Giesel, Betty Jean. University of Oregon, Eugene. Structure of $In(1)X^{c2}$, w^{vc}.

Original observations of the mitotically unstable ring chromosome $In(1)X^{c2}$, w^{vc} showed that variegation occurred at the white locus and that there was a spreading effect to the rst^+, spl^+, and N^+ loci. Under these conditions, an inversion of the X^{c2} chromosome due to breaks between y^+ and w^+, and in the heterochromatin between car^+ and the centromere would explain the observed variegation (Catcheside and Lea, 1945, Hinton, 1955).

When $In(1)X^{c2}$, w^{vc} was irradiated in the course of another experiment, several products were obtained which suggest that the hypothesized structure may be incorrect.

The recovery of two chromosomes, both showing deletions of both w^+ and car^+, and of a fragment containing y^+ and w^{vc} suggests that the inversion may actually involve breaks between w^+ and rst^+ and in the heterochromatin adjacent to car^+.

	Deleted Loci	Loci Shown to be Present
deleted rings	w^{vc}, car^+	y^+, m^+, sn^+, ac^+, sc^+, pn^+
fragment	m^+, car^+	y^+, w^{vc}

Hendrickson, R. J. University of California, Los Angeles. Cytogenetic evidence bearing on non-polarization of the dumpy nest of pseudoalleles.

Salivary gland chromosomes have been studied in the "dumpy-warped" (dp^w) mutants (Carlson DIS 32; Carlson and Schalet DIS 30), all of which manifest a variegated position effect phenotype. In addition to four stocks remaining from earlier work with X-rays (dp^{w1}, dp^{w2}, dp^{w3}, dp^{w7}), three additional mutations (dp^{w8}, dp^{w10}, dp^{w11}) have been obtained from cobalt irradiation (Co^{60}, 4,500r). Each of them is the result of a major chromosomal rearrangement, these being identified in the table at the end of this note. In all cases one break is in 2L and is located either between bands 24F8 and 25A1 or to the right of 25A1 within the "shoebuckle set of four bands", 25A1-4 (cf., Bridges' maps, 1935 and 1943). When in compound with dp^{ov1}, these mutations fall into two phenotypic classes which can be designated "moderate" and "strong". The former yields a certain proportion of flies having a wild phenotype, or nearly so, with most of the remainder being markedly a symmetric for mild-to-moderate oblique and vortex effects. There is a dissociation of these two effects with respect to their degree of expression and the side on which they are most strongly manifested in individual flies. "Strong" mutant stocks on the other hand produce no flies having a wild phenotype, and the oblique and vortex effects, while still being asymmetrical, are much more extreme in their manifestation, tending toward an extreme dp^{ov} as a limit. In some cases, for example, wings are seen having the "charred" appearance of "dumpy-truncate" (dp^{olv}) mutants. In no case is leg morphology affected.

The differentiation of classes was first noted as the result of a selection against apparent modification of the mutant phenotype due to continued inbreeding in three of the mutant stocks (dp^{w1}, dp^{w3} and dp^{w8}). In each case, males showing the strongest and most asymmetrical phenotypes were selected and mated to homozygous ed dp^{ov1} cl virgin females from our standard tester stock. dp^{w1} and dp^{w3} responded positively to this selection, showing, after several generations, a marked increase in degree of mutant expression, while dp^{w8} showed no such response. Recently, another moderate mutant, dp^{w11}, has been obtained.

The fact that in the mutants dp^{w3} and dp^{w11} cytologically identical break points have yielded mutants having quantitatively different degrees of expression, while in dp^{w8} and dp^{w11} different break points yield quantitatively similar degrees of expression, seems to indicate an absence of polarity for the dumpy nest of pseudoalleles. While the possibility exists that the 3R heterochromatin is differentiated with respect to variegation-induction as is known to be the case for the heterochromatic portion of X, this would not seem to lessen the argument materially.

Pertinent information regarding these mutant stocks is summarized below. Cytology in all cases has been on heterozygotes of the genotype dp^w/ed dp^{ov} cl. Homozygous stocks are being synthesized and will be examined when obtained.

Stock	Alternate Designation	Degree of Expression	Rearrangement	Break Pt(s)
dp^{w1}	T(2:3) dp^{w1}	Strong	2:3R (entire) Reciprocal translocation	to right of 25A1; 3R heterochromatin
dp^{w2}	T(Y:2) dp^{w2}	(Stock lost - being replaced)		
dp^{w3}	T(2:3) dp^{w3}	Strong	2^L:3R (entire) Reciprocal translocation	Between 24F8 and 25A1; 3R heterochromatin
dp^{w4} to dp^{w6} lost				
dp^{w7}	T(Y:2) dp^{w7}	Strong	2^L:Y (arm not known)	Between 24F8 and 25A1
dp^{w8}	T(2:3) dp^{w8}	Moderate	2:3R (entire) Reciprocal translocation	To right of 25A1 3R heterochromatin
dp^{w9}	Lost			
ep^{w10}	In(2L(R?)) dp^{w10}	Strong	Inversion of 2L (including centromere?)	Left: to right of 25A1; Right: either 2L or 2R heterochromatin
dp^{w11}	T(2:3) dp^{w11}	Moderate	2L:3R (entire) Reciprocal translocation	Between 24F8 and 25A1; 3R heterochromatin

Jungen, H. University of Zürich, Switzerland. Chromosomal polymorphism in a natural population of D. subobscura from Tunis.

In the spring of 1965 a sample of D. subobscura was caught near Tunis. The following structural types were observed (number of chromosomes in parenthesis): chromosome A, St(6), 2(10), 1+2(22), 1+2+3 (18); chromosome I, St(2), 1(98); chromosome E, St(4), 1+2(71), 1+2+9(4), 1+2+9+3(1), 1+2+9+4 (16), 1+2+9+12(4); chromosome U, St(1), 1+2(20), 1+2+3(1), 1+2+8(78); chromosome O, St(1), 3+4 (5), 3+4+6(2), 3+4+7(2), 3+4+8(80). The data refer to 56 A-chromosomes and 100 of each autosome. In the O-chromosome, two unknown structural types were present (10). The structural types A1+2, A1+2+3, and E1+2+9+4 were recently reported by W. Götz in Z. Vererbungsl. 96: 285-296 (1965), from a Marocan population.

Popper, Joan. University of Oregon, Eugene. X-autosome translocations in a sex-ratio strain of D. pseudoobscura.

It has been reported by Novitski and Ehrlich (Drosophila Research Conference, Seattle: see this volume) that chromosomal rearrangements in cells carrying homologs showing meiotic drive, can appreciably alter and even reverse the drive. In this connection, it should be noted that an array of translocations involving the sex ratio X-chromosome and the third chromosome of D. pseudoobscura may alter the amount of drive from 99% recovery of the X at one extreme, to 60% at the other. The relationship between the breakpoints of the translocations and the degree of modification of the drive is under investigation.