A request from Lessel and Breed (1) for an Opinion relative to the status of the generic name Selenomonas von Prowazek raised two questions. A preliminary statement relative to the legitimacy of this name is published in this Bulletin (2). The second question raised, but not discussed, is:- What is the status of a generic name proposed and published in which the author failed to give any species name, neither the name of a new species nor a new combination required by transference of some previously named species to the new genus? The problem is not adequately dealt with either in the Bacteriological Code or in the Botanical Code to cover all cases. There are enough examples of difficulties to be found in publications in systematic bacteriology to justify study and development of proposals for solution.

An author may describe a genus, give to it a generic name, yet fail to give a species name in which the generic name proposed is combined with a specific epithet. If validly published, is such a generic name illegitimate because of the failure to use the proposed generic name in the name of a species? Several classes of cases are to be distinguished, some are covered by provisions of the Bacteriological Code, for others there seems to be no definite rule or even recommendation. These classes of cases should be defined and appropriate methods for treatment explored.

1. Names of hypothetical genera. There have been cases in biology in which a generic name is proposed for an undiscovered group of organisms whose existence is merely postulated. For example, Fischer (3) proposed Clostrillum as a generic name for rod-shaped bacteria that produce spores in spindle-shaped cells and are motile by means of a tuft of polar flagella. He stated "Bix jetzt keine Art Bekannt." Apparently no such organism has been discovered. Similarly he proposed Clostrinium for rods spindle-shaped when sporulating and with single polar flagella. No species was known to the author. Such names are hyponyms or nomina dubia. They seem to fall under Rule 24 (paragraph 6) of the
Bacteriological Code and are to be placed in the list of **nomina rejicienda**.

2. Names for "temporary" genera. There have been several instances in which authors have published generic names to be used for species insufficiently well characterized to be placed definitely in any recognized genus of bacteria. Kendall (4) proposed the name *Bacterius* to include those motile, rod-shaped bacteria on which the distribution of flagella is unknown. No species were named. The author stated that the need for this generic name would disappear as flagellation was more accurately known. Apparently no species has been assigned to the genus. It likewise is a **nomen dubium** and illegitimate.

A quite different approach was proposed by Breed and Conn (5), that the generic name *Bacterium* be reserved for non-sporulating, rod-shaped bacteria whose position in the classification is not definitely established. In this case, unlike the proposal of Kendall, there were numerous species recognized as remaining in the genus. In the sixth edition of Bergey's Manual there are 56 species listed and described. However, it should be noted that the Manual actually recognizes in this genus only those species for which the generic name *Bacterium* has been employed by other authors, usually by the author who first proposed the species. In other words, in practice, it has meant not only in *Bacterium*, but in other genera as well, the listing of species **incertae sedis** under the generic name of earlier authors, and not the renaming of species. However, in a few cases it has encouraged authors to publish inadequate descriptions of new species, placing them in the genus *Bacterium* as a makeshift. For example, Bernoulli and Muspach (6) named an organism *Bacterium rauricum* "mit der Einschränkung, dass, wenn einmal die Systematik der Mikroben eindeutiger festgelegt sein wird, der Gattungsname vielleicht geändert werden musste."

3. Names in generic form which are given to single species with no specific epithet given or available. In some cases an author has described a species and applied to it a name having the form of a generic name but without use with a specific epithet. If intended merely as the name of a species, it constitutes a unitary rather than the Linnaean binary
name of a species and is illegitimate. Or it is to be regarded as a generic name given to a monotypic genus without a name being given to the species described. For example, Winogradsky (7) names the organism which oxidizes nitrates to nitrates in the following words: "Le ferment nitrique porterait le nom de Nitrobacter." In the preceding sentences he definitely designated Nitrosomonas and Nitrosococcus as genera, the former with two named species and the latter with none. Evidently Winogradsky regarded Nitrobacter also as a generic name. But he did not give a species name; apparently specific epithets were regarded as needed only when two or more species needed to be distinguished. Lehmann and Neumann (8) gave to the species its first binomial name, Bacterium nitrobacter. If the generic name proposed by Winogradsky is accepted, the binomial would be Nitrobacter nitrobacter. This name would be illegitimate as the specific epithet nitrobacter would be a tautonym. The Committee on Characterization and Classification of Bacterial Types, C. E. A. Winslow, Chairman (9), proposed the species name Nitrobacter winogradskyi. Both generic and species names have come into use and are commonly accepted. Should such names be regarded as legitimate?

If a proposed generic name has the characteristics just enumerated it may be wise for the Judicial Commission to place such name in the list of nomina generum conservanda. Such name should have been definitely proposed for a genus. At least one (preferably one only) species should have been described but not named. The species (or one of the species) should have been given a specific epithet by a later author who accepted the generic name. Generic names so proposed which do not meet the conditions of later acceptance might well be suppressed and placed in the list of genera rejicienda.

4. Names of genera proposed to include previously described named species but without simultaneous publication of new species names or new combinations. Names of genera have in some cases been published with no new species named, with citation to previously described species which the author indicates are to be placed in the new genus, and without publication of the resultant new combination. Von Prowazek (10) published a description of a new genus and proposed for it the name Selenomonas. He included illustrations of the species he observed but did not name. He cited by name two
other species of bacteria named by previous authors, the first, the *Spirillum sputigenum* of Flügge. He did not spell out the new combination *Selenomonas sputigena*. Did this failure to give the new species combination make illegitimate his proposed name? It would seem reasonable to regard the definite designation of a basionym as warrant for ascribing to the author the appropriate combination.

The Bacteriological Code should be examined to determine the legitimacy as well as the validity of publication of generic names of the types discussed above. The following statements appear to be justified.

1. There is no direct statement in the Bacteriological Code that specifies clearly that publication of a generic name which neither has one or more newly described named species nor refers to named species to be transferred from other genera does or does not constitute valid publication, or that the generic name is or is not legitimate in consequence.

2. In several places in the Code there is the tacit assumption that a generic name to be legitimate must be applied to a genus recognized by its author as containing a species. Among such indications are the following. Principle 7 (a) notes that of the categories of successive rank the species is "the basic one" and that the next higher category above species is the genus. Rule 9 requires that for each taxon a nomenclatural type shall be designated, such nomenclatural type of a genus obviously must be the name of a contained species. Further there is the requirement that the nomenclatural type of a genus must be one of the species included when the name of the genus was first published. Rules 11, 12, and 13 list the criteria to be used in determining the valid publication of the name of a taxon and Rule 24 lists the conditions under which the name of a taxon is illegitimate. In no case is there any statement that the name of a genus is illegitimate if when published no named species are identifiable.

It seems advisable that draft proposals for Opinions be prepared for discussion by all interested or concerned, and for final consideration by the Judicial Commission. The Opinions, if finally formulated and approved, should clarify appropriate procedures for handling nomenclatural problems of the kinds considered above. Comment and criticism rela-
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tive to the draft proposals herewith presented will be wel-
comed. Pertinent discussion will be published.

Draft Proposal (No. 1) for an Opinion. Status
of the name of a hypothetical genus. Names have been pro-
posed for hypothetical genera. A hypothetical genus is one
for which no species is described, named or cited, the ex-
istence of the genus is predicated upon the future discovery
and description of species still unknown. A name applied to
such hypothetical genus is a hyponym. It is illegitimate and
may be placed in the list of nomina rejicienda.

Draft Proposal (No. 2) for an Opinion. Status
of a name applied to a "temporary" genus. A generic name
proposed for a genus whose sole function is to serve as the
temporary generic haven for species insufficiently described
to be allocated later to an appropriate genus is to be regard-
ed as not validly published. Such a name is illegitimate and
may be placed in the list of nomina rejicienda.

Draft Proposal (No. 3) for an Opinion. Status
of a generic name applied to a genus with a described spe-
cies which is not named or identified by citation. A pub-
lished generic name used in a combined description of a
genus and species, without the species being named, without
citation of a previously and effectively published description
of the species, and without subsequent acceptance of the
generic name and naming of the species by a later author,
should be regarded as not validly published and hence ille-
gitimate. Such a generic name may be placed in the list of
nomina rejicienda.

However, if a later author has recognized the generic
name and has used it with a specific epithet in naming the
species described by the first author, particularly if there
has been later general acceptance of the name, there may
be validation of the generic name as proposed by its author,
with the name of the species ascribed to the later author who
gave it. Proposals for such validations of names should be
made to the Judicial Commission for appropriate action.
Draft Proposal (No. 4) for an Opinion. Status of a generic name applied to a genus with described species which are not named but are identified by adequate citation. A published generic name applied to a genus in which the generic name is not used with a specific epithet in naming any species, but in which there is citation of a previously and effectively published description of a species under another name, is to be regarded as validly published and the consequent combinationes novae ascribed likewise to the author of the generic name.

REFERENCES