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itivity of sperm ejaculated within 12
hours after irradiation.

Unmated *D. melanogaster* males from an Oslo wild-
type stock were irradiated with 3000 r of X-rays
when the males were either 12, 24 or 72 hours
old, and then mated individually to virgin M5
(Muller-5) females. All matings were observed

and recorded. Copulating females were immediately isolated and after impregnation transferred to egg laying tubes. Thus, the frequency can be calculated of sex-linked recessive lethals in individual sperm ejaculates.

Analysis of the data (Table 1) indicate that the frequency of sex-linked lethals increase with age of males at time of irradiation. This is in agreement with previous findings.

Table 1: The frequency of sex-linked recessive mutations in successive ejaculates after irradiation.

| Series | First | | Ejaculate sequence | | | | Total | |
|--------|------------|------|--------------------|------|----------|-------|------------|------|
| | 1/N | % l | 1/N | % l | 1/N | % l | 1/N | % l |
| 12 A | 665/9137 | 7.28 | 70/1168 | 5.99 | 11/138 | 7.97 | 755/10575 | 7.14 |
| 24 A | 1356/16563 | 8.19 | 422/6795 | 6.21 | 117/2277 | 5.14 | 1918/26067 | 7.36 |
| 72 A | 795/9259 | 8.58 | 286/3635 | 7.86 | 61/603 | 10.11 | 1145/13523 | 8.47 |

It can also be seen from the table that all age groups of males have a lower frequency of lethals in their second ejaculate than in the first ejaculate. The data are not consistent in the third mating for the three age groups of males. The 24 hour old males (Series 24 A) exhibit a further lowering in the frequency of lethals from the two previous matings; while the younger as well as the older males (Series 12 A and 72 A) have a higher frequency of lethals in their third ejaculate than in their second ejaculate. The data for 12 and 24 hour old males (Series 12 A and 24 A) are in agreement with previous findings, while we have no data directly compatible with those obtained in Series 72 A.

The data have not been analyzed in detail yet, but a preliminary examination of the data suggests that for the youngest age group of males (Series 12 A) the frequency of lethals in the first ejaculate depends on the time after irradiation. Thus, first ejaculates available for fertilization the first eight hours after irradiation exhibit a higher frequency of lethals than do first ejaculates available for fertilization eight to twelve hours after irradiation.

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The action of an autosomal modifier on the
pteridine of the mutant, white-blood (w^{bl}).

The action of an autosomal recessive factor
(Clancy, 1964, DIS 39:65) which affects the pro-
duction of the pteridine eye pigments (Clancy,
1962, Gen. 47:948-949) in *Drosophila* is being
studied with respect to the mutant, white-blood

(w^{bl}), a temperature sensitive allele of the white series. Preliminary experiments involving comparative measurements of the fluorescing pigments resolved by paper chromatography (Hadorn & Mitchell, 1951) reveal that at both 25°C and 18°C all of the pteridines are significantly reduced in w^{bl} when homozygous for the modifier. A similar result is obtained with a stock homozygous for the modifier, but otherwise wild type in appearance and constitution.

Comparative measurements have also been made at both temperatures on the compounds of w^{bl} with vermilion (*v*) and scarlet (*st*), genetic blocks to ommochrome formation. The pattern of action of the modifier is not the same with these two compounds, nor is it the same as that found with w^{bl} alone. The above patterns are quite consistent in flies from five to sixteen days of age.

All measurements were made on head pigments of male flies derived from stocks in which the female parents were attached-X and wild type with respect to w^{bl} . Preliminary experiments involving males derived from stocks in which the mothers were also w^{bl} have given results which indicate the possibility of a maternal effect with respect to the interaction of the pteridine modifier and the eye color mutant. (Work supported by training grant No. 5T1-GM-373 and research grant GM09802, USPHS).