If the Y and $\overline{44}$ tend to form a bivalent and the sc^4-sc^8 X remains unpaired (and if ther is a tendency not to recover unpaired chromosomes), it might be expected that 1) the recovery of the X would be greatly reduced when compared to the recovery of the Y, and 2) the 44 would segregate non-randomly with respect to the sex chromosomes. Neither of these expectations is met. Instead the $\overline{44}$ segregates randomly and the X and Y are recovered with approximately equal frequencies. Estimation of nullo-X gametes cannot be made from these crosses, since their recovery is dependent on the frequency of $\overline{44}$ gametes from the test female. If the ratio of $\overline{44}$/nullo-$\overline{44}$ gametes is the same for both sexes (the data are not yet available to evaluate this), the recovery of $\overline{44}$ from the male is consistent with the reduction in viability associated with the ci ey^R phenotype. No viability considerations are involved in evaluating other segregation classes since both 4th chromosome phenotypes occur in each class.

The possibility remains that the excess Y, expected from the formation of a Y, $\overline{44}$ bivalent and the unpaired sc^4-sc^8, is compensated for by a higher frequency of recovery of the shorter of the two chromosomes forming the bivalent. If this were the case, the proportion of nullo-XY class in the non-disjunctional gametes might be expected to show an increase. This proportion, however, is consistent with, but somewhat lower than, that found by earlier workers. Lastly, the presence of undetached YY males in the stock would, of course, tend to distort the results and this possibility cannot be excluded from the information available. These data must be considered as tentative and further tests will be made.

Novitski, E. and E. Ehrlich. University of Oregon, Eugene. Segregation in males carrying various chromosome rearrangements and the Segregation Distorter chromosome.

It has been shown by Peacock and Erickson (Genetics, 1965) that the action of SD is not through chromosome breakage, but that the virtual 100% recovery of the SD chrom some probably is caused by the preferential movement of the SD chromosome into the functional products of meiosis, much proposed by Novitski and Sandler (PNAS, 1957). The results described below provide convincin evidence that a segregation phenomenon is in fact involved.

In the first place, when the non-SD chromosomes are involved in a Y translocation, the action of SD may be drastically modified, even to the extent of reversing the effect. With a ordinary T(Y-2) translocation, the percentages of recovery of SD are as follows: T(Y-2)A, 97 T(Y-2)B, 34%; T(Y-2)C, 93%; Y(Y-2)E, 98%; T(Y-2)G, 78%; T(Y-2)J, 98% and T(Y-2)r1, 93%. All except the second show typical SD recovery rates. On the other hand, four Y-2 translocations involving the Y marked with y^+ gave rates of recovery 18%, 8%, 24% and 11%, respectively.

That this is not caused by the presence of the translocation involving the second chromosome per se is shown by the following series of results. Females carrying a normal and an XY X-chromosome and a normal and an SD second chromosome, produce F_1 males heterozygous for SD and carrying either a normal X or an XY X-chromosome. Those carrying the normal X gav the following rates of recovery of SD: 95%, 100%, 51%, 94%, 98%, 99%, 87%, 98%, a series not incompatible with the known action of SD. On the other hand, their brothers, who differed only by the possession of an XY instead of an X, gave the following: 58%, 67%, 55%, 60%, 66%, 56%, 64%, 50%, 86%, 70%, 63%, 57%, 50%, 76%, 61%, 63%, 52%, 65%. In no case was any result similar to the typical SD recovery.

From these observations, we conclude that the preferential recovery of SD is not only a segregation phenomenon dependent upon the physical make-up of the chromosomes, but can be reversed by the appropriate selection of homologs and may even be modified drastically by the judicious selection of structurally altered non-homologs! The basis for the latter effect may possibly be found in a non-homologous pre-segregation phenomenon such as that postulated by Novitski earlier (Genetics, 1964).