pression in induced polyploids of dioecious Rumex hastatulus.—Rumex hastatulus Baldw. is a dioecious, annual native to the Southeastern United States. Females are homogametic with eight chromosomes ($6a + XX$); males are heterogametic with nine chromosomes ($6a + Y_1XY_2$). At meiosis the sex chromosomes form a U-shaped trivalent which disjoins regularly so that the X or the two Y chromosomes are transmitted alternatively. Appropriate colchicine treatment of young seedlings produced tetraploid plants of both sexes (females $12a + XXXX$; males $12a + XXY_1Y_1Y_2Y_2$). Meiotic chromosome behavior in the autotetraploid males is remarkably regular because the chromosomes usually associate as in the diploid. The most frequent metaphase I configuration is $6_{II} + 2_{III}$ in which the autosomes pair instead of forming multivalents and the sex chromosomes associate in two Y_1XY_2 trivalents instead of forming pairs.—Representative autotetraploid females were pollinated by both diploid and autotetraploid males. Two triploids were obtained: a female with 12 chromosomes and a male with 13 chromosomes. If most of the functional gametes produced by the autotetraploids result from the diploid mode of pairing described, polyploid offspring should be produced with 16, 17, and 18 chromosomes in frequencies of 1:2:1. Approximately these frequencies of chromosome numbers did occur in the C_1 generation. The plants with 16 chromosomes were female; those with 17 chromosomes were male, but nearly half of them bore some intersexual flowers; plants with 18 chromosomes were male. There were three or four exceptional individuals in each class which require further study. Six aneuploid plants also appeared: one female with 15 chromosomes, four males with 19 chromosomes, and a 21-chromosome male which produced some intersexual flowers.

SMITH, STANLEY G., Forest Insect Laboratory, Sault Ste. Marie, Ontario: *Chromosomal evolution in Chilocorus stigma: an exception to "Robertson's law".*—As a result of four centric fusions, *Chilocorus stigma* Say comprises an assemblage of chromosomal forms with diploid numbers ranging from 26 down to 18. In contravention of ROBERTSON'S "law" of numerical constancy, the number of chromosome arms (MATTHEY'S "N. F.") is concomitantly reduced from 52 to 36. This Robertsonian imablance is rendered possible, without resorting to pericentric inversion, by the dual nature of the unfused chromosome: basically, one arm is euchromatic (e) and is the site of chiasma formation; the other, of comparable size, is entirely heterochromatic (h) and is thereby precluded from chiasma formation. Dislocation of the arms through the centric regions of two such chromosomes (Ae.Ah and Be.Bh) can result in the formation of various telocentric and, after rejoining, metacentric elements. Of these, Ae.Be, being wholly euchromatic, forms a trivalent (Ah.Ae-Ae.Be-Be.Bh) in the heterozygote and a ring bivalent (Ae.Be-Be.Ae-) in the homozygote; Ah, Bh, and Ah.Bh, being constitutionally incapable of forming chiasmata, are either eliminated or, more rarely, float in the descendent population as supernumeraries. The limit of deviation from the "law", now standing at minus 16 arms, can be confidently set at minus 24: then, entirely lacking dispensable heterochromatin, the diploid number will have reached its ultimate low of 14.

SOKAL, ROBERT R., University of Kansas, Lawrence, Kansas: *Selection for pupation site differences in Drosophila.—D. melanogaster* when reared under controled conditions in six-dram shell vials containing corn meal-molasses-agar medium will pupate at various places along a gradient from the center of the medium surface to positions on the wall of the vial above the medium. Larvae were reared at a constant density of 10 per vial. Mass selection (on a combined individual-family merit basis) for differences in pupation site resulted in a peripherally pupating (PP) and a centrally pupating (CP) line. Response of the two lines was asymmetrical. The PP line responded immediately and strikingly with a plateau reached and maintained by generation 15, while the CP line reacted only gradually and not by very much. At generation 18 a maximum difference was attained when the PP line had 100% peripheral pupae while the CP line had only 6% such pupae. The differences declined somewhat during periods of relaxed selection but were quickly reestablished when selection was renewed.—Fertility and fecundity declined during selection, but recovered when the latter was relaxed. The two lines were examined for differences in the following characteristics: length of larval period, sex ratio, resistance of larvae to DDT in the medium and 14 morphological characters. Appreciable differences were found in all but the first two characters.—Crosses and chromosome assays have demonstrated that pupation site is a multifactorial character and have permitted estimates of