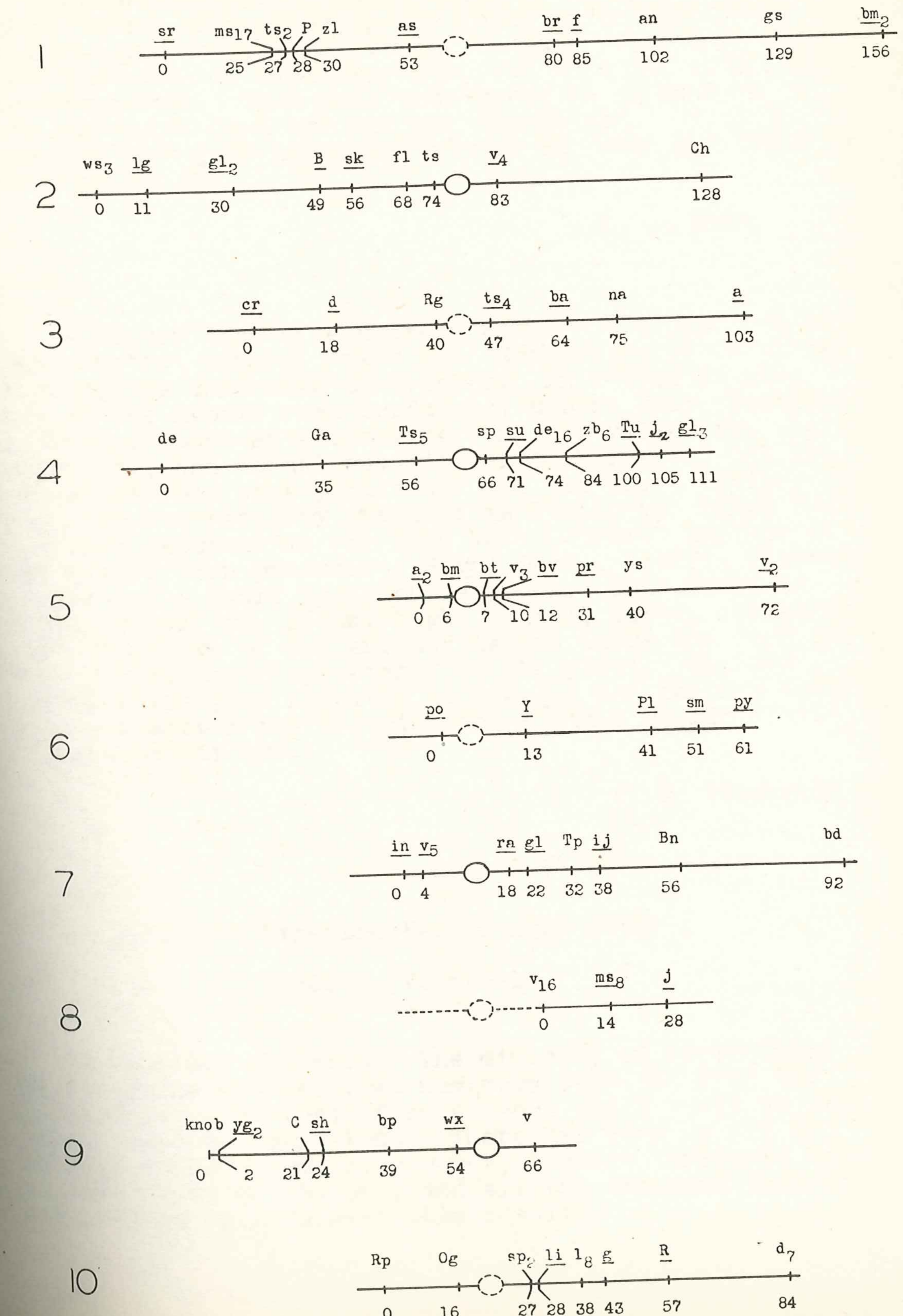
MAIZE LINKAGE MAPS

WITH TENTATIVE ASSIGNMENTS OF CENTROMERE POSITIONS



	No. Seeds	Endo-sperm defi-cien-cies	Embryo abor-tion	Lost: Un-germi-nated	Lost: Died Early +	Lost: Died Early -	Lost: No Pollen +	Lost: No Pollen -	Excluded: Hap-loid	Excluded: Contam-inated	Popu-lation
		%									
λ3022	210	43.1	19	12	10	8	0	0	2	0	159
λ2967	160	28.8	7	10	1	3	0	2	1	0	136
250 r	420	3.0	11	11	3	7	1	1	0	2	384
500 r	217	7.4	8	7	3	4	2	4	1	0	188
Control	1016	0.3	8	9	20	1	0	1	2	0	975

<u>Frequency of Pollen Segregation in F_1.</u> In populations so large as those required for the determination of mutation rates (particularly with low doses and control progenies), it is not feasible to determine the frequency of deficiencies and translocations by the direct cytological examination of every plant. Some indications regarding the frequency of chromosomal derangements may be obtained from the frequency and type of pollen segregation in F_1. Pollen segregation was recorded as to percentage and type of defective pollen, the types ranging from "a" (significant reduction in size but normal development of contents) to "e" (practically empty). In the table which follows, types a and b are listed as "subnormal", types c, d, and e as "aborted," and segregations of both classes in the same individual as "mixed,"

The following facts determined from investigations in previous seasons are of help in the interpretation of the pollen records:

(1) "Directed segregation" in maize translocations is absent or extremely rare. The plants with segregating defective pollen therefore include all of those in which translocation has occurred as well as those with deficiencies.

(2) Gametophytic lethals at points of translocation are absent or very rare. If, as a result of "position-effect" or other causes, there were a tendency for mutational effects at the breakage points, it might be expressed by failure in development or functioning of the pollen carrying the translocation chromosomes. This does not occur. It is therefore possible to discriminate between segregating defective pollen due to translocation and that due to deficiency by transmission tests.