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A measure of behavioural heterosis in D.m.

The occurrence of deleterious, recessive alleles in natural populations has, for a long time, been subject to much conjecture and investigation. Single gene heterosis

has been suggested as a possible mechanism for the maintenance of these alleles in natural populations. The evidence is far from conclusive, for there are many unknown interactions caused by epistasis, pleiotropy and convergence of gene effects. The hypothesis under investigation is that the heterozygote has a behavioural advantage over the equivalent homozygote. I postulate that this advantage is caused by the more stimulative components of the male's courtship pattern which enables him to mate more quickly and with more females hence passing on his complement of alleles to more individuals than a male lacking this behavioural advantage.

Heterozygous males were obtained from the F1 generation cross of KAD 5 males and ebony females. 35 males of this cross were tested singly with virgin 48-hour old females in 2cm. perspex chambers. Male courtship was recorded using the Bastock metronome technique. It has been shown that male wing vibration is one of the components that stimulates the female to accept the male. The percentage of wing vibration is significantly higher in the heterozygote pattern than in the homozygote pattern, (Student's 't', $P < 0.1$). This 'heterotic' behaviour may have been caused by heterozygosis at many loci and may, therefore, merely be an expression of outcrossing. A programme of sib-mating between heterozygote male and ebony female has been established to try and reduce the heterozygosity of the background gene pool. Two things may occur; first, the increased wing vibration percentage may be retained in the heterozygous males, or second, the influence of the deleterious ebony allele may become apparent. Inbreeding depression may also reduce the wing vibration score. The behaviour of the female in courtship observations is also very important and this will be investigated.

MATERIALS REQUESTED OR AVAILABLE

Quarter pint milk bottles may be obtained from Monroe Machinery and Supply Company, 1421 S.E. Gideon, Portland, Oregon 97242, attention Mr. Ernie White. The supply is limited, therefore it is advisable to place orders at once.

J.E. Purkyně, Dept. of Genetics, Faculty of Science, Brno, Czechoslovakia would like a test stocks G1/Ubx¹³⁰, Ubx¹³⁰/Sb and M-5; Cy/Pm; Sb/Ubx.

E. Ortiz, Instituto de Genética y Antropología, Madrid, Spain, would appreciate receiving any strains of *D. kuntzei*, *D. limbata*, *D. phalerata*, *D. transversa* and *D. andalusiaca* (= forcipata).

V.G. Vaidya, Department of Zoology, University of Poona, Poona, India, would appreciate receiving reprints of old and new publications on *Drosophila* for the library of the newly started *Drosophila* laboratory.

C.C. Dapples, Department of Biology, Rocky Mountain College, Billings, Montana 59102, would greatly appreciate receiving reprints on current work on *Drosophila* to supplement the library of this department.

Vials (34 X 98 mm) - Cardinal Products has approximately 60 gross on hand. For further information write to Dr. Thomas Amore, Cardinal Products, P.O. Box 1611, Durham, North Carolina.