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On the development of some "bristle genes" in the pupal stage of D. virilis.

The formation of the bristles in wild flies begins about 48 hours after puparium formation. A study on singed<sup>14</sup> showed that the formation of bristles is delayed several hours (60 hours after

puparium formation), but the time of bristle pigmentation is much the same as that in wild flies (about 100 hours after puparium formation). No difference was found between singed<sup>16</sup> and wild-type in the formation and pigmentation of bristles.

Gowen, John W., and Statler, Janice Irradiation effects on viability of D. melanogaster.

Day-old male and female imagoes were exposed to X-rays in 0, 20, 100, 500, 2500, 5000, and 10,000 r doses. Repeated pair matings, representing the 49 combinations,

were made. Twenty-six different criteria described the physiological effects. Well-being of irradiated females was measured by total eggs laid, per cent of life devoted to egg laying, and days females lived. Eggs laid decreased linearly with dose until, at 10,000 r, less than fifty eggs or four per cent of control were metabolized and laid. Per cent of life given over to oviposition likewise decreased linearly from 75 to 34 per cent over the range of irradiations. Life spans for the irradiated females were irregularly decreased with higher doses. Duration of life for the males was increased by irradiation of 2500 r or more. Per cent of life during which the males were fertile decreased linearly with increasing dosage. Rate of decrease was similar to that for females. Quality of the progeny, as measured by hatchability of the eggs, decreased linearly with increasing irradiation, defective eggs being eight times as great at 10,000 r as with untreated females. Defective eggs, when sperm were irradiated, decreased linearly with dosage of X-rays. The decrease was comparable to that observed for the females. Effects were quantitatively similar for irradiation of eggs and sperm in these data. This observation is contrary to that ordinarily considered true when the measure of X-ray effects is sex-linked lethal mutations in eggs or sperm.

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Cytoplasmic constituents of eggs in early developing stages, and their staining properties.

In developing egg cytoplasm we can recognize yolk granules of larger size and minute granules which disperse through hyaloplasm. These minute granules are 0.5 micron in diameter and

globular in shape, and never transform in any stage or medium. Because of their insolubility in acetic acid, they cannot be confused with mitochondria, and are distinguished from ultramicroscopic microsomes by their greater size. They stain with pyronin, toluidine blue, or Sudan III, but not with methyl green or the Feulgen technique. After treatment with ribonuclease or with a cold bath of 10% HClO<sub>4</sub>, basophilia of the granules mostly diminishes. Contrary to these, the hyaloplasm is acidophile in neutral medium, so it may be surmised that most of the RNA of the cytoplasm is concentrated in these granules.

The staining properties of nuclei and other cytoplasmic constituents are shifted from basophila to acidophile or vice versa according to pH of the medium when stained with buffered double bath of toluidine blue and fuchsin S. The pH values of the shifting zone for each constituent are as follows: