PROFESSOR ERNST LECHER, of Prague, has been called to the chair of experimental physics in Vienna.

DISCUSSION AND CORRESPONDENCE

GENERA WITHOUT SPECIES

IN response to the suggestion made in SCIENCE of February 26, p. 340, I have received a number of communications, in substance as follows:

I agree throughout with your opinions as expressed in SCIENCE for February 26; . . . I hold a genus is not established unless a type species is named.—J. C. Arthur, Purdue University. (Fungi.)

I entirely agree with you that generic names published without any mention of included species are to be regarded as invalid. It seems to me that a genus can not possibly be constituted without reference to a species.—C. J. S. Bethune, Ontario Agricultural College. (Entomology.)

1. A genus is an aggregation of one or more species. The type of a genus is, must be, an included species, that is, an originally included one. Therefore if there are no species at all how is it possible to have a genus? Genera without species are certainly nomina nuda.

2. The author of a genus or species is he who first gives it valid standing. A genus without species is a nomen nudum and thus without valid standing. Therefore the first writer to give it validity is the author and its date is that at which this validating is done. It would be absurd in my estimation to do otherwise as in such case we might have some good genus invalidated through preoccupation by a nomen nudum.—A. N. Caudell, U. S. National Museum. (Orthoptera.)

Mr. Caudell adds that Messrs. Dyar (Lepidoptera, etc.), Knab (Diptera) and Busck (Lepidoptera), of the National Museum, agree with the above statement.

Genera without included species " are nomina nuda."—A. A. Girault, University of Illinois. (Hymenoptera.)

I fully agree with you that the rule of the code quoted by Mr. Coquillett merely means that the genus name itself must be uninominal, and has no bearing on the question under discussion. A genus name without a type species is, I think, untenable; but if it be stated that the genus is founded on an undescribed species, then it might stand as you suggest.—Chas. A. Hart, Ills. State Lab. of Natural History. (Entomology.)

I saw your article in SCIENCE yesterday, and was much interested in it. There are several cases in botany where it seems to me a strict sticking to the letter of the law is a little awkward. Are we to write *Bossekia* Neck. or *Rubacer* Rydb.? It seems to me that Greene has proved that they are the same, yet Rydberg published combinations in *Rubacer* before Greene published them in *Bossekia.*

Mohrodendron and *Carlomohria* are in the same category. Everybody knows what Greene referred to when he published the name, yet he did not make any combinations at that time, and Britton did. If we follow the law exactly in such cases, we are departing somewhat from priority, and it does not seem altogether right to me.—A. A. Heller, Nevada Agric. Exper. Sta. (Flowering Plants.)

On question of validity of generic names when proposed without reference to published description of included species or in connection with such description, please record my vote in the negative. —A. W. Morrill, U. S. Bureau of Entomology.

A genus name can stand only when meeting requirements of binary names, it being recognized that a genus is a group of one or more species.—E. L. Morris, Museum of Brooklyn Institute. (Botany.)

I do not think a generic name should be recognized unless connected definitely with a binomial species. This is in accord with the American Botanical Code and is essential in order to provide types and definitely fix genera.—C. L. Shear, U. S. Dept. Agriculture. (Botany.)

It is probable that generic names published without reference to included species would be rejected by the majority of American zoologists and botanists, though at least some eminent authorities favor their recognition. Probably a more precise estimate of current opinion could be gained by sending out voting papers to all the more active or eminent workers. I venture to suggest that such a plan might be taken up by the American Association for the Advancement of Science. It would not be held or suggested that the votes thus obtained on controversial matters had any legislative significance; but they would undoubtedly have their influence in moulding opinion, while the invitation to vote would in many cases stimulate thought. It seems to me that in the publication of the results of any vote, the names should always be given,

unless the number is very large. In the latter event, representative opinions, with names, could be published.

Whether a plan of this sort could be extended to include the scientific workers of the world (or such of them as might be concerned with the particular matter under discussion) is a difficult question. Efforts of various kinds are being made at the present time to bring the scientific men of the world into closer touch with one another, and it is perhaps not quixotic to suppose that eventually they will be at least as ready and as competent to act together as are those of America at the present time.

T. D. A. Cockerell
University of Colorado,
March 28

THE FUTURE OF NOMENCLATURE

Professor T. D. A. Cockerell's discussion under the heading "Genera without Species" recently published in Science,[1] is of great pertinency at the present time.

Without discussing the question concerning the validity or non-validity of genera described without species named in connection with them, or genera proposed with undescribed types, a question familiar to every systematist, and one which I hope to see discussed by others more competent and learned than myself, I desire merely to make one or two general observations concerning nomenclature as a whole, its function and its future.

Before doing this, however, some remarks concerning the cases considered by Professor Cockerell may not be out of place or without some use.

In the first class of cases, a genus described in the past without a species named in connection with it, I consider as being non-existent—a *nomen nudum*—and it remains such unless subsequently its author or some other refers to it a properly described type species. The genus being non-existent, its name does not have to be recognized again as being that of a zoological unit, excepting as a matter of wisdom; if used again, it has no status unless used as a name based on some definite type species designated subsequent to its original description, and in such cases the original author of the name should be held responsible for it, mainly as a matter of clearness. I agree with Professor Cockerell's interpretation of the code in cases of this kind. Whether or not these *nomina nuda* made in the past should be used again depends largely on circumstances, and is almost a matter of individual judgment. I think they should be used in most cases to prevent questions of obscure homonymy, and confusion arising from other sources. These remarks bring me to the point I had in mind in regard to this class of cases. I have referred to them as occurring in the past. Should they be allowed to occur in the future? There is no excuse at the present time for cases of the kind being made, but some provision should assuredly be made in the code to prevent them. The code should state that after such a date (1900 recommended) genera proposed or described without species named in connection with them should be considered as being without status in nomenclature and ignored accordingly, as newspaper descriptions are ignored. If this is possible, the systematists of the present and future will not have constantly accruing cases of the kind to deal with, or be in danger of their common occurrence, and the old cases would be gradually cleared up.

As to the second class of cases. We may not know, or attempt to define, the exact differences between a species and a genus in monotypical genera; still we do know as a matter of experience that when an author briefly defines a new genus in a diagnostic table of genera of a group and merely mentions a species as type, without describing it and yet follows the rules of binary nomenclature, he has not done all that is necessary to make it recognizable. As a matter of fact, we know that he has not described the species by diagnosing the genus, for the simple reason that the species can not be recognized. As a case in point: In a group of insect parasites of the Hymenoptera, the late Dr. Ashmead, in a table of the genera of a tribe of the Sphegigasterinæ describes or defines a new genus called *Pachycrepoideus,* merely naming a type

[1] N. S., XXIX., February 26, 1909, pp. 339–340.