respect to their "relative viabilities" under certain conditions, with a pure-bred, standard stock of another species, using the method of overcrowded bottles with equal numbers of eggs of the two types (see my paper in Arch.f.Naturgesch., 2: 285-290,1933). This method was applied in studying the "relative viabilities" of geographically different populations of Drosophila melangaster and Drosophila funebris under different environmental conditions (food, moisture, temperature), using a standard inbr ed melanogaster-stock for testing different funebris-populations, and a standard inbred funebris-stock for testing different melangoaster-populations. In small culture-vials with food (yielding normally about 100-120 flies) were put 150 (or 200) eggs of the standard stocks of one of the species and the same number of eggs of the population of the other species to be tested; the number of hatching flies of each species were counted, and the tests were repeated until large enough numbers of flies were obtained. The different popu lations of one species could so be compared inter se, using as a scale their differences from the same standard stock of the other species. These experiments are not yet completed; but the results already obtained show that many of the geographically different wild population, although morphologically indistinguishable, can show remarkable hereditary differences in their physiological properties, a part of these differences being clearly of the type of ecological adaptations. At the same time, experiments of Muller and of myself showed that mutations producing only slight deviations from the "normal relative viability" are produced by x-rays at a rate about twice as high as that of the lethals (Muller's paper read at the 4.Intern.Radiol. Congress and my paper in Strahlentherapie,v.51). Such "slight physiological mutations" are probably also the most common type of spontaneous mutation. These mutations are probably used by natural selection in order to differentiate the species into biotypes and races, adapted to different geographical environments.

Technical Notes

Margaret E. Hoover
Transportation of Drosophila cultures

For mailing Drosophila, we have been using 7 x 2cm. shell vials. The vials contain a small amount of the usual corn-meal-agar prepared food, innoculated with yeast, and a strip of paper is inserted to prevent the food from running onto the sides of the vial. From one to seven vials will easily fit into corrugated paper boxes (8 1/2 x 6 3/4 x 6 3/4cm) If the vials are wrapped in paper and tightly packed on all sides by cotton, there is no danger of breakage. We have found this to be a very satisfactory method for transporting stocks. Both Drosophila melanogaster and virilis cultures have been satisfactorily shipped as far as Japan. The mailing costs are low. The packages may be sent third class in the United States and as small packets or samples to foreign countries. A full package will usually not weigh in excess of six ounces.

J.C. Li Isolation of larvae

In the Yenching Laboratory we have developed a technic by which not only eggs but also larvae of D.melanogaster can be isolated within one hour of their hatching. It is essentially the same technic developed by Li (see Li '27 appendix p.55-57). The

eggs are allowed to hatch and the newly hatched larvae can then be removed from the food with a tiny dissecting knife. By means of this technic it is possible to analyze more exactly the critical period when a certain gene operates during the larval period. It is now also possible to study the embryology of Drosophila more exactly under controlled conditions.

H.J.Muller Labelling of stock cultures. In place of the usual practice of Drosophila laboratories of pasting a label on each stock culture and writing the name of the stock anew at each transfer, I have for many years found it much quicker and less subject to error, if the designation of the stock is written once for all in ink or India ink on both sides of a cardboard tag which is affixed thru its string to a rubber band that passes around the neck of the culture vessel. This tag is transferred to the new vessel when the flies are transferred, and it is best to have a separate tag for each culture vessel.

H. J. Muller Fly morgue. In place of the usual method of having a jar of alcohol or other volatile fluid into which the flies to be discarded are dropped thru a narrow slit, it is much more convenient to have a broad dish containing a non-volatile oil. The used oil from automobiles affords a conveniently obtained medium. The opening may be protected by a wide-mesh wire grating. The flies do not have to be brushed off in any exact manner, but may be merely jarred off by knocking the porcelain plate against the screen with one motion of one hand. Renewal is seldom necessary and there are no disturbing odors. This method was used independently in Texas and in the USSR.

H.J. Muller Seeding with yeast. In place of the usual method of allowing drops of yeast to fall into the bottle from a pipette of sprinkling crumbs of yeast, it saves time and ensures more even distribution if one makes up a very thin suspension of the yeast in water, and then sprays this through a simple atomiser, such as is used for spraying fixative on charcoal drawings. In this way a great number of cultures may be seeded at once en masse.

H.J. Muller Supplying vials with paper. When numerous small vials have to be handled it is time-consuming to prepare and insert paper for each one, although the presence of paper is helpful. For this purpose it is convenient to use white confetti, which can be purchased already prepared in considerable quantities. This is sifted between the fingers into the cultures en masse, as they stand still uncovered after having been seeded with yeast.

C.A. Offermann and I.K. Schmidt Culture media for Drosophila. With the development of the Drosophila technique, not only a certain amount of sterilization of the culture medium during its preparation became necessary, but also an adaptation of it ot different requirements. Productivity and duration of the media are the two main factors to be considered for our purpose, and they are to a certain degree