

which he had developed to demonstrate fluid dynamics principles.

At the close of the afternoon session two films in the McGraw-Hill Text-Film Series were shown. These 16-mm sound motion pictures on "Uniform Circular Motion" and "Gasoline Engine, Otto Cycle" were produced in cooperation with the Visual Aids Committee of the AAPT. Mark W. Zemansky, committee chairman, spoke briefly in introduction to the films. John J. Heilemann, Ursinus College, exhibited four film loops developed by himself to show repetitive phenomena. These loops when run through a silent projector show the phenomenon as often as desired, making detailed study and repeated observation possible.

An evening session on Tuesday was held in the Electrical Engineering Auditorium. C. E. Bennett, council representative of the Physics Division of ASEE, presided at this session, which was opened by an address by Marsh White, The Pennsylvania State College, on the education, employment, and earnings of physicists. Edward R. Bascom, Wayne University, provided a television demonstration lecture utilizing Michigan State College's extensive television facilities. In the one auditorium visitors were enabled to watch both the performance before the cameras and the final image upon the screen. An enlightening comparison of what the television screen can show against what the student sitting halfway back in the auditorium can see was made possible in the demonstration. The director of Michigan State College's Television Program, Armand L. Hunter, spoke upon the operation of the WFIL-TV University of the Air, in which he directed a very extensive effort by a number of universities to bring their facilities and atmosphere to the Philadelphia television audience. This effort proved extremely popular: a surprising result of this experience was the excellent public acceptance of a series of programs on nuclear physics.

On Wednesday morning a general session in Fairchild Theater was devoted to engineering education. President John A. Hannah, Michigan State College, described the theory and successes of the basic college system at his institution. F. M. Dawson, president of ASEE, spoke upon "Engineering Education, A Bridge between Ignorance and Understanding." The Committee on Improvement of Teaching of the ASEE presented a panel discussion, in which L. E. Grinter, H. P. Hammond, A. P. Colburn, and J. F. Calvert participated. H. H. Armsby, U. S. Office of Education, presided at the general session.

On Wednesday afternoon the meeting was returned to the Physics Lecture Hall, where Thomas H. Osgood, Michigan State College, presided over a symposium on ultrasonics. E. A. Hiedemann, Michigan State College, described how ultrasonic fields are made visible. The application of ultrasonic pulse techniques in research and testing was illustrated by Julian Frederick, University of Michigan. Oskar Mattiat, Brush Development Company, spoke upon power measurements in ultrasonics, and presented his company's film on "Ultrasonic Effects."

A dinner for physicists, wives, and friends was held

in the evening at the Michigan State College Union. The speaker at the dinner was T. A. Boyd, vice president of General Motors Research Laboratory. His topic, "Solomon's House," emphasized the terrific impact of science and technology upon the lives of everyone.

Thirteen contributed papers occupied the time and attention of the visiting physicists on Thursday morning. R. F. Paton, Secretary of the Association, presided at this session and put down with firm hand any inclination which the speakers might have had to continue beyond their allotted time. A variety of subjects and ideas were presented at this session; among the unusual items offered were an experimental derivation of the Helmholtz dissonance using modern electrical apparatus by Newton B. Gaines, Texas Christian University, and a model to demonstrate nuclear and paramagnetic resonance by E. F. Carr, Michigan State College.

Members of the staff of Oak Ridge National Laboratory closed the program on Thursday afternoon with a symposium on the problems associated with the realization of nuclear power. G. P. Brewington, Lawrence Institute of Technology, was the presiding officer of the session. John H. Frye, Jr., described some metallurgical problems associated with the reactors. Chemical research problems in the development of reactors were outlined by J. A. Swartout, assistant research director. Problems of heat transfer by liquid metals were treated by Richard N. Lyon, of the Reactor Technology Division. Numerous applications of elementary physical principles were cited by this speaker in connection with matters of heat conduction, electromagnetic pumping, and other phases of the heat transmission problem.

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Michigan State College

CANADIAN PHYSICISTS MEET

SIXTH ANNUAL CONGRESS HELD IN MONTREAL

The sixth annual congress of the Canadian Association of Physicists was held at Montreal, Quebec, from May 31 to June 2 under the joint auspices of McGill University and the University of Montreal. There was a very good attendance; 180 registered for the congress and many visitors and guests attended one or more of the social and scientific functions. A number of special symposia featured the meeting, and the technical program included twenty-one contributed papers.

On the opening day, members of the Association were welcomed by Principal James of McGill University. They also had an opportunity to visit the physics laboratories of the University, including the Radiation Laboratory directed by J. S. Foster, where a variety of isotope and other research is in progress, the newly-opened Eaton Electronics Laboratory under Professor Woonton, and various researches in the Macdonald Physics Building.

At McGill University, possessing as it does the distinction of being the place where Rutherford did most of his early work on Radioactivity, and having at the

same time modern physical equipment not duplicated anywhere in Canada, it was possible for visitors to examine side by side a modern cyclotron and some of the original pieces of equipment used by Rutherford in his pioneer experiments.

The Canadian Association of Physicists lends its hearty support to the current project of the Royal Society of Canada honouring Lord Rutherford in the establishment of Rutherford Memorial Scholarships. With this in mind a most enjoyable public lecture was given on the first evening of the Congress by D. A. Keys, vice president of the National Research Council and Director of the Chalk River Atomic Energy Plant. His address, entitled "Rutherford and Atomic Energy", was a happy combination of old and new, in which he described some details of the atomic research at Chalk River, relating it to the early work on radioactivity at McGill. His address was illuminated by many interesting reminiscences of Lord Rutherford, and even included a recording of Rutherford's not-so-gentle laboratory voice. In his vote of thanks, A. N. Shaw, present chairman of the physics department at McGill, contributed other personal reminiscences of Rutherford.

A symposium on "Nuclear Physics" under the chairmanship of J. S. Foster, director of the McGill Radiation Laboratory, occupied the afternoon session. The first paper, on elementary particles, was presented by W. H. Watson of the University of Toronto, who was followed by three speakers representing the National Research Council at Chalk River. G. A. Bartholomew discussed gamma rays of neutron capture, T. P. Pepper spoke on the disintegration of light elements by tritium bombardment, and G. Cowper presented a paper on electronic instruments used in nuclear research. Another of the special symposia was concerned with solid state physics and included papers by K. G. McKay of the Bell Telephone Laboratories, G. Harrower of McGill University, and L. R. McNarry and Miss B. Thomas, both of the National Research Council, Ottawa.

The second day of the Congress opened with a symposium on "Physicists and National Defence" under the chairmanship of R. C. Dearle of the University of Western Ontario, in which O. M. Solandt, chairman of the Defence Research Board, G. M. Shrum of the University of British Columbia, Professor Wootton of McGill, and G. S. Field (also of the Defence Research Board) participated. Sir Henry Tizard, scientific advisor to the Minister of Defence (U. K.), and many members of the Association contributed to the very interesting discussion which followed.

A lively business meeting was squeezed in between the symposium and the papers presented during the afternoon.

The evening meeting was a highlight of the Congress when Sir Henry Tizard gave an informal talk entitled, "The State of Pure and Applied Science in the United Kingdom." Sir Henry, lightly scaling the walls of his address title, delighted his audience with an historical commentary of his experiences in scientific planning in England through two world wars. His dry humor, keen

optimism, and penetrating comments were stimulating in the extreme. He made a strong plea for more well-trained men in both pure and applied science.

The final day of the Congress was spent at the University of Montreal. After the morning session of contributed papers there was an opportunity to visit the University buildings and the laboratories under the guidance of M. Rouault, head of the department of physics, and members of his staff. Special interest was shown in the gas diffraction equipment and the upper-air investigations of cosmic rays. This was followed by a reception tendered to Congress members by Monsignor Olivier Maurault, Rector of the University, in the Grand Foyer.

In addition to the social gatherings already mentioned, members attending the Congress were entertained at a reception by McGill University, and to a delightful luncheon at the Cercle Universitaire tendered by the City of Montreal. Professor Lortie carried greetings from the Mayor to members of the Association.

In his presidential address at the opening luncheon J. S. Marshall of McGill University made a plea for better speaking and writing in scientific communications. Congress papers generally were interesting, well given and well received. They were greeted by more than average comment and lively discussion.

The newly-elected executive officers of the Association for 1951-52 are: president, A. D. Misener (University of Western Ontario); vice president, A. B. McLay (McMaster University); secretary, E. Brannen (University of Western Ontario); treasurer, C. C. Gotlieb (University of Toronto); registrar, M. Johns (McMaster University); and directors, J. J. Brown (Montreal), and R. D. Stasion (Toronto).

It is expected that the 1952 Congress will be held at Laval University in Quebec City.

W. Rowles

McGill University, Macdonald College

RADIO RESEARCH

JOINT URSI-IRE MEETING HELD AT NBS

The spring meeting of the U. S. National Committee of the International Scientific Radio Union (URSI) and the professional group on antennas and propagation of the Institute of Radio Engineers was attended by more than three hundred workers in the various fields of radio research. Fifty papers were presented in joint and separate sessions during the meeting, which was held on April 16, 17, and 18 at the Bureau of Standards in Washington as part of the NBS semicentennial celebration.

Included in the joint session, according to word from the Bureau, was a discussion of atmospheric and the propagation of very-low-frequency waves by J. A. Ratcliffe (Cavendish Laboratory, Cambridge, England). Because of the extreme difficulties and expense involved in using low-frequency (below 10 kc) equipment, propagation measurements were made on the low-frequency components of signals generated during thunder storms.