occur: (1) the old sperm when kept in a male might after a time degererate, possibly becoming resorbed; (2) the sperm might gradually leak out: as in some vertebrates, they might be lost (3) by ejaculations occurring in the absence of copulation, or (4) in the course of copulations other than heterosexual ones. We now see that possibility (4) does occur sometimes in Drosophila as in vertebrates, in the form of homosexual copulation, but there is as yet no evidence as to how common it is, aside from the negative fact that it has not hitherto been reported.

Muller, H. J. Localization of $Y:bw^+$ insertion and cr-u sterile (crs). The portion of the right arm of the third chromosome inserted into the long arm of the Y in the $Y:bw^+$ chromosome found by Dempster is very similar in length and position to the Pale insertion (P^i) and can be substituted for it for saving the life of an individual having the Pale deficiency (P^-) in one second chromosome. However, it does not extend quite so far to the right as does P^i, so that a Minute bristle effect is produced, by a Minute locus lying between the right breaks of these two insertions. Also between these breaks is the locus of the recessive male-sterility gene, "crs" (called "cru-sterile"), originally associated with "cr-u". The symbol "cr-u" represents Bridges' "cream-underscored", a dilutor of eosin, which he had localized in the left arm of chromosome 2 and which he had thought to be itself responsible by a pleiotropic action for the male-sterility effect. Thus males homozygous for crs are rendered fertile if they contain P^i in one of their third chromosomes, but not if they have $Y:bw^+$ (and no P^i).

Muller, H. J., and associates Ultraviolet induction of mutants at loci at which spontaneous mutants are known. The question has been raised (by Dr. J. Schultz in a personal communication) whethe any mutations which arose after ultraviolet treatment have been found (or made very probable) to be allelic with know spontaneous mutants. The following is a list of such cases known to our group.

X Chromosome

achaete: 1 case by McQuate in 1949, in sc.Y^1 chromosome, not associated with mutations to y or lethal.
fused: 1 case by Edmondson, 1951
Notch: 1 case by Altenburg about 1930; 1 case by Muller about 1941; 1 case by Meyer, 1947; 1 case by Meyers and Byers, 1951.
vermilion: 1 case by Edmondson, 1951.

Chromosome 2

apterous: 1 case by Meyer and Byers, 1949.
black: 2 cases by Meyer, 1950, 1951.
dachsous: 1 case by Meyer, 1951
giant larvae: 1 case by Meyer, 1950.
light (lethal): 2 cases by Meyer, 1950, 1951.
Lobe: 1 case by Edmondson and Meyer, 1949.
straw: 2 cases by Meyer, both in 1951.
lethals: various cases of allelism of uv-induced with spontaneous lethal:

Probable allele where the locus had not been tested:

X Chromosome

narrow abdomen: 1 case by Edmondson, 1951

Chromosome 2

Dent: 3 cases, 1 dominant and 1 recessive by Meyer, and 1 dominant by

Edmondson, in 1950 and 1951. These were all shown to be in the left arm of chromosome 2.

Known alleles which were probably induced, but may be spontaneous:

Chromosome 2

dumpyTh: 1 case by Meyer, 1951.
dumpy-oblique: 1 case by Meyer and Byers, 1951.

Chromosome 3

claret: 1 case by Meyer, 1950, sterile in homozygous female.
glasslike: 1 case by Meyer, 1949. This is an allele of a spontaneous mutation like glass in the third chromosome, found in this laboratory, but not tested for allelism with glass itself, to which both may be allelic.

Nakamura, K., Immaizumi, T, and Kitazume, Y. Amino acids in D. melanogaster. Surveys were made by two-dimensional paper chromatography of the free amino acids found in alcoholic extracts of larvae, pupae, and adults, respectively. In each stage 17 kinds of amino acids were found; leucine, phenylalanine, valine, proline, tyrosine, arginine, histidine, alanine, lysine, threonine, glycine, serine, asparagine, glucosamine, glutamic acid, aspartic acid, and cystine, besides two unknown ones. Of these, leucine and cystine were present in greater quantities in larvae than in pupae and in adults; smaller amounts of phenylalanine were found in adults than in larvae and in pupae. Hydrolysates of normal, lethal (YY), and unfertilized eggs were tested by two dimensional paper chromatography. Leucine, phenylalanine, valine, proline, tyrosine, alanine, arginine, histidine, lysine, threonine, glycine, serine, aspartic acid, and two kinds of unknown elements were found in each of them. A third unidentified one (cystine?) was found in lethal and unfertilized eggs, but was lacking in normal eggs.

Nolte, D. J. Secondary genic products. A long-term investigation has been undertaken on the eye-pigmentary system of Drosophila, with particular reference to the eye-color mutants of D. melanogaster, the main techniques being a histological study of eye structure and a spectophotometrical assessment of the pigments. Part of the work has been published, several papers are in the press, and further work is in progress. The mutants include 30 of the main eye-color genes, 24 multiple alleles of ten of the foregoing genes, and 4 position effects; 3 wild-type strains are being used for comparison, one being a South African strain.

Four regions of pigment concentration have been located in the compound eye: the primary, secondary, basal, and post-retinal; great variation occurs in the various mutants with regard to the arrangement of the cells, their size, the size of the pigment granules, and the type of pigment contained. The content of brown pigment varies independently of the content of red pigment in the series of mutants already tested, and the color of the eye is not directly proportional to the amounts of the two pigments, but often dependent on the ratio between these amounts. In two series of multiple alleles already tested, one shows a simple quantitative proportional ratio between the two pigments, but the other shows more of a qualitative ratio or relationship, in that the two pigments do not follow the same series of increases in quantity. Although in general the two pigments of any specific strain seem to vary independently in quantity from culture to culture, there appears to be some connection between them at one or another stage of their synthesis; there appears to be, in some mutants, a competition for an assumed common substrate, and thus it was found that pr has more brown pigment than the wild-