

of basic research while a member of the Diet. Kaya feels that the Ministry might be willing at this point to propose that science be supported at an overall level of 2.5% of the GNP instead of the present 1.9%. He has good reason to hope, he said, that this year's budget will see something close to a 50% increase for basic research. But many physicists are unimpressed. One JSC member commented that we have heard words like this before but the Finance Minister has never acted.

Even ignoring the handicap of the political antagonism between the Diet and JSC, Tomonaga is despairing that basic science can achieve the kind of understanding and appreciation on the part of the general public that will be needed to develop a strong position of support. In this regard he feels that the average Japanese citizen has even less appreciation of science for its own sake than the average American. This may come as a surprise in the face of the popular image of the Japanese people as possessing a deep sensitivity and reverence for esthetic pursuits. Tomonaga's explanation is that, like the US, Japan has no long scientific tradition such as Europe has enjoyed. It was less than 100 years ago that Japan's first physicist, Kenjiro Yamagawa (who studied at Yale), began doing physics experiments on his home soil.

To the extent that the Japanese man in the street is aware of science at all he equates it to technology—activities that produce immediate results in the form of better color TV sets or camera lenses.

This lack of public awareness has meant that, at least, there is no anti-science movement to worry about yet. Even the students do not think to blame the country's suddenly very obvious environmental problems on the scientists. And so far student enrollments in the hard-science majors continue to grow with no evidence of intellectual disenchantment about relevance.

However the first signs of a "bad

press" for science in Japan can be seen arising out of the environmental crisis. They take the form of complaints that science has failed to provide the quick solutions for these problems that the Japanese have become accustomed to expect from their fast-paced technology. Unfortunately some leading politicians are among those voicing this kind of criticism. There is a clear parallel with the situation that has led to the funding crisis for basic science in the US. It would seem to be only a question of time until the Japanese word for relevance begins to dominate government funding

decisions. Any doubt that a rough financial road lies ahead for basic research in Japan is further diminished by a yet unmentioned national expense of major proportions looming on the horizon—military defense. At present the Japanese economy is still free of the burden of military expenditures. But as Japan approaches the status of a superpower it appears inevitable she will be forced to support either directly or indirectly the kind of huge defense outlay that unhappily is still one of the distinguishing characteristics of the modern super power. —HLD

in brief

The American Institute of Physics has announced that the *Directory of Physics and Astronomy Faculties 1971-1972* (Pub. R-135.10) will be published in September and *Graduate Programs in Physics, Astronomy and Related Fields* (Pub. R-205.1) will be published in October. The prices of these volumes are \$5.00 per copy and \$7.50 per copy, respectively. They can be obtained from the American Institute of Physics, SUNY, Stony Brook, N. Y. 11790.

Resources for Scientific Activities at Universities and Colleges, 1969 presents detailed statistics about financing and employment trends. Copies of the report (NSF 70-16) can be obtained for \$1.25 from the U.S. Government Printing Office, Washington, D.C. 20402.

A 15-MeV tandem particle accelerator, constructed by the High Voltage Engineering Corp. in Burlington, Mass., will be installed this fall in the Institute of Atomic Physics in Bucharest, Romania. The \$15-million Model FN machine will be used for research, isotope production and training.

The Institute of International Education has announced the official opening of

the 1972-73 competition for grants for graduate study or research abroad. It is expected that at least 600 grants will be awarded for 1972-73. Information can be obtained from the Information and Reference Division, Institute of International Education, 809 United Nations Plaza, New York, N. Y. 10017.

Fields and Quanta, a new review journal of contemporary physics, is being published by Gordon and Breach. Individual subscriptions cost \$15.00; libraries and similar institutions can subscribe for a cost of \$45.00. E. C. G. Sudarshan of the University of Texas at Austin is the editor.

Seminars in Nuclear Medicine, which presents invited reviews by researchers and practitioners in the field, is being published quarterly by Henry M. Stratton, Inc., New York. Subscriptions cost \$17.50. The editors are Leonard M. Freeman and M. Donald Blaufox of the Albert Einstein College of Medicine, New York.

Fred G. Armstrong, formerly director of research and projects for the US Steel Foundation, has been named executive director of the New York Academy of Sciences, effective 1 July.

the physics community

New publishing office for two APS journals

A new publishing office for two of the American Physical Society's journals, *Physical Review C (Nuclear Physics)* and *Physical Review D (Particles and Fields)*, has been opened at Brookhaven National Laboratory by the American Institute of Physics. The new operation includes copy editing, typewriter composition, proofreading, technical illustrating and make-up departments to produce camera-ready pages for use

in printing by photo offset.

The use of typewriter composition facilitates the setting of mathematical expressions and shortens the publishing time. Because typesetting costs are lower with this system, APS has lowered *Physical Review* publication charges to authors' institutions first from \$75 to \$70 and recently to \$65.

The first application of typewriter composition by the APS was the pub-

lication of the first issue of *Physical Review Letters* in June 1958. In May 1970, using *Physical Review Letters* equipment, the American Physical Society began publishing *Physical Review C* with typewriter composition. *Physical Review C* is now being produced at the new department at Brookhaven.

AIP typist-compositors use specially equipped IBM proportional-spacing

typewriters. To set mathematics, a typist selects appropriate hanger keys which are then inserted into a suspension system attached to the typewriter frame. A hammer key on the typewriter is struck to make the impression.

The suspension system and hanger keys are manufactured by F. W. Paffrath Experimental Development Company of East Northport, N. Y., and many type faces are selected from the IBM catalog. Some symbols are custom designed. The italics used for subscripts and superscripts are manufactured in Europe.

New officers for APS divisions

Recently installed as the 1971 division officers of the American Physical Society were Dudley R. Herschbach (Harvard University), chairman and David R. Lide (National Bureau of Standards), secretary-treasurer of the chemical physics division; Maurice M. Shapiro (Naval Research Laboratory), chairman and C. J. Waddington, secretary-treasurer of the cosmic-physics division; Paul H. Lindenmeyer (Boeing Scientific Laboratories), chairman and Frank J. Padden Jr (Bell Telephone Laboratories), secretary-treasurer of the high polymer physics division; Herman Feshbach (Massachusetts Institute of Technology), chairman and J. A. Harvey (Oak Ridge National Laboratory), secretary-treasurer of the nuclear-physics division, and J. Robert Schrieffer (University of Pennsylvania), chairman and Milan D. Fiske (General Electric R&D Center), secretary-treasurer of the solid-state physics division.

Other APS division officers are Felix T. Smith (Stanford Research Institute), chairman and Francis M. Pichanick (University of Massachusetts), secretary-treasurer of the electron and atomic-physics division; Robert A. Gross (Columbia University), chairman and Daniel Bershadler (Stanford University), secretary-treasurer of the fluid-dynamics division; Robert Hofstadter (Stanford University), chairman and Albert Wattenberg (University of Illinois), secretary-treasurer of the particles and fields division, and John M. Dawson (Princeton University), chairman and Gareth G. Guest (Oak Ridge National Laboratory), secretary-treasurer of the plasma-physics division.

Swedish study asks for more support for physics

A Swedish Physics Survey Committee has published its final report, which recommends that the government increase its support of physics by 9% per year. The committee identified a list

of priorities for the various subfields. For example, it recommended Swedish support of plans to build a joint Nordic heavy-ion accelerator (NORDAC), and it recommended Swedish support of the CERN 300-GeV accelerator. The report (in Swedish) is available from Vetenskapsakademien, Frescati, S-104 05 Stockholm 50.

APS committee wants to hear from women physicists

The American Physical Society has appointed an *ad hoc* Committee on Women in Physics, with Vera Kistiakowsky (MIT) as chairman. Kistiakowsky requests that all women physicists send their name and address to the committee. By "physicists" the committee means women with bachelor's degrees in physics or higher who are either actively engaged in physics-related work or who are committed to becoming so engaged, and also physics PhD's who are either working in non-physics areas or not working. The committee is also seeking comments and recommendations from all women physicists, whether or not they are members of APS. Replies should be sent to: Committee on Women in Physics, 575 Technology Square, Room 411, MIT, Cambridge, Mass. 02139.

New instructional materials for training technicians

A program to develop new educational materials for the education of future technicians is underway at the American Institute of Physics. AIP has been awarded a \$22 500 National Science Foundation grant to support the National Tech Physics Steering Committee from 1 June 1971 to 31 Aug. 1973. This committee will direct the production of the new educational material.

The new instructional material will be produced at four materials production centers, in the form of modules. These centers, each of which will produce four modules, are to be located at Florissant Valley Community College, St. Louis; the State University of New York at Binghamton; the Technical Education Research Center in Cambridge, Mass., and the Oak Ridge Associated Universities, Oak Ridge, Tenn.

The library of modules, each of which will exploit experimental apparatus and audiovisual aids as much as possible, will allow various types of institutions to design courses for the physics education of different types of technicians. Unlike standard physics courses, which are generally taught in the deductive style, the courses constructed around these modules will be designed to present physical phenomena initially in terms of the behavior of instruments and

equipment that the technician trainee might be familiar with or might encounter during his professional life.

For example, the principles of electricity and magnetism might be introduced using teaching modules designed around crystal radios, transistor circuits, magnetic tape recorders or the electric motor. A student might learn about acoustics using a module focused on the guitar or about mechanics using a module centered on a gyroscope.

The idea of the National Tech Physics Steering Committee grew out of a May 1969 conference of physicists and technologists at Florissant Valley Community College, which was convened by the Commission on College Physics. Initial support for the committee consisted of a small grant from the Esso Education Foundation, which was awarded in Jan. 1970.



BOK

Bok and Salpeter elected to Astronomical Society posts

New Astronomical Society officers include Bart J. Bok of the University of Arizona, who has been elected to the position of president elect and Edwin E. Salpeter of Cornell University, who replaces David Heesch of the National Radio Astronomy Organization as vice president. Bok has worked in galactic structure and dynamics and interstellar matter; Salpeter has contributed to nuclear theory, quantum electrodynamics, quantum theory of atoms, energy production in stars and theoretical astrophysics. Elected to the AAS Council were Bernard Burke, George Preston and Donat Wentzel, who replace Geoffrey Burbidge, George Wallerstein and Lodewyk Woltjer. Martin Schwarzschild of Princeton University will continue as president of the AAS until August 1972. □