

Ulrich, Hans Sensitive periods and egg-regions in production of the modification "abnormal abdomen" by X-raying eggs of D. melanogaster.

4- to 5-hour eggs, percentage of killed individuals (eggs, larvae, and pupae) increased with dose more rapidly than did percentage of flies showing aa. With a dose of 800 r, the rate of aa reached its maximum of about 20% (few animals), while 93.5% of individual died. This suggested that higher rates of aa cannot be obtained when eggs are X-rayed totally, because the doses required to produce them are lethal.

When X-raying *Drosophila* eggs at different stages with different doses, the author did not find the sensitive periods of the modification "abnormal abdomen" (aa) found by Henke and Maas when treating eggs with high temperature. In special experiments with

If sensitivity to the effect of X-rays in producing aa is distributed in another manner in the egg than sensitivity to lethal effect (see preceding note), it should be possible by means of partial X-raying to apply higher doses (while shielding the region highly lethal-sensitive and exposing the highly aa-sensitive one) with the result of obtaining a lethal rate much lower than 100% and a percentage of aa higher than reached before by total X-raying. Eggs at the ages of 15-30 minutes, 1-2 hours, 2-3 hours, etc., up to 7-8 hours were partially treated with a dose of 1000r. When applied to total eggs of, say, 4-5 hours, this dose kills 99.9% of individuals; and when applied to single fifths of 4-5-hour eggs, it kills 38% to 68%, the percentage depending on the position of the treated fifth. The resulting percentages of aa after partial X-raying (see table) demonstrate a first low maximum at 1-2 hours in the middle fifth of the egg. With increasing age the maximum decreases and migrates towards the posterior pole of the egg, coming up to a new high peak at an age of 4-5 hours in the last two fifths of the egg. With further increasing age the maximum decreases and finally disappears. The method of partial X-raying makes it possible to detect sensitive periods not to be found when eggs are totally irradiated, and, moreover, to find sensitive regions of the modification "abnormal abdomen".

Percentages of Flies with Abnormal Abdomen

Age of eggs when X-rayed	<u>No. of the treated fifth</u>				
	1	2	3	4	5
15-30 min.	0.6	4.2	1.7	1.5	0.8
1-2 hours	2.8	10.8	27.6	14.6	1.3
2-3 "	0.6	0.0	7.1	7.8	2.8
3-4 "	1.0	1.3	3.1	11.3	13.5
4-5 "	0.6	0.8	0.7	38.0	46.5
5-6 "	1.7	0.4	0.0	7.9	7.0
6-7 "	3.5	1.2	0.0	9.6	11.8
7-8 "	0.7	0.7	0.0	2.8	0.7

Valencia, J. I., and Valencia, R. M. The ineffectiveness of extra heterochromatin in influencing mutation rate in the female.

stock used. Since this stock (bl23, "plond", DIS-22) contained an extra Y chromosome (of sc.Y₁ type), the question arose whether extra heterochromatin might be influencing mutation rate. The following experiment was carried out to check this hypothesis, following a genetic scheme devised by H. J. Muller.

In the course of a recent experiment of the X-ray induction of mutations at specific loci in the female (Rec. Gen. Soc. Amer. 18: 105, 1949), it was observed that the spontaneous mutation rate (for both visibles and lethals) was unusually high in the