

pachytene stage. The three components of this complex, two lateral elements and one central element, were well differentiated. No complex was found to be attached to the nuclear envelope. The average diameter of the complex was 2200 Å. Both knobs and centromeres of the different chromosomes could also be recognized.

In addition to the normal nucleolus, one to several nucleolar bodies were frequently present. One of the nucleolar bodies was found to have several vacuoles arranged in an orderly form. Details of these studies will be reported later.

Y. C. Ting

## 2. Fine structure of the nucleolus of a diploid maize.

Under the light microscope a cup-shaped structure could be identified at the pachytene stage in the nucleolar organizer region of the microsporocytes of a diploid inbred maize (Strain A158). This structure persisted through diakinesis, even though its shape and size might vary somewhat. In addition, nucleolar bodies, ranging from one to four, were also frequently found. Their diameter was, on the average, five microns. With standard procedures of electron microscopy, the cup-shaped region of the nucleolus was seen to be comprised of fibers in a spiral arrangement. These fibers measured approximately 400 Å in diameter. They were as darkly stained as the rest of the nucleolus throughout the prophase of meiosis. No membrane-like structure enclosing either the nucleolus or the nucleolar bodies was observed. However, both organelles consistently showed a vacuole or vacuoles in the middle region. The vacuoles appeared to be free from any inclusions.

Y. C. Ting

## 3. Preliminary studies of normal and male sterile cytoplasm in maize.

Root tips from WF9T male sterile maize and its maintainer (WF9) were prepared for electron microscopic observation. Inclusions were not usually present in male sterile cells, although some inclusions were noticed in the cells of the future vascular cylinder. These inclusions, which have not been seen in the maintainer cells, appear to be membrane-bound and often contained three or four dark staining granules. The

average diameter of these inclusions is 6500 Å. In addition, it was noted that the cells of the male sterile root tips contain fewer chloroplasts than those of the maintainer. Studies of the inclusions and of the decreased number of chloroplasts will be continued using various lines of T-type cytoplasmic male sterile maize.

Rita Ryan

4. Effect of streptomycin on chlorophyll content in maize seedlings.

Currently an attempt is being made to induce cytoplasmic sterility in maize. Seeds (C103N) were immersed in 25 ml of streptomycin solution (Petrov, Fokina, and Zheleznova, U.S. Pat. #3,594,152) at 24°C. using the following doses: .0005, .001, .005, .01, .05, .1, .5, 1, 5, 10, 50, 100, 500, 750, 1000, 2500, 5000, and 10,000 micrograms/milliliter. At the same time, control seeds were soaked in distilled water.

The seeds were then placed in pots and allowed to germinate. Marked variations were noted when comparing the treated seedlings with the controls. Some seedlings that had been treated with 50 ug/ml (.005%) were albino and those which had been treated with higher doses either had completely white leaves or showed a variegated pattern of green stripes on white leaves. This demonstrates an effect of streptomycin on the chlorophyll content at lower doses than was expected.

Differences in the growth of the plants were also noted with an enhancement of growth occurring with doses between .1 and 1 ug/ml and with a retardation of growth occurring in seedlings treated with higher doses.

Although the albino plants are not expected to survive, all available plants will be checked later for pollen production. It is hoped that streptomycin will have had a more subtle effect at the lower doses and that this effect will result in cytoplasmic sterility.

Rita Ryan