Table 1. Red eye pigment content in w^+/w^+ ♀♀ of twelve stocks.

Stocks	M* ± S.E.	Stocks	M* ± S.E.
1. Centre-1	0.903 ± 0.0033	7. Canton-S	0.747 ± 0.0033
2. Swedish	0.840 ± 0.0115	8. P-86	0.747 ± 0.0033
3. Sevelen	0.833 ± 0.0127	9. Magarach	0.710 ± 0.0057
4. Graaff-Reinet	0.833 ± 0.0127	10. Stellenbosch	0.669 ± 0.0137
5. Inozemceva	0.817 ± 0.0033	11. D-18	0.626 ± 0.0203
6. Oregon-R	0.760 ± 0.0152	12. D-32	0.622 ± 0.0141

* Means at least of 3 replicas

Table 2. The functional activity of w^+ of dissimilar origin revealed by two w pseudo-allelic mutations.

w^+ alleles of stocks	w^{10gA} M M*± S.E.	w^{10gA} M of groups Conf. limits	w^{69gA} M*± S.E.	w^{69gA} M of groups Conf. limits
1. Canton-S	0.738 ± 0.0180	0.738 / 0.783 - 0.703	0.642 ± 0.0127	0.642 / 0.668 - 0.616
2. Centre-1	0.683 ± 0.0066		0.503 ± 0.0033	
3. Magarach	0.673 ± 0.0033		0.533 ± 0.0066	
4. Inozemceva	0.647 ± 0.0033		0.507 ± 0.0033	
5. Oregon-R	0.637 ± 0.0228	0.639 / 0.689 - 0.589	0.527 ± 0.0033	0.522 / 0.529 - 0.515
6. P-86	0.637 ± 0.0033		0.513 ± 0.0066	
7. Graaff-Reinet	0.620 ± 0.0057		0.527 ± 0.0066	
8. Swedish	0.620 ± 0.0115		0.547 ± 0.0033	
9. Sevelen	0.617 ± 0.0117		0.517 ± 0.0066	
10. D-32	0.561 ± 0.0198		0.449 ± 0.0067	
11. D-18	0.547 ± 0.0033	0.551 / 0.575 - 0.527	0.447 ± 0.0033	0.451 / 0.463 - 0.439
12. Stellenbosch	0.533 ± 0.0033		0.473 ± 0.0033	

* Means at least of 3 replicas

data permits us to distinguish three groups of w^+ alleles with high (allele of stock Canton-S), middle (alleles of stocks ranging from Centre-1 to Sevelen) and relatively low (alleles of the last three stocks) levels of the functional activity. Alleles of three groups are functional iso-alleles as regards to each other. The w^{+32} and the w^{+18} are seen not to be iso-alleles. It is important that the composition of three groups coincides for ♀♀ heterozygous for both w^{10gA} and w^{69gA}. Then it was concluded that: (i) two studied w mutations are the pseudo-alleles with quantitatively different antimorphic action and (ii) the difference is fundamentally interallelic. Is this difference related to the different position of two w mutants on the genetic map of white locus? The results of experiments designed to obtain the answer to this question are presented in the following note.

(I wish to thank D.J. Nolte for stocks Graaff-Reinet and Stellenbosch.)

Graf, U. and F.E. Würgler. Swiss Federal Institute of Technology, Zürich, Switzerland. Influence of the maternal genotype on the rate of apparent X/O males after irradiation of mature sperm.

Two to three day old R(1)2, y B/y^+ Y males were X-rayed (50keV, 520 R/min) in nitrogen (20 min pretreatment) with 2000 R. Males for nonirradiated controls were only treated with nitrogen. Each sample of treated ring-X males was divided into two groups and every group mated for 7 hours to a different type of female. We used y sn^3 females and "Oster" females (Inscy;dp bw;st p^p). At the end of the mating period the males were discarded and the inseminated females transferred to standard culture vials. In order to get similar population densities we used 2 females per vial in the control series

but 5 in the X-ray series. The progeny obtained from a 2 day egg sample was recorded. Apparent X/0 males, which were characterized by a yellow body colour, were tested for sterility. All males could be included in the calculation of the rate of sex chromosome loss (X/0 males/females + males + X/0 males), because none were fertile. The following table contains the pooled data of 3 repeats, which gave very similar results:

dose	y sn^3 females	"Oster" females
0 R	0.71% (11/691+837+11)	0.54% (3/256+294+3)
2000 R	4.37% (44/406+557+44)	2.33% (46/750+1180+46)

With both types of females the sex ratio of the normal progeny (females/males) is decreased in the irradiated group. For the y sn^3 females it falls from 0.82 to 0.73, for the "Oster" females from 0.87 to 0.64. This results from the higher rate of X-ray induced dominant lethals in the ring-X-bearing sperms compared to the Y-bearing sperms (Bauer, H., 1942 Chromosoma 2: 407). In the irradiated series the rate of apparent X/0 males is nearly doubled if y sn^3 females instead of "Oster" females are used for the test cross. Statistically (Kastenbaum, M.A. and K.O. Bowman, 1970 Mutation Res. 9: 527) the difference between 4.37% and 2.33% is significant. On the other hand, our data with the "Oster" females are not different from the corresponding data of B. Leigh (1968, Mutation Res. 5: 432). He used the same type of males and Inscy;bw;st p^p females.

In order to test the possibility that the different rates of X/0 males result from a lower viability of Inscy/0 males compared with the y sn^3/0 males, we crossed females of both stocks to XY/0 (y su(w^a)w^a KS·KL y^+, Parker 110-8) males. With y sn^3 females we got 897 X/XY females and 1414 X/0 males. In the case of "Oster" females, we obtained 793 X/XY females and 925 X/0 males. These data show that with the "Oster" stock a somewhat lower frequency of X/0 males (53.8%) is found compared to y sn^3 flies (61.2%). This viability difference of X/0 males is far too small to explain the different rates of recoverable X/0 males in the X-ray experiment. Therefore we assume that the maternal genome, possibly via a repair system present in the oocytes (Rinehart, R.R., 1964 Genetics 49: 855), influences the rate of recoverable X/0 males after exposure of mature sperm in the male.

Work supported by Schweizerischer Nationalfonds zur Förderung der wissenschaftlichen Forschung.

Fowler, G. University of Oregon, Eugene, Oregon. Suppression of SD by an XY Ring.

Novitski has synthesized an XY chromosome which genetically and cytologically appears to be a ring (XY^c). Since it has been shown previously (Enns, 1970) that XY chromosomes reduce the k value of SD-72/"sensitive" cn bw from 0.99 to about 0.85, it was decided to combine XY^c with SD-72 bw (the SD-72 bw is recovered normally from the "sensitive" background with a k value of 0.99+). Using XY^c/0;SD-72 bw/cn bw males from three different XY^c lines, the following results were obtained:

	Total Progeny		
♂	SD-72 bw	cn bw	k value
Line 1	475	461	0.51
Line 2	124	122	0.50
Line 3	49	46	0.51

It seems clear from the findings that there appears to be a relationship between the recovery of SD-72 bw and XY^c such that in the presence of the ring the normal recovery of SD-72 bw (k = 1.0) is completely suppressed (k = 0.5). The fact that the recovery of SD can be altered by a number of different chromosomal rearrangements is well known. Complete suppression of the recovery of the SD chromosome when the X and Y chromosomes are in the configuration of a ring is an interesting addition to these observations.

Reference: Enns, R.E., 1970 DIS 45: 136.