

research and industrial development and other questions concerning the effects of research on the nation's economy and health.

The Advisory Committee on Reactor Safeguards is a new group formed by the Atomic Energy Commission from two previous committees, the Reactor Safeguard Committee and the Industrial Committee on Reactor Location Problems. The new committee will review hazards summary reports prepared by organizations planning to build or operate reactor facilities, including criticality experiments, and will advise the AEC regarding the consistency of proposed reactor locations with accepted industrial safety standards, taking into account the proposed exclusion areas for reactors and the proximity of surrounding population and property. C. Rogers McCullough of Monsanto Chemical Company is the chairman.

An International Nuclear Energy Society is in the offing, preliminary plans having been made in Oslo in August. An organization committee under the chairmanship of Gunnar Randers of Norway, who is director of the joint Norwegian-Dutch nuclear research establishment, was set up by the representatives of 19 countries who were in Oslo for a heavy water reactor conference. Proposed activities of such a society include standardization of nomenclature, possible founding of a journal of nuclear science, organization of international conferences, and collection and circulation of material in the field.

A network analyzer, especially designed for the study of electrical power systems, is being built by General Electric for Syracuse University at a cost of a half-million dollars. Two New York public utility companies have already contracted for its use in planning new installations and in the expansion and modification of existing power systems, and other utility firms are also expected to make use of the new machine. The Electrical Engineering Department of the University plans to give a graduate program in power system analysis employing the network analyzer, one of the few such programs being offered in this country.

Twenty-five fellowships for advanced study or research are being offered by the American Association of University Women for the academic year 1954-55. Ranging in value from \$1000 to \$3500, twenty of the awards are unrestricted and of the others one is available for research in chemistry, physics or biology and another for unspecified research. In general the fellowships are awarded to women who either already have doctorates or have completed residence work for their Ph.D's. Further information can be had from the Secretary, Committee on Fellowship Awards, American Association of University Women, 1634 Eye Street, N.W., Washington 6, D. C.

Research Notes

Multiple meson production in neutron-proton collisions has been observed by a group working with the

Cosmotron at Brookhaven National Laboratory. W. B. Fowler, R. P. Shutt, A. M. Thorndike, and W. L. Whittemore, in a letter to the editor appearing in the August 1 *Physical Review*, report that at least two-thirds of the 24 three-prong events that were photographed in their hydrogen-filled diffusion cloud chamber resulted from the production of a pair of pi-mesons. In the experiment neutrons produced in a carbon target by the 2.2 Bev proton beam from the Cosmotron passed through a series of collimators into the cloud chamber, which was located in a field of 11 000 gauss. The center-of-mass energy available for meson production was 830 Mev, enough to produce four mesons; no events were observed, however, that could be attributed to the creation of more than two charged mesons.

The helium content of meteorites was once thought to originate in their uranium and thorium constituents. However, the amount of helium in iron meteorites varies from less than 10^{-9} cm³/g to more than 10^{-5} cm³/g while the uranium and thorium contents are fairly constant, and He³ has been found to make up a considerable fraction of the total helium found. In 1947 it was pointed out that possibly cosmic rays produced the He³ and most of the He⁴ found in meteorites; this view is confirmed in recent work by F. A. Paneth, P. Reasbeck, and K. I. Mayne as reported in the August 1 issue of *Nature*. Samples of the 1200-pound Carbo meteorite at Harvard were taken at various depths from the surface to the center of the mass, and the helium content was then extracted and analyzed in a mass spectrometer. It was found that both the total quantity of helium and the percentage of He³ change regularly with depth and are smallest in the center, a variation that is accounted for by considering the absorption of cosmic rays in the meteor when in flight. The authors state that "the fact that the He³ content, even at a depth of about 30 cm, is only 27 percent smaller than near the surface of the Carbo meteorite confirms present-day views about penetrating power and the action on matter of cosmic rays".

The intermetallic compounds indium antimony (InSb) and aluminum antimony (AlSb) are being studied at the National Bureau of Standards in the hope that they may be of equal or even greater utility than the germanium and silicon semiconductors now in widespread use. This work is part of a general program of research at the Bureau's solid state physics laboratory directed toward finding more tractable materials for use as semiconductor rectifiers and transistors.

A magnetism research program sponsored by the Wright Air Development Center of the Air Research and Development Command is to be carried out at the Indiana Steel Products Company, Valparaiso, Indiana. The program, intended to enable manufacturers to provide better electronic equipment for the Air Force, and to conserve weight, space, and materials, will include both basic and applied research and will cover the theory of magnetism, the source of magnetic energy, and factors effecting magnetic induction and coercive

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force, as well as design, application, and a search for new magnetic alloys.

New Laboratories

The new cryogenics laboratory at the National Bureau of Standards' site at Boulder, Colorado, has been placed in operation, according to an announcement made by the NBS in August. Designed under the direction of F. G. Brickwedde, chief of the NBS heat and power laboratories, the \$3.5 million installation will produce large quantities of liquid hydrogen and nitrogen and research will be conducted in the properties of matter at extremely low temperatures. The Bureau's program of fundamental research on the properties of liquid helium, superconductivity, second sound, paramagnetism, and other aspects of low-temperature physics is to continue at the Washington laboratories. The Boulder laboratory is located on the same site as that of the Bureau's new radio propagation laboratory, now under construction, and will have a staff of 60. The facility was created with the cooperation of the Atomic Energy Commission and is known as the NBS-AEC Cryogenic Engineering Laboratory.

A new Health Research Laboratory has been completed at the Los Alamos Scientific Laboratory using \$1.87 million of AEC funds. One of the two units to be housed there is the Industrial Hygiene Group, headed by Harry F. Schulte, which has responsibility for the investigation and control of hazards to health involving toxic materials of all sorts. The other, the Biological and Medical Research Group, under Wright H. Langham, deals with a number of problems among which are the biological effects and effectiveness of the various atomic radiations and the toxicology of plutonium, uranium, tritium, and other substances used at Los Alamos.

Equipment and Techniques

Nuclear magnetic resonance is the basis of a new, high-resolution instrument for rapid, nondestructive analyses of chemical bonding situations. The operation of the instrument is based on the sensitivity of nuclear magnetic resonance signals to chemical environment. Manufactured by Varian Associates, 585 Hansen Way, Palo Alto, California, under the name Model V-4300 High Resolution n-m-r Spectrometer, it can be used to identify components in a mixture and for the assignment of structural formulas to a compound. Further information may be obtained from the manufacturer.

The Model 103 10-channel pulse height analyzers developed at Los Alamos for nuclear research are being built on a limited basis by the Denver Research Institute. The Institute is licensed to construct these analyzers and will supply them to research groups who urgently require such apparatus. Further information may be had from the Electronics Division, Denver Research Institute, University of Denver, Denver 10, Colorado.

The Special Training Division of the Oak Ridge Institute of Nuclear Studies is continuing to offer its basic course in the techniques of using radioisotopes for research. The next three such courses start January 4, February 8, and March 15, 1954, and are four weeks long. Applications and supporting letters must be received three months before the starting date of the course, and as a rule applicants are expected to have advanced degrees or extensive research experience and to be in a position where they can train other persons. Further information can be obtained from the Special Training Division, Oak Ridge Institute of Nuclear Studies, P. O. Box 117, Oak Ridge, Tennessee.

Willoughby M. Cady, head of the fundamental development group at North American Aviation Corporation, died on June 29th in Huntington Memorial Hospital, Pasadena, California, at the age of forty-six. Dr. Cady received his PhD from Harvard in 1932 and subsequently studied at Caltech where he was a National Research Fellow. He taught physics at Clark and Cornell Universities and at the University of Washington. He had been head of the physics division at the Naval Ordnance Test Station during the three years before he joined the North American staff in 1949. His research was chiefly in the fields of spectroscopy, guided missiles, and applications of infrared radiation. Dr. Cady was a fellow of the American Physical Society and of the Optical Society of America; he was also a member of the American Association of Physics Teachers, the American Association for the Advancement of Science, and various other organizations.

John J. O'Neill, science editor of the *New York Herald Tribune*, died at his home in Freeport, Long Island, on August 30th. He was sixty-four. Mr. O'Neill, who had been in newspaper work for forty-five years, received the Pulitzer Prize in journalism (1937) for good reporting and the Westinghouse Distinguished Science Writing Medal of the American Association for the Advancement of Science (1946). He wrote popularized accounts of research in all branches of science that were both lucid and accurate, winning the respect of scientists and laymen alike for his conscientious reporting. He was a member of numerous scientific societies, a fellow of the American Geographic Society, and a charter member and former president of the National Association of Science Writers.

Ludwig Prandtl, internationally known expert on aerodynamics, died in Germany on August 19th. He was seventy-eight. During his life-time, Professor Prandtl had been director of the Kaiser Wilhelm Institute for Fluid Motion Research and of the Institute for Technical Physics at the University of Goettingen. He was an honorary member of the American Academy of Arts and Sciences and the recipient, in 1930, of the Daniel Guggenheim Gold Medal for "conspicuous merit" in aerodynamics.