News and Notes

Conference on the Properties of Semiconducting Materials

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This event took place at the University of Reading, England, July 10–15, under the auspices of the International Union of Pure and Applied Physics, in cooperation with the Royal Society. The conference, which was made possible through the financial support of Unesco, was organized by R. W. Ditchburn and N. F. Mott. H. K. Henisch acted as conference secretary and editor of the proceedings, which will be published in book form.

On the evening of July 10 approximately 230 visitors from Belgium, Denmark, Egypt, France, Germany, Holland, Israel, Italy, Sweden, Switzerland, the United States, and the United Kingdom were welcomed by the vice chancellor, J. F. Wolfenden, on behalf of the university, and by the secretary general, P. Fleury (France), on behalf of the union. Most of the conference members were accommodated in two of the university's halls of residence, which greatly facilitated informal discussions at times when the conference was not in session.

The formal proceedings of the conference were opened on the morning of July 11 by R. W. Ditchburn, after which N. F. Mott summarized some of the outstanding problems of semiconductor theory in his lecture. Later in the program E. J. Verwey (Netherlands) lectured on oxidic semiconductors, with special reference to applications of the principle of "controlled valency change." G. Busch, in association with J. Wieland and H. Zoller (Switzerland), dealt with the electronic properties of gray tin as a function of temperature and impurity content. H. K. Henisch, in association with Mlle. F. François, reported experimental and theoretical researches on the thermoelectric properties of selenium; and J. Volger (Netherlands) discussed some properties of mixed lanthanum and strontium manganites, such as the frequency and voltage dependence of resistivity, as well as galvanomagnetic and thermoelectric effects.

T. R. Scott (U.K.) opened the second day of the conference with a lecture on the engineering and chemical aspects of semiconductors and problems arising in the manufacture of metal rectifiers and crystal valves. C. A. Hogarth, in association with P. C. Banbury and H. A. Gebbie (U.K.), reported on the recently discovered properties of p-type lead sulphide as a transistor material. New phenomena of electronic conduction, with special reference to carrier injection and the direct measurement of drift velocities, were discussed by W. Shockley (U.S.A.). A lecture by K. Lark-Horovitz (U.S.A.) dealt with effects observed when semiconductors are bombarded by slow neutrons, heavy particles, and electrons, and with applications of these effects to the production of p-n barriers. W. H. Brattain (U.S.A.) introduced the subject of surface phenomena on semiconducting materials and referred particularly to the measurement of surface potential under illumination. P. R. Aigrain, in association with C. R. Dugas and W. Etzel (France), presented a new theory of crystal valves, and proposed explanations for certain observed anomalies in the bulk properties of germanium.

On Thursday, R. L. Sproull, in association with W. W. Tyler (U.S.A.), described a method of growing barium oxide crystals and reported results of electrical, optical, and photoelectric measurements over a wide range of temperatures and wavelengths. L. P. Smith (U.S.A.) discussed the motion of electrons and holes in single crystals of silver chloride, and R. W. Pohl (Germany) lectured on electron traps and hole conduction in alkali halide crystals containing F-centers under irradiation by visible light, x-rays and α-particles. A. E. Sandström (Sweden) presented a paper on the properties of selenium-blocking layer cells.

J. W. Mitchell, in association with E. W. J. Mitchell (U.K.), opened the proceedings on Friday with a description of a retarding potential method whereby the thermionic work function of germanium has been determined. P. H. Miller, Jr. (U.S.A.), lectured on the electrical and optical properties of zinc oxide, and showed that the experimental results are not satisfactorily accounted for by the simple band structure normally postulated. H. Krebs (Germany) discussed the conditions under which lattice defects are formed during the crystallization of selenium, tellurium, phosphorus, arsenic, antimony, and carbon. W. Shockley presented, in the authors' absence, a summarized paper by G. W. Castellan and F. Seitz (U.S.A.) on the energy states of impurities in silicon. Papers were also read by B. Vodar and N. Mostovetch (France) on the simulation of semiconductor properties by very thin metallic layers, and by T. J. Gray (U.K.) on the properties of semiconducting oxides. H. Y. Fan, in association with M. Becker (U.S.A.), dealt with the infrared optical properties of silicon and germanium as a function of temperature. During the closing session on Saturday, R. A. Smith and R. P. Chasmar, in association with E. H. Putley (U.K.), reported on their researches into the electrical and optical properties of certain sulphides, selenides, and tellurides.

The research laboratories of the Physics Department were open to visitors on two evenings, and a small exhibition of material and equipment contributed by private firms was also held. Conference members visited the Clarendon Laboratory, Oxford, by invitation of Lord Cherwell, F.R.S., and the research laboratories of Associated Electrical Industries, at Aldermaston, by invitation of T. E. Allibone, F.R.S.

A period for discussion was allocated to every paper presented at the conference. Many interesting and controversial issues were keenly debated, often in successful defiance of language difficulties and always in a spirit of good humor and tolerance. Apart from the scientific merit of the formal proceedings, it is thought that the general objectives of Unesco and of the International Union of Pure and Applied Physics were fully satisfied, inasmuch as the conference represented a modest though very real and sincere instance of international cooperation and understanding.

Inquiries concerning the proceedings should be addressed directly to Butterworths Scientific Publications, Ltd., 4,5,6, Bell Yard, London, W.C.2. The volume should appear toward the end of this year. In the meantime a small number of collected abstracts is still obtainable from the Conference Editor, Department of Physics, The University, Reading, Berks, England.

About People

George H. Coleman, dean of the Institute of Textile Technology, Charlottesville, Va., has been named professor of chemistry and director of the Friends of the Kresge-Hooker Library at Wayne University, Detroit. He assumed his new duties this month. Dr. Coleman will coordinate the library's services, and will also be responsible for the coordinating of the "Frontiers in Chemistry" lecture series, sponsored each year at Wayne by the Friends of the Kresge-Hooker Library and by the University's Chemistry Department.

D. Harold Copp, formerly assistant professor of physiology in the University of California School of Medicine, has been appointed head of the Department of Physiology in the new Medical School at the University of British Columbia, Vancouver.

Ed. F. Degering, formerly of Armour Research Foundation, has joined Miner Laboratories, where he will head a group working on problems of organic synthesis.

R. E. Dyer, director of the National Institutes of Health, will retire October 1, after 34 years with the U. S. Public Health Service. Dr. Dyer will become director of research at the Robert Winship Clinic, Emory University Medical School, Atlanta, Ga.

James E. McCormack has been appointed associate dean of the New York University Postgraduate Medical School, a unit of the New York University-Bellevue Medical Center. For the past two years Dr. McCormack has served as executive director of the Committee on Medical Science, Research and Development Board, Department of Defense.

G. Allen Mail, formerly research entomologist for the Boyle-Midway Division of American Home Products Corporation, has joined the staff of the Communicable Disease Center, U. S. Public Health Service, as entomologist (medical) and is stationed at Charleston, W. Va.

Ernst Mayr, curator of the Whitney-Rothschild Collections, American Museum of Natural History, New York City, has been elected an honorary member of the Royal Society of New Zealand.

Hans Neurath, of Duke University Medical School, has been appointed head of the Biochemistry Department at the University of Washington. Dr. Neurath has been professor of physical chemistry at Duke University since 1938.

Lothar W. Nordheim, professor of physics at Duke University, has joined the staff of the Los Alamos Scientific Laboratory for a one-year period. Dr. Nordheim has been granted a leave of absence from the university for this work.

Vincent E. Price, head of the Enzyme Unit, Biochemistry Section, National Cancer Institute, has accepted a one-year appointment to the University of Copenhagen Institute for Cytophysiology. The appointment will permit Dr. Price to study certain enzymes involved in the metabolism of nucleic acids, with Herman Kalcker, chief biochemist at the institute.

D. Rittenberg, associate professor of biochemistry, College of Physicians and Surgeons, Columbia University, will deliver the first lecture of the Rudolf Schoenheimer Memorial Lectureship of the American Society of European Chemists and Pharmacists, on October 5 at the New York Academy of Medicine, New York City. Dr. Rittenberg's subject will be "The Relation of Studies on the Metabolism of Cholesterol to Recent Developments of Biochemical Thought."

Visitors

Svend Thorkild Andersen, of Copenhagen, Denmark, arrived this month to spend a year as research associate with Stanley A. Cain, Pack Professor of Conservation, School of Natural Resources, University of Michigan. Dr. Andersen will work on an atlas of fossil and modern pollen of interest in paleontological investigations in northeastern North America and northwestern Europe.

Robert Betts and **W. R. Livingston**, of the Atomic Energy Project, Chalk River, Ontario; **Eugene Glueckauf**, head, Physical Chemistry Group, Atomic Energy Research Establishment, Harwell, England; and **Claude DeCroly**, Department of Metallurgy, University of Brussels, Belgium, were recent visitors at Ames Laboratory, Iowa State College Institute for Atomic Research.

Otto Frisch, chairman, Department of Nuclear Physics, Cavendish Laboratory, Cambridge University, England, lectured this month at Michelson Laboratory, U. S. Naval Ordnance Test Station, Inyokern, Calif.

Grants and Awards

The National Heart Institute has awarded Public Health Service grants totaling $230,773 for research on atherosclerosis to the following institutions: University of California at Berkeley—*John W. Gofman*, $81,000 for research in fundamental biochemical and biophysical factors

in the pathogenesis of atherosclerosis; Harvard School of Public Health, Boston—*Frederick J. Stare,* $43,702 for laboratory and cooperative field studies on Sf 10–20 molecules; Cleveland Clinic Research Division—*Irvine H. Page,* $57,903 for the study of lipoproteins and arterial disease; University of Pittsburgh—*Max A. Lauffer,* $48,168 for study of the characterization of blood lipoproteins and their relationship to atherosclerosis.

The 1950 Charles Mickle Fellowship, which is awarded annually by the University of Toronto to "the member of the medical profession who has done most during the preceding ten years to advance sound knowledge of a practical kind in medical art or science," has been awarded to Selman A. Waksman, Department of Microbiology, Rutgers University.

Donald W. Kerst, professor of physics at the University of Illinois, and Kenneth C. D. Hickman, chemical consultant for Arthur D. Little, Inc., have been awarded **John Price Wetherill Medals** by the Franklin Institute, Philadelphia. Dr. Kerst was cited for his contribution to the theory of the betatron, the application of the theory to the construction of the first practical machine, and his subsequent work in the field. Dr. Hickman will receive the medal in recognition of his research that made possible the production of vitamins A and E from raw materials once considered unusable. The institute's **Francis J. Clamer Medal** for achievement in the field of metallurgy has been awarded to Charles Sanborn Barrett, research professor at the Institute for the Study of Metals, University of Chicago. The medals will be presented on October 18, when other scientists also will be recognized for their achievements in various scientific fields.

The American Geographical Society has received a grant-in-aid from the **National Foundation for Infantile Paralysis** to assist in the printing and publication of a map of the world distribution of poliomyelitis. The map is the result of an 18-month survey that covered more than 100 health agencies throughout the world. It will be published on October 1 in the *Geographical Review* and is the first of more than a score of maps on world distribution of disease which will make up an atlas of diseases in process of development by the AGS.

Fellowships

The American Association for Thoracic Surgery has created a traveling fellowship for study of thoracic surgery or its related sciences, in the U. S. or Canada. The fellowship, with a stipend of approximately $1,000, will be an annual appointment. The Society of Thoracic Surgeons of Great Britain and Ireland has been invited to nominate the first fellow.

The Department of Zoology, University of California at Los Angeles, is accepting applications for the **Krichesky-Ponty Memorial Fellowship in Endocrinology,** recently donated as a memorial to the late Boris Krichesky, who was chairman of the department from 1945 until his death. The stipend, depending on the qualifications of the candidate, may be as high as $6,000 for 11 months, beginning as soon as convenient. Funds of $1,500 for an assistant and $1,000 for operating expenses are provided. Applications should be addressed to Theodore L. Jahn, Chairman, Department of Zoology.

Applications for 1951 grants-in-aid for cardiovascular research will be received by the **Life Insurance Medical Research Fund** until *November 15, 1950.* Support is available for physiological, biochemical, and other basic research which bears on cardiovascular problems, as well as for clinical investigation in this field. Preference is given to fundamental research. Applications for postdoctoral fellowships for training in research in 1951–52 will also be received until *November 1.* Preference will be given to candidates who wish to work in the broad field of cardiovascular function or disease and to candidates who wish to work in institutions other than those in which they have obtained most of their experience. An M.D., Ph.D., or the equivalent is required. The annual stipend varies between $3,000 and $4,000, with larger amounts in special cases. At least 15 postdoctoral fellowships will be available. A number of predoctoral fellowships for basic training in research will also be awarded. Further information and application blanks may be secured from Francis R. Dieuaide, Scientific Director, Life Insurance Medical Research Fund, 2 East 103rd St., New York 29.

Meetings and Elections

The American Oil Chemists Society will hold its fall meeting September 25–29 in San Francisco at the Sir Francis Drake. E. B. Kester and H. S. Olcott, of the Western Regional Research Laboratory, Albany, Calif., are general chairman and program chairman, respectively. There will be three days of technical papers, a reception on the evening of the 25th, and a visit to a copra mill on the 29th.

The quarterly meeting of the Board of Governors of the **National Speleological Society** will be held on October 7 at the Academy of Natural Sciences, Philadelphia, Pa.

The American Institute of Mining Engineers Industrial Minerals Division will meet October 17–20 at Norman, Okla. Twenty technical papers on industrial mineral commodities of the south-central and southwestern states will be presented. There will also be a special program dealing with titanium, and a two-day field trip. Robert H. Dott, state geologist of Oklahoma, is chief of the host organization.

A national noise abatement symposium, sponsored by the Armour Research Foundation and the National Noise Abatement Council, will be held October 20 at the Illinois Institute of Technology. Approximately 300 experts are expected to attend.

Edgar G. Rex, of the New Jersey Department of Agriculture, was

elected president of the **Northeastern Division of the American Phytopathological Society** at the division's recent meeting at the Connecticut Agricultural Experiment Station. Other officers elected were James M. Hamilton, New York State Agricultural Experiment Station at Geneva, vice president; S. G. Younkin, Campbell Soup Research Department, Riverton, N. J., secretary-treasurer; and L. M. Black, Brooklyn Botanic Garden, councilor.

Deaths

James B. Murphy, cancer specialist, died August 24 in Bar Harbor, Maine, after a brief illness. He was 66 years of age. Dr. Murphy retired as head of the Laboratory of Cancer Research of the Rockefeller Institute in July. He had been associated with the institute since 1910.

Newton L. Pierce, associate professor of astronomy at Princeton University, died August 8, after a brief illness, at the University of Pennsylvania Graduate Hospital in Philadelphia. He was 45 years old. Dr. Pierce was assistant director of the Princeton Observatory and was well known for his study of eclipsing variable stars.

George Clinton Price, 90, professor emeritus of zoology at Stanford University, died August 11, in Palo Alto, Calif., after a long illness. Dr. Price was a member of the Stanford faculty for 28 years until his retirement in 1925.

Clara Stoltenberg, professor emeritus of neurology at Stanford University, died February 2 at her home on the university campus. She was 88. Miss Stoltenberg was an active member of the faculty from 1897 until her retirement in 1930.

Charles H. Warren, 73, dean emeritus of the Sheffield Scientific School at Yale University, died August 16 in Torrington, Conn. Dr. Warren was a staff member of the Massachusetts Institute of Technology from 1900 to 1922, when he became dean of Sheffield and chairman of the Geology Department at Yale. In 1938 he became professor of mineralogy and was widely known for his writings in that field.

The Institute for Physical Medicine and Rehabilitation, 325 East 38th St., New York City, will conduct a workshop in rehabilitation September 25–October 20. Instruction will be provided by staff members of the institute, the New York University School of Education, and other specialists. The course includes medical aspects of rehabilitation, psychosocial aspects, clinical study and observation, case study and evaluation, counseling tools and techniques, vocational training, and placement tools and techniques.

The National Cancer Institute of the U. S. Public Health Service has published in booklet form *The Challenge of Cancer,* by Lester Grant. Mr. Grant won the 1949 AAAS-George Westinghouse Newspaper Science Writing Award for the 15 articles that form the basis of the book and that originally appeared in the New York *Herald Tribune.* The articles have been revised, and 4 new ones have been added by the author in collaboration with staff members of the National Cancer Institute. The book is available from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 55 cents per copy.

A new technique for drying biological specimens selected for examination and analysis under the electron microscope has been developed at the Johnson Foundation for Medical Physics, under the direction of Thomas F. Anderson, assistant professor of biophysics, University of Pennsylvania School of Medicine. The new method makes it possible to retain the three-dimensional aspects of biological specimens without the change in structural form that occurs in the usual dehydration process. In ordinary drying the receding surface of water tends to flatten most specimens. The new technique replaces the water with a liquid that has a low surface tension at room temperature, such as carbon dioxide under high pressure, which becomes a gas when the temperature is raised. After the gas is allowed to escape the specimens stand out in bold relief.

The Philadelphia Section of the American Chemical Society is sponsoring two special noncredit evening courses to be given at the Philadelphia College of Pharmacy and Science, 43rd and Kingsessing Ave., Philadelphia. The course in bacteriology for chemists, to begin October 9, will be presented by D. J. O'Kane, assistant professor of microbiology, University of Pennsylvania. The course in advances in chemical analysis, starting October 10, will consist of ten lectures by well-known authorities. Further information concerning the courses may be obtained from Dr. R. E. Vener, Drexel Institute of Technology, Philadelphia, Pa.

The Division of Medical Sciences of the National Research Council has arranged a **symposium on burns** to be held in the National Academy of Sciences Building, Washington, D. C., November 2–4. Every effort has been made to include in the five sessions of this symposium subjects of most immediate significance in the vital problem of thermal injury by atomic radiation. The sessions are open to persons having a professional interest in burn research, or responsibility for medical preparedness in either military or civil defense. Advance registration is not required, but those planning to attend are urged to notify The Secretary, Division of Medical Sciences, 2101 Constitution Avenue, N.W., Washington, D. C.

The deadline for mailing entries in the **Fifth AAAS-George Westinghouse Science Writing Awards** is midnight, October 8, 1950. Readers of SCIENCE are urged to submit articles or to nominate entries before that date. Write or wire for information and entry blanks to Howard A. Meyerhoff, Chairman, Managing Committee, 1515 Massachusetts Ave., N.W., Washington, D. C.