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 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.

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".

<table>
<thead>
<tr>
<th>Age of eggs when X-rayed</th>
<th>No. of the treated fifth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>15-30 min.</td>
<td>0.6</td>
</tr>
<tr>
<td>1-2 hours</td>
<td>2.8</td>
</tr>
<tr>
<td>2-3 &quot;</td>
<td>0.6</td>
</tr>
<tr>
<td>3-4 &quot;</td>
<td>1.0</td>
</tr>
<tr>
<td>4-5 &quot;</td>
<td>0.6</td>
</tr>
<tr>
<td>5-6 &quot;</td>
<td>1.7</td>
</tr>
<tr>
<td>6-7 &quot;</td>
<td>3.5</td>
</tr>
<tr>
<td>7-8 &quot;</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Valencia, J. I., and Valencia, R. H. The ineffectiveness of extra heterochromatin in influencing mutation rate in the female. 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 stock used. Since this stock (b123, "ploid", DIS-22) contained an extra Y chromosome (of sc.22 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.
Spontaneous recessive lethals were looked for in a particular X chromosome (y sc\textsuperscript{8} B f In49 v) among the progeny of females having this X and either having (experimental series), or not having (control series) an extra Y chromosome. The control and experimental females of the generation (called P\textsubscript{1}) which was tested for its spontaneous mutation frequency were sibs of each other and did not differ genetically from each other in any systematic way except by the presence or absence of a sc.Y\textsuperscript{1} chromosome (recognized by their being non-yellow or yellow). The crosses of flies, called P\textsubscript{0} (see the figure), that produced these P\textsubscript{1} females were designed in such a way as to make possible the elimination of all pre-existing lethals, to equalize the experimental and controls by randomization of the autosomes, to make each of the many experimental and control lines isogenic with one another for the two X chromosomes (in the P\textsubscript{1} generation, in which lethals occurred), and to allow identification, in each generation, of all female combinations of X's and Y's, whether formed by disjunction or by nondisjunction. Since disjunctionally produced males from the crosses could have either one or two Y chromosomes, the male parents in each generation (except the last, where this did not matter) were taken from attached-X stocks.

We tested 3864 experimental and 3864 control chromosomes. In the former, 12 lethals (3.1%), and in the latter 13 lethals (3.3%) were observed. Thus we conclude that, in females at least, extra heterochromatin does not influence the spontaneous lethal mutation rate.

Crossing scheme used in lethal experiment. Phenotypes in parentheses.

\[
P_0 \quad \begin{align*}
&y \text{ sc}^8 B f \text{ In}49 v \\
&y \text{ w ct Ys} \\
&\text{sc, Y}_1 \\
&\text{(about 50 individual matings)}
\end{align*}
\]

\[
P_1 \quad \begin{align*}
&y \text{ ct f Ys} \\
&y \text{ w ct Ys} \\
&\text{sc, Y}_1 \\
&\text{(f B)} \\
&\text{(several from each P}_0 \text{ vial which was nonlethal)}
\end{align*}
\]

\[
P_2 \quad \begin{align*}
&y \text{ sc}^8 B f \text{ In}49 v \\
&y \text{ w ct Ys} \\
&\text{X sc, Y}_1 \\
&\text{(y B)} \\
&\text{(3 from each P}_1 \text{ vial which was nonlethal)}
\end{align*}
\]

\[
P_3 \quad \begin{align*}
&y \text{ sc}^8 B f \text{ In}49 v \\
&y \text{ w ct Ys} \\
&\text{X sc, Y}_1 \\
&\text{(y B)} \\
&\text{(3 from each P}_1 \text{ vial which was nonlethal)}
\end{align*}
\]

von Brandt, H., and Höhne, G. The following compounds have been tested for mutagenic action in D. melanogaster:

(a) ethylurethane, dissolved in 7.96 KCL,
(b) tri-(2-chloroethyl)amin, dissolved in citric acid and 0.96% KCL, (c) p-dimethylaminoazobenzene, dissolved in sesame