Halfer, C. University of Milan, Italy. Different degree of compatibility in several stocks of Drosophila melanogaster, tested with ovary grafting.

A different degree of comptatibility between genotypically different stocks of D. melanogaster, tested using the method of ovary grafting, has been already observed in the first series of experiments (DIS 37).

In a later investigation, I took into consideration, as recipients, not only the two wild tumorous stocks: tuA_2 and tuB_3, but also the wild stock Varese, which is completely tumourless and the almost tumourless mutants vermilion and yellow white. In this way I obtained, besides the combinations between the different genotypes, as donors and as recipients, also combinations between donor and recipient of the same genotype. Only the larval survival after grafting and the percentage of graft attaching has been considered.

tuA_2 (28-45%) and vermilion (39-82%) yielded consistently high rates of survival, irrespective of the genotype acting as donor, while the other three stocks: tuB_3 (1-12%), Varese (2.7-9%) and yellow white (0-2.8%) showed a very low survival in almost all cases. From these considerations it is quite clear that this is a case of host specificity, where the host genotype only is important in these grafting experiments, being the genotype of the donor of no influence. The graft attaching was always good, even in the cases of genotype showing a poor compatibility with the graft. Grafting experiments were carried out also with heterozygotes obtained from reciprocal crosses between the stock vermilion (with a high rate of survival) and the three stocks: tuB_3, Varese and yellow white (with a low survival). They showed always a rather good survival rate (about 40%).

The different behaviour of homozygotes and heterozygotes supports the view that the host specificity is genetically controlled.

Peterson, G. V. and E. J. Gardner. Utah State University. Melanotic tumor associated with failure to pupate in the tumorous head stock of D. melanogaster.

Over a period of years it was observed that large abdominal melanotic tumors appeared in mature larvae of one tumorous head stock of D. melanogaster. These tumors were rarely, if ever, seen in the adults. The melanotic tumors first became visible 102-125 hours after hatching. Normal time of puparium formation was found to be approximately 102 hours. Some larvae from the strain carrying melanotic tumors and the lethal factor lived 200 hours or longer but never pupated. About half of all larvae that failed to pupate did not develop visible melanotic tumors.

The lethal effect was observed in about 33 percent of the larvae when the abnormal condition was first observed. It decreased at each generation with the proportion of tumorous larvae remaining between 35 percent and 65 percent of the total number of lethals.

Crosses with a stock bearing inversions on the second and third chromosome have indicated that both chromosomes from the tumorous head stock are associated with lethal or low viability effects. The third chromosome is mainly responsible for the failure of pupation, however. No indication of sex linkage has been found.

Crosses with other tumorous-head stocks and wild stocks indicated that melanotic tumor development was not influenced by either of the major genes (tu-1 on the first chromosome and tu-3 on the third chromosome) associated with tumorous head. However, crosses between parents, both of which expressed the tumorous head phenotype and crosses in which neither parent expressed the phenotype did show a significant difference. When they both expressed the tumorous head phenotype, the progeny showed 12.5 percent lethal and 6.5 percent with melanotic tumors compared to 6.0 percent lethal and 1.9 percent with melanotic tumors for the other parental