Kastritsis, C.D.[1] and J. Grossfield[2]. [1]University of Texas Southwestern Medical School, Dallas, Texas. [2]Purdue University, Lafayette, Indiana. Balbiani rings in D. auraria.

Since different strains of D. auraria differ with respect to their ability to mate in darkness, and since this trait is at least under partial genetic control (Grossfield, 1970), an investigation was undertaken to explore possible cytological correlations.

Different strains were found to differ by a number of inversions and, in addition, two strains were found to exhibit two Balbiani rings (Fig. 1) in one of the chromosomes of the

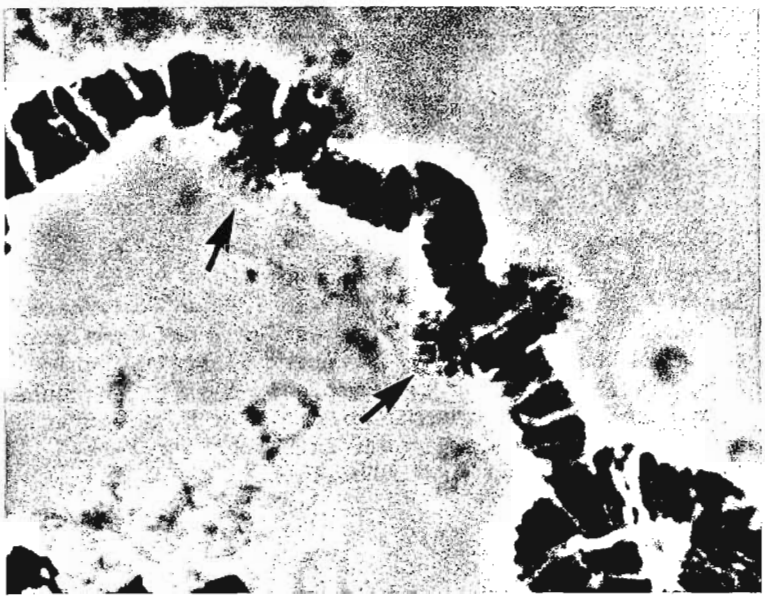

Fig. 1. Phase contrast photomicrograph of D. auraria polytene chromosome. Arrows point at two Balbiani rings.

salivary glands cells. Due to the fact that Balbiani rings have not been described in Drosophila before, we feel that our observation warrants this note. Our preliminary data indicate that these may be stage-specific structures. Research is now under way to further investigate the implications of the phenomenon.

Reference: Grossfield, J., 1970. Genetics 65:s27.

Würgler, F.E., R. Büchi and P. Maier. Swiss Federal Institute of Technology, Zürich, Switzerland. Relative viability of different types of Drosophila melanogaster males without a free Y chromosome.

If R(1)2,y B / B^S Y y^+ males are X-rayed and mated to nonirradiated females partial as well as complete loss of sex chromosomes is indicated by non-Bar males. The reports of Graf and Würgler (DIS-46, 73-74, 1971) and Würgler and Kälin (DIS-46, 79-80, 1971) show that the rates of chromosome losses recorded depend on the type of females used in the test crosses. The data obtained for X-irradiation of ring-X males with 2000 R in nitrogen are summarized in the following table ("Oster" = Inscy;dp bw;st p^p and "XY" = y^2 su(w^a)w^a KS.KL y^+ (Parker 110-8)):

females	spontaneous rate of loss	X-ray experiment	corrected for spontaneous loss	relative rate
Oster	0.54 %	2.33 %	1.8 %	1
y sn	0.71	4.37	3.7	2.1
XY	2.2	8.7	6.7	3.7

In the three tests males of different genotype are indicative for a sex chromosome loss. The difference found between stocks might therefore simply reflect the relative viability of the non-Bar males. To test this possibility the relative viability of y sn /0 and XY/0 males compared to Oster/0 males was determined. For this purpose hybrid females y sn /Oster and XY/Oster were mated to XY/0 males and the progeny classified according to the genotype. This is a more rigorous test than the one described by Graf and Würgler because the different types of males to be compared develop under identical conditions within the same vial. The data obtained are given in the following table. For comparison, results from some other comparable test crosses are also included: (All hybrid females are heterozygous for dp bw st p^p.)

females (X^*/Oster)	total progeny	X*/0 males	Oster/0 males	male ratio
y sn /Oster	6117	1945	1627	1.20
XY / Oster	5871	1790	1374	1.30
+/Oster ; t/vg	6561	2194	1522	1.44
Oregon-R/Oster	5175	1680	1136	1.47
Hikone-R/Oster	10043	3090	1836	1.68
Berlin wild/Oster	3370	1081	628	1.72

For the y sn stock we find a relative viability of the y sn/0 males compared to Oster /0 males of 1.2. The corresponding ratio for the induced chromosome losses in the X-ray experiments is 2.1. A similar result is found for the XY stock : 1.30 versus 3.7. This analysis shows that, although the various types of males show a slightly different viability, this difference is not sufficient to explain the variation of the chromosome loss rates encountered in the X-ray experiments. It is postulated that after insemination of the nonirradiated egg some factors which are under the control of the maternal genome influence the X-ray lesions induced in mature sperms. Work supported by Schweizerischer Nationalfonds zur Förderung der wissenschaftlichen Forschung.

Ondřej M. Prague, Czechoslovakia. The induction of large chromosomal fragments by ethylnitrosourea and radiation.

Ethylnitrosourea is one of the most effective mutagens in producing recessive lethals. It is of interest to know the relative effectiveness of ethylnitrosourea (ENH) in producing large chromosomal aberrations. The relationship of large chromosomal fragments to lethals in the X chromosome after ENH treatment was compared with that after X-radiation. ENH was applied by injections; each fly received, on the average, 0.2 µl of solution. X-radiation was applied by means of Siemens apparatus with those parameters: 22 mA, 200 kV, OK - 17.5, filter 0.5 mm C_u, dose - rate 394.7 R/min., overall dose 1500 r. The concentration of ENH was near the upper limit of applicable concentrations. The radiation dose was of medium magnitude, as regards the induction of sterility. The results show, that while ENH induces extremely high frequency of recessive lethals it is very weak chromosome breaker. The ratio of the frequencies of large fragments to recessive lethals after ENH treatment was in our experimental conditions of about two orders of magnitude lower than that after irradiation.

The frequencies of large fragments and recessive lethals in the X chromosome induced by ENH and x-rays.

Treatment	Fragments		Rec. lethals		Fragments/ lethals
	No. of F_1 females	% of fragments	No. of X chromosomes	% of rec. lethals	
ENH 10 mM	4,770	0.02	550	41.5	0.0005
X-rays 1500 R	18,577	0.27	715	5.6	0.048
Control	19,570	0.005			