

pened the bivalent normal chromosome 10 appeared to have four short arms which are alike. Sometimes the short arms oriented in such a way that they formed a closely associated quadrivalent. In such cases they appeared to exchange their partners throughout their length.

In order to determine the frequency of the association between the telocentric bivalent and the chromosome 10, about 50 microspores were studied. In about one-half of the cases the bivalent chromosome 10 was associated with the telocentric bivalent and in about a fourth of the cases the telocentric bivalent was left free in the cells. Whenever it was not associated with any of the chromosomes it was usually located in the periphery of the sporocytes. Less frequently this telocentric bivalent was paired with the other chromosomes rather than that of chromosome 10. Occasionally this telocentric bivalent was associated with the B-chromosome at the centric regions.

At anaphase I the telocentric bivalent always failed to divide. Instead of two, it moved to one pole only. Therefore its distribution in the subsequent divisions would be irregular.

Y. C. Ting

#### 9. Association between B-chromosome and abnormal chromosome 10.

In the plants of a cross heterozygous for an abnormal chromosome 10 and also carrying a bivalent B-chromosome, it was found that the heterochromatic part of abnormal 10 was sometimes associated with the B-chromosome. In other instances only the knob-like region of the B-chromosome was paired with the abnormal chromosome 10 at a point of the latter's extra piece of heterochromatin. A few times the paired portion of the attached heterochromatic fragment involved its entire length. More frequently, however, the attached heterochromatic fragment was fused with the knobs on various chromosomes. These observations show that the attached heterochromatic portion of the abnormal chromosome 10, the knobs of various chromosomes, and the B-chromosomes have a high degree of "homology."

Y. C. Ting

#### 10. The blotching system involving the c locus.

In earlier reports it was stated that there are four genes involved in the blotching system which causes blotches of color to develop in the aleurone in A c R genotypes. This conclusion was based on populations which had ratios closely approaching 81:175, the ratio expected when four factors are segregating. In last year's News Letter, because only three different testers could be isolated, it was concluded that only three genes are involved in this system. Now it appears that the earlier reports were more nearly correct than last year's.