

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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