male parents other than the Purple Embryo Marker, can be recognized. The kernels which do not show any purple color in the embryo but do have the purple aleurone pigment are selected as putative monoploids. These include monoploids, diploids with mutated color genes, maternal diploids and possibly other non-colored individuals. By this technique, 90% or more of the marked kernels can be discarded before germination. The few kernels saved are then germinated, the developing embryos rechecked for the marker color and root-tips taken from the putative monoploids to make chromosome counts. Those seedlings that have only one set of chromosomes per cell, the monoploids, are then saved for development of homozygous diploids. The possible value of the PEM marker was suggested to us by Dr. Irwin Greenblatt.

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Devender K. Nanda

2. Photo-induced transformation of inflorescences in maize-teosinte hybrids.

Maize (Zea mays L.) - teosinte (Zea perennis (Hitchc.) Reeves and Mangelsdorf) crosses were made to study genotype-cytoplasm relations between the two species. The maize plants involved in this study were normal diploids, 2n=20. The perennial teosinte plants were tetraploids, 4n=40. The seeds of the first generation hybrid of the above species were planted directly in the field, near DeKalb, Illinois, during the summer of 1964. These plants grew well in the field but failed to show any signs of floral development under the influence of long day lengths. During October, 1964, a few tillers, with roots, of several of these plants were transferred to the greenhouse and subjected to the shorter day lengths of the fall season. After floral induction had been initiated, the plants were accidentally subjected to an artificially lengthened photo-period. At flowering time, partial transformation of the male inflorescences to a vegetative condition was observed.

The transformed inflorescences resembled the malformed tassels produced by the disease of maize known as "crazy top", caused by the fungus Sclerospora macrospora (Sacc.) Thirum. In some cases the vegetatively transformed

florets look like little seedlings growing from the tassel. Some of these "seedlings" were separated and propagated vegetatively.

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3. Nodal proliferations in maize (Zea mays L.).

Leaf-life proliferations arising from the basal region of the nodal disc have been observed in Illinois and Nebraska in the inbred line DeKalb 9061 derived from an open-pollinated variety, Golden Republic, and in certain hybrids involving this line. These proliferations develop most strikingly on the two to three nodes below and the two to three nodes above the ear as well as the ear-bearing node itself. These leaf-like structures are quite brittle. The number of such proliferations may vary from a few (two to three) per node to as many as fifteen or more, and the number may be different on various nodes of the same plant. The size of these vegetative out-growths is relatively small in the inbred line itself, being about half an inch to one inch in length, while in single, three-way and double crosses, these proliferations may be very prominent and may vary from 2.5 to 3.0 inches in length. The presence or absence, and the degree of development of the proliferations is apparently greatly influenced by environment. Although the proliferations themselves do not appear to be smut induced, smut is often found associated with them. Attempts are presently being made to study the inheritance of this characteristic.

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4. Recovery of a cytoplasmic male-sterile androgenetic monoploid from a 4nTx2n cross in maize.

In androgenesis in maize, the male gamete, essentially a naked nucleus, presumably utilizes the cytoplasm of the female for its development into a sporophyte. Androgenesis has been found to occur at the rate of about 1/80,000 in diploid progenies of maize. If either the frequency of androgenetic individuals can be increased or their detection made more effective, this phenomenon may be profitably employed in the conversion of homozygous lines with normal cytoplasm to forms with "Texas male-sterile" cytoplasm.