

takable tribute to the correctness of Pavlov's laws of higher nervous activity, he is, on the other hand, more explicit in his claims that human psychology has supraphysiological status, that it is more a social than a biological science, and that its key concept of human person-

ality involves sociohistorical as well as psychological and physiological factors. Kornilov's concern with basic problems of Soviet psychology was indeed a matter of life-long dedication. And—this should be especially noted—he somehow managed at all times to keep afloat, in

fact to be most of the time in the forefront, untoward and adverse trends to the contrary notwithstanding. Soviet sources have it that Kornilov was not a member of the Communist party.

GREGORY RAZRAN  
*Queens College, Flushing, New York*

## News of Science

### United States Euratom Program

On 23 June the President transmitted to Congress an international agreement between the United States and the European Atomic Energy Community (Euratom). Under the United States Atomic Energy Act, Congressional approval of this instrument is necessary prior to entering into a U.S.-Euratom agreement for cooperation which would embrace a 1-million-kilowatt joint program of nuclear power development.

This program involves the construction by 1963 in the six Euratom countries—Belgium, France, the Federal Republic of Germany, Italy, Luxembourg, and the Netherlands—of approximately six large-scale nuclear power plants based on United States type reactors. This would provide sufficient electrical generating capacity to meet the power requirements of more than 5 million people in the Euratom area. An outline of the proposed United States-Euratom program follows.

**Objectives.** The aim of the joint program will be to bring into operation in the Community by 1963 about 1 million electric kilowatts of installed nuclear capacity, in reactors of proven types developed in the United States, and to initiate immediately a joint research and development program centered on these reactors. The program would be conducted so as to obtain maximum support of the industries of the Community and of the United States. The active participation of industries is indispensable to the success of the program.

**Capital costs.** The total capital cost, exclusive of fuel, is estimated not to exceed \$350 million. These funds will be provided by the participating utilities and other European sources of capital, such financing to be arranged with the

appropriate assistance of Euratom. Up to \$135 million would be provided by the United States Government to Euratom in the form of a long-term line of credit from the Export-Import Bank. These funds will be re-lent by Euratom for the construction of nuclear power plants.

**Operation of plants.** The nuclear power plants will be built, owned, and operated by utilities in the member states. All risks due to uncertainties in construction, maintenance, and operating costs and load factors will be borne directly by these utilities. In the course of the negotiation it was determined that the economic risks associated today with the reactor fuel cycle must be minimized if participation by the European utility industry is to be assured. To this end, the United States, for a 10-year period of operation, will guarantee ceiling costs for the fabrication of the fuel elements required, as well as a fixed life for these elements.

**Research program.** A research and development program, established for a 10-year period, will be centered on improvement in the performance of the reactors and the lowering of fuel cycle costs. During the first 5 years, the financial contribution of the Community and the United States will amount to about \$50 million each, with the sum required for the second 5-year period to be determined at a later date.

**Fuel requirements.** Under the arrangements proposed, the United States would sell to the Community a net quantity of 30,000 kilograms of contained  $U^{235}$  in uranium to cover the fueling and other requirements of the program for such material over a 20-year operating period. The initial operating inventory, which amounts to approximately 9000 kilograms of contained  $U^{235}$ , would be sold

to the Community on a deferred payment basis. The balance of about 20,000 kilograms—which represents estimated burn-up and process losses over the 20-year period, and 1000 kilograms to provide for research and test reactors associated with the program—would be paid for on a current basis.

The U.S. Atomic Energy Commission will process in its facilities, at established U.S.-domestic prices, spent fuel elements from the reactors to be included in the program.

**Special nuclear materials.** With respect to any special nuclear material produced in reactors fueled with materials obtained from the United States under this joint program, which is in excess of the need of the Community for such material for the peaceful uses of atomic energy, the International Atomic Energy Agency would have the right of first option to purchase such material at the announced fuel value price in effect in the United States at the time of purchase. In the event this option is not exercised by the agency, the United States would be prepared during the first 10 years of reactor operation to purchase such material at the U.S.-announced fuel value price in effect at the time of purchase.

**Data exchange.** Technological and economic data developed under the program would be made available to the industries within the Community and the United States under provisions designed to assure the widespread dissemination of the information developed in the course of the program.

**Safeguards system.** Under the program the Community will assume responsibility for the establishment of a safeguards system which will be formulated in accordance with agreed upon principles. This system will be designed to assure that the materials received from the United States, as well as special nuclear material produced therefrom, will be used only for peaceful purposes. The proposed agreement for cooperation with the Community provides that there will be frequent consultation on the operation of the system. Continuation of the cooperative program will be contingent upon the Community's establishing and maintaining a mutually satisfactory safeguards system.

The Community also has agreed to

consult with the International Atomic Energy Agency to assure the development of a safeguard system reasonably compatible with that of the agency. In addition, in the event of the establishment of an international safeguards and control system by the International Atomic Energy Agency, the United States and Euratom will consult regarding assumption by that agency of the safeguards and control over fissionable material utilized and produced in implementation of the joint program.

### Basic Curriculum Study

How much should a student know about himself and his world after 12 years of schooling? In an attempt to find an answer, the Council for Basic Education, Washington, D.C., has brought together a group of men and women representing many agencies concerned with the problem. The council, headed by Howard A. Meyerhoff, president, has received a grant of approximately \$34,000 from the Relm Foundation, Ann Arbor, Mich.

The council's planning group met recently to discuss the first phase of a "Basic Curriculum Study"—a study divided into four phases from which will come, over a period of several years, a series of publications dealing with the basic curriculum, with the preparation of teachers, with the gifted child, and with a system of national academic achievement examinations. Each publication will be the subject of a national conference, the first one to be held next fall in Washington, D.C.

At that meeting an effort will be made to define the level of attainment that graduating high school students should reach in what the Council calls the basic subjects: English, history, foreign languages, geography, mathematics, biology, chemistry, and physics. An outstanding scholar in each subject will present a paper describing, for his particular field, the proper educational aims of the public school. The papers will be published subsequently in the form of a citizen's handbook that will be made widely available.

### Conservation Slide Rule

Research data on soil conservation, gathered by U.S. Department of Agriculture scientists over the past 30 years, is now readily available for practical use by technicians in the form of a simple conservation slide rule that makes possible fast and reliable soil-loss estimates right in the field. This slide rule, developed from information compiled by scientists of USDA's Agricultural Research Service, is in use by soil-conservation

technicians in the nine Corn Belt States to help farmers protect their land. It was designed by J. J. Pierre of the Soil Conservation Service, using information previously available to soil conservation technicians only in tabular and chart form. Although the present slide rule is adapted only to Kentucky, Minnesota, Iowa, Missouri, Wisconsin, Illinois, Indiana, Ohio, and Michigan, research information is being developed to make similar prediction methods available to soil conservation technicians in other parts of the United States.

Since 1929, soil and water conservation experiment stations throughout the country have been studying the most important factors governing the amount of soil and water lost from farmland during rainstorms. All these factors except rainfall itself are influenced to some extent by the method of cropping and conservation practices used.

The rate of erosion caused by storms depends on the force with which raindrops stir up soil and the amount and speed of the runoff water. Erosion is also affected by the kind of soil, kind and amount of soil cover, and steepness and length of slope, as well as soil-management and conservation practices. When enough experimental data are available to give accurate relative values for these various factors, mathematical methods can be used to estimate or predict soil loss on a particular farm.

### Medical Research in Australia

Last March Sir Howard Florey, in the presence of the Prime Minister of Australia, opened the new building of the John Curtin School of Medical Research at the Australian National University in Canberra. The National University was founded in 1946 as a national center for research and research training, initially in the fields of physical sciences, medical sciences, and the social sciences.

There had long been complaints in Australia that many of the most able scientists left the country because of the greater attractions in universities and research institutions in Great Britain. Such complaints applied more to the medical sciences than to other natural sciences, for which the large and varied laboratories of C.S.I.R.O. provided first-class facilities, whereas the only medical research institute in Australia with an international reputation was the relatively small Walter and Eliza Hall Institute in Melbourne.

In a report to the Commonwealth Government in 1944, Florey suggested that a national institute for advanced medical sciences should be set up in Australia, and the John Curtin School of Medical Research, established as an in-

tegral part of a university devoted to research and research training, is the result of this suggestion. Florey was intimately associated with the development of the school from the time of his report until 1955, and the building he opened in March is a monument to his inspiration and drive.

There were no laboratories in Canberra in 1948 when the first professor was appointed, so the departments were started in laboratory space lent by several institutions—biochemistry at the Commonwealth Serum Laboratories, Melbourne; medical chemistry at the Wellcome Research Institution in London; microbiology at the Walter and Eliza Hall Institute in Melbourne; experimental pathology in Florey's laboratories in Oxford; and physiology in the University of Otago in New Zealand.

In 1951 temporary laboratories were built in Canberra. These were occupied between 1952 and 1957, when the departments were transferred to the present building, a brick structure of about 170,000 square feet in floor area. At present the total research staff is about 40 and there are some 20 Ph.D. students.

### Research Institutes in the U.S.S.R.

A revised *Directory of Medical and Biological Research Institutes of the U.S.S.R.* has been issued by the National Institutes of Health, Public Health Service. The 1958 *Directory* lists more than 700 institutes with their subdivisions, and includes a general subject and name index. Its purpose is to facilitate the exchange of scientific information between the United States and the U.S.S.R., to provide materials for study of the organization of Russian biomedical research, and to assist scientists in planning visits to Russian research centers.

A limited supply of the 1958 edition (PHS Publication No. 587) is available. Requests for single copies should be addressed to the Publications and Reports section, Scientific Reports Branch, National Institutes of Health, Bethesda 14, Md.

### Mental Health

Plans for a World Mental Health Year in 1960 sponsored by 108 mental health and professional societies in 43 countries and territories have been announced by the New York Office of the World Federation for Mental Health. Following the pattern of the International Geophysical Year, the purpose of the program is to stimulate mental health activities, including research, with a maximum of international cooperation. The federation, a non-governmental or-