

- II. *The synonymy and types of certain genera of Hymenoptera, especially of those discussed by the Rev. F. D. Morice and Mr. Jno. Hartley Durrant in connection with the long-forgotten "Erlangen List" of Panzer and Jurine.* By J. CHESTER BRADLEY, M.S., Ph.D., Assistant Professor of Systematic Entomology in Cornell University, Ithaca, N.Y. Communicated by C. GORDON HEWITT, D.Sc.

[Read February 5th, 1919.]

THE two authors mentioned in the title in two comparatively recent joint papers (1914, 1916) which were read before the Society respectively on December 3rd, 1913, and November 1st, 1916, have brought to light and discussed with great detail a long-forgotten review, published anonymously, of Jurine's "*Nouvelle Méthode de Classer les Hyménoptères et les Diptères.*"

This interesting review appeared some years in advance of the actual publication of Jurine's great work. Morice and Durrant have clearly shown that its real author was Panzer, but that the list of genera which he included in connection with it was transcribed to all intents and purpose directly from advance proofs furnished by Jurine, with whom Panzer was in frequent correspondence. Although, as a book review, the work was anonymous, the fact that it plainly stated that it was reviewing Jurine's work, that the author makes no claims for himself but gives entire credit for everything published to Jurine, makes it seem imperative to recognise the publication as valid, and to ascribe the list of genera, as Morice and Durrant suggest, to Jurine. In other words, the case is not essentially different from what it would have been if Jurine had published over his own signature an advance synopsis of the genera which he proposed to adopt in his forthcoming work.

This review seems to have been known to certain contemporaries of Panzer and Jurine, and to have influenced their own subsequently published work, but unfortunately was soon forgotten by the Entomological public, doubtless

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because of its inaccessibility and limited circulation. It involves, however, the status of many long-used genera of Hymenoptera, and consequently its treatment is of much importance to all students of that order.

The work of Morice and Durrant is both scholarly and laborious. They have placed all Hymenopterists in their debt. It is far from my intentions to belittle or criticise capriciously any part of it. They have, however, followed consistently certain methods of determining the types and status of the genera which do not appear to me to be in accordance with the mandates of the International Code of Zoological Nomenclature and its official interpretation as expressed in the published Opinions of the International Commission on Zoological Nomenclature (1910-1916).*

I wish to express my sincere thanks to the Rev. Mr. Morice, who has taken the pains to write to me at length his views on many of the points considered in this paper, and has expressed opinions in which I have in nearly every instance been able to concur, materially modifying my original conclusions, in several instances, especially in regard to *Ceropales* and to *Bremus*.

Inasmuch as the results arrived at by Morice and Durrant concern many fundamental genera of Hymenoptera, it has seemed to me worth while, in fact absolutely necessary, to revise their work in accordance with the Code and its official interpretation. There may be a few instances where the interpretation is in doubt, but most of the cases are clear-cut, and follow directly from the acceptance of certain premises.

* While zoologists are under no legal restraint in regard to the names that they adopt, there are many who feel, with the author, that the only possible hope for ultimate stability and uniformity of practice is to follow absolutely the International Code and its official interpretation, totally regardless of all personal predilections. Personally, the author is disposed to take exception to the reasonableness of certain of these interpretations, especially Opinion 46, which is one that is the cause of many of the dissensions herein-after made from the conclusions of Morice and Durrant. But after all, uniformity of practice is the chief desideratum. We shall never all agree as to what is reasonable. However much we may feel that the International Commission is not representative, or may be inclined to dispute the source of its authority, there is nothing more representative with which to replace it, nothing that is constituted with even an approach to as great an authority. The decisions having once been made, it is to the interests of us all that they be followed implicitly.

The chief points upon which the decisions of this article differ from those of Morice and Durrant result from the following facts :—

(a) The “*Histoire naturelle générale et particulière des Crustacés et des Insectes*,” par P. A. Latreille, Tome III, 1802, cannot be accepted as defining the types of genera not originating within its pages. After describing each genus it cites an “*Exemple*,” more rarely “*Exemples*.” But there is no evidence that Latreille intended these “*exemples*” to be in any sense types. The International Code, Art. 30, paragraph (g), says : “The meaning of the expression ‘select a type’ is to be rigidly construed. Mention of a species as an illustration or example of a genus does not constitute selection of a type.”

(b) Concerning Lamarck, 1801, there is room for doubt. At first sight the case would seem to be identical with the one just discussed, Latreille 1802. But Lamarck (1801 : viii) explains his intentions as follows : “*Pour faire connaître d’une manière certaine les genres dont je donne ici les caractères, j’ai cité sous chacun d’eux une espèce connue, ou très-rarement plusieurs, et j’y ai joint quelques synonymes que je puis certifier ; cela suffit pour me faire entendre.*”

It is difficult to decide whether Lamarck’s intentions are thereby sufficiently clearly shown to have been equivalent to our idea of type fixation, as to permit us to “rigidly construe” his actions as selecting types in the sense of the Code. My own opinion is that we cannot accept his species mentioned as types. It is my intention to refer the question to the International Commission on Zoological Nomenclature for decision.

(c) Blumenbach, 1788, can by no means be accepted as designating genotypes. The case is exactly similar with Latreille, 1802.

(d) The genera of Latreille (1796), published without mention of included species, but accompanied by a sufficient diagnosis, are valid, and date from 1796.* The species first subsequently mentioned as belonging to the genus, and coming under the generic definition, are available for selection of the type, and only those.

(e) The elimination method of type selection, used to a

* This fact is established by Opinion 46 of the International Commission on Zoological Nomenclature. See also the discussion under the family *Thyreopidae*, *seq.*

limited extent by Morice and Durrant in certain instances, is not permitted by the Code.*

(f) Genera of similar but not identical spelling, as *Cepha* Billberg and *Cephus* Latr., are both valid under the code,† unfortunaate as the fact may be in some instances.

In the following paper, in connection with the genera discussed by Morice and Durrant, the author has thought it worth while to introduce some additional genera which are affected directly or indirectly by these decisions, and also some names of higher groups, in order not to leave our nomenclature, in a measure, upset and not rebuilt.

It is to be understood that the present author accepts the conclusions, if not in every instance the methods, published by Morice and Durrant in the instances of genera which are not discussed in this paper.

In the pages which follow the genera included in the Erlangen list are given the numbers they bear in that list. Those not included are given a letter. The statement of the type in each case applies to the generic name immediately following the figure or letter, whether accepted as a valid name or rejected as a synonym or homonym. In order to make the matter as readily comprehensible as possible, all names used in a rejected sense are included in square brackets, while names used in their accepted sense are left free. In a few instances names have been inclosed in parentheses to indicate subgenera.

References following an author's name are by year and page to the List at the close of this article.

I. 1. TENTHREDO L. *nec. auctt.* = [*Allantus* auctt.].

TYPE: *Tenthredo scrophulariae* L. By designation of Latreille (1810 : 435).

Lamarck (1801 : 263) probably cannot be considered as having fixed a type for *Tenthredo*.‡ If not, the first valid designation was *scrophulariae* by Latreille as stated by

* See discussion under the case of the genus *Philanthus*, *seq.*

† In the International Code of Zoological Nomenclature, Art. 36, Recommendations, is found the following: "It is well to avoid the introduction of new generic names which differ from generic names already in use only in termination or in a slight variation in spelling which might lead to confusion. But when once introduced such names are not to be rejected on this account. Examples: *Picus*, *Pica*, *etc.*"

‡ See preceding discussion of this paper on p. 52.

Rohwer (1911 : 90). Consequently *Cryptus* and *Hylotoma* are not synonyms of *Tenthredo*. If Lamarck is correctly interpreted as establishing a type for *Tenthredo*, then the conclusions of Morice and Durrant are correct.

I. 2. CRYPTUS * Jur., 1801, *nec* Fabr., 1804 = [*Arge* Schrank, 1802] = [*Hylotoma* Latr., 1802].

TYPE: *Cryptus segmentaria* Panz. This was the only species included in the genus at the time species were first mentioned in connection with the generic name.

The genus *Cryptus* must date from the Erlangen list, 1801, where it was described but no species included. According to the official interpretation of the Code † the genus dated from 1801, but its type species must be selected from those coming under the original definition, which were first subsequently included under the generic name. Panzer (1804 : 88. pl. 17) was the first to give a species to the genus, and as he included only one, it became the type.

Fabricius (1804 : 70) used the name *Cryptus* for an entirely different group of Hymenoptera. If this publication actually antedated Panzer (1804 : 88. pl. 17) it would supply species for *Cryptus* were it not for the fact that none of them come under the generic definition of Jurine. *Cryptus* Fabr., 1804, is therefore a homonym of *Cryptus* Jurine, 1801.

a. [CRYPTUS Fabr., 1804, *nec* Jurine, 1801] = *Hedycryptus* Cam. ?

TYPE: [*Cryptus*] *viduatorius* Fabr. = *Hedycryptus viduatorius* (Fabr.).

The only existing available synonyms for *Cryptus* Fabr. *sen. str.* seem to be *Hedycryptus* Cameron and *Steriphocryptus* Cameron, both published in September 1903 and based on Oriental species. Schmiedeknecht considers them both *Cryptus* in the sense of Fabr., that is congeneric with *viduatorius*, and is in all probability correct, certainly so as far as Cameron's description indicates. Unless examination of the types proves that Cameron actually had something different, we shall have to use one of these names in

* If Lamarck, 1801, is accepted as establishing genotypes, *Cryptus* becomes a synonym of *Tenthredo*, as Morice and Durrant state.

† Opinion 46, International Commission on Zoological Nomenclature.

place of *Cryptus auctorum*. Of the two, *Hedycryptus* appears to have priority. It was published in the Sept. 1903 issue of the *Zeitschrift für systematische Hymenopterologie und Dipterologie*, a copy of which is dated as having been received at the library of Cornell University, September 8, 1903. The September number of the *Entomologist*, containing the description of *Steriphocryptus* was received September 14, so presumably was issued later.

Undoubtedly it will eventually prove wise to unite with *Cryptus auctorum* as subgenera some of the closely related groups now treated as distinct genera. In such event the generic name will be that of some one of these other groups, and *Hedycryptus* will stand for the subgenus *Cryptus auctorum*. This was undoubtedly the intention of Viereck (1916 : 330) in using *Agrothereutes* Förster for *Cryptus* Fabr. But *Agrothereutes* is usually considered quite distant, although in the same tribe. Such a course would imply reducing most of the genera of the tribe to the rank of subgenera. As Mr. Viereck has not made his plan clear, farther than in the extent to which it applies to the fauna of Connecticut, it seems better to await its elaboration before giving it further consideration.

HEDYCRYPTINAE new subfamily name=[*Cryptinae* auctt.].

The International Code provides that the name of a family or subfamily must be changed when the name of its type genus is changed. Since *Cryptus* Fabr. is a homonym* of *Cryptus* Jurine, *Cryptinae* based on *Cryptus* Fabr. must be renamed *Hedycryptinae*, temporarily at least, following the corresponding similar change in the name of its type genus.

If other genera are united with *Hedycryptus* as subgenera, the generic and also family name will be eventually erected from the oldest one of these.

CRYPTINAE = [*Arginae* auctt.] = [*Hylotominae* auctt.].

Since *Cryptus* Jurine is an older name for *Arge* or *Hylotoma*, there is no actual change in the type genus of [*Arginae*] = [*Hylotominae*], but the generic name is changed to *Cryptus* and the subfamily name must be changed correspondingly.†

* See discussion under *Thyreopidae*, seq.

† See discussion under *Thyreopidae*, seq.

I. 3. [ALLANTUS Jur., 1801, and auctt.] = *Tenthredo* L.

TYPE: *Tenthredo scrophulariae* L. By designation of Curtis (1839 : 764).

Since *Allantus* dates from the Erlangen list, Rohwer (1911b : 218) is incorrect in making *togata* type of *Allantus* and therefore synonymising *Emphytus* with that genus. Morice and Durrant (1914 : 375) have correctly stated the type as *scrophulariae*, but since this is also type of *Tenthredo*, *Allantus* is a synonym of the latter genus.

I. 8. ORUSSUS Latr., 1796 = [*Oryssus* Fabr., 1798].

TYPE: [*Oryssus coronatus* Fabr.] = *Orussus abietinus* (Scop.). The genus originally described without species, only a single species was first subsequently included.

The genus must be attributed to Latreille, 1796,* and consequently retain the spelling *Orussus*. The type remains identical.

b. ASTATA Latr., 1796 = [*Astatus* Latr., 1796, *erratum*] = [*Dimorpha* Jur., 1801].

TYPE: [*Tiphia abdominalis* Panz.] = [*Spheex*] *boops* Schrank = *Astata boops* (Schrank) Spinola. The genus was described without species, and *abdominalis* was the one first subsequently included.

The genus *Astata* of Latreille is valid and dates from 1796.† Latreille printed the name *Astatus* (1796 : 114), but in the same work (1796 : xiii) states : "Page 114, au lieu d'*Astatus* lisez *Astata*." We can therefore hardly hold that he has preoccupied *Astatus* ‡ Jurine, 1801, a group of sawflies. Nor can the latter be considered as establishing species for *Astata* Latr., since the species therein

* See Opinion No. 46 of the International Commission on Zoological Nomenclature.

† See Opinion No. 46, International Commission on Zoological Nomenclature.

‡ International Code of Zoological Nomenclature, Art. 36, Recommendations : "It is well to avoid the introduction of new generic names which differ from other generic names only in termination or in a slight variation in spelling which might lead to confusion. But when once introduced, such names are not to be rejected on this account."

contained do not come under the generic definition of *Astata*.*

I. 9. *ASTATUS* Jur., May, 1801, *nec* Panzer, July, 1801, Konow, etc. = [*Cephus* Latr., 1802] = [*Trachelus* Jur., 1807].

TYPE: [*Sirex*] *pygmaeus* L. = *Astatus pygmaeus* (L.) Jur. = [*Cephus*] *pygmaeus* (L.) Latr.

The two species originally included in *Astatus* are identical.

c. *EUMETABOLUS* Schulz, 1906 = [*Astatus* Panzer, 1801, Konow, etc., *nec* Jurine, 1801].

TYPE: [*Sirex*] *troglodyta* Fabr. = [*Sirex*] *niger* Harris? = *Eumetabolus niger* (Harris) Rohwer.

Eumetabolus, without stated type, was proposed as a substitute for *Astatus*, sense of Konow, and therefore takes *ipso facto* the type of that genus.† Morice and Durrant strongly doubt the identity of *troglodyta* with what they term the mysterious *niger*, and possibly it would be better to call the species *troglodyta*.

d. *CEPHA* Billberg, 1820 = [*Trachelus* Konow, etc., *nec* Jurine] = [*Trachelastatus* Morice and Durrant, 1914].

TYPE: [*Sirex*] *tabidus* Fabr. = *Cepha tabida* (Fabr.) Billb. Genus monobasic.

It is impossible to replace *Cepha* Billberg with *Trachelastatus* Morice and Durrant on the suggested grounds of the similarity of *Cepha* Billberg with *Cephus* Latr.‡

The foregoing data may be tabulated for convenience as follows:—

Family LARRIDAE.

Astata Latr. Type: *boops*. = [*Dimorpha* Jurine].

* Opinion 46 of the International Commission on Zoological Nomenclature is summarised in part: "If (as in *Aclastus* Foerster, 1868) it is not evident from the original publication of the genus how many or what species are involved, the genus contains all of the species of the world which would come under the generic description as originally published. . . ."

† International Code of Zoological Nomenclature, Art. 30 f.

‡ International Code of Zoological Nomenclature, Art. 36, Recommendations.

Family ASTATIDAE = [Cephidae auctt.].

Astatus Jur. Type: *pygmaeus* = [*Cephus* auctt.].
 = [*Trachelus* Jur., not
 sense of Konow and
 recent authors]
 (not *Astatus* Konow and
 recent authors).

Cepha Billb. Type: *tabida* = [*Trachelus* auctt.].
 = [*Trachelastatus* Mor. & Dur.].

Eumetabolus Schulz. Type: *niger* = [*Astatus*, sense of
 Konow and recent
 authors].

I. 10. SIREX L., 1761 = [*Paururus* Konow].

TYPE: [*Ichneumon*] *juvencus* L., 1758 = *Sirex juvencus*
 L. By designation of Curtis (1829: 253).

If it be decided that Lamarck (1801)* is to be interpreted as establishing genotypes, the conclusions of Morice and Durrant must be accepted. Otherwise they will stand as given here and by Bradley (1913).

e. GASTERUPTION Latr., 1796 = [*Foenus* Fabr., 1798].

TYPE: [*Ichneumon*] *assectator* L. = *Gasteruption assectator* (L.) Schletterer. By designation of Viereck (1914: 61), possibly previously by act of Latreille (1802: 329).

Latreille (1802: 329) certainly did not make *assectator* type of *Foenus*, and the designation of *jaculator* for the latter genus is valid, as indicated by Viereck (1914: 60). However, the two are congeneric, and the name *Gasteruption* has precedence.†

III. 1. ICHNEUMON L. (1758).

The conclusions of Morice and Durrant are correct if Lamarck (1801) designated genotypes in the sense of the code. Otherwise those of Viereck (1914) as given by Morice and Durrant seem to be correct.

III. 2. ANOMALON Pz., 1804 = [*Paranomalon* Viereck, 1914] = *Anomalon* auct.

TYPE: *Anomalon cruentatus* Pz. Genus monobasic.

* See previous discussion concerning this paper on page 52.

† Opinion 46, International Commission on Zoological Nomenclature.

This is as shown by Morice and Durrant. Following the restoration of *Anomalon* in the accepted sense, it will no longer be used to replace *Bassus* auctt., but *Diplazon* will replace that name.

Viereck (1916: 281) uses *Erigorgus* Förster to replace *Anomalon* auctt., probably with the intention of reducing his *Paranomalon* to the rank of a subgenus.

f. DIPLAZON (Nees) Grav., 1818 = [*Bassus* auctt., nec Fabr.].

TYPE: [*Ichneumon*] *laetatorius* Fabr. = [*Bassus*] *laetatorius* Panz. = *Diplazon laetatorius* (Fabr.). By designation of Viereck (1914: 46).

The foregoing data, together with related facts brought out by Viereck (1914), may be conveniently tabulated as follows:—

Family BRACONIDÆ.

Subfamily *Braconinae* = [*Agathinae* auctt.].

Bracon Jur., nec auctt. Type: *desertor* L. = [*Cremnops* auctt.].

Bassus Fabr., nec auctt. Type: *calculator* Fabr. = [*Microdus* Nees et auctt.].

Agathis Latr. Type: *malvacearum* Latr.
etc.

Subfamily *Vipioninae* = [*Braconinae* auctt.].

Microbracon Ashm. Type: *sulcifrons* = [*Bracon* auctt., nec Jur.].

Vipio Latr.* Type: *desectus* n. n.† = [*Glyptomorpha* Holmg.] = [*Pseudovipio* Szepi.].

Zavipio Vier. Type: *marshalli* Schm. = [*Vipio* auctt.].
etc.

* The removal of *Bracon* Jur. to the group containing the genus *Agathis* has left the subfamily containing *Microbracon* Ashm. and allied genera without a type genus. This deficiency has been appropriately supplied by Viereck, who has selected the oldest of the genera concerned, *Vipio*, and by the erection of the family *Vipionidae* (1916: 181) made it type genus.

† The type of *Vipio* Latreille is *Ichneumon desertor* Fabricius, not of Linnaeus. The latter insect is the type of *Bracon*. *Ichneumon desertor* Fabricius is a homonym and must be changed; I therefore propose:—

Vipio desectus n. n. for *Vipio desertor* (Fabr.), described as *Ichneumon desertor* Fabr., nec Linnaeus.

Family ICHNEUMONIDAE.

Subfamily *Ophioninae*.

Anomalon Pz. Type : *cruentatus* = [*Paranomalon* Vier.].

Subfamily *Tryphoninae*.

Tribe *Diplazonini* = [*Bassini* auctt.].

Diplazon (Nees) Grav. Type : *laetatorius* = [*Bassus* auctt., *nec* Fabr.].

g. PSAMMOCHARES Latr., 1796 = [*Pompilus* Fabr., 1798].

According to Opinion 46 of the International Commission on Zoological Nomenclature *Psammochaeres* must date from 1796 and not 1802.

h. TRYPOXYLON Latr., 1796 = [*Apius* Jur., 1801].

TYPE : [*Sphex*] *figulus* L. = *Trypoxylon figulus* (L.) Latr. Genus described without species, *figulus* was the first species placed in it subsequently, and agreeing with the generic definition becomes *ipso facto* type.*

III. 10. [DIMORPHA Jur., 1801] = *Astata* Latr., 1796.

TYPE : [*Tiphia abdominalis* Panz] = [*Sphex*] *boops* Schrank = *Astata boops* (Schrank) Spinola. Genus monobasic.

III. 12. SCOLIA F. = [*Discolia* Sauss. et Sichel].

TYPE : *Scolia* 4-*punctata* Fabr. By designation of Latreille (1810 : 437).

The so-called designation of *flavifrons* as type by Latreille (1802 : 347) is not valid under the code,† nor is the designation of *haemorrhoidalis* by Lamarek (1801 : 269).

III. 13. SAPYGA Latr., 1796..

and

III. 14. MYRMOSA Latr., 1796.

These two genera must date from 1796.‡ The types are as given by Morice and Durrant (1914 : 398).

* Opinion 46, International Commission on Zoological Nomenclature.

† International Code of Zoological Nomenclature, Art. 30, g.

‡ Opinion 46, International Commission on Zoological Nomenclature.

III. 23. PHILANTHUS Fabricius, 1790 = [*Simblephilus* Jurine, 1801].

TYPE: [*Crabro androgynus* Rossi] = [*Vespa*] *triangulum* Fabr. = *Philanthus triangulum* Fabr. By designation of Curtis 1829.

Morice and Durrant, p. 410, state that "Jurine's revision of *Philanthus* (30. v. 1801), being a year prior to that of Latreille (after iv. 1802), his restriction of its possible types to *laetus*, *arenarius*, and *labiatus*, must be accepted. This means that *arenaria* L. is the type, for *laetus* is a synonym of *arenarius*, and *labiatus* was not originally included in the Fabrician *Philanthus*."

The citation of only 3 supposed species in connection with *Philanthus* by Jurine in 1801 does not restrict selection of the type of that genus to any one of them. That was in a measure the now discarded principle of type-fixation by elimination.* There being no basis for the fixation of a type of *Philanthus* in the original publication of Fabricius (1790)† the first subsequent actual designation of the type by any author, if in accordance with paragraph *e* of Art. 30 of the code, must be accepted.‡ Latreille (1810 : 438) cannot be considered to have designated a type, since he mentions two different species both as type.§ The first actual designation of a type seems to

* See Opinion 6 of the International Commission on Zoological Nomenclature. This Opinion provides that when a later author divides the genus A, species A b and A c, leaving genus A, only species A b, and genus C, monotypic with species C c, the second author is to be construed as having fixed the type of the genus A. From the discussion of the case it is perfectly clear that this principle cannot be carried further, to the extent of including cases in which more than two species were included in the original description of the earlier genus.

See further, Opinion 58, in the discussion of which is stated, concerning a somewhat similar case: "'*Esox* Cuvier' is a restricted group of '*Esox* Linn.' Only one species is mentioned, and this becomes the type (by monotypy) of '*Esox* Cuvier.' This rigidly construed is not, however, a designation of the genotype for '*Esox* Linn.'"

† See International Code, Art 30, i.

‡ Art. 30, *g*: "If an author, in publishing a genus with more than one valid species fails to designate or to indicate its type, any subsequent author may select the type, and such designation is not subject to change."

§ If it should be interpreted that the first of these was the actual designation of a type, and the other intended as a synonym (which it is not), or as a supplementary illustration, the result would be

have been by Curtis (1829 : 273) as *Crabro androgynus* Rossi, which is a synonym of *Vespa triangulum*, a true *Philanthus* in the sense of modern authors.

i. CERCERIS Latreille.

TYPE : [*Philanthus ornatus* Fabr.] = [*Sphecx*] *rybiensis* L. = *Cerceris rybiensis* (L.) Schletterer. By designation of Latreille (1810 : 438).

Following from the conclusions relative to *Philanthus*, as above stated, *Cerceris* is not a synonym of that genus, but each will fortunately stand in the sense in which they were applied by Latreille, and which has been followed by modern authors.

III. 18. [SIMBLEPHILUS Jurine, 1801] = *Philanthus* Fabr., 1790.

TYPE : *Philanthus* [*pictus* Panzer] = *Philanthus triangulum* Fabr. Genus monotypic.

Following the above, *Simblephilus* is restored to its prior position as an absolute synonym (isogenotypic) with *Philanthus*.

III. 19. MELLINUS Fabr., 1790.

TYPE : [*Vespa*] *arvensis* L. = *Mellinus arvensis* (L.) Fabr. By designation of Curtis (1836 : 580).

From considerations given above Latreille (1802 : 339) cannot be considered as having fixed the type for *Mellinus*. Latreille (1810 : 438) cites two species. Apparently the first valid designation was by Curtis (1836 : 580).

j. [GORYTES Latr., 1804] = [*Hoplisis* Lep. et auctt.] = *Ceropales* Latr., 1796.

TYPE : [*Mellinus*] *quinquecinctus* Fabr. = [*Gorytes*] *quinquecinctus* (Fabr.) Latr. = *Ceropales quinquecinctus* (Fabr.) Latr. By original designation.*

Gorytes, *Hoplisis* and *Ceropales* are isogenotypic.

the same, as *pictus*, first mentioned by Latreille, is a synonym of *triangulum*.

* I have not seen the description of this genus, and give this designation on the authority of Morice and Durrant.

k. [HOPLISUS Lep., 1832] = [*Gorytes* Latr.] = *Ceropales* Latr., 1796.

TYPE: [*Mellinus*] *quinquecinctus* Fabr. = [*Hoplisus*] *quinquecinctus* (Fabr.) Lep. = [*Gorytes*] *quinquecinctus* (Fabr.) Latr. = *Ceropales quinquecinctus* (Fabr.) Latr. By designation of Westwood (1840 : 80).

III. 20. ARPACTUS Jurine, 1801 = [*Gorytes s.s. auctt., nec* Latr.].

TYPE: [*Sphex*] *mystacea* L. = *Arpactus mystaceus* (L.) Jur.

Arpactus was founded by Jurine (1801 : 164) with mention of two species, "*Mellinus mystaceus, quinquecinctus*," without selection of either as type. The subsequent designation of *quinquecinctus* as type of *Gorytes* by Latreille (1804) *ipso facto* established *mystaceus* as the type of *Arpactus*.* This leaves it necessary to use *Arpactus* to replace the common usage of *Gorytes s.s.*

l. AGRAPTUS Wesmael, 1852 = [*Arpactus auctt. nec* Jurine].

TYPE: [*Sphex*] *concinna* Rossi = *Agraptus concinnus* (Rossi) Wesm. Genus monobasic.

The facts above outlined may be compared, as a matter of convenience, as follows, assuming that the groups are best entitled to subgeneric rank.

m. CEROPALES Latreille, 1796, *nec auctt.* = [*Gorytes* Latr., 1804] = [*Hoplisus* Lep. *et auctt.*].

TYPE: [*Mellinus*] *quinquecinctus* Fabr. = *Ceropales quinquecinctus* (Fabr.) Latr.

Ceropales, proposed in 1796 and described without included species, is valid from that date, and the type species must be selected from those first included in it by a subsequent author.† The first inclusion of species in *Ceropales* was by Latreille (1802: 340), "*Mellinus 5-cinctus; campestris?* F."

* Opinion 6 of the International Commission on Zoological Nomenclature: "When a later author divides the genus A, species A b and A c, leaving genus A, only species A b, and genus C monotypic with species C c, the second author is to be construed as having fixed the type of the genus A."

† Opinion 46 of the International Commission on Zoological Nomenclature.

Genus *Ceropales* Jurine, 1801.

Subgenus *Arpactus* Jurine, 1801, type *mystacea* = [*Gorytes* in the sense of recent authors].

Subgenus *Ceropales* Latreille, 1804, type *quinquecinctus* = [*Hoplisus* in the sense of recent authors].

Subgenus *Agraptus* Wesmael, 1852, type *concinus* = [*Arpactus* in the sense of recent authors].

Whether these be reckoned as genera, subgenera or identical groups is a question of taxonomy, not of nomenclature, and is open to debate.

n. *HYPsicERAEUS* Morice and Durrant, 1914 = [*Ceropales* Latr., 1804, nec Latr., 1796].

TYPE: [*Evania*] *maculata* Fabr. = [*Ceropales*] *maculata* (Fabr.) Latr. = *Hypsiceraeus maculata* (Fabr.) M. and D. By original designation.

III. 21. *ALYSSON* Jurine, 1801 [= *Alyson* auctorum].

TYPE: [*Pompilus*] *spinosus* Panzer = *Alysson spinosus* (Panzer). By designation of Morice and Durrant (1914: 406).

o. [*ALYSSON* Jurine, 1807] = *Alysson* Jurine, 1801.

TYPE: *Alysson spinosus* (Panzer) Jurine. Genus monobasic.

Alysson Jurine, 1801, and *Alyson* Jurine, 1807, must be considered as potentially different genera.* With this in mind the determination of the types becomes a simple matter, and allows us to retain the names in their long-accustomed sense, substituting *Alysson* for *Alyson*.

Were we to look upon *Alysson* and *Alyson* as being only one name and therefore attempt to determine the type on the basis of the three species originally included in *Alysson* and of subsequent attempts at type designation for *Alyson*, the matter would become much more complex, and I must confess that I would feel at a loss to solve certain questions which would arise, but which need not be detailed. It is enough to point out that the method employed, under this premise, by Morice and Durrant does not suffice,

* International Code of Zoological Nomenclature, Art. 36, Recommendations.

since it is again an elimination method, and not within the provisions of Article 30 of the International Code.

III. 22. NYSSON Latr., 1796.

TYPE: [*Mellinus*] *tricinctus* Fabr. = [*Crabro*] *spinosus* Fabr. = *Nysson spinosus* (Fabr.) Jurine. By designation of Latreille (1810 : 438).

This is as given by Morice and Durrant. The genus must date, however, from 1796.*

It is to be hoped that authors will agree to the suggestion of Morice and Durrant that the form "*Nysso*" was a misprint, and continue to use the spelling "*Nysson*" as Latreille himself subsequently spelled it.

p. PALARUS Latreille, 1802.

TYPE: [*Tiphia flavipes* Fabr., 1793 = *Palarus rufipes* Latr., 1811] (not *Crabro flavipes* Fabr., 1781 = *Palarus flavipes* [Fabr.] Latr.) = [*Tiphia*] *variegata* Fabr., 1781 = *Palarus variegata* (Fabr.) Turner, 1909. Genus monobasic.

Morice and Durrant seem to have overlooked the fact that Latreille (1802 : 336), instead of describing *Palarus* without exponent, erected it to receive "*La tiphie flavipède de Fabricius*," the characters of which he discusses at some length, promising to give the generic characters at greater length at a later date. This promise he redeems in the 13th volume (1805 : 296), where he also adds three other species to the genus, and states that *Gonius* of Jurine (a *nomen nudum*) is identical.

I cannot see the reason for suppressing *flavipes* = [*Crabro flavipes* Fabr., 1781] in favour of *auriginosus* Eversmann, 1849. The species *flavipes* was based on *Crabro flavipes* of Fabricius, 1781, and is different from *Tiphia flavipes* of Fabricius, 1793. When the latter was brought into the genus (by Latreille in 1811) its name was properly changed to *rufipes*. What Panzer meant by *flavipes* has nothing to do with the question. Latreille, however, specifically cites *Philanthus flavipes* of Panzer as a synonym of the former, and the species figured by Coquebert of the latter.

Tiphia variegata Fabr. has priority, however, over

* Opinion 46, International Commission on Zoological Nomenclature.

T. flavipes. Schulz, who has examined the types, is authority for their identity.*

III. 27. CRABRO Geoffrey, 1762 (*nec* Fabricius, 1775)=
Cimbex Oliv.].

TYPE: *Crabro humeralis* Fourcroy. By present designation.

Geoffroy described *Crabro* for three species, not given uninominal names, but fully described and one of them figured. These three species are: (1) [*Tenthredo*] *lutea* L., (2) *Crabro humeralis* Fourcroy, and (3) [*Tenthredo*] *connata* Schrank, the three known to modern authors under those specific names as species of *Cimbex* Oliv.

Geoffroy's usage was binary but not binominal. It was uninominal for generic names, and these must be accepted under the code.† The type must be chosen from the three included species, which, although uninominal names were not cited, are recognisable, and one of which (*lutea* L.)

* The Reverend Mr. Morice has written me as follows, and I am quite willing to accept the synonymy as he suggests it, as I have no personal knowledge of the species or their types:

"I think, however, that the synonymy as you give it is still not quite right. If Schulz has really seen the types of *Tiphia flavipes* and *Tiphia variegata*, I am puzzled, and think he must have made a mistake.

The following, so far as I can make out, are the facts—

"*Tiphia variegata* Fabricius
(Type in British Museum, seen
by me)

= *Crabro flavipes* Fabricius.

= *Philanthus flavipes* Panzer
(*nec* Fabricius *teste* Latreille).

= *Palarus auriginosus* Eversm.

The only European *Palarus*,
commonly known as '*flavipes*'
hitherto."

"*Philanthus flavipes* Fabricius
(*teste* Latreille) figured by Coque-
bert

= *Tiphia flavipes* Fabricius.

= *Palarus rufipes* Latreille,
1811.

= *Palarus humeralis* Dufour.

A species of Algeria and
Morocco commonly known as
'*humeralis*.'"

(F. D. Morice).

According to this synonymy the type of the genus, *Tiphia flavipes*, is the Algerian species *humeralis* auctorum, and apparently the name '*flavipes*' is valid.

† The case is exactly parallel with that of Gronow's *Zoophylacii*, etc., 1763. Opinion 20 of the International Commission on Zoological Nomenclature is summarised: "Gronow, 1763, is binary, though not consistently binominal. Article 25 demands that an author be binary, and Article 2 demands that generic names be uninominal. Under these articles Gronow's genera are to be accepted as complying with the conditions prescribed by the Code to render a name available under the Code."

was already a described and properly named species.* The type must be selected from among these three. The selections of a type for *Crabro* by Lamarck (1801), Latreille (1810), Curtis (1837), and Westwood (1840) refer to *Crabro* F., 1775, not to *Crabro* Geoffroy, and designate a species not included by Geoffroy. No type seems to have been specified for *Crabro* Geoffroy; and one is therefore here chosen. All three of the original species are congeneric.

The circumstance is a most unfortunate one in that it requires the substitution of the name *Crabro* for the well-known *Cimbex*, both names involving the families with which they are associated. But there seems to be no recourse, as *Crabro* F., which has been accepted by all modern writers, is an absolute homonym of *Crabro* Geoffroy.

I had intended to make *lutea* L. type, but the Rev. Mr. Morice suggests to me that it would be better to select *humeralis*, since that species is known for certain, whereas it is doubtful, according to him, that it can ever be settled whether *lutea* L. was the species now commonly called *lutea* or merely the yellow bodied form (♀) of what we know as *femorata*. The suggestion is a happy one and I am glad to accept it.

q. *THYREOPUS* Lep. = [*Crabro* F., 1775, *nec* Geoffr., 1762].

TYPE: [*Vespa*] *cribraria* L. = *Thyreopus cribrarius* (L.) Lep. By designation of Westwood (1840: 80).

This may be considered a subgenus of *Solenius* and is isogenotypic with [*Crabro* Fabr. *nec* Geoffroy].

r. *SOLENIUS* St. F. and Br., 1834 = *Solenius auctt.* + *Crabro s.s.* of recent authors, *nec* Geoffr.]

TYPE: [*Sphex*] *vaga* L. = *Solenius vagus* (L.) St. F. and Br. By designation of Westwood (1840: 80).

Crabro in its modern usage being invalid, it is necessary to decide with what name it shall be replaced. Saint

* Should any one, disagreeing with this, maintain that the genus has the status of genera described without included species, since the three species were not properly named, the end result will be identical, for the first author to include named species which came under the original generic definition (see Opinion 46) was Fourcroy, who in reprinting or re-editing Geoffroy included his three species of *Crabro*, with others, under the names *Crabro maculatus*, *C. humeralis* and *C. lunulatus*.

Fargeau and Brullé (1834) were the first to divide the genus *Crabro* (sense of Fabricius) into several subgenera. The first of these was the restricted genus *Crabro*,* containing *fossorius* (L.) with others. The second was *Solenius* containing *vagus* (L.) and others. Kohl, whose works stand out as the most scholarly that have been produced upon the Sphecoidea, recognises four subgenera and ten species groups of *Crabro*. Of the latter, the last (which he terms *Crabro* Kohl s. str.) contains both of the genera *Crabro* and *Solenius* of St. Fargeau and Brullé. In other words, Kohl does not even consider them sufficiently distinct to merit the rank of species group.

While accepting some subgenera of [*Crabro*], my personal judgment is against distinguishing between the group of which *fossorius* may be taken as typical and that having *vagus* as type. I therefore propose to unite them under the subgeneric name *Solenius*. I will leave it to some one whose judgment may differ from mine to do what I am wholly unwilling to do, that is to propose another name for *Crabro* auctorum as distinguished from *Solenius*, if that step must ever be taken.

Rohwer (1916 : 664) has used *Solenius* to replace *Crabro* of recent authors, not *Crabro* in the sense of Fabricius.

s. [CRABRO Fabricius, 1775, nec Geoffroy, 1762] = (*Thyreopus* St. Farg. and Brullé, 1834) with status of a subgenus of *Solenius*.

TYPE : [*Vespa*] *cribraria* L. = [*Crabro*] *cribrarius* (L.) Fabr. = *Thyreopus cribrarius* (L.) St. Farg. and Br. = *Solenius (Thyreopus) cribrarius* (L.).

THE FAMILY AND SUBFAMILY NAMES.

The International Code provides (Art. 5) that the name of a family or subfamily is to be changed when the name of its type genus is changed. It, however, is silent upon the nature of the change which is to be effected. Three courses are open : (1) To base the new name upon the changed name of the original type genus. (2) To use as the type genus for the new family name the contained genus

* St. Fargeau and Brullé were incorrect in restricting *Crabro* to the group containing *fossorius*, as the type of *Crabro* Fabricius had already been fixed as *cribraria*, but it is in their sense that the genus *Crabro* has been known to all modern authors.

which has been earliest used as the basis of a plural name, that is for a name of a group higher than genus. (3) To use as genotype the oldest contained genus within the family as limited by the author.* The author cannot too vigorously express his dissension from the school that adheres to the third practice, the acceptance of which will result in a perpetual overturning of family names, with each varying concept of family limits. The second course is advisable if the group in question is left without a type genus. But if the name of the type genus changes without the genus itself going outside of the family group with which it had been previously associated, it would seem the fairest interpretation of the code to make the change in family name correspond, in other words to change not the type genus, but its name only. The genus name *Crabro* Fabr. nec Geoffroy changing to *Thyreopus*, *Thyreopus* remains as much type of the family as when it was called *Crabro*.†

Family THYREOPIDAE = [*Crabronidae* auctores].

Subfamily *Thyreopinae* = $\left\{ \begin{array}{l} \textit{Crabroninae} \\ \textit{Lindeninae} \\ \textit{Thyreopinae} \\ \textit{Rhopalinae} \end{array} \right\}$ sense of Ashmead.

Genus **Thyreopus**. Type: *cribraria* = *Thyreopus* auctorum = [*Crabro* Fabr.].

„ **Solenius**. Type: *vagus* = [*Crabro* auctorum] united with *Solenius* auctorum.

and others.

Family CRABRONIDAE = [*Cimbicidae* auctorum].

Genus **Crabro** Geoffr. Type *humeralis* = [*Cimbex* auctorum].

* Applied to the present case this third method would fix upon *Rhopalum* as type genus, with *Rhopalinae* and *Rhopalidae* in consequence.

† The case would be quite different if *Crabro* had not been a homonym, but had been wrongly applied to the group that we have known as *Crabronidae*. In other words, if the type species of *Crabro* Fabr. were a sawfly instead of a Sphegid. In that case the *family* and its name would not theoretically change, but simply be applied in its true sense, as a group of sawflies and its formerly incorrectly associated Sphegid members would be removed from it. The latter would be left without a type genus.

t. PEMPHREDON Latr., 1796 = [*Cemonus* Jurine, 1801].

TYPE: [*Crabro*] *lugubris* Fabr. = [*Sphecx* (*Crabro*) *unicolor* Panzer, 1798] = *Pemphredon lugubris* (Fabr.) = [*Cemonus unicolor* Panzer, 1806].

The synonymy I accept on the authority of Morice and Durrant, but Opinion 46 of the International Commission makes it necessary to reverse them in regard to which name, *Pemphredon* or *Cemonus*, has priority.

III. 29. OXYBELUS Latr., 1796.

The conclusions concerning *Oxybelus* need no change, except that it must be ascribed to Latreille and date from 1796.*

III. 32. ANDRENA Fabr., 1775.

TYPE: [*Apis*] *cineraria* L. = *Andrena cineraria* (L.) Latr. By designation of Latreille (1810 : 332).

Unless Lamarck (1801) is accepted as designating genotypes † *cineraria* and not *succincta* must be the type of *Andrena*. This is satisfactory, since it involves no change and *succincta* is a dubious species.

Colletes Latreille may be a synonym. Its type, the only originally included species, is *succincta* L., which, as Morice and Durrant point out, is probably congeneric with *cineraria*, but may not be. According to Opinion 65 of the International Commission on Zoological Nomenclature these authors are not warranted in making *Colletes glutinans* Cuv. type of *Colletes* on the basis that Latreille misdetermined *succincta* L., unless the special case is brought before the Commission and action to that effect taken.

III. 33. LASIUS Jur. = [*Anthophora* auctt.].

The discussion of *Lasius* and the genera involved with it has been taken up since Morice and Durrant (1914 : 421-423) by Forel (1916 : 460), Mayr (1916 : 53-56), Wheeler (1916 : 168-173), and again by Morice and Durrant (1916 : 440-442). I have nothing further to add to this discussion. Morice and Durrant (1914 : 421-423) seem to be correct in considering *Lasius* Fabr., 1804, a homonym of *Lasius* Jurine, 1801, and that the latter is *Anthophora* auctt.

* Opinion 46 of the International Commission on Zoological Nomenclature.

† See the previous discussion of this paper on page 52.

III. 38. MUTILLA L., 1758.

TYPE: *Mutilla europaea* L. By designation of Latreille (1810 : 314) and possibly of Lamarck (1801 : 268).

Blumenbach's* (1779 : 386) citation of *occidentalis* is not to be regarded as type fixation under the code.*

III. 40. CYNIPS L., 1758 = [*Diplolepis* Geoffroy, 1802] = [*Rhodites* Hartig, 1840].

TYPE: [*Diplolepis* *bedeguaris* Fab.] = *Cynips* *rosae* L. By designation of Latreille (1810 : 436).

If it is decided that Lamarck (1801) is to be accepted as establishing genotypes,† then the conclusions of Morice and Durrant, rather than those given here, are correct. In that case *Cynips* will replace *Dryophanta* Foerster, or *Diplolepis* Geoffroy as incorrectly used by Kieffer in Das Tierreich.

Multinomial specific names are used by Geoffroy (1802 : 310, 311) in connection with the six species that he originally placed in *Diplolepis*. The first of these he definitely fixes by citing as a synonym *Ichneumon bedeguaris*. Since the other five have no definite status given them, the case is the same as though the genus had been established upon a single species, *bedeguaris*, which is therefore type.

u. [CYNIPS auctt.]

Whether Morice and Durrant or my own conclusions are correct concerning *Cynips*, that genus as employed by Kieffer in "Das Tierreich" and by other modern authors is left without a name.

III. 48. PSILUS Jurine, 1801 = [*Bethylus* auctorum].

TYPE: [*Tiphia*] *cenoptera* Panz. = *Psilus* *cenoptera* (Panz.) Jurine. Monobasic.

v. BETHYLUS Latr., 1802 = [*Dryinus* Latr. and auctt. ?].

TYPE: [*Tiphia*] *hemiptera* Fabr. = *Bethylus* *hemipterus* (Fabr.) Latr. Genus monobasic.

Tiphia hemiptera Fabr. is not a recognizable species at present. Dalle Torre lists it as a *Dryinus*, but Kieffer in the "Genera Insectorum" refers it with a doubt to *Bethylus*

* See discussion of this paper on page 52.

† See previous discussion on page 52.

auctorum. If it ever proves to be congeneric with *formicarius*, *Bethylus* will have to replace *Dryinus*. At present the name, and with it the family name *Bethylidae*, had better be suppressed.

w. DRYINUS Latr., 1805. = *Bethylus* Latr., 1802?

TYPE: *Dryinus formicarius* Latr. Genus Monobasic.

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