

NOTES ON THE NOMENCLATURE OF THE ACULEATE HYMENOPTERA, WITH SPECIAL REFERENCE TO BRITISH GENERA AND SPECIES

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THE following notes have been prepared with a view to the publication of a revised list of the British Aculeate Hymenoptera. The generic and specific names of this group have never, as a whole, received a thorough revision according to the International Rules of Nomenclature. Further, a number of old types have not recently been re-examined. It is therefore hardly surprising that a rather large number of nomenclatorial changes are brought forward. The greatest care has been taken to insure that references, dates, type-citations, etc., are correct, and it is hoped the prospect of some degree of stability in nomenclature (founded on an intensive study of the literature) may compensate for the prospect of immediate change.

It is a pleasure to record the help I have received from numerous colleagues. The bibliographical side of the work has greatly benefited and in a number of cases has actually been carried out by Mr. F. J. Griffin, whose wide knowledge of Entomological literature has been of the greatest aid. Mr. R. B. Benson has kindly put the facilities of the Hymenoptera Room of the British Museum freely at my disposal. Mr. N. D. Riley kindly negotiated with various institutions for the loan of types to the British Museum (Natural History); through him certain types have been sent by Baron K. von Rosen (München), Dr. O. Schröder (Kiel), Dr. N. A. Kemner (Lund), and Mons. A. Ball (Bruxelles). A loan of some Haliday types was arranged by Mr. A. W. Stelfox, of Westwood and Cameron types by Prof. G. D. H. Carpenter and of some Chitty types by Mr. Claude Morley. Mons. L. Berland kindly compared a specimen with a Kieffer type at Paris and also reported on certain types which were or might have been in the Museum national d'Histoire naturelle. Dr. F. Maidl showed equal kindness to a request with regard to types in the Naturhistorisches Museum, Wien, and Prof. Dr. H. Bischoff with regard to types at the Zoologisches Museum der Universität, Berlin. Dr. P. Blüthgen was good enough to explain to me his views on the complicated synonymy of the genus *Pemphredon* s.l., and Prof. T. D. A. Cockerell gave me some information as to type-fixation of certain bee-genera. Finally, Mr. A. Savage gave me every aid in examining Linnaeus' collection and Kirby's correspondence at the Linnean Society. I wish to record my best thanks for all this invaluable co-operation.

The notes that follow are numbered consecutively to facilitate reference.

1. The Linnean types in the collection at the Linnean Society, Burlington House.

Few of the specimens in Linnaeus' collection can be regarded as types in the modern sense of the word. Linnaeus himself probably often discarded speci-

mens, added them to his series and exchanged labels. The subsequent owners\* of the collections certainly took an equal liberty. A number of specimens included in the collection were certainly added after the collection came to England, e.g. many of Kirby's species of bees. In the most favourable circumstances, a Linnean "type" is a specimen agreeing with the original description and bearing a label in Linnaeus' handwriting. Some specimens with such labels, however, disagree with the original descriptions. A considerable latitude can, therefore, be allowed in deciding what to regard as types, so as to necessitate the least number of nomenclatorial changes.

## 2. The date of J. C. Fabricius "Systema Piezatorum."

The following note is based on the research of Mr. F. J. Griffin. Fabricius' work is usually supposed to have been published at Brunswick in 1804. The preface is dated 10th March, 1804, which gives the earliest date possible for publication. The copy of the book in the library of the Royal Entomological Society of London has certain advertisements bound in at the end which are part of the original book and have not been added later by the binder. Amongst the works advertised therein is Meigen, J. W., 1804. "Klassifikation und Beschreibung der europäischen zweiflügeligen Insekten." This was published late in 1804. In the advertisements at the end of Meigen's book, the "Systema Piezatorum" is advertised but no price is given, whereas with works which had already appeared the price is indicated. In the advertisements at the end of the "Systema" is furthermore one of the 4th Band of Illiger's Mag. f. Insektenkunde which was published 1805. This advertisement gives the price of the 4th Band which must have appeared already. There is little doubt that the "Systema" was really published early in 1805; in any case it post dates Vol. 24 of the Nouveau Dictionnaire d'Histoire naturelle (March, 1804).

The following genera and species (the modern genus being placed in brackets) should be dated from 1805.

*Dryinus* Fab. nec Latreille (1804), [*Chlorion*]; *Bethylus depressus* [*Pristocera*]; *Lasius* Fab. nec Jurine and Panzer; *Salius*; *Trypoxylon equestre* [*Mimesa*]; *Trypoxylon atratum* [*Psenulus*]; *Crabro continuus* [*Solenius*]; *Mellinus quadri-fasciatus* [*Hoplisus*]; *Prosopis*; *Megilla labiata* [*Macropis*]; *Anthidium*.

## DRYINIDAE.

A large number of the types in this family have been accessible. Many of Kieffer's types are in the Cameron collection in the British Museum. The Westwood types are at Oxford. The Chitty types are in the collection of Mr. Claude Morley. The Walker-Haliday types are divided between the British Museum and the National Museum of Ireland, Dublin. Mr. A. W. Stelfox of the latter Museum has given me invaluable assistance in studying the specimens under his care and only with his co-operation has it been possible to discover which specimens actually are the types.

The Walker-Haliday specimens of DRYINIDAE are now divided amongst five different series of specimens.

\* In the Kirby Correspondence in the Linnean Society's Archives is a letter to G. A. McLeay, Esq., dated June 10th, 1801. He writes, "The *Bembex rostrata* [just received from Latreille] varies somewhat from the authentic specimen of the Linnean cabinet (which *entre nous* being mutilated Dr. Smith gave me placing another in its situation), but I believe it is only a sexual variety, as my specimen is a male; and M. Latreille's a female."

## A. British Museum (Natural History), London.

(1) Specimens with the registration number 1904-120. These are Walker "types" bought first by the Rev. A. Matthews, then by Dr. P. B. Mason, then by Rev. T. A. Marshall, from whose collection they passed to the British Museum. Until they were incorporated in the Museum collection, they had been kept in the original box in the same arrangement as Walker left them.

(2) Specimens with registration numbers 38.4.5 (1-19). These specimens were incorporated by Walker in the Museum collection in 1838, a short time after his paper on the DRYINIDÆ appeared (1837).

## B. National Museum of Ireland, Dublin.

(3) A box forming part of the Haliday collection. The specimens were apparently of Walker's collecting and mounting and stand above printed labels cut out of some old list.

(4) A box forming part of the Haliday collection. The specimens were apparently collected and mounted by Haliday, but stand over manuscript labels in Walker's handwriting.

(5) A box of unarranged specimens in the Haliday collection.

One specimen in (5), however, bears Haliday's mss. label. The above numbers will be used to indicate the present location of types. In deciding which specimens are types, the first consideration is that the types of species described by Haliday or by Haliday *in* Curtis are in collections 3 or 4. The types of specimens described by Walker with the addition "Haliday mss." are in the Haliday collection. The types of species described solely by Walker are mostly in the British Museum collection. There are no holotypes, but by careful study of the descriptions it is often possible to find one specimen out of the series which best agrees with the description. In the present communication, I propose only to redescribe species where this is essential for their recognition.

3. *Laberius vitripennis* (Haliday, 1833).

Mr. Stelfox told me that the type of *Labeo vitripennis* Haliday still exists in the Haliday collection (4) at Dublin. The genus is made up of males only, which are probably those of *Dicondylus* or *Gonatopus*.

4. *Gonatopus oratorius* Westwood, 1833.

Prof. G. D. H. Carpenter kindly allowed me to examine the type of this species, now preserved at Oxford. The following redescription will assist in its recognition.

♀. Light red. Abdomen black. Vertex darkened, especially posteriorly. Antennae with at least three first segments light yellow and about seven apical segments black. L. 2.75 mm.

Vertex a little dull and alutaceous, central keel almost obsolete. Antennae with first segment curved, more than twice as long as broad, not very thick; second segment almost as thick, twice as long as broad, two-thirds as long as first; third segment very thin, considerably shorter than 1 + 2 together; subapical segments about one and a half times as long as broad; antennae little thickened apically. Pronotum in dorsal view pear-shaped, broadest well in front of middle but only moderately narrowed posteriorly; in profile very slightly curved, very little raised, no transverse or longitudinal impressions,

smooth and shining. Posterior part of thorax bare, transversely striate except for a small discal area between the spiracles; more than twice as long as broad, in dorsal view considerably broadened from narrow anterior stalk, in profile gently raised in a smooth curve, posterior declivous face very oblique. Abdomen smooth and shining. Fore femora moderately thickened, about twice as thick as thickest part of tibia; tarsi very much covered by gum, first segment as long as segments 3 + 4, more than twice as long as 2 + 3; enlarged claw straight with a small apical part a little curved, without subapical tooth, probably without lamellae; fifth segment (other part of forceps) thin and straight, not suddenly becoming thinner before apex, apical part only a little incurved; lamellae probably on apical part and along greater basal part of straight basal section.

The type bears no data but the name in mss. and two numbers "31" and "R.26."

#### 5. *Gonatopus ljunghii* Westwood, 1833.

The type of this species is also preserved at Oxford; the following is a redescription.

♀. Black. Clypeus, small mark above antennae, short lines along orbits above antennae, antennae (except somewhat darker apical part), legs except thickened part of fore femora and hind coxae, yellowish. Fore tibiae a little darkened posteriorly. L. 3 mm.

Vertex shining with fine central line practically obsolete. Antennae with first segment rather thick, a little bent, twice as long as broad; second segment two-thirds as long as first, thin, twice as long as broad; third segment very long and thin, distinctly longer than 1 + 2, as long as 4 + 5; segments 8 and 9 about one and a half times as long as broad; antennae only feebly thickened apically. Pronotum in dorsal view broadest at about middle, lateral margin subcircular; in profile rising regularly from anterior margin for three-quarters of its length, then sinking abruptly to posterior margin, the two faces almost at right angles; posterior part of thorax about twice as long as broad, dull, weakly coriaceous, bare. Abdomen and pronotum smooth and strongly shining. Fore femora very thick, two and a half times as thick as thick part of tibia; first tarsal segment rather more than twice as long as segments 2 + 3, rather longer than 4; enlarged claw without subapical tooth or lamellae, gently curved; fifth segment (other part of forceps) straight, becoming abruptly thinner just before apex and beyond this strongly curved, curved apical part bearing about five lamellae, straight basal part bearing a row of about fifteen short bristles.

The type is a female labelled "Wimbledon" and with a short mss. note on its method of shamming death and on its relationship to *D. formicarius* Dalman.

#### 6. *Gonatopus sepsoides* Westwood, 1833.

Two specimens of this species are preserved at Oxford. One labelled "Black Gang Chine, Aug. 1831" is without the head and fore legs. The other bears no data, but is in good condition and may be regarded as the type. The following is a redescription.

♀. Black. Head except in neighbourhood of ocelli, antennae 1-2, dorsal spot on pronotum, mark on first tergite, legs (except fore femora which are brown) yellowish testaceous. L. 2.5 mm.

Vertex with a fine central line. Antennae exactly as in Kieffer's description of *sociabilis* (1914, *Das Tierreich, Bethyloidea*, 41: 108). Pronotum in dorsal view broadest well in front of middle and considerably narrowed posteriorly; in profile with anterior third a little lower than posterior two-thirds, which is flat. Posterior part of thorax with outstanding hairs, declivous face transversely striate; thorax otherwise smooth and shining. Fore legs with

enlarged claw without teeth or lamellae, apex a little bent; fifth segment of tarsi (other part of forceps) straight with small apical part strongly bent and bearing about five lamellae, segment otherwise only with a row of about 15 fine bristles. Close to *sociabilis*, but in Kieffer's key would run down to *G. ljunghii*.

The type of *G. sociabilis* Kieffer is in Mr. Donisthorpe's collection of myrmecophiles and he has kindly allowed me to examine it (the head is now missing).

*G. sociabilis* has chelae as described by Kieffer (not as described above); prothorax entirely black; pronotum posteriorly in profile more angularly and deeply declivous; disc of propodeum more shining; length 3 mm.

#### 7. *Dicondylus* Curtis, 1829-30.

There has been some confusion between two British species of this genus. *D. bicolor* (Haliday in Curtis, 1828) and *D. striatus* (Kieffer, 1905) (= *D. pedestris* Haliday, ? of Dalman). Mr. A. W. Stelfox, in correspondence, has indicated what is probably the source of the confusion and also enabled me to examine Haliday's specimens.

The genus *Dicondylus* was validated by Curtis (1829-30, *Guide to an Arrangement Brit. Ins.* : 110) since he published the name and cited two described species, viz. *D. bicolor* and *D. pedestris*. Of these, Kieffer (1914, *Das Tierreich, Bethyloidea*, 41 : 73) cited *D. bicolor* as the type.

*Dryinus bicolor* Haliday in Curtis (1828, *Brit. Ent.* : 206) (type in coll. 4) is stated by Curtis to have been found "in moss on a bank in Ireland." Haliday (1833, *Ent. Mag.*, 1 : 273) in his diagnosis of *Dicondylus*, cites only a single species, viz. what he calls *D. pedestris* Dalman. Probably by this date he had persuaded himself, or Walker had persuaded him, that *D. bicolor* was only a colour variety of that species. Walker (1837, *Ent. Mag.*, 4 : 412) takes this view, his var. ♂ of *pedestris* being *D. bicolor*.

Haliday (1835, *Ent. Mag.*, 2 : 221) says of "*D. pedestris*," "The first time I met this species . . . was near Darent Wood." Later, "In this island [*i.e.* Ireland], its haunts are sandhills. . . ." Walker (1837, *loc. cit.*), on the other hand, records his "*pedestris*" only from Kent (Haliday) and Jersey. His figure (*loc. cit.*, pl. xvi, fig. 5) is of a "*pedestris*" (*i.e. striatus*) which must have come from Ireland. It is highly probable that the original specimen of *D. bicolor* was from Darent Wood and that Curtis supposed that it came from Ireland, like most of Haliday's insects.

With this assumption, the distribution of these insects becomes rational.

(1) *D. bicolor* (Haliday in Curtis). Woodland species, recorded from :—W. Kent (Haliday), Bucks and Berks (Richards, 1933, *J. ent. Soc. S. Engl.*, 1 : 51), ?S. Hants (Donisthorpe, 1927, *Guests Brit. Ants* : 102).

(2) *D. striatus* (Kieffer) (= *pedestris* Haliday). Sandhill species, recorded from :—Co. Down (Haliday), E. Kent, Deal (Donisthorpe, *loc. cit.* : 103).

*Gonatopus pedestris* Dalman, 1818 must await examination of the type before the name is used. Kieffer places it in the genus *Platygonatopus*.

#### 8. *Dryinus sisythrus* Walker, 1837.

The type is a female in collection 2. It is the same as *Anteon crenulatum* Kieffer, 1905 (compared with type), *Anteon scoticum* Kieffer, 1905 and *Anteon vicinum* Kieffer, 1905 (compared with type). The sculpture of the head of these

supposed species varies somewhat, but they are connected by intermediates. *A. scoticum* is represented in the British Museum collection by a male, which may not be the type but is part of the material on which the species was based. Mr. Stelfox has captured males and females together in Ireland under conditions which make the association of the sexes fairly certain.

#### 9. *Dryinus otiartes* Walker, 1837.

The type is a male in collection 1. It is an *Anteon* which runs down to *A. vicinum* Kieffer, 1905 but differs from the male (?allotype) in having the head strongly alutaceous, but not rugose except quite laterally; mesonotum smooth and moderately shining, though weakly alutaceous throughout. The following redescription will assist in its recognition.

♂. Black, apical half of mandibles, fore tibiae and tarsi yellow-brown. Tegulae and four hind legs brown, femora paler at base, hind coxae black on basal half. Wings hyaline, veins and pterostigma brown, hardly paler proximally. L. 2 mm.

Head rather large, a little broader than thorax, not flattened, raised posterior margin a little concave, hairs rather numerous all over, inner margins of eyes a little divergent both forwards and backwards. Antennae of moderate length, a little longer than head and thorax; scape distinctly thickened towards apex, nearly straight, four times as long as broad, as long as segments 2 + 3; 2 swollen, not quite twice as long as broad; 3-9 all of about the same length, a little longer than 2, rather thick, about two and a half times as long as broad, segments with outstanding pubescence a little longer than their diameter; 10 narrower, four times as long as broad. Vertex dull, coarsely alutaceous becoming reticulately rugose on lateral quarter, a distinct keel from median ocellus to between the antennae; ocelli in a broad-based triangle, POL\* : OOL = 3 : 4, posterior ocelli separated from back of head by a distance about their diameter, by a quarter of what they are from one another. Pronotum very short, hardly visible. Mesonotum rather convex, dull, finely alutaceous, becoming a little rugose on front quarter, parapsidal furrows very weak and short, depression in front of scutellum shallow, weakly crenate. Scutellum smooth and shining, nearly flat, impressed line along posterior margin distinct, crenate, post-scutellum with a small, convex, shining, central area. Mesopleuron invisible. Propodeum moderately shining, rather strongly clathrate, crenate furrow behind scutellum hardly developed, dorsal aspect hardly more than one-third as long as posterior one, posterior surface with no defined area though with a weak, bisinuate transverse keel at its dorsal end, surface with irregular transverse striae, especially below. Fore basitarsus hardly as long as next three segments together. Wings with basal vein (*M* + *mcu*) straight, radius with proximal and distal sections clearly separate, latter about four times as long as former.

#### 10. *Anteon barbatum* Chitty, 1908.

I have examined two males of this species, lent by Mr. Claude Morley. One of the males is marked "type" and has a label "B.W. 25/5/02." This probably stands for Bentley Wood, near Ipswich, a locality mentioned in the original description. The other male is labelled "Cannock Chase, 27/5/06."

Chitty's description of the female appears to indicate a species very near *Anteon cursor* (Haliday) (see note 11). The male is perhaps a different species (at any rate, probably not the male of *A. cursor*). It falls very near *A. sisythrus* (Walker) but differs as follows:—Antennal segments 7, 8 and 9 distinctly a

\* POL = distance separating outer edges of the posterior ocelli. OOL = distance separating inner margin of eyes from outer margin of hind ocelli.

little longer, two and a half not twice as long as broad; four hind legs, especially mid femora, distinctly paler; mesopleuron with the upper part shining, finely rugose, the lower part quite smooth—not with upper part dull and coarsely rugose and lower part only partially smooth and shining.

The following is a redescription of the male.

♂. Black. Mandibles, tegulae, fore legs except black ventral streak on femora, mid legs except black ventral streak on femora, pale brown. Hind legs rather darker brown, femora darker ventrally. Wings hyaline, veins pale, pterostigma dark brown. L. 2.5 mm.

Head large, not flattened, raised posterior margin strongly concave, inner margins of eyes a little diverging forwards. Antennae long, longer than head + thorax, thick, with dense pubescence about as long as diameter of segments, scape little curved, subcylindrical, four and a half times as long as broad, nearly as long as 2 + 3; 2 pear-shaped (narrow at base) nearly twice as long as broad; 3 a little longer than 2, two and a third times as long as broad; 4-9 subequal in length, a little longer than 3, about two and a half times as long as broad; 10 four times as long as broad. Vertex dull, rather coarsely and irregularly rugose, with traces of very weak central keel and of one just inside each eye; ocelli in a very broad based triangle, POL about = OOL, posterior ocelli separated from back of head by a distance one-quarter what they are from one another. Pronotum very short, hardly visible. Mesonotum one and half times as wide as long, rather dull, rugose in front, becoming weakly alutaceous behind, parapsidal furrows extending for half its length, depression in front of scutellum shallow, hardly crenate. Scutellum smooth and shining, nearly flat, line along posterior margin weak, feebly crenate. Postscutellum with a small central, rather shining, convex area, outside this striate. Mesopleuron with furrow separating dorsal and ventral parts very shallow, dorsal part finely rugose, moderately shining, ventral part almost entirely smooth and shining. Propodeum dull, dorsally rather finely clathrate, posteriorly rather finely rugose, dorsal aspect one-third as long as posterior one, posterior surface with no clearly recognisable central area, surface defined above by an arcuate transverse keel. Fore basitarsus not quite as long as next three segments together. Wings with basal vein ( $M + mcu$ ) almost absolutely straight, radius with proximal and distal sections well marked, the former four times as long as the latter.

#### 11. *Anteon cursor* (Haliday).

The type of *Dryinus cursor* Haliday in Curtis, 1828 is in collection 4 at Dublin. There are no reasons whatever for putting it in the genus *Mystrophorus*. The latter genus is probably only a repository for short-winged species of *Prenanteon*, though *M. subapterus* (Kieffer) is distinct from all species of *Prenanteon* I have examined. The following is a redescription of *A. cursor*.

♀. Black. Mandibles yellow. Segments 1-2 of antennae, tegulae, fore tibiae and tarsi, testaceous; fore femora brown; mid legs pale brown, femora darker ventrally; hind legs dark brown, coxae black. Wings hyaline, venation colourless, pterostigma brown, with proximal pale spot and central pale streak. L. 2.25 mm.

Head of moderate size, not flattened, raised posterior margin nearly straight, hairs sparse, more numerous below antennae, inner margins of eyes a little divergent forwards. Antennae of moderate length, about as long as head + thorax, scape nearly straight, two and a half times as long as broad, about as long as 2 + 3; 2 a little thickened at apex, nearly twice as long as broad; 3 a little longer and thinner than 2, two and a quarter times as long as broad; 4-9 a little thickened, 4 a little shorter than 3, 9 one and a half times as long as broad, 10 a little shorter than 8 + 9, twice as long as broad. Vertex dull, coarsely alutaceous, with a very fine central keel from median ocellus extending across most of vertex; ocelli in a rather broad-based triangle, POL : OOL = 1 : 1, posterior ocelli

separated from back of head by a distance equal to half that by which they are separated from one another. Pronotum very short, dull, alutaceous with some irregular striae at sides. Mesonotum moderately convex, dull, coarsely alutaceous, with some fine sinuous raised keels, especially in front, parapsidal furrows completely obsolete, impression in front of scutellum well-defined, regularly crenate. Scutellum smooth and shining, with two or three punctures on each side and an impressed crenate line along its posterior margin. Postscutellum rather convex, finely alutaceous. (Sculpture of pleuron not visible.) Propodeum dull, dorsally closely clathrate, crenate furrow behind postscutellum weak, only visible centrally, dorsal aspect less than half as long as posterior aspect. Whole posterior surface (not merely central area) coarsely alutaceous with sculpture quite different from that of dorsal surface, posterior surface not defined at sides but defined above by a twice-bent raised keel which is raised into small tubercles at its two lateral extremities. Fore femora moderately thickened, at thickest point no thicker than length of scape. Fore tarsi with basitarsus as long as  $2 + 3 + 4$  which are all very short; forceps small, when retracted fifth segment stretches along tarsi only to proximal end of fourth segment; outer arm of forceps (modified claw) moderately curved at a point rather nearer base than apex, with a slight projection bearing a hair; inner arm of forceps (fifth segment) short, straight, apex not recurved, armature obscured. Wings with basal vein ( $M + mcu$ ) nearly straight; radius with distal section half as long as proximal one.

The species is separated from all those of *Anteon* I have examined by the very finely sculptured, flattened posterior surface of the propodeum.

## 12. *Anteon rufulocolle* Chitty, 1908.

This appears to be the species for which Kieffer uses the name *collare* Dalman, but the type of the latter requires examination. The type of Chitty's species is a female labelled "Tubney, 1/7/05, A.J.C." The following is a redescription.

♀. Black. Mandibles, antennae 1-3, pronotum, tegulae, sides of first abdominal segment, legs (except distal third of hind femora) reddish-yellow. Wings hyaline, venation pale, pterostigma dark brown, a little paler at base. L. 2.75 mm.

Head hardly at all flattened, raised posterior margin very feebly concave, inner margin of eyes distinctly converging forwards. Antennae rather short, considerably shorter than head and thorax, scape rather strongly curved, distinctly thicker at apex than base, three times as long as broad, a little shorter than  $2 + 3$ ; 2 subcylindrical, twice as long as broad; 3 rather narrow, three times as long as broad; 4-9 progressively shorter and thicker, 4 a little shorter than 3, 9 about twice as long as broad; 10 a little longer than 3. Vertex shining, with a very few fine punctures, no central keel but a weak central depression, ocelli in a large equilateral triangle, POL = OOL, posterior ocelli separated from back of head by a distance two-thirds what they are from one another. Pronotum a little longer than mesonotum, about two-thirds as long as broad posteriorly, in profile sloping regularly down to articulation of head, surface shining with some sparse shallow punctures, a crescentic posterior area entirely smooth, lateral aspect dull, finely striate. Mesonotum about twice as wide as long, shining, almost unpunctured, parapsidal furrows weak, extending over half its length, depression in front of scutellum well-defined, regularly crenate. Scutellum flat, shining, unpunctured, impressed line along posterior margin feebly crenate. Postscutellum with a broad flat central shining unsculptured area. Mesopleuron obscured. Propodeum dull, rather finely clathrate, dorsal and posterior aspects rather well separated, former half as long as latter, posterior surface with a very weakly defined, broad central area on which sculpture is rather finer. Fore femora moderately thick, at thickest diameter hardly longer than scape of antennae. Fore tarsi with basitarsus a little shorter than next three segments together, second and third segments very short, fourth hardly longer than second and third

together; forceps large for this genus, when retracted fifth segment stretches along tarsi to proximal end of segment two; outer arm of forceps (modified claw) rather strongly curved, without tooth or bristles; inner arm of forceps (fifth segment) nearly straight, not incurved at apex, with a row of widely spaced lamelliform bristles each separated from the next by a finer bristle, rows getting dense at apex. Wings hyaline, basal vein almost quite straight, radius with proximal and distal sections not very distinct, former three times as long as latter.

13. *Anteon maculipenne* Kieffer, 1908.

This species is recorded from Ireland in Haliday's manuscript notes (see Stelfox, 1927, *Proc. R. Irish Acad.*, 37(B) : 334). Its presence in our fauna requires confirmation.

14. *Anteon lyde* (Walker).

The type of *Dryinus lyde* Walker, 1837 is a male in the British Museum, series 1. It is the same species as *Anteon indivisum* Kieffer, 1905. Mr. Stelfox caught males of this species together with certain females at Powerscourt, Co. Wicklow, 27 May '32, under conditions which make it almost certain that they are the sexes of one species. The females are the same as *Dryinus brachycerus* Haliday-Walker (?of Dalman). According to the types in the British Museum, *A. rectum* Kieffer, 1905 and *A. obscuricorne* Kieffer, 1906 are also synonyms. The species should be known as *A. lyde* until Dalman's type has been examined.

15. *Anteon alorus* (Walker).

The type of *Dryinus alorus* Walker, 1837 is a male in series 4 at Dublin. Two males in the British Museum, series 2, agree better with Walker's var.  $\gamma$ . It is almost certainly the same as *Anteon fuscoclavatum* Kieffer, 1905. The type of the latter is now defective, the head being missing; in this condition its identity can scarcely be certainly established and I propose to maintain the above synonymy.

16. *Anteon penidas* (Walker).

The type of *Dryinus penidas* Walker, 1837 is a male in the British Museum, series 1. It is the same as *Anteon vulgare* Kieffer, 1905.

17. *Anteon nanum* (Haliday in Walker).

The type of *Dryinus nanus* Haliday in Walker, 1837 is a male in series 4 at Dublin. In Kieffer's key it runs down to *A. indivisum* Kieffer (= *lyde* Walker), but is much smaller, with a dull, alutaceous mesonotum.

The following is a redescription.

♂. Black; mandibles and fore tibiae yellow-brown; junctions of tibiae and femora and all tarsi brown. Wings hyaline, pterostigma brown. L. 1.75 mm.

Vertex dull, coarsely alutaceous, centre with a slight depression and, anteriorly, with a fine keel which becomes obsolete a little above the antennae; no lateral keels. Ocelli in an equilateral triangle, POL : OOL = 4 : 3, posterior ocelli separated from back of head by their diameter. Antennae with short pubescence, scape as long as segments 2 + 3, about two and a half times as long as broad; 4 a little longer than 3, about twice as long as broad; 5-9 all between one and a half and twice as long as broad, 10 just shorter than 8 + 9. Pronotum small, not visible in dorsal view. Mesonotum a little broader than long, dull, alutaceous (rather more shining on disc), parapsidal furrows visible as impressed lines on anterior half, impression in front of scutellum shallow, not crenate. Mesopleuron (as far

as visible) dull and alutaceous. Scutellum shining, unsculptured, a little broader than long. Postscutellum moderately shining with numerous irregular, very shallow punctures. Propodeum coarsely clathrate, hardly at all shining, posterior face somewhat truncate, ill-defined by an indefinite horseshoe-shaped keel, the surface inside which is dull, and coarsely alutaceous rather than clathrate. Wings with proximal part of radius very obtusely angled with distal part and two and a half times as long as it. Abdomen small, shining black, only a little longer than the hind femur + trochanter + coxa.

#### 18. *Dryinus jurineanus* Haliday in Walker.

*Anteon jurineanum* Latreille, 1809 is a species which has never been recognised. The specimens standing under the name in the British Museum (series 1 and 2) are a mixture of *Anteon xanthostigma* Kieffer, 1905, and *A. parvulum* Kieffer, 1905. In the Haliday collection (series 3) are specimens of the latter species.

#### 19. *Chelogyne infectus* (Haliday in Walker).

The type of *Dryinus infectus* Haliday in Walker, 1837, p. 419, is a female in series 3 at Dublin. It is the same as *Chelogyne fusiformis* (Kieffer, 1905), according to the type of the latter in the British Museum.

The male of this species is *Dryinus inclytus* Haliday in Walker, 1837, p. 421, of which the type is in series 4 at Dublin. *Anteon ellimani* Chitty, 1908 is a synonym (type kindly lent by Mr. Claude Morley). Both sexes of the species are easily recognised by the very strongly defined, shining central area of the propodeum.

#### 20. *Chelogyne fulviventris* (Haliday in Curtis).

The type of *Dryinus fulviventris* Haliday in Curtis, 1828 is a female in series 4 at Dublin. It is the same as *C. gracilicollis* (Kieffer, 1905). The species which British authors have recorded as "*Dryinus ephippiger* Dalman" is a pale form of the same species; the type of Dalman's species (1818) requires re-examination.

Kieffer (1914) ascribes a variety *similis* to Walker (1837). Walker described no such variety, the word 'similis' being merely the first word in his description of his variety  $\gamma$ . The variety, which may be taken to cover *ephippiger* Auctt., should be known as var. *similis* Kieffer, 1914.

#### 21. *Chelogyne alutaceus* sp. n.

♀. Testaceous; a black spot on centre of dorsal surface of propodeum. Wings hyaline, pterostigma and veins yellow. L. 3 mm.

Head moderately large, distinctly flattened dorsally, with straight, raised posterior margin, hairs sparse, inner margins of eyes rather strongly convergent forwards. Antennae moderately long, a little shorter than head + thorax, scape nearly straight, a little swollen at underside of apex, three times as long as broad, nearly as long as 2 + 3; 2 slightly ovate, twice as long as broad; 3-5 long, narrow and parallel-sided, progressively each a little shorter, 3 about 5 times as long as broad, about three-fifths as long as scape; 6-10 a little thickened, 9 not quite twice as long as broad, 10 about two and a half times as long as broad. Vertex dull, closely alutaceous, a weak central keel proceeds forwards from median ocellus for a distance equal to twice ocellar diameter; ocelli in an equilateral triangle, POL : OOL = 4 : 5, posterior ocelli separated from back of head by a distance equal to what they are from one another. Pronotum a little longer than mesonotum, only a little broader behind than long, in profile flat and falling rather sharply to articulation of head, dull, alutaceous with some sparse, very shallow punctures, a crescentic area in front of

posterior margin smooth and very shining, lateral aspect rather more coarsely sculptured. Mesonotum very little convex, moderately shining, very finely alutaceous, parapsidal furrows extending for two-thirds its length, impression in front of scutellum shallow, not crenate. Scutellum flat, smooth and shining, posteriorly with a fine impressed line which is hardly crenate. Postscutellum nearly smooth. (Sculpture of pleuron not visible.) Propodeum dull, rather coarsely crenate, transverse furrow behind postscutellum weak, dorsal aspect about two-thirds as long as posterior aspect, central area of posterior surface very poorly defined, sculpture within the area not differentiated. Fore femora strongly thickened, at thickest nearly = 1 + 2 of antennae. Fore tarsi (as far as they can be made out) with first segment about as long as second + third, fourth almost as long as 1-3 together, forceps large, when retracted fifth segment stretches along tarsi to a little beyond apex of basitarsus; outer arm of forceps (modified claw) only rather weakly curved, without tooth or bristles; inner arm of forceps (fifth segment) long, straight, only moderately recurved right at apex, details of armature obscured. Wings with basal vein ( $M + mcu$ ) a little sinuous; radius with distal section not very sharply marked off from proximal section, about one-third as long as it.

Closely resembles the var. *similis* of *C. fulviventris*, but differs as follows:—posterior margin of head straight (not concave); antennae with scape shorter (not four times as long as broad), segment 9 longer (more than one and a half times as long as broad); POL : OOL = 4 : 5, not 3 : 4; posterior ocelli rather further from back of head; pronotum not twice as long as mesonotum; dorsal aspect of propodeum longer compared with the posterior one.

Type female in series 4 at Dublin. The specimen is apparently of Haliday's collecting, possibly in Ireland, certainly in the British Isles. Haliday had included the specimen under his *fulviventris*.

#### 22. *Chelogyne brevicornis* (Dalman, 1818).

This species is at present very doubtfully British. It is recorded by Kieffer (1914) without exact locality, but was not recorded in Kieffer (1905). It is doubtful if he saw any further British material between these dates.

#### 23. *Prenanteon* Kieffer.

Kieffer, 1913, *Bull. Soc. ent. France*, 1913 : 301.

The type of this genus does not appear to have been indicated. It is here fixed as *Anteon melanocera* Kieffer, 1905.

#### 24. *Prenanteon procericornis* (Kieffer, 1905).

The type of this species is a female in the collection of the British Museum. Haliday's specimens of his and Walker's *Dryinus longicornis* (*nec* Dalman) form the material on which *Prenanteon halidayi* (Kieffer, 1906) is based. A female specimen in series 4 at Dublin may be regarded as the type and is the same as *P. procericornis*, only differing in having the hind coxae with the proximal half black.

The species which Haliday and Walker called *Dryinus ruficornis* (?not = *Gonatopus ruficornis* Dalman, 1818) is based on a female in series 4 at Dublin. It is structurally similar to *P. procericornis* but differs in colour, the antennae having segments 7-10 hardly paler than 3-6 (in *procericornis* 7-10 are pale yellow).

*Dryinus rapax* Haliday in Curtis, 1828 has been synonymised by Walker (1837) with his *D. ruficornis*. The type of *D. rapax* is apparently lost or else

with Curtis' collection in Australia. The name *rapax* is better omitted from the synonymy for the present.

25. *Prenanteon crassimanus* (Haliday in Curtis).

The type of *Dryinus crassimanus* Haliday in Curtis, 1828 is probably a female standing in series 4 at Dublin under the name *flavicornis*. Walker incorrectly synonymised Haliday's species with *Gonatopus flavicornis* Dalman, 1818. The following is a redescription of the probable type.

♀. Black, mandibles, clypeus, antennae 1-2 and 6-10, tegulae and legs including coxae (except dorsal streak on hind coxae) yellowish testaceous. Wings hyaline, venation and pterostigma pale yellow. L. 2.75 mm.

Head of moderate size, not flattened, raised posterior margin distinctly though feebly concave, hairs sparse, denser anteriorly, inner margins of eyes a little divergent both forwards and backwards. Antennae long, distinctly longer than head + thorax, scape distinctly curved, thickest at mid-point, a little shorter than 3, two and a half times as long as broad; 2 a little thickened at apex, not quite twice as long as broad; 3 long, narrow, cylindrical, a little shorter than 1 + 2, about five times as long as broad, 4 a little longer, 5-9 progressively shorter but only a very little thickened, 9 two and a half times as long as broad, 10 as long as 6, about three and a half times as long as broad. Vertex shining, with sparse, fine, shallow punctures, traces of slight depression half-way between median ocellus and antennae, no keels; ocelli in a rather broad-based triangle, POL : OOL = 3 : 4, posterior ocelli separated from back of head by a rather greater distance than they are from one another. Pronotum rather long, about as long as mesonotum, about three-fifths as long as broad posteriorly, in profile almost flat, anterior part only at slightly lower level than posterior, surface anteriorly dull and fairly rugose, posteriorly shining with large shallow punctures, in lateral aspect dull, rather coarsely rugose except for broad shining ventral margin. Mesonotum nearly flat, smooth and shining, hardly punctured, parapsidal furrows strong, crenate, extending across two-thirds its length, depression in front of scutellum clearly defined and regularly crenate. Scutellum smooth and shining, convex, impressed line along posterior margin rather weakly crenate. Postscutellum with a very small shining central area, otherwise rugose. Mesopleuron with prepectus smooth with its sides rugose, furrow separating dorsal and ventral parts of episternum broad and ill-defined but quite deep, upper part of episternum dull and rugose, lower part shining smooth with a few raised rugosities. Propodeum dull, coarsely and irregularly clathrate, crenate furrow behind postscutellum broad and shallow, hardly defined, dorsal aspect about half as long as posterior one, posterior surface with no defined area. Fore femora very thick, at thickest point about as thick as 2 + 3 of antennae (thicker than 1 + 2). Fore tarsi with basitarsus a little longer than segments 2 + 3, or than 4; forceps rather small, when retracted fifth segment stretches along tarsi to proximal end of third segment; outer arm of forceps (modified claw) moderately and regularly curved, without tooth or bristles; inner arm of forceps (fifth segment) straight, strongly recurved at apex, armature not visible. Wings with basal vein (*M* + *mcu*) absolutely straight, radius with proximal and distal sections not very clearly separate, latter about one-third longer than former.

26. *Prenanteon luteipes* (Kieffer, 1905).

Walker (1837) recorded a *Dryinus frontalis* which according to Kieffer is not the same as *Gonatopus frontalis* Dalman, 1818. Kieffer misidentified Walker's species as a *Chelogyne* which he renamed *Chelogyne walkeri* Kieffer, 1914. What must be regarded as the type of *C. walkeri* is a female in series 4 at Dublin.

Mons. L. Berland was kind enough to compare another female I sent him with the type of *P. luteipes* and found them identical. *P. luteipes* (Kieffer, 1905) is, therefore, the correct name for *Chelognus walkeri*, Kieffer, 1914.

#### 27. *Prenanteon daos* (Walker).

The type of *Dryinus daos* Walker, 1837 is a male in series 3 at Dublin. It is the same as *Prenanteon integer* (Kieffer, 1905), and Walker's name must stand.

#### 28. *Prenanteon misor* (Walker).

The type of *Dryinus misor* Walker, 1837 is a male in series 2 at the British Museum. The following is a redescription of the type.

♂. Black, mandibles, legs except ventral streak on mid femora, narrow apex of hind femora, and basal half of hind coxae, tegulae, yellowish testaceous. First two antennal segments somewhat brown-tinged. Wings hyaline, veins brown, pterostigma darker, proximal third whitish-tinged. L. 3 mm.

Head rather large, a little broader than thorax, not flattened, raised posterior margin distinctly convex, hairs moderately numerous all over, inner margins of eyes parallel in front, a little divergent behind. Antennae very long, nearly as long as whole insect, scape a little curved, subcylindrical, two and a half times as long as broad, just shorter than segment 3; 2 little thickened, twice as long as broad; 3 narrow and cylindrical, four times as long as broad; 4 a little longer than 3, 5-9 progressively a little shorter, but even 9 fully three times as long as broad, 10 as long as 4, segments with outstanding pubescence as long as their diameter. Vertex smooth and shining, with very sparse and shallow punctures, no keels; ocelli in a nearly equilateral triangle (base a little the broadest), OOL : POL = 2 : 3, posterior ocelli separated from back of head by a distance as great as they are from one another. Pronotum very short, posterior margin smooth and shining, in front of this with a curved transverse row of small, elongate depressions. Mesonotum smooth and shining, distinctly convex, parapsidal furrows rather strong, crenate, extending three-quarters of the way across, depression in front of scutellum deep, but not well-defined, weakly crenate. Scutellum convex, shining, with some shallow punctures, impressed line along posterior margin weak, feebly crenate. Postscutellum with a broad central area which is smooth and shining. Mesopleuron with upper and lower division of episternum separated by a deep but ill-defined furrow, upper part a little rugose, lower smooth and shining. Propodeum rather dull, irregularly and not very strongly clathrate, dorsal and posterior surfaces hardly separated, former about half as long as latter, transverse furrow behind scutellum interrupted in centre, weak and not crenate at sides, posterior surface with no defined area, with rather weaker sculpture. Fore basitarsus distinctly shorter than next three segments together. Wings with basal vein (*M* + *mcu*) straight, radius with proximal and distal sections not very clearly separate, former about as long as latter.

*P. misor* is closely allied to *P. pyrenaicus* (Kieffer, 1905) var. *parcepunctatus* Kieffer, 1914. It differs as follows:—antennae with all segments a little shorter, 1-2 testaceous, darker above (not entirely black); mandibles yellow with tip dark (not black with tip reddish); legs, except coxae, pale yellow (not mid and hind femora largely brown); scutellum more convex.

#### 29. *Prenanteon ilus* (Walker).

The type of *Dryinus ilus* Walker, 1837 is a male in series 2 in the British Museum. The following is a redescription.

♂. Black, mandibles, legs, except apex of hind femora and base of hind coxae, tegulae, yellow-brown. Wings hyaline, veins yellow-brown, pterostigma dark brown, proximal quarter yellower. L. 2.5 mm.

Head rather large, a little broader than the thorax, not flattened, raised posterior margin distinctly concave, hairs rather numerous all over, inner margins of eyes almost parallel in front, divergent behind. Antennae long, about as long as whole insect, scape a little curved, subcylindrical, two and a half times as long as broad, a little shorter than segment 3; 2 hardly pyriform, not quite twice as long as broad; 3 about four times as long as broad, cylindrical rather thick; 4 a little longer than 3, 4-9 progressively a little shorter and thinner, but even 9 four times as long as broad and nearly as long as 3; 10 a little longer than 4; segments with outstanding pubescence nearly as long as their diameter. Vertex shining sparsely and shallowly punctured, no keels; ocelli in a nearly equilateral triangle (base a little the broadest), POL : OOL = 3 : 4, posterior ocelli separated from back of head by a distance about the same as they are from one another. Pronotum very short, moderately shining, weakly rugose, a posterior strip quite smooth and shining, a slight transverse central furrow. Mesonotum distinctly convex, smooth and shining, with some moderately close large punctures on anterior quarter, parapsidal furrows strong, crenate, extending three-quarters of the way across, depression in front of the scutellum deep, rather well-defined, weakly crenate. Scutellum smooth and shining, almost unpunctured, a little convex, impressed line along posterior margin weak, feebly crenate. Postscutellum with raised central area rugose. Mesopleuron with a rather well-defined furrow separating the upper and lower divisions of episternum, the upper a little rugose, the lower smooth and shining, the meso-meta-pleural suture preceded by a very strongly crenate furrow. Propodeum moderately shining, coarsely clathrate, dorsal and posterior aspects hardly separate, former about one-third as long as latter, transverse furrow behind postscutellum weak, hardly crenate, posterior surface with no defined area, sculpture rather weaker. Fore basitarsus about as long as next three segments together. Wings with basal vein ( $M + mcu$ ) distinctly sinuate, radius with proximal and distal sections not clearly separate, former about three-quarters as long as latter.

*P. ilus* is closely allied to *P. fractinervis* (Kieffer, 1905) and *P. curvinervis* (Kieffer, 1905). From the former it differs in its more closely areolated propodeum, less closely punctured anterior part of mesonotum and shorter fourth antennal segment (more nearly of same length as third).

From *P. curvinervis* it differs in the more strongly punctured head and thorax and much more angulated radius.

#### BETHYLIDAE.

##### 30. *Cephalonomia tarsalis* (Ashmead, 1893).

Gahan (1931, *J. Wash. Acad. Sci.*, 21 : 213-221) has dealt with the synonymy of this species and recorded it from this country, where it lives in granaries, etc. Richards (1933, *J. ent. Soc. S. Engl.*, 1 : 51-2) has shown that *Cephalonomia carinata* Kieffer, 1907 is another synonym.

##### 31. *Cephalonomia waterstoni* Gahan, 1931.

Gahan (*loc. cit.*) also records the above species from this country, where it is also found in granaries.

##### 32. *Cephalonomia formiciformis* Westwood, 1833.

All the British specimens of this genus which have been captured out of doors appear to belong to the above species, which is a parasite of Coleoptera of

the genus *Cis*. The species occurs in both short- and long-winged forms and I strongly suspect that *Cephalonomia brevipennis* Kieffer, 1906 is only a brachypterous variety. It is, however, better retained as a species till more definite evidence is available. Specimens of *Cephalonomia* bred by C. J. C. Pool from specimens of *Cis* sp. taken at Wicken Fen and by Mr. D. E. Kimmins from *C. pygmaeus* taken in Epping Forest, are standing in the British Museum collection under the name *C. sulcata* Kieffer, 1906. I very much doubt the value of the character on which Kieffer bases this species. The width and depth of the furrow in front of the scutellum appears to vary; in any case the specimens mentioned above appear to be the same as *C. formiciformis*.

### 33. *Rhabdepyris* Kieffer.

Kieffer, 1904, *Bull. Soc. Hist. nat. Metz*, 23 : 32.

No type of this genus appears to have been indicated. *R. myrmecophila* Kieffer, 1904 is here fixed as type.

### 34. *Pristocera depressa* (Fab.).

*Bethylus depressus* Fabricius, 1805 was described from the collection of Megerle which is supposed to be preserved at the Naturhistorische Museum, Wien. Herr Dr. F. Maidl tells me, however, that the type seems no longer to exist. There is no particular reason to suppose that the modern interpretation is incorrect.

### 35. The British species of *Bethylus* Latreille.

There is no reason at present to suppose that there are more than two British species of this genus, *B. cephalotes* (Förster) (posterior ocelli well-separated from back of head) and *B. fuscicornis* (Jurine) (posterior ocelli close to the back of the head). *Bethylus formicarius* of British authors is probably a mixture of these two species. *Bethylus mandibularis* Kieffer, 1904 (type in the British Museum) is a male of *B. fuscicornis*. *B. syngenesiae* (Haliday, 1833) Kieffer is a short-winged variety of *B. fuscicornis*. Hellén (1920, *Medd. Soc. Fauna et Flora fenn.*, 45 : 278) separates *B. fulvicornis* Curtis from *B. fuscicornis* Jurine. The characters given by Hellén for *B. fulvicornis* are partly those of the male of *fuscicornis*; for the present, at any rate, there appear to be no good grounds for separating the British specimens of *B. fuscicornis* into two species. *B. hyalinus* Marshall, 1874, of which the type appears to be lost, is possibly distinct.

## CLEPTIDAE.

### 36. *Cleptes semiauratus* (L.).

Recent authors, following Morice (1900, *Ent. mon. Mag.*, 36 : 129) have identified *Sphex semiaurata* Linnaeus, 1761 with a non-British *Cleptes* in which the fore coxae are broadly lamellate. In the Linnean collection at Burlington House, the type male of *Sphex semiaurata* bears Linnaeus' label and agrees with the original description. It belongs to the species now usually called *Cleptes pallipes* Lepeletier, 1805. The non-British species, *Cleptes semiauratus* of Trautmann, 1928 and other authors, requires a new name. The choice of this must be left to a specialist in the group, as various synonyms may be available.

## CHRYSIDIDAE.

37. *Omalus auratus* (L.).

The type of *Spheg aurata* Linnaeus, 1758 still exists in the Linnean collection at Burlington House and agrees with the modern interpretation of the species. I am unable to determine the sex of the type.

38. *Spintharis* Klug and *Pseudochrysis* Semenow.

*Spintharis* was described in Ehrenberg and Klug, 1845, *Symb. Phys.* : pl. 45. It included ten new species. Of these *pumila* was made the type of a new genus, *Chrysidea*, by Bischoff (1913). Ashmead (1902) made an invalid type-fixation for *Spintharis*, since the species he chose was not originally included in the genus. The type is here fixed as *Spintharis humeralis* Klug, 1845 = *Chrysis pallidicornis* Spinola, 1838. In this sense, *Spintharis* Klug is the correct name for the group for which Trautmann (1928) uses the name *Pseudochrysis*.

*Pseudochrysis* Semenow, 1891, *Hor. Soc. ent. Ross.*, 25 : 444, was erected for two species *Spintharis* (*P.*) *virgo* Semenow, 1891 and *Euchroeus limbatus* Dahlbom, 1854. *S. virgo* Sem. is here fixed as type.

*S. virgo* is probably not congeneric with species placed by Trautmann in *Pseudochrysis*. It was placed by Bischoff (1913) in his genus *Spintharis*. Bischoff's use of the latter name appears to be incorrect since none of Klug's original species was included. It appears that the correct arrangement is as follows :—

*Spintharis* Klug, 1845 (= *Pseudochrysis* Trautmann nec Semenow).

Type. *S. pallidicornis* (Spinola).

*Pseudochrysis* Semenow, 1891 (= *Spintharis* Bischoff nec Klug).

Type. *P. virgo* Semenow.

39. *Hedychrum rutilans* Dahlbom.

Through the kindness of Dr. N. A. Kemner, I have examined the type of *Hedychrum rutilans* Dahlbom, 1854. It is a female bearing two labels (1) "Z. Mer." or "L. Mer." and (2) "*Hed. rutilans*. Megerl. secund. M.B. Dhbm. var. a." The specimen agrees with Dahlbom's description of his var. a. (*i.e.* the typical form of the species) and also with the modern interpretation of his name (*e.g.* Trautmann, 1928). Dr. Kemner also sent what is almost certainly the type of *Hedychrum intermedium* Dahlbom, 1845. This species was described in 1845 from France but in 1854 Dahlbom dropped the name *intermedium*; his var. c. of *H. rutilans* agrees with the earlier described *intermedium*.

The probable type of *intermedium* is a male bearing two labels, (1) "*Hedychr. rutilans* Dhbm. var. c." and (2) "Hab. ?fontainebleau Collect. Barbut." This specimen agrees with the original description of *intermedium*. It is a male of one of the greenish forms of *H. rutilans*. It may be described as follows :—Green; slight trace of copper on central lobe of mesonotum. Postscutellum and propodeum blue. Abdomen green, disc of second tergite and whole of third, copper-tinged. Legs blue. Venter of abdomen black.

In my opinion, therefore, the species should be known as *Hedychrum intermedium* Dahlbom, 1845.

40. *Chrysis cyanea* (L.).

*Spheg cyanea* Linnaeus, 1758 is stated to have three teeth at the apex of the abdomen. The supposed type in the Linnean collection at Burlington House

although bearing Linnaeus' label, is a specimen with four apical teeth (probably *Chrysis iris* Christ). It cannot be the true type and there is no reason to alter the modern interpretation of the species.

41. *Chrysis ignita* (L.).

The type of *Sphex ignita* Linnaeus, 1758 still exists in the Linnean collection at Burlington House. It agrees with the modern interpretation of the species, but I could not determine its sex.

42. *Chrysis fulgida* Linnaeus, 1761.

The type of this species also exists at Burlington House and is a male agreeing with the modern interpretation of the species.

TIPHIIDAE.

43. *Tiphia femorata* Fabricius, 1775.

In the Fabrician collection at Kiel are 7 ♀♀ of this species, lent me by Dr. O. Schröder. One of the specimens bears Fabricius' species-label and is probably the type. All the specimens agree with the modern interpretation of the species.

SAPYGIDAE.

44. *Sapyga clavicornis* (L.).

The type of *Apis clavicornis* Linnaeus, 1758 still exists in the Linnean collection. It is a male agreeing with the original description and with the modern interpretation of the species.

MYRMOSIDAE.

45. *Myrmosa melanocephala* (Fabricius, 1793).

*Mutilla melanocephala* Fabricius, 1793 is preoccupied by *Mutilla melanocephala* Schrank, 1781 (now placed in *Pezomachus*). The next available name for Fabricius' species is *Myrmosa atra* Panzer, 1801, based on the male. According to information received from Mons. L. Berland, the type of Fabricius' species, described from the Bosc collection (now at Paris), is lost.

PSAMMOCHARIDAE.

46. *Priocnemis exaltatus* (Fabricius, 1775).

From Fabricius' collection at Kiel, I received a female with the label "*Sphex exaltata*" (? not in Fabricius' writing). Also two other imperfect females and one male, unlabelled. All these specimens belong to the species now known as *Priocnemis exaltatus* (Fab.), which is presumably correctly identified.

47. *Salix* Fab. and *Cryptocheilus* Panz.

*Salix* Fabricius, 1805, *Syst. Piez.* : 124. Type fixed by Bingham (1897, *Faun. Brit. India, Hym.*, 1 : 122) as *S. bicolor* Fabricius, 1805.

*Cryptocheilus* Panzer, 1806, *Krit. Rev.*, 2 : 120. Type fixed by Westwood (1840, *Introd. Mod. Class. Ins.*, 2 : *Synops.*, 82) as *Sphex annulata* Fabricius, 1798. These two types are congeneric and Fabricius' generic name is the earlier.

From Fabricius' collection at Kiel, I received three males of *S. bicolor*, one bearing the species-label. These males agree with the original description and with the modern interpretation (e.g. Haupt, 1927). The type of *Sphex annulata* is still preserved in the Museum national d'Histoire naturelle, at Paris and, according to information received from Mons. L. Berland, agrees with the modern interpretation of the species (e.g. Haupt, 1927). Unfortunately the name is preoccupied by *Sphex annulata* Lichtenstein, 1796.

According to Haupt (1927, p. 47), *Salvus spectabilis* Morawitz, 1892 is only an eastern European colour variant of *S. annulata* (Fab.). This is the next valid name. For the western European form of the species, I propose the new name **annulatilis** n. These conclusions may be summarised as follows:—

*Salvus* Fab. (= *Cryptocheilus* Panz.).

Type. *S. bicolor* Fab.

*Cryptocheilus annulata* (Fab.) of authors should be known as *Salvus spectabilis* Morawitz var. *annulatilis* Richards.

#### 48. *Deuteragenia variegata* (L.).

Two specimens purporting to be *Sphex variegata* Linnaeus, 1758 exist in the collection at Burlington House. One is a female with Linnaeus' label and is *D. bifasciata* (Fab.) in the sense of Haupt (1927). The other is a female marked "variegata ex. descr." in the handwriting of Sir J. E. Smith (one-time owner of the collection) and is *D. variegata* (L.) in the sense of Haupt. It is proposed to continue to use the name *variegata* in the sense of Haupt.

#### 49. *Psammochares minutulus* (Dahlbom, 1842).

The name *Pompilus minutus* Dahlbom, 1829 has lately been revived by Haupt; it is preoccupied by *P. minutus* Van der Linden, 1827. *P. minutulus* Dahlbom, 1842 is the next available name.

#### 50. *Psammochares gibbus* Auctt.

*Pompilus gibbus* Fabricius, 1798 is based on *Sphex gibba* Fabricius, 1775. This is preoccupied by *S. gibba* Linnaeus, 1758 (a *Sphexcodes*; see note 113). The next available valid name is *Pompilus trivialis* Dahlbom, 1844, which should be used.

#### 51. *Psammochares pectinipes* Auctt.

The type of *Sphex pectinipes* Linnaeus, 1758 still exists at Burlington House. It is a female agreeing with the original description and bearing Linnaeus' label; it is the same as *Pompilus aculeatus* Thomson, 1870 (as suggested by Haupt, 1927, p. 308).

*Ps. pectinipes* of British authors = *Pompilus campestris* Wesmael, 1851 should be known as *P. crassicornis* Shuckard, 1837. *Pompilus crassicornis* Schiödte, 1837 was almost certainly published later than Shuckard's species. Mr. F. J. Griffin tells me that Shuckard's "Essay on . . . Fossorial Hymenoptera" was out by 2 Jan. 1837.

#### 52. *Psammochares fuscus* (L.).

The type of *Sphex fusca* Linnaeus, 1761 is a female still preserved in the Linnean collection at Burlington House. It agrees with the original description and with the modern interpretation of the species (= *Pompilus viaticus* of Edward Saunders, 1896).

53. *Episyron rufipes* (L.).

The type of *Sphex rufipes* Linnaeus, 1758 is a female in the Linnean collection which bears the Linnean label, agrees with the original description and with the modern interpretation of the species (Haupt, 1927).

54. *Evagetes dubius* (Van der Lind.).

Owing to the kindness of Mons. A. Ball, I have examined what is probably the type of *Aporus dubius* Van der Linden, 1827. It is a female of *Evagetes dubius* in the sense of Haupt (1927).

55. *Aporus unicolor* Spinola.

Spinola (1808, *Ins. Ligur.*, 2 : 5) described a genus *Aporus* for two species *A. unicolor* and *A. bicolor*, which are the male and female of one species.

Haupt (1927, p. 264) has created some confusion in the synonymy. He apparently examined 1 ♀ of *A. unicolor* and a number of specimens of *A. pollux* (Kohl, 1888). Under the name *unicolor* he synonymises two distinct genera and three distinct species. (1) *A. unicolor* Spinola. This is the species which he actually describes and the only species found in Great Britain. Haupt incorrectly synonymises *unicolor* of E. Saunders with *pollux*. (2) *Planiceps latreillei* of Berland, and (3) *P. fulviventris* of Berland with its var. *helveticus*. Mons. Berland (1925, *Faune de France, Hym. Vesp.*, 1 : 277) has described these last two species in a perfectly recognisable way, and it is evident that Haupt cannot have seen specimens. The head is far more flattened, the fore femora more dilated and the pronotum much longer than in *A. unicolor*. Berland has placed them in a separate genus, *Planiceps*. I think this course is undoubtedly correct, but the nomenclature of these forms is involved, and I would not commit myself without further study as to the proper names of *Planiceps* and its two species.

I have specimens of the females of both of them from the South of France. In *P. latreillei*, the clypeus has the anterior margin evenly curved and the clypeus is six to seven times as broad as high. In *P. fulviventris helveticus*, the margin of the clypeus is also evenly curved and the clypeus is nearly four times as broad as high. In *Aporus unicolor* ♀, the clypeus is broadly emarginate and is about four times as broad as high. Haupt's figure 131 of the head of *Aporus* (sex not stated) shows a clypeus with evenly curved margin, three and a half times as broad as high. If this figure is taken from *A. pollux* Kohl ♀, that species must be very distinct from *A. unicolor*. I have taken the opportunity to gather together records of the occurrence of *A. unicolor* in England, based on an examination of the Hope, the British Museum and my own collections and records in Saunders (1896). E. Suffolk (Saunders), S. Essex (Saunders), E. Kent (Hope coll.), E. Sussex (Frisby, 1906), S. Hants (Hope coll.), I. of Wight (Hope coll.), Surrey (Hope coll.), Oxford (Goring, O. W. R.), Dorset (Hope coll.), W. Cornwall (Treen, O. W. R. coll.).

## VESPIDAE.

56. *Eumenes coarctata* (L.).

The type of *Vespa coarctata* Linnaeus, 1758 is a female in the Linnean collection at Burlington House. It belongs to the form in which the second abdominal tergite is almost impunctate.

57. *Eumenes argillacea* (L.).

The type of *Sphex argillacea* Linnaeus, 1758 is a female in the Linnean collection at Burlington House. It belongs to an exotic species unknown to me.

58. *Odynerus spinipes* (L.).

The type of *Vespa spinipes* Linnaeus, 1758 is a male in the Linnean collection at Burlington House. It agrees with the usual modern interpretation of the species.

59. *Ancistrocerus parietum* (L.).

The type of *Vespa parietum* Linnaeus, 1758 is a female in the Linnean collection at Burlington House. It agrees with the usual modern interpretation of the species.

60. *Ancistrocerus pictus* (Curtis).

There has been some confusion in the continental literature as to the nomenclature of this species. *Odynerus pictus* Curtis, 1826 is the British race of *O. oviventris* Wesmael, 1838. The two are not specifically distinct but differ with considerable regularity in the colour of the legs. The British form occurs very rarely as an aberration of race *oviventris* on the Continent.

61. *Ancistrocerus trimarginatus* (Zetterstedt).

Owing to the kindness of Dr. N. A. Kemner, I have been able to examine the type of *Odynerus trimarginatus* Zetterstedt, 1838. It is a female of *Vespa trifasciatus* Fabricius, 1787, *nec* O. F. Müller, 1776. Fabricius' well-known name being preoccupied, Zetterstedt's name must be used.

62. *Ancistrocerus albotricinctus* (Zett.).

Dr. N. A. Kemner also lent me the type of *Odynerus albotricinctus* Zetterstedt, 1838. It is a male of a form of *A. trimarginatus* Auctt. (*nec* Zett.). This species is found in several varieties; with white or yellow abdominal bands; with three or five transverse bands on the tergites; with the tibiae reddish, yellowish or whitish. All these forms are identical in the structure of the thorax and of the second abdominal sternite, by which alone the species can be recognised. In our fauna, white-banded forms occur in Ireland and Scotland. The name *albotricinctus* must replace *trimarginatus*, which has hitherto been wrongly applied.

63. The type of the genus *Symmorphus* Wesmael, 1836 (*Bull. Acad. Sci. Belg.*, 3 : 45).

Ashmead's designation (1902, *Canad. Ent.*, 34 : 209) is invalid, because *Vespa sinuata* Fabricius was not originally included. The type is here fixed as *Odynerus elegans* Wesmael, 1833.

64. *Symmorphus sinuatus* (F.).

*Vespa sinuata* Fabricius, 1793 is preoccupied by *Vespa sinuata* Fourcroy 1787. I propose *Symmorphus sinuatissimus* nom. n.

65. *Symmorphus bifasciatus* (L.).

The type of *Vespa bifasciata* Linnaeus, 1761 is a female in the Linnean collection at Burlington House. It agrees with the usual modern interpretation of the species.

66. *Symmorphus murarius* (L.).

The type of *Vespa muraria* Linnaeus, 1758 is a female in the Linnean collection at Burlington House. It agrees with the usual modern interpretation of the species.

67. *Vespa* species.

The types of *Vespa crabro*, *V. vulgaris* and *V. rufa* Linnaeus, 1758 are ♀, ♀ and ♂ respectively in the Linnean collection at Burlington House. They all agree with the usual modern interpretation of the species.

## SPHECIDAE.

68. *Tachysphex nitidus* (Spinola).

The species which British entomologists have always known as *Tachysphex unicolor* (Panzer, 1806–1809) is now usually synonymised by Continental authors with *T. nitidus* (Spinola, 1805). The types of these species really require re-examination.

69. *Tachysphex pectinipes* Auctt. (*nec* Linnaeus).

Linnaeus' *Sphex pectinipes* not being a Larrine (see note 51) another name is required for this species. The correct one is *Larra pompiliformis* Panzer, 1805 *nec* 1808. Baron K. von Rosen lent me Panzer's type female, now in Sturm's collection at Munich. This change has further repercussions in the nomenclature of the LARRINAE, and I take this opportunity of dealing with the synonymy of several non-British genera.

70. *Larra* Fabricius, 1793 (*Ent. Syst.*, 2 : 220).

Type (fixed by Latreille, 1810, *Consid. génér.* : 438) = *Larra ichneumoniformis* Fabricius, 1793 = *Sphex anathema* Rossi, 1790.

Synonyms. *Larrada* Smith, 1856 (*Cat. Hym. B.M. Sphegidae, etc.*, 4 : 273). Type (fixed by Girard, 1879, *Traité d'Ent.* 2 : 953) = *Sphex anathema* Rossi, 1790. *Cratolarra* Cameron, 1900 (*Ann. Mag. nat. Hist.*, (7) 5 : 34). Type (monobasic) = *Cratolarra femorata* Cameron, 1900.

Owing to the kindness of Prof. G. D. H. Carpenter, I have examined the type of Cameron's species in the Rothney collection at Oxford. It is a female of a true *Larra* with the first two antennal segments very shiny (as in *L. anathema*) and posteriorly truncate pronotum. It is closely allied to *L. erratica* Bingham, 1897 and is the same as the species identified (?correctly) in the British Museum collection as *L. maura* (Fab.). The pygidium is closely punctate-striate, but not hairy.

71. *Tachytes* Panzer, 1806 (*Krit. Rev.*, 2 : 129).

Type (monobasic) = *Pompilus tricolor* Panzer, 1801 (*nec* Fabricius, 1793) = *Tachytes europaea* Kohl, 1883.

*Pompilus tricolor* Panzer (1801, *Faun. Ins. Germ.*, 84 : 19) is not the same as *Pompilus tricolor* Fabricius, 1798, according to Kohl, who therefore renamed the former.

*Pompilus tricolor* Fabricius, 1798 = *Sphex tricolor*, 1793 is also referred to *Tachytes* by Kohl, but it will require another name, as it is preoccupied by *Sphex tricolor* Schrank, 1781.

Synonyms. *Lyrops* Latreille, 1809 (*Gen. Crust. Ins.*, 4 : 71). Type (fixed by Latreille, 1810, *Consid. génér.* : 438) = *Larra tricolor* Fabricius, 1805 = *Sphex tricolor* Fabricius, 1793. *Tachyptera* Dahlbom, 1844 (*Hym. Europ.*, 1 : 133) *nec* Berge, 1842, includes two species, both now placed in *Tachytes*.

72. *Liris* Fabricius, 1805 (*Syst. Piez.* : 227).

Type (fixed by Bingham, 1897, *Faun. Brit. India Hym.*, 1 : 205) = *Liris aurata* Fabricius, 1805 = *Sphex aurata* Fabricius, 1787 *nec* Linnaeus, 1758. Fabricius' species should probably be known as *L. opulenta* (Lepelletier, 1845).

73. *Tachysphex* Kohl, 1883 (*Deuts. ent. Z.*, 27 : 166).

Type (fixed by Bingham, 1897, *Faun. Brit. India Hym.*, 1 : 192) = *Tachysphex filicornis* Kohl, 1883.

74. *Leptolarra* Cameron, 1900 (*Ann. Mag. nat. Hist.*, (7) 5 : 29) = *Notogonia* Auctt.

Type here fixed as *L. reticulata* Cameron, 1900.

The type of *L. reticulata* is a female (with the abdomen missing) in the collection of the British Museum. It belongs to a race of *Notogonia nigricans* (Walker, 1871). Saussure (1892) described a *Notogonia reticulata* from Madagascar, so Cameron's species needs a new name. I here propose ***Leptolarra nigricans* (Walk.) reticuloides** subsp. n.

Synonyms. 1. *Notogonia* Costa, 1867 *nec* Perty, 1850. Type (monobasic) = *N. nigra* Costa, 1867 = *Tachytes niger* Van der Linden, 1829.

2. *Notogonidea* Rohwer, 1911, with the same type.

The type-species of these two genera is commonly referred to as *Notogonia pompiliformis* (Panz.), i.e. *Larra pompiliformis* Panzer, 1808 (*Faun. Ins. Germ.*, 106 : 17). But Panzer himself had already used this name for another species (see note 69). *Notogonia pompiliformis* of authors should in future be known as *Leptolarra* (*Spanolarra*) *agilis* (Smith) = *Larrada agilis* Smith, 1856. *Tachytes nigra* Van der Linden, 1829, on which Costa based *Notogonia*, is not a species described by Van der Linden but is based on *Sphex nigra* Gmelin, 1790 = *S. nigra* Fabricius, 1775. The latter is a *Psammochares* = *Sphex nigerrima* Scopoli, 1763.

3. *Spanolarra* Cameron, 1900 (*Ann. Mag. nat. Hist.*, (7) 5 : 32). Type (monobasic) = *S. rufitarsis* Cameron, 1900.

Owing to the kindness of Prof. G. D. H. Carpenter, I have examined the type of *S. rufitarsis* from the Rothney coll. at Oxford. It is a female of a true *Leptolarra* (*Notogonia* Auctt.) belonging to the group with a bare, shiny pygidium. The name *Spanolarra* may be used for this group as a subgenus (= *Cratolarra* F. X. Williams, 1928 *nec* Cameron, 1900), including also *L. agilis* (Smith) (= *pompiliformis* Auctt.) and *L. opalipennis* (Kohl.).

4. *Caenolarra* Cameron, 1900 (*Ann. Mag. nat. Hist.*, (7) 5 : 28). Type (monobasic) = *C. appendiculata* Cameron, 1900.

By the kindness of Prof. G. D. H. Carpenter, I have examined the type in the Rothney collection at Oxford. It is a male of a small black species of typical *Leptolarra*.

75: *Lyroda* Say, 1837 (*Boston J. nat. Hist.*, 1 : 372).

Type (fixed by Bingham, 1897, *Faun. Brit. India Hym.*, 1 : 208) = *Lyroda subita* Say, 1837.

Synonyms. 1. *Morphota* Smith, 1856 (*Cat. Hym. B.M. Sphegidae, etc.*, 4 : 293). Type here fixed as *M. formosa* Smith, 1856. This species is absolutely congeneric with *L. subita*.

2. *Odontolarra* Cameron, 1900 (*Ann. Mag. nat. Hist.*, (7) 5 : 35). Type (monobasic) = *O. rufiventris* Cameron, 1900.

By the kindness of Prof. G. D. H. Carpenter, I have examined the type of *O. rufiventris* in the Rothney collection at Oxford. It is a female of a true *Lyroda* (as already noted by Turner, 1914). It is very close to *Morphota formosa* Smith, but differs in the red third abdominal tergite, finer sculpture of the propodeum and darker wings.

.76. *Podalonia* Spinola.

The two British species of *Ammophila* with a short petiole are probably best placed in a separate genus. Fernald has shown that *Psammophila* Dahlbom, 1842 *nec* Brown, 1827 is preoccupied. The next available name is *Podalonia* Spinola, 1853.

The type of *Sphex viatica* Linnaeus, 1758 is preserved in his collection at Burlington House. It is a female of *Podalonia hirsuta* (Scopoli, 1763). Linnaeus himself says the insect preys on caterpillars, so there is no excuse for using "viatica" as the specific name of a Psammocharid.

The other British species was called "*Ammophila lutaria*" by Saunders. *Sphex lutaria* Fabricius, 1787 has never satisfactorily been identified; the type is lost and even the genus of the species is uncertain. The correct name for this species is *Podalonia affinis* (Kirby, 1798).

77. The type of *Stigmus pendulus* Panzer, 1801-2.

In Sturm's collection at Munich is a male and a female *Stigmus*, one of which is almost certainly the type of *S. pendulus* Pz. The female agrees with the modern interpretation of the species but the male belongs to *S. solskyi* Morawitz. The female may be regarded as the type of *pendulus*. Baron K. von Rosen sent both specimens for examination.

78. *Cemonus rugifer* Dahlbom, 1844.

Blüthgen (1931, *Konowia*, 10 : 121-9) has published a critical review of the species of the genus *Cemonus* (= *Dineurus* Westw.). In his opinion, *C. rugifer* (of which he examined the type) is a variable species, of which *C. unicolor* (Panzer, 1797) *nec* (Fabricius, 1787) is a synonym; *C. wesmaeli* Morawitz, 1864 and *C. scoticus* (Perkins, 1929) are only varieties, as various intermediates occur.

79. The British species of *Passaloecus*.

The synonymy of the species of this genus has been somewhat harshly dealt with by continental authorities but British usage is correct. There is no reason to doubt that *P. gracilis* (Curtis, 1834) is an earlier name for *P. tenuis* Morawitz, 1864.

Of *P. insignis* (Van der Linden, 1829), I have examined a female (lent by Mons. A. Ball) which formed part of the material on which the species was based. Of *P. turionum* Dahlbom, 1844, I have examined two males (lent by Dr. N. A. Kemner), one of which is probably the type. It is almost

identical with *P. insignis* and is probably a synonym of it, but, in my opinion, the European species of the genus require revision. In any case, the British form is *P. insignis*. *P. brevicornis* Morawitz, 1864 is another synonym.

#### 80. Synonymy of two species of *Mimesa*.

By the kindness of Dr. O. Schröder, I have been able to examine a labelled male of *Trypoxylon equestre*, Fabricius, 1805 from the Fabrician collection at Kiel. It will be noted that the original description "Pedes nigri, tarsi rufi . . ." and "segmento secundo toto rufo . . ." agrees better with *Mimesa bicolor* (Jurine, 1807) than with *M. equestris* Auctt. Actually the type is a specimen of *M. bicolor* and Fabricius' name must be adopted. *M. equestris* Auctt. nec Fab. should be known as *Mimesa rufa* (Panzer, 1805).

#### 81. *Psenulus pallipes* Auctt.

Harttig (1931, *Stettin. ent. Ztg.*, 92: 203-10) in his revision of the genus *Psenulus*, showed that *Sphex pallipes* Panzer, 1798 cannot be recognised. He proposed the name *P. rubicola* for the species that has hitherto gone under that name.

By the kindness of Dr. O. Schröder, I have examined a male, labelled by Fabricius, of *Trypoxylon atratum* Fabricius, 1805 from the collection at Kiel. The specimen agrees with the original description, and is the same as *P. rubicola* Harttig, which should be known as *P. atratus* (Fab.).

#### 82. A note on the genus *Oxybelus*.

The type of *Vespa uniglumis* Linnaeus, 1758 is a female in the Linnean collection at Burlington House. It belongs to the species universally known as *O. uniglumis* (L.). *O. nigripes* (Oliv.) has long stood in the British list. There is no reason to think that it occurs in this country. The specimen on which the record was based has no definite data (see Shuckard, 1837, *Brit. Foss. Hym.*, 110), though it still exists in the collection of British Hymenoptera at the British Museum. As is well known, there are many other specimens of non-British insects in this collection.

#### 83. *Crabro cribrarius* (L.).

The type of *Vespa cribraria* Linnaeus, 1758 is a male in the Linnean collection at Burlington House. It agrees with the usual modern interpretation of the species.

#### 84. *Coelocrabro*, Thomson.

Thomson, 1874, *Hym. Scand.*, 3: 262.

This genus does not seem to have had a type fixed. *Crabro pubescens* Shuckard, 1837 is here designated type.

#### 85. *Coelocrabro leucostomus* (L.).

The type of *Sphex leucostoma* Linnaeus, 1758 is a female in the Linnean collection at Burlington House. It bears Linnaeus' label and agrees with the original description but is a specimen of *Crabro carbonarius* Dahlbom, 1838. Linnaeus' name must be transferred to this species.

*C. leucostomus* Auctt. requires a new name. *C. bidens* Haliday, 1833 is the next available one, but this is preoccupied by *C. bidens* Schrank, 1802. Kohl (1915, p. 225) suggests that *Crossocerus niger* and *Crossocerus rufipes* Lepeletier and Brullé, 1835 may both be synonyms, but this is quite uncertain without examination of the types. Until such examination can be made, I propose the new name, ***Coelocrabro leucostomoides* nom. n.**

86. *Crossocerus palmipes* (L.).

The type of *Sphex palmipes* Linnaeus, 1767 is a male in the Linnean collection at Burlington House. It bears a label "ex. descr." in the handwriting of Smith. It is a specimen of *Crossocerus palmarius* (Schreber, 1784) and the original description supports this synonymy, whereas the male of *Crossocerus palmipes* Auctt. disagrees with the original description. *C. palmipes* (L.) has a yellow spot on postscutellum absent in *palmipes* Auctt.; it has the four front tibiae yellow; in *palmipes* Auctt. the mid ones are mainly black. The front legs of *palmipes* Auctt. are hardly "palmatus." In *palmipes* (L.) the expanded tibia has some black marks at its apex which Linnaeus probably refers to in his phrase "quasi digitis."

Linnaeus' name must be used for *C. palmarius* Auctt. and *C. palmipes* Auctt. should be known as *Crossocerus tarsatus* (Shuckard, 1837).

87. *Crossocerus varus* Lepeletier and Brullé, 1835.

The above spelling of the specific name is that employed in the original description. *Crabro* "varius" of authors is an unnecessary emendation. It should be noted that there is a species *Crabro varus* Panzer, 1799. If *Crossocerus* is sunk as a subgenus of *Crabro*, Lepeletier and Brullé's name is preoccupied, and their species would have to be known as *C. pusillus* Lepeletier and Brullé, 1835. In my opinion, *Crossocerus* is a valid genus and this point does not arise.

88. The two British species of *Blepharipus*, Lepeletier and Brullé, 1835.

The type of *Crabro signatus*, 1798 still exists in the collection of the Zoolog. Museum der Universität, Berlin. According to information received from Dr. H. Bischoff, the type agrees with the modern interpretation of the species. Unfortunately the name is preoccupied by *Crabro signatus* Olivier, 1791. The species should be known as *Blepharipus confusus* (Schulz, 1906).

The type of *Crabro dimidiatus* Fabricius, 1781 is a male in the Fabrician collection at Kiel. Owing to the kindness of Dr. O. Schröder, I have been able to examine it and find it is the same as *Crabro serripes* Panzer, 1797. The type of the latter species still exists at the Zoolog. Museum der Universität, Berlin, and information received from Dr. H. Bischoff confirms the usual modern identification of Panzer's species. The species should be known as *B. dimidiatus* (F.).

89. *Thyreus* Lepeletier and Brullé, 1835.

Lepeletier and Brullé, 1835, *Ann. Soc. ent. France*, 3 : 761.

Type (monobasic) = *Crabro vexillatus* Panzer, = *Apis clypeata* Schreber, 1759.

This name is preoccupied by *Thyreus* Panzer, 1806 and *Thyreus* Swainson, 1821. To replace *Thyreus* Lep. & Br., I propose **Clypeocrabro** nom. n., type *Apis clypeata* Schreber, 1759 = *Thyreus clypeatus* Auctt.

90. *Acanthocrabro vagabundus* (Panzer).

The type female of *Crabro vagabundus* Pz., 1798 is in Sturm's collection at Munich and was lent by Baron K. von Rosen. It agrees with the usual modern interpretation of the species.

91. The type of *Clytochrysus* Morawitz, 1864.

Morawitz, 1864, *Bull. Acad. Sci. St. Pétersbourg*, 7 : 453.

The date of this genus is often given as 1866. The name was published with included species in 1864, though not diagnosed till 1866. Ashmead (1899) fixed the type as *Crabro sexcinctus* Panzer but, in 1864, that species was not

included in the genus. The type is here fixed as *Crabro chrysostomus* Lepeletier & Brullé, 1835.

92. *Clytochrysus zonatus* (Panzer).

The type male of *Crabro zonatus* Pz., 1797 is in Sturm's collection at Munich. It was lent by Baron K. von Rosen and agrees with the usual modern interpretation of the species.

93. *Metacrabro fossorius* (L.).

The type of *Sphex fossoria* Linnaeus, 1758 is a female in the Linnean collection at Burlington House. It agrees with the modern interpretation of the species.

94. *Solenius vagus* Auctt.

The type of *Sphex vaga* Linnaeus is a *Mellinus*, see note 100. The Crabronid for which the name has been used should be known as *Solenius continuus* (Fabricius, 1805).

95. The genera *Rhopalum* and *Physoscelus* Auctt.

*Rhopalum* Stephens, 1829.

Stephens, 1829, *Nomencl. Brit. Ins.* : 34.

Curtis, 1837, *Brit. Ent.* : pl. 656.

Type (fixed by Curtis) = *Crabro rufiventris* Panzer, 1799 = *Sphex clavipes* Linnaeus, 1758.

Synonym. *Physoscelus* Lepeletier & Brullé, 1835. Type (fixed by Westwood, 1840) = *C. rufiventris* Panzer, 1799.

*Corynopus* Lepeletier & Brullé, 1835.

Lepeletier & Brullé, 1835, *Ann. Soc. ent. France*, 3 : 802.

Type (monobasic) = *Crabro tibialis* Fabricius, 1798 *nec* Olivier, 1791 = *Sphex coarctata* Scopoli, 1763.

The other British species of *Corynopus* is *C. nigrinum* (Kiesenwetter, 1849). Kiesenwetter described the species as *Rhopalum nigrinum*. Morawitz united *Rhopalum* to *Crabro* and therefore sunk *R. nigrinum* to *Crabro nigrinus* (Herrich-Schäffer, 1841); he proposed the name *Crabro kiesenwetteri* Morawitz, 1866 for Kiesenwetter's species. As, however, *Corynopus* (= *Rhopalum* Auctt.) is a good genus, Kiesenwetter's name must stand.

96. *Gorytes mystaceus* (L.).

The type of *Sphex mystacea* Linnaeus, 1761 is a female in the Linnean collection at Burlington House. It agrees with the modern interpretation of the species.

97. *Gorytes campestris* Auctt.

The type of *Vespa campestris* Linnaeus, 1761 is a female in the Linnean collection at Burlington House. It bears Linnaeus' label and agrees with the original description, but it is a specimen of *Gorytes mystaceus* (L.).

*Gorytes campestris* of authors should be known as *G. fargeii* Shuckard 1837.

98. *Hoplissus quadrifasciatus* (Fab.).

The type of *Mellinus quadrifasciatus* Fabricius, 1805 is preserved in the Fabrician collection at Kiel. Owing to the kindness of Dr. O. Schröder, I have been able to examine it and find that it is a male agreeing with the modern interpretation of the species.

99. *Bembix rostrata* (L.).

The supposed type of *Apis rostrata* Linnaeus, 1758 is a male of *B. rostrata* Auctt. But, as remarked in note 1 (footnote), Linnaeus' actual specimen no longer exists. However, there is no reason to doubt the usual interpretation of the species.

100. *Mellinus arvensis* (L.).

The type of *Vespa arvensis* Linnaeus, 1758 (p. 573) is a female in the Linnean collection at Burlington House. It agrees with the modern interpretation of the species.

The type of *Sphex vaga* Linnaeus, 1758 (p. 571) is a male in the same collection. It bears Linnaeus' label and agrees with the original description, but it is a male of *M. arvensis* not of a Crabronid (see note 93).

In view of the extensive literature attached to the name "*arvensis*" and to "*vaga*" (wrongly identified), it is not proposed to employ the latter name, although it has priority by two pages.

101. *Cerceris emarginata* (Panzer).

The type of *Philanthus emarginatus* Pz., 1799 is a female in Sturm's collection at Munich, and was lent by Baron K. von Rosen. It agrees with the usual modern interpretation of the species. The type of *Philanthus sabulosus* Pz., 1799 is a male of the same species. The name *sabulosus* occurs on pl. 13 of *Faun. Insect. Germ.*, 63 and thus has page priority over *emarginatus* (pl. 19). The species should be known as *Cerceris sabulosa* (Panzer) 1799.

102. *Cerceris quadricincta* Auctt.

This name is founded on *Sphex quadricincta* Villers, 1789; this is only a misidentification of *Crabro quadricinctus* (Fabricius, 1787 and is, in any case, preoccupied by *Sphex quadricincta* Scopoli, 1786. The next available name, accepted as a synonym by Schletterer in his monograph (1887), is *Cerceris fasciata*, Spinola, 1806.

103. *Cerceris arenaria* (L.).

The type of *Sphex arenaria* Linnaeus, 1758 is a female in the Linnean collection at Burlington House. It agrees with the usual modern interpretation of the species.

104. *Cerceris labiata* (Fab.).

*Crabro labiatus* Fabricius, 1793 is preoccupied by *Crabro labiatus* Olivier, 1791. The next available name, accepted as synonymous by Schletterer in his monograph (1887), is *Crabro cunicularius* Schrank, 1802. The species should be known as *Cerceris cunicularia* (Schrank).

## APIDAE.

105. *Colletes succincta* (L.).

The type of *Apis succincta* Linnaeus, 1758 is a female in the Linnean collection at Burlington House. It agrees with the usual modern identification of the species. Kirby (1802, 2: 33) came to the same conclusion and it is probably safe to disregard Linnaeus' somewhat unfortunate diagnosis of the mouth parts.

I have had access to a letter written by William Kirby to G. A. McLeay (June 10th, 1801) in which he mentions receiving from Latreille a specimen of "*Hylaeus glutinosus*" and finding it to be the same as *Apis succincta*. *Hylaeus glutinosus* Latreille is probably the same as *Apis glutinans* Cuvier, 1798, a name which is sometimes used for this species.

It may be noted that the gender of *Colletes* Latreille, 1802 is feminine, see Latreille (1805, *Hist. nat. Crust. Ins.*, 13 : 359).

106. *Colletes similis* Schenck.

Blüthgen (1930, *Mitt. schweiz. ent. Ges.*, 14 : 194) has recently shown that *Colletes similis* Schenck, 1843 is an earlier name for *Colletes picistigma* Thomson, 1872.

107. *Colletes cunicularia* (L.).

The type of *Apis cunicularia* Linnaeus, 1758 is a female in the Linnaean collection at Burlington House. It agrees with the usual modern interpretation of the species.

108. *Prosopis annulata* (L.).

The cotypes of *Apis annulata* Linnaeus, 1758 are a male and female on one pin in the Linnaean collection at Burlington House. They belong to the species *Hylaeus borealis* Nylander, 1852.

109. *Prosopis signata* (Panzer).

Recently authors have used the name *P. pratensis* (Fourcroy or Geoffroy) for this species. *Vespa pratensis* Fourcroy, 1785 is preoccupied by *Vespa pratensis* Miller, 1759. The next available name, the synonymy of which is certain, is *Sphex signata* Panzer, 1798.

110. *Halictus* Latreille.

Latreille, 1804, *N. Dict. Hist. nat.*, 24 : 182.

There appears to be no valid designation of the type of this genus. Most authors have referred to later redescrptions of the genus, in which different species were included. In the 1804 description only *Andrena rufipes* Fabricius, *Hylaeus quadricinctus* Fabricius and *H. flavipes* Fabricius were included. *H. quadricinctus* Fabricius = *Apis quadricincta* Fabricius, 1776 is here chosen as type.

111. *Halictus tumulorum* (L.).

The co-types of *Apis tumulorum* Linnaeus, 1758 are two males gummed on a card in the Linnaean collection at Burlington House. They agree with the most recent interpretations of the species.

112. *Sphecodes albilabris* (Fab.).

Owing to the kindness of Dr. O. Schröder, I received from the Fabrician collection at Kiel, a specimen of *Nomada albilabris* Fabricius, 1793. The specimen is a headless male but certainly belongs to *Sphecodes fuscipennis* (Klug in Germar, 1822), a variety with a black mark at base of the first abdominal tergite. The specimen bears Fabricius' label and agrees with the original description. I think it is certainly the type of this hitherto unrecognised species.

113. *Sphecodes gibbus* (L.).

The type of *Sphex gibba* Linnaeus, 1758 is a female, without abdomen or hind legs, in the Linnaean collection at Burlington House. As far as can be ascertained in its present state, it agrees with the usual modern interpretation of the species.

Von Dalla Torre and other authors have treated *Nomada gibba* Fabricius, 1793 not as a new description but merely as a redescription of *Sphex gibba* Linnaeus, 1758. The point is of some importance as *N. gibba* Fabricius, 1805 is the type of the genus *Sphecodes*. Actually, in the original description of

*Nomada gibba* (1793, *Ent. Syst.*, 2 : 348), there is a short description, a reference to the *Nomada succincta* of Scopoli, and no mention at all of the Linnean species. Dr. O. Schröder kindly sent a number of specimens of *Sphecodes* (also two *Ammobates carinatus* Mor.) standing under the name "*gibba*" in Fabricius' collection at Kiel. None of the specimens bore Fabricius' label and three or four species (including one probable but damaged *Sphecodes gibbus*) were confused. I see no reason for the present why *Nomada gibba* Fabricius, 1793 should not be regarded as synonymous with *Sphecodes gibbus* (Linnaeus, 1758), which is, therefore, the type of the genus.

114. *Sphecodes ephippius* (L.).

The type of *Sphecodes ephippia* Linnaeus, 1767 is a male in the Linnean collection at Burlington House. It belongs, I think almost certainly, to *Sphecodes divisus* (Kirby, 1802) = *S. similis* Wesmael, 1835. Examination of the genitalia would render the identification absolutely certain, but I feel sure enough of the synonymy to adopt Linnaeus' name.

115. *Sphecodes ferruginatus* von Hagens, 1882.

Some recent authors have synonymised this name with *Apis rufescens* Fourcroy, 1785. This is a valid name and was probably founded on a *Sphecodes*, but the correctness of the specific synonymy is very doubtful until the type (if still in existence) is examined.

116. *Andrena nitida* (Fourcroy).

*Apis nitida* Fourcroy, 1785 is preoccupied by *Apis nitida* Müller, 1776. The next available name, of which the synonymy is fairly certain, is *Andrena pubescens* Olivier, 1789. This is not the same as *Melitta pubescens* Kirby, 1802. [= *M. fuscipes* Kirby, 1802.]

117. *Andrena cineraria* (L.).

The type of *Apis cineraria* Linnaeus, 1758 is a female in the Linnean collection at Burlington House. It agrees with the usual modern interpretation of the species.

118. *Andrena helvola* (L.).

The type of *Apis helvola* Linnaeus, 1758 is a rather worn female in the Linnean collection at Burlington House. As far as can be ascertained in its present state, it agrees with the usual modern interpretation of the species.

119. *Andrena fulva* (Schrank).

*Apis fulva* Schrank, 1781 is preoccupied by *Apis fulva* Allioni, 1766. The next available name appears to be *Apis armata* Gmelin, 1790 (founded on the male). This antedates *A. armata* Fabricius, 1793 (an unrecognised species of *Centris*). The species should be known as *A. armata* (Gmelin).

120. *Andrena sericea* (Christ).

*Apis sericea* Christ, 1791 is preoccupied by *Apis sericea* Forster, 1771. The next available name for this species is *Melitta barbilabris* Kirby, 1802 (p. 151, ♂). As the name requires changing in any case, it is as well to adopt *barbilabris* which has page-priority over *Melitta albicus* Kirby 1802, (p. 156, ♀) which was formerly in use.

121. *Andrena cingulata* (Fab.).

The type of *Nomada cingulata* Fabricius, 1775 is probably lost. A specimen labelled "*cingulata*" in the Fabrician collection at Kiel is probably not the type

which was stated in the original description to be of the size of "*Nomada*" *annulata* (i.e. *Prosopis*) and to have pale wings. The labelled specimen is a large *Sphecodes* with no head or abdomen and rather dark wings. There is no reason to change the name of this species.

122. *Melitta* Kirby.

Kirby, 1802, *Mon. Apum Angliae*, 1 : 130-134; 2 : 4.

Apparently no type of this genus has ever been designated. It is here fixed as *Melitta tricineta* Kirby, 1802.

123. *Dufourea* Lepeletier.

Lepeletier, 1841, *Hist. nat. Ins. Hym.*, 2 : 227.

Apparently no type of this genus has even been designated. It is here fixed as *Dufourea minuta* Lepeletier, 1841.

124. *Dasygaster* *hirtipes* (Fab.).

The type of *Andrena hirtipes* Fabricius, 1793 has been kindly sent by Dr. O. Schröder from the Fabrician collection at Kiel. It is a female, bearing Fabricius' label and agreeing with the original description, of *Andrena plumipes* Panzer, 1797. Associated with the type were the following other specimens :—

(a) Specimen labelled "*hirta*" and agreeing with the original description of *Apis hirta* Fabricius, 1793 nec Schrank, 1781. This is a male of *D. hirtipes*.

(b) A headless male labelled "*hirtipes*." This does not agree with the original description of that species. It is a male of *Dasygaster thomsoni* Schletterer.

(c) Five unlabelled specimens, including 2 ♂♂ *D. hirtipes*, 1 ♀ (no abdomen) probably *D. hirtipes*, 1 ♂ *D. thomsoni* and 1 ♀ of *D. argentata* (Panzer).

125. *Megilla*, Fabricius, 1805.

Fabricius, [1805], *Syst. Piez.* : 328.

Apparently no type has ever been designated for this genus. It is a very composite group originally including sixty-three species. Of these *Apis acervorum* Linnaeus, 1758 is here chosen as type. *Megilla* is, therefore, a synonym of *Anthophora* Latreille, 1803, which has the same type.

126. *Anthophora retusa* (L.).

The type of *Apis retusa* Linnaeus, 1758 is a female in the Linnean collection at Burlington House. It agrees with the usual modern interpretation of the species, belonging to the form with entirely black abdominal pubescence.

127. *Anthophora quadrimaculata* (Panzer).

Continental authors have recently adopted *A. vulpina* (Panzer) as the name for this species. But *Apis vulpina* Panzer, 1798 is preoccupied by *Apis vulpina* Christ, 1791. The correct name, as also that employed by E. Saunders (1896), is *Anthophora quadrimaculata* (Panzer, 1798).

128. *Eucera longicornis* (L.).

The type of *Apis longicornis* Linnaeus, 1758 is a male preserved in the Linnean collection at Burlington House. It agrees with the usual modern interpretation of the species.

129. *Melecta punctata* (Fab.).

Owing to the kindness of Dr. O. Schröder, I was sent specimens of *Apis punctata* Fabricius, 1775 from the Fabrician collection at Kiel. There was one

female with Fabricius' label and three females and one male unlabelled. The labelled female agrees with the original description except that there is no white spot on the fifth tergite. All the specimens belong to *Melecta armata* (Panzer, 1799). I think the labelled specimen is probably the type and, as the species was described from England, it might have been expected to be *M. armata* rather than *M. luctuosa* (Scop.). Fabricius' name should be used.

130. *Epeolus variegatus* (L.).

The type of *Apis variegata* Linnaeus, 1758 is a male preserved in the Linnean collection at Burlington House. It belongs to *Epeolus productus* Thomson, 1870, as is shown by the structure of the labrum, the sparse puncturation of the top of the metapleuron, of the hind femur and of the second abdominal sternite.

131. *Nomada ferruginata* (L.).

In the Linnean collection at Burlington House is a female specimen of the above bee labelled "*ferruginata* ex. descr." in the handwriting of Sir J. E. Smith. This specimen agrees perfectly with the original description of *Apis ferruginata* Linnaeus, 1767; it may possibly be the type. It is a specimen of *Nomada ferruginata* (L.), as defined in Schmiedeknecht (1930, p. 958), which is the species British entomologists have recently called *N. germanica* (Panzer, 1799).

132. *Nomada ruficornis* (L.).

The type of *Apis ruficornis* Linnaeus, 1758 is a female preserved in the Linnean collection at Burlington House. It belongs to *Nomada bifida* Thomson, 1872, which should in future be known by this name. The original description of the species agrees better with this interpretation than with the usual erroneous one.

It is interesting to note that William Kirby (1802, p. 212) made in effect the same identification. Perkins (1917, *Ent. mon. Mag.*, 53: 48) found that Kirby's numbered specimens (*i.e.* specimens regarded as non-varietal) were both *bifida*.

133. *Nomada ruficornis* Auctt. nec Linnaeus.

The correct name for this species is a matter of some difficulty. Von Dalla Torre places *Vespa rubra* Fourcroy, 1785 in the synonymy. The original description of this species runs as follows:—"La Gûepe rouge à bandes noires sur le corcelet et points jaunes sur le ventre. Long. 3½ lig. larg. 1 lig. *V. rubra*, thorace lineolis longitudinalibus nigris abdomine maculis flavis." I think it is impossible to say with any certainty which one species of *Nomada* is intended by the description. Another name placed in the synonymy is *Nomada affinis* Herrich-Schäffer, 1839. The type of this species is lost and in view of the numerous very closely allied species now recognised, I think the synonymy is necessarily very uncertain.

The next available names are those of a number of varieties proposed by Schmiedeknecht (1882, *Apidae Europaeae*, 1). These are varieties *mirabilis*, *phoenicea*, *trapeziformis*, *incompleta* and *hybrida*, in that order of priority. According to Stöckhert (*in* Schmiedeknecht, 1930, p. 1014), *mirabilis* = *N. signata* Jurine; *N. trapeziformis* is a distinct species; *phoenicea* is an aberrant variety of *N. ruficornis* Auctt. attached to *Andrena cingulata* (Fab.); *incompleta* and *hybrida* are varieties of the ordinary form of *N. ruficornis* Auctt. I propose, therefore, to adopt the name *N. incompleta* Schmiedeknecht, 1882 for *N. ruficornis* Auctt. nec Linnaeus.

134. *Nomada glabella* Thomson.

Perkins (1919, *Trans. ent. Soc. Lond.*, 1919 : 251) mentions a dark variety of *Nomada ruficornis* Auctt. found associated with *Andrena lapponica* Zett. in Scotland and on Dartmoor. On the Continent, *Nomada glabella* Thoms., a closely allied species, is recorded as a parasite of the same *Andrena* (Stöckhert in Schmiedeknecht, 1930, *Hymen. Mitteleurop.* (2nd ed.): 1015, 1049). I have recently obtained a series of *N. glabella* captured in company with *A. lapponica* at Galtür, Paznauntal, Tirol, July '33. The year was an unusually late one, the snow lying long, and the bees were flying at 6000 ft. Prof. G. D. H. Carpenter lent me the series of the dark variety of *N. ruficornis* Auctt. from the Perkins coll. (now at Oxford) to compare with *N. glabella*. They must be regarded as a variety of *N. incompleta* (= *ruficornis*), though in some respects intermediate.

*N. glabella* ♀ differs most conspicuously from *N. incompleta* ♀ in the following particulars:—Flagellum of antennae more clearly darkened above; clypeus with pale apical area narrower; mesonotum black or with much narrower longitudinal red stripes; red spots on mesopleuron and propodeum smaller or absent; abdomen darker, yellow spots on second tergite lateral with the inner edge rounded, third and fourth tergites with very small or no spots; wings darker; pubescence of propodeum shorter and sparser.

In the Perkins collection there are fifteen Scottish females (Balerno, Colton, and New Park) and ten females from Devonshire (E. Dartmoor and Bovey Tracey) of the form of *N. incompleta* associating with *A. lapponica*. In all, except one Dartmoor female, the abdomen is darker than usual, with the yellow markings more or less reduced. Most specimens are like *N. incompleta* in the other characters, but there are some intermediates, and one specimen from Scotland (Colton) almost runs into *N. glabella*.

135. *Nomada rufocincta* (Kirby).

Stöckhert (in Schmiedeknecht, 1930) has recently shown that two species have been confused under the name *Nomada furva* Panzer, 1798. Only one of these species is found in Britain, viz. the one for which he uses the name *Nomada dalii* Curtis, 1832. An earlier name, however, is *Nomada rufocincta* (Kirby, 1802, p. 216) [= *N. sheppardana* (Kirby, 1802, p. 217)].

136. The months of publication of certain works appearing in 1802.

(a) Latreille, P. A., *Hist. nat. Fourmis*, Paris, An. X.

(b) Latreille, P. A. *Hist. nat. Crust. Ins.*, 3, Paris, An. X.

(c) Walckenaer, C. A. *Fauna parisiensis*, 2 vols. Paris, An. XI.

A footnote in (b) (p. 369) shows that (a) had appeared in April. A remark in (b) on p. 369 shows that Kirby's *Monographia Apum angliae* was already out when (b) appeared. Kirby's preface was dated May 1st, 1802. Therefore, (b) appeared May–Sept., 1802 (An. X ending in Sept.). Walckenaer's work appeared in Oct.–Dec., 1802. Therefore, the three works appeared in the order, a, b, c. I am indebted to Mr. F. J. Griffin for the above facts.

137. *Ceratina cyanea* (Kirby).

Two different *Apis cyanea* were described in 1802, one by Kirby (*Monogr. Apum angliae*) and one by Turton (1802, *Linn. Syst. nat.* 3 : 542). The month of Turton's publication cannot be established and must be taken as December, whereas Kirby's work had appeared by July (see note 133). Therefore Kirby's name must stand.

138. *Megachile centuncularis* (L.).

A so-called type of *Apis centuncularis* Linnaeus, 1758 is preserved in the Linnean collection at Burlington House. The specimen is a female of *Megachile ligniseca* (Kirby, 1802). The label is not in Linnaeus' handwriting but on the reverse side of the label is the name "*rupestris*" in Linnaeus' handwriting. The label was probably one that had at some time become detached from *Vespa rupestris* Linnaeus, 1758. This species has never been traced, but it may be one of the unlabelled *Polistes* in Linnaeus' collection. At any rate, there is no reason why *Megachile centuncularis* of modern authors should not continue under this name. Kirby (1802, p. 240) already noticed that the "type" was probably not the specimen Linnaeus described.

139. *Megachile lagopoda* (L.).

The type of *Apis lagopoda* Linnaeus, 1761 is a male preserved in the Linnean collection at Burlington House. It agrees with the usual modern interpretation of the species.

140. *Coelioxys quadridentata* (L.).

The type of *Apis quadridentata* Linnaeus, 1758 is a male preserved in the Linnean collection at Burlington House. It agrees with the usual modern interpretation of the species. The type female of *Apis conica* Linnaeus, also preserved in the same collection, is a female of the same species.

141. *Coelioxys inermis* (Kirby).

The type of *Apis inermis* Kirby, 1802 is preserved in the British Museum collection. It is a male of *C. acuminata* Nylander, 1852. Kirby's name must stand.

142. *Anthidium manicatum* (L.).

The type of *Apis manicata* Linnaeus, 1758 is a male preserved in the Linnean collection at Burlington House. It agrees with the usual interpretation of the species.

143. *Stelis aterrima* (Panzer).

*Apis aterrima* Panzer, 1798 is preoccupied by *Apis aterrima* Christ, 1791. The next available name is *Apis punctulatissima* Kirby, 1802, which should be used.

144. *Osmia rufa* (L.).

The type of *Apis rufa* Linnaeus, 1758 is a male preserved in the Linnean collection at Burlington House. It agrees with the usual modern interpretation of the species, belonging to the form with the abdominal pubescence red. The type female of *A. bicornis* Linnaeus, 1758, preserved in the same collection, is a female of *O. rufa* (L.).

145. *Osmia coerulescens* (L.).

The type of *Apis coerulescens* Linnaeus, 1758 is a female preserved in the Linnean collection at Burlington House. It is of the same species as that for which E. Saunders (1896) used the name. Modern authors have frequently used the name *Osmia aenea* (L.). The type male of *Apis aenea* Linnaeus, 1761, preserved in the same collection, is probably the male of *O. coerulescens*, though the abdomen is now lacking.

146. *Osmia leiana* (Kirby, 1802).

Two species were long confused under this name, but only one, which should be known by the above name, is found in Britain. *Osmia hirta* Smith, 1844 is a synonym.

The other species is commonly known as *Osmia fulviventris* (Panz.), but *Apis fulviventris* Panzer, 1798 is preoccupied by *Apis fulviventris* Scopoli, 1763 (an unrecognised species of *Sphcodes*). *O. fulvicornis* Latreille, given as a synonym by Von Dalla Torre in his Catalogue, is a misprint in the catalogue. The correct name would appear to be *Osmia ventralis* (Panzer) = *Apis ventralis* Panzer, 1798. *O. atra* Schenck, 1853 may be a synonym, but, according to information sent to Mr. N. D. Riley by Dr. Alverdes, the type no longer exists in Schenck's collection at Marburg.

147. *Heriades truncorum* (L.).

The type of *Apis truncorum* Linnaeus, 1758 is a female in the Linnean collection at Burlington House. It agrees with the usual modern interpretation of the species.

148. *Heriades florissomnis* (L.) and *H. campanularum* (K.).

The type of *Apis florissomnis* Linnaeus, 1758 is male preserved in the Linnean collection at Burlington House. It belongs to the species for which E. Saunders (1896) used the name. The type of *Apis maxillosa* Linnaeus, 1767 is a female of the same species, preserved in the same collection.

Aurivillius (1927, *Ent. Tidskr.*, 41 : 143-4) has argued from the descriptions that *Apis florissomnis* L. = *A. campanularum* Kirby, 1802. As shown above, this is incorrect. Kirby (see 1802 : 254, line 1), before describing his *Apis campanularum* had already seen the Linnean type of *A. florissomnis*.

149. *Bombus donovanella* (K.).

The type of *Apis donovanella* Kirby, 1802 is preserved in the British Museum. It is a male of *Bombus ruderarius* (Müller, 1776) [= *derhamellus* (Kirby, 1802)].

Perkins (1919, *Ent. mon. Mag.*, 55 : 11) has stated that *Apis donovanella* is the same as *A. cullumana* Kirby, 1802, but this is incorrect.

150. *Bremus truncorum* Panzer, 1801.

The type of *Bremus truncorum* Pz., is in Sturm's collection at Munich. It was lent by Baron K. von Rosen and is a male of *Bombus lapidarius* Linnaeus, 1758.

151. The Linnean types of *Bombus*.

The type females of the following species, described in 1758 as *Apis*, are preserved in the Linnean collection at Burlington House and agree with the usual modern interpretation of the species :—*hypnorum*, *lapidaria* and *terrestris*.

The types of the following species described in 1761 are preserved in the same collection and agree with the usual modern interpretation of the species :—*sylvarum* (♀), *lucorum* (♂), *hortorum* (♂), *pratorum* (♀).

The type of *Apis muscorum* Linnaeus, 1758 has already been discussed by me elsewhere (1935, *Trans. Soc. Brit. Ent.*, 2.). I propose to continue to use the name *B. muscorum* (L.) for the species commonly known by that name.

152. *Apis mellifera* (L.).

The type of *Apis mellifera* Linnaeus, 1758 is a male in the Linnean collection at Burlington House. The type of *Apis mellifica* Linnaeus, 1761 is a worker in the same collection. Both agree with the usual interpretation of the species, but the earlier name should be used.