A case in point is the work of Clifford Grobstein (Stanford University) in which the in vitro system gave rise to his logical and stimulating new hypothesis regarding cell and tissue interaction in organogenesis. It must be remembered, however, that direct extrapolation of in vitro results may be partially or wholly fallacious. On the other hand, one must also appreciate the potential application of tissue culture techniques to a variety of puzzling elementary problems. Michael Abercrombie (University College, London) emphasized research on cell adhesiveness itself. His incidental finding that minute quantities of sera, added to his cultures, reduced cell adhesiveness may be an in vitro demonstration of that enigmatic problem of immunological enhancement which, while apparently of fundamental importance in tumor physiology, has proven refractory to detailed in vivo evaluation.

The Conference was held under the auspices of the Tissue Culture Association. The proceedings will be published in monograph form by the National Cancer Institute.

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Electron Microscopy

"The analysis of matter including living bodies may be called the greatest undertaking to be discharged in the latter half of the 20th century." With these words, Prince Takamatsu, brother of the Emperor of Japan, opened the Sixth International Congress on Electron Microscopy in Kyoto, Japan (26 August–4 September 1966). Approximately 1320 persons from 37 foreign countries attended the meeting which was held in the new Kyoto Kokusai Kaikon (International Hall).

In the opening sessions, general lecturers on electron microscopy summarized developments that had taken place since the previous congress in 1962. N. Higashi (Kyoto University) reviewed developments in Japan and included statistics relating to the scope of activity in electron microscopy in Japan. For example, the Japanese Society of Electron Microscopy has 1800 members, almost the same number as its American counterpart. In 1965, 473 electron microscopes were produced in Japan; of these, 65 percent were exported. At present, 35 percent of the electron microscopes in use throughout the world were produced in Japan.

Means of improving the relatively low contrast of amorphous materials, especially unstained biological substances, were discussed by Gaston Dupouy (Electron Optics Laboratory, Toulouse). In particular, he illustrated the increase achieved by the use of a small metallic disk located on the optic axis in the aperture of the objective lens. This disk intercepts the large fraction of electrons (in the beam) not scattered by the specimen, and results in a large increase in contrast, even at 1,000,000 electron volts. Seishi Kikuchi (member, Japan Academy) reviewed the status of theoretical and experimental studies of Kikuchi lines and bands and emphasized the need for considering multiple reflections in any complete analysis of the effect to explain all the features observed in these patterns.

Problems in resolving individual atoms were outlined by R. D. Heidenreich (Bell Telephone Laboratories). In addition to instrumental factors, such as stability, specimen drift, and contamination, he described the effect of illuminating and focusing conditions on the images of single or small groups of atoms. A unique interpretation of single images is not possible; it may be necessary to link a computer to the microscope for processing the information in a series of images to produce the correct representation of the specimen.

Approximately 750 papers were delivered at the conference, divided almost equally between biology and nonbiology. About 50 papers were devoted to instrumentation, including high-voltage and high-resolution electron microscopes, electron guns, lens aberrations, superconducting lens properties, ultrahigh vacuum techniques, and specimen devices and accessories. Significant advances have been made in the 4 years since the preceding conference, leading to the day when a resolution of 3 or 4 Å will be routine, at least on suitable specimens.

Various aspects of electron interactions with the specimen, including extensive treatments of the dynamical theory of diffraction and its relation to image contrast and the resolution of individual atoms, were discussed. Much of the current interest in this subject is concerned with inelastic scattering effects, and a number of papers dealt in detail with anomalous absorption and related measurement and interpretation of the energy losses of electrons during transmission through thin crystals. The principal nonbiological applications discussed were point defects in quenched or irradiated materials, phase transformation and precipitation, crystal growth and surface reactions, and the dislocation structure of deformed materials. With two or three exceptions, all of the papers were assembled in two volumes, as preprints, edited by R. Uyeda of Nagoya University.

The next international meeting will be held in 1970 in Grenoble, France. The organizing committee for this meeting will be headed by Professor Gaston Dupouy, newly elected (at the Kyoto conference) president of the International Federation of Societies for Electron Microscopy.

Our Japanese hosts may rest assured that "Kyoto 66" will not soon be forgotten by their many new friends from abroad.

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Calendar of Events

Forthcoming Meetings—May

11–12. Canadian **Operational Research** Soc., 9th annual conf., Ottowa, Ont., Canada. (Chairman, The Society, Box 120, R.R. No. 1, Ottawa, Ont.)

12–13. Association of University **Radiologists**, annual mtg., Philadelphia, Pa. (S. Rogoff, Dept. of Radiology, Univ. of Rochester Medical School, Rochester, N.Y. 14620)

12–13. **North Carolina Acad.** of **Science**, Duke Univ., Durham. (J. A. Yarbrough, Meredith College, Raleigh, N.C.)

12–13. Northern and Southern societies for **Electron Microscopy**, joint mtg., Anaheim, Calif. (R. F. Bils, Hancock Foundation, Univ. of Southern California, Los Angeles 90007)

14–19. Institute of **Food Technologists**, 27th annual, Minneapolis, Minn. (The Institute, 221 N. LaSalle St., Chicago, Ill. 60601)

14–19. Society of **Photographic Scientists and Engineers**, annual conf., Chicago, Ill. (W. S. Dempsey, Itek Corp., 1735 Eye St., NW, Washington, D.C. 20006)

15. **Biomacromolecules**, symp., New York Soc. of Electron Microscopists and New York Univ. School of Medicine, New York, N.Y. (S. S. Breese, Jr., Plum Island Animal Disease Lab., Box 848, Greenport, Long Island, N.Y. 11944)

15–17. **Aerospace Electronics** Conf., 19th annual conf., Dayton, Ohio. (Inst. of Electrical and Electronics Engineers, Dayton Office, 1414 E. 3 St., Dayton 3)

15–17. **Diagnosis** and **Treatment** of **Deposited Radionuclides**, intern. symp., Richland, Wash. (T. Bauman, The Symposium, P.O. Box 999, Richland 99352)