teosinte plant with many branches and a high degree of vegetative luxuriance. The Mangelsdorf tester likewise grew normally and was ear-fertile. Moreover, the cross between Wf9(T)MS and Florida teosinte grew normally into huge, highly tillered plants.

There is no question as to the identity of the unusual F_1 progeny described here, as the progeny was grown from a composite of two Mangelsdorf tester ears pollinated by teosinte. Also, the "ears" produced by the hybrid were distichous, the seeds were borne enclosed in a bony rachis as is typical of this cross, and the plants otherwise perfectly resembled maize-teosinte hybrids.

D. L. Shaver

6. Agronomic effects of the cytoplasm.

Early 20th century literature records undoubted cases where cytoplasmic inheritance affects a multitude of plant characters which would be considered agronomic in a crop plant. In maize, however, results have been contradictory, except in the case of male sterility, particularly that involving the "S" cyto steriles. In this case, early workers in the hybrid corn "sterile revolution" often noted that Wf9(S)MS showed chlorotic striping and plant dwarfing, a condition greatly accentuated, in the writer's experience, in the cooler winter Florida environment.

In keeping with the suggestion implicit in this experience, the Wf9 nucleus has been inserted into the cytoplasm of several exotics, in a search for other agronomic effects. Two extractions of cytoplasm were made from perennial teosinte, and BC_7 progenies were grown out in 1966. In one extraction, the recovered Wf9 is considerably dwarfed and is male sterile. This dwarfing was greatly increased during the long, unremitting cold of Florida's 1965-1966 winter season, so that the cyto-altered version of Wf9 made less than 1/3 the dry weight growth of normal. In the other extraction, the recovered Wf9 is male fertile and appears to be a superior seed producer by comparison with the original Wf9. Since both extractions were made from the one original clone of perennial teosinte (E16515), one must conclude that the process of extraction was accompanied by (or preceded by) cytoplasmic mutation. A careful check of records and remnant seeds reveals no error of identification which could provide an alternative explanation.

A conflict exists in the literature over the question of whether maize bearing annual teosinte cytoplasm exhibits agronomic modification. The work reported here pointing to cytoplasmic mutation during extraction provides a workable protem resolution. However, the author has not discovered any evidence of cytoplasmic modification of Wf9 in two separate extractions from annual teosinte.

It is interesting that apparent mutation in the cytoplasm reported here provides new evidence on the nature of cytoplasmic male sterility.

D. L. Shaver