Moriwaki, D. and Y. N. Tobari. Tokyo Metropolitan University, Japan. Male crossing over in Drosophila ananassae.

It has been known that male crossing over in D. ananassae could occur habitually without any agency but by means of some heritable enhancing power of crossing over (Moriwaki, 1937, '38, '40; Kikkawa, 1937). In Kikkawa's case, an enhancer or enhancers were believed to induce male crossing over with a considerably high ratio in the 3-chromosome, while Moriwaki's case was related to the 2-chromosome in which a dominant gene, En-2, was able not only to increase somewhat the female crossing over, but also to induce male crossing over. Unfortunately all these strains were lost during the war, leaving further investigation interrupted. On the other hand, another case with an abnormally high rate of spontaneous male crossing over was reported in a local strain from India of D. ananassae (Mukherjee, 1957; Ray Chaudhuri and Mukherjee, unpubl.) Mukherjee (1961) investigated effect of selection on crossing over in the males, using two markers in the 3-chromosome.

Recently, while studying crossover frequencies between two markers, st (scarlet) and se (sepia) in the 3-chromosome, firstly we could observe a recombination range of zero to several per cent in different individual males, with an average value of 2.64%. The recombination value in females was once estimated as 47.06% (1505/3198) by Moriwaki and Ono (unpubl.). Next, crossing the homozygous double recessives with different wild flies, the F_1 females and males obtained were individually backcrossed with the double recessives respectively. The crossover frequency between st and se amounted to 7.75% (1152/14872) in total offspring from the mating, st se ♀ x st se/+ + ♂, whereas the reciprocal mating, st se/+ + ♀ x st se ♂, gave a recombination value of 47.99% (5983/12466). In the former, however, when the data were separately analysed for the different wild strains, it appeared that the degree of male crossing over might depend on which wild chromosome would pair heterozygously, varying from 0.29% to 36.26%.

As for these results, what kind of causes would act, e.g. a dominant gene, polygenes, or some other factors, is still uncertain. However, a possibility can not be excluded that there may exist a trend to induce a little male crossing over fairly often, this being a characteristic of this species. In reality, similar phenomena were also encountered regarding the 2- and 4-chromosomes, just lately.

Poulson, D. F. Yale University, New Haven, Connecticut. Developmental effects of mutants at the Notch locus in D. mel.

A number of point mutants localized by Welshons in the Notch region of the X have been examined for developmental disturbances. Those mutants giving Notch phenotype in the heterozygote, N^{55e11}, $N^{264\text{-}40}$, $N^{264\text{-}103}$, N^{Co}, and N^{60g11}, show essentially identical embryonic disturbances in the hemizygous males, indistinguishable from those shown by deficiency for all or part of the Notch region. Thus these five sites distributed throughout the length of the Notch region are essential to normal neurogenesis and separation of hypoderm. On the other hand, those recessive lethals lacking the Notch effect in the heterozygote, and designated by Welshons (1965) as $1(1)N^1$, $1(1)N^2$, and $1(1)N^3$, show related but much more limited effects in male embryos. $1(1)N^B$ is not egg lethal but appears to have its effect in early larval life. A detailed study of these and other Notch mutants is in progress.

Poulson, D. F., Thomas Hyde and Kugao Oishi. Yale University, New Haven, Connecticut. Interactions between SR spirochetes from different species of Drosophila.

SR spirochetes from D. equinoxialis interact both in vivo and in vitro with those from D. willistoni and D. nebulosa. When spirochetes are introduced from equinoxialis into SR strains of nebulosa, or vice versa, the spirochetes of equinoxialis origin eliminate those of nebulosa origin. Indications are that equinoxialis spirochetes also eliminate those from willistoni. The nature of the substances involved is under investigation as is the question of their possible relationship to male lethality in SR strains.