with the deletion model since a slightly lower transmission through the female would be unexpected from a gametophytic mutation and the expected type of cross-sterility remains undiscovered.

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6. Electrophoresis of analogous enzymes in teosinte and maize-teosinte hybrids.

Six different races of teosinte (Chalco, Balsas, Guatemala, Huehuetenango, Nobogame and Central Plateau), a maize (Wilbur's flint) x teosinte hybrid and the parental maize line (seed of all these stocks was kindly supplied by Dr. H. G. Wilkes) were examined for analogous enzymes. Endosperms from dry seeds were extracted in 0.01 M sodium pyrophosphate and separated by disc electrophoresis. Esterases, peroxidases, alcohol dehydrogenase (ADH) and malate dehydrogenase (MDH) were investigated.

Esterase zymograms of the teosinte lines were not very different from those of maize (Wilbur's flint). Migration of the major esterase band relative to the front (Rf) was the same for teosinte and maize. The teosinte line Chalco showed a different esterase pattern from other races. Peroxidase zymograms of teosinte were different from maize. In teosinte race Guatemala, the major peroxidase band showed a different Rf value. MDH of teosinte and maize migrated to the same position. ADH activity could not be detected in the endosperm extracts from teosinte. The zymograms for the maize x teosinte hybrid were similar to the maize lines used as the female parent for all the enzymes considered. The limited electrophoretic data gathered so far suggest close structural homologies between teosinte and maize enzymes.

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7. Buoyant density in cesium chloride of DNAs of maize and teosinte.

DNAs from maize and teosinte (races Chalco, Balsas, and Guatemala) when banded in cesium chloride density-gradients yielded only a single peak in each case. Both ^{32}P-labelled maize DNA and ^{3}H-labelled teosinte

DNA in each case banded in the same position indicating that overall base-composition of maize and the tested teosinte DNAs is the same.

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8. Basis of cytoplasmic male-sterility (Texas type).

We have made the following observations so far: (i) Two sectorially pollen-fertile plants arose in the male-sterile mitomycin-treated series; (ii) One of the two plants in further breeding tests indicated that the change had occurred at the cytoplasmic level; (iii) Mitomycin inhibits overall DNA synthesis (MNL 41:9-10); (iv) Combined treatment with colchicine and gamma rays yielded a progeny of plants half (5 out of 11) of which were pollen fertile; (v) These on further testing showed that the change had occurred at the cytoplasmic level, although there were two exceptions; (vi) Total DNAs extracted from the germs of male-sterile, maintainer, and restorer lines when banded in cesium chloride gradients yielded only a single peak. No satellite band was observed.

These observations have so far not provided any unique supporting evidence for the involvement of plasmids or episomes in male-sterility. In fact, these observations are compatible with another hypothesis, namely the mutation of a cytoplasmic DNA (plastid or mitochondrial).

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1. Inheritance of male-sterility in Llera III variety of maize.

Last year (MNL 42:12) a few male-sterile plants were reported from Llera III but it could not be determined then as to how this variety inherited male-sterility. In order to resolve this point, five randomly selected male-sterile plants (even numbered plants in Table 1) were sib-pollinated by five different randomly selected male-fertile plants (odd numbered plants in Table 1). The latter five plants were self pollinated also. The progenies of all the ten plants were grown during summer 1968