grana and attained a more normal shape than dark-grown plastids.

The two mutants which do not accumulate carotinoid precursors are able to produce chlorophyll, but when grown under dim light conditions only retain one-third to one-half as much chlorophyll as $\underline{w}_3$. Plastids of these albinos contain prolamellar bodies, few lamellae and almost no osmiophilic globules. They definitely are less structured than $\underline{w}_3$ under the same conditions. The absence of globules in these non-accumulating albinos suggests that the precursors and/or colored carotinoids when accumulated, as in $\underline{w}_3$, are stored in such globules. The presence of fewer lamellae in $\underline{cl}_1$ and $\underline{lw}_1$ and their inability to form grana probably are related to the lower levels of chlorophyll and possibly relate indirectly to the absence of precursors. Perhaps these precursors accumulated in $\underline{w}_3$ play some role in protecting chlorophyll from photodestruction when plants are grown in weak light.

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1. Reversion frequency of alleles of the $\underline{su}_1$ locus and of some of their compounds.

Seven alleles of the $\underline{su}_1$ locus ($\underline{su}_1$ a-b-c-d-e-f-g) have been obtained by EMS-treatment. The reversion frequency of these mutants is reported together with the rate for a standard allele of presumed natural origin ($\underline{su}_1{}^{st}$, which is used as a common pollen source) in comparison with the reversion rates of some of their compounds (among which are included also compounds of three mutants with the $\underline{su}$ WMT allele present in the multiple tester of P.C. Mangelsdorf). The data suggest the occurrence of intragenic recombination and a possibility of ordering linearly some of the sites studied.

Both the homoallelic and the compound plants were detasselled and pollinated by a common recessive stock bearing the $\underline{su}_1{}^{st}$ allele and $\underline{gl}_4$. The data collected from the homoallelic types are presented in the following table:

Table 1

Allele	No. of seeds scored	No. of gametes involved	No. of Su kernels	
su_1^{st}	9,219	18,438	3	Gametic frequency of Su (Backmutation or contamination) = 1.39×10^{-4} (with fiducial limits for P = 0.05 of 0.81×10^{-4} -- 2.22×10^{-4})
su_1^{a}	268	536	0	
su_1^{b}	8,107	16,214	3	
su_1^{c}	10,502	21,004	3	
su_1^{d}	14,918	29,836	6	
su_1^{e}	1,640	3,280	0	
su_1^{f}	6,071	12,142	1	
su_1^{g}	10,440	20,880	1	
Total	61,165	122,330	17	

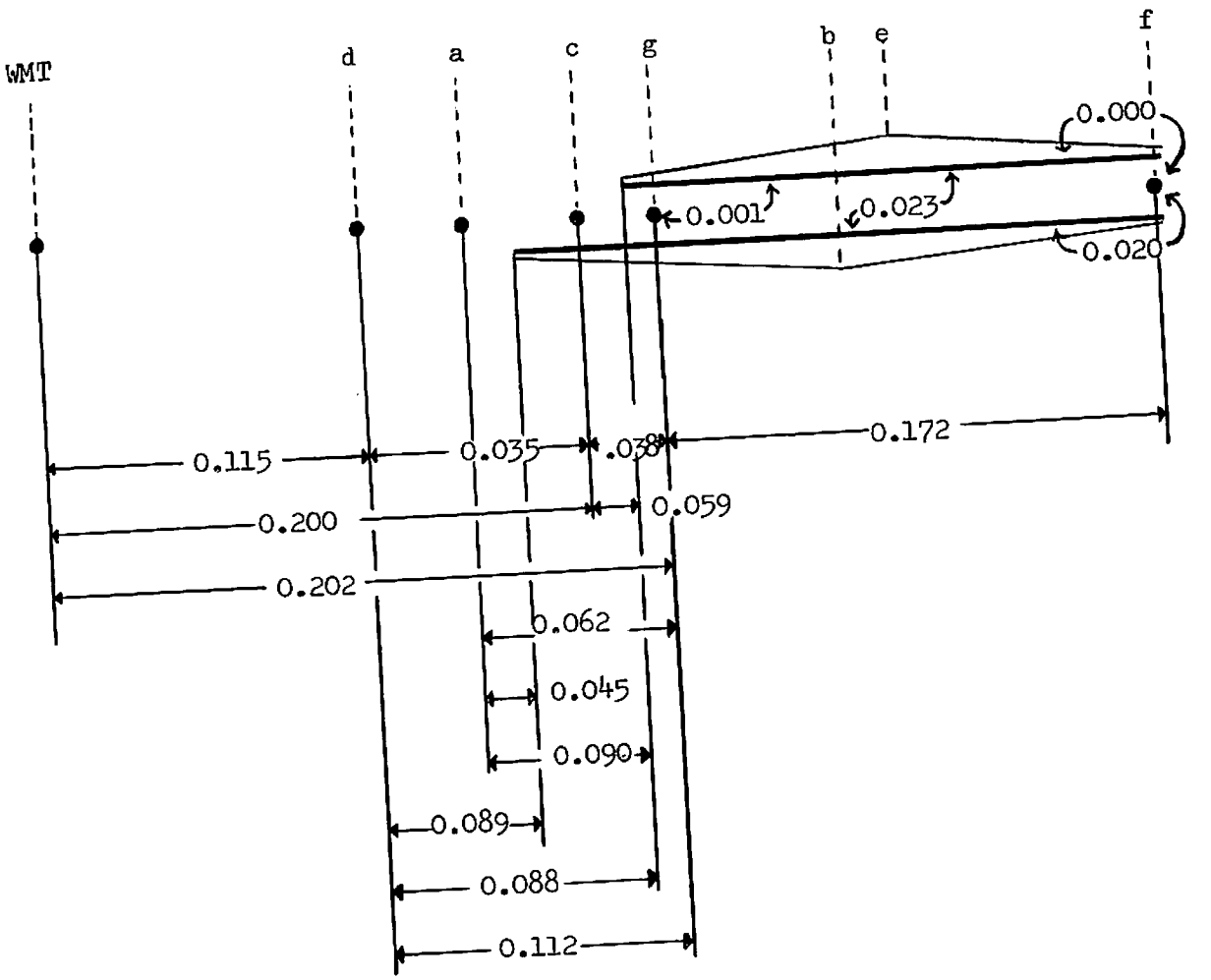
The compound types yielded the following data:

Table 2

Genotype	No. of seeds scored = no. of ♀ gametes involved	No. of *Su* kernels	No. of reversions arising by backmutation in the pollen or eggs (1)	No. of reversions arising by ♀ recombination	Rate of recombination (1×10^{-4})	Fiducial limits of recombination rate for P=0.05 (1×10^{-4})	Map units
axb	24,681	9	3.43	5.57	2.25	0.89 - 5.29	0.045
axe	17,044	10	2.37	7.63	4.48	2.02 - 9.25	0.090
axg	13,404	6	1.86	4.14	3.09	0.81 - 7.64	0.062
bxe	15,654	4	2.17	1.83	1.17	0.15 - 3.56	0.023
cxd	26,754	10	3.72	6.28	2.35	0.82 - 4.88	0.047
cxe	18,323	8	2.55	5.45	2.97	0.88 - 6.37	0.059
cxg	21,160	7	2.94	4.06	1.92	0.51 - 4.84	0.038
dxb	32,430	19	4.51	14.49	4.47	2.36 - 7.24	0.089
dxc	11,937	3	1.66	1.34	1.12	0.21 - 4.67	0.022
dxe	19,025	11	2.64	8.36	4.39	1.81 - 5.38	0.088
dxg	21,444	15	2.98	12.02	5.61	2.89 - 9.77	0.112
exg	14,041	2	1.95	0.05	0.03	0.00 - 2.62	0.001
fxb	37,826	9	5.26	3.74	0.99	0.29 - 2.71	0.020
fxe	9,060	1	1.26	0.00	0.00	0.00 - 4.07	0.000
fxg	14,006	14	1.95	12.05	8.60	4.43 - 14.96	0.172
WMTxc	16,817	19	2.31	16.69	9.98	5.79 - 16.06	0.200
WMTxd	16,833	12	2.34	9.66	5.74	2.85 - 10.92	0.115
WMTxg	18,230	21	2.53	18.47	10.08	6.05 - 15.94	0.202
Total	348,669	180	48.46	131.54	3.77	3.15 - 4.47	--

1. These values are obtained by multiplying the figures in column 2 by 1.39×10^{-4} reported in the previous table.

The linear order of the alleles studied may be as follows (the b and e mutants are possibly deletions or intragenic inversions):



F. Salamini

2. An unstable locus affecting aleurone and anther color.

In a progeny of a plant yg_2 C bz wx (chromosome 9 tester, originally provided by Dr. B. McClintock) fertilized by X-rayed pollen of the genotype Yg_2 I Sh Bz Wx, an ear was obtained showing a peculiar spotting pattern in the aleurone layer of many kernels. From the sowing of these kernels were obtained two plants which produced one ear each: one with pale colored seeds, and the second segregating for the following seed types which, in turn, give the results described below: