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SEARS, E. R., University of Missouri, Columbia, Mo.: *Isochromosomes and telocentrics in Triticum vulgare*.—For the speltoid (IXth) chromosome of common wheat, isochromosomes and telocentrics involving the long arm constituted 7.0 and 10.8 percent, respectively, of the 157 detected chromosomes transmitted through 785 eggs from monosomic IX plants. More than half the products of misdivision could presumably not be identified as such, being normal chromosomes, complete deficiencies, or isochromosomes or telocentrics for the genetically unmarked short arm. Assuming that elimination of misdivision products is at approximately the same rate as for normally divided monosome IX, the data are in accord with the cytological observation of 36 percent misdivision (in 64 microsporocytes). Univalent isochromosomes and telocentrics have shown no striking differences from normal monosome IX in their transmission and misdivision frequencies. In somatic stages telocentrics tend occasionally to be lost or to give rise to isochromosomes, while isochromosomes tend with lower frequency to be entirely lost, to lose one arm, or to add a telocentric chromosome. Changes other than loss or addition of entire arms

also occur. A telocentric gave rise (apparently at meiosis) to a chromosome with two arms, of which the longer was of less than normal length, and the shorter was homologous with a portion of the longer. An isochromosome (for chromosome VII) gave rise in somatic tissue to a dicentric chromosome, with one centromere subterminal and the other apparently terminal on the short arm. This dicentric chromosome usually passed unchanged through meiotic and mitotic divisions.

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SEARS, E. R., U. S. Department of Agriculture and University of Missouri, Columbia, Missouri: *The sphaerococcum gene in wheat*.—*Triticum sphaerococcum* Perc. is characterized by short culms, dense spikes, and small, spherical grains. ELLERTON showed that it differs from *T. vulgare* Vill. by a single recessive gene (or closely linked group of genes). In crosses of *T. sphaerococcum* with 17 different nullisomics of *T. vulgare* var. Chinese Spring, no F₁ was of the *sphaerococcum* type, although the *sphaerococcum* gene would have been in hemizygous condition in one of these F₁'s if located on any of the 17 chromosomes tested. F₂ populations were grown from selected F₁'s, and in one F₂, involving chromosome XVI of the D (or C) genome, the segregation for *sphaerococcum* type was not at random, but depended upon chromosome number: the disomic plants were *sphaerococcum*, while the monosomics resembled *vulgare*. These results are explained as follows: the *sphaerococcum* gene is located on chromosome XVI and in double dose produces the *sphaerococcum* effect; in single dose it is relatively ineffective. This unusual dosage relationship is shown also by the squarehead gene on chromosome IX, and presumably is related to the polyploid nature of the material. Chromosome XVI of *T. vulgare* increases, rather than decreases, spike and culm length, particularly between the dosages 0 and 1. Whether this effect is due to an allele of the *sphaerococcum* gene or to other factors on the chromosome is unknown.

