

Sunanda Mahajani, Division of Genetics, Indian Agricultural Research Institute, New Delhi-12, India. Crossing over in the inversion carrying second chromosome of a *D. melanogaster* male.

Two facts are known which strongly suppress crossing over in *D. melanogaster*. These are: (a) sex and (b) chromosome inversions. Crossing over in *D. melanogaster* males is a very rare event. Likewise, pairing difficulties imposed by inversions effectively prevent crossing

over in chromosomes carrying them; infrequently, however, cross-overs in inversion heterozygotes of *D. melanogaster* have been reported (Kaufman and Gay, 1970, DIS, 45:81). In this communication I report a rare cross-over event that has occurred in the second chromosome of a male bearing the In(2L)Cy and In(2R)Cy inversions.

Three cinnabar-eyed mutant females were obtained among *D. melanogaster* larvae reared on basal medium containing 0.03% nitrosoguanidine. Mutant virgins were mated to Cy/B1 L<sup>2</sup> males with two objectives in view: (a) to confirm the second chromosome location of the cinnabar mutation and (b) to keep the treated chromosome intact. Two types of flies should normally be expected in the progeny - Curly (Cy) and Bristle Lobe (B1 L<sup>2</sup>). Actual results, however, showed that in addition to the above classes, Curly Bristle Lobe (Cy B1 L<sup>2</sup>) and wild type (+++) flies were also obtained (3.4% and 1.1% respectively; 172 flies were observed).

The recovery of these unusual types of flies can be explained on the basis of a cross-over between the Cy and B1 loci, presumably in the region of the chromosome lying between the two inversions. This would bring the Cy, B1 and L<sup>2</sup> markers on one chromosome and their respective (+) alleles on the other.

The recovery of cross-over products observed by me is unusual in two ways. Not only has a cross-over occurred in a male, a rare event in itself, but it has taken place in spite of the inversions that should have normally prevented it.

Mahowald, A.P. Institute for Cancer Research, Fox Chase, Philadelphia, Pennsylvania. Intracellular symbionts of *Drosophila*.

Many workers have demonstrated with the electron microscope the presence of Rickettsia or bacteria within cells of *Drosophila*. King (1970) has recently reviewed these findings and presented a detailed account of hitherto unpublished work from his laboratory.

Since many laboratories are actively studying the nucleic acids of eggs of *Drosophila*, it is important to know whether there are bacterial contaminants within the cells. King points out the widespread occurrence of these organisms, which he terms "A-bodies", so that one gains the impression that they could be found in any stock examined with the electron microscope. But in extensive ultrastructural studies of oogenesis in two strains of *D. melanogaster* (Oregon R and Cochapontset, obtained from T.R.F. Wright), *D. hydei* (New Haven and Zürich strains, obtained from S.J. Counce-Nicklas), *D. virilis* (Johns Hopkins), and *D. immigrans*, they have not been found. Furthermore, they have not been detected in my stocks of fs(1)N, dor 1(1)X2, 1(1)ff11 (obtained from S.J. Counce-Nicklas). On the other hand, they are present in high concentration within the oocytes of *D. willistoni*, Barbados III obtained from D.F. Poulson. In this species the distribution differs considerably from previous reports. Ullmann (1965) found  $\epsilon$ -granules (these appear to be the same as A-bodies) only in Stage 13 oocytes and later stages, and suggested that they may form from the oolemma. Furthermore, she only found them at the posterior tip of the embryo. In the strain of *D. willistoni* I have studied extensively, these structures are found in the oogonia and all cells derived from these cells, i.e., the nurse cells and oocytes. They have not been found in follicle cells. A brief survey of other adult and larval tissues also failed to detect any outside the germ tissue. During embryogenesis they are at first found throughout the ooplasm, but gradually they become concentrated in the posterior portion of the egg. Most of these A-bodies are included in the pole cells. A few A-bodies are also found in the blastoderm cells, even at the anterior end. Since apparently there are few, if any, A-bodies in somatic tissue, there must be some restriction on their growth outside the germ line. The role of these A-bodies or Rickettsia is unknown.

Reference: King, R.C. 1970, Ovarian Development in *Drosophila melanogaster*. Academic Press, New York. 227 pp.