undertake properly controlled spinning tests for the agricultural departments and will be able to interpret the results and arrange later for full-scale mill-trials before new cottons are brought into general cultivation.

THE introduction of the metric system in the Soviet Union, says the *Commercial and Industrial Gazette* of Moscow, is proceeding rapidly. By the beginning of July next year the Gosmeter will have completed the inauguration of the metric system in all branches of national industry, including the retail selling apparatus in the provinces of Moscow, Leningrad and Nizhni-Novgorod.

UNIVERSITY AND EDUCATIONAL NOTES

MEMBERS of the Board of Trustees of the University of Chicago have given the sum of $1,670,800 toward the $17,500,000 development fund which the university is seeking for the endowment of instruction and research and the erection of new buildings. It is also announced that Professor and Mrs. Frank R. Lillie have given to the university $60,000 for the erection of a building to be used for experimental zoology.

A GIFT of $7,500 has been made to the general fund of Union College, Schenectady, by Charles Coffin, former chairman of the board of the General Electric Company.

LAFAYETTE COLLEGE will receive the residue of the estate of David B. Simpson, of New York. The amount has not been made known.

DR. JOSHUA C. HUBBARD, of the Boston City Hospital, has been appointed professor of clinical surgery at the Harvard Medical School to fill the position made vacant by the resignation of Dr. Frank H. Lahey.

AT Bryn Mawr College, Professor Charlotte A. Scott has retired; she is succeeded as head of the department of mathematics by Professor Anna J. Pell. Dr. D. V. Widder has been appointed associate in mathematics.

A. E. MURNEEK, graduate student at the University of Wisconsin, has been appointed assistant professor of horticulture at the University of Missouri College of Agriculture. Mr. Murneek will finish his work for the Ph.D. degree about February 1.

DR. ROBERT L. PENDLETON, director of agriculture in Gwalior State, India, has been appointed professor of soil technology at the University of the Philippines, and in charge of the work in soils in the department of agronomy.

GRENVILLE B. FROST has resigned from the research department of the American Cyanamid Company, New York, to become lecturer in physical chemistry at Queen's University, Ontario.

DR. W. H. WOOD, lecturer in the University of Manchester, has been appointed to the Derby chair of anatomy in the university.

DISCUSSION AND CORRESPONDENCE

THE NUMBER OF BROTHERS AND SISTERS OF SELECTED INDIVIDUALS

SAYS Galton in his "Hereditary Genius" as quoted by Cattell ("American Men of Science," 1921, p. 804): "I also have found the (adult) families to consist on the average of not less than 2½ sons and 2½ daughters each. Consequently, each judge has on the average 1½ brothers and 2½ sisters." Cattell points out that this conclusion, obvious as it may appear at first sight, is really incorrect, since, with numerical equality of the sexes, boys should have, on the average, no more sisters than brothers. Rietz has recently (SCIENCE, LX, p. 46, July 11, 1924), given a mathematical generalization of the situation.

The phenomenon is due to the fact that more than one propositus may be picked from a single family, with the result that in ordinary statistical treatment of data some brothers and sisters are counted more than once. It is this point that Galton seems to have overlooked. For example, in his average family of 2½ sons and 2½ daughters it is apparent, if we designate the sons as A, B, and $\frac{C}{2}$ that A has 1½ brothers, 2½ sisters, and that B also has 1½ brothers, 2½ sisters, while $\frac{C}{2}$ has 2 brothers, 2½ sisters; a statistical total of 5 brothers, 7½ sisters. This might seem to be ½ brother too many according to Galton or 2½ too few, according to Cattell. But what the computation really shows—apart from illustrating the method—is that it is not always possible to treat an average as if it were an array. When, however, account is taken of the laws of chance and the frequency of families with various sex ratios, it can be shown, as Cattell and Rietz have done, that if the data are treated in the way indicated, a boy should have, *on the average,* just as many brothers as sisters.

But since even Galton seems to have been somewhat careless about this matter, it may not be out of place to call attention to another caution that should be borne in mind when dealing with this sort of data. When special groups are considered, the numerical