

foundation's endorsement of the plan helped the acceptance of page charges by research institutions.

When all member-society and AIP journals were unified in one publishing system in 1933, the charge was

raised to \$3 a page. It remained there for 14 years, although costs continued to rise. Journals offset deficits by charging more for reprints to authors whose papers were not supported. By 1947 income was inadequate again; the charge was raised to \$4.

Page charges increased along with

costs as the volume of research and publication increased; *The Physical Review* now charges \$60 a page. Page charges as a fraction of total research cost apparently have remained stable, however, at about 1% from the 1930's to the 1960's, according to AIP figures.

Army Nuclear Lab Dedicates 15-MeV Tandem in Maryland

The Army's 15-MeV tandem Van de Graaff accelerator went into operation during October at the Nuclear Defense Laboratory at Edgewood Arsenal near Baltimore, Md. A team of civilian and military physicists runs the machine, and arrangements for shared use are being worked out with half a dozen universities in the area.

The machine and its new building were dedicated 25 Sept. Final tests were to be completed by the end of October and the accelerator formally accepted from High Voltage Engineering Corp. It was the first time High Voltage had acted as general contractor for a complete installation.

Delays were encountered after the machine was ordered in October, 1964; some consultants criticized a lack of planning when the completed machine was stored in Massachusetts while a building was erected at the arsenal (*PHYSICS TODAY*, July 1967, page 85 and October, 1967, page 9). Ground was broken 5 July 1967 and the pressure vessel moved in through an open wall last 17 Jan. The first beam was achieved in September.

The accelerator's mission is that of the entire NDL: study of initial and residual effects of nuclear weapons and evaluation of shielding. The work is aimed at protecting both soldiers in the field and civilians at home. NDL

has had a 750-keV Cockcroft-Walton generator since 1960. Some 150 persons are assigned to NDL, about 100 of them scientists.

The tandem accelerator staff numbered 16 (about half with PhD's) at the time of dedication and was to be expanded to 25 (keeping the same ratio of PhD's) when the machine and all experimental apparatus were in operation. Directing the entire NDL staff is Donald Eccleshall, formerly head of the accelerator team. Eccleshall had been scientist-in-charge of the tandem accelerator at the Aldermaston Research Centre in England before coming to Edgewood.

In an interview just prior to the dedication, Eccleshall told *PHYSICS TODAY* the tandem arrangement was "remarkably good" in preventing spurious scattering. The neutron target room has been designed to eliminate as much spurious scattering as possible. It is 24 by 24 meters; targets and counters can be suspended from a steel frame 12 meters above the floor. The walls on three sides are of very thin plastic supported by a spidery skeleton, also designed to reduce neutron scattering.

The beam is pulsed to aid in computation of times of flight. Neutrons have a flight path of 10 meters before encountering detectors.

A second experiment hall, for charged-particle studies, is heavily shielded in the usual fashion. An interlock prevents the machine from working unless shielding doors are closed.

Stainless-steel beam-transport tubing and use of ion pumps should minimize noise from the build-up of impurities on the targets.

Virtually all of the research performed with the accelerator will be reported in the open literature. The machine will be available to scientists in other parts of NDL, throughout the Department of Defense and to universities. Eccleshall said contacts had been made with Johns Hopkins, the Universities of Maryland and Delaware, Drexel Institute of Technology and Catholic University. Negotiations are under way with the National Academy of Sciences to establish a postdoctoral associateship program.

Films on Fluid Mechanics Can be Rented or Bought

Fluid mechanics films of significant research data are available through the Engineering Societies Library, 345 E. 47th St., N. Y., N. Y. 10017. At present, the library has about 80 films in stock which can be either rented or purchased. With each film comes a "scenario" describing the conditions and parametric values for each scene. A catalog containing all the scenarios and describing library operations and typical costs is also available at \$8.00 per copy.

Oak Ridge Plans Nuclear Centers For Development Of Arid Lands

Nuclear reactors at the edge of a sea could provide the water and electrical power to meet the industrial and agricultural needs of 100 000 persons, according to a study published by Oak Ridge National Laboratory.

The study was aimed at develop-



ARMY ACCELERATOR. Donald Eccleshall, left, director of the Army's Nuclear Defense Laboratory, and Edwin H. Bouton, associate director, chat next to the beam transport of the lab's new 15-MeV tandem accelerator, dedicated on 25 Sept.

ment of arid lands. It found the nuclear complex (or "nuplex") might find application in parts of Australia, India, Mexico, the Middle East, Peru and the U.S. Reactors could provide 10^9 gallons of fresh water a day, enough to irrigate 300 000 acres of crops. Industrial plants might produce fertilizers, aluminum, phosphorus, caustic-chlorine, magnesium and ammonia.

The study was conducted for the Atomic Energy Commission by Edward A. Mason of MIT. Already the AEC is following up with a study of the potential for nuplexes in the Middle East. This one will suggest specific sites.

IPPS Membership Rises 8%; Deficit Totals \$11 000

The Institute of Physics and the Physical Society reported at its annual meeting a membership increase of 8% and an operating deficit of \$11 000 for 1967.

Membership growth to 13 178 was caused chiefly by new graduate and associate members, which make up nearly two-thirds of total membership. Associate members now total 4250 and graduates 4000. The growth raised the institute's income; yet expenditures rose to \$680 000 resulting in the net deficit for the year.

The meeting elected Malcolm R. Gavin, of the University of North Wales, as president; Robert Press as honorary secretary; P. T. Menzies as honorary treasurer; and Bryan R. Coles as vice-president. Peter B. Hirsch, Alfred J. Kennedy and J. E. Roberts were elected new members of the council.

Wiesner, Hornig Revive Talk Of Federal Science Department

The question of creating a single federal science agency to formulate overall policy has been revived as the budget squeeze causes scientists to re-examine administration and planning methods. Support for the idea, or at least for a new examination of it, was voiced recently by Jerome B. Wiesner, MIT provost and former White House science adviser, and by Donald F. Hornig, the present White House adviser.

Wiesner proposed using the National Science Foundation as the core of a new research and development agency that would expand into urban

and environmental areas. According to Wiesner, such an agency would provide the answer to what he called a "seriously lopsided research program." US leadership may be passing to Europe and Japan in such fields as high-energy physics, some areas of solid-state physics, astronomy, some areas of metallurgy and specialized instrumentation fields such as high-resolution electron microscopy, he said.

There has been no time since World War II, Wiesner continued, "when sci-

entists have been more discouraged." He spoke at the dedication of a new technical information center by the Celanese Research Co. in Summit, N.J.

Hornig told the American Chemical Society in Atlantic City that it is time to examine the idea of a federal science department by means of studies, public discussion and congressional debates. While he did not take a stand Hornig said that if such a department is created, it should be built around the NSF.

European Physical Society Plans For 10 000 Members

The European Physical Society is a going concern after three years of discussion and planning and surprises right up to the moment it came into existence in a University of Geneva lecture hall. Eighteen national physical societies and academies joined on inauguration day with at least three more expected to follow in the near future.

More than 60 physicists from all over Europe, many who had taken a hand in forming the society, joined as individuals the same day. This number is expected to exceed 1000 by the society's first scientific congress next April and to approach 10 000 in the next several years.

On 24 Sept., two days before the inaugural ceremonies in Geneva, the steering committee did not know whether the Russian physicists planned to join. The next day, however, Lev D. Artisimovich indicated the Soviets would be charter members.

More groups, including some from

additional countries, are expected to enroll. An East German group is expected to join, as are organizations in Poland and Turkey.

EPS encompasses more territory than Europe proper. The constitution provides that the society shall "contribute to and promote the advancement of physics in Europe and in neighboring countries." One of the charter members is the Israeli Physical Society. Other charter national members are Austria, Belgium, Czechoslovakia, Finland, France, West Germany, Hungary, Ireland, Italy, Netherlands, Rumania, Spain, Sweden, Switzerland, United Kingdom, USSR and Yugoslavia.

Lorette Etienne-Amberg, a PhD-physicist who had been scientific secretary of the steering committee, is executive secretary of the new society. On a New York visit in October, she explained classes of membership in an interview with the editors of PHYSICS TODAY.

National societies and academies and laboratories and research institutions may join as units. For example, the European Plasma Physics group has joined as a unit. They pay dues on a sliding scale that starts at about \$1 per person per year and drops off for larger societies. These members elect one representative to the EPS Council for the first 500 members, one for the second 500 members, one for the next 1000 members and one for the next 3000 members. A member society with more than 5000 members will have five representatives on the council.

Individuals, whether or not they are members of a member society, may join EPS directly. They are entitled to vote, to elect their own separate representatives to the council and to receive the same services from EPS as do member societies. It is this figure



DR ETIENNE-AMBERG