

Critical Comments upon Some Nomenclatorial and Synonymical Questions.

With a Practical Application to Some Coleoptera Lamellicornia.

By

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"Nomina si pereunt, perit et cognitio rerum", the Linnæan citation used by Richter as a motto for his "Einführung in die Zoologische Nomenklatur" (1948), could deservedly be taken as a memento for all scientists working on nomenclatorial and synonymical problems. As a matter of fact, the feeling of responsibility in this field of work has been very much enhanced since the introduction in 1905 of the International Rules of Zoological Nomenclature, but, at the same time, the instability of the names has increased considerably as a consequence of the more or less vigorous application of these Rules. The Rules have continually been improved and augmented by the International Commission on Zoological Nomenclature, and the International Congresses usually take up the current situation of the Rules for discussion.

In the works from the eighteenth and a great deal of the nineteenth centuries, however, there is often a surprising want of interest in nomenclatorial questions, even in works by prominent and celebrated scientists, such as Fabricius, Olivier, Panzer, Zetterstedt etc., who in many cases neglected the value of accuracy in synonymical problems. Voet, the well-known iconographer, was especially extreme: he did not often use, on the whole, any earlier specific names. In his famous "Catalogus Systematicus Coleopterorum", 1766-1778(-1806), he re-names almost all the species, when treating them in a binomial way (his system is partly uninomial). There are, of course, brilliant exceptions, e.g. Illiger, Creutzer, Schönherr, Gyllenhal, Hope, Mulsant and Erichson. On the other hand, it must be noted that, e.g., Fabricius and Olivier were working at the time when the modern (binomial) nomenclature had been quite recently introduced. Further, and even more important, the bad and slow communications of the time must have been a very grave obstacle to scientists, especially because of the difficulty of getting many of the more important works within a reasonable time. Furthermore, speci-

mens were not, or were very seldom, sent for study from one person to another. Typical specimens were not designated or even established at all; as a matter of fact, the "type-usage" was not introduced until 1907 (vide Richter 1948, p. 21).

The nomenclatorial and synonymical disorder in many of the works of the old classics will not be criticized here; I have only summarized some plausible causes of the confusion even of a great part of the system of today.

Nevertheless, I can find but one way for a successful solution of the intricate nomenclatorial problems: the careful study of the works of the old authors. A great deal of the present confusion seems to be caused only by the fact that many authors prefer to quote catalogues and handbooks rather than the original sources. But why? The nomenclatorial branch of the science (which of course may not be treated only for its own sake) really offers the investigator stimulating and exciting detective work. It is not, or at least not only, an escape from the world of reality to the world of imagination.

The qualifications which form the basis of the following notes are founded on the International Rules of Zoological Nomenclature up to the "Copenhagen decisions" (1953), i.e. up to the last edition of the rules. The reason for the article is my desire to try to bring order to some nomenclatorial problems which have been and still are treated in very different ways by different authors and, in connection with this, to discuss in a fundamental manner the application of the names proposed by certain authors.

The following themes are handled below from a nomenclatorial point of view: the generic names of *Platycerus*, *Copris*, *Psammодиус*, and *Amphimallon*, and the specific names of *Aphodius rufus* (Moll), and *Aphodius sticticus* (Panzer). Different problems have been discussed by correspondence with Mr. Francis Hemming, Secretary to the International Commission on Zoological Nomenclature, London, and Mr. J. Balfour-Brown, M.A., Principal Scientific Officer at the British Museum, N.H., London. To these gentlemen I wish to express my sincere thanks for stimulating discussions.

Before I begin to discuss the questions of the above-mentioned generic and specific names, I want to make some comments on some of the more important works which are especially topical in connection with these problems.

We cannot often find a work of such great value, simultaneously causing so much nomenclatorial trouble, as E.L. Geoffroy's "Histoire abrégée des Insectes" (1762). Geoffroy introduced a great many new genera, giving well-founded and excellently described diagnoses. But the work is uninomial throughout, i.e. there are no specific names established in connection with the generic ones. Instead of specific names Geoffroy used "nomina trivialia" (in the sense used before the Paris decisions in

1948, and after the Copenhagen decisions in 1953; vide the "Copenhagen decisions" 1953, p. 21). In consequence of one of the fundamental nomenclatorial rules, the generic names of Geoffroy cannot be valid, as they are not binomially established. Nevertheless, many of them are used to-day, but, if correctly used, not with reference to Geoffroy as the auctor. The generic names proposed by Geoffroy have actually been treated later in a binomial connection, especially by Fourcroy (1785), but even by O. F. Müller (1776).

O. F. Müller first published some of the generic names of Geoffroy in his work "Fauna Insectorum Fridrichsdalina" (1764) where in the first part of the work (with the pagination in Roman figures), he made a tabular comparison between the generic systems of Linnæus and Geoffroy. The names given by Geoffroy are here still uninomially used. Propositions have been made for a validation of the generic names of Geoffroy but with O. F. Müller, 1764, as the auctor. The nomenclatorial rules really admit, within narrow limits, an acceptance of generic names established without any specific name. The qualifications for such an admission are: (1) The description should contain the generic name in connection with distinctly expressed *specific characters* in the form of a "trivial name" (in the above sense), i.e. the combination should give the *idea both of the genus and of the species* of the animal. (2) The uninomial generic name must have been established before the year 1931 (the year when the obligatory designating of the "typus generis" was realized), and it must also be expressed by a good description. Concerning the genera of Geoffroy, they are carefully described and usually coupled with a "trivial name". O. F. Müller, however, in his above-mentioned non-descriptive tabular arrangement of the Geoffroyan names, seems only to fulfil one condition: his work is indubitably published before 1931. Obviously, there is wide-spread opposition to the preservation of Geoffroy as the auctor of the generic names proposed by him. This opinion, with which I quite agree, is correctly based on the uninomial status of the genera. *But then it seems very peculiar to try to make the same names valid after their re-establishment by O. F. Müller (1764) under the same uninomial conditions and in a very provisory connection.*

Later on, however, O. F. Müller treated some of the Geoffroyan genera in a binomial connection, viz. in the work "Zoologiae Danicae prodromus" (1776), and the generic names re-established here must, of course, be regarded as valid.

The above-mentioned French entomologist A. F. Fourcroy published in 1785 a work of great importance from a nomenclatorial point of view, the "Entomologia Parisiensis". This work is a complete treatment in a binomial manner of Geoffroy's work of 1762. The generic names of Geoffroy are here coupled with defined specific names. It must then be correct to use the generic names proposed by Geoffroy, but at the same time Fourcroy should be entered as the auctor. Those names must of course

be excepted which have become valid by O. F. Müller's work of 1776 (see above).

One important work of P. A. Latreille should also be mentioned in this connection, viz. the "Considérations générales etc." (1810). Latreille, in this work, published the first designations of genotypic species (op. cit., p. 421 etc.). This must be considered to have had important consequences for the nomenclatorial and synonymical questions concerning the taxonomic units proposed and used by the earlier authors.

These discussions of principle may serve to explain some of the comments given below.

1. The generic name of *Platycerus*.

The genus *Platycerus* was early established in connection with the generic name of *Lucanus*. From a historical point of view the development is as follows: The name of *Lucanus* was first established by Linnæus in the first edition of his "Systema Naturae", 1735. Here Linnæus gave the distinction between *Lucanus* and *Scarabaeus*: "*Lucanus*. Cornua ramosa, rigida, mobilia. Ant. capitatae, foliaceae." There is no doubt that this description refers to the group of the stag-beetle. On the other hand, the following description: *Scarabaeus*. Ant. clavatae, foliaceae. Cornua nulla", must refer to the other groups of Lamellicornia. It is evident that Linnæus, when speaking about the "cornua", here meant the strongly developed and protruding mandibles in male specimens of the stag-beetle, and not the different types of head-apophyses commonly met with in other groups. The name of *Lucanus* Linné is, however, invalid according to the rules of nomenclature. In the editio decima of his "Systema Naturae" (1758), Linnæus mentioned only the genus *Scarabaeus* (also including the stag-beetles, e.g. "*Scarabaeus cervus*").

Geoffroy, in 1762, introduced the genus *Platycerus* (p. 59 etc.) and enumerated a series of species belonging to it, but only under "trivial names" (see above). Among these species we find: "*Platycerus fuscus*, cornubus duobus mobilibus, etc." ["Le grand cerf-volant" = *Lucanus cervus* (L.), cf. the description given by Linnæus in "Syst. Nat." 1735], and: *Platycerus violaceo-caeruleus* etc." ["La chevrette bleue" = *Platycerus caraboides* (L.)]. The generic name of *Platycerus* Geoffroy, being uninomially established, is invalid.

In the following year Scopoli described the genus *Lucanus* (1763, p. 1), obviously inspired by the Linnæan name from 1735. Under *Lucanus* Scopoli enumerated the species *cervus* (p. 1) and *caraboides* (p. 2). The generic name of *Lucanus*, here being treated in a binomial connection, is valid since Scopoli's work.

In the year 1764, O. F. Müller made a comparison between the Linnæan and the Geoffroyan genera (p. XI-XXIV). Here (p. XI) the genus *Scarabaeus* Linné corresponds to the genera *Platycerus*, *Scarabaeus*, and *Copris*
Entomol. Ts. Arg. 78. H. 2-3, 1957

of Geoffroy. In the last part of the same work (p. 1-96), Müller only mentioned the genus *Scarabaeus* (p. 1-2); this is his own opinion about the nomenclature, and he obviously followed the Linnæan system at that time. In his work of 1776, Müller did not mention the name of *Platycerus* at all, but, concerning the Lucanin beetles, only the genus *Lucanus* (p. 52) with the species *Cervus*, *Dorcus*, and *Dama* (but not *caraboides*). Here the nomenclature is binomial. So, the generic name of *Platycerus* when mentioned by O. F. Müller, has never been treated but in a uninomial way, and it must therefore be considered invalid.

Fourcroy (1785) described the genus *Platycerus* (p. 2), dealing with e.g. the "*P. cervus*" ("Le grand cerf-volant") and "*P. caraboides*" ("La Chevrette bleue"). The work is a binomial treatment of Geoffroy's work of 1762. This is the first time the generic name of *Platycerus* is handled binomially, so that its validity may be dated from 1785.

As shown above, there has been much confusion in the use of the generic and specific combinations. Latreille in 1796 arranged the genera as *Lucanus* (p. 1) and *Platycerus* (p. 2). In his "Considérations générales" (1810, p. 429) Latreille, as the first revisor, finally created the generic types: *cervus* (for *Lucanus*) and *caraboides* (for *Platycerus*). This application, furthermore, was clearly stressed by Curtis (1829, No. 274; 1834, No. 490).

The synonymy of Latreille was followed until the year 1883, when Weise (1883 b, p. 151) proposed the generic name of *Systemocerus* instead of *Platycerus*. It may be mentioned that Weise was one of the most zealous defenders of the validity of Geoffroy's genera, contrary to e.g. Bedel and Ganglbauer (vide Weise 1883 a, p. 91; 1883 b, p. 150; Ganglbauer 1883 a, p. 39; 1883 b, p. 92). The alteration of the name of *Platycerus* to *Systemocerus* was caused by the opinion of Weise that *Platycerus* should be a synonym of *Lucanus* (Weise 1883 b, p. 151). This opinion cannot be adopted if we accept the revisions of Latreille 1796 and 1810 (vide above), as is proposed in the present paper.

Weise's proposition was adopted by Reitter (1892) and Bedel (1911). The nomenclatorial suggestions of these two authors, and the peculiar references given by them, have considerably augmented the confusion. It would take too much space to discuss their arguments here; I will restrict myself to referring to their works. Since 1883 the names of *Platycerus* and *Systemocerus* have been used alternatively by different authors.

A summary of the early treatments of the discussed generic names may be given here:

1735: *Lucanus* Linné. Uninomial, invalid.

1762: *Platycerus* Geoffroy. Uninomial, invalid.

1763: *Lucanus* Scopoli. Binomial, valid. (Species: *cervus*, *caraboides*.)

1764: *Platycerus* O. F. Müller. Uninomial, invalid.

1776: *Lucanus* O. F. Müller. Binomial.

1785: *Platycerus* Fourcroy. Binomial, *valid*. (Species: e.g. *cervus*, *caraboides*.)

1796: *Lucanus* Latreille. Uninomial. Diagnosis.

Platycerus Latreille. Uninomial. Diagnosis.

1810: The following species designated by Latreille as the generic types: for *Lucanus: cervus*; for *Platycerus: caraboides*.

1829: *Platycerus* Curtis: "Type of the Genus, *Lucanus caraboides* Linn."

1834: *Lucanus* Curtis: "Type of the Genus, *Lucanus Cervus* Linn."

It seems quite clear to me that it is correct to follow the first revisions by Latreille (1796, 1810), supported by Curtis (1829, 1834). If this is done, the genera discussed above should have the following synonymy:

Lucanus Scopoli, 1763 [typus generis: *L. cervus* (L.)].

Platycerus Fourcroy, 1785 (*Systemocerus* Weise, 1883) [typus generis: *P. caraboides* (L.)].

2. The generic name of *Copris*.

The nomenclatorial problem concerning the name of *Copris* is much less complicated than that of *Platycerus*. The problem is partly connected with the same old authors, and therefore, for general questions, I refer to the above discussions.

Geoffroy, in 1762, proposed the generic name of *Copris* (p. 87), and enumerated, in "trivial names" (in the sense discussed above, p. 102) some species, e.g. "*Copris capitis clypeo lunulato*" ["Le bousier capucin" = *Copris lunaris* (L.)]. The uninomial arrangement makes the generic name invalid (vide above).

O. F. Müller, in his work of 1764, mentioned the genus *Copris* in his tabular enumeration of the genera of Geoffroy (p. xi). The name is still invalid, being used in a uninomial connection; it is not mentioned in the later part of the same work.

In 1776, however, O. F. Müller established the name of *Copris* in connection with some species, e.g. *lunaris* (p. 55). The arrangement is binomial, and the generic name of *Copris* was thereby made valid.

Fourcroy (1785, p. 13) also treated the name of *Copris* in a binomial way.

Latreille, in 1810, p. 428, designated as the generic type of *Copris* the species *C. lunaris*.

Survey of the synonymy:

1762: *Copris* Geoffroy. Uninomial, invalid.

1764: *Copris* O. F. Müller. Uninomial, invalid.

1776: *Copris* O. F. Müller. Binomial, *valid*. (Species: e.g. *lunaris*.)

1785: *Copris* Fourcroy. Binomial.

1796: *Copris* Latreille. Uninomial. Diagnosis.

1810: Designation, by Latreille, of the generic type: *Copris lunaris*.

Entomol. Ts. Arg. 78. H. 2-3, 1957

Valid synonymy:

Copris O. F. Müller, 1776 [typus generis: *C. lunaris* (L.)].

3. The generic name of *Psammodius*.

In the year 1807 C. F. Fallén separated some species from the genus *Aphodius* Illig. and placed them under the generic name of *Psammodius*, referring to Gyllenhal (Fallén 1807, p. 37). As a matter of fact, Gyllenhal did not publish the name of *Psammodius* until 1808 (p. 6), but he seems to have informed Fallén, by correspondence or otherwise, about the planned action. At that time, it was not regarded as a "scientific theft" to anticipate another scientist by using his in-litteris names, provided that the publisher referred to the original "proposer" of the name. But, later on, Fallén must be regarded as the real auctor of *Psammodius*, according to the International Rules. The fact that Fallén must be the cited auctor of the name was, however, undiscovered until 1940, when Chapin pointed it out (Chapin 1940, p. 9). The species separated by Fallén in 1807 (and Gyllenhal in the following year) were: *arenarius*, *elevatus*, *sabuleti*, *porcatus*, *asper*, and *sulcicollis* (Chapin, op. cit., incorrectly enumerated seven species, also including "*globosus* Illiger", a synonym of *arenarius*, and not mentioned by Fallén).

The species *arenarius* Fabr. (*globosus* Illig.) was already in the year 1807 chosen by Latreille as the genotype of his new genus *Aegialia* (op. cit., p. 96); even the species *sabuleti* Payk. was later on transferred to this genus. The species *elevatus* Payk., nec. Oliv. (= *brevis* Er.) was replaced into *Aphodius*; *porcatus* Fabr. (= *silvestris* Scop.) and *asper* auctt., nec Fabr. (= *germanus* L. sensu Oliv.) were put into different genera. Only the species *sulcicollis* Illig. (= *asper* Fabr., nec auctt., vide Landin 1956, p. 222) from the six original *Psammodius* species was still commonly treated as belonging to this genus, until the year 1841.

In 1841, Heer (p. 532) enumerated, under *Psammodius*, only the species "*sabuleti*". In reality, this action is a groundless removal of *Psammodius* as a subjective synonym of *Aegialia*. For the species *sulcicollis* (and *vulneratus*) Heer proposed a new generic name: *Psammobius* (op. cit., p. 531). The application of the nomenclature of Heer was not at once, however, commonly accepted by the leading coleopterists. For example, Mulsant, in 1842, used the name of *Psammodius* (p. 320) with the species *sulcicollis* Illig. and *porcicollis* Illig., and Erichson, in 1848 (p. 912 etc.), treated the species *sulcicollis* under *Psammodius*, mentioning in his synonymical list under *sulcicollis* the name of "*Psammobius sulcicollis* Heer etc". Reitter, in 1892 (p. 159) treated "*Psammobius* Heer et auct." as a synonym under "*Psammodius* Lap.". Vide further the list below. But in the present century, the name of *Psammobius* has unfortunately become the commonly used one, and the name of *Psammodius* has quite

disappeared or been rejected under *Aegialia*. Finally, however, a reaction arose in America.

As mentioned above, Chapin in 1940 pointed out that Fallén is the true auctor of the genus *Psammодиус*. This question was also quite recently treated by Cartwright, who, in 1955 (p. 413 etc.), revised the American species of *Psammодиус*. These two scientists support their opinion of the generic nomenclature by the fact the species *sulcicollis* Illig. was clearly designated as the genotype by Curtis (1829, No. 258). This is quite correct, and there the following can be added: already in 1819, Samouelle handled the genus *Psammодиус* with the single species *sulcicollis* (op. cit., p. 190). Furthermore, Le Peletier and Serville (1825, p. 359) wrote about the genus *Psammодиус*: "Dans la méthode de M. Latreille on doit le restreindre. Une partie des espèces citée par l'auteur suédois (= Gyllenhal, author's comment), telles que celles nommées *elevatus*, *sabuleti*, *porcatus* et *scaber* sont de vrais Aphodies; une autre (*globosus*) est le type du genre Aegialie Latr. ... L'espèce appartenant véritablement au genre Psammodie, tel que nous l'entendons avec le naturaliste français, qui nous a communiqué ses observations avec sa bienveillance habituelle, est le *Psammодиус sulcicollis*."

As a curiosity it can be mentioned that Latreille, in 1825 (p. 368) treated, in "trivial names", the genera "Aphodie, Psammobie (voisin des égialies etc.)". In the same work, p. 220, he mentioned, among the molluscs (Conchifera, Tellinidae) another "Psammobie". Berthold, in his translation of Latreille's work in 1827, transferred the "trivial names" of Latreille into names in a correct Latinised form. Thus, for the mollusc he used the name of "Psammobia" (op. cit., p. 211), a genus established by Lamarck in 1818, and for the beetle he used the name of "Psammодиус" (op. cit., p. 358).

A survey of the most important applications of the generic names of *Psammодиус* and *Psammобius* may be given as follows:

- 1807: *Psammодиус* Fallén. Six species enumerated, e.g. *sulcicollis* Illig.
 1808: *Psammодиус* Gyllenhal. The same species as those included by Fallén.
 1819: *Psammодиус* Samouelle. Single species: *sulcicollis* Illig.
 1825: Psammobie Latreille. Invalid "trivial name". No species mentioned.
 1825: *Psammодиус* Lepeletier et Serville. Single species: *sulcicollis* Illig.
 1827: *Psammодиус* Berthold. No species.
 1829: *Psammодиус* Curtis. "Type of the Genus, Aphodius *sulcicollis* Illig."
 1841: *Psammобius* Heer. Species: e.g. *sulcicollis* Illig.
 1842: *Psammодиус* Mulsant. Species: e.g. *sulcicollis* Illig.
 1848: *Psammодиус* Erischson. Species: e.g. *sulcicollis* Illig.
 1858: *Psammодиус* Redtenbacher (p. 437).
 1867: *Psammодиус* Harold (p. 282).
 1877: *Psammодиус* Burmeister (p. 406).
 1887: *Psammодиус* Horn (p. 92).

- 1891: *Psammodius* Seidlitz (p. 144).
 1892: *Psammodius* Reitter.
 1896: *Psammobius* d'Orbigny. Species: e.g. *sulcicollis* Illig. (p. 254.)
 1901: *Psammobius*, alternating with *Psammodius*! Péringuey (pp. 445-447).
 1907: *Psammodius* Fall and Cockerell (p. 186).
 1908, 1910, 1922: *Psammobius* Schmidt (pp. 107, 82, 469, respectively).
 1911: *Psammobius* Bedel (p. 92).
 1940: *Psammodius* Chapin. Short nomenclatorial review.
 1955: *Psammodius* Cartwright.
 1957: *Psammodius* Landin (p. 98).

The nomenclatorial review given by Chapin (1940, p. 9) shows with full evidence that the correct synonymy must be: *Psammodius* Fallén, 1807 [typus generis: *P. asper* (Fabr.) (*sulcicollis* Illig.)].

4. The generic name of *Amphimallon*.

In the course of time, many names have been used for the genus of the common Summer Charfer, viz. *Scarabaeus*, *Melolontha*, *Rhizotrogus*, and *Amphimallon*. Since the year 1825, the species *solstitialis* L. has been placed under *Amphimallon* (sometimes considered as a subgenus of *Rhizotrogus*, but nowadays correctly treated as a genus of its own). But even concerning the generic name of *Amphimallon* there is still great confusion. We find in the literature the following forms of the name: *Amfimalle* (Latreille, 1825), *Amphimallon* (Lepeletier et Serville, 1825; Berthold, 1827), *Amphimalla* (Stephens, 1830), and *Amphimallus* (Mulsant, 1842). As a rule the auctors cited are Latreille (1825) or Berthold (1827). Both, however, must be incorrectly used. Ever since his early works, Latreille very often used French names for the genera, usually in connection with a Latinised form. In his work of 1825, "Familles naturelles du regne animal", he used *only* the French form in the generic names, and, furthermore, his diagnoses often refer to more than one genus here. In connection with the actual problem, he writes (op. cit., p. 371):

"o. Antennes de dix articles.

Les g. Rhizotrogue (*melolontha aestiva*), Aréode.

oo. Antennes de neuf articles.

Les g. Amfimalle (*melolontha solstitialis*), Euchlore (*anomala*, Dej.)."

This is quite insufficient to serve as an acceptable description of a genus, because of the form of the diagnosis, each item of which refers to two different genera, as well as of the French names "*Rhizotrogue*", "*Amfimalle*" etc. (which are not Latin names in neuter form).

Berthold, in his re-edited translation of Latreille's work in 1827, used

correctly Latinised generic names, e.g. "*Rhizotrogus*" and "*Amphimallon*" (op. cit., p. 362), but he was not the first to do so.

Already in 1825, the same year as Latreille had published his "Familles naturelles", Le Peletier and Serville treated a great part of the insects of the "Encyclopédie Méthodique", Vol. X, and, among many other groups, they arranged the system of the Scarabaeidae. In this work, p. 368, the generic name of *Amphimallon* is correctly used for the first time: "Amphimalle, *Amphimallon* Lat. etc."

The name is followed by a short but sufficient description, and some species are enumerated in connection with the genus, e.g. "*Amph. solstitiale*". Latreille was cited as the auctor, which means that the work really did appear after Latreille's "Familles naturelles" (but, as mentioned, in the same year).

From the above discussion, the following synonymy must be deduced:

Amphimallon Lepeletier et Serville, 1825 (*Amphimalla* Stephens, 1830;
Amphimallus Mulsant, 1842; *Rhizotrogus* auctt.).

In this connection, the specific name of *A. solstitialis* (L.) ought to be emended to *A. solstitiale* (L.).

5. The specific name of *Aphodius rufus* (Moll).

In an earlier paper (Landin 1956), I have treated the problem concerning the specific name of *Aphodius rufus* (op. cit., p. 215). In that connection I objected to the use of the name of *rufescens* Fabr. instead of *rufus* Moll, as is proposed e.g. by Kloet and Hincks (1945). I think it may be too hard to say, as I did, that the mentioned proposition "is incorrect", but I persist in maintaining that such an application of the Nomenclatory Rules would be very unfortunate. All those changes in the nomenclature which must unconditionally cause more confusion and trouble than is absolutely necessary must be avoided if there is ever to be any order at all. In many cases there ought to be an application to practice, founded on an appeal to the Commission on Nomenclature. Such cases arise especially as a result of the rules concerning the *primary* and *secondary homonyms*. *Aphodius rufus* was first described under the name of *Scarabaeus rufus* by Moll (1782). De Geer, however, already in 1778 described a *Scarabaeus rufus*, belonging to another subfamily and taken from "*Scarabaeus*", long before the homonymy was discovered (as far as I know, not clearly pointed out before Kloet and Hincks, 1945, p. 199). In my opinion, to reject the name of *rufus* Moll, which has been used in the practical treatments of the species for such a long time, is not to take a realistic view of the nomenclatorial problems. As a matter of fact, *if* there must absolutely be a change, the species should be called *Aphodius scybalarius* (Fabricius, 1781), a name which has always been wrongly used for quite another species (vide Landin, op. cit.). The

confusion would thus be even more augmented. As it is quite clear that any change of the name of *Aphodius rufus* (Moll) must involve great nomenclatorial chaos, I propose the preservation of the name.

6. The specific name of *Aphodius sticticus* (Panzer).

In recent times attempts have been made to substitute the name of *Aphodius equestris* (Panz.) for *Aphodius sticticus* (Panz.), vide e.g. Kloet and Hincks, 1945, p. 199. It seems clear that the authors have made this alteration because of the name of *Scarabaeus sticticus* Panzer (1798) being preoccupied by *Scarabaeus sticticus* Linné (1767). The Linnæan species [= *Oxythyrea funesta* (Poda, 1761) (*stictica* Linné, 1767)], however, was already in Linnæus' "Systema Naturae", ed. XIII, 1790 (edited by Gmelin) arranged under *Cetonia*. This was eight years before Panzer's description of *Scarabaeus sticticus* (= *Aphodius* s.). The application of the rules for primary homonymy in this case seems to me to be quite as absurd as the same application in the case of *Aphodius rufus* (Moll), vide above. The name of *Aphodius sticticus* refers to one of the most well-known and most widely distributed European species. The name of *equestris* has not been used since 1798 (the description); the synonymization was made already in the following year by Creutzer (1799), vide below. The two *Scarabaeus sticticus* species of Linnæus and Panzer have never been taxonomically congeneric, and, a fact which seems to be even more important in this connection, they have never simultaneously belonged to the same genus. Even if this case should be treated as one of a primary homonymy, I think it would be much more realistic to handle it in the same way as is proposed by Hopkins and Clay concerning certain secondary homonyms. In this connection, I should like to quote a sentence of Hopkins and Clay (1952, p. 14) about primary and secondary homonyms: "The new rule is in agreement with the procedure we had adopted with regard to primary homonyms ..., but enjoins the rejection of the later of a pair of secondary homonyms notwithstanding that the two names are no longer referred to the same genus, provided the condition of homonymy was discovered and pointed out at a time when both the species concerned were considered to be congeneric." (The italics are mine.) In following this reasonable interpretation of the rule, we cannot reject the name of *sticticus* Panzer.

An attempt to establish the name of *Aphodius equestris* (Panz.) instead of *A. sticticus* (Panz.), founded on page precedence, is contrary to the International Rules (vide also the "Copenhagen decisions" 1953, p. 66-67). Here the recommendation of the first revisor may be followed. Panzer, in 1798, described the same species under two distinct names: Nr. 2. *Scarabaeus equestris*, and Nr. 4. *Sc. sticticus*. The first revision of these "species" was made in 1799 by Creutzer, who placed *equestris* as a synonym under *sticticus* in the genus *Aphodius* Illig. (op. cit., p. 26). Maybe

Creutzer was not absolutely sure about the identity of the two "species", so he added a "?" after the name of *equestris*. In the same work, p. 31, he mentioned that *equestris* could possibly be identical with a special colour type of *A. tessulatus* (Payk.) (= *A. paykulli* Bed.). Nevertheless, in his synonymical list, Creutzer placed *equestris* only and exclusively under *sticticus*. The problem was definitely solved by Panzer himself, who, in his "Kritische Revision" (1805), synonymized the two names under the name of *sticticus*. The question has been shortly discussed by Erichson (1848, p. 845). Ad. Schmidt, in 1908 (p. 77), and in his monograph of 1922 (p. 169), placed *equestris* as a synonym under *sticticus*. According to practice the name of the species concerned ought to be:

Aphodius (Volinus) sticticus (Panzer, 1798) (*equestris* Panzer, 1798).

Summary.

The author gives a survey of the general treatment of the nomenclature of some classic works, e.g. works of Geoffroy, O. F. Müller, Fourcroy, Latreille, and Serville. The application of especially the generic names proposed by the old authors is discussed from a basic point of view, and with regard to the International Rules of Zoological Nomenclature. The author has applied the conclusions of these discussions on four generic and two specific names of Scarabaeid beetles, and the result has shown that the following synonymy should be used for the genera and the species in question:

1. Genus *Platycerus* Fourcroy, 1785 (*Systemocerus* Weise, 1883).
2. Genus *Copris* O. F. Müller, 1776.
3. Genus *Psammодиус* Fallén, 1807 (*Psammobius* Heer, 1841).
4. Genus *Amphimallon* Lepeletier et Serville, 1825 (*Amphimalla* Stephens, 1830; *Amphimallus* Mulsant, 1842; *Rhizotrogus* auctt.). In this connection, the specific name of *Amph. solstitialis* (L.) ought to be emended to *Amph. solstitiale* (L.).
5. *Aphodius (Bodilus) rufus* (Moll, 1782) (*scybalarius* Fabr., 1781; *rufescens* Fabr., 1801).
6. *Aphodius (Volinus) sticticus* (Panzer, 1798) (*equestris* Panzer, 1798).

It has been clearly shown that all changes of the mentioned names in any way must unconditionally involve great nomenclatorial confusion. The proposal for conservation of these generic and specific names is submitted to the International Commission on Zoological Nomenclature.

References.

(Special information about the papers containing the International Rules of Zoological Nomenclature will be found in the bibliography given by Richter, 1948, p. 237 etc.)

- Bedel, L. 1911: Faune des Coléoptères du bassin de la Seine. IV, 1. — Paris.
- Berthold, A. A., 1827: Latreille's Natürliche Familien des Thierreichs. — Weimar.
- Burmeister, H. 1877: Die Argentinischen Aphodiiden. — Stett. Ent. Zeit. 10-12. — Stettin.
- Cartwright, O. L. 1955: Scarab beetles of the genus *Psammodyus* in the western hemisphere. — Proc. U.S. Nat. Mus. 104. — Washington.
- Chapin, E. A. 1940: A revision of the West Indian beetles of the Scarabaeid subfamily Aphodiinae. — Proc. U.S. Nat. Mus. 89. — Washington.
- Copenhagen decisions on zoological nomenclature. 1953. Edited by Francis Hemming. — London.
- Creutzer, Ch. 1799: Entomologische Versuche. — Wien.
- Curtis, J. 1829, 1834: British Entomology. VI, XI. — London.
- Encyclopédie Méthodique. 1825. Historire Naturelle. Entomologie etc. Tome X. (By Le Peletier, Serville etc.) — Paris.
- Erichson, W. F. 1848: Naturgeschichte der Insekten Deutschlands. 3. — Berlin.
- Fall, H. C. and Cockerell, T. D. A. 1907: The Coleoptera of New Mexico. — Trans. Amer. Ent. Soc. XXXIII. — Philadelphia.
- Fallén, C. F. 1807: Observationes entomologicae. III. — Lundae.
- Fourcroy, A. F. 1785: Entomologia Parisiensis. I-II. — Parisiis.
- Ganglbauer, L. 1883a: Unzulässigkeit Geoffroy'scher Gattungsnamen. — Wien. Ent. Zeit. II, 2. — Wien.
- 1883b: Entgegnung. — Ibid. II, 4.
- Geoffroy, E. L. 1762: Histoire abrégée des insectes. I-II. — Paris.
- Gyllenhal, L. 1808: Insecta Suecica. I. — Scaris.
- Harold, E. v. 1867: Die chilensischen Aphodiden. — Berl. Ent. Zeitschr. — Berlin.
- Heer, O. 1841: Fauna Coleopterorum Helvetica. I. — Turici.
- Hemming, F., *vide* Copenhagen decisions.
- Hopkins, G. H. E. and Clay, Th. 1952: A check list of the genera and species of Mallophaga. — London.
- Horn, G. H. 1887: A monograph of the Aphodiini inhabiting the United States. — Trans. Amer. Ent. Soc. XIV. — Philadelphia.
- Kloet, G. S. and Hincks, W. D. 1945: A check list of British beetles. — Arbroath.
- Landin, B.-O. 1956: The Fabrician species of Aphodiini and Aegialiini. — Opusc. Ent. 21. — Lund.
- 1957: Svensk Insektfauna. Lamellicornia. — Stockholm.
- Latreille, P. A. (1796): Précis des Caractères génériques des insectes etc. — Brive.
- 1807: Genera Crustaceorum et Insectorum. II. — Parisiis et Argentorati.
- 1810: Considérations générales sur l'ordre naturel des animaux etc. — Paris.
- 1825: Familles naturelles du regne animal etc. — Paris.
- Le Peletier, A. L. M. de Saint-Fargeau, *vide* Encyclopédie Méthodique.
- Linnæus, C. 1735: Systema Naturae. — Lugduni Batavorum.
- 1758: Systema Naturae. I. (Ed. X). — Holmiae.
- 1767: Systema Naturae. I, 2. (Ed. XII) — Holmiae.
- 1790: Systema Naturae. I, 4. (Ed. XIII, edited by J. F. Gmelin). — Lipsiae.
- Mulsant, E. 1842: Histoire naturelle des Coléoptères de France. Lamellicornes. — Paris.
- Müller, O. F. 1764: Fauna insectorum Fridrichsdalina etc. — Hafniae et Lipsiae.
- 1776: Zoologiae Danicae prodromus etc. — Hafniae.
- d'Orbigny, H. 1896: Synopsis des Aphodiens. — L'Abeille. XXVIII. — Paris.

- Panzer, G. W. F. 1798: Faunae Insectorum Germanicae etc. 58. — Nürnberg.
 — 1805: Kritische Revision der Insektenfauna Deutschlands. I. — Nürnberg.
 Péringuey, L. 1901: Descriptive catalogue of the Coleoptera of South Africa (Lucanidae and Scarabaeidae). — Trans. S. Afr. Phil. Soc. XII. — Cape Town.
 Redtenbacher, L. 1858: Fauna Austriaca (Ed. II). — Wien.
 Reitter, E. 1892: Bestimmungstabelle der Lucaniden und coprophagen Lamellikornen. — Verh. Nat. Vereins Brünn. — Brünn.
 Richter, R. 1948: Einführung in die Zoologische Nomenklatur. — Frankfurt am Main.
 Samouelle, G. 1819: The entomologist's useful compendium etc. — London.
 Schmidt, A. 1908: Zusammenstellung der bis 1906 beschriebenen Aphodiinen. — Beilage zur Deutsch. Ent. Zeitschr. 1907-08. — Berlin.
 — 1910: Aphodiinae (in Junk-Schenkling: Coleopterorum Catalogus). — Berlin.
 — 1922: Aphodiinae. — In "Das Tierreich". — Berlin und Leipzig.
 Scopoli, J. A. 1763: Entomologia Carniolica. — Vindobonae.
 Seidlitz, G. 1891: Fauna Baltica. (Ed. II). — Königsberg.
 Serville, J. G. Audinet-, *vide* Encyclopédie Méthodique.
 Stephens, J. F. 1830: Illustrations of British Entomology etc. Mandibulata, 3. — London.
 Weise, J. 1883a: Sind Geoffroy'sche Gattungsnamen zulässig? — Wien. Ent. Zeit. II, 4. — Wien.
 — 1883b: Noch einmal Geoffroy. — Ibid. II, 6.