

UNIVERSITY OF TEXAS
Austin, Texas

1. Apparent juxtaposition of homologues at premeiotic mitotic early anaphase.

Sporocyte samples (from KYS and Coop chromosome 2 tester stock) collected at early tassel development were examined in acetocarmine squash preparations with a Zeiss photomicroscope equipped with a bright field 63X oil immersion objective, N.A. = 1.4. Most of the sporocytes in these samples were at premeiotic interphase. Previously unnoticed details of metaphase and anaphase in the occasional cells found at these stages were observable with this optical system. At premeiotic metaphase all or most chromosomes gave the appearance of having been pressed into parallel alignment throughout their length with each other and with the metaphase plate. At early anaphase, separating sister chromatids formed configurations which superficially resembled bivalent configurations of metaphase I to early anaphase I of meiosis (generally considered to be held together by terminalizing chiasmata). The significance of sister chromatids apparently tending to resist separation at the premeiotic mitosis is not understood; the most appealing speculation may be that these cells tend to develop some of the attributes of meiosis prematurely, in this case presumably some sort of generalized adhesiveness of sister chromatids. Of special interest is the fact that very similar configurations of separating sister chromatids tended to lie closely adjacent to each other in pairs at the premeiotic mitotic early anaphase stage. These paired configurations probably represent the most convincing demonstration yet seen of homologous pairing at the premeiotic mitosis in maize.

M. Maguire

2. Experimentally produced meiotic abnormalities.

Reports of previous years have dealt with the induction of diverse meiotic abnormalities in maize microsporocytes when various irritants were introduced adjacent to tassels containing sporocytes at meiosis and the tassels were gently heated in the presence of these substances. Of particular interest was a tendency noticed in some cases for apparent