

ing the earth will appear to us speeded up—in other words there will be a ‘violet shift’ due to the gravitational attraction of the earth, since the field at the satellite will be *weaker* than that at the surface of the earth where we make observations, while it will be *stronger* at the sun. Since a satellite clock is in high-speed motion in a weaker gravitational field relative to a ground clock, it will run at a rate determined by both the motional and the gravitational time shifts, thus checking both special and general relativity. . . .

“When the relativistic clock satellite experiment is done, it will be possible to conduct additional experiments on geophysics and the velocity of light without adding equipment in the satellite. We would like to see another clock-equipped ground station set up so that the satellite clock time signals could be received at both stations. The relativity measurements will automatically give the time the signals take to get to the stations, so that by methods of triangulation, the distance between the stations could be measured in terms of the known velocity of radio waves (or light). Such measurements would give the exact geometric shape of the earth and could be made over inaccessible regions such as water or mountains. Present orbital measurements of satellites give the mass distribution of the earth rather than its geometric figure. This experiment can be reversed and the velocity of light measured in terms of the distance between ground stations. This could be done in different directions in space over paths of thousands of miles, thus checking on whether space is the same in all directions—that is, whether it is isotropic. The velocity of light could be measured for different satellite speeds showing that it is independent of the motion of the source, as relativity requires.”

Presidential Appointments

On July 16th, fourteen years to the day after the first atomic bomb was exploded in the wastelands of New Mexico, John H. Williams was nominated by the President to serve as the scientist member of the Atomic Energy Commission. A peaceful man of boundless energy, Williams came to Washington as director of the AEC's Division of Research in April of last year. Before that he had been professor of physics at the University of Minnesota where he was in charge of the 68-Mev proton linear accelerator project which the University conducts under AEC contract.

A member of the Minnesota Physics Department since 1934, he served briefly with the Office of Scientific Research and Development in 1942 and became involved in the work of the Manhattan District project early in 1943. During the hectic days when construction of the original wartime laboratory buildings at Los Alamos was an around-the-clock operation his talents for doing other things than just physics were fully exploited, and in the face of that emergency he made history of a kind by becoming known as perhaps the first and only plumber's foreman holding a PhD in physics. From then until the end of the war he headed a Los Alamos experimental group charged with making cross-section and other measurements with a Van de Graaff generator which had been hauled across the plains from Wisconsin, although much of his time in



John H. Williams

the early part of 1945 was spent in helping to supervise the complex preparations for the Alamogordo test shot. In 1946 he left Los Alamos, returned to Minnesota, built a new accelerator, and got back to doing physics.

A productive physicist, Williams has been responsible for the accumulation over nearly three decades of a sizeable body of experimental data on light nuclei reactions and scattering, as well as in x-ray spectroscopy. He was one of the organizers of the Midwestern Universities Research Association (MURA), serving as its vice president for two years after it was founded. He was president of MURA in 1956–57, and has also served as a member of the Policy Advisory Board of the Argonne National Laboratory. He is a fellow of the American Physical Society.

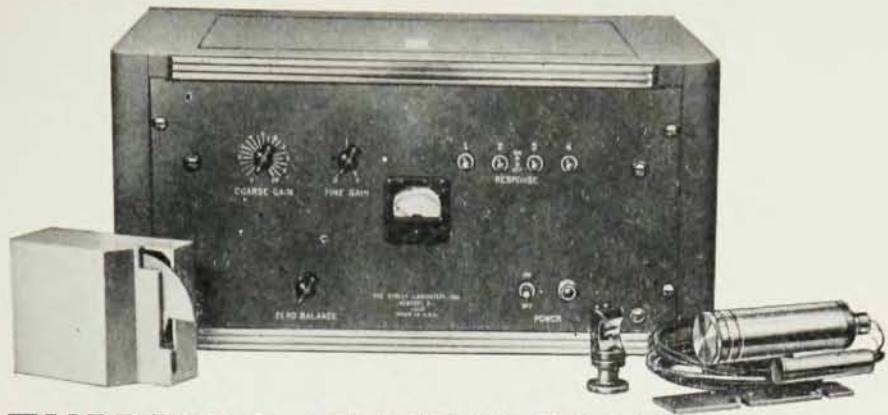
James H. Wakelin, Jr., was sworn in on July 8 as Assistant Secretary of the Navy for Research and Development following Senate confirmation of his nomination to that post by President Eisenhower. Dr. Wakelin, who is a member of both the American Physical Society and the Society of Rheology, received his undergraduate education at Dartmouth College and his PhD in physics from Yale University in 1940. He has been a member of the staff at the Textile Research Institute, Princeton, N. J., since 1948 and served as its director from 1951 to 1954.

Publications

An interesting new experiment in publishing inexpensive paperbacks on science at a popular level is to be initiated this month with the appearance of the first five books of a series that eventually is expected to include more than 70 titles. The publishing program is in the hands of Doubleday and Company, Inc., in cooperation with Wesleyan University Press, and the group of books will be known as the “Science Study Series”.

The Series grew out of the work of the Physical Science Study Committee, which was organized in 1956 at the Massachusetts Institute of Technology with the

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*Fundamental and experimental aspects of this detector are discussed in the following publications: Rev. Sci. Inst. 18, 347 and 357 ('47); ibid. 20, 816 ('49); Proc. IRE 40, 1161 ('52).

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aim of devising a modern course in physics for secondary schools and of preparing teaching materials to go with it. As originally conceived, the Science Study Series was to provide supplementary reading material in the PSSC physics course. The primary aim of the books, however, is "to bridge the ever-widening gap" between scientist and layman. Some of the books will portray physics and physicists at work, others will be biographical studies, and still others will be intended to enable the reader to make his own investigations and experiments. The Series will consist of original titles, with an occasional reprint of an outstanding work, brought up to date when necessary, and the publishing program will be guided by the PSSC board of editors consisting of Paul F. Brandwein (Harcourt, Brace and Co.), John H. Durston (Educational Services Inc.), Francis L. Friedman (Massachusetts Institute of Technology), Samuel A. Goudsmit (Brookhaven National Laboratory), Bruce F. Kingsbury (Educational Services), Philippe LeCorbeiller (Harvard University), Gerard Piel (*Scientific American*), and Herbert S. Zim (Simon and Schuster, Inc.).

The paperbound books will be somewhere between 120 and 160 pages in length and are expected to be priced at less than \$1.00. It is planned that they will appear at a rate of about fifteen a year. The first five books, all scheduled to be published in September, are *The Neutron Story* by Donald J. Hughes, *Magnets: The Education of a Physicist* by Francis Bitter, *Soap Bubbles and the Forces Which Mould Them* by C. V. Boys, *Echoes of Bats and Men* by Donald R. Griffin, and *How Old is the Earth?* by Patrick M. Hurley. Wesleyan University Press (Columbus 16, Ohio) will make the Series available, at special education rates, to students and teachers in secondary schools, while Doubleday Anchor Books will handle their popular distribution.

The Office of Science Information Service of the National Science Foundation (1951 Constitution Ave., N. W., Washington 25, D. C.) has available upon request a revised and expanded edition of a detailed survey entitled, *Providing US Scientists with Soviet Scientific Literature*. In addition to listing 76 Soviet journals currently available in English, the survey reports on the sources of Soviet scientific literature, the availability of such literature in the US, and the current translation programs of professional and academic groups and government agencies. Current methods of providing comprehensive coverage of untranslated Russian material are also analyzed. The survey also considers some of the problems besetting the Soviet's own information system, the All-Union Institute of Scientific and Technical Information, which issues information abstracts of the majority of papers in some 1800 Soviet and 12 000 non-Soviet serials. The survey indicates that only a few subject indexes to the thirteen series of abstracts have been issued, and that punched card and computer techniques are being explored to facilitate the task.

As a part of Project Sherwood, R. L. Kelly of Stanford Research Institute has prepared for the University of California Lawrence Radiation Laboratory a 470-page tabulation of emission lines in the vacuum ultraviolet region of the spectrum. The list is being assembled from published data and includes all measured lines of the known states of ionization of the elements between 6 Å and 2000 Å. It will be printed as a finding list for each element as well as a finding list for all elements with the less intense lines removed. The numbers of lines are approximately 30 000 and 20 000 for the two sections. A list of strong lines for each ion will be included. The document, *Vacuum Ultraviolet Emission Lines*, will be obtainable from the Office of Technical Services, Department of Commerce, Washington, D. C.

Education

A 43-page report comparing the training of Soviet and US undergraduates in physics and mathematics has been prepared by Edward M. Corson, professor of mathematical physics at the University of Delaware, for the US Department of Health, Education, and Welfare. The document, entitled "An Analysis of the 5-Year Physics Program at Moscow State University", has been distributed by the Office of Education as a part of its "Information on Education Around the World" series.

The Moscow State physics curriculum is contrasted with the curriculum offered at Columbia University and the "tentative findings", according to the report, are that great differences in the two curricula are apparent. "The Moscow university student apparently has intensive and advanced precollege training in mathematics and physics. General physics, considered in the broad sense, is also developed and special and advanced areas of physics are undertaken from this broad base and continued in depth to parallel the student's courses in higher mathematics. In contrast, the American student generally enters his university with less preparation in mathematics and physics and his university courses are less advanced and proceed more slowly. Advanced areas of study do not, therefore, reach as high a conceptual level as in the Russian system.

"A pattern seems to emerge," Dr. Corson writes, "in which the Soviet curriculum appears to maintain a 2-year acceleration lead, in comparative levels of subject-matter achievement, over the corresponding American curriculum." This pattern, he observes, is reflected in such courses as atomic physics, electrodynamics, electronics-radiotechnology, nuclear physics, thermodynamics-statistical physics, and quantum mechanics.

The Atomic Energy Commission has announced a new program of special fellowships for advanced training in health physics offering five fellowships per year (beginning with the 1959-60 academic year) for work leading to the doctoral degree in related disci-