B. Chemical treatments: Variegated pericarp stocks in W9 background were treated with the same chemicals, concentrations and times as the cytoplasmic male sterile stocks. A total of 1,584 ears from these treatments were analysed in the same way as the heat treated variegated stocks. These extensive data show no striking departure from that in the heat treated material and so they will not be included here.

Bronze mutable: A small progeny from a homozygous bz_1^m sh ear which had been heat treated showed no striking difference from the untreated. Both heavily and lightly mottled and stable bronze ears were present in both groups in about equal numbers. No detailed analysis of t he spotting frequency or distribution was undertaken.

Dotted: The only provocative observations involve the acriflavine treated progeny of a homozygous a_1 Dt ear in inbred W9 background. Among 230 selfed ears coming from one selfed ear, 209 were normally dotted, 6 were segregating 3 dotted: 1 non-dotted and 15 showed a few kernels without dots while other kernels on the same ear showed all gradations of dots up to the usual level in this line. Through an oversight in the field, the untreated control material was not hand pollinated so no conclusions can be drawn.

Robert I. Brawn

2. Dark variegated pericarp.

Last year it was reported that dark variegated pericarp occasioned a coarse (earlier) pattern of Ds breaks than the standard medium variegated when both were used as males on Ds testers. In 1962 similar crosses were made onto the progeny of one selfed ear of homozygous Ds. Again the visible pattern of Ds breakage was coarser when the male was dark variegated than when the male was medium variegated. The difference has not yet been scored qualitatively. These further observations support the hypothesis that the dark variegated phenotype results from a change of state of Mp in the direction of a lower dosage than that of the standard Mp of medium variegated.

Medium variegated (P^{vv}/P^{wr}) when tested showed the expected 1/2 kernels with Ds breaks and 1/2 without breaks while homozygous medium variegated produced nearly all kernels with Ds breaks. However, homozygous dark variegated gave 20 to 30% kernels without Ds breaks. Likely the kernels on the Ds tester without breaks are the result of the loss of Mp from P^{rr}. This is consistent with the high frequency of red ears in the progeny of dark variegated reported last year. In

1962 a further three progenies from dark variegated gave

	colored pericarp				colorless pericarp, red cob	Total
	self red	dark var.	medium var.	light var.		
number	262	559	59	10	54	946
per cent	27.91	59.09	6.24	1.06	5.71	

Several anomalies are obvious in these observations. First, the change to medium variegated from dark variegated involves a change of state according to my hypothesis rather than a transposition of Mp as in the change of medium variegated to light variegated. If so, this change is frequent. Transposition of the modified Mp should occur in dark variegated to give a lighter pericarp class analogous to light variegated. As yet this class has not been identified. In scoring progeny from dark variegated a class phenotypically like medium variegated is observed, but its true nature is unknown.

Second, the frequency of reds in the progeny of dark variegated is high, consistent with the heavy striping of the pericarp. A corresponding lighter level of pericarp variegation occurs with low frequency. This is not what one would predict from the twin spot hypothesis of the movement of Mp. Dark variegated ears with twin spots of red, and what looks like medium variegated, have been observed but remain to be grown out for progeny examination.

Finally in 1961, 4 ears out of 188 had colorless pericarp and in 1962, 54 ears out of 946 had colorless pericarp in the progeny of dark variegated. This is about 10 times more frequent than the occurrence of colorless pericarp progeny from medium variegated in the same inbred W9 background.

Robert I. Brawn

3. Indeterminate-growth in Gaspe Flint background.

An indeterminate growth segregate was found in 1958 which flowers only in short days. This new mutant has not been checked for allelism with Singleton's id. In an effort to develop a growth chamber sized corn with the id-like gene, the new mutant was crossed with the world's earliest and possibly smallest corn, Gaspe Flint. Following one back-cross to Gaspe Flint a few plants were selfed. Some of the progeny exhibited very peculiar flowering behavior. The main stalk came into flower just after Gaspe Flint in early July and resembled Gaspe except that it was a few inches taller. However, in September it was discovered that these same plants had indeterminate growth tillers from five to seven feet tall. By early October, just before frost, tassels were appearing on these tillers. Many plants in the row were ear bagged in July, but none of those which exhibited the abnormal behavior silked and so none were selfed.