spite of frequent synaptic failure of these portions) but markedly increased in a large adjacent region (sk-v) which includes the centromere.

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2. Mechanism of high transmission frequency of a Tripsacum chromosome in maize.

An extra chromosome derived from Tripsacum in an otherwise apparently normal maize complement has been found to be transmitted to about 90 per cent of the progeny through the egg (Genetics 48: 1185-1194). Since high ovule abortion accompanied this high transmission (and other possible explanations were ruled out or seemed relatively improbable), it was suggested that zygotes or female gametes lacking the additional chromosome from Tripsacum may be selected against (killed) in the presence of a maternal background which contains it. In more advanced backcross generations to maize of this stock, a line has appeared in which transmission of the Tripsacum chromosome seems to approximate 50 percent, and seed set approaches normal in 21 chromosome plants. This is consistent with the interpretation that female gamete or zygote selection is indeed the mechanism of the high transmission mentioned above and that capacity for selection has been lost from the exceptional line. Further tests are in progress.

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3. Normarski interference contrast microscopy of maize chromosomes.

An appearance of longitudinal doubleness in maize diakenesis chromatids as viewed with bright field light microscopy has been reported (P.N.A.S. 55: 44-50. 1966). This effect was seen in bivalents in which unusual decondensation or uncoiling had been induced, thought to be the result of heat treatment of the living material but since shown to be due to rapid and immediate chilling of material fixed in alcohol acetic acid 3:1 mixture. More recently, structures resembling half chromatids have been found to be visible in normal maize diakenesis microsporocytes fixed in alcohol acetic acid 3:1 mixture at room temperature and stained with acetocarmine in the usual way. These can sometimes be resolved with bright field optics (with planapochromat objective), but are commonly and clearly visible with the Zeiss Nomarski interference contrast system (with planapochromat objective). The apparent structural subunits have a diameter only slightly greater than the theoretical limit of resolution of light optics and do not seem to become visible until mid to late diakinesis.

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