These results might indicate that the reduced fertility of the males after the chemical treatments is due to a toxic effect on their soma (reducing their life span and fitness to mate), rather than a sterilization of the germ cells at a sensitive stage (as in the case of X-rays), since the viability of the cultures undergoes considerable reduction from one brood to the next after the chemical treatments. With the X-rays, there is no such drastic drop in the viability.

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The migration of Drosophila ananassae under competitive conditions.*

It is probable that the mode of migration of flies in a heterogeneous population is quite different from the mode of migration in homogeneous population, even though the strains in the former population have their own migratory activity genetically as shown by Sakai et al. (1958) and Narise (1962). From this point of view, an experiment was conducted with four strains of D. ananassae in order to find out the mode of migration under competitive conditions.

Two of four strains were so called light ananassae which have yellow body color and collected in Pogo Pogo (L-pp), Tutuila, American Samoa, and Majuro (L-maj), Marshall Islands. The other two strains were so called dark ananassae having black body color, and collected in Pogo Pogo (D-pp) Tutuila, American Samoa, and Rarotonga (D-rar), Cook Islands.

Two kinds of experiments were conducted: 1) migratory activity of light and dark ananassae in a mixed population, and 2) the mode of migration in dark and light ananassae in a mixed population. In the experiments, four migration tubes were connected with each other radially in the former experiment, and eleven radially in the latter experiment. All experiments were conducted in $25^{\circ} \pm 1^{\circ}C$ in a dark room.

From the results in the first experiment, the following conclusions have been drawn: 1) the migratory activity in light ananassae was stimulated by dark ananassae, while the activity in dark ananassae decreased under the mixed condition; 2) in some combinations, for example D-rar and L-pp, the migratory activity of those strains depends on the relative frequency of both strains in the original tube into which the flies were introduced at the beginning of the experiment, but in other combinations the activity has no connection with the relative frequency in the original tube; and 3) the rate of increasing or decreasing of the activity due to mixing in a strain is quite different, depending on the combination of two strains. In this connection it is of interest to find that the migratory activity of D-rar strain is stimulated by mixing with L-pp, while it loses activity when coexisting with L-maj.

In the second experiment, it was found that light ananassae dominated in all tubes in the combinations D-pp and L-pp as well as D-pp and L-maj. However, light ananassae dominated in central tubes, but dark ananassae in the surrounding tubes in the combination D-rar and L-maj as well as between D-rar and L-pp, although the total number of migrant flies in light ananassae is greater than in dark ananassae.

From those two experiments, it is expected that light ananassae should be widely distributed in natural populations and dark ananassae should occupy marginal populations or isolated populations. It is also clear that the migratory activity of a strain is affected by other strains in the population and the mode of migration is determined by what kinds of strains coexist in a heterogeneous population.

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Epsilon and polar granules in Drosophila pole cells and oocytes.

An electron microscopic investigation of the pole cells of D. melanogaster, D. virilis and D. willistoni has revealed, beside the polar granules, the presence of other organelles, the epsilon granules. Polar granules are spherical and lack a bounding membrane. Each consists of a granular, electron opaque cortex surrounding a less dense core.

Epsilon granules are ovoid or dumb-bell shaped organelles, bounded by a delicate double membrane. Within a fibrous matrix ill-defined spaces occur. The functions and interrelationships of the polar and epsilon granules is still obscure.

Preliminary observations suggest that the epsilon granules arise late in oogenesis, from convolutions of the oocyte plasmalemma.