Beatty, R. A. and N. S. Sidhu. Edinburgh University, Scotland. Spermatozoan nucleus length in minutes of D. melanogaster.

Six minute stocks originating from and continuously back-crossed to the Pacific mass-mated strain were obtained from Dr. F. W. Robertson. Spermatozoan nucleus length was measured in aceto-orcein preparations under a projection microscope. The sampling was: 10 spermatozoa per seminal vesicle, 2 seminal vesicles (1 preparation from each) per male, 5 M/+ and 5 +/+ males per stock (1 culture bottle per stock; the individuality of a culture bottle is known to be unimportant). Detailed procedures are given by Sidhu (1963 Ph.D. Thesis, Edinburgh University, U.K.). Various analyses showed no significant levels of differences among the 12 means (in microns) of the following Table, where the S.E. per mean is ± 0.23 (48 d.f.). Overall means are 8.41 (M/+) and 8.25 (+/+), the non-significant

Genotype	Stock →	M(2)17	M(2)18	M(2)20	M(3)11	M(3)12	M(3)14
M/+		8.08	8.42	8.56	8.47	8.64	8.30
+/+		8.10	8.01	8.71	8.34	8.38	7.98

difference being 0.16 ± 0.13 (48 d.f.). The subsampling mean squares were: spermatozoa within seminal vesicles, 0.84; seminal vesicles within males, 3.66 (significant, $P<.001$); males within groups of the Table, 5.31 (48 d.f.)(not significant relative to preceding mean square). Necessarily, the one significant level concerns variation between seminal vesicles and between preparations. Comparable analyses of the variance within seminal vesicles indicated homogeneity throughout the whole sampling structure; pooled variances were 0.9 for M/+ and 0.8 for +/+.

The possibility of a "haploid genetics", envisaging phenotypic effects on a spermatozoon according to its own haploid genetic content, is supported in mammals by the results of Braden (1960, J. Cell. comp. Physiol., 56 (Suppl. 1), 17) and Bhattacharya (1962, Zeit. Wissenschaft. Zool. 166:207). Other work in mammals, centering on genetic factors known to affect the diploid cell phenotype, has not revealed definite "haploid effects" in spermatozoa. The present work extends the enquiry to Drosophila, minutes being chosen because their well-known effect of reducing diploid cell size might be reflected in reduced spermatozoan nucleus size, and the variance of spermatozoa within seminal vesicles might be greater in M/+ males (segregating two kinds of spermatozoa) than in +/+ (segregating one kind). The results show, however, with some precision, that no effect on spermatozoon nucleus length is attributable to the minute factors, either severally or collectively. It would be logical to study a more direct measure of spermatozoon size, such as total spermatozoon length, but technical difficulties exist.

Kumar, Sushil, R. P. Sharma and M. S. Swaminathan. Indian Agricultural Research Institute, New Delhi, India. Chromosomal rearrangements resulting from action of a monofunctional alkylating derivative of acridine in salivary gland chromosomes of Drosophila melanogaster.

Mutations induced by the monofunctional nitrogen mustard derivative of acridine, 2-methoxy-6-chloro-9-(3-(ethyl-2-chloroethyl) aminopropylamino) acridine dichloride (ICR-170) in Drosophila and Neurospora have been found not to involve chromosomal deletions (Carlson and Oster, Genetics 47:561, 1962, and Brockman and Goben, Science 147:750, 1965). In tests on Vicia faba chromosomes, ICR-170 has been shown to be a potent chromosome breaking agent inducing chromatid and isochromatid deletions, and subchromatid, chromatid and chromosome exchanges (Kumar, Aggarwal and Swaminathan, Mutation Research in press). The present experiments show that inversions result in the salivary gland chromosomes of Drosophila after treatment with ICR-170.

Eggs of Oregon-K strain were laid on the ICR-170 medium (200 µg of ICR-170/ml mixed with basic medium, (agar, 3%; yeast, 10%; glucose, 10%; propionic acid, 0.4%; water, 100ml), 1:1). Third instar larvae from this medium were harvested for studying salivary gland chromosomes. Four spontaneous and 52 ICR-170 induced inversions were recovered in 500 cells scored for control and treated larvae. Most of the inversions were complex. Treated chromosomes were puffed. The concentration of ICR-170 used in these experiments yielded about 6% sex-linked lethals.