

MICKEY, GEORGE H., and ARMON F. YANDERS, Northwestern University, Evanston, Illinois. The production of dominant Minutes in Drosophila sperm irradiated with X rays, gamma rays and fast neutrons. — Mature sperm of Drosophila melanogaster (Oregon-R) were given doses ranging from 1500 to 9000 r of either Co-60 gamma rays of 250 kvp X-rays or from 250 rep to 2000 rep of fast neutrons. Treated males were mated to wild type virgins and transferred to fresh cultures each day through four cultures. The dominant Minutes were detected in the F₁ flies. Rates of Minutes induced by these high energy X rays did not differ statistically from those induced by gamma rays. The fast neutrons, however, were much more efficient per unit of dose in producing Minutes; their R. B. E. was about 4.5. Measured in terms of Minutes induced, the effects of these agents appear to be directly proportional to dose and also related to specific ionization density of the path. (Work supported by a research grant from the United States Atomic Energy Commission, Contract No. AT(11-1)-89, Project No. 7)

MILLER, D. D., University of Nebraska, Lincoln, Nebr. Intraspecific variation in spermatheca morphology in Drosophila affinis Sturtevant. — Spermatheca morphology was observed in strains of D. affinis from Florida, Illinois, Massachusetts, Nebraska, Tennessee, and Texas. External shape was found to vary from nearly spherical to relatively flat (strain mean averages of ratio of spermatheca width to height ranging from 1.22 to 1.61). There was also found to be variation in degree of penetration (telescoping) of the tube into the spermatheca (strain mean averages of ratio of spermatheca height to length of telescoped part of tube ranging from 1.34 to 2.84). In addition, the spermathecae sometimes had a pronounced terminal indentation, frequently only a slight indentation or none at all (strain frequencies of presence of terminal indentation ranging from 96% to 0%). — Reciprocal crosses were made between members of the Florida strain (characterized by relatively flat spermathecae, much penetration of the tube, and very pronounced terminal indentations) and members of the Texas strain (with nearly spherical spermathecae, little tube penetration, and no terminal indentation). The F₁ and F₂ generations had intermediate means of the spermatheca dimension ratios and the frequencies of terminal indentations, with the F₂'s somewhat more variable than the F₁'s. Backcrosses to the parent strains (all possible combinations) caused shifts in these values in the directions of the respective strains. No influence of direction of the original cross was apparent in these generations. The results are consistent with the interpretation that spermatheca morphology is governed by numerous nuclear genes, with little or no influence of extranuclear factors.

MILLER, WILMER J., University of Wisconsin, Madison, Wis. Segregation of species-specific antigens and the "hybrid substance" in backcross hybrids following a generic cross in Columbidae. — In contrast with the usual sterility of the hybrids from matings of the domestic pigeon, Columba livia, with ring dove, Streptopelia risoria, eight offspring from a mating of an F₁ male to a ring dove have been obtained by a private breeder

who kindly made their bloods available to the author. Agglutination tests were made with reagents detecting cellular species-specific antigens (A' , B' , C' , and E') of livia in contrast to both C. guinea and S. risoria, and with reagents detecting the "hybrid substance" which is present in all F_1 hybrids, but not in the parental species. — A segregation of the "hybrid substance" and of each of the species-specific antigens of livia was observed among these eight backcross birds. The "hybrid substance" was demonstrable only in backcross birds which also possessed the C' substance of livia, suggesting an association with C' . — The species-specific antigen C of guinea is antithetical to C' of livia; heterozygotes (CC') have a "hybrid substance." Of several serological specificities demonstrated for the "hybrid substance" of F_1 -livia/risoria, one was associated with C of guinea, and another with heterozygotes (CC'). The assumption is that the "hybrid substance" of F_1 -livia/risoria birds results from some kind of interaction of the genes or gene-products responsible for C' of livia and a C-like antigen of risoria.

MORGAN, WALTER C., University of Tennessee, Knoxville, Tenn. — Eventration and exencephaly in mouse embryos. — Mice heterozygous for the dominant tail mutation Crooked (a semi-lethal) were mated to mice heterozygous for the dominant tail mutation Tail-short (a lethal). Relatively small litter-size of the F_1 suggested a prenatal lethality. Dissection of females during late gestation provided a high incidence of monsters. -- The abnormal mice were smaller than their normal sibs and many were tailless. Conspicuous cranial overgrowths (exencephaly) and eversion of viscera (eventration) were observed in a higher proportion of the embryos than had ever been reported from dissections involving either of these mutations alone. All of the embryos with exencephaly and/or eventration either had very short tails or were tailless. This phenotype is representative of the Ts/+ genotype and not of Cd/+. Although exencephaly has been reported in Cd/Cd individuals, it has not been observed in the heterozygotes. — The high incidence of grossly abnormal embryos suggests an interaction of Cd and Ts which abruptly disorganizes normal embryonic development.

MORSE, M. L. (Introduced by M. R. Irwin.), University of Wisconsin, Madison, Wis. Transduction of certain loci in Escherichia coli K-12. — Lysogenicity for the phage lambda is determined by a nuclear gene closely linked to a cluster of loci affecting galactose fermentation (Lederberg and Lederberg, Genetics 38, 51). A small fraction of the cells in galactose-negative cultures can be transformed to fermenters by lambda lysates from positive, or from non-homologous negative, cells. The interactions between cells and lysates are concordant with allelism tests by crossing. With excess assay cells the number of transformations is proportional to the amount of lysate added, with an efficiency of about one transduction per million plaque forming particles. Most transformed clones are unstable for galactose fermentation and continue to segregate galactose negative cells after many single colony isolations. When Gal_1^- cells are trans-