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Six populations, each with two competing species, were started at two temperatures. One of the species was always *D. dominicana*; the other species were *D. pseudoobscura*, *D. nebulosa* and *D. melanogaster*. (In

the case of *D. melanogaster* the mutant *vg* was used at 19° C and a strain carrying several sex linked mutants at 25° C). Each population was started with 200 flies of each species in a 1/2 pint milk bottle with Spassky's medium. Once a week, the surviving flies were scored and then transferred to a fresh bottle. On the same day, the flies hatching in the previous bottles of each series were scored and then added to the bottle with the old flies. At 25° C the bottles were discarded at the end of the 4th week, and at 19° C at the end of the 6th week. The frequencies of *D. dominicana* in each population are presented in Fig. 1.

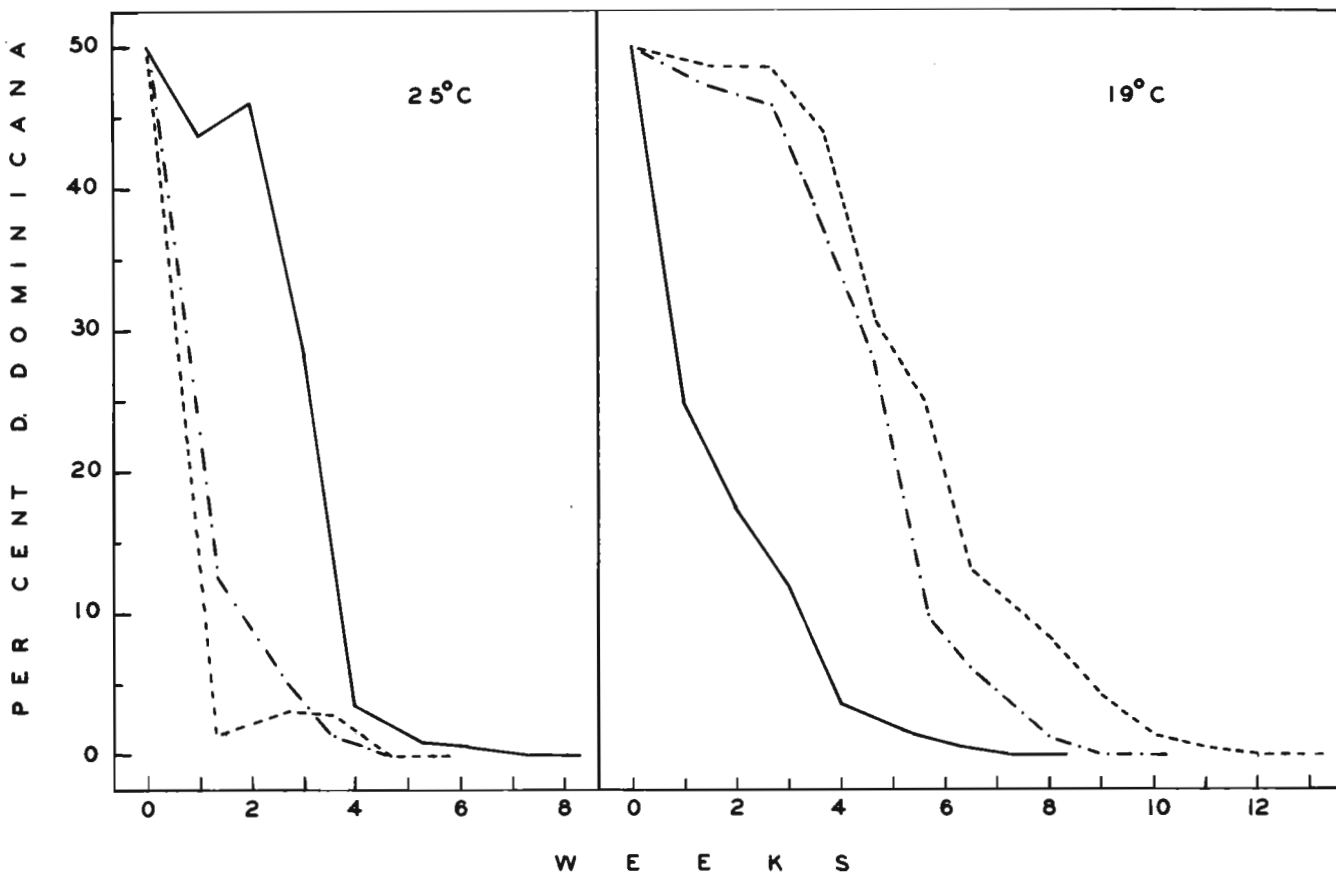


Fig. 1. Frequency in per cent of *D. dominicana*: — in competition with *D. pseudoobscura*; ----- in competition with *D. nebulosa*; — . — . in competition with *D. melanogaster*.

At 25° C it had been eliminated by *D. pseudoobscura* by the 8th week, and by the other two species by the 5th week. At 19° C *D. dominicana* was eliminated by the 8th week by *D. pseudoobscura*, by the 9th by *D. melanogaster*, and by the 12th by *D. nebulosa*. *D. pseudoobscura* has the highest competitive ability at 19° C and the lowest at 25° C; the reverse is true of *D. nebulosa*.

Three populations were started at 25° C with *D. serrata* and *D. melanogaster* (wild type), one with 200 individuals, the second with 800, and the third one with 1600 individuals, of each species. The technique was the same as before. It was thought that at higher densities *D. serrata* might be at an advantage, but it was eliminated in all cases, and faster when the density was higher (the 5th week) than when it was lowest (the 8th week).

In a population started at 25° C with 200 individuals of *D. dominicana* and 200 of *D. serrata*, the former was eliminated by the 8th week.