Table 1

Seed set after cutting styles by one inch at various times after pollination.

Hours after pollination for cut:	4 hrs.	5 hrs.	6 hrs.	Control
Total ears pollinated	22	11	12	12
Ears with seed	0	4	10	12
Ears with 25 or more seed	0	2	4	12
Ears with seed lower half	0	2	3	12

No attempt was made to experiment with the physiological conditions.

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21. Supernumerary chromosomes in the Bussey clone of T. dactyloides.

According to Tantravahi (1968) presence of B chromosomes has not been previously established for any of the tripsacums, other than those reported by him for T. floridanum, T. maizar and T. zopilotense. In each of these species, a single B chromosome was recognized by him at pachytene and later stages of meiosis I.

In the course of studies to prepare the cytological map of T. dactyloides, it was found that one of our cultures contained variable numbers of chromosomes in excess of the expected 18 pairs for the species. These supernumerary chromosomes were either organized as bivalents or occurred as univalents. At pachytene, it was difficult to distinguish them from the A chromosomes because of heavy clumping. But, where discernible, some of them were darkly stained while others were nearly normal. Distinction between a paired bivalent or a univalent with a fold back, and the position of the centromeres were also uncertain. Often they were attached to the terminal knobs of the A chromosomes. The range of variation in their number and behaviour scored from PMC's at diakinesis is summarized below:

No. of chromosomes 2n	Type of association	No. of cells observed
36	18_{II}	18
	$16_{II} + 1_{IV}$	2*
	$17_{II} + 2_{I}$	2
38	19_{II}	7
	$18_{II} + 2_{I}$	8
	$16_{II} + 6_{I}$	1
39	$18_{II} + 3_{I}$	1
40	20_{II}	8
	$19_{II} + 2_{I}$	4
	$17_{II} + 1_{IV} + 2_{I}$	1*
	$16_{II} + 2_{IV}$	1*

*Quadrivalents need to be confirmed at pachytene and metaphase I.

From their behaviour at anaphase I, it seems some of the extra chromosomes are centric (B chromosomes) while the rest are probably acentric fragments. Since this is the first report of their occurrence in T. dactyloides and since such high numbers have not been found in any of the tripsacums, their origin needs to be examined.

The different cultures, vegetatively maintained by us over many years, represent some of the seedlings derived from an initial cross of T. dactyloides x maize. Among thousands of hand pollinations made, only a few seeds were obtained. These seeds germinated to give rise to 36 chromosome tripsacums, obviously due to apomixis. In many of their morphological characters, each of these was quite different from the maternal parent, possibly due to the homozygosity attained for some of the recessive characters. That one of these plants should contain B chromosomes in such numbers is somewhat surprising. Gradual accumulation

of the same chromosome is ruled out because of their distinct features at pachytene. From the known history of their pedigree, these B chromosomes seem to have originated from the A's. But their continued presence, without loss, if they are acentric fragments or the origin of separate centromeres for those that are centric and form bivalents regularly is difficult to explain.

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1. Peroxidase isozymes of maize: Genetic, ontogenetic and specificity studies.

Genetic variants of peroxidase have been found in pollen and endosperm extracts of several inbred maize strains. The two variants most easily discernible in the pollen extracts appear to follow simple Mendelian rules and are apparently regulated by codominant alleles at one locus. The genetic evidence supports a monomeric structure for the peroxidase products of this locus. In addition to these variants, five other zones of peroxidase activity are present in zymograms of pollen extracts which segregate in a manner suggesting other gene loci. Examination of the liquid endosperm of these strains shows a total of 7-8 peroxidases.

Differential distribution of these peroxidases in specific tissues or organs of the maize sporophyte was reported previously (Scandalios, 1964). Experiments done to determine the subcellular distribution of these peroxidases inidcate that most, if not all, are probably associated with cell wall components. Chloroplasts, isolated intact and purified, show no peroxidase activity when such activity is measured both qualitatively and quantitatively. Chloroplasts have been isolated from five