twenty-two papers and approximately one hundred and fifty physicists and metallurgists attended.

While obviously the basic interest of Sylvania in powder metallurgy is commercial, the selection of invited papers was made in keeping with the symposium title. One of the central problems of current powder metallurgy is the mechanism of the sintering process. (In typical powder metallurgy practice the metal powder is pressed into the desired shape at room temperature under a pressure of ten to fifty tons per square inch; this compact is then "sintered" by heating to an elevated temperature somewhat lower than its melting point for a sufficient length of time to produce an improvement in mechanical strength.)

Although it has been generally recognized that the driving force behind the sintering process is the diminution of the surface free energy of the sample as its surface area decreases through coalescence of the metal particles, it has not been so clear what the important mechanisms of matter transport during this coalescence are. Several experiments designed to answer this question were reported at the symposium. Postlethwaite and Shaler of the Massachusetts Institute of Technology described measurements of the shrinkage of cylindrical synthetic pores in copper, which they interpreted in the same way as their earlier work on fine copper wires under axial loads, which would contract or extend in length depending on the relative magnitude of the surface energy term and the term due to the potential energy of the suspended weight in the expression for the total free energy. The results obtained can apparently be accounted for in terms of a viscous flow of the copper. Alexander, Kuczynski, and Dawson of the Sylvania Electric Products Inc., on the other hand, concluded from measurements of the bonding of fine metallic wires to flat metal plates that matter transport occurs primarily by the mechanism of volume diffusion.

The symposium program was embellished by two speakers from Europe: Professor Huettig of the University of Graz presented a paper on the fundamental problems of sintering processes jointly with W. E. Kingston of the Sylvania Electric Products Inc.; and A. Smekal, head of the physics department of the University of Darmstadt, discussed the mechanisms of crystal growth. Professor Smekal illustrated his talk with results from studies of the recrystallization of deformed rocksalt, and pointed out the advantages of using transparent materials rather than metals for such studies.

It is planned to have the papers presented at the symposium published in book form.

—Thomas A. Read

AEC NEWS

TRIAL DECLASSIFICATION PROGRAM

According to a recent statement by the United States Atomic Energy Commission, only five percent of the more than two thousand papers declassified by the AEC deal with subjects of industrial technology. The reason given for this is that in the past the impetus for declassification and general distribution of atomic energy information has come much more strongly from the scientific than from the engineering and technical groups.

In an effort to explore the possibilities of providing technological information useful to industry, the Commission has announced a trial program for examining selected declassifiable information in the field of metallurgy. A temporary advisory committee of representatives of professional societies and the business press has been appointed which will recommend members for a small working party of persons concerned with metallurgy who will receive full security clearance. After the working group members are cleared, the AEC will make available for their examination such metallurgical information as may be declassifiable, on the basis of which recommendations will be made concerning those portions which might prove useful to industry.

Any information actually declassified by the AEC in response to these recommendations would be made available for publication by established metallurgical journals. If the trial program proves effective, the AEC says it will consider extending the procedure to other fields of technological and industrial information.

DISTRIBUTION PROGRAM EXPANDED

The Commission's isotopes division, Oak Ridge, announces that certain cyclotron-produced isotopes are to be made available under its present distribution program. A number of isotopes of interest to research workers in various fields cannot be prepared in nuclear reactors or cannot be produced with sufficient specific activity for many research programs without being activated by a cyclotron. Cyclotrons at the Massachusetts Institute of Technology, the University of Pittsburgh, the University of California, and Washington University at St. Louis will be used to produce the isotopes, and initially it is planned that only those most in demand and with half-lives greater than thirty days will be made available. A half-life of at least this length is required to permit processing and stocking at the Oak Ridge National Laboratory.

The Commission is subsidizing the program to some extent in order to bring the price within reach of most research institutions, and although production costs have not been exactly determined, prices are expected to range between fifty dollars and four hundred dollars per millicurie for the various isotopes.

The isotopes available for distribution are beryllium-7, sodium-22, iron-55, iron-59, cobalt-57, zinc-65, arsenic-73, and iodine-125. Further information may be obtained from the AEC Isotopes Division, Oak Ridge, Tennessee.

NEW NEUTRON SOURCE AVAILABLE

Oak Ridge National Laboratory has developed a relatively inexpensive radioantimony-beryllium neutron source which is now available for distribution to users in the United States. The source uses a core of antimony metal surrounded by a beryllium metal cup. The unit is placed in a pile and the antimony activated to the desired level. Antimony-122 with a half-life of 2.8 days and antimony-124 with a half-life of sixty days are both formed

in this irradiation, but the source can stand for a time before shipment to allow the short-lived isotope to decay. The approximate activity of the antimony-124 available is 2.6 curies, although shorter activation times than the standard one hundred and twenty days may be arranged if a lower activity is satisfactory. The neutrons are approximately monoergetic. Further information may be obtained from the Isotopes Division of the Atomic Energy Commission at Oak Ridge, Tennessee.

SOCIETY ACTIVITIES

DIVISION OF ELECTRON PHYSICS

The Division of Electron Physics of the American Physical Society and the Panel on Electron Tubes of the Research and Development Board of the Department of Defense will sponsor a conference on thermionic emission which will take place January 31 and February 1, 1950, immediately preceding the winter meeting of the American Physical Society in New York City. For nonmembers of the Division, further information regarding attendance and papers for the program may be obtained from the secretary, George E. Moore, Bell Telephone Laboratories, Murray Hill, New Jersey.

IES

Charles H. Goddard of Sylvania Electric Products, Inc. has been elected president of the Illuminating Engineering Society.

NO STRANGER

WATERFALL APPOINTMENT ANNOUNCED

Wallace Waterfall has been appointed to the newly created position of Executive Secretary of the American Institute of Physics and assumes his duties as this issue goes to press. He comes to the headquarters organization of American physics from the position of Director of Research and Product Development of The Celotex Corporation, with which he was associated for twenty-five years.

No stranger to Institute affairs, Mr. Waterfall has served the organization for twenty years. He has been a member of the Institute's Governing Board since 1934 and Secretary of the Governing Board since 1945. Secretary of the Acoustical Society of America since its founding in 1929 and Secretary-Treasurer of the Acoustical Materials Association concurrently, he will resign only his office as member of the Governing Board of the Institute. Part of his time will be devoted to the Acoustical Materials Association.

Between 1945 and 1948 Mr. Waterfall was Director of the Summary Reports Group of the Columbia University Division of Government Aided Research under contract with the Office of Scientific Research and Development. This group prepared, for the Army and Navy, seventy volumes summarizing the wartime researches and development (except medical) of the famous wartime organization headed by Dr. Vannevar Bush. Prior to this, Mr. Waterfall was a member of the scientific staff of Columbia University Division of War Research and acted as a liaison office for the National Defense Research Committee's Division on subsurface warfare.

THE FULBRIGHT ACT IN ACTION

COMPETITION CLOSES NOVEMBER 30TH

The Department of State has announced that competitions are now being held for United States Government awards for foreign study and research. Approximately six hundred awards are being offered under the terms of the Fulbright Act for graduate study or research in twelve countries during the academic year 1950–51. The educational exchange program is in effect with Belgium, Luxembourg, Burma, France, Greece, Iran, Italy, the Netherlands, New Zealand, Norway, the Philippines, and the United Kingdom.

Basic eligibility requirements for student awards are American citizenship, a college degree or its equivalent by the time the graduate takes up his award, and a working grasp of the language of the country of his choice. The competition began on October 15th and closes at midnight, November 30th. Candidates currently enrolled in an institution of higher learning should apply to their local Fulbright Program Advisor; candidates who are not presently enrolled should apply directly to the Institute of International Education, 2 West 45 Street, New York 19, N. Y.

Candidates holding a doctor's degree, as well as those who do not but who nevertheless are of recognized professional standing and propose to teach or carry out an independent program of research abroad, should apply to the Committee on International Exchange of Persons, Conference Board of Associated Research Councils, 2101 Constitution Avenue, Washington 25, D. C.

ONR AIDS ASTRONOMERS, ASTROPHYSICISTS

EARLY CLOSING DATE FOR APPLICATION

The Office of Naval Research has announced the continuation of its program for limited support of pure research in astronomy and astrophysics, and an advisory committee of the National Research Council will recommend specific projects to be supported. Average cost of projects should be about $3000, with a maximum not appreciably in excess of $5000. When a project is selected for support, negotiations will be entered into for a contract between the U. S. Navy and the institution at which the research will be conducted. The advisory committee recommends that maximum overhead charges for these relatively small projects should not be in excess of ten percent.

Each application should include a full description of the project, accompanied by a cost breakdown and, if possible, a letter of approval from the institution at which the work will be performed; all application material should, because of the pressure of time, be submitted in ten copies (legible carbons are acceptable).

Applications should be addressed to the Chief of Naval Research, Washington 25, D. C., attention Code 432, and should arrive on or before December 15, 1949. Letters of recommendation will be helpful.

Cost of publication of research results cannot be paid for, but it is understood that research results may be published freely through the usual channels.