The above syndrome suggests that the ecdyson/juvenile hormone balance in the ey^D flies has been upset. Whether the primary lesion affects the ecdysial glands, the corpora allata, the corpora cardiaca or other neuro-secretory elements is not known at this time. Neuro-secretory staining and implantation experiments are presently being performed in order to further study the mode of action of the ey^D locus. (The research reported above was supported by a NSF Predoctoral Cooperative Fellowship and in part by grant GM 10480 from the USPHS.)

Gethmann, Richard C. Oregon State University, Corvallis, Oregon. A reduced viability effect of a ring duplication, Dp(1;f)65X^{c2}.

In crossover tests of a reversed acrocentric, a reduced viability of one of the duplications used was observed. The reversed acrocentric used in the experiments was deficient for a large block of interstitial heterochromatin, and is lethal in the absence of the heterochromatin. The missing heterochromatin was supplied by different duplications.

Since many of the exchanges within a reversed acrocentric result in lethal bridges, a reduction in the number of recovered female progeny would be expected. However, in parallel experiments, quite different sex ratios were recovered. An examination of the genotypes of the progeny from these crosses show that there is a marked reduction in the number of recovered males when the male zygotes receive Dp(1;f)65X^{c2} (of crosses 1, 2, 3, and 4, also see Report of R. C. Gethmann, this DIS, for description of Dp65X^{c2}).

If the reversed acrocentric is heterozygous for In(1)dl49, one would expect a reduction in exchanges, and hence, a higher sex ratio. This was the case, however, again the apparent lethal effect of the ring duplication was found (of crosses 5, 6, 7, and 8). Since lethal exchange classes are absent in a reversed metacentric, one would expect a 1:1 sex ratio from crossover tests with this type of a compound X chromosome. However, as can be seen from cross 9, there was a reduction in the number of recovered males. Again, these male zygotes received Dp65X^{c2}.

Finally, the duplication can be induced to segregate randomly if a Y chromosome is present as a pairing partner for the reversed acrocentric. An examination of the regular and exceptional progeny from this cross (cross 10), shows that in the regular progeny, there is a reduction of males (cross 10a), which is comparable to that found in crosses 1 or 2. However, in the exceptional progeny (cross 10b), the duplication is included in the female zygotes, rather than the males, and here, the female class is the one which is greatly reduced.

In conclusion, Dp(1;f)65X^{c2} is lethal in a fraction of the zygotes, it appears that approximately 30% of the zygotes receiving the duplication do not survive to adulthood. (This work was supported by NSF grant GB-1864 to J. D. Mohler.)

Cross number	genotype of female progeny	number	genotype of male progeny	number	female to male ratio
1	RA/Dp60	471	$\overline{XY}$/Dp65X^{c2}	638	0.74
2	RA/Y,su^+-f	549	X/Dp65X^{c2}	765	0.72
3	RA/Y,su^+-f	2862	X/Dp60	5921	0.49
4	RA/Y,su^+-f	2870	X/Y,su^+-f	5274	0.54
5	RA,dl49/Dp60	831	$\overline{XY}$/Dp65X^{c2}	790	1.05
6	RA,dl49/Y,su^+-f	1704	X/Dp65X^{c2}	1733	1.00
7	RA,dl49/Y,su^+-f	977	X/Dp60	1246	0.78
8	RA,dl49/Y,su^+-f	1680	X/Y,su^+-f	2058	0.82
9	RM/Dp60	439	$\overline{XY}$/Dp65X^{c2}	333	1.32
10a	RA/Dp60	341	$\overline{XY}$/Dp65X^{c2}	469	0.73
10b	RA/Dp60/Dp65X^{c2}	317	$\overline{XY}$	719	0.44