G. D. Birkhoff: "A class of series allied to Fourier's series."

G. D. Birkhoff: "Note on linear difference equations."

G. A. Miller: "Groups generated by two operators of the same prime order such that the conjugates of the one under the other are commutative."

H. S. Vandiver: "On the power characters of units in a cyclotomic field."

Henry Taber: "On the structure of finite continuous groups."

The San Francisco Section of the society held its twenty-eighth regular meeting at the University of California on November 25. The Southwestern Section held its tenth regular meeting at the University of Kansas on December 2. The seventh regular meeting of the society at Chicago was held on December 22–23. The next meeting of the society will be held at Columbia University on February 24.

F. N. COLE,
*Secretary*

## THE AMERICAN GENETIC ASSOCIATION

THE thirteenth annual meeting of the association was held at Columbia University, December 26–28, with an attendance of about 200. In the presidential address on "The Importance of Photographs in Presenting Genetic Discoveries," Dr. David Fairchild insisted that men of science should take more pains properly to record the results of their investigations by photographs; that such photographs as are commonly published are too small and also fail to make the desired impression because too little allowance is made for the reader's point of view. He showed lantern slides to illustrate his remarks.

Professor E. E. Barker, of Cornell University, presented the results of a questionnaire sent to American colleges, which showed great diversity in the amount of attention given to genetics, and the side from which it is approached.

In discussing "The Biological Significance of Death" Professor F. H. Pike, of the College of Physicians and Surgeons, Columbia University, referred to the independence of the environment which higher forms of life have attained, mainly through the property of regulation. This independence has made differentiation possible, but the individual has also become incapable of any great change. If evolution is to take place, it must then depend on the variations accompanying the production of new individuals. The immortality of the older forms would produce a congestion of the earth which would seriously interfere with the development of the newer. Death is therefore to be regarded as an adaptation, as Weismann supposed, which furthers evolution.

"The Constructive Aspect of Birth-Control" was discussed by Professor Robert J. Sprague, of Massachusetts Agricultural College. He observed that birth-control is only a part of the larger problem of population; that the poorer classes need to practise more birth-control but the more efficient classes need to practise distinctly less than they do at present, if the race is to evolve progressively. A constructive program of economic and social changes, which would help to make fecundity correlated with eugenic value, was outlined.

Professor W. S. Anderson, of the University of Kentucky, spoke on "Some Difficulties in Breeding Blooded Stock." The production of blooded horses is particularly hindered by the infertility of brood mares, which in different parts of Kentucky runs from 35 per cent. to 65 per cent. Investigation has proved that the difficulty usually is to be found in the mare, rarely in the stallion, and by hygienic measures the fertility of mares on the Patchen Wilkes stock farm has been doubled. Selection of fecund strains is believed, however, to be necessary for complete removal of the difficulty of infertility.

As chairman of the committee on research in eugenics, Dr. Frederick Adams Woods, of the Massachusetts Institute of Technology, presided at the second meeting and read a paper on "Significant Evidence for Mental Heredity." Much of the evidence commonly cited he believes to be worthless, but by measurements of differences it is possible to get acceptable proof. Studies of twins by Galton and Thorndike, and those of the royal families of Europe by the speaker himself, were cited. Princes who inherited thrones were not found to be more conspicuous mentally than their younger brothers, despite the greater chance which a monarch has for displaying any valuable traits he may possess. Moreover, eminent men are found to be as much interrelated in America as in Europe, although it is popularly supposed that superior opportunities and free competition in a newer country make family connections of less value. The fact that eminent men are found, despite this, to be much interrelated indicates that their mental differences are germinal and not solely the result of educational and social influences.

Mary L. Read, director of the School of Mothercraft, New York City, had the topic "Eugenics

and the Education of Young Women.'' She emphasized the necessity for sex-differentiation in education, for the teaching of mothercraft, and described her own work in this connection.

Professor Roswell Hill Johnson, of the University of Pittsburgh, discussing ''The Eugenic Aspect of Sexual Immorality,'' pointed out that sex offenders, for a variety of reasons, have a lower birth-rate than do moral people. Further, he argued that the sexually immoral as a class are eugenically inferior to the more socially-minded part of the population. It follows that sexual immorality is a eugenic agency, tending to reduce the racial contribution of an inferior class. Campaigns for sex-hygiene, then, can not be considered directly eugenic; on the contrary, they will have some dysgenic result, which should be counteracted by appropriate eugenic measures.

Professor Robert DeC. Ward, of Harvard University, considered ''The War in Relation to Eugenics—a Problem for the United States.'' He expects a large immigration of an undesirable class after the war, and described the need for some such law as that now pending in Congress, to shut out such arrivals as are biologically inferior.

Arthur H. Estabrook, of the Eugenics Record Office, told of ''A Field Survey of Mental Defectives in Two Counties in Indiana.'' Only the feeble-minded, insane and epileptic were considered; in one county the proportion of defectives was found to be 19 per 1,000 population, and in the other 11.4.

As vice-chairman of the committee on research in plant-breeding, G. N. Collins, of the Bureau of Plant Industry, presided over the third meeting. Adolph E. Waller, of Ohio State University, explaining ''Xenia and Other Influences Following Fertilization,'' showed that xenia, properly defined, was limited to the result of triple fusion in the endosperm of angiosperms. He suggested the name *ectogony* to cover the various other phenomena now wrongly included under the name of xenia—such phenomena as are represented by the common belief that the sugar content of watermelons is reduced if the flowers have been pollinated by pumpkins.

Donald F. Jones, of the Connecticut Experiment Station, reported on ''The Effect of Heterozygosis upon the Time of Maturity.'' As one expression of hybrid vigor, he cited a cross of two varieties of tomatoes which showed a constant small difference in time of production of fruit during four years in which they were grown. Four $F_1$ generation crosses between these varieties grown during four different years with their parents and compared with them had approximately the same time of production as the earlier parent. The same condition was observed in a cross between an early and a late variety of sweet corn. In a large number of crosses between inbred strains of dent maize there was a tendency to hasten the average time of flowering and maturing of the crosses as compared with their parents. The conclusion was drawn that heterozygosis may not only increase size but also permit of the production of that increased size in less time, hence greatly increasing the rapidity of growth. In respect to the time to complete growth, heterozygosis does not effect a result comparable to that produced by environmental factors, since, usually, external conditions which result in an increase in growth tend to delay maturity.

C. W. Moore, of Cornell University, described some ''Studies in Semi-sterility'' on *Tradescantia*, Alsike Clover, Alfalfa and Shirley Poppy. Results favored Compton's hypothesis that self-sterility in plants is analogous to rust-immunity in wheat. By this view it is supposed that the pollen-tube in a cross continues to grow in order to get adequate food supply; while in self-pollination the nutritive conditions are more favorable, the pollen-tube does not have to elongate much, and it therefore does not grow enough to permit fertilization.

J. B. Norton, of the Bureau of Plant Industry, described 10 years of asparagus breeding on Cape Cod, disease resistance being the primary object. Remarkable success has been secured, by hybridization and selection, in getting disease-resistant and highly productive varieties.

Professor C. E. Myers, of Pennsylvania State College, reported on ''Some Preliminary Experiments in Cabbage Breeding.'' All characters hitherto tested in cabbage have appeared to blend in heredity, but it is believed that this is due to the mongrel nature of the stocks. When varieties were inbred for a few generations, and then crossed, segregation was observed.

Professor H. H. Love, of Cornell University, spoke on ''Some Results obtained from Certain Crosses of *Avena*.'' One probable case of linkage has been found.

Five papers were read by title only. The last session of the association was a joint one with the Botanical Society of America. The next meeting will be at Pittsburgh, December 28–30, in accordance with the plans of the American Association for the Advancement of Science.

Paul Popenoe,
*Secretary pro tem.*