Cytological analysis of the hybrid su gl3 x bt2 gl4 — There has been some evidence of duplicate genes in corn (Rhoades, 1951), and their bearing on chromosome repatterning and evolution has thus far been only a matter of speculation; the following experiment was carried out in the hope of obtaining some concrete evidence in this direction.

The progeny from a cross between the su gl3 and bt2 gl4 chromosome 4 marker gene stocks was cytologically analyzed. The F_1 plants were all non-glossy and were studied at pachytene for possible chromosomal aberrations. An attempt was made to determine if the similar genes, gl3 and gl4, were separated by an inversion or if there was any indication of a duplication of a segment. In all the observations meiosis was regular. Chromosome 4 at pachytene was normal and did not show any heteromorphic structural differences.

The presence of duplicate genes is usually attributed to certain chromosomal aberrations in some ancestral generation. But in the above experiment where similar genes were introduced into the hybrid plant there was no indication of any such abnormalities. Therefore in this case there is now, at least, no evidence for a common origin of these two glossy loci.

P. Chandravadana and W. C. Galinat

UNIVERSITA' DI MILANO
Istituto di Genetica, Milan, Italy

Fertilization ability of four inbred lines — Variability of male gametophyte competition in maize appears to be a widespread phenomenon not limited to the effects of the well known Ga genes (Pfahler, Genetics 52:513, 1965 and Genetics 57:513, 1967; Mulcahy, Nature 249:491, 1974). It has been observed that this character shows a variability which is typical of quantitative traits and that the differences between genotypes, at least in the case of pollen grown on synthetic medium, depend on genes that are expressed in the gametophytic phase (Sari Gorla et al., in press).

Competitive ability of pollen can be measured as the relative fertilization frequency of pollen of two different genotypes on the same ear; the competitive ability of four inbred lines was studied in this way.

The inbred lines RNY, B37, WF9 and C123 (which, for the sake of brevity, will be indicated as A, B, C and D, respectively) were compared, two by two, in all possible combinations. Mixtures were made with equal quantities of two different types of pollen, each marked for the presence of the normal or mutant allele