Table 1. Frequency of average pollen grain diameters of diploid maize lines.

Pollen diameter (mm)	Number of lines
.0840	1
.0864	3
.0888	11
.0912	32
.0936	41
.0960	44
.0984	22
.1008	15
.1032	2
.1056	1

the anthers, time of anthesis and anther dehiscence, and water deprivation cause variability in maize pollen grain size. Our system of bulk sampling of pollen by tapping the tassel over a petri dish made it impossible to test these factors. We did detect real differences among plants within inbred lines and among days of sampling of the same plants. These observed differences are assumed to be due to the biological factors listed by Banerjee and Barghoorn.

Simple correlation among the two year's data for the 10 lines most extensively sampled was r = 0.88**.

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1. Relative amounts of DNA in mouse sperm and maize spores at late telophase II.

Freshly dissected mouse sperm were suspended in .2M sucrose and air dried on microscope slides. Anthers containing maize spores at

early quartet stage were squashed in .2M sucrose and also air dried on microscope slides. Mouse and maize slides were fixed and stained in the same lot by the following procedure: fix 20 minutes neutral 50% formalin, 4 washes (5 minutes each) distilled water, 1N HCl room temperature (1 minute), 1N HCl 60°C (14 minutes), 1N HCl room temperature (1 minute), 4 washes (1 minute each) distilled water, stain basic Fuchsin Schiff's reagent (7 minutes), 3 rinses (5 minutes each) mixture 90 ml. distilled water; 5 ml. 1N HCl; 5 ml 10% aqueous potassium metabisulfite, 4 washes (2 minutes each) distilled water, graded alcohol series to xylene, mounting in index of refraction immersion oil matched (as nearly as possible) to the index of refraction of the cell background. Mean nuclear DNA values in arbitrary units as measured with a Canalco-Zeiss Microspectrophotometer by the two wave length method in 123 cells each, mouse sperm and maize spores, were: mouse 264, maize 524. Estimated ratio of DNA per genome corn/mouse was 1.7681 $\pm$ S.E. 0.0612. Measurements of nuclei from a few cells each of maize telophase I and mouse gonial cells, mouse secondary spermatocytes, and mouse spermatids were reasonably consistent with these estimates.

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2. Experimentally produced meiotic abnormalities.

Meiotic abnormalities of undetermined cause in maize microsporocytes were reported in this Newsletter last year. These have now included synaptic failure, failure of chiasmate association to persist until metaphase, irregular chromosome contraction at diplotene, presence of multiple nucleolar-like bodies at diakinesis, end-to-end association of diakinesis bivalents, cytokinetic failure at first and second meiotic division, and reorientation and abnormal separation of metaphase I bivalents. In this latter case sister centromeres of previously normal appearing metaphase I bivalents seem to separate; then these sister centromeres seem to become cooriented on the metaphase plate and simultaneously associated with homologous sister centromeres, similarly cooriented. Anaphase I then seems to produce equational separation, anaphase II disjunctional separation with occasional resolution of