Semenza, L., and Barigozzi, C. Chromosomes of Aphiochaeta xantina. The ganglial cells, as well as the spermatogonia, show 10 chromosomes, all telomitic with strong somatic pairing. The spermatogenesis shows a very clear pachytene, with 5 pairs. Doplotene with chiasmata. No chromocenters in the resting nuclei. Salivary chromosomes generally do not show bands.

Singleton, J. R. and Zimmering, S. Interchromosomal interference in D. melanogaster. An experiment was designed to determine the extent of interchromosomal interference in the absence of inversions. Females of the constitution b cn c bw were crossed by ru h th ss males, and the F_1 heterozygous females backcrossed by Cy/b cn c bw; ru h th ss/ru h th ss males (since the homozygous b cn c bw; ru h th ss males were found to be sterile.) The non-Cy offspring were classified according to crossover types. A simple Chi-square test based on some 14,000 flies indicated no obvious interchromosomal interference in this experiment. A more detailed analysis on about twice as many flies is under way.

Sobels, F. H., Kruijt, J. P. and Spronk, N. Lethality due to combined action of the genes Dichaete and eyeless-dominant. After crossing D/+ and ci^D/ey^D flies, we found that the F_1 class D; ey^D showed an almost complete lethality of 95%-100%, whereas the ey^D class showed only a relatively slight decrease to 25%. Reciprocal crosses gave slightly different results, as the offspring of D mothers rendered some break-throughs, which have only rarely been observed with ey^D mothers; These facts might point in the direction of a maternal influence. The lethality obviously only occurs in the pupal stages, as by means of marking with ebony, egg and pupal counts, no specific morality of the D; ey^D or ey^D classes could be observed during the larval period. About 75% of the D;ey^D animals die in an early pupal stage. The late lethal pupae are characterized by highly abnormal heads, with more reduplications of the antennae and more extreme reduction of the eyes as compared to the ey^D class. The bristle pattern is always disturbed. Extreme reduction of eye size is often correlated with reduplication of the antennae. Reduplication of the antennae causes a decreased possibility of emergence, probably by affecting the ptilinum mechanism. Sometimes cause of lethality was most evident by complete reduction of the head, the labium excepted. The same abnormalitites, however, to a less extreme degree, were also observed in the few emerging D; ey^D flies.

At 16° eye size is less reduced, antennal reduplications occur less often, and in consequence the amount of lethality is lowered. Temperature treatment during 60 hours at 16°, and beginning at different periods after hatching, influences eye size and antennal reduplications and gives more or less comparable results to those found by M. Vogt (1947) for Def^{r-L} and ant.

Hence we may conclude that expressivity of eyeless-dominant may be strongly influenced by the dominant gene Dichaete; a similar but weaker effect was obtained by combining ey^D with Moire. Secondly, the developmental processes causing this lethality are dependent on temperature. In addition it may be mentioned that this lethality is much higher in males than in females and that the rest of the genotype also influences the phenomena described here.

Spiess, E. B. Recent collections in New England. The northeastern limits of distribution for Drosophila species in North America have been rather sparsely investigated;