In a winter crop in Florida and a summer crop in Massachusetts a total population of 10,090 plants were classified. Of these, eight were identified as Tutu and seven as tutu.

The rate of "mutation" (crossing over) involved in reconstituting the locus, 1 in 1261, is of the same order as that, 1 in 1319, which occurred in the experiment involving the dissection of the locus.

The experiment on reconstituting the tunicate locus shows why pod corn, which Weatherwax and others have assumed to be a mutant form, has never been reported in pedigreed cultures although millions of ears of inbred strains and their first-generation hybrids have been studied by corn breeders. Pod corn, as the type represented by the Tu locus, can appear as a mutant only in stocks of half-tunicate maize. If our genetic analysis is valid, it cannot occur as a mutant in modern commercial nontunicate maize.

It now appears that there may have been two kinds of wild corn: one of the genotype, $tu^{l}tu^{l}$, the other of the genotype, $tu^{d}tu^{d}$. When these were brought together under domestication by the American Indians, hybridization would have produced—as it did in our experimental cultures—two new types: (1) an extreme form of pod corn which the Indians in parts of both South and Middle America preserved (and still do) for its supposed magical properties; (2) a nonpodded corn similar to modern corn in lacking conspicuous glumes, which is more productive and in other ways more useful than pod corn as a cultivated food plant.

We now have some evidence, still quite preliminary in nature, that one of the components of the Tu locus, tu^{d}, is itself compound. Crosses to test this possibility have been made.

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2. Prehistoric maize, teosinte, and Tripsacum from Tamaulipas, Mexico.

We have finally analyzed the archaeological maize and other specimens which MacNeish uncovered in Romero's Cave in southwestern Tamaulipas, Mexico, in 1954. The collection includes 3015 intact or nearly intact cobs, 457 cob fragments, 47 pieces of stalk, 9 leaves, 219 husks, 8099 tassels or tassel fragments, 151 quids of chewed stalks, young ears, or tassels, 5 specimens of Tripsacum, 9 of teosinte, and 4 of maize-teosinte hybrids.

The great majority of the cobs, about two thirds of the total, were classified as belonging to the race Chapalote or its precursors or derivatives. This race is found today only in western Mexico but it was once much more widespread. The prehistoric wild corn uncovered in caves in the Valley of Tehuacan in southern Mexico is related to Chapalote (Mangelsdorf et al., SCIENCE 143:538-545) as is also the earliest prehistoric corn from Swallow Cave in Chihauhau and from a number of sites in the southwestern United States (MNL 32).

The earliest prehistoric cobs from this cave, like those from caves in the Tehuacan Valley, were non-Tripsacoid, having soft glumes and rachis tissues. These were soon replaced by Tripsacoid cobs which appeared first at about 1500-1400 B.C. and became the predominating type in the two succeeding culture phases from 1400 B.C. to A.D. 800.

Of even greater interest than the tripsacoid maize is the prehistoric teosinte. The earliest specimen occurred in feces at 1800-1400 B.C., the remaining specimens in two succeeding phases. Four specimens, classified as maize-teosinte hybrids, occurred in the remains dated at 1400-400 B.C. Except for pollen grains which may be those of teosinte described by Barghoorn et al., these are the first prehistoric specimens of teosinte to be reported. Prehistoric Tripsacum had previously been reported from a cave in the Ozarks.

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3. Tripsacum a possible amphidiploid of Manisuris and wild maize.

Several writers have suggested that Tripsacum is a polyploid hybrid having Manisuris as at least one of its parents. It now seems possible that the other parent may have been wild maize. Two lines of evidence have suggested this. (1) As reported in last year's News Letter, the transmission frequency of six dominantly-marked Tripsacum chromosomes in a maize-Tripsacum hybrid was 32.2 per cent, indicating the presence in Tripsacum of only one homeolog for each of the recessively-marked maize chromosomes. Subsequent cytological studies by Chaganti tend to verify this. They show that most of these segregates carried additional unmarked Tripsacum chromosomes. One plant, for example, with 12 Tripsacum chromosomes carried alleles of only 3 of the recessive marker genes of maize, leaving the remaining 9 addition chromosomes unmarked. As many as 3 of these might be counterparts of the 3 unmarked chromosomes in WMT, our multiple tester stock, leaving at least 6 but not more than 9 Tripsacum chromosomes which do not carry dominant alleles of maize recessives. (2) The prehistoric wild maize from Tehuacan, Mexico, briefly mentioned in last year's News Letter and described in a recent article in SCIENCE (143:538-545), has characteristics which, if combined with those of Manisuris, could produce a plant quite similar to Tripsacum. Indeed, if we assume that one parent of Tripsacum was Manisuris, then among grasses now known the other parent could only have been wild maize or teosinte. Of the two, maize is more promising than teosinte as the putative parent.

The hypothesis that Tripsacum is a hybrid of Manisuris and wild maize is consistent with the data now available. Tripsacum resembles Manisuris or wild maize or is intermediate between them in 18 important botanical characteristics. There is evidence presented below that, with respect to their effects, there may be two types of Tripsacum chromosomes, "maizoid" and "manisuroid."

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