1. Normal growth as exemplified by the untreated normals.
2. Dwarf growth as produced by the untreated homozygous recessive mutants.
3. Extended growth resulting from additions of GA_3 to either the dwarf or normal phenotype.

Daily treatment with GA_3, then, changes both normal and dwarf growth. Early after treatment the dwarfs phenocopy the untreated normals, but soon the treated dwarfs copy the extended growth pattern such that the two phenotypes are indistinguishable. In terms of leaf form the three growth types are:

1. Normal growth characterized by long and narrow leaves.
2. Dwarf growth much shorter and wider leaves than type 1.
3. Extended growth much longer and narrower leaves than those of type 1.

Further experiments of this same nature will be made with larger populations and more frequent and complete measurements of leaf form than those used in this study.

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1. A sterile plant with S cytoplasm and S restorer genes.

In our 1961 MNL report (p. 20) on the genetic characterization of various sources of sterile cytoplasm it was pointed out that a single sterile plant appeared in the family from the cross A158H1♀ x (A158HxNY16)♂. By all tests source H is S type cytoplasm; NY16 contains S (and T) restorer genes. Thus, the heterozygous restored sterile A158H x NY16 would be expected to produce only fertile offspring when crossed as a male parent to the A158H sterile female, since in the presence of S cytoplasm pollen grains containing the nonrestoring allele abort and only the restorer allele is transmitted. It was suggested in the previous report that the exceptional sterile plant in the above test cross did have the major S restorer gene from NY16, but was not expressed in the residual genotype of the cross (which also contained 5 partially fertile plants). The single sterile plant, which was completely sterile and exserted no anthers, was pollinated by normal A158 (i.e. A158H1 (A158HxNY16) sterile plant x A158). In 1961 the progeny from this cross segregated 8 fertile and 9 sterile. Since A158 is free of S restorer genes, it is likely that the sterile female parent did in fact contain the S restorer genes.

Harry T. Stinson, Jr.

2. Segregation of T restorer genes in "reciprocal crosses."

In a previous MNL (1959, pp. 9-12) Jones reported that the heterozygous (Rf_1rf_1) restored sterile inbreds C103TF, HyTF and KrTF (TF = restored sterile) each produced a significant excess of fertile plants when crossed as pollen parents to T sterile single crosses. Genotypically all crosses were presumably T $rf_1rf_1Rf_2Rf_2$♀ x T $Rf_1rf_1Rf_2Rf_2$♂, and thus expected to segregate 1 fertile:1 sterile. The excess of fertile plants in these segregating progenies was attributed either to the presence of fertility modifier genes in the seed parent single crosses and in the pollinator inbreds, or to a selective mechanism favoring the Rf allele in the pollen. To obtain further information on the transmission and segregation of restorer genes, progenies from "reciprocal crosses" involving individual heterozygous restored sterile