

Georgia Microscopical Society Young People's Course in Microscopy January - March 1995

James R. Millette, Georgia Microscopical Society

The Georgia Microscopical Society, a non-profit organization meeting at the Fernbank Science Center in Atlanta, Georgia, has sponsored a Young People's Course in Microscopy for a second year. This course, open to high school students, met for 8 sessions on Saturday mornings. The course instructors were Society members from educational, governmental and private institutions who donated their time. The course was organized in the following manner:

1. Introduction to Microscopy. Lectures were on the history of microscopy, kinds of microscopes, the nature of light, optics and how to prepare specimens for viewing. This lecture was followed in a laboratory in which each student set up a microscope, viewed prepared slides and performed measurements and drawings.

2. Polarized Light Microscopy. The lecture was on the application of polarized light in microscopy, refractive indices, and isotropic and anisotropic materials. The laboratory included analyzing natural fibers, glass fibers, paper making fibers and synthetic fibers.

3. Chemical Microscopy. The lecture described states of matter: crystallization and growing crystals, crystal systems and fusion methods. The laboratory included observation and drawing of crystals crystallizing from solution and from a melt using the polarized light microscope.

4. Classification of Living Things. The lecture involved a discussion of how to classify various microscopical animals and plants while the laboratory included specimens collected from a nearby pond by the students as well as prepared slides of blood, epithelial cells, spores and pollens.

5. Mineralogy. The lecture describes various minerals, their occurrence, classification and preparation of thin sections for microscopical study. The

laboratory included the study of mineral grains and thin-sections.

6. Forensic microscopy. The lecture provided an overview on how microscopy helps to solve crimes. The laboratory included examination of trace evidence: hair, fibers, insulation, explosives, drugs, soils and pollens.

7. Electron microscopy. The lecture described the principles and differences between scanning and transmission electron microscopy as well as elemental analysis. The laboratory involved specimen examination by each student on both the SEM and TEM. Each student obtained elemental spectra and an SEM photograph.

8. Photomicrography. The lecture covered photographic equipment, film speed, types of film, color, temperature, and exposure measurement. In the laboratory, each student took photomicrographs of specimens of their choice. ■

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