

something or in other words that  $\underline{a}^{Dm}$  is  $\underline{\alpha} \underline{\beta}$  (incomplete) and that when  $\underline{a}^{Dm}$  mutates to  $\underline{A}^r$  some element leaves  $\underline{\alpha}$  and moves to the incomplete  $\underline{\beta}$  component providing a complete  $\underline{\beta}$ ; thus  $\underline{A}^r$  is  $\underline{\alpha}$  (incomplete)  $\underline{\beta}$  and is potentially able to revert to  $\underline{a}^{Dm}$  again.

Regardless of the kind of interpretation it is clear that the controlling element of the  $\underline{a}^{Dm}$  allele is able to move frequently from one aspect of  $\underline{A}_1$  expression to another and that sometimes it affects both at the same time as shown by the presence of seeds that are simultaneously mutating from colorless to pale and from colorless to full color.

M. G. Nuffer

### 3. Location and effects of $c_2$ .

The following data show  $c_2$  to be on chromosome 4:

Parent	X Y	Phase	+ +	+ y	x +	x y	Recomb.
wx T4-9g/ $c_2$	$C_2$ -Wx	RS	117	30	46	4	35 ± 6.1%
su/ $c_2$	$C_2$ -Su	RS	617	205	251	63	46 ± 2.3%

If  $c_2$  is in the long arm it is probably beyond  $gl_3$  ( $su-gl_3$  is around 35 units). The short arm has not been eliminated, however.

A few effects of  $c_2$  were described briefly in News Letter 34:91. A more complete summary is now possible. The homozygous recessive  $c_2 c_2$  and double-mutant combinations with most others ( $\underline{a}_1$ ,  $\underline{a}_2$ ,  $\underline{bz}_1$ ,  $\underline{bz}_2$ ,  $\underline{c}_1$ ,  $\underline{C}^1$ ,  $\underline{r}$ , and  $\underline{pr}$ ) have completely colorless aleurone tissue but  $c_2$  in kernels have dilute purple color. In plant tissues,  $c_2$  results in much-reduced pigmentation in the husks and sheaths; strong color develops only in the leaf auricles, glume bars, and similar tissues. The combinations of  $c_2$  with other plant-color factors show the effects of both; for example,  $c_2 a_1$  plants (with  $\underline{B} \underline{P}_1$ ) are very weak brown, like  $\underline{a}_1$  plants in color but like  $c_2$  in strength of pigmentation. If  $c_2$  affects pericarp color in P background at all, it is only by a very slight reduction in color intensity. The dosage effect of  $c_2$  in the aleurone is very clear; from a selfed ear of  $+/c_2$ , 13 selfs of full-color seeds were found to include 10  $+/+$  and 3  $+/c_2$ , while 15 selfs of pale seeds were all  $+/c_2$ .

E. H. Coe