The analysis of hexoses, pentoses, disaccharides and H_2O soluble polysaccharides is continuing for the pollen genotypes listed above.

John Vandermeer

2. Preliminary biochemical investigation of the yg_2 locus.

As part of an undergraduate research project, a study of the leaf pigments of yg_2/yg_2, $yg_2/+$, and $+/+$ plants was initiated. Using spectrophotometric techniques, the amount composition of chlorophyll A, chlorophyll B, xanthophylls and carotene were determined after extraction from fresh tissue.

At maturity (pollen shedding) the following observations were made:

(1) yg_2/yg_2 possessed less chlorophyll B and carotene than $+/+$, on a dry weight basis;
(2) $+/+$ possessed more xanthophyll than yg_2/yg_2;
(3) the chlorophyll A content was the same in both genotypes;
(4) $yg_2/+$ presented the spectra of the $+/+$ genotype.

Chlorophyll A and B were estimated for 55 day old yg_2/yg_2 and $+/+$ plants (11 leaves) grown under controlled supplemental lighting, November-December 1965. The top three leaves demonstrated the differences noted above, whereas the middle four leaves from the two genotypes were not different.

Comparison of tetraploid vs. diploid stocks ($yg_2/yg_2/yg_2/yg_2$ vs. yg_2/yg_2) did not yield any differences in the relative amounts of pigment per unit dry weight or the distribution of the pigment.

M. C. Weir

3. Smear technique for obtaining large numbers of metaphases in corn root tips.

The method for root tip smears of Wolff and Luippold (Stain Technology 31: 201-205, 1956) was modified for corn as follows:

(1) Orient seeds with embryos up on moistened filter paper in Petri dishes. Incubate 36-40 hours under intense, constant light at 30°C. (The radicle should be 3-5 mm in length).
(2) Transfer the seed to a new dish, same conditions, except that a 0.2% colchicine solution has been added to the filter paper. (A drop of tween-80 added to the solution seems to yield more cells in metaphase). Incubate for 8 hours.
(3) Fix immediately in Carnoy's. Transfer to fresh Carnoy's and incubate for 24 hours at 60°C.
(4) Pour off Carnoy's. Rinse thoroughly with distilled water.

(5) Hydrolyze in 1NHCl at 60°C for 20 minutes. Rinse thoroughly with distilled water.
(6) Place in leuco-basic fuchsin for 30-45 minutes.
(7) Wash in distilled water for 1 hour.
(8) If the root tip has not previously been cut off, excise and place in a 5% cellulose - 5% pectinase solution at pH 4.2 for 2 hours.
(9) Cut the deeply stained tip onto a clean slide and macerate in a drop of propionic carmine. A flattened end of an ivory stick is suitable for maceration and spreading.
(10) Heat gently.
(11) Add cover slip and flatten with the rounded end of a glass or steel rod. Invert onto bibulous paper and apply pressure with thumbs.
(12) Seal. Temporary smears may be stored several months in a freezer. Temporary smears may be made permanent by conventional techniques.

R. M. Brown

4. The mitotic karyotype of maize.

Using the smear technique outlined in the previous note, a number of metaphases suitable for photographing have been studied. Two notable features have emerged as the karyotype has been prepared.
(a) A definite gradation in chromosome size from large, nearly metacentric chromosomes to small, submetacentric chromosomes; and consistent arm ratios of the three classes of chromosomes - large, metacentric; medium, submetacentric and short, submetacentric.
(b) A secondary constriction with satellites is easily seen in most preparations in two chromosomes.

At present we are interpreting the karyotype on the basis of the measurements (Rhoades, Jour. of Heredity 41: 58-67, 1950) presented for pachytene chromosomes. Arm ratios quite similar to those reported for pachytene chromosomes are found in the mitotic metaphases. We are attempting to further qualify the mitotic karyotype with the use of trisomics.

R. M. Brown
D. B. Walden

5. Influence of calcium concentration on pollen germination.

A suitable medium for the germination of "Seneca 60" ($\frac{su_1}{su_1}$) hybrid corn pollen was reported in MCNL 39: 169. This medium, consisting of 0.35 M sucrose, 100 ppm H_3BO_3 and 300 ppm $CaCl_2.2H_2O$, may be used simply as aqueous drops or with either 0.7% Difco Special Agar-Noble or 1% to 2% methyl cellulose. Calcium ion has been shown to be required for corn