and photoperiodic response but differs from it quite markedly in its chromosome knobs which are largely internal.

Chromosomes 1 and 4 of the Honduras teosinte each have two large internal knobs, one on each of their arms. Chromosomes 2 and 3 have one large internal knob on the short arm and in addition chromosome 3 also has a medium-size terminal knob on the same arm. There are no knobs on chromosomes 5, 7, and 10. On chromosome 6 three knobs are present; the one on the short arm is terminal and the others on the long arm are internal and occupy the first and the second knob positions. The terminal knob on the short arm of chromosome 8 is very small, while the terminal knob on the short arm of chromosome 9 is prominent.

Mexican teosinte from Chapingo. In a Mexican teosinte from Chapingo pachytene chromosomes 1, 2, 3, 4, 5, and 8 were found to be different from those previously reported in this variety. Chromosomes 1, 3, 4, and 8 are knobless. Chromosomes 2 and 5 each have one internal knob; that of chromosome 2 is on the short arm; that of chromosome 5 is on the long arm. Fusion of chromosome knobs in this variety is common. On the average, chromosome 6 of Chapingo teosinte is shorter than either chromosome 7 or chromosome 9.

Mexican teosinte from Xochimilco. In this variety of teosinte pachytene chromosomes are always well spread in spite of the fact that most of them have one or two knobs. Fusion of chromosome knobs was rarely observed.

Chromosomes 1, 2, and 4 each have two knobs, one on each arm. Chromosomes 3, 5, and 7 each have one knob on the long arm. There are four knobs on chromosome 6; the terminal knob on the short arm and the knob on the first knob position of the long arm are small while the knobs on the second and the third knob positions of the long arm are large. There is a terminal knob on the short arm of chromosome 9. Both chromosomes 8 and 10 are knobless.

Y. C. Ting

8. Telocentric chromosomes.

Telocentric chromosomes, previously reported by Rhoades for chromosome 5, have been found for chromosome 10 in a cross of our strain carrying a B-chromosome with a strain received from Dr. Rhoades which was homozygous for abnormal chromosome 10.

At pachytene stage these telocentric chromosomes, like the normal bivalent chromosome 10, were always well paired. The size of the terminal centric region was about equal to that of the bivalent chromosome 10. The telocentric bivalent was frequently associated with the bivalent chromosome 10 at the centromere regions. Whenever this hap-

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 microsporocytes 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.