Table 2
Relative Rates of Carbon Dioxide Assimilation by Normal and Mutant Seedlings Grown in Light and Darkness
Race: Celaya

Entry*	Total radioactivity	Sample dry wt. mg.	Cmp / sample mg.	%
1.	183,760	134.65	1,365	100.00
2.	1,540	98.73	16	1.17
3.	4,540	127.25	36	2.63
4.	7,140	235.60	30	2.19

Table 3
Relative Rates of Carbon Dioxide Assimilation by Normal and Mutant Seedlings Grown in Light and Darkness
Race: Maiz Dulce

Entry*	Total radioactivity	Sample dry wt. mg.	Cmp / sample mg.	%
1.	1,280,050	213.76	5,988	100.00
2.	3,350	80.76	41	0.68
3.	8,650	135.30	64	1.07
4.	9,700	392.20	25	0.42

Table 4
Relative Rates of Carbon Dioxide Assimilation by Normal and Mutant Seedlings Grown in Light and Darkness
Race: Arrocillo Amarillo

Entry*	Total radioactivity	Sample dry wt. mg.	Cmp / sample mg.	%
1.	498,675	67.79	7,356	100.00
2.	1,030	46.70	22	0.30
3.	4,300	62.22	69	0.94
4.	3,120	58.91	53	0.72

*Entry Number: 1 = Light-grown normal seedlings
2 = Etiolated normal seedlings
3 = Light-grown mutant seedlings
4 = Etiolated mutant seedlings.

H. Z. Liu
H. L. Everett

3. Excised corn roots.

Is heterosis determined, at least in part, by the roots of plants? Our early efforts to use excised corn roots in a study of this question quickly demonstrated that we did not know how to grow such roots. Neither

did any one else, so far as we know, except J. E. McClary (Proc. Nat. Acad. Sci. 1940), and our attempts to repeat his work failed. However, a statement of his, "root tips often become abnormal and cease to grow, ...if they are allowed to penetrate the agar,...", set us on a course that promises success. There seem to be two important phases of the problem, viz., the composition of the medium and the physical nature of the substrate.

Composition--Our best medium, to date, has been Shive's "best" solution (Curtis & Clark--Introduction to Plant Phys. 1950, p. 384), plus 1% agar, 5% dextrose, 0.05% yeast extract, 30 ppm glycine and 5 ppm nicotinic acid.

Substrate--Our own early work corroborated McClary's quoted statement. Consequently, we sought a means of keeping the roots on the surface. Thus far, the best substrate has been a thin layer of the agar medium (15 ml in a 10 cm Petri dish) with an S-shaped piece of #20 wire imbedded in it and a $3\frac{1}{2}$" Blue Streak coffee filter on top. Aluminum wire has been used because of its cheapness, although growth seems to be a little better when platinum wire is used. The wire is simply a support for the coffee filter during sterilization, and can be dispensed with if three filter disks are used instead of one.

Using the best substrate and the best medium (but without nicotinic acid), with a single cross hybrid, Io B8 x NY H1, at a temperature of ca. 20°C, we have managed, with difficulty, to keep one set of roots growing for 17 subcultures covering a period of a little over 6 months. Only time and more experiments will tell whether the addition of nicotinic acid improves the solution sufficiently to extend the time of culture indefinitely.

Curiosity tempted us to a premature comparison of inbred and hybrid roots, with these results: Io B8--ca. 3 mm per day, slender; NY H1--ca. $4\frac{1}{4}$ mm per day, plump; Io B8 x NY H1--6 3/4 mm per day, medium thickness (6 subcultures).

A satisfying study of heterosis in excised corn roots must wait until it is possible to culture such roots for an indefinite period of time.

H. L. Everett
J. Shafer, Jr.

DEFIANCE COLLEGE
Defiance, Ohio

1. Transmissibility of light endosperm phenotypes during progressive conversion of R-locus expression.

Many weakly pigmented phenotypes are observed on ears of $\underline{R}\underline{R}^{st}$ heterozygotes where the $\underline{R}$ allele has been kept heterozygous with $\underline{R}^{st}$ for several generations. The number of such weakly pigmented kernels increases with the number of generations that $\underline{R}$ has been heterozygous with $\underline{R}^{st}$. Since