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.

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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.

Of the 119 genera common to South America and the United States 39 per cent. are recorded also from both Central America and the West Indies, 30 per cent. also from Central America, 6 per cent. also from the West Indies and 25 per cent. from neither. It is probable that the latter percentage will be greatly reduced by further exploration of the intervening regions and by revisions of taxonomy by which either these genera will be split or species from intervening regions will be united with them. However, such distribution is not unusual in other groups and can not be discussed profitably more in detail with this material. The following extreme illustrations from the Linyphiidæ may be cited. *Gonatium* with one species in Patagonia, two in northern United States (one of them also in Europe) and one in Greenland; *Gongylidiellum* (closely related to *Gonatium*) with two species in Patagonia (one of them also in Argentina) and three species from Maryland to New York; and *Minyriolus* with one species in Patagonia and one in Massachusetts.

It was noted above that only 6 per cent. of the genera common to South America and the United States are found elsewhere in the West Indies, but not in Central America. Leaving out of the question the fact that these may eventually be found in Central America, it is evident that the West Indies have not been an important highway for the interchange of Arachnid fauna. We should expect the influence it has had to be most apparent in the fauna of our southeastern states, but only one out of 62 genera common to that region and South America is found in the West Indies and not recorded from Central America, while 35 per cent. of them are found in Central America and not recorded from the West Indies. This one genus is *Bolostromus* with one species (*B. fluviatilis*) recorded from Alabama, one (*B. insularis*) from St. Vincent and four from South America.

Therefore, making all allowances for deficiencies in taxonomy, records and my analysis of the records, we must conclude that practically the only interchange of spiders between the two continents has been by way of Central America.

Frank E. Lutz

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.
SECTION D

Professor O. P. Hood, mechanical engineer for the Bureau of Mines, was elected vice-president of the association and chairman of Section D for the next meeting, at Atlanta. Professor A. H. Blanchard, of Columbia University, was elected secretary for five years to succeed G. W. Bissell, whose term expired. G. W. Bissell was elected a member of the council for the Atlanta meeting, and Mr. W. Bowie a member of the sectional committee for five years, *vice* A. H. Blanchard, whose term expired.

The section held meetings on January 2 and 3 for the presentation of papers. Vice-president J. A. Holmes, chairman of the section, presided on January 2, on which date the program was of a general character. Professor A. H. Blanchard presided on January 3 for two sessions devoted to papers on highway engineering. January 4 was assigned as a field or inspection day for those interested in good roads.

Retiring vice-president C. S. Howe, owing to absence on leave from Case School of Applied Science and other duties, did not present an address before the section.

The section is under obligations to the local committee and the authorities of Case School of Applied Science for the very excellent facilities for meetings; to those who, although not members of the association, contributed papers and discussions, and to those of its own membership who responded to requests for papers.

The secretary is indebted to Professor A. H. Blanchard for material assistance in the preparation of the program.

The Cleveland meeting of Section D was very encouraging to those interested, notwithstanding the storm on January 3 materially reduced the attendance.

Abstracts and titles are listed below by groups.

MISCELLANEOUS PAPERS AND TITLES

The Precise Level Net of the United States: Wm. Bowie, inspector of geodetic work, Coast and Geodetic Survey, Washington, D. C.