One of the characteristics of pod corn is that it concentrates its energy in the terminal inflorescences at the expense of the lateral ones. The result is that homozygous pod corn grown under cultivation in well-fertilized fields is often quite monstrous. But the very characteristics which make pod corn sometimes monstrous under cultivation are those which provide it with a substantial selective advantage in a simulated wild habitat and which, presumably, would do so in nature. Under these conditions tunicate plants also have a means of dispersal which cultivated corn, its grain-bearing, lateral inflorescence tightly enclosed in husks, lacks. As the seeds ripen the tassel branches become brittle and are easily broken by birds attempting to consume the seeds or by strong winds; the seeds drop to the ground in clusters where, in a situation involving a mild climate with a distinct dry season, they would remain until the beginning of the next rainy season. It is possible that even in this climate some will survive the winter and produce seedlings in the spring. However, not all of this dispersal has occurred at once but has been spread over a period of months. Even as late as December about one third of the seeds still remained on tunicate plants either at the base of branches or the central spike. These too will probably be dispersed as the tassel branches weather, weaken, and break away.

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3. Pointed kernels, a simple Mendelian character.

Among our various stocks of homozygous pod-popcorn some have round and some have pointed kernels. F_1 hybrids usually have kernels more or less intermediate in shape and in F_2 populations both parental types reappear. This suggested that the pointed shaped kernels might be governed by a relatively small number of loci.

During the past season we classified four progenies segregating for kernel shape. In a total of 80 plants, 60 had kernels exhibiting some degree of pointing and 20 had round kernels. Thus the pointed shape seems to be a simple Mendelian character exhibiting incomplete dominance.

Pointed shape appears to be linked with Tu on chromosome 4. In these particular crosses the pointed shape was introduced by a non-tunicate popcorn, Palomero Toluqueño, of Mexico. The distribution of pointed, intermediate, and round seeds in the genotypes, Tu tu and tu tu, is shown below. The Tu Tu plants were usually not classifiable with respect to kernel shape.

Shape	Tu tu	tu tu	Totals
Pointed	29	2	31
Intermediate	16	13	29
Round	3	17	20

We have called attention elsewhere (Mangelsdorf and Reeves, 1959) to the fact that wild corn was probably both pod corn and a popcorn with pointed kernels. The pointed shape is necessary to enable the kernels to fit snugly in the protective shell provided by the glumes of tunicate maize. These data indicate that two of corn's primitive characters, tunicate and pointed kernel shape, were Mendelian dominants which could have been lost through simple mutation. If the loci for tunicate and pointed seeds are linked, as the above data indicate, then chromosome 4, which carries these genes as well as the Ga locus, probably also a wild locus, must have been one of the most important chromosomes distinguishing wild from cultivated corn.

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4. Linkage relations of the tunicate inhibitor.

In a previous News Letter we reported a gene which has an inhibiting effect upon the action of the Tu and tu^h loci reducing their expression by approximately half. The data available indicated linkage with Y on chromosome 6 but were not conclusive. Additional data subsequently obtained support the earlier indication. A backcross population was classified as follows: yellow inhibited 142; yellow normal 90; white inhibited 62; white normal 155. The two middle classes are the crossovers and represent 33.9 percent of the total. The data leave little doubt that the inhibiting gene is located on chromosome 6. We have no tests to show whether it is to the right or left.

If wild corn was a pod corn, then its genotype probably included two other loci interacting with the Tu locus: a gene for pointed kernel shape on chromosome 4, reported above, and a gene partly inhibiting the expression of Tu or tu^h which the data immediately above show to be located on 6.

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