special advisory committees together represent a long stride toward solving the problems of proper balance within the programs of the Bureau.

"In recent public discussion of the Bureau much attention has been given to the matter of battery additives. Unfortunately this has obscured the real problem, which is the Bureau's established policies and procedures with respect to the evaluation of commercial products in general. While the Kelly Committee did not concern itself with the technical phases of the battery additive case, it did study the procedural and policy questions which it raised.

"The report of the Kelly Committee will recommend that all nontechnical policy and procedural matters on commercial product evaluation at the Bureau be made the responsibility of the Secretary of Commerce and that the Director's responsibility be limited to the technical area. I agree with this recommendation and shall implement it.

"The third major problem with which I was concerned involved the administration of the internal affairs of the Bureau. The Kelly Committee found that the administrative set-up of the Bureau, in which 14 of the 17 technical divisions report directly to the Director, so over-burdened him with internal management problems that he is unable to give adequate attention to his broader responsibilities. The Committee has recommended a sound administrative pattern that will relieve the Director of detailed supervision and make his time available for the essential professional functions of the office.

"In order to implement the Committee's recommendations in the administrative area, I am for this purpose placing the Bureau under the immediate supervision of the Assistant Secretary of Commerce for Administration, Mr. James C. Worthy. Mr. Worthy has had extensive administrative experience both in private business and in government and in the last several months has been closely associated with Dr. Astin in dealing with administrative affairs of the Bureau, particularly with reference to the transfer to the Department of Defense of the activities noted above.

"All these changes which are being made are positive improvements in the Bureau. They correct conditions which in many cases considerably antedate Dr. Astin's period as Director and for which he cannot be held responsible.

"It is a basic principle of American government that an Administration, held accountable by the people for governing, has the right to appointive officials of its own choice, who act as a team in determining policies and in advancing programs of the Administration. Past and current actions of mine are based on this principle, including this particular decision to request Dr. Astin to continue as Director.

"My own observations and the report of the Kelly Committee have convinced me that there is a major task ahead in placing the Bureau in a position to discharge in balance the obligations of its authorized functions and that this task can be best and most rapidly accomplished by the action I now take.

"No further need exists to seek a successor, as Dr. Astin has expressed his willingness and desire to continue as a key official of this administration and as such he is from here on a member of my team.

"This decision has been discussed with the Secretary's Visiting Committee, which I had asked to provide me, by early September, with a limited list of suitable candidates for the Directorship of the Bureau. Its members are in unanimous agreement with the action I am taking today.

"I am confident that both Dr. Astin and I will have the hearty support of the personnel of the Bureau, whose devotion to the public service is recognized by me and by all acquainted with their work and spirit.

"The report of the Kelly Committee will say: 'By the very nature of its functions the Bureau's work must not be reasonably good, it must be superior; and because of the contributions to national strength that it can make in our highly industrialized society, they must not be available as now to only limited sectors of science and technology, they must be available throughout all science and technology. A superior Bureau that contributes in balance to all areas of our industrial nation can only be realized by better organization and increased financial support.'

"I sincerely endorse these objectives and will do my utmost to attain them."

ONR Goes Pogo

Summer Cosmic-Ray Expeditions

The designations by the Office of Naval Research of its summer arctic expedition as "Project Mushrat" and its equatorial expedition later on, as "Project Churchy" evolved, one is told, from the use of balloon-launched Deacon rockets on the former expedition and from the prevalence of turtles on the Galapagos Islands, the site of the latter work. The purpose of both projects was to make comprehensive series of high altitude observations of the primary cosmic radiation, and the pressure, temperature and density of the atmosphere near the geomagnetic north pole and the equator.

The Deacon rockets, which are small and relatively inexpensive, were able to attain great altitudes by being launched from Skyhook balloons at altitudes of more than 77 000 feet. This scheme was developed by James A. Van Allen of the State University of Iowa for cosmic-ray research and was also employed last year. The Project Churchy group includes personnel from the Bartol Research Foundation, General Mills, New York University, the Naval Research Laboratory, and the Universities of Minnesota, Washington, and Chicago. Nuclear emulsions were to be flown for a number of other institutions as well on a hitch-hike basis, attached to the instruments of one of the participating groups.

Miscellany

A standard system of notation for unstable particles was proposed in July at a cosmic ray conference held under the sponsorship of the International Union of Pure and Applied Physics at Bagneres de Bigorre, France. Under the new system the notation would be: L-mesons (symbol L) for pi- and mu-mesons and any other possible lighter mesons; K-mesons (symbol K) for particles with masses between pi-mesons and pro-

tons, namely tau-, kappa-, and chi-mesons; and hyperons (symbol H) for particles with masses between protons and deuterons. Mesons are to be designated by lower-case Greek letters as they are at present and hyperons would carry capital Greek letters. Under this scheme, for example, V_1^0 particles, which decay into protons and negative pi-mesons, are to be represented by capital omegas and the V_4^0 particles, decaying into two charged pi-mesons, are to be represented by lower-case thetas, in both cases with superscript zeros.

Twenty-eight patents owned by the U. S. Government have been added to the list of patents on which the Atomic Energy Commission will grant nonexclusive, royalty-free licenses, making a total of 593 such patents. Among the latest group are patents on a stabilized pulse circuit, an accelerator target, a mass spectrometer control, two electron sources, a radiation current source, a multichannel analyzer, a radio-frequency oscillator for use with a cyclotron, a mass spectrometer ion source, an ionization gauge, an ionization chamber x-ray monitor, and an isotope separating apparatus. Applicants for licenses should apply to the Chief, Patent Branch, Office of the General Counsel, U. S. Atomic Energy Commission, Washington 25, D. C., from whom descriptions of the patents may be obtained. Copies of the patents may be obtained from the Patent Office.

Fewer than one-third of the nation's colleges and universities have formal patent policies with respect to scientific or technological research carried out by members of their faculties or staffs, according to a recent analysis prepared by the Office of Patent Policy Survey of the National Academy of Sciences-National Research Council. Of 811 institutions of higher education in the United States and Canada engaged in research, only 227 have established patent policies or observe generally accepted practices with regard to patentable results of research in their laboratories. These institutions have made a practice of providing research services to industry and to federal agencies on a contract basis. Another 212 institutions also carry on sponsored research, but have not developed any formalized patent patent procedure. The survey was conducted for the benefit of university administrators and others concerned with the expansion of sponsored research programs in higher educational institutions, particularly those supported under government contracts or grants.

Two new members have been appointed to the staff of the National Science Foundation by Alan T. Waterman, NSF director. They are Raymond H. Ewell, assistant director for program analysis, formerly with the Stanford Research Institute, and H. Burr Steinbach, assistant director for biological and medical sciences, formerly professor of zoology at the University of Minnesota. Dr. Ewell will be responsible for conducting a series of Foundation studies on the status of research in industry, the universities, and government, with particular emphasis on the extent of federal participation in research and development activities of the nation. He will also be concerned with the relationship between

SENIOR TEXTILE RESEARCH PHYSICIST

Major staff expansion in a rapidly growing, progressive organization offers a challenge to top-notch personnel.

This position requires a degree in Physics, Mechanical Engineering or Civil Engineering or graduation from recognized textile school and experience, preferably in the field of textiles. Research will be conducted on new and unique ways of using fibers, both old and new, in apparel and industrial fabrics. This man will plan programs and direct research intended to develop basic understanding of fiber usage from an engineering standpoint.

This is a permanent position in our modern research laboratories in Summit, New Jersey, a pleasant residential community within 30 minutes of metropolitan New York City. Salary will be based on training and experience.

Please submit complete resume, including salary desired, to Mr. J. A. Berg, Head—Personnel Administration.

Celanese
CORPORATION OF AMERICA
Summit, New Jersey

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 acepted 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 PhD'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} cm^3/g to more than 10^{-5} cm^3/g while the uranium and thorium contents are fairly constant, and He^3 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 He^3 and most of the He^4 found in metorites; 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 He^3 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 He^3 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 magnetics 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