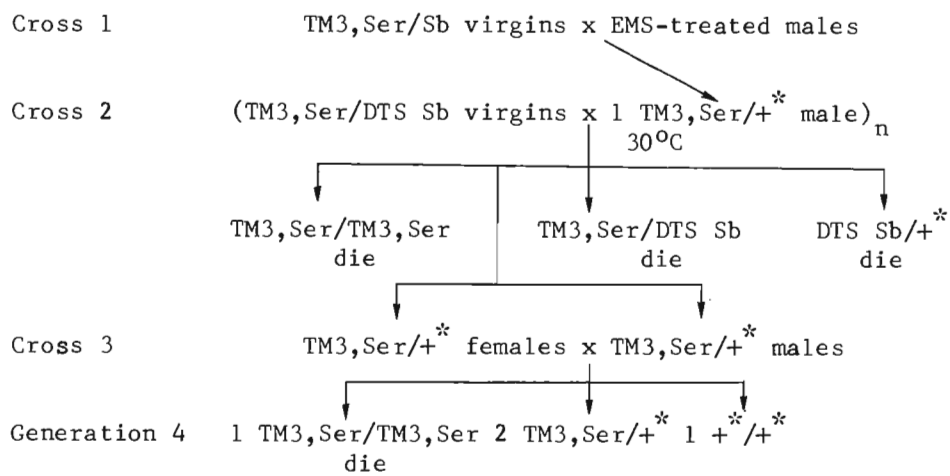
Wright, T.R.F. University of Virginia, Charlottesville, Virginia. A short cut in making autosomes homozygous.

The following crossing scheme, if it works well, should obviate the necessity of collecting from n number of Cross 2 cultures the virgins usually required to set-up Cross 3 which produces individuals homozygous for an autosome in Generation 4. DTS = dominant temperature-sensitive lethal. Cross 2 must be set up at 29 or 30°C.

The dominant visible, recessive lethal mutation, Sb, in the DTS-carrying chromosome is not an absolute requirement, but is convenient for two reasons. If the DTS used is homozygous viable at permissive temperatures, Sb makes it possible to maintain a balanced stock of TM3, Ser/DTS Sb. Second, the absence of Sb in the progeny of Generation 4 indicates that Cross 2 behaved as expected without producing any surviving, fertile DTS Sb/+* or TM3,Ser/DTS Sb individuals. A similar series of crosses can be used for Chromosome 2 using the appropriate balancers and a good second chromosome DTS.



Since we have been blessed with an exogenous supply of third chromosome recessive lethals, we have used the above scheme only once in a very preliminary experiment. Males in Cross 1 were fed EMS according to the method of Lewis and Bacher, DIS 43: 193. For Cross 2 n was only equal to 100 and only 2 TM3,Ser/DTS Sb virgins were used in each vial at 30°C. Of these 26 didn't go. The parents were cleared from the remaining 74 cultures, and when the progeny hatched they were blindly shaken into new vials at room temperature to start Cross 3. These cultures did not go immediately (perhaps due to a temporary heat-induced male sterility), and it was 15 to 16 days at approximately 23°C before sufficient individuals of Generation 4 had hatched to check for lethals. Of the 74 Cross 3 cultures set up, eleven did not go. Of the 63 Cross 3 cultures that went, four produced some progeny in Generation 4 that carried Sb. The presence or absence of a lethal could still be determined in these Sb contaminated cultures, and therefore the overall yield of useful cultures was 63%.

The DTS used in the above experiment was DTS-I165 which along with a second chromosome DTS (which has not been used yet) was very kindly sent to us by David Suzuki.

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Bennett, J. and M.A. Walke. Northern Illinois University, DeKalb, Illinois. Behavioral correlates of the w, w^+ gene substitution.

A pair of isogenic, inbred Oregon-R lines differing only at the white locus, were examined for behavioral differences. The lines represented 60 generations of sib-pair matings and 50 generations (25 cycles) of backcrossing with the w allele. 100 flies of each sex were used from each line (designated ORI for the w^+ line and ORIW for the w line). Observations were made in small polystyrene petri dishes under 10x and 20x stereoscopic magnification. Flies were several days old, but not selected for age. Observations were made of pairs of flies, male and female, for 10 minute periods. A behavioral sequence was only counted once in a period for each fly.

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