

After diplonema, the synaptonemal complex was no longer observed. The polycomplex comprised of various synaptonemal complexes observed in the oocytes of mosquito after diplonema was certainly not demonstrated.

Since the synaptonemal complex has also been identified in the nerve cells of mosquito, the question as to what role this complex plays in chromosome synapsis and crossing over remains to be answered. It is likely, however, that with continued research, the function and the exact fine structure of this complex will soon be revealed.

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3. Further studies on haploid maize.

a. Fertility: In the summer of 1966, three haploid maize plants grew to maturity in the field. They were completely male sterile due to poorly developed pollen. Ears of these plants were pollinated with sib plants. Eighteen well-developed kernels were obtained from the three ears. When the ovules were counted, it was calculated that more than one per cent set seed. This is much higher than the expected less than 0.1 per cent seedset for haploid maize. It might be accounted for by the fact that some of the megasporocytes formed restitution nuclei instead of undergoing complete division at the first meiosis. Therefore, the two spores produced by any restitution nucleus might receive the regular 10 chromosomes. A study of the chromosome constitutions in the immediate generation of sib-crossings is in progress.

b. Production: During the last two years, experiments with the objective of obtaining a large number of haploid maize plants were carried out. Two strains of maize were employed as kernel parent: one was homozygous for gl_1 , the other homozygous for C (colored endosperm and scutellum). Plants of these strains were pollinated by Coe's stock No. 6, homozygous for C^I (colorless endosperm and scutellum). Over seven thousand kernels from the cross $gl_1 gl_1 \times C^I C^I$ were obtained. After careful screening, 95 putative haploid seedlings were selected. As root tip chromosomes were counted, it was found that over 50 per cent of the plants were diploid. Therefore, this technique is inefficient in screening haploids. The inefficiency can probably be accounted for by the difficulty in discriminating glossy from normal seedlings. However, among about 300 selected kernels (colored scutella) in the cross $CC \times C^I C^I$, almost all proved to be maternal haploids by root tip chromosome counts. Hence, the technique based on the use of the colored scutellum marker in selecting for maternal haploid embryos is highly efficient.

c. Radiosensitivity: In a preliminary test, it was found that haploid maize seedlings two weeks old were more susceptible to the damage of ionizing radiations than diploids of the same age. A detailed report of this experiment is in preparation.

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