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

Sherret S. Chase
Devender K. Nanda

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.

Sherret S. Chase
Warren Holdridge

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.

Androgenesis is an abnormal event. It is conceivable that it may occur more frequently in tetraploid x diploid matings or in other wide crosses as compared to its frequency in diploid x diploid progenies. In earlier experiments, a diploid male-sterile androgenetic individual was obtained from a cross of a tetraploid cytoplasmic donor by a diploid inbred line, H52 (Chase, S. S., Jour. Hered. 54: 152-158, 1963). This plant was partially fertile and set some seed upon self-pollination. Most individuals of the second generation were completely male sterile, with the barren tassels characteristic of male cytosterility; a few plants were partially fertile; all were phenotypically indistinguishable in other characteristics from the normal diploid line.

In the present investigations, a diploid maize line, DeKalb 7088, with normal cytoplasm, was used as a male parent on the same tetraploid male cytosterile donor stock used in the prior study. This marker itself is completely male-sterile. Normal hybrids of this cross are purple triploid individuals. They are also male-sterile, due both to the cytoplasmic male-sterility inherited from the female parent as well as the reduced fertility resulting from the triploid number of chromosomes. A single monoploid individual was obtained among the progeny of the above cross. The phenotype of this monoploid was that of the male parent, with the exception that it was completely male-sterile and smaller in size. This male-sterility could be attributed to the condition of monoploidy as well as to the presence of male-sterile cytoplasm. For comparison with this androgenetic monoploid individual, a number of parthenogenetic monoploids of line 7088 were also available. The phenotypic appearance of the androgenetic individual and the parthenogenetic monoploids was very similar, as expected, and the identification of the former is considered positive. Line 7088 is itself a monoploid derivative, highly uniform, and has a very distinctive type of plant that can be readily recognized. The androgenetic individual was pollinated by normal (diploid) 7088. Twelve kernels were obtained. Nine of these kernels were planted in Florida during the winter 1964-65 for increase and observation. Seven of the plants survived to maturity. Theoretically, all of these plants should have been male-sterile but instead, only one was male-sterile and the remaining six were pollen fertile. Line 7088 itself is readily converted to cytoplasmic male-sterility by the backcross method.

We do not at present have an adequate explanation of male fertility observed in the two androgenetic progeny. We are fairly certain that it cannot be explained by error of technique or seed mixture. The important facts seem to be that

1) the tetraploid donor stock used was cytosterile,
2) the triploid ('normal') progeny of the $4n^T/2n$ crosses were completely male-sterile (more sterile than would be expected from triploidy alone),
3) the two progeny in question, the original H52 diploid and the more recent DeKalb 7088 monoploid, were undoubtedly of male origin,
4) both H52 and DeKalb 7088 can be readily converted to cytosterility by the standard backcrossing method,
5) both androgenetic individuals gave rise to progenies with some male-sterile and some male-fertile plants.

Could the explanation be a transfer of cytoplasm from the male mixing with cytoplasm from the female, this being sorted out on a particulate basis in the progeny?

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Devender K. Nanda

5. Long term survival of pod-seed.

In 1964 volunteer plants of pod-corn appeared in a section of our breeding nurseries. The land on which the nursery was located had last been used for corn in 1962. At that time pod-corn was grown in the same area. It seems that seed must have survived without germinating or rotting through two winters and one growing season. This is of considerable interest in regard to survival of ancestral corn in the wild.

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