

Table 2

Means and st. errors of courtship elements of AR strains when tested with females of the opposite strain. (Controls, always greater, are omitted).

| Strain Males | Orientations | | Wing Vibrations | |
|-----------------|--------------|----------|-----------------|----------|
| | SA ♀♀ | FA ♀♀ | SA ♀♀ | FA ♀♀ |
| SA1 | 6.4±1.0 | 7.0±1.7 | 3.0±1.1 | 6.1±1.6 |
| FA2 | 13.8±3.7 | 19.1±2.4 | 14.1±3.6 | 13.5±1.6 |

In the second study, fast and slow AR sexes were interchanged, and the results are given in Table 2. Comparison of males' response with their own strains is included with data from Table 1. FA females raise the orientation level of both types of male, though not significantly for either, while in wing vibration there is only an increment for SA males which approaches significance ($t=1.84$, $p=.07$).

These results indicate some increases in male activity due to presence of females but only for strains which are genetically of high mating propensity. Influence of fast-mating females upon slow-mating males is inconclusive though suggestive. These influences can only be attributed to airborne stimulation, presumably a volatile substance transmitted from the females.

References: Adams, T.S. and M.S. Mulla, 1968 J. Insect Phys. 14: 627-635; Ehrman, L., 1969 Evol. 23: 59-64; Ewing, A.W. and A. Manning, 1963 Anim. Behav. 11: 596-597; Rogoff, W.M., A.D. Beltz, J.O. Johnson and F.W. Plapp, 1964 J. Insect Phys. 10: 239-246; Sherwin, R. N., 1970 Genetics 64: s59; Shorey, H.H. and R.J. Bartell, 1970 Anim. Behav. 18: 159-164.

Picard, G. and Ph. L'Héritier.
Laboratoire de Génétique, Clermont-Ferrand, France. A maternally inherited factor inducing sterility in *D. melanogaster*.

It was found out recently that a laboratory strain bearing the gene *sepia* gives puzzling results when crossed with a standard Oregon strain. As shown in the table, females from the cross ♀ *se* x ♂ + lay eggs which hatch with a very low probability. Males from the same cross and both sexes in the reciprocal cross

♀ + x ♂ *se* behave normally.

Using flies from some other laboratory strains or flies caught in the wild in the crosses with the *sepia* strain leads to similar results, but with a somewhat variable degree of sterility.

| original cross | back cross | total | eggs hatched | percentage of hatching |
|-------------------|--------------------------------|-------|--------------|------------------------|
| ♀ <i>se</i> x ♂ + | ♀ F ₁ x ♂ <i>se</i> | 360 | 34 | 9.4 |
| ♀ + x ♂ <i>se</i> | ♀ F ₁ x ♂ <i>se</i> | 100 | 96 | 96.0 |

Eggs which do not hatch have been fecundated, since segmentation nuclei are readily observed, but most of them die before blastoderm stage. The probability of hatching for an egg laid by a sterile female has been found to be dependent upon two factors:

1) It rises with mother aging.

2) It gets nearly normal when temperature is raised to 30°C for a period of 48 hours located at the end of oogenesis. Female offspring, which are allowed to reach imaginal stage owing to such a thermal treatment, are not genetically cured, and may show the same kind of sterility as their mothers.

The genetic determinism of the female sterility is presently under active investigation. The following points can be held as demonstrated:

1) The probability of hatching of an egg depends but poorly if at all upon its own genotype, the major factor being the genetic origin of the mother.

2) For a sterile female to arise, two genetic requirements must be filled. A maternally inherited factor of unknown nature normally propagated in the *sepia* strain and a genotype heterozygous for certain genes must be present.

3) Quite a number of genes located on all of the three major chromosomes seem to be involved in the phenomenon.