Meetings and Societies

Symposium on X-ray Microscopy

A symposium on x-ray microscopy and microradiography was held in the Cavendish Laboratory, Cambridge, England, during the period 16–21 Aug. It was sponsored by the International Union of Pure and Applied Physics and was financially aided by UNESCO and by British industrial patrons. There is no formal organization of workers in this field, and the successful conduct of the symposium, and indeed its conception, are traceable to the personal efforts of V. E. Cosslett of the Cavendish Laboratory, a leading center of investigation in the field of microscopy with x-rays.

The opportunities of the symposium were open to interested scientists everywhere, and 125 persons, from 12 countries, attended. In the program of 66 papers all of these sources were represented, and contributions to be read in absence were received from two others (Uruguay and the U.S.S.R.). The members of the symposium could be identified as physicists, physical chemists, biologists, medical scientists, metallurgists, electronic theorists, and advanced scientific technicians.

The recent growth of interest in x-ray microscopy has been supported in part by the theoretical possibility of obtaining high resolution with the short x-ray waves, but the actual resolutions claimed thus far have resembled those obtained by optical and ultraviolet methods and promise no competition for the electron microscope in the matter of resolving power, except insofar as x-ray methods may be used in the preparation of specimens for electron microscopy. The specific advantages of x-ray microscopy lie in the wide range of penetrating powers available, its great focal depth, and its promise of microchemical and microphysical analysis through the combination of microscopy with methods of differential absorption, emission, fluorescence, and diffraction. The possibility of moderately high-resolution microscopy without desiccation of the specimen is appealing in some fields.

The Cambridge symposium was opened by N. F. Mott as president of IUPAP and head of the Cavendish Laboratory. A general survey of the field by Cosslett was followed by general accounts of the three methods which have been most intently studied. These presentations were by P. Kirkpatrick (Stanford) on the grazing-incidence reflection method, A. Engström (Stockholm) on the techniques of contact microradiography, and W. C. Nixon (Cambridge) who discussed the shadow projection method employing a micro-focus x-ray source. The problems, accomplishments, and prospects of these three methods were examined in greater detail by the speakers who appeared on succeeding days. Other methods were also examined, and many related theoretical and experimental developments were disclosed and discussed on the floor, to the undoubted benefit of this interdisciplinary scientific area. The formal papers and some of the impromptu discussion are to be made generally available in book form.

To facilitate continued cooperative activity and communication in x-ray microscopy, a small committee was formed and charged with the duties of studying possible forms of organization, taking steps to develop a specialized abstracting service, and planning a second symposium which is now tentatively scheduled for 1959 in Stockholm.

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Conference on Tissue Culture

On 8–12 Oct. 1956 at Woodstock, Vt., 256 scientists from a dozen countries, including England, Wales, France, Belgium, Holland, Switzerland, Germany, Italy, Sweden, Jugoslavia, Brazil, Israel, and India, gathered under the sponsorship of the Tissue Culture Association to review progress in the use of tissue culture during the past 10 years and to plan for the next decade.

Tissue culture is the method by which the tiny cells of which all living creatures—plants, animals, and men—are made up, are taken out of the body, grown under controlled conditions, and studied as living functioning individuals so that we may better understand how they interact in the body to bring about growth and to produce those states which we call "health" or "disease." Best known to the public for its contribution in making possible the production of vaccines—the Salk vaccine is grown in tissue cultures of monkey and human tissues, eliminating the use of living animals—the method is being increasingly used in the study of many medical and biological problems.

The 4-day program was divided into four sessions (nutrition, morphogenesis (the origin of form and function), viruses, and cancer), and each session was in turn divided into four parts (study of plants, of animals, of related collateral fields, and of future trends).

The highlights of the program on the first day were papers on the development of relatively simple defined nutrients in which such cultures can be maintained. Of especial interest in this group were the papers by Waymouth (Bar Harbor, Me.), Evans (National Cancer Institute, Bethesda, Md.), Parker (Toronto, Canada), Morgan (Ottawa, Canada), and Street (Swansea, Wales). Waymouth and Street have, in their work, followed the leadership of White, also of Bar Harbor, who is currently president of the Tissue Culture Association and who organized the conference.

Outstanding on the second day was the fascinating work of Moscona (Israel), Grobstein (U.S.A.), and Wolff (France), in which animal organs such as kidney were broken down into a brew of single cells by partial digestion, stopping short of killing the cells, and then recombined so that, for example, a kidney made up of mixed chicken and mouse cells yet capable of at least partial function was formed. This, together with the work on cultivation of whole organs by Gaillard (Belgium), Fell (England), Martinovitch (Yugoslavia), and others, provides the basis for, we may hope, the ultimate provision of "spare parts" for damaged bodies, a beginning of which was dramatically shown in a movie on the preparation of human skin and bone "banks" and their use, shown by Hyatt (U.S. Naval Research Center, Bethesda, Md.).

The third day was highlighted by descriptions of methods of growing viruses in tissue cultures, by Syverton (Minneapolis), their study and diagnosis by Melnick (Yale University) and others, the ways in which viruses attack cells as seen in the electron microscope by Bang (Johns Hopkins), and the probable future of this approach by John Enders (Childrens Hospital, Boston) who received the Nobel prize last year for his work on viruses in tissue culture.

The last day, devoted to tissue culture in cancer research, was noteworthy for the discussion of studies on cancer in plants by use of tissue-culture methods, presented by Braun (Rockefeller Insti-

tute)—another approach pioneered by White—on the use of the semiliquid (ascites) tumors in studies of tumor variation and metabolism, by Klein (Stockholm, Sweden); the use of "windows" attached to the bodies of animals to study the progress of tumors, developed by Algire (National Cancer Institute); and a review of cancer research as it is now being developed in India, by Ranadive (Bombay).

It is certain that this conference will prove as useful in promoting interchange of ideas and stimulating future work as did the much smaller conference in Hershey, Pa., in 1946. The 250 participants in 1956 are a far cry from the 15 tissue culturists present a decade ago.

HASKELL CLEAVES
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Forthcoming Events

January

24–25. Western Spectroscopy Assoc., 4th annual, Los Angeles, Calif. (S. S. Ballard, Scripps Inst. of Oceanography, San Diego 52, Calif.)

25. Bibliographical Soc. of America, New York, N.Y. (H. W. Liebert, Yale Univ. Library, New Haven, Conn.)

25–26. Protein Metabolism, 13th annual conf., New Brunswick, N.J. (W. H. Cole, Rutgers Univ., New Brunswick, N.J.)

28–29. Many Body Problem, symp., Hoboken, N.J. (G. J. Yevick, Dept. of Physics, Stevens Inst. of Technology, Hoboken.)

28–31. American Meteorological Soc., New York, N.Y. (K. C. Spengler, AMS, 3 Joy St., Boston 8, Mass.)

28–31. Modern Methods of Analytical Chemistry, 10th annual symp., Baton Rouge, La. (P. W. West, Louisiana State University, Baton Rouge.)

30–1. American Assoc. of Physics Teachers, New York, N.Y. (F. Verbrugge, Carleton College, Northfield, Minn.)

30–2. American Physical Soc., annual, New York, N.Y. (K. K. Darrow, APS, Columbia Univ., New York 27.)

30–31. College-Industry Conf., 9th annual, American Soc. for Engineering Education, Los Angeles, Calif. (Univ. of California Extension, Engineering, Los Angeles 24.)

31–1. Digital Computing in the Aircraft Industry, NYU–IBM symposium, New York, N.Y. (M. Woodbury, New York Univ., Research Div., 401 W. 205 St., New York, N.Y.)

31–2. Western Soc. for Clinical Research, 10th annual, Carmel-by-the-Sea, Calif. (A. J. Seaman, WSCR, Univ. of Oregon Medical School, Portland 1.)

February

3. American Assoc. of Bioanalysts, 3rd annual Margaret Beattie Lecture, San Francisco, Calif. (W. N. Reich, Walnut Creek-Lafayette, Laboratories, 1625 Locust St., Walnut Creek, Calif.)

4–8. American Soc. for Testing Materials, Philadelphia, Pa. (R. J. Painter, ASTM, 1916 Race St., Philadelphia 3.)

10–12. Canadian Ceramic Soc., 55th annual, Niagara Falls, Ont., Canada. (L. C. Keith, 49 Turner Road, Toronto, Ont.)

14. Present Status of Heart Sound Production and Recording, symp., Buffalo, N.Y. (R. M. Kohn, Univ. of Buffalo, 2183 Main Street, Buffalo 14, N.Y.)

14. Significance of Nucleic Acid Derivatives in Nutrition, Assoc. of Vitamin Chemists, Chicago, Ill. (M. Freed, Dawe's Laboratories, Inc., 4800 S. Richmond St., Chicago 32.)

14–15. Transistor Circuits, conf., Philadelphia, Pa. (G. H. Royer, Westinghouse Electric Corp., 356 Collins Ave., Pittsburgh 6, Pa.)

15–16. National Soc. of Professional Engineers, Charleston, S.C. (P. H. Robbins, 2029 K St., NW, Washington 6.)

15–17. National Assoc. for Research in Science Teaching, annual, Atlantic City, N.J. (C. M. Pruitt, Univ. of Tampa, Tampa, Fla.)

18–20. American Educational Research Assoc., annual, Atlantic City, N. J. (F. W. Hubbard, AERA, 1201 16 St., NW, Washington 6.)

18–22. American Soc. of Civil Engineers, Jackson, Miss. (W. H. Wisely, ASCE, 33 W. 39 St., New York 18.)

18–22. Endocrinology: Hormones in Blood, Ciba Found. Colloq. (by invitation), London, England. (G. E. W. Wolstenholme, 41 Portland Place, London.)

21–23. National Soc. of College Teachers of Education, annual, Chicago, Ill. (C. A. Eggertsen, School of Education, Univ. of Michigan, Ann Arbor.)

23. American Mathematical Soc., New Haven, Conn. (J. H. Curtiss, AMS, 190 Hope St., Providence 6, R.I.)

23. Oregon Acad. of Science, annual, Monmouth, (F. A. Gilfillan, Oregon State College, Corvallis.)

24–28. American Inst. of Mining, Metallurgical and Petroleum Engineers, annual, New Orleans, La. (E. O. Kirkendall, AIME, 29 W. 39 St., New York 18.)

24–28. International College of Surgeons, 10th biennial cong., Mexico, D.F., Mexico. (M. Thorek, ICS, 850 W. Irving Park Rd., Chicago 13, Ill.)

25–28. American Soc. of Heating and Air-Conditioning Engineers, Chicago, Ill. (A. V. Hutchinson, ASHAE, 62 Worth St., New York 13.)

26–28. Western Joint Computer Conf., Los Angeles, Calif. (M. J. Mendelson, Norden-Ketay Corp., 13210 Crenshaw Blvd., Gardena, Calif.)

March

1–2. American Physical Soc., Norman, Okla. (K. K. Darrow, Columbia Univ., New York 27.)

1–3. National Wildlife Federation, annual, Washington, D.C. (C. H. Callison, 232 Carroll St., NW, Washington 12.)

3–6. American Inst. of Chemical Engineers, White Sulphur Springs, W.Va. (F. J. Van Antwerpen, AIChE, 25 W. 45 St., New York 36.)

(See issue of 21 December for comprehensive list)