The largest population continued to show a substantial increase in yield but the populations associated with three plants per hill yielded lower than expected from those populations involving two plants per hill. The moisture percentage at harvest was quite variable.

R. H. Peterson

2. The inheritance and linkage relationships of factors controlling a long mesocotyl type.

A study is under way to determine the mode of inheritance and linkage relationships of factors controlling the long mesocotyl type common to Indian corns from the Southwest. A stock averaging 24 mm (from germ face to first node) was crossed to nine inbreds (direct extractions from a number of open-pollinated varieties) and a set of chromosomal interchanges. The agronomic possibilities of this trait are being considered.

A. Forrest Troyer

3. Location of fertility restorer genes A and B in inbreds A293 and K55 using translocation stocks with $Wf9^t$ as a tester.

This study was initiated to determine the number of and locations of the fertility restorer genes in inbreds A293 and K55. Fertile segregates of $Wf9^t$ x ($B164^t$ x A293) $A286_2$ - 2 and $Wf9^t$ x ($Tx61^t$ x K55) $A286_2$ - 4 were crossed with 28 different translocations involving all arms of the chromosomes. The fertile plants with translocations from these crosses were crossed onto $Wf9^t$. A linkage study will be made in 1957.

Based on work of other investigators, it was hypothesized that the fertility restoration in these inbreds was the function of 2 complementary genes. The expected phenotypic ratios for the hypothesis are as follows:

[($Wf9^t$ x A293) $A286_2$-2] AaBb x aaBB (TRANSLOCATION STOCKS)

↓

	AaBb + AaBB (Fertile-use)	+	aaBB + aaBb (sterile-discard)
($Wf9^t$) aabb x AaBb ⟶	1 AaBb (Fertile)	+	1 Aabb + 1 aaBb + 1 aabb* (Sterile)
($Wf9^t$) aabb x AaBB ⟶	2 AaBb (Fertile)	+	2 aaBb (Sterile)

* Data to be used for recombination test for B.