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1. Linkage tests in homozygous interchange stocks.

2-6(001-15)2S.78-6 (sat.): Break between g_{12} and v_4 ; $lg\ g_{12}$ segment attached to 6 replacing at least part of the satellite. Based on 115 plants, recombination values are: $lg-g_1$ 22.6; g_1-v_4 53.0; $Y-lg$ 35.2; $Y-g_1$ 17.7; $Y-v_4$ 52.1.

2-6b S.69-L.49; Breakpoint in 2 between g_{12} and v_4 .

2-6(5472)S.25-L.15; Breakpoint in 2 between g_{12} and v_4 .

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2. Albino seedling W7748. (see M.N.L. 43:113-114, 1969).

Crosses with the aleurone color testers show that r is the one with which this character is linked. Crosses have been made with other markers in this chromosome.

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3. White tip seedling.

This character was described last year (M.N.L. 43:114). It appeared among the self progeny of plants from crosses of A188 inbred with pollen from white-striped sib plants, and also in crosses on A188 interchange stocks. The latter F_1 's were backcrossed to white-tipped.

Segregation for the white-tipped character was close to 1:1, but most cultures had a few white-striped plants similar to the original ones, ranging from plants with a few white stripes to ones mostly white. Only in one culture was the segregation close to 3:1 (49 striped, 157 green).

There was no evidence of close linkage with T1-3 (5883), T5-7 (5179), T5-7e, or T3-7c. There was linkage with T2-10 (6061) (designated in Longley's ARS 34-16 list as T5-10 (6061)). The data are:

<u>Culture</u>	<u>Interchange breaks</u>	<u>+ S.S.</u>	<u>+ F</u>	<u>wh.tip S.S.</u>	<u>wh.tip F</u>
19247	2-10 (6061) S.60()-L.57	67	1	8	44
19248	" "	43	0	2	9
19224,5	2-4L L.59-S.40	38	23	22	13
19226,7	2-6b S.69-L.49	43	47	32	34
19233	5-10(5290) L.78-S.49	29	23	24	18
19245	1-3(5883)	21	13	19	14
19246	"	31	10	18	14

Only part of the plants were classified for sterility by pollen examination. Contrary to the statement in last year's report, the white-tipped plants were less vigorous than the normal sibs (on poor soil). Many of them had ears too small to be classifiable for sterility. This is reflected in the data for T2-10 (6061). The observed numbers give a recombination value of 6.3%, but the actual value is probably much lower than this. It is assumed that the breakpoints originally reported on chromosome 5 can be applied to chromosome 2. Since data for 2-6b with the break also in 2S and for T5-10 (5290) with the break in 10 in the short arm show independence, it is probable that this gene is in 10L.

The data for T1-3 (5883) are included as an illustration of the fact that occasionally (for no apparent reason) results based on only the dominant class for the character may be misleading. All but a few plants in these two cultures were classified on the basis of pollen sterility.

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4. Effects of colchicine on multiple interchange heterozygotes.

In M.N.L. 42:120 1968, it was reported that plants heterozygous for two rings of 10 produced sectors that extruded anthers and shed pollen when treated with colchicine as seedlings. The filled grains were much larger than normal. A few seeds were obtained by self pollination.

This seed was planted in the greenhouse and two plants transplanted to the field. The one plant that survived also had large pollen and was self-pollinated. The ear was well-filled but the kernels varied in size. Plants from both the large and small kernels