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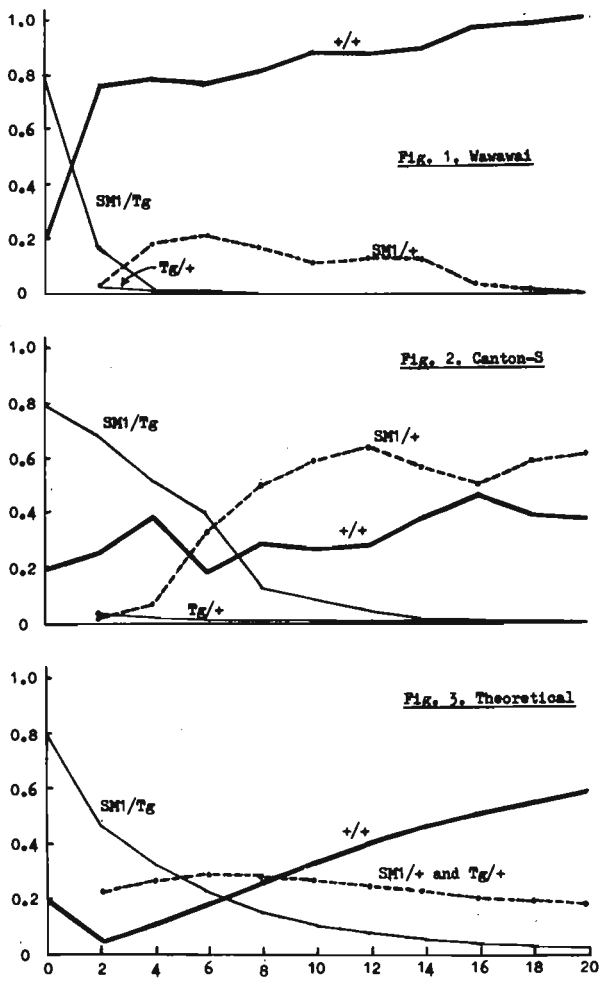
Rapid population experiments with D. melanogaster.

Experimental populations which run their course fairly quickly, provide a comparison of the relative fitnesses of different wild type strains, and offer interesting possibilities for the study of stable polymorphisms, can be initiated by invading balanced lethal populations with various wild types. In the present study two types of populations, each run in duplicate, were as follows: 80% SM1/Tg invaded by 20% +Wawawai and 80% SM1/Tg invaded by 20% +Canton-S. Adults were placed in half pint culture bottles and removed after one week. At the end of week-2 their progeny were removed, counted and discarded. At the end of week-3 all emerged adults were transferred to a fresh culture bottle and at the end of week-4 they in turn were removed, counted and discarded and the cycle repeated (see Figures, for which time is given in weeks). Thus whole population counts were made on an approximate per generation basis, i.e. every two weeks. This technique was first suggested to me a number of years ago by David Suzuki.



The results, based on pooled duplicates, are shown for the Wawawai series (Figure 1) and for the Canton-S series (Figure 2), and are obviously quite different. The Wawawai strain, which took over very rapidly, was collected in 1964; the Canton-S strain is of course much older. Both may be compared with corresponding theoretical curves (Figure 3) calculated on the assumption of panmixis, discrete generations, and unity fitness for all nonlethal types. Early changes in the experimental populations were strongly influenced by recombination, though clearly not wholly so. Tg/+, after its first appearance, never reached anything like the frequency of SM1/+. SM1/+ only attained stability in competition with Canton-S wild type (+/+), but did so at a frequency actually higher than this particular wild type (Canton-S). Differences between theory and experiment yet to be clarified are that at week-2 no dip in the experimental frequency of wild type occurred and that initial frequencies of SM1/+ and Tg/+ were lower than the theoretically calculated. Average adult population size per culture for the Canton-S series was 547 flies and for the Wawawai series 360. The difference appears to be chiefly due to the superior fitness of SM1/+ in the Canton-S series.

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Erratum in previous note.

DIS 49:60 (1972), D. albomicans - a race of D. nasuta. Erratum: the first part of paragraph three is incomplete. It should read: D. albomicans (Duda 1923) is morphologically similar to D. nasuta, but differs cytologically from it (Sajjan and Krishnamurthy 1971). Both of them are highly polymorphic and even share some inversions (personal communication by Wilson 1971). D. albomicans was recognized as a biologically valid species by Wilson et al. (1969) only because of the difference encountered in the karyotype.