were present in equal ratios. The number of +/+ and -/0 was in both cases about half the number of other classes and only one or two e/e and e0 were recovered. Abnormal ratios have been observed through three more generations. The second mosaic was a lobed eye phenotype associated with all classes in one vial from another test group. Further tests will be performed to determine if a chromosome aberration is responsible for these two cases.

Although only a few cultures were tested from the stored mature sperm, it is clear that there is a storage effect of EMS on translocations in mature sperm. It is interesting to note that the mosaics recovered were also found in the stored sperm sample.

Work supported by NSF grant (G-19394) and the Wisconsin Alumni Research Foundation.

Chadov., B. F. Institute of Medical Radiology. USSR. Preliminary data on 2 chromosome aneuploidy in XXY females of D. melanogaster.

Development of a 2-2 egg or 0 egg is possible only in case of fertilization by complementary male gamete. Males bearing isochromosomes 2 produce 50 per cent of aneuploid gametes 2-2 and 0, which enables to use these males to trace half of the male gametes bears only one isochromosome 2, all the euploid eggs will be dominantly lethal. In the first experiment 456 females In(1)dl-4+BM1, sc v BM1/sc7 v f/YB were crossed to C(2)RM,b;C(2)RM,cn males. The progeny (comprised of 11 individuals) included the following phenotypes: 292 sc,b cn, 19 v sc, 19 b cn, 3 b sc v BM1, 245 sc v f, 27 B2. In the second experiment 384 females In(1)dl-4+BM1, sc v BM1/sc7 v f/YB; SM1,Cy were crossed to similar males. The progeny (comprised of 231 individuals) is shown in the table:

<table>
<thead>
<tr>
<th>Reg.females</th>
<th>Reg.males</th>
<th>Exc.females</th>
<th>Exc.males</th>
</tr>
</thead>
<tbody>
<tr>
<td>XX</td>
<td>XY</td>
<td>XX</td>
<td>XY</td>
</tr>
<tr>
<td>Matroclinic 2-2</td>
<td>75</td>
<td>--</td>
<td>76</td>
</tr>
<tr>
<td>Patroclinic 2-2</td>
<td>1</td>
<td>15</td>
<td>19</td>
</tr>
</tbody>
</table>

The obtained preliminary data show that heterozygous inversion SM1,Cy in XXY females increases the frequency of the 2 chromosomes non-disjunction by more than an order of magnitude. Further, it may be suggested that in the process of aneuploid 2 formation in XXY;SM1,Cy females a considerable role is played non-homologous pairing of X-2 and Y-2.

Wakahama, Ken-Ichi 1, Osamu Kitagawa 2, and Costas D. Kastritsis 3. 1. Department of Biology, Shimane University, Matsue, Japan; 2. Department of Genetics, Tokyo Metropolitan University, Tokyo, Japan; 3. Department of Anatomy, Southwestern Medical School, Dallas, Texas. Chromosomal variation and sexual isolation in the Drosophila nasuta complex.

The Drosophila nasuta complex has a wide distribution in the tropical and subtropical regions, and consists of at least 12 species.

Two groups (the Okinawa-Formosa group and the Hawaii-Samoa group) recognizable by some major morphological characters, were utilized for a study on chromosomal variation and reproductive isolation.

For the study of sexual isolation between groups, the Multiple Choice Method was applied. From the 16 cases studied it became apparent that the Oriental group is completely sexually isolated from the South Pacific group showing an isolation index of 1.00 or nearly 1.00.

In addition this, sexual isolation was studied by calculating the percentage emergence of flies from the eggs oviposited by each cross-mating. In this experiment, complete sexual isolation was also seen between the Hawaiian and the Okinawan strains, showing the percentage of 0.06.

The species belonging to the nasuta complex exhibit a very long arm in the salivary gland chromosomes as well as three medium arms and a dot. The salivary gland chromosome complement of the Okinawan strain, however, did not show a dot chromosome in contrast to all other strains.
examined; the strain exhibited some heterozygous inversions.

Karyotypic analyses of larval neuroblast and gonad discs showed the following configuration: one pair of long rod-shaped autosomes, one pair of V-shaped autosomes, and one pair of sex-chromosomes smaller than any of the autosomes. The X chromosomes are rod-shaped while the Y chromosome is V-shaped. Dot chromosomes were found in all strains except that from Okinawa.

On the basis of sexual isolation and chromosomal analysis, it seems possible that the Okinawan and Formosan strains belong to unidentified species, and are different from the South Pacific strains; the latter may belong to D. spinofemora.

Holm, D. G., M. Baldwin, P. Duck and A. Chovnick, University of Connecticut, Storrs, Connecticut. The construction of compound-Three chromosomes from stocks carrying the mutations eagle (eg) and Deformed (Dfd) has enabled us to determine the position of the centromere with respect to these markers. eg/eg females were treated with 4000 r of X-rays and mated with C(3L)P2, r1; C(3R)SB1, p gl males. From this cross fifteen new, independently induced C(3L) chromosomes were recovered in progeny expressing the eagle phenotype. Progeny testing conclusively demonstrated eagle to be associated with C(3L). Eagle was never recovered with newly generated C(3R)’s. In a second experiment, using the mating procedures described above, eg females were used and twenty-seven independently induced C(3L) chromosomes and twenty-one C(3R) chromosomes were recovered. Five of the C(3L) chromosomes were recovered in phentypically eagle progeny. These progeny are believed to be the result of an exchange event proximal to eagle and simultaneous with the formation of the C(3L) chromosome. This type of event is not rare. We have made the observation that in every experiment when compound autosomes are constructed from stocks heterozygous for proximal markers a high percentage of the newly induced compounds are rendered homozygous for the mutant alleles. We do not discount the possibility of induced sister-strand attachment, however, double exchanges in very short regions have also been recovered in multiple-marked stocks.

Deformed (Dfd) has been recovered in association with newly generated C(3R) chromosomes but never with C(3L). Fourteen different stocks, heterozygous for various markers including Dfd on one homologue and 126 on the other, were used to construct a series of C(3R) chromosomes. Twenty-four of the twenty-five independently generated C(3R) chromosomes were recovered in progeny expressing the Dfd phenotype. The linkage of Dfd with the C(3R) chromosome was confirmed in subsequent crosses. The one exception is believed to have resulted from a double exchange, encompassing the Dfd region, at the time of C(3R) formation.

Cytological studies have been carried out on salivary gland polytene chromosomes from a number of compound-3 stocks. Neither rearrangements nor obvious deletions have been detected in the proximal regions of the C(3L)’s or C(3R)’s observed. Figure 1 shows the proximal region of a C(3R) polytene chromosome. This particular preparation was made from one of the C(3R), Dfd stocks and the banding pattern is consistent with the notion that the euchromatic region of the right arm of chromosome three starts at band 81F1.

Fig. 1. The proximal region of chromosome C(3R)

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