trasted with those in bundle sheaths of tropical grasses and other "Hatch-Slack" plants. N. E. Tolbert (East Lansing) outlined the metabolic activities of leaf peroxisomes and some of the problems in their isolation. W. D. Bonner (Philadelphia) reported highly intact mitochondria from white potato, but concluded that "God in his infinite wisdom meant that roots were not to be ground up." The consensus from numerous informal discussions was that difficult problems remained in the recovery of pure suspensions of completely intact chloroplasts, peroxisomes, and mitochondria.

The application of zonal centrifugation to the separation of specific particles was discussed by a number of speakers: bacterial "minicells" (W. Fisher, Oak Ridge), animal nuclei of different ploidy (C. A. Albrecht, Oak Ridge), continuous-flow harvesting and separation of intact from stripped chloroplasts (D. H. Brown, Oak Ridge), separation of mitochondria from derepressed and repressed yeast (C. A. Price, New Brunswick), preparation of homogeneous viruses for vaccine production (J. L. Gerin, Bethesda; H. E. Bond, Bethesda), one-step fractionation of serum lipoproteins by density gradient flotation (M. Heimberg, Nashville), and separation of undegraded chromosomal DNA by reorienting gradient techniques (J. Lett, Fort Collins).

Among the most imaginative applications of particle separations was the proposed control of the Douglas fir tussock moth caterpillar through large-scale purification of the specific polyhedrosis virus in a K-type rotor (J. P. Breillatt, Oak Ridge).

The microsymposium and two associated workshops were sponsored by the American Society of Plant Physiologists, the University of Tennessee–Oak Ridge Graduate School of Biomedical Sciences, and the Molecular Anatomy Program of the Oak Ridge National Laboratory. Support was provided by these organizations plus the Division of Biology and Medicine of the U.S. Atomic Energy Commission, the International Equipment Company, and the Spinco Division of Beckman Instruments. The published proceedings of this microsymposium will be available from the MAN Program, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

C. A. PRICE

Rutgers University,
New Brunswick, New Jersey 08903

Courses

Experimental and Theoretical Analysis of Modern Characterization Methods Applied to Electronic Materials, Cambridge, Mass., 27 July–7 August. This course will deal with the available methods and techniques (their potential and limitations) for the chemical and physical characterization of materials (for electronic applications, semiconductors, magnetics, dielectrics, and others). The principles of the various characterization techniques will be discussed as they relate to the determination of trace impurities, impurity heterogeneities, crystalline structure, lattice defects, electrical carriers, and surface configuration of specific classes of electronic materials. (Director of the Summer Session, Room E19-356, Massachusetts Institute of Technology, Cambridge 02139)

Anthropology for College Teachers, Boulder, Colo., 15 June–21 August. This summer institute is being offered for the 10th year and has been awarded a grant by the National Science Foundation. Is intended for 30 college and junior college teachers of anthropology whose formal training in the subject is weak. (Dr. A. J. Kelso, Director, Department of Anthropology, University of Colorado, Boulder 80302)

Theory and Practice of the Analytical Ultracentrifuge; Advances in Macromolecular Characterization, Woods Hole, Mass., 11–22 May. Material will include basic information, sedimentation velocity; boundary analysis; zonal and active enzyme sedimentation velocity, sedimentation equilibrium of enzymes, including paucidisperse systems; density gradient sedimentation equilibrium; and optical techniques. *Tuition*: $400. (Dr. David Teller, Department of Biochemisty, University of Washington, Seattle 98105)

Anatomy, Physiology, and Patient Care, Charleston, S.C., 13 July–7 August. The course is designed to familiarize the engineer with the problems involved in the delivery of medical care. The opportunity to observe the activities of the emergency room, operating room, intensive care unit, and other areas of the hospital is provided. Limited to 40 participants. *Tuition*: $500. (Mr. Thomas S. Hargest, Director, Engineering Development Section, Department of Surgery, Medical University of South Carolina, Charleston 29401)

Polymers (Characterization, Morphology, and Structure-Property Relations), Houston, Tex., 4–8 May. *Fee*: $300. (Mary B. Appleton, Office of Continuing Studies, P.O. Box 1892, Rice University, Houston, Tex. 77001)

Practicum in Histology, Boston, Mass., 24 May–5 June. An intensive program in histological techniques, including fixation, embedding, microtomy, staining, and autoradiography, is designed for doctoral level investigators. Highly recommended laboratory assistants will be considered. Limited to 12 students in order to insure maximum practical laboratory experience. (Dr. Clifford F. Youse, Director of Programs in Applied Science, Center for Continuing Education, Northeastern University, Boston, Mass. 02115)