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News and Notes

University of Illinois Conference on Physics of Ionic Crystals

ABOUT 70 physicists and physical chemists met at the University of Illinois Oct. 29–30 to discuss recent developments in research on the thermal, electrical, and optical properties of ionic crystals. Occasioned by the presence in this country of Robert W. Pohl, of the University of Göttingen, pioneer investigator in this field, and sponsored by the University of Illinois in cooperation with the Office of Naval Research, the conference was under the joint chairmanship of F. Seitz and R. J. Maurer. The formal program consisted of 19 invited papers, primarily on the alkali halides, of which about one third were theoretical in nature.

There seem to be two main reasons for the current interest in ionic crystals, particularly the alkali halides: (1) Many types of electrical, optical, and thermal measurements can be made on ionic crystals that cannot be performed, for example, on the more obviously interesting metals, but which nevertheless are related to phenomena occurring in all crystals. (2) The general properties of the alkali halides are probably better understood than are those of most other solids, so that new effects can be isolated and interpreted with relatively great confidence in the alkali halides and then generalized and applied to other crystals. For example, the effects of crystal imperfections, such as dislocations, vacancies, and impurities, are of first-order importance in the strength of structural materials, and these imperfections can be investigated in the alkali halides by a number of methods not available for metals.

One of the best ways of obtaining information about vacancies is through study of F-centers in the alkali halides. The F-center, almost certainly consisting of an electron trapped in a negative ion vacancy, is perhaps the most thoroughly investigated phenomenon in ionic crystals. Nevertheless, new experiments continue to be performed, and many new and significant data were presented on this subject. Burstein (NRL) described experiments demonstrating the effects of temperature and pressure in the width and position of the F-band in KCl, and showed that the results were in qualitative agreement with the simple particle-in-a-box model for the F-center. Scott (Oregon State College) discussed experiments on the optical and thermal coagulation of F-centers into larger aggregates, and determined activation energies for these processes.

Dutton and Maurer (University of Illinois) described electrical and optical measurements on KCl crystals which were allowed to heat up slowly from low temperatures. Associated with the disappearance of the V_1 absorption band and a diminution of the F and F' bands, they observed a large burst of thermally released charge and a flash of luminescence. These experiments indicate that positive holes are thermally released from positive ion vacancies at about $-130°$ C, wander to F-centers, and combine optically with the F-center electrons. When KCl crystals were irradiated with x-rays at liquid He temperatures, negligible production of F'-centers was observed, but there was normal darkenability in the F-band. This is somewhat surprising, since one expects a totally negligible number of isolated vacancies at these temperatures and insufficient thermal energy for appreciable diffusion of ions or vacancies. Markham and Duerig (Johns Hopkins Applied Physics Laboratory) also observed this large darkenability by x-rays at He temperatures, and it seems necessary to infer that the local heating arising from absorption of an x-ray photon is sufficient to allow the diffusion of vacancies. These experiments point out the extreme desirability of investigations designed to create F-centers at He temperatures by the relatively gentle means of irradiating in the tail of the first fundamental band. According to current ideas, the only negative ion vacancies present at He temperatures should be attached to dislocations

(incipient negative ion vacancies) or aggregated with positive ion vacancies into clusters. At these temperatures it should be impossible either for the incipient vacancies to diffuse away, or for the clusters to dissociate. Thus, one would expect to produce new absorption bands by the creation and subsequent ionization of excitons. If the same F-band is produced under these conditions as at high temperatures by additive coloration, when one is certain the vacancies are isolated, revision of some of our present beliefs is almost inevitable. And if new bands are produced, we can perhaps get information about dislocations from them.

Markham and Duerig also discussed the impurity content of alkali halides obtained from various sources, and some correlations among changes in the F-, F'-, and V-bands. Other correlations between pairs of absorption bands have led Pringsheim, Yuster, and Delbecq (Argonne National Laboratory) to propose models for their α- and β-centers in KI. The α- and β-absorption bands in the ultraviolet, they suggest, are a result of optical transitions of the valence electrons of the halide ions in the vicinity of negative ion vacancies and F-centers, respectively. They also find that F-centers are not created upon irradiation in the α-band at low temperatures. If substantiated by further investigation this fact will require interpretation, inasmuch as Smakula found he could create F-centers by irradiating in the tail of the first fundamental band in KBr at liquid air or higher temperatures.

Pohl presented recent data from Göttingen on some other ultraviolet absorption bands in KBr (the U- and U'-bands) and described some of the transitions involving these bands, particularly at low temperatures. The U-band has been believed to correspond to optical transitions of impurity hydride ions, but perhaps this model should be reinvestigated in the light of recent results. Pohl also reviewed recent work on the ionic conductivity in alkali halides, particularly as influenced by the presence of divalent positive ion impurities and their associated positive ion vacancies. Lawson (University of Chicago) discussed the ionic conductivity of AgBr at high temperatures and pressures, but he was particularly interested in the evidence for the presence of Schottky-type defects in the silver halides. He concluded that both Frenkel and Schottky defects may be present in appreciable quantity at high temperatures.

Seitz discussed an ingenious experiment described to him in private correspondence from Ueta at the University of Kyoto in Japan. The M-center, according to Seitz' model, consists of a cluster of two negative ion vacancies, a positive ion vacancy, and an electron, and hence possesses noncubic symmetry. Ueta performed bleaching experiments by irradiating the KCl crystal in the M-band with light polarized in various directions; his results were in agreement with the symmetry of Seitz' model.

Several papers were presented on crystals other than the pure alkali halides. Krumhansl (Cornell University) described some cellular calculations on BaO by the method of Ewing and Seitz, showed that it is 80% or 90% ionic in nature, and discussed its energy bands. Sproull described the recent work at Cornell on photoconductivity and light absorption measurements in BaO, and Eisenstein (University of Missouri) discussed his experiments on the luminescence of BaO and suggested an energy level diagram. Williams (G-E Research Laboratories) presented his calculations on the positions and widths of the absorption and emission bands in Tl activated KCl phosphors, and described some transitions between excited states of the Tl^+ ion. Shulman, Etzel, and Ginther (NRL) presented data on x-ray–induced color centers in silver activated alkali halides, and Smakula (Engineering Research and Development Laboratories) discussed measurements on color centers in CaF_2 and quartz.

Two papers were concerned with the formation and propagation of excitons in insulating crystals, but from slightly different points of view. Brooks (Harvard University) presented some calculations on a generalization of the exciton model first proposed by Wannier and later discussed by Slater. This type of treatment offers great promise for the solution of problems involving electrons in perturbed periodic fields, particularly in crystals of high dielectric constant. Heller (University of Illinois) discussed excitons on the basis of the Frenkel-Peierls model, with particular reference to their effective mass and their relevance to the Lorentz "local field."

In the writer's opinion, one of the most interesting questions that can be asked about ionic crystals, or other insulators, is the following: What happens to the electromagnetic energy one puts into the crystal as a result of absorption in an exciton band? That is, what happens to the excitons? Certainly, the interaction with lattice vibrations is of the greatest importance, for without the incoherence introduced by photons, the lifetime against radiation becomes negligible even compared with nuclear vibration times, and yet appreciable luminescence is almost never observed in reasonably pure crystals. Recent experiments by Apker and Taft (G-E Research Laboratories) have helped to shed some light on this question in the alkali halides. Their measurements on the external photoelectric effect have shown that, at least in their imperfect, evaporated layers, excitons can both create and destroy F-centers with high probability. Apker, Taft, and Hebb (G-E) have also found strong dependence on surface properties, even to the point where one may speak of a surface "dead layer" of about 10^{-6} cm in which excitons are destroyed without contributing to external photocurrent. They have also observed strong surface effects in the edge luminescence of CdS. Apker and Taft presented evidence here on the effects of the β-centers in their photoelectric measurements, and Hebb discussed calculations on the interpretation of the energy distribution of the external photoelectrons. Dexter (University of Illinois) described some specific mechanisms for excitons both to create and destroy F-centers and

showed that the probabilities for these processes are indeed very large, and that they may well compete favorably with luminescence even in relatively perfect crystals.

With this small group it was possible for most of those present to engage in active discussion between the formal papers. Also, the several social gatherings and intermissions encouraged informal conversations that helped make the conference of particular value to the participants.

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Scientists in the News

Carl E. E. Bunn has been appointed staff veterinarian at Sharp & Dohme. He has been serving as veterinary inspector with the U. S. Department of Agriculture in Philadelphia.

Kenneth W. Chapman has been appointed medical officer in charge of the U. S. Public Health Service Hospital, Lexington, Ky. Dr. Chapman succeeds **Victor H. Vogel,** who has been assigned to the American Embassy in Paris as medical officer in charge, USPHS, Foreign Quarantine activities.

George O. Curme, Jr., has been elected a director of Union Carbide and Carbon Corporation to succeed the late **James A. Rafferty,** vice president and director. Dr. Curme, as vice president, is in charge of all research activities of the corporation.

José Manuel Rodriguez Delgado, research fellow in physiology at the Yale School of Medicine, has been awarded the 1952 Ramon y Cajal Prize—the highest scientific award given by the Spanish government. Dr. Delgado, who has been on leave from the University of Madrid since 1950 to work at Yale, won the prize for his paper on a new technique for brain study. The Ramon y Cajal Prize, which carries an honorarium of about $1000, was established in honor of the late Santiago Ramon y Cajal, for Spanish scientists, who must submit papers on original research conducted during the year. Dr. Delgado, a native of Rondo, Spain, received his medical training at the University of Madrid and has been on the faculty there since receiving his medical degree. He also is a member of the Cajal Institute, which is associated with the university and devoted to scientific research.

James P. Growdon, chief hydraulic engineer for Aluminum Company of America since 1938, has been named engineering consultant on hydraulic and related engineering problems. **B. J. Fletcher,** assistant chief hydraulic engineer, will succeed Mr. Growdon as chief hydraulic engineer. Mr. Growdon joined ALCOA in 1925 as assistant hydraulic engineer. Mr. Fletcher began with the company in 1926 and, after serving as a designer and structural engineer, was made chief engineer of the company's development division in 1944.

F. F. Hill has succeeded **Cornelis W. de Kiewiet** as provost of Cornell University. An authority on land economics, Dr. Hill has been a member of the Cornell faculty since 1930 and chairman of the Department of Agricultural Economics since 1943.

Vaclay Hlavaty, professor of mathematics at Indiana University, has been appointed to the staff of the Graduate Institute for Applied Mathematics.

Robert B. Howard has been named director of continuation medical education at the University of Minnesota. He succeeds **George N. Aagaard,** who has taken over his new duties as dean of Southwestern Medical School, Dallas, Texas.

William D. Johnston, Jr., chief of the Foreign Geology Branch of the U. S. Geological Survey, and **Martin J. Buerger,** professor of mineralogy and crystallography at MIT, have been elected foreign members of the Brazilian Academy of Sciences.

Clark Kerr, economist and arbitrator of labor-management disputes, has been elected chancellor for the Berkeley campus of the University of California. Dr. Kerr joined the faculty in 1945 to organize an Institute of Industrial Relations, of which he has since been head. Partly as a result of the dispute over the loyalty oath, the faculty has been insistent that one of its number be elected to the Berkeley chancellorship. During the controversy Dr. Kerr served on the committee on privilege and tenure of the Academic Senate, which reviewed the cases of professors who refused to sign the special loyalty statement, and recommended retention of most of them.

George A. Kiersch, formerly supervising geologist for the International Boundary and Water Commission at Alpine, Texas, has accepted appointment as assistant professor of geology at the University of Arizona.

Directors of the Houdry Process Corporation have elected **Chalmer G. Kirkbride** president and **Claude C. Peavy** vice chairman of the board. **Clarence H. Thayer,** vice president in charge of manufacturing of the Sun Oil Company, was elected a director. Mr. Kirkbride, formerly vice president in charge of research and development, and Dr. Peavy, vice president in charge of engineering and sales, both joined Houdry in 1946.

George H. M. Lawrence, professor of botany at Cornell University, has been appointed director of Cornell's Bailey Hortorium, succeeding **Liberty Hyde Bailey,** who established the Hortorium and gave it to the university in 1935. Dr. Bailey has resigned as director but will continue in an advisory capacity. Dr. Lawrence has been on the Cornell staff since 1938.

For the first time in its 45-year history, the American Chemical Society's St. Louis section has elected

a woman chairman, **Ree S. Le Beau,** director of research of the Midwest Rubber Reclaiming Company, East St. Louis. She succeeds **Joseph R. Darby,** a group leader in the research department of the Monsanto Chemical Company. Dr. Le Beau also holds the distinction of being the first woman to serve as chairman of one of the society's 20 scientific and technical divisions. She was chairman of the Division of Colloid Chemistry in 1949, and has been chosen to serve as its chairman again in 1953. Other officers of the St. Louis section for 1952 are: chairman-elect, **William H. Elliott,** senior instructor in biological chemistry at St. Louis University; secretary, **Roger W. Stoughton,** research chemist at the Mallinckrodt Chemical Works; and treasurer, **Hal G. Johnson,** assistant director of Monsanto's general development department.

James McCormack, Jr., has been named director of nuclear applications, Office of the Deputy for Development, Headquarters, Air Research and Development Command. General McCormack recently received the Distinguished Service Medal for his services as director, Military Applications Division, AEC, from 1947 to 1951. **Robert N. Isbell,** who has been serving as director of nuclear applications, will serve as deputy director to General McCormack.

William C. Moloney, clinical professor of medicine, Tufts Medical School, will leave with his family for Hiroshima, Apr. 1. He will serve for the next two years as internist with field units of the Atomic Bomb Casualty Commission which are engaged in a study of the effects of atomic radiation in Hiroshima and Nagasaki. The work is under the direction of the National Research Council and the National Academy of Sciences.

Two Brazilian educational institutions have honored **Linus Pauling,** chairman of the Division of Chemistry and Chemical Engineering at California Institute of Technology, for his contributions to modern chemistry. The analytical chemistry research center of the University of Recife School of Pharmacy has been named the "Linus Pauling Study Center," and Dr. Pauling has been elected an honorary member of Emil Fischer Study Center in Pernambuco, the first non-Brazilian to be so honored.

Eugene L. Perrine has been appointed senior physicist for the Zonolite Company, Chicago. He will assist **George E. Ziegler,** director of research, in fundamental and applied research dealing with vermiculite, which is produced by Zonolite. For the past five years, Mr. Perrine has been a member of the physics research department at Armour Research Foundation.

John T. Rettaliata, vice president and dean of engineering at Illinois Institute of Technology, has been named president of the institute. He succeeds **Henry T. Heald,** who has become chancellor of New York University. Dr. Rettaliata also was appointed president of Armour Research Foundation and of the Institute of Gas Technology. He has been vice president in charge of academic affairs at the institute since 1950 and dean of engineering since 1948. He joined the staff in 1945 as director of the Department of Mechanical Engineering.

The 1951 Marie-Victorin medal, which is awarded annually to a botanist who has done extensive work on Canadian flora, has been given to **Jacques Rousseau,** director, Montreal Botanical Garden. M. Rousseau conducted a survey of northeastern Ungava and Labrador, crossing the peninsula through the Adloylik Fjord and the Korok River. He also surveyed the Chubb Crater in northwestern Ungava.

William Saphir has been appointed clinical assistant professor of medicine at the University of Illinois. Dr. Saphir, a graduate of the Medical School of the University of Vienna, is a member of the attending staff at Cook County, Michael Reese, and Chicago Memorial hospitals in Chicago.

Henry William Scott, Jr., associate professor of surgery at Johns Hopkins Hospital, has been appointed professor of surgery at Vanderbilt Medical School and surgeon in chief to the Vanderbilt Hospital, succeeding **Barney Brooks.** Dr. Brooks, who will become professor emeritus of surgery, will remain in Nashville and continue to be affiliated with Vanderbilt.

As distinguished lecturer for the American Association of Petroleum Geologists, **Edmund M. Spieker,** chairman of the Department of Geology at Ohio State University, has spent the months of January and February lecturing on "Mountain-Building Chronology and the Nature of the Geologic Time Scale." Dr. Spieker's itinerary has taken him to universities, regional AAPG sections, and local geological societies from Massachusetts to California, and from Ontario to Louisiana.

Memorial Center for Cancer and Allied Diseases has named **Richard D. Vanderwarker** administrative director. He has been director of the Passavant Memorial Hospital in Chicago, associate director and lecturer in hospital administration in Northwestern University, and consultant to the editorial board of *Modern Hospital Magazine.*

Isaac D. Welt has been appointed assistant director and principal scientist of the Radioisotope Unit, VA Hospital, Houston, and assistant professor of biochemistry at Baylor University College of Medicine. Dr. Welt was formerly on the staff of the Division of Nutrition and Physiology of the Public Health Research Institute of the City of New York, Inc.

Charles W. Williams, coordinator of research at Case Institute of Technology, is now special assistant to the president of Case, and **Ray E. Bolz,** associate professor of aeronautical engineering, has become his successor in the post of coordinator. Dr. Bolz will continue to supervise activities at Case in the field of aeronautical engineering and will do a limited amount of teaching.

Education

A short course on soap and synthetic detergents will be sponsored by the American Oil Chemists' Society at Rutgers University, July 6–11, with Foster D. Snell as chairman. Enrollment will be limited to 200, and the fee for registration, room, and board will be $90. Applications should be sent to the society at 35 E. Wacker Dr., Chicago 1.

The Department of Preventive Medicine at the University of Illinois College of Medicine has been merged with the Department of Medicine. It is probable that a Division of Preventive Medicine will be created in the department. The College of Medicine has promoted Stanley W. Olson to assistant professor of physiology and Harry M. Segenreich to clinical assistant professor of psychiatry.

The summer quarter of the Interamerican School of Spanish at Saltillo, Coahuila, July 7–Aug. 22, offers the M.A. in Spanish language and literature and in Mexican culture. Credits are accepted in U. S. and Canadian universities. Other subjects offered are in Mexican art, Gregg shorthand (Spanish), and methods of teaching Spanish. U. S. registrar is Donald M. Custer, Box 413, Salida, Colo.

The University of Michigan has acquired a 267-acre site across the Huron River and northeast of Ann Arbor, where immediate plans call for the construction of two research laboratories, the Cooley Memorial and the Phoenix Memorial, at a total cost of nearly $2,000,000. In addition it is hoped to build a library stack unit to house books not in everyday use and an $800,000 automotive laboratory, which would permit the removal of the West Engineering Annex to the new site.

In the Laboratories

Eli Lilly has appointed G. B. Walden vice president, in which post he will be head of biochemical manufacturing. J. C. Siegesmund has been made vice president of engineering, replacing W. A. Hanley, who retired Dec. 31.

John B. Lathrop, a mathematician specializing in military operations research techniques, has joined the operations research group of Arthur D. Little. Aileen Merwin, nutritionist, has also joined the staff. Her work will be principally with the Food and Flavor Group.

Sharp & Dohme opened its new $500,000 pharmaceutical manufacturing laboratories in Manila with Elpidio Quirino, President of the Philippines, as principal speaker. In the Caribbean, Albert E. Ibarguen, general manager in that area for Sharp & Dohme Inter-American Corporation, has been appointed to the newly created position of district manager of export field operations. As such he will make his headquarters in Philadelphia and will be responsible for Puerto Rico, the Caribbean (except Cuba), as well as Argentina, Venezuela, Uruguay, Paraguay, and all Central American countries.

Southwest Research Institute has appointed the following specialists to its staff for work in the field of engineering mechanics: Arthur W. Dickson, formerly with Du Pont; Joseph D. Domine, of Geovision, Inc.; Herbert I. Hoffman, mechanical engineer; William P. Murden, Jr., of Virginia Polytechnic; Asa L. Pierce; Grady M. Slagle, of Douglas Aircraft; William P. Teich, statistical analyst; and L. E. Wilson, who was with Curtiss-Wright and Consolidated Vultee.

U. S. Rubber Company has made L. C. Boos vice president and general manager of United States Rubber International, which will replace the present foreign subsidiary. Headquarters of the new division are being moved to the Chrysler Building.

Miscellaneous

The Institute for the Unity of Science is offering a prize of $500 for the best essay on "Mathematical Logic as a Tool of Analysis; Its Uses and Achievements in the Sciences and Philosophy" and two prizes of $200 each for the two next best essays. Manuscripts must not exceed 25,000 words, may be written in English, French, or German, and must be submitted before *Jan. 1, 1953.* For further information address the institute, American Academy of Arts and Sciences, 28 Newbury St., Boston 16.

The Instrument Society of America has recently established new technical committees on Medical and Biological, Meteorological, Radiation, and Geophysical Instrumentation, and Physical Properties Measurement, in order to broaden the scope of its program and encompass a large number of specific fields. Contributed papers on these topics will be accepted for presentation at the seventh annual National Instrument Conference and Exhibit to be held in Cleveland Sept. 8–12. Emphasizing that instrumentation is the common denominator of all the physical sciences, the ISA invites scientists and engineers to attend and participate in the conference and exhibit. Complete information on programs, membership, and committees may be obtained from the national office at 1319 Allegheny Ave., Pittsburgh 33, or from the vice president, W. A. Wildhack, National Bureau of Standards, Washington 25, D. C.

At the dedication of the Liberian Institute of the American Foundation for Tropical Medicine James S. Simmons, USA (ret.), dean of the Harvard School of Public Health, gave an address, as did Harvey S. Firestone, Jr., W. V. S. Tubman, and Joseph N. Togba, 1949 Harvard graduate who is now Liberian director of public health and sanitation.

The National Chemical Exposition has named Gustav Egloff honorary chairman of the second International Art Exhibit to be held as part of the exposition Sept. 9–13, in Chicago. Limited to the work of chemists,

the exhibit is open to work in oils, tempera, water colors, drawings, and prints, and each exhibitor may enter two works. Entry cards may be obtained from the National Chemical Exposition, 86 E. Randolph St., Chicago 1.

New journals recently received include: *Lore,* Vol. 1, No. 4, Fall issue. Published quarterly by the Milwaukee Public Museum. Obtainable only through membership. . . . *Notiziario dell' Istituto Vaccinogeno Antitubercolare,* Vol. 1, No. 2, April–June 1951. Milan. 1,000 lire per year. . . . *Our Public Lands,* Vol. 1, No. 3, October 1951. Issued quarterly by the U. S. Department of the Interior Bureau of Land Management. . . . *Revista Cientifica,* Vol. 1, No. 2. Available on an exchange basis to universities, scientific societies, research institutions, industrial firms, and scientific publishers. Address Faculdade Nacional de Filosofia, Av. Presidente Antonio Carlos, 40–6°, Rio de Janeiro. . . . *The Science Reports of the Research Institutes,* Vols. 1, 2, No. 1, January 1951. Tohoku University, Sendai, Japan. In four series: A, Physics, Chemistry, and Metallurgy; B, Technology; C, Medicine; and D, Agriculture, all in English. . . . *Shikoku Acta Medica,* Vol. 1, No. 1. Shikoku Medical Association, Tokushima, Japan. Bimonthly, English and Japanese. . . . *The Summary,* Vol. 2, No. 1, May 1950. Formerly *The Seminar.* Published by The Shute Foundation for Medical Research, London, Canada. . . . *Yokohama Medical Bulletin,* Vol. 1, No. 1, October 1950. English. Yokohama University School of Medicine.

The **New York Academy of Sciences** elected 99 scientists to membership at its annual meeting in January. Albert Caquot, president-elect of the International Academy of France; Henrique da Rocha Lima, director emeritus of the Biological Institute, São Paulo; and Wilhelm Schmidt, director of the Anthropos Institut, Switzerland, were elected honorary life members. George B. Pegram was elected president; John R. Dunning and Paul Fejos, vice presidents; John Tee-Van and Junius B. Bird, secretaries; and Donald M. Benjamin, treasurer. A. Cressy Morrison prizes in natural science were awarded to Karl Maramorosch, for a paper on the aster yellows virus, and to William P. Jacobs, for a paper on hormone control of water-carrying cells in plants.

The **Saskatchewan Geological Society,** organized last year (SCIENCE, **114,** 682 [1951]), has elected Robert A. Bishop president, Harold C. Morrow vice president, and Herbert F. Dodson secretary-treasurer.

British Commonwealth News

H. J. Brown, dean of the Faculty of Engineering, New South Wales University of Technology, has been appointed controller of the research and development branch of the Department of Supply, Commonwealth of Australia. He will be stationed at the Woomera Rocket Range. Professor Brown was formerly principal research officer in the Division of Radiophysics, Commonwealth Scientific and Industrial Research Organization.

The **British Commonwealth of Nations Scientific Liaison Office** has recently completed the compilation of graduate scholarships available within the commonwealth for scientific study. Information on 350 entries, many of them covering several scholarships, has been included in a booklet, *The Commonwealth Post-Graduate Scholarships in Science,* published by H. M. Stationery Office.

The Third Annual Report of the **Commonwealth Scientific and Industrial Research Organization** for July 1, 1950–June 30, 1951, surveys a year's progress over a wide range of pure and applied research. Australian economy is reflected in the emphasis that CSIRO gives to plant and animal breeding and pathology, and particularly to all aspects of sheep-raising and wool production. One section of the report recounts the results of experiments with myxomatosis, a virus disease which, it is hoped, may control or exterminate Australia's foremost pest, the rabbit. Another Commonwealth problem is evident from the attention given to research that may alleviate or counter the effect of drought in a country dependent on agricultural and pastoral pursuits.

The **Forest Products Research Board** of the Department of Scientific and Industrial Research has recently issued its report for 1949, detailing research in progress on forests, wood, wood products, mycology, and insect control.

O. E. Lowenstein, senior lecturer in zoology at The University, Glasgow, has been appointed Mason professor of zoology at the University of Birmingham, where he succeeds P. B. Medawar.

The **Medical Research Council** has recently released a general report for 1948–50 and a special report on a five-year investigation of catarrhal jaundice. The general report discusses, among other medical matters that are the subjects of research, progress in the treatment of tuberculosis and rheumatoid arthritis, the relation between smoking and lung cancer, the incidence of poliomyelitis, and undernutrition.

The **Ministry of Supply Atomic Research Establishment,** at Harwell, has installed a central heating plant that will draw its heat from BEPO, the large experimental atom pile. Installed at a cost of £15,000, the system will initially heat a building containing 80 offices, approximately 330,000 cubic feet. It is planned to expand the system, which now has an output of 1,000,000 BTU, to an output of 7,000,000 BTU, and to heat two, or possibly three more buildings. Current savings in coal consumption are estimated at 1,000 tons a year, costing £2,650.

The **Nature Conservancy** has established the first national nature reserve in Britain, by purchasing 10,450 acres in the forest of Kinlochewe in the County of Ross and Cromarty.