evaluation, the most valuable material being placed at the disposal of workers at the Selection Stations. It is not possible in this short preliminary report to present an analysis of the results obtained. Some interesting facts can, however, be mentioned.

1. A valuable starting material for special selection has been gained. This is characterized by a considerable cold-resistance, a relatively quick start in the first stages of growth (our regions are distinctive for relatively cold springs), and relatively short vegetation periods.

2. In the genetic studies of the secured materials and chiefly in the genetic disintegration due to selfpollination we frequently met with the type-lines (a part of the material has been worked up into S_6 - S_8) which, as regards their taxonomico-anatomical structure, are very much like the respective classical, present-day lines in the USA.

3. The material obtained from the more eastern and central zones is frequently characterized by a fairly high farmability. Populations obtained from central (in which case there is a clear conflict of directions), eastern, northern and southern zones are characterized by lower farmability. From this one may infer that maize populations spread to this country from the more western countries (chiefly via western Germany) already in a certain degree of improvement and selection. Populations that had reached this country chiefly from the Balkans were not to such a high degree subject to human selection and have retained great variety and genetic width (this may have been caused by a greater geographic articulation of the places of transition and of those of cultivation). Some results point out to the basic directions of advance into this country even with regard to the individual zones.

4. As a complement to these studies populations from other countries of Europe are being collected. Also from this fairly rich material a whole series of prospective types for detailed study and utilization in special selection has been evaluated. These materials are also subject-matter for investigation.

Luděk Říman

IOWA STATE UNIVERSITY
Ames, Iowa
Department of Agronomy

1. The mutability of the components of the En system.

The varied forms of En: En (Enhancer) is necessary for the mutability of the $a_1^{m(r)}$ allele. In the absence of En this allele is colorless and indistinguishable from other colorless alleles. The pattern of mutability expression is a result of rate (low and high) and time (early and late) of mutation events. Given a common $a_1^{m(r)}$ allele, different En can cause a predictably different mutable expression. In addition, each of the En isolates shows somatic changes.

The varied forms of "I": In the En system of mutability, the element suppressing the action of the locus has been designated "I" (Peterson, Genetics 46). When adjacent to the locus, the action of the

locus is suppressed. "I" is found at the A_1 and at the Pg locus. En is specific for the "I" component and the introduction of En results in mutability. In some cases, however, differing patterns of mutability are considered to be due to differences in "I". By crossing a single specific En to an array of independently derived $a_1^{m(r)}$ alleles different expressions are observed. This indicates that the change must be in "I" and additional studies are being carried on to determine the nature of this change.

Thus, the final pattern is dependent on the particular En as well as the particular "I" and/or the interactions between them. This is unlike the mutable pericarp locus where pattern differences result from the varied number of tr-Mp present.

Peter A. Peterson

2. A dominant mutable.

Among a group of r mutants originating from standard R, there occurred a seedling mutable characterized by dark stripes on a virescent-like background. Outcrosses of this mutant to green plants of Dr. Brink's color converted W-22 strains (a strain which has not given rise to any seedling mutants in our cultures) yielded progeny, 1/2 of which were similar in expression to this same mutable. This type of mutable has not previously appeared among the numerous mutables studied in our cultures. It would seem, therefore, that this represents the origin of a dominant mutable allele.

Peter A. Peterson

3. Pales at the a_1 locus.

Pales, both stable and mutable, arise from certain a^m alleles. They arise from the same autonomous alleles that give rise to different pattern types in the presence of En. Stable pales are similar to $a^{m(mr)}$ in that they do not respond to independent En. Neither do the mutable pales show any response to En. The individual isolates of the stable pales show a wide range of expression from those displaying only a slight amount of color to those possessing deep pale color.

Peter A. Peterson

4. Knob and centromere associations of non-homologous maize chromosomes at pachytene.

This report is an extension of previous studies on the non-homologous association of knobs and centromeres (S. R. Peterson, M.S. Thesis--Univ. of Ill.; Gurgel MGCNL 30 and 31):

These studies were undertaken with stocks possessing 8 and 12 knobs in the hemizygous condition and were derived from a standard genetic line and maize chapolote, respectively, crossed with Tama knobless flint. The table below shows that more knob association and more multiple association occur in the higher knobbed family than in the lower knobbed families.