acting professor in the department of electrical engineering, to professor; Robert M. Anderson, acting professor in the department of engineering practise, to professor; Lewis E. Armstrong, instructor in the department of mathematics, to assistant professor.

MR. LESTER YODER, formerly with the chemical section of the Agricultural Experiment Station of Iowa State College, is now at the U. S. Technological School, Carney's Point, N. J.

THE chemistry department of the University of Nebraska announces the following additions to its teaching staff: Dr. Horace G. Deming, of the University of Illinois, as professor of chemistry in charge of general and physical chemistry; Mr. B. Clifford Hendricks, of Peru, Nebr., State Normal School, as assistant professor of chemistry; Mr. T. J. Thompson, of Kansas Wesleyan University, as instructor in organic chemistry.

DISCUSSION AND CORRESPONDENCE

THE LILLE SOCIETY OF SCIENCES

TO THE EDITOR OF SCIENCE: I wish to call the attention of American scientists to the following extracts from a letter received from Dr. Charles Barrois, professor of geology at the University of Lille and actively interested in the Society of the Sciences of Lille. Dr. Barrois writes:

For four years I have been cut off from the number of the living, reduced to servitude, without receiving a letter or a scientific book; I have not been able during this time to communicate with anybody in the world, nor to have any news of my family. That has been harder to me than physical sufferings and bombs.

My geological institution has been twice demolished by bombs, but I was able to save the collections from the débris and they were respected by the Germans. Our library of the Society of Sciences was unfortunately burned so that I am much embarrassed in my work; the books of the Public Library were also burned, those of the university were saved, but that was the least important library.

I am working at present to build up again my university, our Geological Society of the North, all the members of which are scattered, ruined or killed. I do not yet know if I shall succeed; books are necessary, and money is necessary to continue my publications and I fear it can not be obtained in France where they are much impoverished. I look sadly at the manuscripts of my confrères, entrusted to my care for publication. . . . I am quite a little disconcerted at being reduced to mendicancy in my old days, for our learned societies, but the American devotion and generosity have been shown so great in these latter days, that we believe we can be assisted by them openly.

If any one has any books or specimens that they think would be of assistance to Dr. Barrois and his associates in connection with the Library and Museum of the Society of the Sciences, the Smithsonian Institution will be very glad to transmit them to the society at Lille.

CHARLES D. WALCOTT

ROOT PRESSURE AND ROOT EXUDATION

A RECENT note in SCIENCE by Professor Kremers[1] upon the use of dahlias for experimental work upon osmosis reminds the writer of his use of the same plant for the demonstration of root pressure and the exudation of water in quantity. The growth from the tuberous roots is vigorous and in a short time is ready for the setting up of the experiment. The quantity of water exuded and the pressure are adequate for a thorough demonstration of these phenomena as outlined for example in Ganong's "Plant Physiology" and fully equal to the best plants which the writer has used in such demonstrations.

In this connection the writer wishes to express a thought which has been more and more impressed upon him in his work as a teacher of physiology, pathology and even morphology of plants. Each institution, and especially is this true of the smaller ones, is working out its technical problems in an isolated fashion, often repeating unprofitable experiments which have been found by other institutions to be unsuccessful. In other cases especially useful plants or types of ap-

[1] "Experimental Osmosis with a Living Membrane," Edward Kremers, SCIENCE, N. S., Vol. XLVIII., No. 1250, December 13, 1918, p. 599.

paratus are in use, the knowledge of which would be of great value both as time savers and as means of encouraging better teaching of botany. Why should there not be a free exchange of such methods and ideas through the medium of publication in one of our universally distributed journals such as SCIENCE? The writer suggests a special department, in such a magazine, devoted to technique where not only successful experiments in teaching are reported but also where negative results shall be stated. A magazine devoting space to such a department would do much toward advancing the technique of science. It may be objected that such notes do appear from time to time in various magazines. This is true, but the writer is convinced that only a very small number of such notes appear as compared with the total number of helpful suggestions which should be the common property of men working in the same science. In this branch of educational work at least there should be no selfish "patent" upon such matters to be used as a "drawing card" for the department or institution. Such a department devoted to notes upon technique would save all teachers of science much time which they now spend in fruitless testing out of methods which some other institution has already demonstrated to its own satisfaction to be unsatisfactory. There would also be a marked improvement in the teaching in the smaller institutions at least, by the introduction of newer and better technique.

ERNEST SHAW REYNOLDS
AGRICULTURAL COLLEGE, N. D.

GENERIC LIMITATIONS

THE deductions of Professor Robertson on this subject in SCIENCE for October 11 seem to be based upon questionable premises. Of the factors which influence the number of species in a genus, he mentions only the antiquity of the group. Other important factors are: specific limitations; size of group considered; area, location and diversity of territory included; degree of perfection of our knowledge of the species. These are illustrated in the following list:

	Species	Genera	Average	Poales
Cat. N. Am. Pl., Heller, 1900[1]	16,673	2,027	8.2	6.2
Gray's Manual, 7 ed., 1908.	4,079	1,001	4.1	6.7
Fl. S. E. U. S., Small, 1903.	6,364	1,494	4.4	6.7
R. Mt. Man., Coult. & Nels., 1909	2,733	649	4.2	4.2
R. Mt. Fl., Rydberg, 1918..	5,897	1,038	5.7	7.3
Fl. Colo., Rydberg, 1906 ...	2,912	702	4.2	4.7
Fl. N. Mex., Woot & Stand, 1915	2,903	848	3.4	4.1
Pl. of Conn., 1910	1,942	621	3.1	5.2
Fl. Mich., Beal, 1892	1,746	554	3.2	4.2
Fl. N. D., Bergman, 1918 ..	963	448	2.2	3.1
Fl. of Fargo, N. D., 1918...	520	295	1.8	2.3
Fl. Vigo Co., Ind., Blatchley, 1896	853	423	2.0	2.6
Bees of N. Mex., Ckll., 1906	561	72	7.8	—
Bees of Boulder Co., Colo., Ckll., 1907	175	42	4.1	—

It will be noted that the averages vary in proportion to size and diversity of territory. On account of this and narrow specific limits Rydberg's "Rocky Mountain Flora" is one of the highest, notwithstanding his narrow generic limits. New Mexico runs low on account of many Mexican genera entering the state.

Since the bees are but a suborder we may scarcely compare them with larger groups. The *Poales* are perhaps the most nearly comparative group of the plants, although relatively larger. The genus *Carex* is more nearly comparable than any other to the bee genus *Andrena,* the number of species being about equal.

From Robertson's list we find the bees of New Jersey are 2.7 per cent. of the total insect list, while those of Carlinville are 23.0 per cent.; similarly, the Lower Aculeata are 4.9 per cent. and 16.2 per cent. From this and our knowledge of the extent of his work on these groups we might conclude the averages for other groups to be low on account of their many unknown species.

Recognition of many small genera would seem to necessitate the elevation of old genera and larger groups to higher rank, thus greatly increasing group names. Classification serves two purposes. Names have been often called "handles," while the system presents the state of our knowledge of relationships. For the

[1] Includes varieties; others do not.