A REVISION OF THE
ICHNEUMONIDAE

BASED ON THE COLLECTION IN THE BRITISH MUSEUM (NATURAL HISTORY)

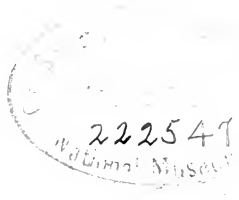
WITH DESCRIPTIONS OF NEW GENERA AND SPECIES

PART I.

TRIBES OPHIONIDES AND METOPIIDES

BY

CLAUDE MORLEY, F.Z.S., F.E.S.



LONDON

PRINTED BY ORDER OF THE TRUSTEES OF THE BRITISH MUSEUM

AND SOLD BY

LONGMANS & CO., 39, PATERNOSTER ROW, E.C.;

B. QUARITCH, 11, GRAFTON STREET, NEW BOND STREET, W.

DULAU & CO., LTD., 37, SOHO SQUARE, W.;

AND AT THE

BRITISH MUSEUM (NATURAL HISTORY), CROMWELL ROAD, S.W.

1912

WITHERBY & CO.,
LETTERPRESS AND COLOUR PRINTERS,
LONDON.

PREFACE.

The present work, by Mr. Claude Morley, is to be regarded as a commencement of a Revision of the enormous Family Ichneumonidae. The Ophionides and Metopiides have been selected for inclusion on account of considerations of an entirely practical nature, and not because the association of these two Tribes is indicated by a study of their respective systematic positions. The specimens belonging to the British Museum have hitherto remained as they were left by Frederick Smith when he arranged them in 1860; and the numerous additions which have come into the Museum since that time have for the most part not been incorporated in the collection. The work of bringing a very large accumulation of unsorted material into order, and of arranging it in accordance with the present state of our knowledge, has been undertaken by Mr. Morley, who has found it convenient to make a beginning with these two Tribes, quite irrespective of their natural affinities.

A few words may be said with regard to the collection itself. The European species are poorly represented, and the specimens are principally derived from the collections of Ruthe and Bucheker. Asiatic species are mainly represented by the Wallace Collection from the Malay Archipelago, the Bingham Collection from India, the Fortune Collection from China and Japan, and the Escalera Collection from Persia and adjacent regions. The African material consists of numerous small consignments which have been received at various times. The specimens from Australia and New Zealand were few in number until Mr. R. E. Turner presented the results of twenty years' collecting near Mackay, Queensland, with other specimens obtained at Cairns, in the same Colony, and elsewhere. The Ichneumonidae collected by Mr. H. W. Bates form an important part of the South American Collection. The most complete collection from any single district is doubtless the Godman-Salvin Collection, made by Messrs. G. C. Champion and H. H. Smith in Central America and presented by Mr. F. D. Godman, F.R.S., in

1904. From the United States and Canada little has come in for many years.

Mr. Morley's work on the Ichneumonidae may be expected to result in further instalments of the present Revision; and a new part is in fact practically ready in manuscript.

Special thanks are due to Mr. Rupert Stenton, F.E.S., who drew and presented the original from which the Plate illustrating this work was prepared.

SIDNEY F. HARMER.

British Museum (Natural History),
March, 1912.

INTRODUCTION.

In the preparation of the present volume, an attempt has been made to consult the whole of the literature bearing upon the groups with which it deals. Unfortunately, in the case of a few of the most recent papers this was not practicable. I have, however, been careful, in the case of every unexamined description, to give a reference to it, so far as the Zoological Record or such more recent works as I have personally met with would enable me to do so.

The distribution of these groups of the Ichneumonidae is entirely world-wide, as will be seen by the localities recorded with some care under each insect. But by far the largest and finest are from tropical South America, perhaps the least worked of all our geographical regions, and yet already the richest in the number of both its species and individuals. A large amount of beautifully preserved material collected by Mr. H. W. Bates, F.R.S., during his eleven years residence "on the River Amazons" (1848-1859), has been awaiting investigation in the British Museum since that time; and an examination of this, as well as of very numerous specimens from literally all parts of the globe, has enabled me to bring forward a somewhat large proportion of apparently new species, with a few additional genera.

The first really comprehensive attempt at grouping the cosmopolitan species of the Ophionides was made by Prof. Dr. E. L. Taschenberg, still the veteran curator of the Halle Museum, in 1875 (Zeits. Ges. Nat. xlvi. pp. 421-438); but I am not aware that his species, the types of which are presumably yet under his care, have since been generally recognised. Without abundant material it were ridiculous to attempt a wide revision of these insects; and, as our author truly states, a mass of this material causes one's courage to sink at the sight of so uniform and apparently characterless a group. Nevertheless he laid good foundation for their elucidation by taking primarily the alar neuration, the basal sinuation of the radial nervure, and, what subsequent

authors have laid too little stress upon, the extent of central geniculation of the discoidal nervure and the apical concavity of the radius ; secondly he, and to a less extent Brullé, relied upon the metathoracic structure, though neither appears to have sufficiently noted the scutellar margination. I have not considered it necessary to refer in detail to the few European or Palaearctic species, since these have quite recently been so admirably tabulated by Prof. Dr. Schmiedeknecht in his " Opuscula Ichneumonologica." The material at my disposal is almost entirely contained in the British Museum, where the types of the new species here described are to be sought ; and the shortcomings of the present work are to be ascribed to the fact that it was compiled solely with the object of determining the specimens in the National Collection.

CLAUDE MORLEY.

Monks' Soham House,
Near Framlingham,
March 25th, 1911.

SYSTEMATIC INDEX.

FAMILY—ICHNEUMONIDAE.

SUBFAMILY—OPHIONINAE.

TRIBE—OPHIONIDES.

* The species represented in the British Museum are marked with an asterisk.

Systematic Index—*contd.*

Systematic Index—*contd.*

Subfamily—TRYPHONINAE.

Tribe—METOPIIDES.

CATALOGUE OF GENERA AND SPECIES HEREIN BROUGHT FORWARD AS NEW

Euryophion, Cam.
magnificus.
superbus.
ORIENTOSPILUS.
individuus.
Thyreodon, Brullé.
ligulifer.
reflexus.
lacteipennis.
bicolor.
boliviae.
Macrophion, Szépl.
flammiger.
Stauropodoctonus, Brauns.
alienus.
[orientalis.]
biumbratus.
Allocamptus, Thoms.
conspicuus.
similimus.
africanus.
brevis.
sinuatus.
serpentinus.
cubitalis.
crassus.
triangularis.
pulchellus.
emandibulator.
deflexus.
EURYCAMPTUS
meridionalis.
flavipennis.
calcator.
scotica.
AUSTRALOPHION.
NEOPHION.
crassus.
Henicospilus, Steph.
brevinervis.
exoticus.
major.
athi.
grandis.
[tosquineti.]
incongruus.
flavicaput.
gardei.
stramineus.
obliquus.
albicaput.
fulvicaput.
dubitator.
antennatus.
turneri.
melanospilus.
amplipennis.
[variegatorius.]
consimilis.
trinotatus.
Ophion, Fab.
porculata.
politus.
politior.
occidentalis.
filicornis.
major.
rectus.
[nigritulus.]
antennatus.
[insulicola.]
TRACHYOPTERUS.
primus.
Nototrachys, Marsh.
sinuatus.
variistriatus.
australensis.
Metopius, Panz.
eritreae.
bicarinatus.
lar.
medianus.
unifenestratus.
crassicornis.
notabilis.

A REVISION

OF THE ICHNEUMONIDAE.

PART I.

SUB-FAMILY OPHIONINAE.

TRIBE I.—OPHIONIDES.

TABLE OF GENERA HERE DEALT WITH.

(27) 1. Intermediate tibiae bicalcarate: nervellus strong.

(26) 2. Metathorax not colliformly produced apically, nor flagellum white-banded.

(4) 3. Frons basally and laterally carinate; petiole sculptured; wings entirely violaceous. EURYOPHION, Cam.

(3) 4. Frons not carinate; petiole glabrous; wings not always clouded.

(6) 5. Discoidal nervure acutely angled; tarsi stout; third segment discally emarginate.
ORIENTOSPILUS, Morl., gen. nov.

(5) 6. Discoidal nervure not or obtusely angled; tarsi normal; third segment emarginate only in *Aglaophion*.

(10) 7. Nervellus intercepted far above centre; metanotum basally intumescent.

(9) 8. Clypeus dentately produced; metanotum and hind coxae short; mandibles horizontal.
THYREODON, Brullé.

(8) 9. Clypeus not produced; metanotum and hind coxae normal; mandibles vertical. MACROPHION, Szépl.

(7) 10. Nervellus not intercepted above centre; metanotum not inflated.

(14) 11. Mandibles horizontal; clypeus often produced; wings usually darkly fasciated.

(13) 12. Central segments discally emarginate; metanotum short.
AGLAOPHION, Cam.

(12) 13. Central segments not emarginate, nor metanotum short. STAUROPODOCTONUS, Brauns.

(11) 14. Mandibles vertical; clypeus truncate; wings with no fasciae.

(25) 15. Cubital cell with distinct hyaline or pellucid area (sometimes corneous-spotted) towards base of radial nervure.

(19) 16. Upper wing with basal abscissa of radial nervure not basally straight.

(18) 17. Radial nervure of lower wing not basally curved, of upper wing distinctly sinuate; pellucid area beneath radius. ALLOCAMPTUS, Thoms.

(17) 18. Radial nervure of lower wing basally curved, of upper wing simply deflexed basally; pellucid area beneath stigma. EURYCAMPTUS, Morl., gen. nov.

(16) 19. Upper wing with basal abscissa of radial nervure basally straight.

(23) 20. Nervellus intercepted at its centre; ocelli not occupying whole vertex; head posteriorly as broad as eyes; body not slender.

(22) 21. Metapleurae tuberculiform, with acute apophyses; scutellum subpyramidal. AUSTRALOPHION, Morl., gen. nov.

(21) 22. Metapleurae and scutellum normal; apophyses wanting. NEOPHION, Morl., gen. nov.

(20) 23. Nervellus intercepted below centre; ocelli occupying whole vertex; head posteriorly constricted; body slender.

(25) 24. Cubital cell with a distinct glabrous area, often corneous-spotted, below stigma. HENICOSPILUS, Steph.

(24) 25. Cubital cell with no glabrous area, uniformly setiferous. OPHION, Fab.

(2) 26. Metathorax colliformly produced apically; flagellum white-banded beyond centre. OPHIONOPTERUS, Brullé.

(1) 27. Intermediate tibiæ unicalearate; nervellus wanting.

(29) 28. Antennae as long as body; metathorax apically produced; wings normal. TRACHYOPTERUS, Morl., gen. nov.

(28) 29. Antennae much shorter than body; metathorax not produced; wings small. NOTOTRACHYS, Marsh.

N.B.—I do not pretend to review those genera with which I am unacquainted: *Gravenhorstia* I know well from both British and German examples, but I consider its whole structure, with one exception, relates it to the Anomalons; the Guatemalan *Retanisia*, placed originally by Cameron in the *Anomalini* and transposed by Dalla Torre to the *Ophionini* in 1902, is actually quite closely allied to, if not synonymous with *Acaenitus*, Latr., and very like the Indian *Macrogaster nigricans*, Cam., as I am enabled to state from an examination of the type in Brit. Mus.

EURYOPHION, Cam.

Ann. S. African Mus. 1906, p. 83.

Mandibles vertical; metanotum short; hind coxae normal; clypeus not produced; wings entirely violaceous; ocelli emitting carinae to orbits; head posteriorly broader than eyes.

(2) 1. Nervellus intercepted centrally; abdomen basally ferruginous. 1. *nigripennis*, Cam.

(1) 2. Nervellus intercepted slightly above centre; abdomen entirely black.

(4) 3. Metanotum rugose, with distinct areola; all legs black; length, 36 mm. 2. *magnificus*, sp. n.

(3) 4. Metanotum deplanate with no areae; all legs fulvous; length, 27 mm. 3. *superbus*, sp. n.

1. Euryophion nigripennis, Cam.

Ann. S. African Mus. 1906, p. 83.

Cameron erected the present genus for the reception of this species, the typical ♀ of which is in the Cape Town Museum, and was taken at Durban in Natal.

2. Euryophion magnificus, sp. n.

A very large, entirely black insect, with deep blue wings and the clypeal teeth red; antennae extending to apex of third segment, and the second recurrent nervure centrally bifenestrate; length 36 mm. The typical ♀ of this splendid insect was captured at Bulawayo in British South Africa by Mr. Guy Marshall in December, 1903, and presented to the British Museum four years later. Since describing it, I have discovered the ♂ in Mr. W. L. Distant's collection,* differing only in having the nervure emitted from the nervellus apically curved and the recurrent nervure unifenestrate. This ♂ was bred on the 11th March, 1902, by A. Ross at the Transvaal-Natal boundary from a cocoon of the large and very rare Arrow Hawk moth (*Lophostethus dumolinii*, Latr.), which has an expanse of some 5 inches. The ♂ had been examined by Col. Bingham and named *Thyreodon distanti* in MS. by him.

*Now in the British Museum.

3. Euryophion superbus, sp. n.

Similar to the last in its black abdomen and thorax, but quite distinct in the sculpture of the much flatter metanotum, shorter antennae, which extend only to the basal segment, in the dull red face and cheeks, but especially in the entirely fulvous legs (the two or three apical tarsal joints alone being black) and basally unifenestrate second recurrent nervure. One ♂ has been in the British Museum since 1860, and was captured by the Swedish collector Gueinzius at Port Natal.

ORIENTOSPILUS, gen. nov.

A genus of large or very large insects uniting the characters of *Henicospilus* and *Allocamptus*, but differing from both in having the mandibles horizontal and not vertical. Radial nervure basally straight, incrassate and laterally infumate; first cubital cell with a distinct glabrous area, corneous-marked. This genus has the facies of *Stauropodoctonus*, but the glabrous area is corneous-marked. It is a remarkable link between *Thyreodon*—with which it agrees in its peculiarly short and basally subintumescent metathorax, beyond which the hind coxae do not extend, in its horizontal mandibles and partly infumate wings, though differing materially in the apically very broadly rounded clypeus, wanting notauli, acutely geniculate discoidal nervure and in the interception of the nervellus distinctly a little below its centre—and *Aglaophion*, to which it is allied in its apically infumate wings, stout and somewhat short antennae, the oral structure and especially in the discally emarginate third segment.

1. Orientospilus individuus, sp. n.

This species is so remarkable that I had at first passed it over among a lot of Oriental *Bracones*, as belonging to that genus. It is somewhat stout, bright testaceous and nitidulous, with the eyes, ocelli, the hardly attenuate antennae except apically beneath, and the hind tarsi deep black; the wings are strongly fulvescent, with their apical margin from apex of disco-cubital cell in nearly a straight line to just within apex of nervure emitted from nervellus translucent black; an additional black streak runs from the anal angle of the front wings to an oval blotch extending from the fulvous stigma to centre of lower side of the disco-cubital cell; the head is vertically broad and hardly narrower than the somewhat small eyes; the scutellum is distinctly carinate laterally

only, and sparsely punctate; metathorax shagreened, with no trace of areae; postpetiole abruptly nearly double breadth of petiole, valvulae nigrescent; legs short and stout, testaceous, with hind tarsi conspicuously black and subincrassate; all femora elongately pilose beneath; wings broad and not very ample with nervures concolorous with markings, upper basal straight and strongly antefurcal, disco-cubital acutely geniculate but with no ramellus; nervellus subopposite and intercepted a little above its lower third. The typical ♀ of 17 mm. was captured by Col. Nurse at Deesa in Rajputana, during September, 1901, and is in his collection.

2. Here also belongs *Enicospilus reticulatus*, Cam., Manch. Mém., 1899, p. 102, ♀ (*nec* Cam., 1902).

THYREODON, Brullé.

Hist. Nat. Ins. IV, 1846, p. 150.

Mandibles horizontal; clypeus apically produced; metanotum and hind coxae very short; notauli deeply impressed; wings mainly infumate; nervellus intercepted far above centre.

This genus is well defined by Brullé and must be confined to species with the clypeus distinctly dentiform apically, the mandibles horizontal and apically explanate, the metanotum much broader than the metasternum and the second recurrent nervure emitted as in *Ophion* before the intercubital nervure. It is, however, best recognised by its short, humped-up metathorax, which is usually basally prominent on either side, and the very small hind coxae. Brullé here placed *Ophion morio*, Fab., and all subsequent authors have followed him, including Smith, who refers to the type (Trans. Ent. Soc., 1874, p. 395), but overlooked its venation; the second recurrent is emitted distinctly beyond the intercubital nervure, and it falls, with its explanate hind tarsi, naturally into *Exochilum*, synonymous with *E. mundum*, Say (Boston Journ. Nat. Hist., 1836, p. 239). Many of the rufescent species here placed by American authors must be excluded, since I find in every case of red thorax the mandibles tend to become vertical, as in *Ophion*. Two species were described by Szépligeti in 1906, in Ann. Hist. Nat. Mus. Nat. Hung. of Budapest from South America, and Viereck brings forward a third in Trans. Kan. Acad. Sci. 1905, p. 310, from Kansas.

(20) 1. Thorax black with the legs entirely concolorous.

(19) 2. Wings infumate throughout; abdomen nearly entirely black.

(4) 3. Third and fourth segments clear flavous.
1. *laticinctus*, Cress.
(=*principalis*, Smith).

(3) 4. Third and fourth segments black or, at most, badious.

(6) 5. Flagellum white, with its apex alone black.
2. *morosus*, Smith.

(5) 6. Flagellum not white-marked.

(10) 7. Length 32-36 mm.; wings violaceous; metathorax finely scabrous and subnitidulous.

(9) 8. Frons tuberculate below scrobes; hind coxae longer than half basal segment; basal half of flagellum black.
3. *ligulifer*, sp. n.

(8) 9. Frons simple; hind coxae very short; flagellum fulvous.
4. *grandis*, Cress.

(7) 10. Length 25-30 mm.; wings bronze; metathorax rugulose and dull.

(14) 11. Head posteriorly buccate and as broad as eyes, of ♂ anteriorly pale.

(13) 12. Wings unicolorous; nervellus intercepted far above its centre; claws small. 5. *morio*, Brullé (*nec* Fabr. et Spin.).

(12) 13. Wings centrally paler; nervellus centrally intercepted; claws very large. 6. *purpurascens*, Smith.

(11) 14. Head posteriorly constricted and narrower than eyes, black

(18) 15. Flagellum stout and mainly fulvous; scutellum margined to its centre.

(17) 16. Length 30 mm.; radius apically straight; flagellum fulvous.
7. *erythrocerus*, Cam.

(16) 17. Length 25 mm.; radius apically reflexed; apical third of flagellum black. 8. *reflexus*, sp. n.

(15) 18. Flagellum slender, black; scutellum margined only at base.
9. *niger*, Cress.

(2) 19. Wings hyaline; abdomen, except basally, clear fulvous.
10. *lacteipennis*, sp. n.

(1) 20. Thorax not entirely black; front legs and part of wings often pale.

(24) 21. Thorax distinctly cyaneous; wings at most discally pale.

(23) 22. Metanotum discally scabrous; wings cyaneous throughout.
11. *cyaneus*, Brullé (=*morio*, Spin., *nec* Fabr.).

(22) 23. Metanotum discally glabrous; wings violaceous, with disc of the anterior quadrately hyaline.
12. *maculipennis*, Cress.

(21) 24. Thorax not cyaneous; wings usually infumate only at apices.

(28) 25. Thorax entirely black; wings not infumate throughout.

(27) 26. Wings, except apically, flavescent; anterior legs pale.
13. *marginipennis*, Brullé.

(26) 27. Wings, except apically, fulvo-ferrugineous; legs black. 14. *flammipennis*, Ashm.

(25) 28. Thorax entirely fulvous.

(34) 29. Abdomen and hind legs entirely black; length at least 27 mm.

(31) 30. Wings broadly infumate basally. 15. *bicolor*, sp. n.

(30) 31. Wings not at all infumate basally.

(33) 32. Head posteriorly narrower than eyes; scutellum margined. 16. *spectabilis*, Perty.

(32) 33. Head posteriorly as broad as eyes; scutellum not margined. 17. *boliviae*, sp. n.

(29) 34. Abdomen and legs nearly entirely red; length at most 18 mm. 18. *ornatipennis*, Cress.

1. Thyreodon laticinctus, Cress.

Proc. Acad. Philad. 1873, p. 376.

The only species with centrally flavous abdomen. Smith's type of *T. principalis* (Descr. New Hym., 1879, p. 230) in the British Museum agrees perfectly with Cresson's description. It is doubtless a common and widely distributed species in Central America, as was thought by Cameron (Biol. Cent. Amer., 1886, p. 289): Orizaba in Mexico (Cresson; and one in the British Museum was taken about the volcano there by M. Sallé in 1856); Cache (Smith's ♀ type) and Irazu, at 6-7,000 feet, in Costa Rica (Rogers); Zapote and Senahu in Guatemala (Cameron); Colombia in 1896 and, doubtfully, from Brazil in 1851 (Mus. Brit.).

2. Thyreodon morosus, Smith.

Descr. New Hym. 1879, p. 230.

The only species with white-marked antennae. The unique ♀ was taken by H. Rogers at Cache in Costa Rica, and is in the Museum.

3. Thyreodon ligulifer, sp. n.

A very large insect of 34 mm., black with violaceous wings, differing from the two following species in having the basal half of the fulvous flagellum black, the ligula strongly elongate, and the hind coxae far more prominent than in any other example of this genus, from which it would seem to be excluded by the longer, flatter and basally hardly constricted metathorax, whose spiracles are transverse and linear; the tarsal claws are pectinate and nearly straight. The single ♀ in the British Museum is from Brazil.

4. Thyreodon grandis, Cress.

Proc. Ent. Soc. Philad. 1865, p. 45.

The largest species of the genus (usually 36 mm.), differing from the preceding in its short coxae, and from all the remaining black species in its much more finely sculptured, subnitidulous metathorax and deeper notauli. Two ♀♀ and a ♂ from Cuba (Cresson); two ♀♀ in the British Museum are both from Jamaica, about 1845, ex coll. Gosse.

5. Thyreodon morio, Brullé.

Hist. Nat. Ins. 1846, p. 152 (*nec* Fab. et Spin.).

We must ascribe this species to Brullé, who knew it from Carolina, since all the earlier authors referred to the Fabrician type. It is the commonest species of the genus, and Cresson speaks of it as "our local species" in 1865 (Proc. Philad. Soc., iv, p. 46); it is recorded from Dallas co. in Texas and Canada. In the British Museum are examples collected by Edward Doubleday in the United States and at St. John's Bluff in East Florida, by H. Edwards at New York, and by Prof. Riley from Rev. T. A. Marshall's collection.

6. Thyreodon purpurascens, Smith.

Trans. Ent. Soc. 1874, p. 395.

Our only known Asiatic species is correctly included in this genus in spite of Cameron's scepticism. The female is a very stout insect, black, with the wings distinctly paler discally; the large claws and centrally intercepted nervellus are peculiar to it; the flagellum varies from fulvous to piceous. The type from Hiogo in southern Japan is in the British Museum. Pascoe also took it in Japan, Fortune in northern China in 1855, and Maw at Chin-Fu-San in western China in 1908.

7. Thyreodon erythrocerus, Cam.

Biol. Cent. Amer. 1886, p. 288, pl. xii, fig. 13.

Distinct from *T. morio* in its much smaller head and more slender body, but difficult to determine in isolated examples. Cameron compares it with *T. grandis*, which he evidently did not know, since the present species is much smaller, with the metathorax altogether rougher and duller. Besides the pair from Valladolid in Yucatan mentioned by him, Morrison has found the female at N. Sonora in Mexico. Type in British Museum.

8. Thyreodon reflexus, sp. n.

An entirely black species with the antennae resembling those of *T. morosus*, though fulvous in place of white, with the apical third equally black. It is rendered distinct in the very narrow radial cell, running parallel with the metacarpus and sharply reflexed both at base and apex. The wings are unusually narrow, with, in some lights, violaceous reflections. The only ♀ I have seen was captured by R. von Ihering at Rio Grande do Sul, in southern Brazil, and has been in the British Museum since 1884.

9. Thyreodon niger, Cress.

Proc. Acad. Philad. 1873, p. 375.

The black antennae, slender form and very dark wings render this distinct from all the preceding and more liable to be mixed with the following group, though sufficiently distinct in its dull black thorax with no cyaneous reflections. Cordova in Mexico (Cresson); Puente de Ixtla near Morelos 3,500 feet in June, and Venta de Zopilote in Guerrero at 2,800 feet in October (H. H. Smith); Vera Paz in Guatemala (Cameron, in Mus. Brit.).

10. Thyreodon lacteipennis, sp. n.

The only species with hyaline wings (which are but very slightly clouded basally) and clear fulvous abdomen (with the basal segment, and disc of the second basally, black). The remainder of the insect is entirely black; scutellum strongly convex and margined to its centre; metathorax transaciculate, with its notum unusually short, even in the present genus, and the petiolar area both vertical and towards its apex longitudinally bicarinate; head small and distinctly constricted behind the eyes. The unique ♀ was captured at San Paulo on the Amazon by H. W. Bates, and reached the British Museum in 1859.

11. Thyreodon cyaneus, Brullé.

Hist. Nat. Ins. 1846, p. 151, pl. xlii, fig. 3; *Ophion morio*, Spin. Ann. Soc. France 1840, p. 168 (*nec* Fabr.).

The only brilliantly blue species, the coloration being especially conspicuous upon the metathorax, which is smoother than in most of the above black insects. It is somewhat slender, with unicolorous wings. Cayenne and Brazil

(Brullé, whose var. is doubtless my *T. reflexus*) ; no one has mentioned it since 1846, so it doubtless does not extend to Central America, though apparently not uncommon in the South ; it was collected by Bates at Santarem and Villa Nova on the Amazon, and about Para ; other examples in the British Museum are from British Guiana in 1885, Petropolis in Brazil and Chili (Fred. Smith), Bolivia in 1904 (Steinbach), Sapucay in Paraguay in 1903 (W. Foster), and Manaos in Brazil (Piffard).

12. Thyreodon maculipennis, Cress.

Proc. Acad. Philad. 1873, p. 375.

Distinct in its nitidulous metanotum, which is sanguineous red in one ♀ I have seen, and partly so in another, but otherwise similar to the next species, with which alone it shares the determinate subquadrate flavescent patch in the centre of all its simply infumate wings. The undescribed antennae are entirely black, apically attenuate, and extend to the apex of the fourth segment. The four ♀♀ in the British Museum are very old and without data ; Cresson records it from Cordova and Orizaba in Mexico, to which Cameron had nothing to add. Szépligeti has gone to the trouble of describing the ♂ of this species as new (Gen. Insect., 1905, p. 32, fig.), under the name *Macrophion fenestratus*, from Brazil.

13. Thyreodon marginipennis, Brullé.

Hist. Nat. Ins. 1846, p. 152 ; Holmberg, Anal. Soc. Cient. Argent. 1884, p. 227.

Unknown to me, but apparently distinct in its black thorax and mainly flavescent wings. Buenos Ayres.

14. Thyreodon flammipennis, Ashm.

Proc. Californ. Acad. 1894, p. 125.

The typical ♀ was captured at an altitude of 3,500 feet at El Taste in Lower California, in the fall of 1893. The black body and fulvous wings form a combination peculiar to this species. There has been a second ♀ in the British Museum since 1879, ex coll. Fred. Smith, from Nicaragua, which has the flagellum, except basally, fulvous. A good series, taken along with a wonderfully similar *Trogus*, was secured by H. H. Smith at Xucumanatlan at 7,000 feet in the Sierra de las Aguas Escondidas and at Omilteme at 8,000 feet in Guerrero, Mexico, all during July.

15. Thyreodon bicolor, sp. n.

Closely allied to *T. maculipennis*, with black abdomen, etc., but with the cheeks, ♂ face, the whole thorax and anterior legs fulvous, and the metathorax scabrous and not at all shining; the antennae are stouter, the head broader behind the eyes, and the pale alar marks less definite. A single pair is in the British Museum, and the ♀ type was acquired from Fred. Smith's collection in 1879—*patria incog.* (? America Cent.).

16. Thyreodon spectabilis, Perty.

Loc. cit. infra.

A red species with abdomen, capital vertex and hind legs black; the wings flavescent, with only the apical margin of both pairs infumate. His figure leaves no doubt that this is the species brought forward by Perty, under *Ophion*, in his Delect. Anim. Artic. Brazil, 1833, p. 131, pl. xxvi, fig. 10. A ♂ from Santarem or Ega (H. W. Bates), and ♀♀ from Brazil and Rio Negro on the Amazon (Wallace), are in the British Museum.

17. Thyreodon boliviae, sp. n.

Very similar, but certainly distinct from *T. spectabilis* in the structure of its head and scutellum, in its much less obliquely declived metanotum, black clypeus and apically clouded upper basal wing cell. The unique ♀ was captured by Josef Steinbach in Bolivia and acquired by the British Museum in 1904.

18. Thyreodon ornatipennis, Cress.

Proc. Acad. Philad. 1873, p. 376.

Quite unlike anything else in its red body and legs, with only the second segment discally, and flagellum basally, black; even the alar infumescence has a rufescent tinge, with the centre of both pairs of wings determinately hyaline: the thorax is subglabrous, with the metathorax very short and apically striate. Cresson records it from Orizaba in Mexico, to which Cameron adds nothing. The single ♀ in the British Museum was captured in San Domingo by Mr. Tweedie and acquired in 1855.

MACROPHION, Szépl.

Gen. Insect. 1905, p. 33.

Mandibles vertical; metanotum and coxae of normal length; wings only partly infumate; thorax fulvous.

I have only seen three species of this genus; the remaining three are not in the British Museum. *Macrophion fenestratus*, Szépl., is a great deal more closely related with *Thyreodon* in its short and convex metanotum, hardly protruded hind coxae and distinctly produced clypeus, than with the present genus: it had been described by Cresson in 1873; Szépligeti's material in Gen. Insect. appears very scanty. It is most probable that we must adopt Kriechbaumer's name *Tipulophion* for this genus (Zeits. Hym. Dip., 1901, p. 75), but since he says the mouth parts, "without dissection, would not cause any separation" from *Thyreodon*, that here adopted appears preferable.

(4) 1. Abdomen and hind legs entirely black.
(3) 2. Upper basal nervure and hind coxae black. 1. *fulvescens*, Cress.
(2) 3. Upper basal cell entirely, but not hind coxae, black. 2. *grenadensis*, Ashm.
(1) 4. Abdomen and hind legs also fulvous.
(10) 5. Mesonotum immaculate fulvous; abdomen with at most second segment black.
(9) 6. Stigma neither large nor flavous; wings not unicolorous.
(8) 7. Wings violaceous, apically darker. 3. *affinis*, Cress.
(7) 8. Wings hyaline, with radial and upper basal cells infumate. 4. *flammiger*, sp. n.
(6) 9. Stigma large and flavous; wings fuliginosous throughout. 5. *texanus*, Ashm.
(5) 10. Mesonotum flavous, trivittate; first segment also partly black. 6. *elegans*, Cress.

1. Macrophion fulvescens, Cress.

Proc. Ent. Soc. Philad. 1865, p. 46.

I follow Szépligeti's synonymy of *Thyreodon rufithorax*, Cam. Biol Cent. Amer., 1886, p. 290, pl. xii, fig. 15 (type in Mus. Brit.), with Cresson's Cuban species, though it is somewhat doubtful and I do not find that Cresson gives his insect black antennae and abdomen, as is the case with the former; *Tipulophion gigas*, Kriech. Zeits. Hym.-Dip., 1901, p. 76, *et* Schulz l.c., 1903, p. 249, must also sink. Besides the type of *T. rufithorax* from Bugaba in Panama, mentioned by Cameron, there are in the British Museum a ♀ found by Champion at Panima in Guatemala and one of the maximum size taken in Brazil, from H. W. Bates' collection; both these are referable to the var. *apicalis*, Schm. (Opusc. Ichn.), from Peru, with the apical margin of the wing clouded.

2. Macrophion grenadensis, Ashm.

Trans. Ent. Soc. 1900, p. 270.

The type in the British Museum is most certainly the ♀ of *Macrophion ornatus*, Szépl. (Gen. Insect., 1905, p. 33, fig. 17, ♂), who was probably misled by Ashmead's misprint of the length: "3·4," which should read 34 mm. The ♀ flew in to light at night at an altitude of 1,250 feet on 13th May, on the windward side of Balthazar; a second ♀, captured at La Oroya Carabaya in Peru, at 1,100 feet, during the September dry season of 1904, was acquired by the British Museum in 1906.

3. Macrophion affinis, Cress.

Proc. Ent. Soc. Philad. 1865, p. 46, ♂.

4. Macrophion flammiger, sp. n.

Extremely like *M. grenadensis* and quite possibly a pale variety of it with only the second abdominal segment discally black, the metathorax not finely sculptured and the paler infumescence not extending to the base of the costal cell. The whole insect, including the antennae, is bright fulvous. The single ♀ in the British Museum is from Jamaica, whence it was acquired from Mr. Gosse in 1847.

5. Macrophion texanus, Ashm.

Proc. U.S. Nat. Mus. 1890, p. 422, ♂.

6. Macrophion elegans, Cress.

Proc. Ent. Soc. Philad. 1865, p. 47, ♀.

AGLAOPHION, Cameron.

Journ. Str. Branch R. Asiatic Soc. 1903, p. 131.

Abdominal segments discally strongly emarginate.

1. Aglaophion flavinervis, Cam.

Journ. Str. Br. R. Asiatic Soc. 1903, p. 132 [♀ *sic*], ♂.

The ♂ type in the British Museum is remarkable in its uniquely emarginate central segments, of which the third to sixth are strongly incised and the fourth laterally orange,

the metallic blue-green head and thorax, centrally intercepted nervellus and small ocelli, the basal of which are very far from the orbits. It was taken on Mount Matang in Borneo at an altitude of 3,200 feet, and is quite distinct from *Thyreodon*, with which Szépligeti very arbitrarily synonymises it (Gen. Insect., 1905, p. 25), a mistake for which Cameron's description of the clypeus, etc., is probably to blame. The latter did not notice in the type that the basal nervure is exactly continuous in the left wing, but distinctly postfurcal in the right, nor is the third the only segment "roundly narrowed towards the base, on the back."

The genus is characterised by: mandibles horizontal; clypeus apically produced; metanotum, but not hind coxae, short; wings only apically infumate; nervellus intercepted centrally; notauli wanting; central segments discally emarginate.

STAURopodoctonus, Brauns.

Arch. Naturg. Mecklenb. 1889, p. 93; *Spilophion*, Cam. Spol. Zeylanica, 1905, p. 124.

Mandibles horizontal; clypeus hardly produced; metanotum and hind coxae not short; wings hyaline, very slightly or narrowly clouded; nervellus intercepted centrally; notauli wanting; segments not emarginate.

This genus was sunk by Szépligeti in 1905 as synonymous with *Eremotylus*, Först. Verh. pr. Rheinl., 1868, p. 150, but Schmiedeknecht (Opusc. Ichn.) considers them distinct. Cameron's *Spilophion* (Spolia Zeylanica, 1905, p. 124) differs from Dr. Brauns' genus in nothing but the infumate stigmal region and must certainly disappear: in Opusc. Ichn. they are separated solely on the comparative labral length, which is immoderately exaggerated by Cameron.

(8) 1. Wings hyaline throughout; radial nervure curved below stigma.

(3) 2. Cubital cell with no corneous spots; radial cell basally hyaline; stigma fulvous. 1. *bombycivorus*, Grav.

(2) 3. Cubital cell with corneous spots; radial basally infumate; stigma nigrescent.

(5) 4. Two corneous spots in cubital cell; length 24 mm. 2. *alienus*, sp. n.

(4) 5. One corneous spot in cubital cell; length at most 15 mm.

(7) 6. Cubital cell apically truncate; thorax and abdomen fulvous. 3. *mauritii*, Sauss.

(6) 7. Cubital cell acuminate; thorax and abdomen partly nigrescent. 4. *maculipennis*, Cam.

(1) 8. Wings partly infumate; radial nervure straight below stigma.

(10) 9. Nervellus geniculate above centre; stigma black. 5. *orientalis*, n.n.

(9) 10. Nervellus geniculate below centre; stigma stramineous. 6. *biumbratus*, sp. n.

1. Stauropodoctonus bombycivorus, Grav.

Ichn. Europ. III, 705.

Known by its hyaline wings and palaearctic range; but the extent of black coloration is extremely variable throughout the whole body. Decidedly local and rare, but occurring in Britain and central Europe; Ruthe took it in Germany, Gravenhorst about Hanover, and Brischke bred it in Prussia, but Schmiedeknecht has not found it in Thuringia, nor did Bucheker notice it about Zurich. Often bred, I believe exclusively, from *Stauropus fagi*, the larva of which it destroys after constructing its cocoon, and this protects the oval red-brown parasite's cocoon (figured in Entom., 1884, pl. ii, fig. 10), attached to it by interwoven strands. I have three English examples from Chitty's and Beaumont's collections, and one with its cocoon bred from the above host by Blair, who says the larval skin of the host was thoroughly cleared out and then pushed to the anal extremity of its cocoon on 7th June, 1906.

2. Stauropodoctonus alienus, sp. n.

Resembling *S. bombycivorus* in its basally curved radius and *S. maculipennis* of 1905 in its basally infumate radial cell and stigma, but differing from all the other species in having two cubital corneous spots, the inner large and triangular, the outer small and crescentic. It doubtless belongs to Szépligeti's genus *Metophion* (Gen. Insect., 1905, p. 25), though he failed to notice the mandibular structure, and it is distinct from both his New Guinea species in the infumate radius, entirely testaceous head, thorax, abdomen and legs; the metathorax is granulose and obliquely striate, with a determinate basal transcarina; the terebra and its valvulae are red and hardly reach the anus. The typical ♀ of 24 mm. in the British Museum is unlabelled—*patria incog.* (? Asia).

3. Stauropodoctonus mauritii, Sauss.

Grand. Hist. Madag. 1890, pl. xxi, fig. 14, ♂.

One ♂ presented by the Entomological Research Committee (Trop. Africa), taken by S. A. Neave in August, 1910, on the Upper Luangwa River, N.E. Rhodesia.

4. Stauropodoctonus maculipennis, Cam.

Biol. Cent. Amer. 1886, p. 292, pl. xii, fig. 29.

It is curious that both Cameron's species of this name from the ends of the earth should fall into the same genus, but no doubt of it can remain since I have examined the present ♀ type in the British Museum, from Bugaba in Panama; it differs astonishingly little from Saussure's figure of *Ophion mauritii* in Grandidier's Histoire de Madagascar, which obviously belongs to the present genus.

5. Stauropodoctonus orientalis, nom. nov.

Spilophion maculipennis, Cam. Spol. Zeyl. 1905, p. 125, pl. B, fig. 13, ♀.

Wings hyaline, with a single cloud in the base of the radial cell. Taken in Ceylon so long ago as 1872 by Dr. Thwaites, at Tainan in S. Formosa, on 17th May, 1906, by A. E. Wileman, and twice at Bombay in 1869 by Holmes (in Mus. Brit.). Described from Peradeniya, where Mr. E. E. Green recently took it in September. I propose the name *S. orientalis* for this species, which was described by Cameron as *S. maculipennis*, 1905.

6. Stauropodoctonus biumbratus, sp. n.

Abundantly distinct from the above in having two infumate alar fasciae, two corneous marks beneath the radius, the stigma stramineous and nervellus intercepted below its centre. Four specimens, comprising both sexes, in the Calcutta Museum, were taken in the Nilgiri Hills of Madras. A fifth, possibly of specific rank, was captured by H. N. Ridley at Singapore in 1907: it has the stigma, anus, and thorax entirely black, the scutellum very strongly margined throughout, but the neuration is identical though with no trace of alar fasciae, the base of the radial nervure alone being infumate and the external corneous spot wanting.

ALLOCAMPTUS.

Thoms. Opusc. Ent. XII (1888), 1186 (*nec* Först.); *Cymatoneura*, Kriech. Z. Hym.-Dip. 1901, p. 22.

Mandibles vertical; clypeus apically subtruncate; metathorax and hind coxae normal; nervellus intercepted below centre; ocelli large; radius basally sinuate above a clear

area, which is occasionally corneous-spotted; hind claws pectinate, not dentate. It were, I think, better to allow Szépligeti's genus *Dicamptus* (Gen. Insect., 1905, p. 25) to stand, since it differs from *Allocamptus* in very nearly the same way that *Henicospilus* differs from *Ophion*: it has, however, been more convenient to treat it here as a section of the main group of species.

(32) 1. First cubital cell pellucid, but with no corneous spots beneath base of radius.

(7) 2. Head posteriorly as broad as the eyes; metathorax subconvex.

(6) 3. Mesonotum sculptured; abdomen and hind-legs testaceous.

(5) 4. Upper tooth the longer: temples fulvous and buccate. 1. *undulatus*, Grav.

(4) 5. Mandibular teeth of equal length: temples white, narrow. 2. *algoensis*, Kriech.

(3) 6. Mesonotum glabrous, shining; abdomen and hind-legs black. 3. *conspicuus*, sp. n.

(2) 7. Head posteriorly much narrower than eyes; metathorax deplanate.

(9) 8. Radius basally unisinuate, i.e. not deflexed centrally. 4. *stramineus*, Tasch.

(8) 9. Radius basally bisinuate, i.e. both reflexed and deflexed.

(19) 10. Discoidal nervure sharply geniculate centrally: vertex usually flavous.

(12) 11. Geniculation immediately below stigma; hind coxae dull. 5. *malayanus*, Cam.

(11) 12. Geniculation below deflection of radius; coxae nitidulous.

(16) 13. Basal nervure subcontinuous; radius strongly sinuate; scutellum basally carinate.

(15) 14. Discoidal cell basally acuminate; costa and stigma fulvous. 6. *simillimus*, sp. n.

(14) 15. Discoidal cell basally broad; costa black, stigma ferrugineous. 7. *senescens*, Tosq.

(13) 16. Basal nervure not continuous; radius slightly sinuate; scutellum carinate throughout.

(18) 17. Upper basal nervure elongately postfurcal; second recurrent much longer than space between it and the external cubital. 8. *africanus*, sp. n.

(17) 18. Upper basal antefurcal; second recurrent not longer. 9. *infuscatus*, Tosq.

(10) 19. Discoidal nervure not geniculate; discoidal cell narrower.

(23) 20. Scutellum convex, not carinate beyond centre; wings hyaline.

(22) 21. Metathorax coarsely strigose and, before base, transcarinate; radius but slightly sinuate; length at least 25 mm. 10. *renovatus*, n. n.

(21) 22. Metathorax alutaceous, not carinate; radius strongly sinuate; 14 mm. 11. *brevis*, sp. n.

(20) 23. Scutellum subdeplanate, carinate to apex; wings subinfumate or fulvescent.

(31) 24. Second recurrent nervure longer than space between it and the external cubital.

(30) 25. Radial sinuation and metanotal sculpture very strong.

(29) 26. Upper basal nervure distinctly postfurcal; wings flavescent; length 30-35 mm.

(28) 27. Metapleurae very distinctly buccate and convex; stigma flavous. 12. *macrurus*, Drury.

(27) 28. Metapleurae normal, not buccate; stigma nigrescent. 13. *sinuatus*, sp. n.

(26) 29. Basal nervure continuous; wings infumate; length 25 mm. 14. *serpentinus*, sp. n.

(25) 30. Radial sinuation and metanotal sculpture weak; mesonotal vittae only black. 15. *nugalis*, Schulz.

(24) 31. Second recurrent nervure distinctly shorter than that space. 16. *cubitalis*, sp. n.

(1) 32. First cubital cell pellucid, corneous-spotted below stigma. (DICAMPTUS, Szépl.).

(40) 33. Base of radius first deflexed, then reflexed from stigma; corneous mark triangular.

(35) 34. Metathorax strongly strigose; spiracles of first segment prominent. 17. *giganteus*, Szépl.

(34) 35. Metathorax finely coriaceous; spiracles of first segment obsolete.

(39) 36. Nervellus strongly geniculate; alar spot mainly pellucid, and apically produced.

(38) 37. Head buccate behind; flagellum black; metanotum not carinate. 18. *crassus*, sp. n.

(37) 38. Head constricted behind; flagellum fulvous; metanotum transcarinate. 19. *triangularis*, sp. n.

(36) 39. Nervellus continuous throughout; alar spot black, not produced. 20. *pulchellus*, sp. n.

(33) 40. Base of radius first reflexed, then deflexed; corneous mark not triangular.

(42) 41. Cheeks obsolete; metathorax bitranscarinate; second segment basally black. 21. *emandibulator*, sp. n.

(41) 42. Cheeks not short; metathorax unitranscarinate; abdomen red. 22. *deflexus*, sp. n.

1. Allocamptus undulatus, Grav.

Ichn. Europ. III, 697.

Distinct from all other species in its posteriorly very broad head and palaearctic range. I do not agree with Schmiedeknecht (Opusc. Ichn.) that the sinuation of the radius is variable; on the contrary, its sinuation appears a good and constant character specifically. It attacks *Bombycid* moths, is uncommon throughout Europe, and

extends to Jerusalem, Malta (ex coll. E. Saunders) and Morocco, whence Major Fowler presented it to the British Museum in 1909.

2. Allocamptus algoensis, Kriech.

Zeits. Hym.-Dip. 1901.

Probably synonymous with *Ophion leucocotis*, Tosq., Mem. Soc. Ent. Belg., 1896, p. 372; and more slender than the last, with which alone its fairly broad and peculiarly white head allies it. Kriechbaumer, whose other species (*A. ikuthana*, from Ikutha in British East Africa) I do not know, brought it forward on the strength of a ♀ in the Munich Museum, taken in October, 1892, at Algoa Bay in Cape Colony; and we possess a pair—the ♂ differing only in having the face paler—taken at Howick and Durban in Natal, during 1903 and 1904, by Cregoe.

3. Allocamptus conspicuus, sp. n.

Peculiar in its entirely black abdomen, which is very slender, with the second segment basally constricted and thyridate, and the spiracles of the first somewhat prominent, in the black hind legs, whose coxae alone are testaceous like the whole thorax, except the mesonotum and mesosternum, which are both black and brilliantly shining and without sculpture, and in its dead black stigma and alar costa; the head is testaceous, with its frons paler, the antennae and vertex and mandibular apices black, ocelli not very large and frons carinate below the scrobes, terminating below in a tubercle; length 22 mm. The type is a ♂ in my own collection without locality, but a co-type in the Museum was taken in Tasmania and presented in 1854 by Morton Allport of Hobart. It is probably allied to *Ophion atriventris* Cress., Proc. Acad. Philad. 1873, p. 374, which I do not know.

4. Allocamptus stramineus, Tasch.

Zeits. Ges. Nat. 1875, p. 431.

I have little hesitation in synonymising Cameron's smaller species (*Ophion chiriquensis*, Biol. Cent. Amer., 1886, p. 294, pl. xii, fig. 20, type in Mus. Brit.), with pale antennae, with this, since its author appears ignorant of Dr. Taschenberg's paper in the Zeits. Ges. Nat. I also consider it probable that both are referable to Brullé's *Ophion flavidus* (Hist. Nat. Ins., 1846, p. 143).

5. Allocamptus malayanus, Cam.

Journ. Str. Br. R. Asiatic Soc. 1902, p. 50.

Placed in error in *Pleuronophion*, Ashm., Proc. U.S. Nat. Mus., 1900, p. 86, by its author. Differs from *A. serpentinus* in its hyaline wings, shorter antennae and the much straighter apex of the radial nervure. Cameron's type is from Borneo and is in the British Museum, with specimens from Johore, 1903, New Guinea 1862, Java 1879, taken by H. N. Ridley at Singapore, 1910, and a fine ♀ in the old Horsfield collection from Java.

6. Allocamptus simillimus, sp. n.

I have had considerable difficulty in adequately distinguishing this American species from *A. malayanus*, though the position of the discoidal nervure's geniculation, when once observed, is a very satisfactory feature; in fact the whole genus were best primarily divided up upon it, though figures and not words are requisite for such an elucidation. The type of my species was captured by J. Rodway in British Guiana and presented to the British Museum by him in December, 1907.

7. Allocamptus senescens, Tosq.

Mem. Soc. Ent. Belg. 1896, p. 375.

So like *A. simillimus* that I have been puzzled to distinguish this African from that American species; the much greater breadth of the median nervure beyond its emission of the internal cubital will, however, combined with the almost nigrescent nervures, distinguish the present species, which is recorded from Togoland and extends to Obuasi in Ashanti, whence Dr. W. M. Graham sent a specimen to the British Museum, taken "in dense bush, 17th June, 1907."

8. Allocamptus africanus, sp. n.

Second only to *A. macrurus* in size, with a length of 34 mm. and expanse of 50 mm., deep fulvous, with the head not very narrow and often flavous behind the eyes; the upper basal nervure is very distinctly postfurcal, the radius but slightly

sinuate; the cubital cell is not at all broad apically, and the discoidal is somewhat broad centrally; the ♂ orbits are broadly flavous; metathorax evenly and somewhat finely transstrigose, with an obtuse basal transcarina. Two ♂ ♂ and the typical ♀ are in the British Museum from Port Natal, whence they were sent by Gueinzius in 1849 and 1855. Var.:—A small ♂ of 21 mm. differs so little from the typical form except in size that I hesitate to regard it as distinct, in spite of the more strongly sinuate radius, posteriorly narrower head and much narrower abdomen, and the fact that it was captured by Dr. W. M. Graham with the *A. senescens*, above referred to, from which it certainly differs.

9. Allocamptus infuscatus, Tosq.

Mem. Soc. Ent. Belg. 1896, p. 373.

At once distinguished from *A. africanus* by the neuration, the nigrescent and more slender antennae and, in the only ♀ I have seen, quite deep black abdomen from base of third segment, with the third and fourth alone testaceous beneath; in this last feature it is closely allied to *A. nugalis*, Schulz, *infra*, in which the discoidal cell is subparallel-sided. Tosquinet only knew the ♂ of 22 mm. from Togoland; my ♀ of 27 mm. was found by Dr. Mayer in November, 1910, at Oshogbo in Southern Nigeria.

10. Allocamptus renovatus, nom. nov.

Ophion curvinervis, Cam. Biol. Centr.-Amer. 1886, p. 293, *nec* Kriech. Entom. Nachr. 1878, p. 249.

One of the largest of the genus, and I had at first thought it synonymous with *A. macrurus*, which "very closely resembles the common *Ichneumon luteus*, Linn. It is, however, considerably larger," whereas *A. chiriquensis* is of about the same size. *A. curvinervis*, Cam. (which was placed by Szépligeti, in 1905, in his genus *Ophiomorpha*, with basally straight radius!), is fully 30 mm. in length with an expanse of just over 50 mm. Besides Cameron's type, taken by Champion at Las Mercedes in Guatemala at 3,000 feet, the British Museum possesses a pair from Sapucay in Paraguay; half-a-dozen ♀ ♀ from Xucumanatlan and Amula, in Mexico, found at 6,000 and 7,000 feet by H. H. Smith in July, August, Sept.; and a ♀ from Castro, Parana, in Brazil.

11. Allocamptus brevis, sp. n.

The smallest species of the genus, with unusually short legs, flavous thorax with three ferrugineous mesonotal vittae and the metathorax very smooth, though not glabrous; head entirely luteous and not dark-marked, antennae pale with their apices infuscate; wings broad with the radius very strongly bisinuate and the nervures, though neither costa nor stigma, dark. The unique ♀ was captured by H. W. Bates at Villa Nova on the Amazon, and in 1855 acquired by the British Museum.

12. Allocamptus macrurus, Drury.

Illus. Nat. Hist. i. 1770, p. 97, pl. xliii. fig. 5; *O. rugosus*, Brullé, Hist. Nat. Ins. 1846, p. 138; *O. cecropiae*, Scudder, 1863.

Respecting Drury's *Ichneumon macrurus*, it is almost impossible to say anything from the very poor figure and curt description given at p. 92 of Westwood's second edition, London, 1837; the radius may be sinuate in the right wing of the figure, it certainly is not in the left, and the text is silent on the point: it is from New York. The figure (named in Index) in the first edition, London, 1770, is much better, and a lens shows the radius drawn straight, though the carelessly applied covering pigment lends it a spurious waved appearance. But the insect referred to under this name is the largest of the genus, and now well known throughout North America from the frequency of its attacks upon Bombycid moths, such as *Calosamia promethea*, whence it was sent by Riley to the Rev. T. A. Marshall; Fred. Smith had two or three—one ♀ nearly 40 mm. long, with an expanse of 55 mm.—bred from cocoons of *Bombyx cynthia*; and two others in the British Museum are from Edward Doubleday, bred at Wilmington in Delaware, from *Samia cecropia*, Linn. Among the unpublished material of the Biologia Cent. Amer. are several examples from Mexico, including one ♀ bred at Vera Cruz from *Attacus orizaba*, Westw.

13. Allocamptus sinuatus, sp. n.

An Indian species, large and testaceous, with only marks at base of front wings behind tegulae black, and in ♀ the third segment, with anus, indeterminately nigrescent; head very narrow behind eyes; antennae 25 mm. in length; metathorax distinctly but not very strongly transstriate, with the striae laterally all equally strong; scutellum margined

to near its apex ; wings with a distinct glabrous area in first cubital cell, the base of the radial dark, strongly bisinuate, and the costa of both wings, together usually with the stigma, black. Length 25-30 mm. It is very like *A. undulatus*, but is larger and paler, with antennae and basal segments longer, etc.

14. Allocamptus serpentinus, sp. n.

At once known from all the preceding species by the slight but very distinct infumescence of the wings, of which the narrow and apically-produced radial cell is obviously darker, and the pellucid spot beneath the radial sinuation is alone conspicuously hyaline; the antennae are unusually long and very pale ; the mesothorax nearly entirely, and apical half of the abdomen, are deep black. This may be Tosquinet's *A. corculus* from the Celebes ; I have not seen his description (Mem. Soc. Ent. Belg., 1903, p. 35). The type of my species is in the British Museum and was found at Mount Dulit in Borneo ; a second ♀—sent by Cameron as co-type of his *Henicospilus nigronotatus* !—was captured at the end of May, 1903, at Kuching in Sarawak.

15. Allocamptus nugalis, Schulz.

Brought forward by W. A. Schulz in his Spolia Hymenopterologica, 1905, "Die Hymenopteren der Insel Fernando Po." Very different from the other African species, and most like the last described in its black mesonotum and anus, with but slightly infumate wings, though quite distinct from any species known to me in having the discocubital nervure exactly parallel with the anal, rendering the discoidal cell peculiarly narrow. The ♀ type is in the British Museum.

16. Allocamptus cubitalis, sp. n.

An entirely testaceous species of 19-25 mm., with the face and vertex usually flavidous ; metathorax unitranscarinate with fine and oblique striation ; antennae concolorous and hardly longer than body ; radius not strongly sinuate basally. It is peculiar in the very broad apex of the inner cubital cell, which is broader immediately above the second recurrent than that nervure is long ; discoidal cell narrow throughout and its upper nervure but slightly curved. Edward

Doubleday took four ♀ ♀ of this distinct insect, which the American authors appear to have overlooked, at St. John's Bluff in east Florida, and presented them to the British Museum in 1839 and 1843; others were acquired from Mr. Gosse, who captured them in Jamaica. A single Mexican ♀ was found by H. H. Smith at 4,600 feet about Chilpancingo in Guerrero during June.

17. Allocamptus giganteus, Szépl.

Dicamptus giganteus, Szépl., Gen. Insect., 1905, p. 28, ♀.

Placed as type of a new genus on account of the corneous alar marks by Szépligeti, who only knew the ♀ in 1905; a large insect of 35 mm. There is but a single ♂ in the British Museum, which agrees very well with his ♀, but is much smaller, with a total length of 25 mm.; it was received from the East India Company, and was captured also in Java.

18. Allocamptus crassus, sp. n.

A fine species of fully 25 mm., entirely testaceous, with the posteriorly subbuccate head alone flavescent; the antennae, except basally, are black and exactly as long as the body; the costa of front wings also is (as in so many Australasian species of Ophionini) black, with dull testaceous stigma; the radial nervure is not strongly sinuate basally, and the cubital area contains two corneous spots, of which the outer is (like that of *Ophion vollenhoveni*, Tasch.—Zeits. Ges. Nat. 1875, p. 436) small. I have seen but a single pair of this Australasian species, of whose exact locality I am ignorant. Compare *A. bituberculatus*, Szépl. (Fauna Südwest Australiens, 1908, p. 320), also from Australia.

19. Allocamptus triangularis, sp. n.

A slender ♂, at once known by the triangular alar spot, pale coloration and small size, extending to barely 18 mm. The corneous mark is extended below in a long curve, which bounds the hyaline area semicircularly. It was captured in Sumatra, and acquired by the British Museum in 1854, from the collection of Sir Stamford Raffles. It is certainly distinct from *Dicamptus minor*, Szépl. (Leyden Museum Notes, 1908, p. 232) from Java, though allied to his ♂ *Dicamptus abessyniensis* from southern Ethiopia (Bul. Muséum Nat. Paris, 1907, p. 136).

20. Allocamptus pulchellus, sp. n.

A very remarkable little insect of 10 mm., with the radius very strongly sinuate and so long as to render the space between the apex of its basal abscissa and the external cubital very narrow; the glabrous area with a single very definite deep black and triangular spot, the stigma ferrugineous, upper basal nervure subpostfurcal and nervellus continuously opposite, not at all geniculate; the head is posteriorly nearly as broad as the eyes, the metanotum very finely scabrous, with a weak transcarina at its basal third; the antennae are extremely slender and fully as long as the body, and the smooth scutellum is margined throughout. The typical ♂ was taken by Mr. C. S. Betton in British East Africa, and presented to the British Museum in 1900.

21. Allocamptus emandibulator, sp. n.

This is a ♂ similar to that of *A. giganteus* in size, but very distinct in its more slender legs and body, the very strongly bitranscarinate and longitudinally sculptured metathorax, scutellum margined only at its extreme base, inconspicuous mandibles which become subconcealed beneath the clypeus when closed, but especially known by its minute and circular alar mark and basally straight radius. The type was received from Victoria in 1885.

22. Allocamptus deflexus, sp. n.

The peculiar deflection of the radius after first running subparallel with the stigma is shared only with *A. emandibulator*, from which it materially differs in its single and feeble metathoracic carina, two linear and subobsolete corneous alar marks, smaller size, paler head and the structure of the scutellum, which is laterally carinate throughout its basal two-thirds. The typical ♀ was taken on the north-west coast of Australia, and presented to the British Museum in 1844.

EURYCAMPTUS, gen. nov.

Mandibles vertical; clypeus apically truncate; metathorax and hind coxae normal; nervellus intercepted in or near its centre; ocelli very large; radius basally reflexed; cubital cell with hyaline area immediately below stigma; claws

stoutly toothed, not pectinate; inner hind calcar much the stouter; abdomen subincrassate. This genus appears allied to the Mexican *Agathophiona fulvicornis*, Westw., in its incrassate abdomen, but the labrum is not strongly elongate.

(8) 1. Nervellus not intercepted above centre; radius of lower wings slightly curved basally.

(5) 2. Radial cell narrow, parallel with costa; discoidal nervure geniculate; metanotum longitudinally carinate.

(4) 3. Upper basal nervure antefurcal; discoidal cell deeply flavescent above; metanotum unicarinate. 1. *latipennis*, Kirby.

(3) 4. Basal nervure continuous; discoidal cell subinfumate basally above; metanotum bicarinate. 2. *meridionalis*, sp. n.

(2) 5. Radial cell centrally explanate; discoidal cell subparallel; metanotum not carinate.

(7) 6. Scutellum basally margined; head as broad as eyes; wings strongly flavescent. 3. *flavipennis*, sp. n.

(6) 7. Scutellum margined throughout; head posteriorly constricted; wings hyaline. 4. *calcator*, sp. n.

(1) 8. Nervellus intercepted above centre; radius of lower wing very strongly curved basally. 5. *nova-scotiae*, sp. n.

1. Eurycamptus latipennis, Kirby.

Kirby's description and figure (Ann. Nat. Hist., xviii, 1896, p. 257) are both bad. The length is fully 20 mm., the expanse 54 mm., and the alar breadth at the anal angle is $8\frac{1}{2}$ mm.; the antennae are stout and extend only to apex of the second segment, notauli wanting and discal vittae barely paler than the remainder of mesonotum; metathorax granulose, with a central longitudinal carina, extending from its base to the short and distinctly carinate petiolar area; spiracles linear, oblique and very long. Abdomen peculiarly stout, with the petiole incrassate and post petiole explanate; terebra not reaching anus; legs stout and all their tarsi with eight or nine very thick teeth beneath; wings flavescent, with the colour deeper in blotches on the outer side of upper basal nervure, at base of wings, at the anal angle, and to a less extent in the anal and radial cells of front wings; hind wings with costa apically infumate. In his figure the eyes are too prominent, the front wings distinctly, and the antennae a little, too short. The type only was known and is in the British Museum, "collected by Miss Kingsley on the River Ogové," in the Congo. In the autumn of 1909, Dr. Spurrell found a second ♀ at Bibianaha, on the Gold Coast.

2. Eurycamptus meridionalis, sp. n.

Very like the last, but smaller, of only 23 mm., with the basal nervure continuous and externally clouded above, like the whole radial cell, with fuscous; the wings are not at all flavescent, the radius of lower wing much more curved; metanotum with no petiolar transcarina, but two carinae apically divergent from the base; the tarsal teeth are finer, but too coarse to represent pectination, and the antennae are subfiliform, abruptly conical and not setaceous apically. The typical ♀ was taken in 1849, with my *Allocamptus africanus*, at Port Natal.

3. Eurycamptus flavipennis, sp. n.

A brilliant fulvous species with the head and thorax paler, and the abdomen from base of third segment black; wings strongly and evenly flavescent throughout, with stigma and all the nervures clear red; antennae apically attenuate and nearly as long as body; length 30 mm. The typical ♀ was acquired by the British Museum in 1852, captured by Bates in the neighbourhood of the Amazon in Brazil.

4. Eurycamptus calcator, sp. n.

Very similar to the last species, but smaller, with hyaline wings and the inner hind calcar less stout; head much narrower posteriorly behind the eyes, and scutellum entirely margined; length 22 mm. Like it, the abdomen is black from base of third segment, and the tarsal claws distinctly toothed, not pectinate. Bates also took this single ♀, now in the British Museum, at Ega on the Amazon about 1856.

5. Eurycamptus nova-scotiae, sp. n.

A small ♀ of 17 mm., with the discoidal and radial cells both broad, differing from all the above species in having the radius hardly sinuate and the hyaline area obsolete; the whole insect is shining, dark red, with metanotum smooth and obsoletely carinate; the head is not posteriorly narrower than the eyes, and the antennae extend to about the apex of the second segment. The type was taken by Redman in Nova Scotia many years ago, and is in the British Museum, with a second ♀ found at New York in 1844 by Doubleday.

AUSTRALOPHION, gen. nov.

Mandibles vertical; clypeus apically truncate; hind coxae and metathorax not short; metapleurae tuberculiform, apophyses acute and emitting carinae to apex; scutellum often subpyramidal and not margined; nervellus centrally intercepted; ocelli small; discoidal nervure geniculate and emitting elongate ramellus; radius of upper wing both basally and apically straight, of lower wing basally curved; cubital cell with no corneous spots and but a small glabrous area; tarsal claws very closely pectinate; body strongly nitidulous. Apparently closely allied to *Stenophthalmus*, Szépl., but differing in its short cheeks, exareolate metathorax, not unusually short second segment, but especially remarkable in the strongly convex metapleurae.

1. Australophion peregrinus, Smith.

I know but a single species, *Ophion peregrinus*, Smith (Trans. Ent. Soc. 1876, p. 478), the type and single co-type of which are both ♂ ♂ [*sic* ♀, Smith] in the British Museum, and quite certainly synonymous with the same author's ♀ *O. ferrugineus*, lib. cit., 1878, p. 2, of which the type and another ♀ are in the Museum. The males were captured by C. M. Wakefield in Canterbury, southern New Zealand; one of the females by Prof. Hutton in the adjacent Otago, and the last was found in the same district in Waikonati in 1845.

NEOPHION, gen. nov.

The members of this genus are at once recognised from more typical *Ophion* in their stouter and more nitidulous bodies, shorter antennae, centrally intercepted nervellus and posteriorly broader head with small ocelli, in all of which points and others given under the latter, they agree with *Australophion*, though materially differing therefrom in the simple metapleurae, lack of apophyses and apophual carinae, and simply convex scutellum.

(2) 1. Eyes internally nearly straight; ramellus obsolete; antennae, nervures and postpetiole stouter. 1. *flavorufus*, Brullé.

(1) 2. Eyes internally emarginate; ramellus distinct; antennae, nervures and postpetiole slenderer. 2. *crassus*, sp. n.

1. Neophion flavorufus, Brullé.

Hist. Nat. Ins. IV, p. 144.

I hesitate to consider these two species distinct, though the above should be good specific characters if proved constant, more especially the emargination of the eyes, which I know as variable in no Ichneumonid. Both are entirely bright red, with the ocelli, of which the anterior is low on the frons, and mandibular apices alone nigrescent. The first species does not appear to have been mentioned since brought forward from Brazil and "S. America" in 1846; but there is a male from Texas so named (? by Fred. Smith) in the British Museum, with three others from Texas, Mount Wachurut in Massachusetts, and Trenton Fall in New York.

2. Neophion crassus, sp. n.

Differs slightly in many small points; the apically broader cubital cell, subpostfurcal upper basal nervure, basally constricted third segment, more slender antennae, paler nervures and usually smaller head. The typical ♂ and two other examples in the British Museum were taken long ago by Redman in Nova Scotia.

HENICOSPILUS, Stephens.

Illust. Brit. Ent. Mandib. VII, p. 126; cf. Marsh. Ent. Ann. 1874, p. 129.

All the insects of this genus are slender, of moderate size, and testaceous, with black markings of varying extent; detailed descriptions would be vain repetitions, and it has been considered necessary to give points of distinction only.

South and Central American Region.

The species of this Region are numerous and remarkable for the frequent production of the basal corneous alar mark often below the external. A few of Brullé's indefinitely described species must be left for future research.

(12) 1. Cubital cell with two determinate corneous marks: small, 20 mm. or less.

(7) 2. Second recurrent nervure as long as the distance between it and the outer cubital nervure; external alar mark strong.

(6) 3. Nervellus intercepted at its lower fourth; metathorax scabrous; wings normal.

(5) 4. Head very narrow behind ; cubital cell apically acute.
1. *purgatus*, Say.

(4) 5. Head broader behind ; cubital cell apically obtuse.
2. *concolor*, Cress.

(3) 6. Nervellus intercepted at its lower third ; metathorax finely alutaceous ; wings ample. 3. *cubensis*, Norton.

(2) 7. Second recurrent nervure distinctly shorter than distance between it and the outer cubital nervure ; external mark weak.

(9) 8. Pale flavidous throughout ; upper basal nervure postfurcal ; outer radius strongly curved. 4. *guatemalensis*, Cam.

(8) 9. Testaceous, anus often infuscate ; basal nervure antefurcal ; radius slightly curved.

(11) 10. Second and third segments not obviously constricted ; head posteriorly narrower, with vertex black.
5. *brevinervis*, sp. n.

(10) 11. Second and third segments obviously constricted basally ; head posteriorly broader and entirely flavous.
6. *volubilis*, Holmgr.

(1) 12. Cubital cell with two indeterminate, one or three corneous marks ; 20 mm. or more.

(22) 13. Cubital cell with basal mark linearly produced at its apex.

(21) 14. Three corneous alar marks, of which the production of first below second forms third.

(16) 15. Antennae, stigma and apical half of abdomen black.
7. *nigricornis*, Brullé.

(15) 16. Antennae, stigma and usually whole abdomen fulvidous.

(18) 17. Central alar mark small and linear ; discoidal nervure subgeniculate. 8. *trimaculatus*, Tasch.

(17) 18. Central alar mark distinct, subcircular ; discoidal nervure not geniculate.

(20) 19. Face longitudinally elevated below scrobes ; antennae red. 9. *flavoscutellatus*, Cam.

(19) 20. Face simply tuberculate below scrobes ; antennae black.
10. *fusicornis*, Cam.

(14) 21. Two corneous alar marks, linearly connected ; metapleurae buccate. 11. *mexicanus*, Cress.

(13) 22. Cubital cell with but a single determinate corneous mark.

(24) 23. Metapleurae convex ; discoidal nervure strongly curved beneath corneous mark. 12. *nigricauda*, Tasch.

(23) 24. Metapleurae simple ; discoidal nervure straight to beyond corneous mark.

(26) 25. Apophyses tuberculiform ; basal nervure continuous ; abdomen broad. 13. *exoticus*, sp. n.

(25) 26. Apophyses wanting ; upper basal postfurcal ; abdomen linear. 14. *major*, sp. n.

1. Henicospilus purgatus, Say.

Boston Journ. Nat. Hist. 1836, p. 238; *Ophion lateralis*, Riley, 2nd Ann. Rep. Ins. Missouri, 1870, p. 53.

It has been proved that this species comes down to Florida; it is certainly synonymous with the *Ophion sphacelatus* of Erichson, in Richard Schomburgk's "Fauna und Flora von Britisch-Guiana" (Leipzig, 1848), of 18 mm., though his zwei Hornflecken of the Innenzelle are not described; and I am almost persuaded that it is also *O. flavus* of Fab. Syst. Ent., 1775, p. 341—at all events examples in the British Museum are so named by Cameron and Francis Walker. Cresson, in Proc. Ent. Soc. Philad., 1865, p. 56, distinguished it from *H. concolor* by its infuscate anus (a most unreliable feature in this genus) and from *H. cubensis* by the size of the exterior cubital mark. Its author noted in 1863 (loc. cit., p. 358) that the latter had the eyes "more contracted below." Several specimens in the British Museum come from the south of Juan Fernandez, where two were found during the "Challenger" Expedition, from British Guiana through J. Rodway, from Barbados "in grass" through Maxwell-Lefroy, sent by the West Indian Imp. Dept. Agric. in 1902; and the ♂ recorded by Cameron under *Ophion flavus* in the Biol. Cent. Amer. (1886, p. 292) from Nicaragua. Others are from St. Vincent and Balthazar (Grenada) in the Windward Islands.

2. Henicospilus concolor, Cress.

Proc. Ent. Soc. Philad. 1869, p. 56; cf. Ashm. Trans. Ent. Soc. 1900, p. 271 (*nec* Cam.).

There is in the British Museum a fine series of this species, taken by the Rev. T. A. Marshall, when residing in Antigua, and a couple of ♂ ♂, sent in 1896 from Dominica by A. G. Ramage. I doubt its right to more than varietal distinction from *H. purgatus*; it was misunderstood by Cameron.

3. Henicospilus cubensis, Norton.

Proc. Ent. Soc. Philad. 1863, p. 358; cf. Cress., l.c., 1865, p. 57.

Quite a distinct species with ample and subflavescent wings, and a length of 20 mm.; the position of the nervellus at once distinguishes it. I have seen but a single ♀, taken in Dominica by H. A. Nicholls, and acquired by the British Museum in 1901.

4. Henicospilus guatemalensis, Cam.

Biol. Cent. Amer. 1886, p. 293, pl. xii, fig. 22.

I retain this as distinct for the present on account of the peculiar shape of its cubital mark; this is apically produced into a very slender and doubtfully chitinous tail, which is itself not distinctly explanate to form a second cubital mark; in all other details, but its paler and uniform coloration, it agrees with *H. brevinervis*. Cameron's Guatemalan type is in the British Museum, and agrees well with his figure in Biologia Cent. Americana.

5. Henicospilus brevinervis, sp. n.

Exactly like *H. purgatus* in every way, but in the very much shorter second recurrent nervure, which is distinctly shorter than the nervure connecting it with the external cubital nervure. This is a structural character worthy, I think, of specific rank. The typical ♀ in the British Museum is from Francis Walker's collection and was captured in the isle of St. Vincent, on 30th June, 1835; others there are from Barbados, San Domingo, Mexico, Pernambuco in Brazil, and a ♂ taken at "6 p.m., 16th August, 1899, on the beach opposite Rat Island, Santa Lucia."

6. Henicospilus volubilis, Holmgr.

Eugenies Resa., Ins., 1868, p. 410.

There is very little in Holmgren's description to distinguish his species from *H. purgatus*, Say, except perhaps its small size of 14 mm., and southern range—Buenos Ayres is not in Uruguay as Szépligeti states. There are, however, in the British Museum two ♂ ♂ taken by O. W. Thomas in 1904 in Argentina, which appear distinct in their constriction of the second and third segments, clearer fulvous coloration and immaculate ocellar region, though they are principally peculiar in having the inner hind calcar basally incrassate and tomentose. Possibly this is enumerated in Cameron's paper of 1910, upon the Argentine species in Jensen Haarup's collection, which I have not yet seen.

7. Henicospilus nigricornis, Brullé.

Hist. Nat. Ins. 1846, p. 141; *Ophion bicolor*, Tasch. Zeits. Ges. Nat. 1875, p. 434; *O. monticola*, Cam. Biol. Cent. Amer. 1886, p. 292.

Certainly thrice described; first by Brullé under the present name in 1846, secondly by Taschenberg under that of

O. bicolor in 1875, and lastly by Cameron in the Biologia of 1886 as *Ophion monticola*. Cameron's type from Guatemala is in the Museum with two other ♀♀ from Brazil (H. W. Bates), and about Orizaba in Mexico (M. Sallé). A ♂ captured in British Guiana about 1908 (J. Rodway): and H. H. Smith took several at Teapa near Tabasco during February, March and April, with a ♂ at Atoyac in Vera Cruz in May. The black antennae, infuscate stigma and anus, and basally almost sinuate radius render this species very distinct though the cubital marks are variable, the apical sometimes wanting, and the basal not always produced.

8. Henicospilus trimaculatus, Tasch.

Zeits. Ges. Nat. 1875, p. 433 (*nec* Oliv.); *O. thoracicus*, Cress. Proc. Ent. Soc. Philad. 1865, p. 55.

I synonymise with this species *Ophion thoracicus*, Cresson, which Ashmead (Trans. Ent. Soc. 1900, p. 271) ascribes to this genus. It is distinct in its three alar corneous marks, of which the second is minute and linear, and the third a more or less free production from the large first. Taschenberg records it only from Nov. Friburg in Brazil, and no one has since referred to it. But in the British Museum are six examples, taken at San Domingo by Tweedie about 1855, at both Gordon Town and Cinchona in Jamaica in May-July, 1889, by W. Fawcett, and in September, 1897, at Chimbo in Ecuador. The specimen from Guatemala, referred to under the name *Ophion concolor* by Cameron in Biologia Cent. Amer. 1886, p. 291, pl. xii, fig. 24, is a form of the present species, but much larger and stouter than typical *H. trimaculatus*. Subsequently Smith found a couple at Amula in Guerrero at 4,600 feet and a dozen of both sexes at Teapa in Tabasco, during February, March, August and September.

9. Henicospilus flavoscutellatus, Brullé.

Hist. Nat. Ins. 1846, p. 140 (?); Cam. Biol. Cent. Amer., 1886, p. 291, pl. xii, fig. 25.

Cameron's specimen from Guatemala, in the British Museum, so closely resembles the last species that I can separate them with certainty only by the shape of the discoidal cell and central alar mark; it is very probably correctly referred to Brullé's species of this name, which has, however, but a single alar mark. Both sexes in the British Museum are from British Guiana (Rodway), San Domingo (Tweedie), Atoyac in Vera Cruz in May (Smith), and Dominica (Nicholls).

10. Henicospilus fuscicornis, Cam.

Biol. Cent. Amer. 1886, p. 291.

This unsatisfactory Guatemalan species, briefly compared with the last by Cameron, who lost the type, is said by him (loc. cit.) to differ in its darker thorax and more shortly elevated face ; the antennae are nigrescent and the mesonotum is paler. I have not seen it.

11. Henicospilus mexicanus, Cress.

Proc. Acad. Philad. 1873, p. 374.

Cresson records an inch-long (type) ♀ from Cordova in Mexico ; Champion took one (lost by Cameron) in Guatemala ; and there is another, taken by Tweedie at San Domingo about 1855, in the British Museum. The alar marking is peculiar, and the laterally protuberant metapleurae ally this species with those of *Australophion*.

12. Henicospilus nigricauda, Tasch.

Zeits. Ges. Nat. 1875, p. 437.

A fine insect of 20 mm., or as in the present case 22 mm. ; known by its strong and single alar mark, flavous occiput and scutellum, and dead-black anus ; the metapleurae are strongly convex, as in *H. mexicanus*, with the discoidal cell broader and more strongly angled above than in the following species. Recorded from Venezuela and Brazil ; the single ♂ in the British Museum was taken by W. Foster about 1904 at Sapucay in Paraguay.

13. Henicospilus exoticus, sp. n.

At once known by its large size of 25 mm., somewhat prominent apophyses, broadish abdomen which becomes flavidous centrally and nigrescent apically ; the discoidal cell is very narrow and subparallel-sided, and the glabrous cubital area is small, with an indefinite basal flavous mark. The typical ♂ in the British Museum, acquired in 1850, was captured by H. W. Bates at Para in Brazil.

14. Henicospilus major, sp. n.

More slender but no smaller than the last species, with the discoidal cell hardly broader, the apophyses entirely wanting, the glabrous cubital area larger with a somewhat more

definite mark. Superficially it much resembles *Allocamptus curvinervis*. This is a widespread species, since the three, representing both sexes, in the British Museum are from British Guiana, 1908 (Rodway), Ega, 1856 (Bates), and Sapucay in Paraguay, 1904 (Foster).

North American Region.

Compared with the last, the members of this region appear peculiarly scanty, and one is inclined to suspect that insufficient attention has hitherto been directed towards them.

(2) 1. Inner corneous mark with no corneous production below the outer mark. 1. *purgatus*, Say.

(1) 2. Inner corneous mark apically produced below the outer.

(4) 3. Production of inner mark embracing second; discoidal nervure subsinuate, not geniculate; ramellus wanting. 2. *appendiculatus*, Felt.

(3) 4. Production of inner mark short; discoidal nervure subgeniculate, not sinuate; ramellus distinct. 3. *arcuatus*, Felt.

All the specimens of this genus I have seen from North America appertain to Say's species, of which Dr. Riley sent a pair, found at St. Louis in July, to the Rev. T. A. Marshall; but these bear none of the "fuscus" infumescence ascribed to this species by E. P. Felt of Albany, in describing his two new kinds from New Jersey and New York, Ithaca and Connecticut respectively (Psyche, 1902, p. 307). *H. purgatus* differs but little from the palaearctic *H. ramidulus* in its darker and shorter antennae and the angle of the nervellus, distinctions so slight in their degree as to be somewhat doubtfully specific; it is represented in the British Museum from St. John's Bluff in east Florida, Lake Huron, Nova Scotia and Colorado.

African Region.

Of the sixteen species of *Ophion*, described in considerable detail but with little distinction *inter se* by Tosquinet with no table in 1896, the last thirteen belong to the present genus. He makes no reference to the earlier papers of Taschenberg and Kriechbaumer on Hym. Ichn. ad oras Africae lecta (Berl. Ent. Zeit., 1894, p. 297), and the latter somewhat severely criticises his work in his paper Ueber die Gattungen der von Tosquinet in seinen Ichneumonides d'Afrique beschriebenen Ophionarten (Zeits. Hym.-Dip., 1901, p. 155), in which he proposes the erection of subgenera upon the number of cubital marks, very rightly rejected by Schmiedeknecht. No one

quite knows what Brullé's *Ophion rufus* (Hist. Nat. Ins. 1846, p. 149=*Paniscus perforator*, Smith, Ann. Nat. Hist. xvii, p. 449) is, but it seems very different from the species described under this name by Tosquinet, which is certainly synonymous with Saussure's *Ophion anarkarus*, figured but not described in Grandidier's Histoire de Madagascar, which contains other named wing-figures, hardly perhaps meriting priority. I cannot tell which of our species was represented by Holmgren's *Ophion pacificus*, Eugenies Resa, Ins., 1868, p. 411, from the Cape; but it seems to differ little from Kriechbaumer's *O. natalensis*: the type should be at Stockholm. A second species under the name *H. natalensis* was brought forward as new, with his *H. damarensis*, by Cameron in 1906 (Ann. S. African Museum, v, p. 981), for which I propose the name *H. renovatus*. Many species of this genus were indicated the same year by Szépligeti (Ann. Hist. Nat. Mus. Nat. Hung., iv, pp. 134-147) and in the report upon the Kilimandjaro Expedition in 1908 which I have not had time to consult.

(16) 1. Cubital cell with two corneous marks.

(9) 2. Radius basally almost sinuate; basal nervure always antefurcal.

(4) 3. Wings infuscate-flavescent; length 21 mm. 1. *bipartitus*, Tosq.

(3) 4. Wings not infuscate; length at least 25 mm.

(8) 5. Inner mark subproduced, outer the smaller and not curved; scutellum punctate.

(7) 6. Stigma clear fulvous; head posteriorly constricted. 2. *anarkarus*, Saus.

(6) 7. Stigma dark, apically black; head very little constricted. 3. *athi*, sp. n.

(5) 8. Inner mark not produced, outer the larger and curved; scutellum smooth. 4. *biimpressus*, Brullé.

(2) 9. Radius basally straight; basal nervure not always antefurcal.

(13) 10. Basal nervure antefurcal; scutellum margined throughout; stigma dark red.

(12) 11. Stigma ferrugineous; glabrous alar area corneous below. 5. *rubens*, Tosq

(11) 12. Stigma piceous; glabrous alar area not corneous below. 6. *sericatus*, Tosq.

(10) 13. Basal nervure not antefurcal; scutellum not margined to apex; stigma fulvous.

(15) 14. Wings infumate; basal nervure subpostfurcal; outer alar mark lunate and dark. 7. *pallidus*, Tasch.

(14) 15. Wings hyaline; basal nervure continuous; outer mark obsolete, pale. 8. *vecors*, Tosq.

(1) 16. Cubital cell with one or three corneous marks.

(32) 17. One corneous alar mark; radial nervure not basally red.

(23) 18. Basal nervure antefurcal; stigma flavescent.
(20) 19. Radius continuous to base of external cubital nervure; head posteriorly broad; radius basally straight. 9. *grandis*, sp. n.
(19) 20. Radius angled at junction of basal and apical abscissae; head posteriorly narrow; radius basally subsinuate.
(22) 21. Head visible behind eyes; metathorax not centrally carinate. 10. *dubius*, Tosq.
21) 22. Head obsolete behind eyes; metathorax longitudinally carinate. 11. *bantu*, Schulz.
(18) 23. Basal nervure continuous; stigma fulvous or testaceous.
(27) 24. Scutellum impunctate, flavous; nervures and stigma fulvous.
(26) 25. Antennae shorter than body; length 12 mm. 12. *albiger*, Kriech.
(25) 26. Antennae longer than body; length 17 mm. 13. *dolosus*, Tosq.
(24) 27. Scutellum finely punctate, darker; nervures piceous, stigma testaceous.
(31) 28. Corneous cubital mark simple; metanotum transcarinate.
(30) 29. Anus broadly black. 14. *rufus*, Kriech.
(29) 30. Abdomen fulvidous throughout. 15. *longescutellatus*, Kriech.
(28) 31. Corneous mark apically produced; metanotum not transcarinate. 16. *leionotus*, Tosq.
(17) 32. Three corneous alar marks; radial nervure basally red.
(34) 33. Base of radial nervure neither parallel with stigma nor angled. 17. *tosquineti*, nom. nov.
(33) 34. Base of radial nervure parallel with stigma and sharply angled. 18. *incongruus*, sp. n.

1. Henicospilus bipartitus, Tosq.

Mem. Soc. Ent. Belg. 1896, p. 377.

Dr. Smith took a specimen in South Africa many years ago; there are two specimens in the British Museum from Sierra Leone, presented in 1842 and 1904; Tosquinet's ♀ is from the Cape of Good Hope. It is not a very distinct species; remarkable only for its sinuate and incrassate basal radius, two corneous alar marks, and the subpunctate, apically truncate scutellum.

2. Henicospilus anarkarus, Sauss.

Grand. Hist. Madag., fig.; *Ophion rufus*, Tosq., Mem. Soc. Ent. Belg. 1896, p. 378 (? *nec* Brullé).

Larger and more slender than the following, and apparently more widespread. Examples in the British Museum are from Natal, the Kentani District, Pirie Bush, Madagascar and

Mauritius. It is certainly synonymous with Tosquinet's *O. rufus* from Portuguese Gaboon, just below the Congo coast. And it runs very close to the palaearctic *H. merdarius*, which Wollaston found in Madeira, but the head is very distinctly more constricted and narrower behind the eyes.

3. Henicospilus athi, sp. n.

A British East African species, of 19-22 mm., found by Mr. C. S. Betton in March, April and May at Athi-ya-Mawe, on the Athi River, and between Voi and Ndi; both sexes have somewhat the facies of *H. anarkarus*, but it is much darker, subferrugineous, with the head distinctly broader behind the eyes, the stigma conspicuously dark and merging into black towards its apex, the external alar mark is almost entirely wanting with a subcorneous streak below it, the scutellum margined throughout and, like the whole of the excarinate metathorax, finely punctate.

4. Henicospilus biimpressus, Brullé.

Hist. Nat. Ins. 1846, p. 148.

I consider this to be the commonest southern species, and have seen a very long series in the British Museum, taken by Col. Sloggett at Deelfontein in March, 1902, at Bloemfontein in 1904, and at Queenstown in Cape Colony in 1907, etc. Tosquinet's ♀ is from Togoland, and Brullé's from South Africa; both remark upon the apical scutellar striae, which I have failed to discover in any member of the present genus.

5. Henicospilus rubens, Tosq.

Mem. Soc. Ent. Belg. 1896, p. 382.

Probably uncommon; the only specimen in the British Museum I could place here is a ♀ with the inner alar mark obtusely produced above and indefinitely at its apex, which extends to beneath the lunate external mark; it agrees well enough with the Togoland insect, but was captured by Mr. Guy Marshall at Salisbury in Mashonaland, during October, 1901. Recently twelve examples of both sexes have been presented by the Entomological Research Committee (Tropical Africa) collected by S. A. Neave at an elevation of 6,000 feet on Mount Kenia (British East Africa) and other localities in the vicinity.

6. Henicospilus sericatus, Tosq.

Mem. Soc. Ent. Belg. 1896, p. 384.

A ♀, agreeing well with Tosquinet's description, especially in the very long, narrow, convex, and entirely margined scutellum, occurred in the Isle of Rodriguez to the Transit of Venus expedition; one taken on the Upper Nile by Drury in 1903, and one by Zaphiro in Abyssinia in 1905, are not to be distinguished from it.

7. Henicospilus pallidus, Tasch.

Zeits. Ges. Nat. 1875, p. 436; *Ophion expeditus*, Tosq., Mem. Soc. Ent. Belg. 1896, p. 385.

Single specimens of this Togoland species were taken at Sierra Leone by Foxcroft in 1858, and at Freetown by Austen in August, 1899. It is a very pale and somewhat large insect, with elongate antennae and the recurrent nervure much shorter than the space between its upper extremity and the external cubital nervure. I have little hesitation in synonymising *O. expeditus*, Tosq., with it, though I should have liked to examine Taschenberg's type at Halle, more especially since it was captured at Khartoum.

8. Henicospilus vecors, Tosq.

Mem. Soc. Ent. Belg. 1896, p. 387; (?) *Dispilus natalensis*, Kriech., Berl. Ent. Zeits. 1894, p. 309.

The most typical ♂ ♂ I have seen are from Sierra Leone and the "interior of Africa," but slightly larger and more rufescent examples in the British Museum, found by Cregoe at Howick in Natal, and by Marshall at Salisbury in Mashonaland, are not distinct. The former also took *Henicospilus dolosus* at Howick; it has the basal nervure continuous, the stigma and whole body fulvidous, the elongate and deplanate scutellum is smooth and apically truncate. This species (*H. vecors*) will probably be found synonymous with *H. natalensis*, Kriech.

9. Henicospilus grandis, sp. n.

A fine species of 30 mm., similar to *H. trimaculatus*, though with but a single, well-defined and subcircular alar mark, the radius running without angle to the external cubital nervure and not basally sinuate; the metathorax is strongly and

obliquely transtriate as in *Allocamptus*, the head entirely flavous, and posteriorly nearly as broad as the eyes; the stigma and antennae are pale fulvous, with the latter neither slender nor shorter than the body. The typical ♂ was captured during March, 1900, by Mr. Guy Marshall at Salisbury in Mashonaland.

10. Henicospilus dubius, Tosq.

Mem. Soc. Ent. Belg. 1896, p. 390.

This Togoland species appears to extend to Madeira, the fauna of which is mainly palaearctic, since a ♀ sent thence to the British Museum by Wollaston agrees perfectly with Tosquinet's description; the coloration renders it similar at first sight to *Ophion obscurus*, Fab., and it differs from Madeiran *H. repentinus*, Holmgr., of which Wollaston also took several specimens, in its more basally sinuate radius, longer antennae and more profuse flavidous markings.

11. Henicospilus bantu, Schulz.

Very similar to *H. repentinus*, but with the antennae longer and much more slender, and the head considerably constricted posteriorly; I have only seen the type from Fernando Po, which is in the British Museum, and was described in Spolia Hymenopterologica (a complete work, containing various separate papers by Schulz) of 1906.

12. Henicospilus albiger, Kriech.

Berl. Ent. Zeits. 1894, p. 308.

13. Henicospilus dolosus, Tosq.

Mem. Soc. Ent. Belg. 1896, p. 389.

Widespread, but apparently rare. Besides the ♀ mentioned under *H. vecors*, J. W. Scott-Macfie took a ♂ at Kogin Sirikin in the Pawa district of N. Nigeria during October, 1911.

14. Henicospilus rufus, Kriech.

Berl. Ent. Zeits. 1894, p. 307 (*nec* Brullé et Tosq.).

A pair of Kriechbaumer's species of this name, distinguishable from the European *H. ramidulus* only by their single alar mark and slightly higher geniculation of the nervellus, in the British Museum, is from Bloemfontein and the vicinity of Johannesburg. I have also seen it from "Orange River Colony." Brullé, Kriechbaumer and Tosquinet have described three distinct species under this name.

15. Henicospilus longescutellatus, Kriech.

Berl. Ent. Zeits. 1894, p. 308.

This is almost certain to be the ♀ of Tosquinet's ♂ *Ophion anceps*, Mem. Soc. Ent. Belg. 1896, p. 392.

16. Henicospilus leionotus, Tosq.

Mem. Soc. Ent. Belg. 1896, p. 393.

Probably somewhat common in the south, and occurring with *H. biimpressus*. Cregoe took several at Howick in Natal, Wells found it at Queenstown, and there are other examples in the British Museum from Rodriguez and Bourbon. Tosquinet had it from Togoland, and gives a very clear description of its pale testaceous stigma, narrow and basally curved radial cell, single triangular and elongately produced alar mark (similar to that on the wing of *Ophion antimena* figured by Saussure in Grandidier's Hist. de Madag.) and continuous basal nervure, but especially of the entirely intranscarinate metanotum.

17. Henicospilus tosquineti, nom. nov.

This is the *H. trimaculatus*, Tosq., a name preoccupied in the genus by Olivier and Taschenberg. This species alone, with *H. incongruus*, bears three alar marks. It would appear extremely scarce, and the Museum contains but a single example, taken many years ago by Dr. Smith in "S. Africa"; there is a second, though very untypical, from the Congo.

18. Henicospilus incongruus, sp. n.

A remarkable insect, differing from all other species of this genus in the length that the radial nervure runs subparallel with the stigma before being reflexed in a straight line to base of external cubital nervure, and in the subacute curve of the outer radial nervure. In size, outline, breadth of the wing and the metathoracic sculpture it almost exactly resembles *H. trimaculatus*, but the scutellum is margined to its apex, the inner alar mark small and triangular, with a corneous and linear curve below it, and the external mark is extremely obsolete; the second recurrent is distinctly shorter than the space between its upper extremity and base of the external cubital nervure. To which of our artificial genera this species should be referred is doubtful. The typical ♂ was captured in Madagascar, and was acquired by the British Museum in 1881.

Asiatic Region.

I have given a very full account of the species of this genus at present known to occur within the limits of British India in my "Fauna of India," about to be published by the Indian Government. There appear to be only two Oriental species not yet included in that area; these are both closely allied to *H. flavicaput*, and may be included in my Table of Species thus :—

(2) 1. Cubital cell with four corneous marks. 1. *ceylonicus*, Cam.
(1) 2. Cubital cell with at most two corneous marks.
(22) 3. Cubital cell with two corneous marks.
(13) 4. Base of radius distinctly deflexed and subincrassate.
(12) 5. Mesopleurae and scutellum striate; head flavous throughout.
(7) 6. Stigma, costa and often sternum black. 2. *univittatus*, Brullé.
(6) 7. Stigma and sternum bright fulvous.
(11) 8. Discoidal nervure geniculate below the distinct corneous mark; antennae elongate and slender.
(10) 9. Length at least 22 mm.; discoidal not centrally incrassate beyond geniculation. 3. *flavicaput*, Morl.
(9) 10. Length at most 15 mm.: discoidal nervure distinctly incrassate beyond geniculation. 4. *flavocephalus*, Kirby.
(8) 11. Discoidal nervure nearly straight below obsolete alar mark; antennae shorter and stouter. 5. *pungens*, Smith.
(5) 12. Mesopleurae and scutellum finely punctate: orbits alone flavous. 6. *rufus*, Tosq.
(4) 13. Base of radius not deflexed, though usually incrassate.
(15) 14. Alar corneous marks connected by a corneous line. 7. *unilineatus*, Cam.
(14) 15. Alar corneous marks with no corneous connecting line.
(17) 16. Mesonotum and most of abdomen nigrescent or black. 8. *hariolus*, Cam.
(16) 17. Mesonotum and most or whole of abdomen testaceous.
(21) 18. Third discoidal cell short and broad: stigma testaceous.
(20) 19. Basal nervure not continuous through the median. 9. *reticulatus*, Cam.
(19) 20. Basal nervure continuous through the median. 10. *merdarius*, Grav.
(18) 21. Third discoidal cell normal; stigma black. 11. *melanocarpus*, Cam.
(3) 22. Cubital cell with at most one corneous mark.
(28) 23. Mesonotum distinctly black or at least nigrescent.
(27) 24. Antennae for the most part black.
(26) 25. Second recurrent of same length as submarginal nervure. 12. *atricornis*, Morl.
(25) 26. Second recurrent two-thirds length of submarginal nervure. 13. *spilonotus*, Cam.
(24) 27. Antennae unicolorous flavous throughout. 14. *striatus*, Cam.

(23) 28. Mesonotum entirely pale.
(30) 29. Corneous alar mark linear; radius basally bisinuate. 15. *lineatus*, Cam.
(29) 30. Corneous alar mark pyriform; radius basally straight.
(34) 31. Body normal; metathorax strongly transcarinate.
(33) 32. Submarginal nervure curved. 16. *dasychirae*, Cam.
(32) 33. Submarginal nervure straight. 17. *horsfieldi*, Cam.
(31) 34. Body short and stout; metathorax not transcarinate. 18. *crassus*, Morl.

As especially relating to those in the British Museum, I may note the following species:—

2. Henicospilus univittatus, Brullé.

Hist. Nat. Ins. 1846, p. 146.

We must synonymise *Henicospilus nigronotatus*, Cam. (Journ. Str. Br. R. Asiatic Soc. 1903, p. 133), from Kuching with Brullé's species of this name. It is a large insect of 25-30 mm., with nigrescent costa and stigma, and infumate wings. Widespread, and represented in the British Museum from Assam, Ceylon, Ding-Ding Islands, Kuching (type), New Guinea and several examples found by Mr. H. N. Ridley about Singapore. Cameron brought forward an allied species, *H. melanarius*, in Tijdschr. voor Entom. 1907, p. 27, from Dutch New Guinea.

3. Henicospilus flavicaput, Morl., nom. nov.

Enicospilus xanthocephalus, Cam. Ann. Nat. Hist., xix (1907), p. 178, ♀ (*nec* Cam., 1905).

4. Henicospilus flavocephalus, Kirby.

This species may be synonymous with *H. xanthocephalus*, Cam. (Ann. Nat. Hist. 1907, p. 178) from Tenasserim; it agrees with *O. pungens* and *H. flavicaput* in its nigrescent costa and basal nervure, and bright stigma; but it is much smaller, with both alar marks distinct, though that at the apex is small, the flagellum is both stout and elongate, strongly attenuate apically; and it possesses the unique feature of having the discoidal nervure distinctly incrassate immediately beyond its subacute central geniculation. W. F. Kirby described (Monograph of Christmas Island Fauna, 1900, p. 82, overlooked by Szépligeti) a single pair of this species from the Indian Ocean, and in 1908 Ridley added another ♀ from Singapore to the original types in the British Museum.

5. Henicospilus pungens, Smith.

Trans. Ent. Soc. 1874, p. 396.

It is not impossible that my *H. flavicaput*, sufficiently diagnosed in the above table, is a southern form of this species, the type of which is in the British Museum, from which it differs in its distinctly geniculate discoidal nervure, longer and stouter antennae, and the large, entirely immaculate, glabrous alar area. Smith's ♂ type, and another of the same sex in the British Museum, are from Hiogo in Japan ; a third ♂ was taken by W. F. Badgley in Assam in 1906, and a ♀ was found by Ridley at Singapore in 1902.

9. Henicospilus reticulatus, Cam.

Fauna of Maldive and Laccadive Is., 1902, p. 51.

Distinct in having the costa, stigma, radius and often the anus nigrescent. It occurs in Sarawak, the Ding-Ding Islands and Penang (Ridley), Selangor on 22nd February, 1908 (Geoffrey Meade-Waldo), Ceram and the Celebes.

10. Henicospilus merdarius, Grav.

Ichn. Europ., III, 698.

This European species seems rare in the East, and I have seen but single examples, besides India, from such different localities as Penang and Province Wellesley in the Malay Peninsula, Asiatic Siberia and Nasik in the Bombay Presidency.

12. Henicospilus atricornis, sp. n.

This species has the facies of *H. repentinus*, Holmgr., but the petiolar area is transaciculate, the head extremely narrow posteriorly, the radius is much more curved, and the apex of the first cubital cell is also appreciably more sinuate ; the stigma, costa, anus, antennae and ocellar region are black ; it also bears some close affinity to *H. melanocarpus*, but is at once recognised therefrom in the possession of but a single alar mark, etc.

14. Henicospilus striatus, Cam.

Manchester Soc. Mem. 1899, p. 103.

Very like *H. reticulatus*, Cam., superficially, but smaller, with the head less large, the thorax usually partly black, and the alar glabrous area with but a single mark, often apically produced ; but similar in having the stigma, costa, and anus often dark. Doubtless widespread ; I have seen it, besides India, from China, Singapore and Sarawak.

15. Henicospilus lineatus, Cam.

Trans. Ent. Soc. 1883, p. 192.

I have seen but a single ♀ of this distinct species outside India proper; this is a specimen captured on 3rd July, 1908, by Mr. A. E. Wileman at Kanshirei in Formosa, and shows some local adaptation in its subacutely geniculate discoidal nervure and smaller head.

17. Henicospilus horsfieldi, Cam.

Spol. Zeylanica, 1905, p. 124.

Not uncommon in India, and also represented in the Museum from Northern China and Sandakan in North Borneo, whence it was presented by Governor Creagh.

18. Henicospilus crassus, sp. n.

This species agrees with Szépligeti's description of *H. variegatus* (Ann. Mus. Hungr. 1905, p. 519) from Turkestan, excepting in the conformation of the head, which, though not broad, cannot be said to be obliquely constricted posteriorly; and he would certainly have called attention to the peculiarly squat thorax, which is short, stout, dull, and strongly punctate, with metanotum very short, and in this respect distinct from any *Henicospilus* I know. Oxford Museum: India (Boys).

Australasian Region.

Of the eighteen species enumerated by Szépligeti from this region in 1905, nine may be here entirely omitted as peculiar to the Sandwich Islands, and by no means likely to occur four-and-a-half thousand miles across the Pacific in Australia, from the mainland of which alone I have seen examples of this region, with the exception of Kirby's two New Zealand types, and Cameron's Hawaiian *Ophion lineatus*. The Maldive Islands are essentially Indian. Brullé appears to be the only author to describe true Australian—"la Nouvelle-Hollande" — *Henicospilus*; probably Smith's Batchian *Ophion vittator* (Proc. Linn. Soc., Zool., iv (1860), Suppl. p. 140), also belongs here. The following table may be used with that published by Ashmead in his Fauna Hawaiiensis, i, part ii, p. 345 (1901), where the genus is referred to a mere Catalogue-name, and Curtis credited with authorship of Stephens' illustrations. For the large proportion of new species we are indebted to Mr. Rowland Turner's

collecting around Mackay, and, unless otherwise stated, they are all from his material (now in the British Museum) from that locality, whence the number of species with conspicuous black costa is remarkable.

(28) 1. Cubital cell with two corneous marks.

(27) 2. Flagellum not black.

(18) 3. No corneous line in the glabrous cubital area.

(13) 4. Costa of front wings not black.

(8) 5. Mesonotal vittae or the femora infuscate.

(7) 6. Femora, antennae and most of body nigrescent; length 16-18 mm. (Hawaii). 1. *dispilus*, Perk.

(6) 7. Femora red, mesonotum trivittate and anus laterally nigrescent; length 20 mm. (Caroline Is.) 2. *lateralis*, Brullé.

(5) 8. Mesonotum and femora testaceous; second recurrent nervure shorter than space between it and outer cubital nervure.

(10) 9. Nervellus opposite and subvertical; discoidal nervure distinctly geniculate beneath basal corneous mark. 3. *gardei*, sp. n.

(9) 10. Nervellus antefurcal and oblique; discoidal cell narrow and gently curved above.

(12) 11. Radius basally straight; postpetiole strongly punctate; colour dull stramineous. 4. *stramineus*, sp. n.

(11) 12. Radius basally subsinuate; postpetiole glabrous; colour clear testaceous. 5. *obliquus*, sp. n.

(4) 13. Costa of front wings deep black as far as the pale stigma.

(15) 14. Stigma flavous; intercubital nervure strongly geniculate; discoidal cell broad; head quite white. 6. *albicaput*, sp. n.

(14) 15. Stigma bright fulvous; intercubital nervure gently rounded; discoidal cell narrow; head fulvous.

(17) 16. Inner mark crescentic, outer distinct; discoidal not deflexed. 7. *fulvicaput*, sp. n.

(16) 17. Inner corneous mark subcircular, outer minute; discoidal nervure centrally deflexed. 8. *dubitator*, sp. n.

(3) 18. Distinct corneous line in glabrous alar area, usually below outer mark.

(20) 19. Antennae, vertex and nervures nigrescent (Tasmania). 9. *fuscicornis*, Erichs.

(19) 20. Antennae, vertex and nervures testaceous.

(24) 21. Stigma and costa of front wing fulvous throughout; corneous line discreted from basal mark.

(23) 22. Antennae extending to centre of abdomen; metathorax dull; head posteriorly broader (New Zealand). 10. *insularis*, Kirby.

(22) 23. Antennae longer than body; metathorax nitidulous; head posteriorly narrower. 11. *antennatus*, sp. n.

(21) 24. Stigma and costa of front wing deep black throughout; corneous line attached to basal mark.

(26) 25. Inner mark fulvous and not large, outer minute line obsolete; discoidal cell subparallel-sided; head narrow. 12. *turneri*, sp. n.

(25) 26. Inner mark deep black and large, outer strong, line crescentic; discoidal cell basally acuminate; head broad. 13. *melanospilus*, sp. n.

(2) 27. Flagellum entirely black, with conspicuous pale scape. (Moluccas.) 14. *vollenhoveni*, Tasch.

(1) 28. Cubital cell with one or three corneous marks.

(44) 29. One corneous mark in glabrous area of cubital cell.

(33) 30. Radial cell basally constricted through reflection of radius; mark indistinct.

(32) 31. Metathorax striate; head flavous; length 25 mm. (Australia.) 15. *coarctatus*, Brullé.

(31) 32. Metathorax scabrous; head ferrugineous; length 15 mm. (Sandwich Is.) 16. *lineatus*, Cam.

(30) 33. Radial cell not basally constricted; head mainly red; alar mark determinate.

(35) 34. Abdomen black throughout; length 11 mm. (Sandwich Is.) 17. *dimidiatus*, Perk.

(34) 35. Abdomen not entirely black; size larger.

(41) 36. Abdomen nigrescent or ferrugineous; length at least 17 mm.

(38) 37. Thorax entirely black. (Sandwich Is.) 18. *semirufus*, Perk.

(37) 38. Thorax entirely pale.

(40) 39. Glabrous cubital area not externally corneous; stigma black; radius externally incrassate. (Bismark Arch.) 19. *nigrinervis*, Cam.

(39) 40. Area externally corneous; stigma fulvous; radius simple. 20. *amplipennis*, sp. n.

(36) 41. Abdomen immaculate testaceous; length 14-17 mm.

(43) 42. Nervellus subcontinuous; discoidal cell externally obtuse below. 21. *consimilis*, sp. n.

(42) 43. Nervellus strongly geniculate; discoidal cell externally rectangular below. (New Zealand.) 22. *skeltoni*, Kirby.

(29) 44. Three corneous marks in glabrous area of cubital cell. 23. *trinotatus*, sp. n.

1. Henicospilus dispilus, Perk.

Trans. Ent. Soc. 1902, p. 143.

Cf. note under *H. lineatus*, post.

2. Henicospilus lateralis, Brullé.

Hist. Nat. Ins. 1846, p. 141.

3 et 4. Henicospilus gardei et stramineus, spp. n.

These two ♂♂ are superficially similar, but differ in the conformation of the nervellus, and the very much narrower discoidal cell of the latter, which moreover is a little narrower

behind the eyes, with the thorax and basal half of first abdominal segment almost white and quite dull, whereas in the former both are testaceous, concolorous with remainder of abdomen and distinctly nitidulous. *H. gardei* is named after my friend Mr. Philip de la Garde, R.N., F.E.S., who captured the type at Sydney in March, 1898, and presented it to the British Museum. *H. stramineus* was collected at Townsville in Queensland by F. P. Dodd, early in March, 1902, and is accompanied by two cocoons, one doubtless of its own construction, black with a somewhat paler cincture, covered with grey felt-like thread, with the circular operculum entirely excised by the parasite in emergence.

5. Henicospilus obliquus, sp. n.

Two entirely testaceous ♀ ♀ of 16 (type)-22 mm. are in the British Museum, taken recently at Roebourne in the north-west of Western Australia, though this locality is slightly uncertain, and at Lower Plenty in "Victoria Province, Australia," in 1858, by W. Bakewell. The basally sinuate radius, oblique nervellus, short second recurrent nervure, and subnigrescent alar costa render it distinct.

6. Henicospilus albicaput, sp. n.

A remarkable little ♂ of hardly 15 mm., very like an immature *H. turneri*, though much paler, with the thorax flavescent and head white rather than stramineous, the antennae pale testaceous, neither slender nor longer than the body, which recalls that of the weakly developed Indian *Paniscus laevis*, Cam. (Spol. Zeylanica, 1905, p. 127), especially in its smooth metanotum. The type was taken at Mackay in March, 1900.

7. Henicospilus fulvicaput, sp. n.

A somewhat stout species with an average size of 25 mm., with the antennae fulvidous, about as long as the body, and not slender; the whole insect, including eyes and ocelli, is unicolorous, tawny fulvous and somewhat dull; the anterior costa of both pairs of wings is conspicuously black. Doubtless a common species; Turner took several of both sexes at various times at Mackay, and in April, 1896, de la Garde found it at Sydney.

8. Henicospilus dubitator, sp. n.

So like *H. fulvicaput* that I am not convinced of its distinctness, since it only differs in the points enumerated in the table of species, in the paler and somewhat broader occiput, and the black eyes and ocelli. The single ♂ (type) was, too, taken at Mackay.

9. Henicospilus fuscicornis, Erichs.

Arch. Naturg. VIII (1884), p. 257.

10. Henicospilus insularis, Kirby.

Trans. Ent. Soc. 1881, p. 46; N. Zeal. Journ. Sc. 1884, p. 73.

The typical ♀ in the British Museum is a very ordinary representative of this genus, but with the antennae a little thicker than usual, and not extending to the anus. It is one of twelve Hymenoptera presented by Dr. A. Sinclair, R.N., in 1845, from New Zealand.

11. Henicospilus antennatus, sp. n.

The type alone of this species, at once known by its remarkably elongate and slender flagellum, was found among a long series of the following at Mackay.

12. Henicospilus turneri, sp. n.

Mr. Rowland Turner's work on the Australian *Hymenoptera* is now well known, and it is mainly owing to his efforts that we at last have some adequate knowledge of the indigenous *Ophionides*. The present species is 15-20 mm. in length, and is conspicuous in its black stigma and costa, and usually black anus; it occurred at artificial light at night about Mackay during January, February, March and September, with some frequency in both sexes.

13. Henicospilus melanospilus, sp. n.

Another clear fulvous species with the head, including eyes and ocelli, entirely concolorous; it is extremely like the last, but the antennae are longer and basally darker, the nervures are mainly black, both cubital marks are very strong, and the outer is half enclosed by an external slender crescentic corneous line, found in a weak form only below it in the latter, with which it occurred at Mackay.

14. Henicospilus vollenhoveni, Tasch.

Zeits. Ges. Nat. 1875, p. 436, ♀.

15. Henicospilus coarctatus, Brullé.

Hist. Nat. Ins. 1846, p. 146.

16. Henicospilus lineatus, Cam.

Peter Cameron appears to have utterly overlooked (Trans. Ent. Soc. 1883, p. 192) the small corneous mark in a distinctly glabrous cubital area discernible in both his type and co-type of this species, now in the Museum. This Hawaiian species is a small ♀ of 13 mm., differing from all the Australian kinds in its darker, subferrugineous body and stigma. Perkins' three species from the same islands (Trans. Ent. Soc. 1902, pp. 142-3) are difficult to recognise, since he failed to detail the neuration. *H. nigrinervis* appears to differ from Taschenberg's Moluccan *H. vollenhoveni* in nothing but the possession of a single alar mark, and both have the flagellum, but not the scape, deep black; I suspect that they will prove to be synonymous.

17—18. Henicospilus dimidiatus et semirufus, Perk.

Trans. Ent. Soc. 1902, pp. 142 et 143.

19. Henicospilus nigrinervis, Cam.

Proc. Zool. Soc. 1901, p. 229, ♀.

20. Henicospilus amplipennis, sp. n.

This also has the flagellum, though not the scape, black, but, unlike *H. lineatus*, the whole body is testaceous, with the head alone flavescent. Two ♀ ♀ in the Museum are from Western Australia: the type was taken by H. du Boulay at Champion Bay in 1866, and a broken specimen at Fremantle by Walker at the end of November, 1890.

21. Henicospilus consimilis, sp. n.

A single small ♂ of 13 mm. appears sufficiently distinct in its neuration from the following to merit specific rank. It is a pale testaceous insect, with the head, pleurae and scutellum flavidous, and the ocelli with the eyes black. Turner tells me that its locality, Roebourne, in the north-west of Western Australia, is a little uncertain, though doubtless approximate.

22. Henicospilus skeltoni, Kirby.

Trans. Ent. Soc. 1881, p. 46 : N. Zeal. Journ. Sc. 1884, p. 73.

The typical ♂ in the British Museum is 16 mm. in length, with antennae slightly shorter than the body ; it is entirely clear testaceous, with the flavescent head not constricted posteriorly. It was found by Skelton at Blenheim in New Zealand during 1881. A second specimen of the same sex, though rather darker, was caught in 1905 at Killalpanima in South Australia, a hundred miles east of Lake Eyre, by H. J. Hillier.

23. Henicospilus trinotatus, sp. n.

The type, a small ♀ of 20 mm., was captured at Mackay in October, 1901. It is a red insect with the thorax testaceous and head entirely stramineous ; the costa and stigma are black to the extreme apex of the latter, but the metacarpus thence is conspicuously fulvous to apex, and this, together with the three prominent cubital alar marks, is its only distinction from *H. turneri*. There is also a large ♂ of 24 mm. differing, though hardly specifically, in its subinfumate wings, deep red thorax, legs and two basal segments, with the head hardly paler and the anus broadly deep black ; the neuration and metathoracic structure are identical with the typical ♂ ; it was taken in either Australia, the Solomon Islands, or the New Hebrides during the voyage of the "Herald," and presented in 1856 by Sir John Liddell.

OPHION,* Fabr.

Entom. Syst. Suppl. 1798, p. 210.

* Since I have never met anyone who knew the meaning of the word *Ophion*, and the learned Dalla Torre is satisfied to let it go at "animal fabulosum," the following quotation from Mr. J. W. Dunning's review of Rev. T. A. Marshall's "Catalogue of British Hymenoptera" (E.M.M. ix, p. 222) may not be without interest. "On p. 50, *Ophion* is made of neuter gender . . . but why this change ? Surely *Ophion* is masculine ; the fabulous Ophion of Sardinia was made masculine both by Greeks and Latins, and, as the proper name of one of the giants, or of the father of the centaur Amycus, Ophion is a masculine name ; moreover, if the word were Ophion (neut.), not Ophion (masc.), the genitive case would be Ophii, not Ophionis, and there would be difficulty in arriving at the name *Ophionides*, which Mr. Marshall adopts for this sub-family of Ichneumonidae." With this Marshall himself subsequently entirely concurs, for he says (Entom. Annual, 1874, p. 129), "I was not fortunate enough to think of any probable origin for the word *Ophion* ; and, being aware of the Fabrician practice of inventing words without meaning, I paid no special attention to this. Mr. Dunning, however, has found out an explanation which may be regarded as settling the matter ; and specific names under *Ophion* should be masculine."

As in the last genus all Ophion species are slender, of moderate or somewhat large size, and testaceous; detailed descriptions would be superfluous, since they differ *inter se* solely in the few characters noted.

South and Central American Region.

Twenty-three species are enumerated from this Region by Szépligeti in 1905, of which three belong to *Henicospilus*, two to *Allocamptus*, and the seven Fabrician "names" are best omitted as no mention has been made of them since 1824. This leaves but a dozen species, to which *O. luteus*, recorded by Haliday in 1836 and by Spinola in 1851, must be added. In a future revision Brullé's descriptions (Hist. Nat. Ins., iv, 1846) of *O. flavofuscus*, *O.* (*?Allocamptus*) *flavorufus*, and *O.* (*?A.*) *pallidipes* must not be overlooked; but for their correct position the venation of the types must be examined.

(16) 1. Ramellus (nervelet) very distinctly projecting from discoidal nervure.

(5) 2. Whole body mainly brilliant olive-green, like porcelain.

(4) 3. Basal segment strongly elongate, slender; legs and stigma red. 1. *chilensis*, Spin.

(3) 4. Basal segment much shorter, stout; legs and stigma olive-green. 2. *porculata*, sp. n.

(2) 5. Body testaceous with no trace of green coloration.

(13) 6. Metanotal areae complete, with distinct longitudinal carinae.

(10) 7. Ramellus elongate; petiolar area longitudinally multistriate.

(9) 8. Nervellus intercepted above centre, postfurcal; metanotal carinae strong. 3. *intricatus*, Brullé.

(8) 9. Nervellus intercepted below centre, subopposite; metanotal carinae normal. 4. *biangularis*, Tasch.

(7) 10. Ramellus punctiform; petiolar area longitudinally bistriate centrally.

(12) 11. Head posteriorly broader than eyes; nervellus postfurcal. 5. *politus*, sp. n.

(11) 12. Head narrower than the eyes; nervellus subopposite. 6. *politior*, sp. n.

(6) 13. Metanotal areae incomplete, transversely carinate only; ramellus short.

(15) 14. Two transverse metanotal carinae; discoidal nervure sharply geniculate. 7. *luteus*, Linn.

(14) 15. One transverse metanotal carina; discoidal nervure gently rounded. 8. *holosericeus*, Tasch.

(1) 16. Ramellus (nervelet) entirely wanting.

(22) 17. Body and legs entirely testaceous; size about 20 mm.

(21) 18. Discoidal nervure elevated towards stigma before curving downwards, basally straight; antennae of normal length.

(20) 19. Costa and stigma nigrescent; antennae black; nervellus intercepted below centre. 9. *melanostigma*, Cam.

(19) 20. Costa and stigma bright fulvous; antennae red; nervellus intercepted above centre. 10. *occidentalis*, sp. n.

(18) 21. Discoidal nervure level with stigma to disc, basally curved; antennae short. 11. *filicornis*, sp. n.

(17) 22. Body and hind legs mainly black; size 32 mm. 12. *atriventris*, Cress.

1. Ophion chilensis, Spin.

Spinola brought this species forward, in Spanish, in Gay's "Historia fisica y politica de Chile," vol. vi, 1851. The ♂ is not yet described, nor have I seen it; though five ♀♀ in the British Museum were taken "near the entrance of the Straits of Magellan on ship-board," by Dr. Cunningham in 1869, about Santiago in Chili, by Bartlett Calvert in 1881, and the rest acquired through Edmonds in 1886. The green coloration renders it abundantly distinct from all but the next species from which it differs, besides the points indicated above, in its smaller size of 15 mm., protuberant stigma and more broadly rufescent coloration.

2. Ophion porculata, sp. n.

This is a bastard Latin word, used to denote porcelain by Pliny. This species is longer and stouter than the preceding, with a length of 17 mm., both stigma and legs dull and pale green, the head concolorous, with mouth rufescent and broader behind the internally less emarginate eyes; the basal segment is shorter, stouter and, with the whole abdominal disc, broader. The ♀ type was captured somewhere in Argentina by Mr. Gosse, Jun., and presented to the British Museum, in 1899, by E. A. Fitzgerald.

3. Ophion intricatus, Brullé.

Hist. Nat. Ins. 1846, p. 143; *O. flavoorbitalis*, Cam. Biol. Cent. Amer. 1886, p. 294, pl. xii, fig. 16.

Certainly synonymous with *O. flavoorbitalis*, Cam., the type of which from Panama is in the British Museum, with two more ♀♀ taken at Theresopolis, in Brazil, about 1888, which render Taschenberg's locality, Chili, not improbable.

4. Ophion biangularis, Tasch.

Zeits. Ges. Nat. 1875, p. 432; *O. ancyloneura* (*sic*), Cam. Biol. Cent. Amer. 1886, p. 294, pl. xii, fig. 17.

I found the type of Cameron's certainly synonymous *O. ancyloneurus* in the British Museum labelled *O. flavus*, Fab., and by himself *O. flaviceps*, Brullé, Hist. Nat. Ins., 1846, p. 142, which is a *Henicospilus*. Cameron's types of the whole Biologia Cent. Amer. *Ichneumonidae* are in the British Museum, though much mixed before they left his hands. The present species resembles *O. luteus* in size and coloration, but may at once be known from it by the metathoracic structure and the low interception of the nervellus.

5. Ophion politus, sp. n.

Certainly a species distinct from the rest, in which the petiolar area is longitudinally striate throughout, on account of its finely and very distinctly areated metathorax, posteriorly broader head, and extremely short ramellus. The typical ♀ in the British Museum was taken in Chili by E. C. Reed, and is from Edward Saunders' collection. It may prove synonymous with *O. clathratus*, Brullé, Hist. Nat. Ins., 1846, p. 139.

6. Ophion politior, sp. n.

Smaller and more compact than *O. politus*, with the head narrower behind the eyes but with broader vertex; the petiolar area centrally bicarinate; the wings smaller and less ample, with the nervellus subopposite, and ramellus distinctly longer. Four ♂ ♀ of this small species of 14-15 mm. are in the British Museum, all from Brazil and mainly taken in the neighbourhood of Rio Grande.

7. Ophion luteus, Linn.

Syst. Nat., 1758, p. 566.

I can find no specific distinction between specimens from Jamaica, Monte Video and Soriano in Uruguay, Argentina, and the example referred to by Haliday (Trans. Linn. Soc. 1836, p. 319), those from Europe and the northern fauna of India—Simla and Sikkim. The present exponents appear a trifle stouter with, perhaps, slightly darker nervures. Smith found three at Omilteme in Guerrero during July at an altitude of 8,000 feet.

8. Ophion holosericeus, Tasch.

Zeits. Ges. Nat. 1875, p. 427.

9. Ophion melanostigma, Cam.

Biol. Cent. Amer. 1886, p. 295, pl. xii, fig. 18.

The British Museum contains only the type, of uncertain sex since the anus is wanting, from Panama; it is certainly a good and distinct species.

10. Ophion occidentalis, sp. n.

A striking species in its brilliant fulvous body, legs and stigma, which protrudes somewhat distinctly beyond the front margin of the wing, in its broadly rounded discoidal nervure lacking all trace of ramellus, the distinct but finely outlined metanotal areola with its rugulose and not carinate petiolar area; the basal nervure is continuous, and nervellus strongly postfurcal. The four ♀♀ from the Falkland Islands, in the British Museum, were taken in 1860 by Thos. Havers and, during the winter of 1908, by Col. A. M. Reid.

11. Ophion filicornis, sp. n.

Remarkable in the short antennae, which extend only to the apex of the metathorax and are not at all attenuate apically, the general ferrugineous coloration of the body and even darker stigma, the posteriorly explanate head, bitranscostate but exareolate metathorax and basally nearly straight cubital nervure. The typical ♀ in the British Museum was captured by O. W. Thomas in Argentina.

12. Ophion atriventris, Cress.

Proc. Acad. Nat. Sci. Philad. 1873, p. 374.

North American Region.

Say's descriptions are chaos, including *Orthocentrides*, *Anomalides* and *Paniscides*; he himself says his *O. branchiatus* (Boston Journ. Nat. Hist. 1836, p. 240), still included in this genus by Szépligeti in 1905, has three cubital cells; and Cresson pointed out (Trans. American Ent. Soc. 1877, p. 209) that *O. pennator*, Fab. Syst. Piez., 1804, p. 135, also left in *Ophion* in 1905, was most probably a species of *Trogus*!

The only table of species is that by Provancher, including only three kinds (Faune Ent. Canad., II, 350) in 1883, though Edward Norton's "Catalogue of our Species of *Ophion*, *Anomalon*," etc. (Proc. Ent. Soc. Philad. 1863, pp. 357-68), is useful; and Viereck has added (Trans. Kans. Acad. Sci. 1908, p. 310) *Ophion idoneum* from Kansas.

(4) 1. Wings infumate throughout.
(3) 2. Metanotum with areae; wings deep fuligineous; ramellus strong. 1. *slossonae*, Davis.
(2) 3. Metathorax with no areae; wings cinereous, darker apically; ramellus wanting. 2. *subfuliginosus*, Ashm.
(1) 4. Wings not infumate throughout.
(6) 5. Cheeks buccate; scutellum convex; wings basally flavous and apically infumate. 3. *costalis*, Cress.
(5) 6. Cheeks and scutellum normal; wings hyaline throughout.
(16) 7. Cubital cell with no glabrous area beneath radial nervure.
(9) 8. Metathorax with several very complete quadrate areae. 4. *tityri*, Pack.
(8) 9. Metathorax with no complete areae.
(15) 10. Antennae neither stout nor short; metanotum transcarinate; body testaceous.
(12) 11. Ramellus wanting; head concolorous with thorax. 5. *bifoveolatus*, Brullé.
(11) 12. Ramellus distinct; head paler than thorax.
(14) 13. Scutellum and mesonotal vittae not flavous. 6. *luteus*, Linn.
(13) 14. Scutellum and mesonotal vittae bright flavous. 7. *obscurus*, Fabr.
(10) 15. Antennae stout, somewhat short; metanotum with no distinct carinae; body black-marked. 8. *nigrovarius*, Prov.
(7) 16. Cubital cell with distinct glabrous area below radius. 9. *glabratus*, Say.

1. Ophion slossonae, Davis.

Entom. News, 1893, p. 135.

A very distinct species in its stout body, broad postpetiole, pale petiole and very strongly infumate wings. It was bred from an *Acronycta* moth in Connecticut, and later found in Illinois. An old specimen from Georgia is in the British Museum.

2. Ophion subfuliginosus, Ashm.

Proc. Californ. Acad. 1894, p. 126.

3. Ophion costalis, Cress.

Proc. Acad. Nat. Sci. Philad. 1878, p. 366.

4. Ophion tityri, Pack.

Proc. Boston Soc. Nat. Hist. 1881, p. 19.

5. Ophion bifoveolatus, Brullé.

Hist. Nat. Ins. 1846, p. 138.

I can only distinguish this from *O. bilineatus*. Say, Contrib. Maclur. Lyc. Philad. 1828, p. 75 (as did Provancher in 1883), by its lack of ramellus ; in all other features, except possibly the less continuous basal nervure, it appears to agree with the next species, though the metathorax should be more strongly sculptured. One old specimen in the British Museum from Georgia.

6. Ophion luteus, Linn.

Syst. Nat., 1758, p. 566; *Ophion bilineatus*, Say, Contrib. Maclur. Lyc. Philad. 1828, p. 75.

A series of twenty-three specimens is in the British Museum from Texas (received by Rev. T. A. Marshall, under the name *O. bilineatus*, from Riley), New York, California, east Florida, Massachusetts, Nova Scotia, Hudson's Bay (under the name *Ophion fulvus*, as this species was actually called by Retzius, Gen. et Spp. Ins., p. 68, in 1783), Vancouver Island, Mexico, Maine, Colorado, California, etc. These agree *ad amussim* with European *O. luteus*, Linn., of which Say himself termed his synonymous *O. bilineatus* "the analogue." Miss Ellen Edwards was good enough to send me a ♀ from Delmas in Saskatchewan in September, 1910, which extends its known north-western range.

7. Ophion obscurus, Fabr.

Syst. Piez. 1804, p. 132 ; *O. flavopictus*, Smith, Trans. Ent. Soc. 1874, p. 397.

Hitherto known to extend only throughout Europe to Siberia ; but examples from Germany, Zürich, Tripoli, Madeira, Colorado, and the type of Smith's *O. flavopictus* (Trans. Ent. Soc. 1874, p. 397—*sic* Szépl.) from Hiogo in Japan are all co-specific.

8. Ophion nigrovarius, Prov.

Natural. Canad. 1874, p. 104.

9. Ophion glabratus, Say.

Boston Journ. Nat. Hist. 1836, p. 239.

Unique among the North American species in its partly glabrous cubital cell. I do not find it in Szépligeti. Originally described from Indiana; sent from Texas from Riley to Marshall, under the name *O.* "*macrurus*, L." Norton in 1863 refers to this species as having a single corneous alar mark, though Say writes "first cubital cellule with a longitudinally oval glabrous space, but destitute of any opake spot."

I do not know No. 3 supra, *O. costalis*, which probably belongs to *Neophion* on account of its buccate cheeks and convex scutellum, but the wings are basally flavescent and apically infumate;* *O. tityri*, which has the metathorax bitranscarinate with several complete and quadrate areae; *O. nigrovarius*, which may also be a *Neophion* on account of its stout and somewhat short antennae, the metathorax is without distinct carinae and the markings are profusely black; and the Californian *O. subfuliginosus*, which is doubtless allied to the fine *O. slossonae*, though with neither ramellus nor metanotal areae, and with it probably merits generic rank.

African Region.

Remarkably few true Ophion species appear to occur in Africa, their place being taken by *Henicospilus* and *Allocamptus*; Szépligeti could record only five in 1905, of which I have relegated three to different genera, and Brullé's *O. angustatus* (Hist. Nat. Ins., 1846, p. 148) from l'Ile de France is almost certainly another *Allocamptus*.

(2) 1. Stigma nigrescent, basally white; scutellum not margined. 1. *nubilicarpus*, Tosq.

(1) 2. Stigma fulvous; scutellum distinctly margined laterally. 2. *major*, sp. n.

* Dr. T. A. Chapman was so good as to send me, on 29th June, 1899, two bred insects from "North America," with very strong Ophionid facies; they agree to a most remarkable extent with Cresson's description, but the second recurrent is emitted from the cubitus *beyond* the intercubital nervure! One of these I sent, a year or so later, to Ashmead for identification, but received no acknowledgment; the other (a ♂) Dr. Sigismund Brauns kindly returned labelled "Opheltoideus sp. ?" This genus, with a single MS. species, was erected by Ashmead (Proc. U.S. Nat. Museum, xxxii, p. 95) in 1900, and is placed by Dalla Torre in the *Paniscides*. My insect, lacking all trace of alar areolet, and with the hind tarsi very stout though hardly spatuliform, must be relegated to the *Anomalides*.

1. Ophion nubilicarpus, Tosq.

Mem. Soc. Ent. Belg. 1896, p. 370.

Tosquinet's species is from the Cape of Good Hope, of 21 mm., with the whole wings slightly infumate and their nervures piceous ; apparently he knew but a single female.

2. Ophion major, sp. n.

Superficially like *O. luteus*, Linn., especially the smaller specimen of 20 mm., but with no ramellus, the stigma long, narrow and not bulging beyond the line of the carpus, the discoidal nervure centrally concave, and not geniculate till nearly below apex of basal abscissa of radius, the antennae more slender and as long as the body. The examples, representing both sexes in the British Museum, were taken at Sierra Leone by Rev. D. Morgan and Mr. Foxcroft, but the typical ♀ there was presented from Port Natal in 1849. Another ♀ taken in the Oban District of Southern Nigeria by Talbot, in 1910, differs very slightly in having infuscate antennae, and the basal abscissa of the radius running quite straight to the external cubital nervure, whereas in the typical form it is slightly angled at its junction with the apical abscissa of the radius.

Asiatic Region.

I have had no opportunity of examining the ♀♂ types of *Ophion iridipennis* and *Ophion vestigator*, Smith, Proc. Linn. Soc., Zool. ii (1858), pp. 121-122, which are presumably in the Oxford Museum, with other of Wallace's Malayan Hymenoptera. *O. lativentris*, Tasch. (placed by Szépligeti in both this genus and *Henicospilus*), from Java, is so distinct as probably to merit generic rank, but I have not seen it.

(24) 1. Thorax and head not entirely black.
(23) 2. Antennae not entirely black.
(12) 3. Second recurrent nervure not emitted opposite apex of basal radial abscissa.
(11) 4. Second recurrent emitted before apex of basal radial abscissa.
(10) 5. Petiolar area not laterally carinate ; size over 15 mm.
(9) 6. Apophyses normal, not elongate.
(8) 7. Thorax with no distinctly delineated flavous markings. 1. *luteus*, Linn.
(7) 8. Thorax with profuse and distinct flavous markings. 2. *obscurus*, Fabr.
(6) 9. Apophyses both acute and elongate. 3. *dentatus*, Smith.
(5) 10. Petiolar area entire and discreted ; size under 15 mm 4. *areolatus*, Cam.

(4) 11. Second recurrent emitted beyond apex of basal radial abscissa. 5. *bicarinatus*, Cam.

(3) 12. Second recurrent emitted opposite apex of basal radial abscissa.

(20) 13. Head posteriorly normal, and not entirely flavous.

(17) 14. Basal nervure continuous; inner cubital nervure basally straight.

(16) 15. Wings with ramellus (nervelet) wanting; stigma nigrescent. 6. *rectus*, Morl.

(15) 16. Wings with ramellus elongate; stigma testaceous. 7. *carinatus*, Cam.

(14) 17. Basal nervure not continuous; inner cubital nervure basally curved.

(19) 18. Mesonotum not infuscate; scutellum basally carinate. 8. *asiaticus*, Kok.

(18) 19. Mesonotum discally infuscate; scutellum not carinate. 9. *fuscomaculatus*, Cam.

(13) 20. Head posteriorly buccate and entirely flavescent.

(22) 21. Head, thorax and abdomen broadly white-marked. 10. *albopictus*, Smith.

(21) 22. Head, thorax and abdomen not white-marked. 11. *quettaensis*, Cam.

(2) 23. Antennae entirely black. 12. *generator*, Fabr.

(1) 24. Thorax and head entirely black. 13. *triangularemaculatus*, Motsch.

The last two species are almost certainly wrongly ascribed to the present genus.

1. Ophion luteus, Linn.

Syst. Nat. 1758, p. 566.

This species certainly occurs as far east as north-west India, though hitherto recorded only from Transcaspia and Turkestan, whence Dr. Lansdell presented a ♀ from Kashgar, taken in August, 1888.

2. Ophion obscurus, Fabr.

Syst. Piez. 1804, p. 132; *O. flavopictus*, Smith, Trans. Ent. Soc. 1874, p. 397.

This species is not recorded further east than Siberia, but I find specimens in the British Museum indistinguishable from European examples, from Hiogo in Japan (i.e. Smith's type of *O. flavopictus*), Tsu Shima Island in the Channel of Korea, taken by Holst in May, 1891, from Korea, taken by H. Edwards in 1884, and from northern China taken by

Fortune in 1854. A ♀ found in 1878 at Bugutusai in Siberia differs from typical *O. obscurus* in no way but its whitish petiole and excarinate metathorax; it appears to represent Szépligeti's Transcaspian var. of his *O. turcomanicus* (Ann. Mus. Nat. Hung. 1905, p. 521) from Turkestan.*

3. Ophion rectus, sp. n.

This species alone of those enumerated in my table (loc. cit.) is not known to occur in India. It is a large insect of nearly 40 mm. in expanse, with prominent eyes, elongate fulvidous antennae, black costa and stigma, no glabrous cubital area, continuous basal nervure and centrally impressed, rugose metathorax; but its individuality lies in the entirely straight external radial nervure, and peculiar brevity of the intercubital nervure, which, nevertheless, is much longer than the space between it and the second recurrent; the discoidal nervure is almost exactly parallel with the anal, and hardly at all curved. The type was captured by H. N. Ridley, during 1901, at Singapore.

4. Ophion areolatus, Cam.

Mem. Manch. Lit. Soc. 1899, p. 101.

A ♀, remarkable for the great development of the wing beyond the second recurrent nervure, was captured as far north as Yatung in Thibet by A. E. Hobson, in 1898, at an altitude of 4,500 feet.

Australasian Region.

Examples of this genus from Australia appear very rare, though as many as thirteen species were enumerated in 1905. The first was brought forward by Prof. Dr. W. F. Erichson in his great "Beitrag zur Insecten-Fauna von Vandiemensland" of 1842; but, though hitherto placed in *Ophion*, this is obviously a *Henicospilus*, as also I find from an examination of the type is *O. lineatus*, Cameron, who overlooked the small but distinct cubital mark. *Ophion unicolor*, Smith, from

* From Turkestan, also, Szépligeti has described a new *Henicospilus variegatus* (Ann. Mus. Hungar. III, 1905, p. 519; cf. also lib. cit. 1906, p. 131), for which name, preoccupied for a Hawaiian species by Ashmead (Fauna Hawaii, 1901, p. 348), I propose *H. variegatorius*. Consult also Kohl's paper in Wien. Ann. Nat. Hofmus. 1906, p. 223.

Batchian, and *O. insinuatus*, Smith, from Kaioa (Proc. Linn. Soc., Zool., 1860, p. 141) are little more than names, since his descriptions are inadequate.*

(6) 1. Antennae black; metapleurae not intumescent.
(3) 2. Flavidous; wing nervures and anus from second segment black. 1. *stimulator*, Smith.
(2) 3. Rufescent or castaneous, with no definite black markings.
(5) 4. Mesonotum subimpunctate; tegulae ferrugineous; length 19 mm. 2. *nigritulus*, nom. nov.
(4) 5. Mesonotum strongly punctate; tegulae citrinous; length 11 mm. 3. *punctatus*, Cam.
(1) 6. Antennae red; metapleurae subtuberculiform.
(10) 7. Mesonotum with no pale vittae; ramellus entirely wanting.
(9) 8. Antennae half as long again as body; discoidal nervure strongly sinuate. 4. *antennatus*, sp. n.
(8) 9. Antennae not longer than body; discoidal nervure evenly curved. 5. *inutilis*, Smith.
(7) 10. Mesonotum quadrivittate with flavous; ramellus distinct. 6. *flavolineatus*, Brullé.

1. Ophion stimulator, Smith.

Proc. Linn. Soc., Zool., 1864, p. 65, ♀.

2. Ophion nigritulus, n. nov.

O. nigricans, Cam. Trans. Ent. Soc. 1883, p. 193 (*nec* Ruthe).

Ophion nigricans was precoccupied by Ruthe in 1859, and Cameron's name must consequently fall. The British Museum possesses a pair of this Sandwich Islands species, peculiar in its very dark-brown coloration and in the total lack of metanotal carinae; the typical ♂ (Cameron indicates no sex) has the orbits flavous throughout, but those of the ♀ are much less conspicuous; the "livid" stigma is dull fulvous, a little

* "*Ophion Austro-Caledonicus*," the only Ichneumonid instanced by MM. B. P. Perroud and Montrousier in their monumental "Essai sur la Faune entomologique de Kanala (Nouvelle-Caledonie)" in Ann. Soc. Linn. Lyon, 1864, p. 248, cannot belong to this genus, because the terebra is said to be 4 mm. in length to the whole body's 11 mm. Since this publication is not always accessible I translate Montrousier's description: "Head and antennae of somewhat nitidulous black; face with a pale flavous dot; vertex slightly rugose. Thorax black; notum marked with pale flavous at radices of wings and at apices of the metapleurae; sternum pubescent. Abdomen black, banded beneath with pale flavous; terebra black, about a third of the length of the body. Front legs entirely, with intermediate femora and tibiae, fulvidous; tarsi and hind-legs black; posterior tibiae bicalcarate, the front ones with a single short and somewhat sinuate calcar. Wings hyaline, with the stigma black and shining. No sex. January; New Caledonia."

protuberant beyond the wing-margin ; the upper basal nervure is postfurcal, the discoidal nervure is very little curved, and the cubital cell is obsoletely glabrous with an obvious tendency to Henicospilus ; the nervellus is intercepted at its lower third ; the whole thorax dull and scutellum laterally carinate throughout. The New Guinea *O. stimulator* is generally pale red with the black markings more definite ; and the New Zealand (not Australian, as copied by Szépligeti from Dalla Torre) *O. punctatus* is rufescent throughout.

3. Ophion punctatus, Cam.

Mem. Manch. Lit. Soc. 1898, p. 34 ; *O. inutilis*, Smith, Trans. Ent. Soc. 1878, p. 2 (*nec* 1876).

The typical ♂ from Greymouth is in the British Museum, but with no antennae, and all the legs broken. The discoidal nervure is sharply rounded below the stigma, with no ramellus; the nervellus is subopposite, but slightly geniculate and intercepted at its lower third. This specimen agrees with the ♀ type of Smith's 1878 *O. inutilis*, which must fall together with Dalla Torre's 1900 (catalogue) name *O. insulicola*, adopted by Szépligeti, but post-dating Cameron's description by two years.

4. Ophion antennatus, sp. n.

Not a true *Ophion*, for the radius is basally incrassate and subsinuate, as in most *Henicospilus*, but there is no trace of a glabrous cubital area and its position here is fairly satisfactory. This entirely fulvous species is abundantly distinct from all others of this Region in its very long fulvous antennae, bitranscarinate metathorax, posteriorly constricted head and large ocelli, but especially in the centrally deflexed discoidal nervure ; the basal nervure is exactly continuous, and the nervellus intercepted at its lower third. The type is the only specimen of true *Ophion* I have seen or heard of from Australia proper ; it was captured about 1905 by G. C. Shortridge in Western Australia.

5. Ophion inutilis, Smith.

Trans. Ent. Soc. 1876, p. 478 (*nec* 1878).

The ♀ type of this species described in 1876 from Canterbury in New Zealand is in the British Museum, together with that of the same author's *O. inutilis* of 1878 from Otago in New Zealand. The latter is so like the former that W. F. Kirby

synonymised them (Trans. Ent. Soc. 1881, p. 45), and I here but tentatively perpetuate their distinction. In both, the head is posteriorly broad and not narrower than the eyes, with considerable vertex; the metathorax is laterally rounded, almost as in *Australophion*, with which also the small ocelli concur, though the slender body and position of the interception of the nervellus preclude their inclusion in that genus.

6. Ophion flavolineatus, Brullé.

Hist. Nat. Ins. 1846, p. 147.

OPHIONOPTERUS, Ashm.

Proc. U.S. Nat. Mus. 1900, p. 87; *Ophiopterus* [*sic*], Brullé, Hist. Nat. Ins. 1846, p. 153.

Metathorax convex, apically constricted and produced into a neck before reaching base of abdomen; antennae very slender, as long as body, white-banded beyond their centre; eyes pilose; intermediate tibiae bicalcarate; face apically constricted; wings short, median nervure subgeniculate at its junction with basal nervure; second recurrent nervure emitted from cubital far before the intercubital, i.e. discoidal cell emits both recurrent nervures, as in *Ophion* but not *Anomalon*.

What Cresson's Mexican *Ophiopterus ferrugineus* (Proc. Acad. Philad. 1873, p. 380) is, I do not know; but if it has, as he states, "neuration as usual in *Anomalon*," it cannot belong to the present genus, to which its elongate and subapically white-banded antennae and apically "suddenly attenuated" metathorax ally it. Cameron evidently did not understand Brullé's genus at all and the only other three species, those assigned to it by him in Biologia Centr.-Americana (of which the types are all lost or, possibly, in the Vienna Museum), are doubtless referable to *Nototrachys*—of which he pleads ignorance so late as 1905 (Spolia Zeylanica, 1905, p. 128)—on account of their antennal length. The "(?) *Nototrachys annulicornis*" of Ashmead (Proc. U.S. Nat. Mus. 1890, p. 422), described from Texas in both sexes—not only ♀ as usually indicated—is quite certainly congeneric with *O. coarctatus*, as is proved by the "venation as in *Ophion*," "metathorax produced into a neck" and "middle tibiae with two spurs"; in fact its ferrugineous coloration is the only obvious distinction. *Trachynotus cincticornis*, Cress.

(Proc. Ent. Soc. Philad. 1865, p. 50), is extremely probably synonymous, though no mention is made of metathoracic production.

(2) 1. Black ; parallel nervure emitted from centre of brachial cell 1. *coarctatus*, Brullé.

(1) 2. Red ; parallel nervure emitted far above centre of brachial cell. 2. *annulicornis*, Ashm.

1. Ophionopterus coarctatus, Brullé.

Hist. Nat. Ins. 1846, p. 153.

Brullé described his single ♀ under this name from Guaratuba in Brazil in 1846, and this is well figured at his pl. xlii, fig. 5, but the species has not since been mentioned in literature. I find the single ♂ of this beautiful insect, differing in nothing but the lack of terebra, in the British Museum was captured in Brazil by H. W. Bates when on the Amazon. It has considerable relationship with the common Indian *Trichomma nigricans* (Cam. Spolia. Zeyl. 1905, p. 130) in the production of the thorax, pilose eyes, etc., but the second recurrent nervure is emitted far before the submarginal in this species.

2. Ophionopterus annulicornis, Ashm.

Proc. U.S. Nat. Mus. 1890, p. 422.

Since the above note on *Nototrachys annulicornis* was written, I have seen a single female of that species, captured at Rincon in Guerrero, Mexico, during October, by H. H. Smith, and presented to the British Museum by Godman and Salvin in 1904; it exactly agrees with Ashmead's description and was taken at an altitude of 2,800 feet.

TRACHYOPTERUS, gen. nov.

I regret the necessity of erecting a new genus, intermediate between *Ophionopterus* and *Trachynotus*, for the reception of a single species with the combined characters of these two genera, taken by H. W. Bates on the River Tapajos, probably a little south of Santarem in Brazil, and now contained in the British Museum. This genus must be included in the *Nototrachini* (if that Tribe still be retainable) since the intermediate tibiae bear but a single calcar, though the distinctly produced metathoracic apex and elongate antennae indicate a close affinity with *Ophionopterus*.

1. Trachyopterus primus.

The insect in question is black throughout, with possibly the anterior tibiae internally testaceous in life. The head is a little constricted behind the prominent eyes with the vertex broad and ocelli minute, remote from orbits; the nitidulous face is not marked off from the apically broadly rounded clypeus; the eyes are a little approximate apically and not at all emarginate next the scrobes, above which the frons is longitudinally carinate between trans-striations centrally. Antennae very slender, filiform, elongate and immaculate. Mesonotum very finely punctate and nitidulous with the notauli, nearly as in *Nototrachys sinuatus*, longitudinally and irregularly crenulate; metathorax strongly and evenly reticulate, with no central sulcus, but the apex produced to receive base of abdomen; spiracles large and elongate-oval. Scutellum roughly sculptured, deplanate and carinate throughout. Abdomen very slender, strongly elongate and with the apical half of basal segment a little incrassate, its postcentral spiracles a little prominent. Legs and wings as in both *Ophionopterus* and *Nototrachys*. Length 13 mm. ♂ only.

This genus and the hitherto but little understood *Ophionopterus* connect the *Nototrachinae* of Ashmead with the *Ophionini* much more closely than has before been suspected, with the result that the former can hardly justify a distinct tribal existence, except upon the single feature of the intermediate unicalcarate tibiae.

NOTOTRACHYS, Marshall.

Trans. Ent. Soc. 1872, p. 260; *Trachynotus*, Grav. Ichn. Europ. 1829, III., p. 713 (*nec* Latr.).

Far too much reliance appears to have been placed by the North American authors upon coloration, an extremely variable feature in this genus; several of Cresson's and Provancher's descriptions indicate little else, with the result that it is impossible to draw up a satisfactory table of species, and I should have had to omit Ashmead's two St. Vincent species (Journ. Linn. Soc., Zool., 1894, p. 139) for the same reason, though in both the wings are apically subinfumate and the ♀ flagellum white-banded, if the types were not available for examination. His *N. annulicornis* is an *Ophionopterus*, to which genus Cresson's Cuban *Trachynotus cincticornis* also nearly certainly belongs on account of its "antennae longer than the body, with a broad yellowish

annulus near the tip." In 1905 this genus was known only from the Palaearctic and Nearctic Regions: now we have records from Asia, Australia, Africa (Rec. Albany Museum, [1905], p. 250), and South America (Ann. Hist.-Nat. Mus. Nat. Hung., 1906). Its species are said, with little certainty, to prey upon heteromerous *Coleoptera*.

(8) 1. Clypeus distinctly discreted, apically simple; mesonotum deeply, but hardly transversely, sculptured.
(7) 2. Interstices of metanotal reticulation alutaceous and dull.
(6) 3. Metanotum basally rugose; stigma black; wings subhyaline.
(5) 4. Scutellum carinate round apex; mesonotum evenly rugose 1. *foliator*, Fabr.
(4) 5. Scutellum not apically carinate; mesonotum smooth with notauli sinuately crenulate. 2. *sinuatus*, sp. n.
(3) 6. Metanotum basally glabrous; stigma red; wings infumate. 3. *fuscipennis*, Tosq.
(2) 7. Interstices of metanotal reticulation glabrous and polished. 4. *variistriatus*, Morl. 4A. *niger*, Ashm.
(1) 8. Clypeus not or hardly discreted, apically foveate; mesonotum trans-striate.
(10) 9. Scutellum not apically carinate, nor metanotum sulcate. 5. *australensis*, sp. n.
(9) 10. Scutellum carinate round apex; metanotum longitudinally sulcate throughout.
(16) 11. Scape paler than flagellum.
(15) 12. Terebra longer than basal segment; wings subinfumate.
(14) 13. The larger species with sculpture coarser throughout. 6. *texanus*, Cress.
(13) 14. The smaller species with sculpture finer throughout. 7. *basalis*, Cress.
(12) 15. Terebra not longer than basal segment; wings hyaline. 8. *ejuncidus*, Say.
(11) 16. Scape concolorous with flagellum.
18) 17. Both scape and flagellum black throughout. 9. *reticulatus*, Cress.
(17) 18. Flagellum broadly basally, and the scape beneath, pale. 10. *californicus*, Cress

1. Nototrachys foliator, Fab.

Entom. Syst., Suppl. 1798, 239.

The usual European form is represented in the Museum by several examples from Corsica (whence came most of those in British collections) ex coll. T. A. Marshall, Digne in the Basses Alpes from the Hon. W. Rothschild, and Malta in May, 1891, from Mr. de la Garde; there are a

couple of dozen collected by Escalera in South-west Persia, and the Indian representatives, of varied and often rich coloration, are from the Kangra Valley, the Punjab and Poona. It is, perhaps, most frequent on the south and north shores of the Mediterranean, though occurring throughout central Europe and recorded by Ingpen and others from Britain, whence are three unlocalised specimens in Desvignes' collection, the only ones I know. I regard Cameron's *Nototrachys rufo-orbitalis* (Journ. Bombay Nat. Hist. Soc. 1906, p. 276) and his *N. flavo-orbitalis* (lib. cit., 1907, p. 591) as no more than the sexes of a pale form of the present species.

2. Nototrachys sinuatus, sp. n.

This ♀ appears distinct from any of Cresson's or Ashmead's descriptions—so far as they go—in the peculiar structure of the mesonotum, which is subglabrous, with only the notauli longitudinally and sinuately carinate; the metathorax is exactly as in *N. foliator*, but the scutellum is not apically carinate and is nearly smooth, with only a few very fine punctures; the cubital cell is distinctly a little more acute in its apical angle. As regards the extremely unstable coloration, it is black with all the orbits, pronotum, linear lateral mesonotal marks, scutellar apex, base and extreme apex of the first segment and more or less of the anterior legs, flavous. The type was captured by Bates at Villa Nova on the Amazon in Brazil.

3. Nototrachys fuscipennis, Tosq.

This Spanish ♂ was thought to be new by so good a man as Tosquinet (Ann. Soc. Ent. Belg. 1900, p. 169); and indeed the postfurcal upper basal nervure, distinctly geniculate nervellus and glabrous abdomen, would appear to render it sufficiently distinct.

4. Nototrachys variistriatus, n. n.

This name is entered in MS. by Cameron in my copy of Spolia Zeylanica, 1905, p. 128, in place of his *N. reticulatus*, preoccupied in the genus by Cresson. It is a small black and common Indian species, distinct in the small wings and the glabrous interstices of the metanotum and mesopleurae. My friend Mr. E. Ernest Green takes it commonly on his bungalow windows in Ceylon.

4a. Nototrachys niger, Ashm.

Proc. Linn. Soc., Zool., 1894, p. 139.

I have seen the type of this species in the British Museum : it is remarkable for the great length of its hind legs, the calcaria of which are but a fifth of their metatarsal length, and for the structure of the mesonotum, which is rugose and longitudinally tricarinate discally, with the sides and strongly elevated apex very shining and nearly glabrous. Ashmead misses the individuality of the insect by not stating that his "crenulated furrows" are longitudinal nor the apex smooth ; his two basal metathoracic areae are no more conspicuous than the remainder which extend throughout, even to the coxal area, with interstices strongly nitidulous ; the terebral valvulae are curved and almost longer than the glabrous basal segment ; the wings are but slightly infumate apically, with nervures normal. It is quite unlike *N. variistriatus* in its somewhat ample wings, red-marked abdomen, and the smooth scutellum and sides of mesonotum.

5. Nototrachys australensis, sp. n.

Superficially very different from *N. foliator* in its profusely flavous-marked head and pale legs, but by no means easy to distinguish on structural or reliable features ; however, the conformation of the clypeus and mesonotal striation is constant through the eight males that Rowland Turner took at Mackay in Queensland, during December, 1900, and February, 1901 ; though strangely enough the only ♀ secured there, in September, 1900, hardly appears cospecific and I cannot distinguish it from rufescent Indian examples of *N. foliator*.

6. Nototrachys texanus, Cress.

Trans. Amer. Ent. Soc. 1872, p. 169 ; Synops. Hym. N. Amer. 1887, p. 201.

The thoracic sculpture is much finer than in *N. foliator*, the antennae shorter and nervellus less oblique. A ♂ from Texas was sent by Dr. Riley to Rev. T. A. Marshall and is in the British Museum. Cresson's description is purely one of colour, and the only intimation he affords of its affinities is that it is "closely allied to *ejuncidus*, Say," from the United States, which is left by both Dalla Torre and Szépligeti in the genus *Anomalon* ; but both descriptions are bald to a degree, and the one of his *T. fuscatus* (Proc. Ent. Philad.

1865, p. 50) from Cuba so difficult to differentiate as to be probably no more than varietal. Both *N. ejuncidus* and *N. texanus* seem to differ from the Coloradan *N. reticulatus* but little; and the unique *N. basalis* is owned by its author to be possibly a mere melanic form of *N. fuscatus*.

7. Nototrachys basalis, Cress.

Proc. Ent. Soc. Philad. 1865, p. 50, ♂.

8. Nototrachys ejuncidus, Say.

Boston Journ. Nat. Hist. 1836, p. 241.

9. Nototrachys reticulatus, Cress.

Proc. Ent. Soc. Philad. 1865, p. 285, ♂; *N. minimus*, Ashm. Proc. Linn. Soc., Zool., 1894, p. 139, ♂, ♀.

This species is unknown to me in nature, though, as far as one is able to judge from description, there appears little doubt that *N. minimus*, the sexual types of which are in the British Museum, is but a small form of Cresson's species. Ashmead makes no mention of the peculiar proximity to the radius at which the external cubital is emitted from the submarginal nervure.

10. Nototrachys californicus, Cress.

Proc. Acad. Nat. Sc. Philad. 1878, p. 366, ♀.

SUB-FAMILY TRYPHONINAE.

TRIBE II.—METOPIIDES.

This Tribe also has an entirely cosmopolitan range, but the majority of its species are found in North America, and it is there, rather than in the authors dealing with the very few European kinds, that we must seek our principal elucidation of this sadly neglected. though handsome and very conspicuous, group of parasitic flies. Davis (Trans. American Ent. Soc. 1897, p. 197) includes eight genera under his *Metopini*, but six of these must be relegated to the *Sphinctides* and *Tylomnimides*, if they be regarded as Tribes of equal dignity with the present, as was done by Dalla Torre, leaving but two* true genera of the present group, particularly characterised by the scutelliferous face and, to a less degree, by the unicalcarate intermediate tibiae and quadrate scutellum. Unfortunately *Cultrarius* is not represented in the British Museum, and is entirely unknown to me in nature.

Consequently I shall here treat of the genus *Metopius*, Panz., only. Forty-six species had been described in 1901, distributed through northern America fourteen, Africa six,

* Cameron thinks (Manch. Mem., 1899, p. 216) that his new genus *Scallama* "comes near Metopius," and Dalla Torre consequently places it (Cat. Hym. 1902, p. 201) in the *Metopiides*; but an examination of one of Cameron's types in the British Museum convinces me that the genus is quite certainly referable to the *Exochides* on account of the deplanate and normally shaped scutellum, distinctly though slightly protuberant face, which is not laterally elevated, the bicalcarate intermediate tibiae, incrassate femora and petiolate areolet. It seems most closely related to *Ischyrocnemis*, Holmgren, Sv. Ak. Handl. 1856, p. 306. Only two Indian species of *Scallama*, described loc. cit., are known, both captured by Rothney in the Khasi Hills of Assam, and now in the Oxford Museum.

Asia four, with the residue from Europe. Of these twenty-two Palaearctic species the only monograph we possess is by Professor C. G. Thomson of Lund, in his Hymenopterologische Beiträge (Deut. Ent. Zeit. 1887, p. 193), and even here no more than nine species are enumerated, and in such a manner that it has cost me several hours' study to satisfactorily differentiate between them, thus :—

(14) 1. Mandibles apically submutic : oral costa usually elevated ; recurrent nervure with at most one pellucid fenestra (METOPIUS).

(5) 2. Upper-wings with determinate infumescence ; legs nearly totally black.

(4) 3. Abdomen caerulescent with three basal segments near their apical angles, and apex of fourth entirely, flavous.
1. *dissectorius*, Panz.

(3) 4. Abdomen purpurascent-coppery with segments 2-5 or 6 (except usually centre of the fifth) apically flavous.
2. *fuscipennis*, Wesm.

(2) 5. Upper wings with no determinate infumescence ; legs partly pale.

(7) 6. Face elevated, with an apical carina connecting with clypeus.
3. *connexorius*, Wesm.

(6) 7. Face excavate, with no connecting elevated carina.

(13) 8. Clypeus apically subtruncate.

(12) 9. Upper wings hyaline ; antennae and thorax not all black ; facial excavation longer.

(11) 10. Facial excavation not pale-margined below : areolet petiolate ; 6th ♀ and 7th ♂ segment finely punctate.
4. *micratorius*, Grav.

(10) 11. Facial excavation pale-margined below ; areolet distinctly sessile ; apical segments coarsely and strongly punctate.
5. *brevispina*, Thoms.

(9) 12. Upper-wings apically subinfumate ; antennae and thorax entirely black ; facial excavation shorter.
6. *anxius*, Wesm.

(8) 13. Clypeus angularly produced apically. 7. *nasutus*, Giraud.

(1) 14. Mandibles apically bifid ; oral costa not elevated ; recurrent nervure with two distinct and discreted fenestrae (PELTOCARUS).

(16) 15. Facial excavation indeterminate below ; abdomen more coarsely sculptured, with two or three basal fasciae not interrupted ; flagellum pale throughout ; lateral metathoracic callosities flavous. 8. *croceicornis*, Thoms.

(15) 16. Facial excavation determinate below ; abdomen more finely sculptured, with the two or three basal fasciae broadly interrupted ; flagellum darker ; metathorax with no flavous callosities. 9. *interruptus*, Thoms.

Thomson, however, appears to have been entirely ignorant of the five species brought forward by Dr. Arnold Förster

in his Hundred New Hymenoptera (Ver. pr. Rheinl., 1850, p. 278), and owns himself quite unable to place several of the most widely known names of the older authors. I have substituted *M. nasutus*, Gir., for his *M. clypealis*, and have no doubt that *M. dentatus*, Fab., is his *M. interruptus*. For an account of the habits and economy of this genus, *cf.* my Ichneumonologia Britannica, vol. iv, 1911.

Upon this somewhat unsatisfactory foundation, whose features are, however, thoroughly sound and structural, I have attempted to erect the following table of such species as are contained in the British Museum, or could with any certainty be placed from their descriptions.

CONSPECTUS SPECIERUM.

(62) 1. Front wing with the areolet distinctly triangular, not quadrate.

(3) 2. Clypeus apically acutely produced in the centre. 1. *nasutus*, Giraud.

(2) 3. Clypeus normal, truncate or broadly rounded apically.

(15) 4. Mandibles apically bifid; second recurrent nervure bifenestrate. (PELTOCARUS, Thoms.)

(12) 5. Frons not or obsoletely carinate; abdomen black and flavous; wings not infumate.

(9) 6. Abdominal segments subquadrate; antennae above, and usually tegulae, black.

(8) 7. Metanotal areola wanting; segments apically flavous; length 20 mm. 2. *dentatus*, Fabr.

(7) 8. Metanotal areola distinct; segments half flavous; length 14 mm. 3. *hilaris*, Tosq.

(6) 9. Abdominal segments strongly transverse; antennae mainly, and whole tegulae, pale.

(11) 10. Areolet sessile; basal nervure straight; metanotum not carinate. 4. *croceicornis*, Thom.

(10) 11. Areolet subpetiolate; basal nervure curved above median; metanotum tricarinate. 5. *eritreae*, sp. n.

(5) 12. Frons distinctly carinate centrally; abdomen and legs mainly pale; wings infumate.

(14) 13. Abdomen and legs rufescent; wings infumate throughout. 6. *rivolleti*, Dom.

(13) 14. Abdomen and legs flavous, black-marked; wings apically infumate. 7. *pulchripes*, Cam.

(4) 15. Mandibles mutic; second recurrent nervure unifenestrate (METOPIUS, *auct.*).

(17) 16. Basal segment subdeplanate and bicarinate throughout; body mainly testaceous. 8. *bicarinatus*, sp. n.

(16) 17. Basal segment pyramidal, not apically carinate; body mainly black.

(43) 18. Wings determinately infumate, especially apically; lateral facial carinae parallel.

(22) 19. Basal segment not flavous-marked; frons acutely cornute.

(21) 20. Legs nearly entirely black; Palaearctic species.
9. *fuscipennis*, Wesm.

(20) 21. Legs partly red, calcaria pure white; S. African species.
10. *lugubris* Tosq.

(19) 22. Basal segment more or less broadly flavous; frons with no horn.

(30) 23. All the femora entirely rufescent throughout.

(27) 24. Frons not carinate; body black and flavescent.

(26) 25. Metanotum with no distinct areae; abdomen flavous-marked. 11. *erythropus*, Kriech.

(25) 26. Metanotum with five strong areae; abdomen dark red-marked. 12. *lar*, sp. n.

(24) 27. Frons distinctly carinate centrally; body mainly red.

(29) 28. Scutellar production half length of scutellum; basal segment bicarinate. 13. *discolor*, Tosq.

(28) 29. Scutellar production short; basal segment not carinate.
14. *rufus*, Cam.

(23) 30. Femora more or less broadly, or entirely, black.

(36) 31. Apex of scutellum laterally rectangular; wings infumate towards apices.

(33) 32. Thorax flavous-marked; sixth segment punctate, shining; hind tibiae flavous. 15. *leiopygus*, Först.

(32) 33. Thorax often black; sixth segment rugose, dull; hind tibiae nigrescent.

(35) 34. Wings distinctly and determinately infumate anteriorly.
16. *dissectorius*, Panz.

(34) 35. Wings not very distinctly infumate evenly throughout.
17. *circumcinctus*, Först.

(31) 36. Apex of scutellum laterally spinose; wings often unevenly infumate throughout.

(42) 37. Wings deeply infumate; second segment laterally obtuse and apically pale.

(41) 38. Sixth segment entirely immaculate black.

(40) 39. Two basal segments not flavous and glabrous; scutellum basally black. 18. *intermedius*, Först.

(39) 40. Two basal segments flavous and glabrous; scutellum laterally flavous at its base. 19. *medianus*, sp. n.

(38) 41. Sixth segment broadly and distinctly flavous-banded.
20. *peltator*, Marsh.

(37) 42. Wings paler; second segment laterally acute and apically black. 21. *melanopsis*. Först.

(18) 43. Wings hyaline throughout; lateral facial carinae usually curved.

(45) 44. Facial carinae connected with clypeus by strong carina.
22. *connexorius*, Wesm.

(44) 45. Facial carina not produced apically.

(51) 46. Areolet petiolate; facial shield often angled between scrobes.

(50) 47. Upper carina of facial shield distinctly emarginate between scrobes.

(49) 48. Scutellum and all segments broadly flavous; Australia. 23. *unifenestratus*, sp. n.

(48) 49. Scutellum basally, and several segments entirely, black; Europe. 24. *micratorius*, Grav.

(47) 50. Upper carina of facial shield truncate below scrobes. 25. *marchandi*, Dom.

(46) 51. Areolet sessile; facial shield subtruncate above.

(53) 52. Basal segment apically pale-dotted; length only 7 mm. 26. *laeviusculus*, Dom.

(52) 53. Basal segment broadly pale; length at least 12 mm.

(61) 54. Scutellum with apical angles produced; second segment entirely, or only at angles, pale.

(56) 55. Lateral scutellar carinae very strong; metanotum centrally carinate; fourth segment mainly flavous. 27. *sinensis*, Smith.

(55) 56. Lateral scutellar carinae normal; metanotum not centrally carinate; fourth segment narrowly flavous.

(58) 57. Wings entirely hyaline; radial nervure apically curved. 28. *brevispina*, Thoms.

(57) 58. Wings subflavescent; radial nervure externally straight.

(60) 59. Abdomen mainly, and antennae above, black; Oriental. 29. *flavobalteatus*, Cam.

(59) 60. Abdomen basally, and the antennae entirely, flavous; Australian. 30. *crassicornis*, sp. n.

(54) 61. Scutellum with apical angles obtuse; second segment entirely flavous at its apex only. 31. *notabilis*, sp. n.

(1) 62. Front wings with the areolet distinctly quadrate. 32. *bellatorius*, Först.

Central and South American Region.

Cresson's two species, *M. femoratus* and *M. scutatifrons*, were brought forward in 1873 from Orizaba in Mexico, and are duly noted by Cameron in Biologia Centr.-Americana. From South America I have seen but four specimens, two of which belong to a new species, allied at least in coloration, upon which the Nearctic authors too much rely, to *M. pulchellus*, Cress., though hardly identical, since that is said to have the discal carinae of the basal segment "small and scarcely elevated" with "facial shield flat," whereas in these specimens both are unusually convex and conspicuous; they seem to approach *Cultrarius* in having the abdomen basally constricted with the first segment not discally pyramidal, but the head is not small, nor the petiole discally deplanate.

Metopius bicarinatus, sp. n.

The type of this new insect was captured by Bates at Villa Nova on the Amazon, and a second example at Para at its mouth. With these he also took two other specimens, which I believe to be no more than a striking variety (var. *variegatus*, var. nov.) of the above species, though with the thorax, base of legs and of head, together with all the abdominal segments, more or less broadly, deeply black to such an extent as to alter its facies completely, though the structure, especially of the basal segment, agrees closely with that of *M. bicarinatus*.

North American Region.

The table of thirteen kinds given by Davis (loc. cit. supra) is built up too largely upon colour distinctions, and I have, consequently, had to omit them from my Conspectus, though the majority of both his own and Cresson's species appear quite good. None are represented in the British Museum, excepting a single ♂ from Hudson's Bay, agreeing with his table and description of *M. pollinctorius*, Say, doubtless a western form of *M. micratorius* with darker legs.

Metopius medianus, sp. n.

Another ♂ there differs materially in having the polished and nitidulous postpetiole and second segment, except narrowly along its base, brilliant testaceous, with only the two following segments concolorous at their apical angles; the wings are very dark, with short and sessile areolet. It was captured many years ago in Georgia, probably taken by Edward Doubleday (cf. Entomological Magazine, 1838, p. 402); and I propose the name *M. medianus* for it, since the pale centre is so conspicuously in contrast to the dull remainder. If it be the ♂ of Cresson's *M. basalis* (Proc. Amer. Ent. Soc. 1879, p. xxvii), that species is too baldly described to be recognised in its opposite sex. *M. grandior*, Viereck (Trans. Kans. Acad. Sci., xix, 1905, p. 310), taken in Kansas in June, 1902, is related to *M. montanus* Cress., with the wings simply "more fuscous along the anterior borders." Two recent United States descriptions (Ent. News, xvii, p. 150, and Milwaukee Bul. Wis. Soc., v, p. 54) I have not seen.

European Region.

It is remarkable how extremely local or overlooked several of our Palaearctic species appear. Thus *M. erythropus* is

only known from Budapest, *M. leiopygus* (=*necatorius*, var. 1, Grav.) and *M. melanopsis* from Aix-la-Chapelle ; the same author's *M. circumcinctus* and *M. intermedius* from southern France, *M. peltator* from Milford Haven, *M. marchandi* from Nantes, and *M. laeviusculus* from Russia, have not been noted since first described. Few species of the genus are, however, common despite their preying upon abundant Bombyces ; and in Britain I have never met with a representative in the course of twenty years collecting. The British Museum contains numerous examples of the common and well-known *M. dentatus* from Italy, Dalmatia, Cannes, Gavarnie in the Pyrenees, and St. Antonien in Switzerland, where it was found on 19th August, 1896, by Sir W. H. Flower. But *M. croceicornis* is rarer and represented only by two German examples from Zeller's and Ruthe's collections, the latter "*exclusa* 17.3.1841" with the Bombycid pupa from which it emerged. Of *M. dissectorius* (=*sicarius*, Grav., 1829, and, doubtless, *nigrator*, Lep., 1825) examples are from Switzerland and Germany ; *M. circumcinctus* is represented by a fine unlocalised specimen with broadly pale postpetiole ; but of *M. connexorius* there are a score of specimens, from central Europe, where it appears abundant, especially about Zürich in July. *M. peltator*, Marsh., hitherto known only from north Wales (and one in my collection, taken by the late A. J. Chitty at the Blean Woods in Kent), is contained in Ruthe's collection in the British Museum ; it was sent from Zeller, together with a single *M. melanopsis*. There is but one unlocalised ♀ of *M. brevispina*, which Thomson suggested might be synonymous with *M. vespoides*, Panz.

Metopius notabilis, sp. n.

A handsome, somewhat large species of 18 mm., resembling *M. croceicornis* in its profuse abdominal markings, since all eight segments are somewhat broadly flavous at their apices ; the scutellum apically, metapleural dots with linear callosity before the radix, and sides of the facial shield, are flavous ; the legs are black with the whole of all the tibiae and tarsi flavous ; the mandibles are mutic and the second recurrent nervure unifenestrate, though it otherwise bears the exact facies of *Peltocarus*. C. Glaszner took the type in Cyprus on 4th March, and presented it to the British Museum in 1902.

1. nasutus, Giraud, Verh. z-b. Ges. Wien 1857, p. 169, pl. iii. figs. 4, 5
2. dentatus, Fabr. Spp. Ins., 1781, p. 436 ; Holmgr. Sv. Ak. Handl. 1856, p. 374, excl. ♂ (*nec* Voll. Pinac.).
4. croceicornis, Thoms. Deut. Ent. Zeits. 1887, p. 196 : *M. dentatus*. Voll. Pinac., pl. xvi, fig. 6 (*nec* Fabr.).

9. fuscipennis, Wesm. Bull. Ac. Sc. Belg. 1849, p. 623; (?) *M. scrobiculatus*, Htg. Jahresb. Fort. Först. 1838, p. 272.

11. erythropus, Kriech., Term. Füzet. 1894, p. 58, ♀.

15. leiopygus, Först. Verh. pr. Rheinl. 1850, p. 281, ♀.

16. dissectorius, Panz. Faun. German. ix, 1809, p. 98, pl. 14 *M. sicarius*, Grav. I. E., iii, 291.

17. circumcinctus, Först. Verh. pr. Rheinl. 850, p. 278, ♀ *M. clypealis*, Thoms. Deut. Ent. Zeits. 1887, p. 196.

18. intermedius, Först. Verh. pr. Rheinl. 1850, p. 280, ♀.

20. peltator, Marsh. Entom. Annual 1874, p. 130; Voll. Pinac., pl. xvii, fig. 1, ♀.

21. melanopsis, Först. Verh. pr. Rheinl 1850, p. 279, ♀.

22. connexorius, Wesm. Bull. Ac. Sc. Belg. 1849, p. 624.

24. micratorius, Grav. Nov. Act. Acad. Nat. Cur. 1815, p. 292; (?) *Ichn. fasciatus*, Fourc. Ent. Par. 1785, p. 428.

25. marchandi, Dom. Bull. Soc. Ouest-France, 1898, p. 87, pl. iv, fig. 1.

26. laeviusculus. Dom. loc. cit., p. 90, pl. iv., fig. 3.

28. brevispina, Thoms. Deut. Entom. Zeits. 1887, p. 195.

31. notabilis, sp. n.

32. bellatorius, Först. Verh. pr. Rheinl. 1850, p. 277, ♀.

African Region.

Tosquinet describes *M. discolor* from Cape Colony and that vague locality, Caffraria, to which Cameron has added Estcourt (Ann. S. African Mus., v, 1896, p. 136, where he also brings forward four new kinds which I have not seen); there is a ♀ in the British Museum, taken by R. W. Plant at Port Natal about 1852, which exactly agrees with Cameron's type of the synonymous *M. erythropus* (*nec* Kriech.; renamed *M. recedens* by Schulz in Spolia Hym., p. 98). The peculiar petiolar carinae, extending to the centre where they coalesce, distinct metanotal areola, curved and strongly produced scutellar apices and the infumate alar spot, render this species very distinct; it is the only African species which is mainly red. Guy Marshall took a ♂ of the Caffrarian *M. hilaris* at Salisbury in Mashonaland in February, 1900, and presented it to the British Museum in 1909; it has the second recurrent nervure distinctly bifenestrate. *M. lugubris* is also there represented by a single example, captured at Port Natal as long ago as 1858, by the Swedish collector Gueinzius. Tosquinet's other three African *Metopii* (Mém. Acad. Belg. 1896, p. 263) are unknown to me, and, since he does not mention Thomson's main features, I cannot tabulate

them. The Abbé Dominique's *M. rivolleti* (Bull. Soc. Ouest-France, viii, 1898, p. 89) is from southern Tunis ; but I have had no opportunity of consulting Szépligeti's description of *M. sjostedti* in the report of the Kilimanjaro-Meru Expedition, viii, p. 85.

Metopius eritreae, sp. n.

Very like *M. croceicornis*, but smaller and only 15 mm. in length, with the head posteriorly broader, the frontal process less developed, the scape entirely pale, both thorax and abdomen narrower, the scutellum much more strongly emarginate along its apex, the metanotum distinctly tricarinate longitudinally, the basal segment not tuberculate, the wing nervures black with the alar apices subinfuscate and nervellus less strongly postfurcal. This appears to represent none of Tosquinet's species, the most northern of which is from Delagoa Bay. The typical ♀ is in the British Museum, ex coll. Rowland Turner, and was captured at Asmara in Eritrea on the Red Sea during July.

3. hilaris, Tosq. Mém. Soc. Ent. Belg. 1896, p. 365, ♂.

5. eritreae, sp. n.

6. rivolleti, Dom. Bull. Soc. Ouest-France 1898, p. 89, pl. iv, fig. 2.

10. lugubris, Tosq. Mém. Soc. Ent. Belg. 1896, p. 368, ♂.

13. discolor, Tosq. l.c., p. 361 ; *M. erythropus*, Cam. (*nec* Kriech.); *M. recedens*, Schulz.

Asiatic Region.

Metopius lar, sp. n.

Metopius lar is a peculiarly dull and dark species with the whole wings, but more especially the costal region, infunate; the facial shield alone is laterally flavous and I know no other species of dull black body combined with ferrugineous segmental apices in this genus. It is brought forward by me in the Fauna of India from several specimens taken at Gantok in the Sikkim Himalayas, and the type is in the British Museum, along with that of *Cultrarius purpureotinctus*, Cam. (Ann. Nat. Hist. 1907, p. 176, ♂), from Darjeeling, possibly a ♂ of the same species, though with distinctly paler wings. *M. rufus* is doubtless quite common in Asia, and I have seen it from Abu, Hong Kong, Poona (Wroughton), Bhamo in Burma, and many from Bangalore (Annandale). *Cultrarius areolatus*, Cam. (Ann. Nat. Hist. 1907, p. 177), the type of which is in the British Museum, is, in my opinion, nothing

but a form of *M. dissectorius*, Panz., with the face laterally pale; it certainly has no relation to Davis' genus; it is from Sikkim, where so many Palaearctic *Ichneumonidae* are now known to occur. I consider it nearly certain that *Cultrarius flavobalteatus* Cam. (Zeits. Hym.-Dip. 1903, p. 342) is merely an Oriental form of *M. brevispina* Thoms., with the second segment smoother, nervures slightly modified and the scutellum possibly a little more produced; the type, in the British Museum, was procured at Darjeeling. *M. sinensis*, Smith, from Northern China, where the type, in the British Museum, was found by Fortune about 1854, and a second by Bowring about 1856, is a large and handsome insect, very closely related to *M. micratorius*, though abundantly distinct in its scutellar structure, abdominal markings and larger size. *M. pulchripes* is extremely similar to a new Australian species, but the second recurrent nervure is obviously bifenestrate; it was first taken by Col. Nurse in Rajputana, and I have seen the type in his collection; it is common and widely distributed from the Khasi Hills of Assam to Poona at the other end of India, Bangalore, Nasik in Bombay, etc.; and I suspect Ashmead's *M. browni* (Proc. U.S. Nat. Mus. 1906, p. 117, ♂), taken by Father Brown at Manila, of being synonymous; as also may be the ♂ *M. javanus*, Szépl. (Leyden Mus. Notes, xxix, 1907, p. 259), though I have not seen the latter description.

7. pulchripes, Cam. Journ. Bombay Nat. Hist. Soc. 1907, p. 586.

12. lar, sp. n.

14. rufus, Cam. Zeits. Hym.-Dip. 1905, p. 281, ♀.

27. sinensis, Smith, Proc. Zool. Soc. Lond. 1877, p. 411, pl. xliv, fig. 4, ♀.

29. flavobalteatus, Cam. Zeits. Hym.-Dip. 1903, p. 342, ♂.

Australian Region.

Metopius unifenestratus, sp. n.

Turner brought home two species of this genus from Australia. The present species was found commonly and in both sexes at Mackay, and at Cairns in Queensland during October, November, January, March, and May. It is extremely closely allied to the Indian *M. pulchripes* and the coloration is identical, but, among other small structural distinctions, the second recurrent nervure is simply unifenestrate, and I have introduced it as new in my Conspectus

under the name *M. unifenestratus*; the front wing sometimes but not always has an indefinite subapical cloud, not noticeable in a couple of males from Wollongba on the Richmond River in the north-east of New South Wales.

Metopius crassicornis, sp. n.

The second species is a single beautiful ♀ with the whole abdomen as far as base of the fifth segment flavo-testaceous, the antennae entirely red, strongly attenuate, and much thicker than in any species except *M. croceicornis* with which I am acquainted, well meriting the name *M. crassicornis*. It was captured by Rowland Turner on the edge of the jungle at Mackay in Queensland, during April, 1900, and presented to the British Museum in 1909. This can, I think, hardly be synonymous with *M. michaelseni*, Szépl. (Die Fauna Südwest-Australiens, Lief. ix, 1908, p. 322, ♀), which is said to have "bräunlich Flügel, am Ende oben mit einem braunen Fleck," the antennae only basally pale, and to have been taken more than a thousand miles away.

INDEX.

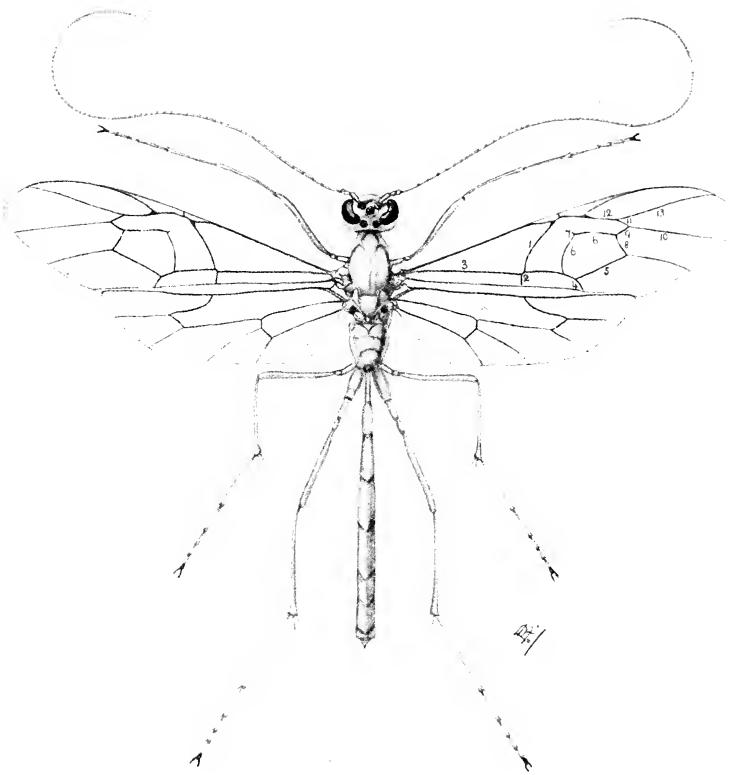
EXPLANATION OF PLATE.

OPHION LUTEUS, Linn.

Type of the Ophionides, of world-wide distribution.

1. The upper basal nervure. 2. The lower basal nervure. 3. The median nervure, extending to its junction with 6. 4. First recurrent nervure, meeting the median at 6. 5. The anal nervure. 6. The discoidal nervure, emitting (7) the ramellus or nervelet. 8. Second recurrent nervure, connecting anal with cubital. 9. Abscissa of cubital nervure. 10. External cubital nervure. 11. Intercubital or submarginal nervure. 12. Basal abscissa of radial nervure, extending to 11. 13. Apical or external abscissa of radial nervure, extending from 11.

The original of this Plate was kindly drawn and presented by Mr. RUPERT STENTON, F.E.S., from a female example of the typical form, captured during September by Mr. W. H. TUCK, M.A., at Bury St. Edmunds in Suffolk, now in the collection of Claude Morley



OPHION LUTEUS. Linn.