shorten faster in cells containing them, is favored by the finding that heterogeneity is low between anthers in number of failures per cell and that no significant correlation was found between anthers in total chromosome length and number of pairing failures. The possibility also exists that the pairing failures are a complex combination of both initial synaptic failure and later dissociation.

Distributions of chromosomes containing pairing failure at both ends and of those containing both terminal and intercalary pairing failures generally follow expectations of randomness.

Marjorie Maguire

TEXAS AGRICULTURAL AND MECHANICAL COLLEGE
College Station, Texas

1. Fourth cycle reciprocal recurrent selection results.

Yield tests involving 4th cycle selections crossed on the appropriate composites were grown in 1961. Coefficients of Variation were 9.1 and 11.1 percent and yields were good. Composites and crosses among composities were compared also. Definite progress has been made in each cycle in increasing the yielding ability of the group of top crosses involving the Ferguson's Yellow Dent Selections x Yellow Surcropper testers or composites. The same trend was obtained by using as a check, either the Yellow Surcropper Variety or the mean of two Texas hybrids. In the other group, Yellow Surcropper selections x Ferguson's Yellow Dent testers or composites, progress has not been as consistent. Apparently the third cycle results were influenced by poor stands and unusual weather conditions to such an extent that selection was not very effective. This group of top crosses was grown a year later than the third cycle of the other group. However, if the first, second and fourth cycle results are compared, a steady shift toward higher yielding top crosses has occurred also in this group.

Mean yields of crosses among varieties and composites grown at two locations in 1961.

Crosses among testers	College Station	Temple
	bu. per acre	bu. per acre
YS variety x FYD composites	71.2	58.0
YS_1 composite x FYD composites	74.1	64.2
YS_2 composite x FYD composites	79.6	65.7
YS_3 composite x FYD composites	73.1	61.1
FYD variety x YS composites	73.0	62.5
FYD_1 composite x YS composites	76.7	62.6
FYD_2 composite x YS composites	74.8	62.0
FYD_3 composite x YS composites	73.4	62.1
C.V.	15.5%	9.4%

Actual yields of varieties and composites at two locations in 1961.

Variety or composite	College Station	Temple
	bu. per acre	bu. per acre
YS variety	48.5	46.0
YS_1 composite	61.9	51.3
YS_2 composite	68.8	52.0
YS_3 composite	61.7	52.0
FYD variety	49.5	51.2
FYD_1 composite	52.4	53.9
FYD_2 composite	57.0	54.7
FYD_3 composite	64.6	60.7

In both groups, the lower-yielding top crosses have been reduced in each cycle. Also variation among top crosses was reduced in the fourth cycle tests.

Yields of crosses among testers in composites indicate that a large portion of the increased combining ability can be attributed to the YS composites, especially the YS_2 composite. The accompanying table shows no change in the combining ability of the FYD composites. Actual yields of composites may indicate different types of gene action in the two source varieties.

J. W. Collier

UNITED STATES DEPARTMENT OF AGRICULTURE
Beltsville, Maryland
Plant Industry Station

1. In 1961 several thousand seeds from a cross (Bl4 x 4Co63) x A C R B Pl were germinated in the dark and classified for purple root color to identify monoploids. In addition to the expected monoploids, a class of plants was found which were of normal fertility and presumably diploids. These came from kernels having colored aleurone and the plants lacked purple color. In every case such plants, when selfed, were found to be heterozygous for yellow endosperm color. The parental single cross was (Y x y). Therefore the exceptional class of plants is interpreted as being maternal diploids. Maternal diploids and monoploids occurred with roughly equal frequency.

G. F. Sprague

2. An F_2 three-point test involving Bt Pr gl_{10} / bt pr Gl_{10} gave the following results:

Bt Pr Gl	Bt Pr gl	bt Pr Gl	bt Pr gl	Bt pr Gl	Bt pr gl	bt pr Gl	bt pr gl
306	161	28	7	98	0	39	1