

constituting a mosaic gonad. Various hypotheses have been tried to explain the very low proportion of mutant offspring of the mosaic male. The most plausible seems to be that at the time the gonad was formed, only a single mutant cell was included. Subsequently it failed to divide as rapidly as the others, or some of its progeny went to form the testis sheath, Sertoli cells, etc., so that perhaps only one or two mutant cells actually gave rise to germ cells.

MILLER, W.J., University of Wisconsin, Madison, Wis. The time of appearance of species specific antigens of *Columba guinea* in the embryos of backcross hybrids. — The species specific antigens A, B, C, E, and F of the red blood cells of *Columba guinea*, in contrast to *C. livia*, as present in backcross hybrids and in offspring of matings inter se of backcross hybrids, were demonstrable as early as blood cells could be obtained from the embryo - i.e. about the 29 somite stage or at 72 hours of incubation. All the specified antigens as found in the embryos and squabs were present in agglutinating strength approximately equal to that of control cells from mature birds, with the exception of antigens A and F which, although present in the embryonic cells, tended to disappear at the hatching of the squab. However, the red blood cells carrying A and F regained their titer and agglutination strength slowly during the first 2 weeks to two months after hatching. — It seems probable that these antigens of guinea first appear at the same time and stage of every individual and are maintained throughout life in approximately constant strength, with the exception of A and F. This view is supported by (1) realization of expected approximate proportions of embryos and squabs possessing the antigen as determined by the kind of mating involved, and (2) possession of the antigen by all offspring from birds homozygous for the antigen in mating with individuals lacking the antigen - regardless of the stage of development tested.

MILLER, W.J. and C.R. BRYAN, University of Wisconsin, Madison, Wis. Serological differentiation of the homozygote and heterozygote following a species cross in pigeons. — Following backcrosses to *livia* of the hybrids and selected backcross hybrids from the mating of *Columba guinea* and *Columba livia*, five antigens of the erythrocytes peculiar to guinea (called A, B, C, E, and F) have been obtained in unit form. These are produced by the action of one or more genes on separate chromosomes derived from guinea. Matings inter se among backcross birds carrying any specific antigenic substance, as C, have produced some individuals homozygous for that substance. The cells of the heterozygotes differed serologically from the cells of the homozygotes in that they absorbed all antibodies from anti-*livia* serum, whereas those of the homozygotes (CC) absorbed from this antiserum all antibodies except those for a substance in *livia* (called C') presumably contracted to the C substance of guinea. The C' sub-

to date. Therefore, any anti-livia serum, or antiserum to the heterozygote, which contains antibodies to the C' substance is a source of a reagent in the differentiation of homozygotes (CC) from heterozygotes (CC'). — By parallel procedures, it has been possible to differentiate the homozygote from the heterozygote for each of the other specific characters of guinea, A, B, E, and F, and to recognize in livia and in the respective heterozygotes antigenic characters A', B', E', and F' contrasting to each of the specific guinea substances. — The genetic and serological tests for the recognition of the heterozygotes and homozygotes are in agreement.

MITTLER, SIDNEY, Illinois Institute of Technology, Chicago, Illinois. Variation in tumor formation in *D. melanogaster* reared on yeasts that do not require vitamins or amino acids. — Tu^{50j20} was found in inbreeding wild flies trapped in the Chicago area. 4.7% of the flies show an abdominal tumor if reared on the agar-cornmeal media inoculated with baker's or brewer's yeast *Saccharomyces cerevisicae*. Since tumor formation has been reported to be partly dependent upon the nutrition of the larvae and that the larvae must have yeast to grow, the larvae were reared on yeasts that require no amino acids or vitamins. A survey was made of yeasts that could live only on glucose, NH₄SO₄ and several trace elements. Tu^{50j20} was raised on the following yeasts in an amino acid, vitamin free media presented in a series decreasing in the ability to aid in the formation of tumors: *Hansenula anomala*, *Pichia membranaefaciens*, *Candida sorbosa*, *Nadsonia fulvescens*, *Debaromyces globosus*, *Hansenula saturnus*, *Torulopsis utilis*, *Rhodotoryla gracilis*, *R. glutinis* and *Geotrichium*. The flies reared on the amino acid and vitamin free media are believed to obtain practically all their nourishment from the yeasts and were fewer in number than those reared on the standard media. Also, the percentage of tumors was lower in flies reared on the vitamin and amino acid free media.

MULLER, H.J. and J.I. VALENCIA, Indiana University, Bloomington, Ind. The localization of the mutagenic action of neutron-induced ionizations in *Drosophila*. — The frequency of translocations induced by fast neutron irradiation of *Drosophila* spermatozoa was found to vary linearly with dose even at doses sufficient to produce multiple proton tracks per sperm. This shows that broken chromosome ends derived from different breaks caused by the same track undergo recombination with one another much oftener than with those of different tracks. Our interpretation is that breaks caused by the same track tend to occur near together, this proximity favoring union between the broken ends. Thus the pieces would usually unite before greatly changing their relative positions. It must further be inferred that in this material a break usually occurs close to the point of origin of the ionization that induces it, i. e. that remote breakage effects