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DEPARTMENT OF BIOLOGY

March 7, 1953

Dear Josh,

Have been reading your article in Phys. Rev. It is very fine, for you have made coherance out of a mass of chaos. If you have a spare reprint I would greatly appreciate having a copy.

We have been getting some interesting results in a series of experiments testing the effect of third chromosome inversions on crossing over in the X in Drosophila pseudoobscura. We are using a number of different strains of three different arrangements (ST, AR & CH) and ~~if~~ we have made 36 combinations of the strains, for example ST$_1$/ST$_1$, ST$_1$/ST$_2$, ST$_1$/AR$_1$, ST$_1$/AR$_2$, etc. The effect upon the X chromosome is directly related to the third chromosome combination. Thus ST$_1$/CH$_1$ gives an increase in X chromosome 4/0 while ST$_2$/CH$_1$ does not. Generally, however, the heterozygous combinations give an increase in the X as would be expected from other's results. However, we have found that combina-

trions such as ST_1/ST_2, ST_1/ST_3, CH_1/CH_2, etc (what we have called hetero-homozygotes) give increases in the X which are significantly above the increase found with homozygotes such as ST_1/ST_1, CH_1/CH_1, etc. We started out on this problem in order to find out whether an inversion system could effectively contribute to both the adaptedness and the adaptability of a population by maintaining some blocks within a heterozygous inversion by c/o suppression while at the same time giving an increased c/o in other chromosomes. Generally, this is the case, but now I am bothered by the mechanism behind the correlation between inversions in one chromosome and the increased c/o in the others. All explanations and hypotheses (those of Sturtevant, Muller, and Schultz) are unsatisfactory. Have you read the Schultz & Redfield article in the last CSH symposium? If you have, I would appreciate an opinion. We are thinking of ways to get at the problem (using melanogaster) but have so far not had any good leads.

We are planning to go to the Genetics Congress. Are you and Esther planning to go?

Kindest regards,

Paul Levine