

obscura. The results of the experiments with hybrids are consistent with this hypothesis (table 1). Males of *D. persimilis* inseminate a higher percentage of the hybrid than of their own females. The isolation index¹ is negative in both crosses (-0.15, -0.32). The greater activity of the hybrid females is apparently more than sufficient with males of *D. persimilis* to compensate for their genetic inferiority in regard to factors one and two. The greater activity of the hybrid females is not quite sufficient in tests with the males of *D. pseudoobscura* to overcome the adverse influence of factors one and two. The isolation index remains positive (+0.11, +0.42). Still, the discrimination of the *pseudoobscura* males against hybrid females is much slighter than against *persimilis* females. At best (with *persimilis* ♀ × *pseudoobscura* ♂ hybrids), only twice as many of their own females are inseminated as against ten times as many in the control experiment.

The relative desirability of the hybrid females is a puzzling fact, considering the wide overlap of the two species in nature. There would seem to be an apparent opportunity for a good deal of introgressive hybridization. The factors that keep this potential danger in check need further investigation.

¹ Mayr, E., and Dobzhansky, Th., these PROCEEDINGS, 31, 75-82 (1945).

² Lancefield, D. E., *Zeits. ind. Abs. Vererbungsl.*, 52, 287-317 (1929).

³ Mayr, E., 1946 (unpublished).

INHERITED DIFFERENCES IN SENSITIVITY TO RADIATION IN *ESCHERICHIA COLI**

BY EVELYN M. WITKIN[†]

COLUMBIA UNIVERSITY AND CARNEGIE INSTITUTION, COLD SPRING HARBOR, N. Y.

Communicated February 11, 1946

The study of spontaneous and radiation-induced mutations is at present our best approach to the investigation of genetic mechanisms in bacteria. Mutations involving resistance to destructive agents (bacteriophage,¹ penicillin²) are especially suitable for genetic analysis, since resistant mutants can easily be detected in bacterial cultures. This preliminary report concerns a mutation in *Escherichia coli* leading to resistance to both ultraviolet radiation and x-rays, which was detected by exposing samples from normal cultures to high doses of radiation.

Most investigators of the effects of ultraviolet radiation on bacteria have considered the population within a strain to be fundamentally uniform in sensitivity. Most of the differences found seem to depend upon transient