tional component in the disruptive selection.

In the D^- lines (disruptive selection with negative assortative mating) high ♀♀ were mated with low ♂♂ separately from low ♀♀ and high ♂♂. After 24 hours the ♂♂ were discarded and the females were transferred to one culture for egglaying.

In both D^- lines $c.v^2$. increased considerable (D^-_1 G 16, $c.v^2$. = 20.80; D^-_2 G 16, $c.v^2$. = 22.18) without a change of mean thorax length.

The phenotypic variance in the selection lines will be analyzed.

Valentin, Jack. Institute of Genetics, University of Stockholm, Sweden. Inter-chromosomal effects of SM1 and SM5 on crossing-over.

The Cy inversions have a well-known characteristic interchromosomal effect, viz., the main increase in crossing-over in X is located distally instead of around the centromere (see e.g. Ramel and Valentin, Hereditas 54:307-313, 1966). SM1 is a derivative of In(2L+2R)Cy, carrying besides Cy a pericentric inversion obtained by irradiation. SM5 is a product of further repeated irradiation of SM1 and is yet more complex. However, they both carry the Cy gene and inversions. Now it is evident that if there is any difference in synaptic properties, SM1 and especially SM5 (which may show complete asynapsis in salivary glands) have a lower synaptic capability than the original Cy chromosome. Therefore, it seemed interesting to study how the interchromosomal effect in general and especially the Cy effect on distal X is influenced by increasing degree of complexity.

SM1 and SM5 were both tested by crossing to y ec ct^6 v f ♀♀, giving a series of full sib daughters carrying the X chromosome markers heterozygously and being heterozygous for the rearrangement in question or structurally homozygous normal (control). These daughters were crossed to stock males and crossing-over was measured. As can be seen from Table 1, the degree of increase in the rearrangement series is quite moderate compared to the results obtained with Cy (values from Ramel and Valentin 1966). SM5 shows only a slight distal increase of crossing-over while SM1 does not at all show this characteristic feature.

The latter result seemed so improbable that a second experiment was performed with SM1, this time with the markers w^a ct^6/sc cv v f. As Table 2 shows, a certain distal increase was obtained this time. On the other hand the total increase is still quite low, which confirms the earlier observation that the degree of asynapsis is not directly correlated to the interchromosomal effect. There is not yet any satisfactory explanation for the lack of pronounced distal effect observed with SM5 and perhaps also with SM1.

Table 1

Region	y-ec	% inc.	ec-ct	% inc.	ct-v	% inc.	v-f	% inc.	Total	% inc.	Number counted
SM1/+	6.08[2]	23.3	17.72[2]	13.9	15.85[2]	15.0	27.24[2]	12.7	66.89	14.3	8664
Contr.	4.93	-	15.56	-	13.78	-	24.17	-	58.49	-	8077
SM5/+	5.96[2]	54.0	17.48[2]	30.3	17.91[2]	25.6	31.42[2]	29.1	72.77	30.2	2317
Contr.	3.87	-	13.42	-	14.26	-	24.33	-	55.88	-	4053
Cy/+	10.0[2]	156.4	23.5[2]	43.3	16.4	7.2	26.4[2]	17.2	76.3	31.3	2719
Contr.	3.9	-	16.4	-	15.3	-	22.5	-	58.1	-	3447

Table 2

Region	sc-w^a	%inc.	w^a-cv	%inc.	cv-ct	%inc.	ct-v	%inc.	v-f	%inc.	Ttl	%inc.	N
SM1/+	3.8[2]	151.3	13.8[2]	38.6	10.6[2]	45.1	17.0	4.4	25.6[1]	13.9	70.8	23.1	2750
Contr.	1.5	-	9.9	-	7.3	-	16.3	-	22.5	-	57.5	-	3347

[1] = significant at the 1% level
[2] = significant at the 0.1% level (χ^2, 2x2 contingency tables)