AT Syracuse University, Dr. Earl T. Apfel, head of the department of geology in Illinois Wesleyan University, has been appointed associate professor of geology, and Dr. Ernest Thelin, of Florida State College, associate professor of psychology and director of the psychological laboratory.

DR. JOSEPH KAPLAN, of Princeton University, and Dr. E. L. Kinsey, of Yale University, both National Research Fellows, have been elected assistant professors of physics at the University of California.

DR. WAYNE E. MANNING, instructor in botany in the University of Illinois, has been appointed assistant professor of botany in Smith College.

DISCUSSION AND CORRESPONDENCE

THE HEREDISCOPE AND ARTIFICIAL POPULATIONS

THE writer and a collaborator[1] have shown that there is probably much to be learned from the empirical analysis of the constants of a population the genetic constitutions of whose members are known by hypothesis. The problem attacked in the paper cited was that of the counteractive influence of assortative mating upon the negative correlation between fertility and intelligence in determining trends in the population mean in the latter trait; other factors which strongly suggest that fruitful results might be obtained from their isolation and study are incidence ratios, selection rates and degree of monogamy. Generalized, the problem is that of describing the mathematical, logical or ideal behavior of specific factors in heredity, in order that their presence may be recognized when complicated by the presence of other factors in populations of actual organisms.

Studies like that cited, however, are excessively laborious, even with the small number of genes dealt with (five); this comes about principally because a die must be thrown or a coin flipped for every appearance in a mating of a gene in the heterozygous phase, and the result recorded; in the experiment in question, twenty-five thousand is a conservative estimate of the number of dice throws necessary, although the work was continued through only five generations.

I suggest that Mr. Graves' herediscope, reported in *J. Hered.*, 1928, 19, 54–56, although designed for demonstration purposes only, embodies a principle enabling a considerable magnification of the efficiency of research with artificial populations. I can not at this writing suggest ways and means for adapting the appliance to large-scale work; but even if it had to be reset by hand for each individual mating, the saving of labor over the dice method would be considerable, and the number of genes studied could easily be doubled.

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[1] Willoughby and Goodrie, "Neglected Factors in the Differential Birth Rate Problem," *Ped. Sem.*, 1927, 34, 373–393.

AN IMPORTANT SOURCE OF BROAD TAPEWORM IN AMERICA[1]

IN a recent paper[2] I reported the presence of plerocercoids of *Diphyllobothrium latum* in four species of food fishes from Lake Superior and Portage Lake, Houghton County, Michigan. Evidence was presented that the Great Lakes are probably not an important source of infested fish, because only a very small percentage of the annual consumption of these fish is taken there and it was pointed out that we had reason to believe that Canadian fish shipped to the United States to be marketed would prove to be an important source of infestation. Nearly 80 per cent. of all wall-eyes consumed in the United States are imported from Canada.[3] Two feeding experiments have been performed with plerocercoids taken from two shipments of wall-eyes from Lake Winnipeg, one of the most important sources of Canadian wall-eyes. In the first shipment of twenty-seven wall-eyes five plerocercoids were found. Four of these were fed to a dog from which four *Diphyllobothrium latum* adults were later recovered. One plerocercoid was found in the second shipment of twenty wall-eyes from the same lake. This larva was fed to another dog, from which a mature *D. latum* was later recovered. Both dogs were known as a result of fecal examinations to be free from *Diphyllobothrium* tapeworms before the experiments were performed.

These observations and experiments demonstrate that the eating of fish from Lake Winnipeg may be responsible for a large percentage of the cases of *D. latum* infestation in the United States—outside of the known endemic areas.

Because many of the settlers around the other Canadian lakes from which fish are shipped to the United States are immigrants from Baltic countries, it is here suggested that further investigation will

[1] Contribution from the Zoology Department, University of Michigan. This investigation was carried on under grant 96 awarded by the American Medical Association to Professors George R. La Rue and A. S. Warthin, of the University of Michigan, under the former of whom the work has been conducted and to whom I here express my grateful appreciation.

[2] *Journ. Am. Med. Ass.*, 90: 673–678, 1928.

[3] U S. Tariff Comm.: Lake Fish. Tariff Information Series, no. 36, 1927.