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of survival to breeding age were estimated.—Clinal variation in the nutrient concentration of fatty acid yields populations moving toward homozygosity for the normal allele but at different rates. Relative humidity did not alter this directional selection pattern, but did influence the rate of allele frequency change. A stable genetic polymorphism can, in principle, be maintained by population subdivision and subsequent gene flow.—A paradox becomes apparent by noting that the mean fitness of populations possessing the sensitive allele is less than their normal counterpart and, yet, mean survival time is drastically lengthened by populations possessing the sensitive allele cultured in media with high fatty acid concentrations.

SEARLE, A. G., Medical Research Council Radiobiology Unit, Harwell, United Kingdom. Nature and consequences of induced chromosomal damage in mammals. — The best way to explore the full range of damage which radiation can induce in mammalian chromosomes is to look at the products of post-meiotic exposure, since these are subjected to little if any pre-zygotic selection. Thus the irradiation of mouse spermatozoa leads to a much broader spectrum of structural change than that found after spermatogonial exposure. The chromosomal damage induced in maturing oocytes seems to resemble that in spermatozoa, but more information is needed. Recent technical advances allow a more sensitive probing into the nature of the changes niduced in these three categories of germ cells, which throws some light on the genesis of certain conditions in man and on functional aspects of the mammalian genome.—The kinetics of translocation induction in mouse spermatozoa resembles that for Drosophila, but the number of lesions per rad is decidedly higher. The translocations induced are reciprocal or insertional rather than Robertsonian, although metacentric chromosomes may be formed through involvement of the very short arms. The most characteristic group of chromosome anomalies arising from meiotic or post-meiotic irradiation is that leading to male sterility or subfertility through a breakdown in spermatogenesis at any one of a number of different stages. Associated with this phenomenon are both *X*-autosome and *Y*-autosome translocations, a substantial proportion of all wholly autosomal translocations and of derived tertiary trisomies and monosomies, as well as failure of the usual meiotic association of the *X* and *Y* chromosomes. Recent findings confirm and extend earlier ones, so that a significant pattern is starting to appear.

SEARS, E. R., U.S. Department of Agriculture, and University of Missouri, Columbia. Translocation through union of newly formed telocentric chromosomes. — When simultaneous misdivision of two univalent chromosomes results in two telocentrics being included in the same daughter nucleus, these telocentrics may join to form a stable chromosome having one complete arm from each of the two parental univalents. This was established by use of monosomic-*6B*, monosomic-*5R* wheat having dominant markers on each arm of *6B* and on the long arm of *5R* (a rye chromosome). Among the 384 test-cross offspring, three had the *5RL* marker and only one *6B* marker, and one of these had a chromosome consisting of the long arm of *6B* and the long arm of *5R*. A similar experiment in which the *5R* monosome was telocentric gave rise to one *6BL–5RL* translocation among the three critical offspring in a family of 115. Tests showed no pairing of either *6BL–5RL* chromosome with *telo–6BS* (200 cells), regular pairing with *telo-6BL* (97/100), and normal pairing with *telo–5RL*, as expected. The frequency with which translocations were recovered was approximately as anticipated if two freshly formed telocentrics included in the same nucleus always unite; and the fact that no offspring were found with two telocentrics constitutes further evidence for such obligatory union. It seems likely that translocations involving non-related chromosomes previously recovered from haploids of wheat were produced in this way. Also, evolutionary production of metacentric chromosomes from acrocentrics might occur through union of newly formed telocentrics.

SEEBERG, E., I. JOHANSEN and W. D. RUPP, Norwegian Defence Research Establishment, Kjeller, Norway, and Yale University, New Haven, Connecticut. The role of the *uvrC* gene in excision repair of *Escherichia coli*. —The kinetics of enzymatic breakage of UV-irradiated DNA in *Escherichia coli* was investigated. The experiments were designed to ensure immediate lysis of