was always found to be smaller than the other two chromosomes, it appears that the third one does not represent an entire homologous chromosome but only a large centric fragment of it. The plant is propagated vegetatively and cytological examination of the material from the suckers also showed the same trisomic condition. Seed set was good and from selfed seed of this plant, three plants were raised and checked cytologically. All the plants showed 2n=20 and regular bivalent formation.

(b) Cytological material collected in midsummer (May 1967) from a plant bearing all sterile seeds showed desynapsis. Univalents varied from 12 to 20 per cell at diakinesis and metaphase I. Other abnormalities associated with univalent formation, such as laggards at anaphase I and II and micronuclei, were common.

When the original culms of this plant were nearing their end by about July 1967, new suckers started coming up. Cytological examination of the material fixed in the rainy season (September 1967) from these suckers revealed regular meiosis with 10 bivalents at diakinesis and metaphase I. Seed setting was fairly good. It is therefore believed that the desynaptic behavior and the consequent seed sterility in the original culms were the result of the effect of high summer temperature.

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3. Cytological studies in the progeny of tetraploid plants of job's tears.

Three tetraploid plants (4n=40) obtained by colchicine treatment in 1966 began flowering in September 1966 but seed set was poor during October 1966 to January-February 1967 (MNL 41:7, 1967). The vegetative suckers from these plants produced a good number of black spherical seeds in March-April 1967. From a sample of the seed collected from each of the three open pollinated tetraploids a large progeny was raised in June 1967. One hundred twenty-four out of 170 seeds sown have germinated (72.94%). Germination started in 9 or 10 days and continued till 45-60 days after sowing. These were transferred to the field in 4-5 weeks after germination. White chalky seeds produced on the same plants are usually sterile but a large number of these were also sown separately. One of them germinated and produced a healthy plant.

Pollen mother cells in 70 plants of the progeny were examined at diakinesis, metaphase I, and anaphase I for chromosome numbers. Even though tetraploids and diploids were growing side by side no triploids were obtained in the progeny. The table below shows the frequency and percentage of plants with different chromosome numbers met with in the progeny.

	Chromosome numbers in the Progeny				Total
	21	39	41	40	
Frequency of plants	1	5	8	56	70
Percentage	1.43	7.14	11.43	80.00	100

Only 20% of the plants studied showed any variation in chromosome number. The 21 chromosome plant (trisomic) might have originated by parthenogenetic development of an unfertilized egg carrying 21 chromosomes (due to irregular distribution of chromosomes at anaphase). The plants with 39 and 41 chromosomes were probably resultants of mating between a normal gamete (n=20) and a gamete with one chromosome added (n=21) or removed (n=19) owing to irregular distribution at anaphase. The plants with 40 chromosomes could result by the union of normal gametes or of gametes having 19 and 21 chromosomes. It is not known, however, whether the male gamete carrying the unbalanced number functions normally with other pollen, but on the female side such gametes seem to function. All the plants with 4n number in the progeny showed multivalent formation (up to quadrivalents). In the 41 chromosome plants, as expected, a pentavalent was observed in a proportion of cells. In the 39 chromosome plants, in all the cells, either a trivalent or an univalent was clearly seen. The trisomic plant showed 9 bivalents and 1 trivalent.

Seed setting is generally good in all the progeny but some plants produced abundant seed. Seed size and shape are varied, sometimes even within the plant. The color is usually black but in some it is diluted to brown.

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4. Meiosis in Sclerachne punctata R. Br.

The genus Sclerachne, with only one species (S. punctata) and restricted in distribution to Java, Modoera, and Timor (Henrard, 1931), is an Oriental relative of maize. Cytological studies on this species were limited to observations made by Mangelsdorf and Reeves (1939) and Larsen (1963) on somatic chromosomes (2n=20). Some observations on meiosis were made now and reported here. Seeds were kindly provided by Professor Paul Weatherwax. The chromosomes at pachytene appear uniformly stained. Formation of 10 bivalents at diakinesis and metaphase I and a 10:10 distribution of chromosomes at anaphase I were observed. Two bivalents were usually found near the nucleolus. Among the 10 bivalents, 2 are large, 2 slightly smaller than the large ones and 6 are small. All the bivalents do not always orient on the metaphase plate, but are often found to occur in 6 or 7 groups due, perhaps, to secondary associations; 3 or 4 groups of two bivalents each and