rem," by W. D. MacMillan; "Note on the groups for triple-systems," by L. D. Cummings; review of De Séguier's Théorie des Groupes de Substitutions, by G. A. Miller; review of Wilson's Advanced Calculus, by W. E. Byerly; review of Prasad's Differential and Integral Calculus, by E. B. Wilson; "Shorter notices"; Tannery's Mémoires scientifiques, Volume I., by D. E. Smith; Natorp's Logische Grundlagen der exakten Wissenschaften, Grelling-Enriques' Probleme der Wissenschaft, and Volkmann's Erkenntnistheoretische Grundzüge der Naturwissenschaften, by J. W. Young; Pascal's Repertorium der höheren Mathematik, second edition, by C. H. Sisam; Love's Differential and integral calculus, by Arnold Dresden; "Notes"; and "New Publications."

THE INFLUENCE OF VARIOUS EDUCATIONAL INSTITUTIONS UPON THE DEVELOPMENT OF AGRICULTURAL SCIENCE

Education in the general field of agricultural science is coming to occupy so large a place in primary, secondary and collegiate instruction, that the development of this field is of almost universal interest among educational workers. Both the subject matter and the pedagogical methods of agricultural science are so new as to be practically the creation of the present generation of research students and educators. It was of interest to the writer, therefore, to ascertain, as fairly as circumstances would permit, the sources for the inspiration and conception of the men who are building up this new science. It occurred to me to ascertain at what institutions of learning the men who were shaping the thought in this field secured their scholastic training, both undergraduate and postgraduate. Each of the leading educational institutions of the world is generally recognized as standing for a certain type of instruction or conception of educational methods. It seemed to be of interest to determine to what proportionate extent the ideals of each such institution are influencing the development of agricultural science.

For this purpose, a study was made of the number of degrees (exclusive of honorary degrees) granted by each institution to persons who are, or who have been during the past five years, members of the Society for the Promotion of Agricultural Science. This society does not, of course, include every person who is actively engaged in this field of work. But its membership does include a very large proportion of the leaders of this movement in America, and is probably closely representative of the scholastic training which such leadership has received.

DEGREES GRANTED BY VARIOUS INSTITUTIONS TO MEMBERS OF THE SOCIETY FOR PROMOTION OF AGRICULTURAL SCIENCE

	Bachelors	Masters	Doctors
Michigan Agricultural College.	21	15	2
Cornell	9	9	7
Iowa State College	9	9	0
Harvard	4	4	5
University of Wisconsin	3	3	4
Mass. Agricultural College	9	1	0
University of Missouri	5	2	2
University of Michigan	4	2	3
Miss. Agricultural College	5	3	0
University of Illinois	4	2	1
University of Nebraska	4	3	0
Purdue	5	2	0
Yale	3	2	2
University of Maine	4	1	1
University of Ohio	4	0	1
Rutgers College	3	2	0
Johns Hopkins	1	0	3
Kansas Agricultural College	2	2	0
Colorado Agricultural College	2	2	0
So. Dakota Agricultural College.	3	1	0
University of Washington	2	2	0
European universities	2	0	12

The proportionate distribution of the degrees received by these men among the several institutions does not necessarily indicate the relative esteem in which these institutions are now held by men of agricultural science as schools for training in this field. It is probably a more accurate measure of the opportunities which were available at the time when these men were seeking their scholastic training. Again, the present standards and ideals of these institutions may be quite different, with many of these men now on their facul-

ties, from those which prevailed in the institutions when they were undergraduate or graduate students. But it is believed that the figures given above approximately represent the influence of the several institutions upon the general trend of thought in agricultural science.

Of the 54 other degrees granted to members of this society, not more than three came from any one institution. In these computations no account has been taken of honorary degrees, only those granted for completion of prescribed work having been counted.

It is perhaps of interest to note that the 147 men who have been on the membership roll of this society during the past five years have received 128 bachelor's, 82 master's and 51 doctor's degrees earned by undergraduate and graduate study. While statistics as to the scholastic attainments of workers in other educational fields are not available for comparison, it appears to the writer that the scholastic training and ability of the men who are actively engaged in the promotion of agricultural science is certainly such as to command very high respect.

R. W. THATCHER
STATE COLLEGE OF WASHINGTON,
PULLMAN, WASHINGTON

SPECIAL ARTICLES

THE DISTRIBUTION OF OCCIDENTAL SPIDERS

A PERFECT knowledge of geographic distribution can not be had until we have good collections with good field notes from all important regions and a perfect taxonomy. That time is far distant. Meanwhile we can get some indications from the material at hand. One of the interesting problems concerning the relations between the two continents of the western hemisphere is the part, if any, which the West Indies has played in geographic distribution.

Spiders being carnivorous, and so probably not limited in their distribution by the distribution of special food, and being unable to fly or swim great distances, seem to offer excellent material for such a study. Unfortunately large collections have not been made and the taxonomy is rather chaotic. Omitting a number of genera either because of indefiniteness of information as to distribution or obvious errors in taxonomy, there still remain in Petrunkevitch's catalogue[1] 764 genera of spiders found in the western hemisphere. The distribution of these is analyzed to some extent in the table. While 119 of these genera are recorded as occurring in both South America and the United States, it is probable that there would be more were it not for the tendency to magnify taxonomic differences when political boundaries are crossed. It is somewhat surprising, in view of the usual notion that insular conditions lead to taxonomic separation, to find that only 14 per cent. of the West Indian genera are not found in neighboring regions, while 60 per cent. of the South American do not occur elsewhere. Even 22 per cent. of the Central American (Mexico being included) genera are not recorded as occurring in the adjacent regions.

Distribution of Genera of Spiders. Bold-faced type shows actual numbers; ordinary type, percentages.

	S. A.	C. A.	W. I.	U. S.
Total.....	**565**	**251**	**133**	**240**
Exclusive[2].....	**338** 59.8	**54** 21.5	**18** 13.6	**90** 37.5
S. A., C.A.....	**63** 11.2	**63** 25.1	**18** 13.6	**36** 15.0
S. A., W. I.....	**27** 4.8	**18** 7.2	**27** 20.4	**7** 2.9
S. A., U. S.....	**30** 5.3	**36** 14.3	**7** 5.3	**30** 12.5
C. A., W. I.....	**18** 3.2	**6** 2.4	**6** 4.5	**8** 3.3
C. A., U. S.....	**36** 6.4	**20** 8.0	**8** 6.0	**20** 8.3
W. I., U. S.....	**7** 1.2	**8** 3.2	**3** 2.3	**3** 1.3
All four.....	**46** 8.1	**46** 18.3	**46** 34.6	**46** 19.2

[1] A. Petrunkevitch, "A Synonymic Index-catalogue of Spiders of North, Central and South America with all Adjacent Islands," *Bull. Amer. Museum Nat. History*, Vol. XXIX., 1911.

[2] In the sense that they are not recorded from any of the other regions considered here.