A genetic factor causing the preinduction of flowering in the main culm in day-neutral and short-day maize was observed previously by Brawn (MNL 39). This characteristic derived from Gaspé Flint was merely transferred to teosinte in my cultures. Northern teosinte was selected among the progeny from a backcross to teosinte of the hybrid Guerrero teosinte x Gaspé Flint. A similar project using Chalco teosinte rather than Guerrero teosinte did not yield the desired results, probably because of the heavier load of modern maize germplasm borne by Chalco teosinte.

W. C. Galinat

2. A warning on the possible hazards of northern teosinte.

Distribution of my recently created stock of northern teosinte has been made to a number of agronomists interested in developing a new forage-silage plant and to botanists interested in the maize-teosinte relationship in the United States, in South America and in Africa. Because this teosinte is as resistant to Atrazine as is maize, its escape in areas where this herbicide is the common means of weed control in maize fields may create a problem as it already has in my own corn field. I have not as yet observed it to be spread by birds although if this comes about, we may have a "Frankenstein monster" to contend with. Birds are known to feed on teosinte in Guatemala.

W. C. Galinat

3. A comparison between the chromosome 4 syndrome of Zea and the Q segment of Triticum (wheat).

A considerable length of chromosome 4 in Zea, estimated to include the whole short arm as marked by the Su locus, is known to control a group of floral characteristics which separate maize from teosinte (Mangelsdorf and Reeves, 1958). Although in some respects its action is similar to that of the "Q segment" which separates normal Triticum vulgare from its speltoid mutants, apparently it is much longer in terms of gene linkages or map units. The Q segment is described as a short block of closely linked genes, sometimes called a supergene, which controls the development of several separate floral characters. In both cases there

is control of disarticulation of the rachis, internode length, number of fertile grain-bearing florets (in Triticum) or spikelets (in Zea) and structure of the glume. In Zea other floral characters such as inclination of the spikelet and degree of cupule development are also involved (Galinat, 1963; Sehgal, 1963). The Q segment appears to control the action of genes located elsewhere in the genome, while the functions of genes on teosinte chromosome 4 are partially duplicated on at least four other chromosomes (1, 3, 9 and 10) according to Mangelsdorf (1947).

The speltoid mutants result from a deficiency for the Q segment. The linked genes which are known to be located in chromosome 4 of Zea do not occur as a single linkage group in tripsacum, the second closest relative of maize, although its genes or their functions are dispersed to several different chromosomes.

Because of the hexaploid nature of Triticum vulgare, it is to be expected that loci elsewhere in the other two genomes would have complementary, if not duplicating, effects to those of the Q segment. The partially duplicating effects of the several different teosinte segments to that on Zea chromosome 4 are not so easily explained.

If similarity in length is important to an analogy, perhaps the tunicate locus, which is compound and also on Zea chromosome 4, might be a better comparison to the Q segment and/or a supergene, as suggested by Mangelsdorf (unpub.).

W. C. Galinat

4. The genetic differences between primitive maize and teosinte.

A knowledge of the number of allelic differences which separate maize from teosinte would be helpful in estimating the rate at which teosinte might have become transformed into maize, but not necessarily a criterion of whether teosinte could be the ancestor of maize. Unfortunately studies of segregation among maize x teosinte hybrids must be based partly on an arbitrary and difficult separation into classes of characters such as induration score, disarticulation score, day-length response and even the ranking (distichous vs polystichous). The expression of distichous is often variable within the plant and it may be genetically unstable in maize.