except coxæ, which are black), radicle of antenna, scape, pedicel, and first four segments of the funicle somewhat deep reddish yellow.

Fig. 3.



a, *M. carinifrons* Cam., antenna of ♀; b, *M. stoicus*, sp. n., antenna of ♀; c, *M. artabazus*, sp. n., antenna of ♀; d, *M. sulmo*, sp. n., head of ♀ (from above); e, *M. stoicus*, sp. n., head and thorax of ♀ (thorax somewhat foreshortened); f, *M. artabazus*, sp. n., head of ♀ (from above); g, *M. trophomius*, sp. n., head of ♀ (from above).

Head (fig. 4, c): Frons not in the least bulging between the antennal insertions and the lower inner margin of the eye; above the antennæ its surface tends to be

transversely striate, elsewhere very irregularly reticulate; immediately in front of the anterior ocellus the sculpture tends to fade out altogether leaving the surface smooth and shining. Vertex more or less evenly rounded from in front to behind; between the ocelli more closely and more regularly sculptured than on the frons, rugose-reticulate. Shortest distance between the eyes compared with their width, as seen from above, as 4:3. Antennæ: radicle about one-fifth as long as the scape; funicle 1 about twice as long as its apical width; 2 distinctly longer than wide. Genal sulcus sharply margined behind, the resulting ridge being a continuation of the post-orbital carina; in front of this ridge is another, less strong and parallel to it, so that the genal sulcus appears as a flat-bottomed crenate furrow; a third carina is present, extending upwards from the posterior basal corner of the mandible and fading out at about the lowest point of the eye; surface of head behind this ridge more or less scaly-reticulate.

Thorax (fig. 2, *b*).—Mesonotum coarsely and strongly sculptured; over its greater part it is covered with raised irregular rugosities; anteriorly this sculpture tends to break up into single raised points; posteriorly it develops into very short longitudinal rugæ. Scutellum slightly raised above the posterior level of the mesonotum, very coarsely rugose-reticulate on its anterior half, posteriorly slightly hollowed out, its sculpture less raised here; posterior crenate furrow less sharply contrasted than in most species. Mesopleural depression sharply margined in front right down as far as the middle coxæ; the depression itself is transversely ribbed along its more or less entire middle length. Metapleura completely intersected by raised ridges and rugæ. Fore wings: stigmalis of normal length.

Abdomen hardly longer than wide, 10:9. Tergite 2 very distinctly transverse, strongly, longitudinally striated all over but with a smooth apical band.

Length, ♀, 1.3 mm.

JAVA (Buitenzorg, *Type-loc.*), *J. S. Philipps*: 11 ♀♀ (Ref. C**), bred 1937 from eggs of *Chrysocoris atricapillus* Guér. (Pentatomidæ); (Wonogiri Dist., 2000 ft.), *J. S. P.*: 3 ♀♀, bred 1937 in company with *Microphanurus vindicius*, sp. n., from eggs of *Dasynus manihotis* Blöte.

This species is chiefly characterized by the coarse

sculpture of the head and of the thorax and by the peculiar arrangement of sculpture on the scutellum. It is more closely related to *painei* Ferrière than to any other species mentioned in this paper. In my key to the African species (1935) it would run to *orontes* Nixon (S. Africa, Port St. John), to which it seems to be closely related and from which it differs chiefly in sculpture of vertex and scutellum.

8. *Microphanurus painei* Ferrière. (Fig. 2, e.)

Microphanurus painei F. 1933, *Stylops*, ii. p. 108.

This distinct little species is characterized as follows:—

Radicle of antenna black, about one-fourth the length of the pale yellow scape.

Head (fig. 4, d): Frons without a trace of frontal bulges and without an impression above the antennæ, where it is strongly transversely striated away from a very ill-defined central ridge; this striate central area extends nearly to the anterior ocellus; elsewhere the frons is evenly rugose-reticulate overlaid with a feeble scaly-reticulate sculpture. Vertex without a trace of a ridge, the sculpture of the frons merging imperceptibly into that of the posterior (declivous) part of the vertex.

Thorax (fig. 2, e) very strongly raised above the level of the abdomen and appearing unusually large in proportion to it. Posterior row of foveæ of the mesopleural depression extended to form deep transverse pits which reach virtually to the mid-line of the depression.

Abdomen not longer than wide. Striations of tergite 2 more or less obliterated and restricted to base of segment.

For other notes, see key.

Length, ♂♀, 1.25 mm. approx.

SOLOMONS: ex eggs of *Axiagastus campbelli* Dist. (Pentatomidæ).

Lever (1933) has given notes on the oviposition of this species.

9. *Microphanurus stoicus*, sp. n. (Fig. 2, c.)

♀.—Black. Legs, except coxæ, pale honey-yellow. Radicle of antenna, scape, pedicel, and first four segments of the funicle more or less the same colour as the legs.

Head seen from above very strongly transverse, markedly crescentic, fitting unusually closely, like a cap,

on to the thorax. Frons without bulges between the antennal insertions and the lower inner margin of the eye; above the antennæ a little flattened, much more shining than elsewhere, and with fine, irregular, transverse striations; about half way towards the anterior ocellus and towards the eye margins, the striations fade out and merge into the predominating sculpture of the head; this is dull and consists of almost contiguous, even, but very ill-defined punctures, the spaces between them finely scratched; it must be emphasized that this sculpture is merely a distinctive combination of the two usual types of sculpture, *i. e.*, ill-defined punctures and scaly-reticulation. Shortest distance between the eyes compared with their width, as seen from above, as 21 : 16. Vertex immediately behind the posterior ocelli sharply margined, the resulting ridge completely differentiated and smooth; behind the ridge the vertex is smooth and falls away perpendicularly to the occipital foramen. Antennæ (fig. 3, *b*): radicle many times shorter than the scape; funicle 1 about twice as long as apically wide. Back of head between temples and mandibles entirely smooth and shining.

Thorax raised high above the level of the abdomen (figs. 2, *c*, & 3, *e*). Mesonotum closely and evenly reticulated. Scutellum sculptured slightly more coarsely than the mesonotum. Post-scutellum with the usual transverse delimited area, which is longitudinally costate. Mesopleural depression transversely costate along its entire middle length; further, the furrow is sharply margined anteriorly right down as far as the middle coxæ. Metapleura without any flat surface, being irregularly cut up by much raised ridges and rugæ. Fore wings almost hyaline; venation almost colourless; stigmalis somewhat short.

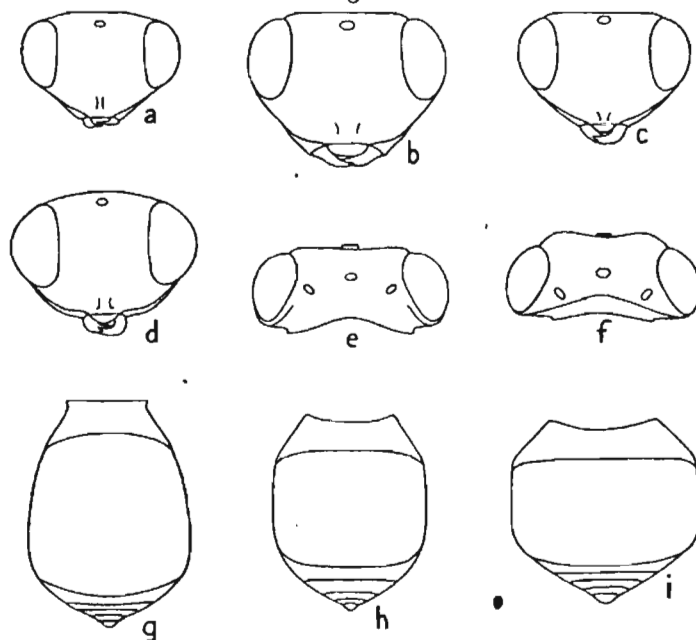
Abdomen almost exactly as long as wide when the segments are not retracted. Tergites 1 and 2, both in shape and sculpture, like *sulmo*, sp. n., though the striations on tergite 1 tend to be a little stronger than in that species.

Length, ♀ .95 mm.

MALAYA (Pahang), *G. H. Corbett*: 6 ♀♀ (Ref. no. 8720), bred 16. vi. 1932, from eggs of a Hemipteron.

This stout little species is characterized by shape of head, combined with sculpture of frons, vertex, and mesonotum. It should be emphasized that the sculpture of the head is essentially different from that of the mesonotum.

Fig. 4.



- a, *M. vindicius*, sp. n., head of ♀ (from in front); b, *M. carinifrons* Cam., head of ♀ (from in front); c, *M. priapus*, sp. n., head of ♀ (from in front); d, *M. painei* Ferrière, head of ♀ (from in front); e, *M. carinifrons* Cam., head of ♀ (from above); f, *M. barrowi* Dodd, head of ♀ (from above); g, *M. seychellensis* Kieffer, abdomen of ♀; h, *M. carinifrons* Cam., abdomen of ♀; i, *M. sulmo*, sp. n., abdomen of ♀.

10. *Microphanurus barrowi* Dodd. (Fig. 2, d.)

Telenomus barrowi Dodd, 1920, Trans. R. Ent. Soc. Lond. p. 356.

♀.—Apart from the characters given in the key, this species may be further diagnosed as follows:—

Black. Radicle of the antenna yellowish; scape darkened except at base. All the femora slightly infuscated.

Head (fig. 4, f): Frons, apart from the medial impression, characteristically and strongly punctured, the

punctures separated by about their own diameter; at least on middle and lower part of the frons there is very little scaly-reticulate sculpture between the punctures, the surface being almost smooth and unsculptured. Funicle 1 much longer than the pedicel, slender, about four times as long as apically wide; 2 nearly twice as long as wide. Sculpture of mesonotum somewhat fine for the size of the insect, but raised and showing a feeble longitudinal tendency. Mesopleural depression completely smooth, not margined in front below.

Length, ♀, 2 mm. Type in British Museum.

N.W. INDIA (Dalhousie): 1 ♀ bred from egg of a Sphingid.

11. *Microphanurus carinifrons* Cameron.

Immsia carinifrons Cam. 1913, Ind. For. Rec. iv. p. 105.

Telenomus carinifrons Cam., Dodd. 1920, Trans. R. Ent. Soc. Lond. p. 355.

♀.—In addition to the diagnosis given in the key, the following notes will assist in the identification of this species:—

Radicle of the antenna black; scape yellow.

Head (fig. 4, *b, e*): Frons not at all bulging between the antennal insertions and the lower inner margin of the eye. Mandibles large, with three very short ill-defined teeth. Antenna (fig. 3, *a*). Vertex between the posterior ocelli without a trace of a ridge, merely somewhat abruptly angled here. Mesopleural depression sharply margined in front, right down as far as the middle coxæ; the depression itself with feeble curved striations. Abdomen (fig. 4, *h*).

Length, ♀, 1.9 mm. approx. Type in British Museum.

UNITED PROVINCES (Dehra Dun).

The distinctive feature of this species is the very long black radicle of the antenna.

List of Hosts of Microphanurus mentioned.

HEMIPTERA.

<i>Acanthomia brevirostris</i> Stål (Cor.)	.....	<i>M. striaticeps</i> Dodd.
<i>Agonoscelis pubescens</i> Thunb. (= <i>versicolor</i> Fabr.) (Pent.)	.....	<i>M. seychellensis</i> Kieffer.
<i>Antestia orbitalis</i> Westw. (= <i>variegata</i> Thunb.) (Pent.)	.....	<i>M. seychellensis</i> Kieffer.
<i>A. orbitalis</i> var. <i>lineaticollis</i> Stål	.....	<i>M. seychellensis</i> Kieffer.
<i>Axiagastus campbelli</i> Dist. (Pent.)	.....	<i>M. painei</i> Ferrière.

<i>Cantheconidea robusta</i> Dist. (Pent.)	{	<i>M. sulmo</i> , sp. n.
<i>Chrysocoris atricapillus</i> Guér. (Pent.)		<i>M. seychellensis</i> Kieffer
<i>Dasyneus manihotis</i> Blöte (Cor.)	{	<i>M. vindicius</i> , sp. n.
Reduviidæ, sp. ?		<i>M. priapus</i> , sp. n.
<i>Scotinophara</i> sp. (Pent.)		<i>M. trophonius</i> , sp. n.
		<i>M. artabazus</i> , sp. n.

LEPIDOPTERA.

Sphingidæ, sp. ?	<i>M. barrowi</i> Dodd.
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