attachment into the cytoplasm with them when they enter the cytoplasmic state. If such a phenomenon occurred with the Mp at the P locus and the red gene, results such as those obtained might be expected. Experiments are now under way to clarify the situation.

Secondly, experiments were carried out in which variegated kernels were given treatments (heat and acriflavine) known to cure cells of lower organisms of cytoplasmic particles. The heat treatment as outlined by Braun (MGCNL 35:83-84) had no effect on the phenotype of the resulting plants. Acriflavine treatment had no effect on medium variegated but two strong treatments gave a higher ratio of medium variegateds to lights (69 and 61%) than either a weak treatment (42%) or three related untreated families grown in previous years (43, 36 and 43%). This is a shift in the direction expected if the treatment were destroying some of the transposed-Modulators. The acriflavine treatment and several other treatments having similar effects on microorganisms are being repeated on a larger scale during the current growing season.

Nancy van Schaik
Department of Genetics

2. An acute molybdenum deficiency in maize.

A general yellowed and stunted appearance associated with yellow interveinal streakings which soon become necrotic resembling a kind of marginal leaf scorch was found to be the symptom of an acute molybdenum deficiency in maize.

This condition was particularly prevalent during the first 5 to 6 weeks after emergence of the plants. From this stage onwards, plants were found to recover from the acute symptoms. In many instances the plants recovered to such an extent that distinct symptoms were no longer visible. At this stage, affected plants could be recognized only by their smaller size when compared with the better growing plants in the same field.

Molybdenum deficiency symptoms in maize were found to occur on soil with a pH of 4.4 and lower but not on soils with a pH of 4.66 or higher, which indicates a critical pH level. A similar condition was found in a bean field were ten pH readings made from rhizosphere soil of 10 severely affected bean plants averaged 4.33, while readings from 10 symptomless plants growing in the near vicinity, averaged 4.52. The pH of the soil, therefore, had a very marked effect on the availability of molybdenum to plants. This was further proved by adding enough slate lime to the experimental soil to bring the pH from 4.03 and 4.37 to 4.67 and 4.77. In this experiment severe deficiency symptoms were found in maize plants grown at the lower pH values and none at the higher

values. In spite of the low pH of these soils, the molybdenum deficiency was easily diagnosed by planting maize seed soaked for one hour in a 0.5% solution of sodium molybdate between the yellow plants. Plants originating from the treated seed were green and grew like normal plants.

In addition to the severe molybdenum deficiency symptoms, very distinct phosphorus deficiency symptoms were also observed on the same plants in the plots with a soil pH of 4.0.

It appears, therefore, that it is of paramount importance to check soil pH regularly and to guard against abnormal acidification.

J. J. du Toit
Plant Pathologist

3. Root disease of maize -- a request.

A serious root rot of maize, causing the rotting of all major roots as well as the newly formed thin roots, is found to occur in varying degrees through the whole Transvaal region of South Africa.

Organisms commonly associated with it are: three different Fusaria, two Helminthosporia, a Trichoderma and a nematode, Pratylenchus zeae. The production of a phytotoxic substance by one or more of the fungi, is another possibility.

Any information in this connection will be highly appreciated.

J. J. du Toit
Plant Pathologist

4. Position effect as a factor in pollen tube competition in Zea mays L.?

Studies of pollen tube competition reported in previous years (M.N.L. 1958-1962) have indicated that many genes are probably involved in pollen tube growth. Since the male gametophyte is apparently very sensitive to gene action it is possible that position effect, resulting from reciprocal translocation, may be revealed in its effect on pollen tube competition. In the table below are tabulated the progenies of crosses between normal seed parents and reciprocal translocation heterozygotes as pollen parents, as recorded in column 1. Optimum growing conditions were available so that errors for classification of semi-sterility were negligible. The pollen tubes containing the T1-3i reciprocal translocation were significantly more efficient in competition than normal tubes as is apparent in the difference in the number of normal and sterile plants recorded in the progeny. This was also the case for T1-6c. However, in the case of T1-8i the normal class