

A Communication Problem

For Department of Defense Scientists

Rapid expansion at all levels of research effort has greatly increased the difficulties of efficient communication in the sciences, and the personal contact provided by meetings has proved to be perhaps the most effective means of insuring that unnecessary duplication of research effort can be avoided at a time when scientific man-hours are recognized to be at a premium. The numbers of specialized meetings have grown steadily during the post-war period, and their value is suggested by the corresponding rise in the numbers of those who attend.

Until recently, scientists employed under the Department of Defense have been able to attend meetings relating to their work with a degree of freedom comparable to that of other scientists in other organizations. It is reliably understood, however, that as a result of a provision attached to the final version of the measure appropriating funds for the Defense Department, considerable delays are now encountered by scientists in the Services in obtaining authorization to attend scientific meetings. Public Law 488, which was approved last summer by the 82nd Congress immediately before adjournment and the opening of the major political conventions, has been found to include a Section 606, which states: "Appropriations contained in this Act available for travel shall not be available for expenses incident to attendance at meetings of technical, scientific, professional, or similar organizations without the approval of the Secretary of the Department concerned."

Defense Department scientists must, therefore, submit requests to attend a meeting several weeks before it is held, and in some instances, it appears, the request must be forwarded even before information has become available concerning the contents of the technical program for the meeting. One of the important purposes of scientific meetings, it has been pointed out, is to provide the specialist with a means of learning at first hand what is being done in his own field of interest; and since few scientists are sufficiently prescient to know precisely how interested they might be in a meeting before they see the program, it is not always possible to establish very long in advance whether or not the time and expense can be justified for attending a particular meeting.

Student Deferment

Manpower and the Military Draft

A warning that the present student deferment policy may be attacked by those who do not understand its basic purpose in terms of long-term defense planning has been sounded by M. H. Trytten, director of the Office of Scientific Personnel of the National Research Council, in his book *Student Deferment in Selective Service*, which was published last month by the University of Minnesota Press. Pointing out that "national

manpower policies must be formulated and applied in terms of the whole problem, not just a fragment of it, and in terms of a long tomorrow, not just a brief, visionless today," Dr. Trytten emphasizes the need for an effective integration of civilian and military activities. Continued functioning of the laboratory, the industrial plant, and the business organization is as vital to defense as is the functioning of the armed forces themselves, he states, and for this reason the college training of men to carry on these civilian activities is as important to national security as military training.

"Men of high ability constitute a national resource that is in short supply," Trytten writes. "In the situation that confronts us, we must take every care not to waste either our barely adequate store of high ability, through inept or sentimental allocation of it, or the time and cost of military training, through giving it to those who will not be able to make use of it if war comes because the nation must have their services in noncombat activities."

The net effect of student deferment on the available supply of military manpower is negligible, he continues, because the number deferred at any one time is less than five percent of any age group. Furthermore, it is assumed that the deferred student will ultimately serve in uniform unless his draft board decides that his special qualifications would make him more valuable to the country in some other capacity. Naming certain curriculums "essential" as a criterion for deciding which students should be deferred would be dangerous, Trytten asserts, since it is impossible to foresee the relative future roles of the natural sciences, the social sciences, and the humanities. In his opinion, singling out essential fields of study would only be justified in the event of an all-out mobilization for a war that threatened survival.

G-E Summer Program

For High School Teachers

Two hundred high school physics, chemistry, and mathematics teachers from twenty-four states will be granted fellowships for study this year under an expanded summer fellowship program underwritten by the General Electric Company. Fifty physics teachers will take part in the summer program at Case Institute of Technology, Cleveland, Ohio, and a like number of physics and chemistry teachers will study at Union College, Schenectady, N. Y. The G-E summer programs for mathematics teachers will be carried out at Rensselaer Polytechnic Institute, Troy, N. Y., and at Purdue University, Lafayette, Indiana. Each college selects its candidates on the basis of their qualifications and credentials and conducts the six-week course, which can be taken for credit toward an advanced degree. Applications should be made to the colleges.

For Case and Purdue, applications are being accepted from teachers in Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, Ohio, Western Pennsylvania, West Virginia, and Wisconsin. Applications

for Union College and Rensselaer are being accepted from Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and the District of Columbia. The Union summer program also includes teachers from North Carolina.

NBS Boulder Laboratory

For Radio Wave Propagation Research

Construction has begun on a major laboratory of the National Bureau of Standards at Boulder, Colorado. The new building will house the Bureau's Central Radio Propagation Laboratory on a 210-acre site directly south of the city, near the campus of the University of Colorado. Complete and modern facilities are to be provided for research on the propagation of radio waves and on the expanded utilization of the radio spectrum now being used for FM, television, facsimile, and radar.

The NBS Central Radio Propagation Laboratory is engaged in a broad program of basic and applied research in radio physics and associated geophysical phenomena of the upper atmosphere and the troposphere. The program has four aspects: ionospheric research, systems research, measurement standards, and regular propagation services. Investigations are under way dealing with the properties of matter at radio and microwave frequencies and with the development of techniques for the precise measurement of electrical quantities in these regions. One aspect of the basic standards and measurement program is concerned with obtaining atomic standards of time and frequency. NBS also participates in an advisory capacity on radio subjects for other agencies of the Government such as the Defense and State Departments and the Federal Communications Commission.

More than fifty members of the NBS tropospheric research group are now housed in temporary quarters at Boulder pending completion of the new building. Another group of twenty, engaged in studies of long-range propagation techniques, is located in Colorado Springs. By mid-1954, a staff of about five hundred—including scientific and clerical personnel—will be employed at the new Boulder Laboratory.

Miscellany

The Copley Medal of the British Royal Society for the Advancement of Science has been awarded to P. A. M. Dirac, Lucasian professor of mathematics at Cambridge University, for his contributions to the present understanding of quantum theory, elementary particles, and electromagnetic fields. Included among the other awards presented during the Royal Society's 290th anniversary meeting last month were the Hughes Medal, which was given to Philip I. Dee of Glasgow University for his work leading to the wartime development of microwave radar, the Sylvester Medal, which went to Cambridge mathematician Abram S. Besicovitch, and the Rumford Medal, which was won this year by Fritz

Zernike of Holland, professor of theoretical physics at the University of Groningen and the discoverer of the principle of phase contrast, for his development of a new and valuable technique in microscopy.

An exact replica of Sir Isaac Newton's original reflecting telescope, the ten-inch high first ancestor of the 200-inch Hale telescope on Palomar Mountain, has been presented to the Mount Wilson and Palomar Observatories by the Royal Greenwich Observatory. Newton built his first telescope when he was twenty-six years old, replacing the lenses used in previous refracting telescopes with a two-inch concave mirror to eliminate the chromatic aberration caused by lens systems. The original telescope was presented by Newton to the Royal Society in London in 1672. Sir Harold Spencer Jones, British Astronomer Royal, arranged for presentation of the replica to the observatories in California after a visit last summer. It will eventually be exhibited in the museum of Palomar Observatory.

The University of Buffalo has recently received support from the Office of Naval Research for the continuation and expansion of the research program on the physics of carbons and graphite, which has been under way for some time in the department of physics. The project is under the direction of S. Mrozowski, professor of physics; John G. Castle, Jr., is in charge of the low-temperature phase of the project.

The University of Tennessee physics department will carry on a two-year project, directed by R. R. Newton, associate professor of physics, to investigate the causes of inaccuracy in fin-stabilized rockets. The program will be conducted under a contract with the Redstone Arsenal, Huntsville, Alabama.

A nomogram relating the mean life for gamma-ray transitions to the energy and spin change has been constructed from the formula of V. F. Weisskopf (*Phys. Rev.* 83: 1073; 1951). Prepared by R. Montalbetti of the University of Saskatchewan physics department, the nomogram appears in the November 1952 issue of the *Canadian Journal of Physics* (30: 660), published by the National Research Council, Ottawa.

Education

The University of Illinois College of Engineering has announced that its departments of electrical engineering and physics, in cooperation with several leading companies in the electronics industry, will conduct a Summer School on Semiconductors and Transistor Electronics at Urbana, Illinois, from June 22 through July 17, 1953. Courses will be offered in three areas: a general survey of semiconductors, physics of transistors, and transistor circuits. Lecturers will include outstanding scientists from industrial laboratories as well as regular University of Illinois staff members. The school will be part of the Summer Session of the University, so that graduate-level academic credit can be given if desired. Inquiries should be addressed to the Department of Electrical Engineering, University of Illinois, Urbana, Illinois.