metrically from the surrounding sea. The difference is determined by many variables, such as cloud cover, time of day, and absolute humidity. Many local ocean currents may be identified by radiometric qualities that differ slightly from those of the surrounding sea. For example, it is easy to plot the edges of the Gulf Stream. Under some conditions it is possible also to follow the flow of rivers out into the ocean.

AAAS Theobald Smith Award

The Theobald Smith Award of $1000 and a bronze medal, which has been given yearly since 1937 (except for a lapse during the war years) by Eli Lilly and Company of Indianapolis, under the auspices of the American Association for the Advancement of Science, will be presented at the association's 126th meeting in Chicago, Ill., 26–31 December. Travel expenses will be paid by the donors to enable the recipient to receive the award in person.

Nominations are now being requested for the award. They may be made by fellows of the AAAS and should be sent to the secretary of the Section of Medical Sciences, Dr. Allan D. Bass, Department of Pharmacology, Vanderbilt University School of Medicine, Nashville 5, Tenn.

The prize is given for "demonstrated research in the field of the medical sciences, taking into consideration independence of thought and originality." Any investigator who was less than 35 years of age on 1 January 1959 and is a citizen of the United States is eligible. The research is not to be judged in comparison with the work of more mature and experienced investigators.

Nominations must be received before 1 September. All nominations should be accompanied by six copies of a two-page summary in the form of a letter of nomination which describes in detail the importance of the candidate's work; six copies of any manuscripts ready for publication; six reprints of each of the candidate's more important published articles; and six copies of a brief biographical sketch of the candidate.

The committee of judges consists of Wallace O. Fenn, University of Rochester School of Medicine and Dentistry; Arthur Kornberg, Stanford University School of Medicine; John J. Bittner, University of Minnesota Medical School; and Stanhope Bayne-Jones, technical director, Research Office of the Surgeon General, U.S. Department of the Army, Washington, D.C. Nathan W. Shock, Baltimore City Hospitals, chairman of AAAS section N (Medical Sciences), is chairman, ex officio; Dr. Bass will serve as ex officio secretary.

Antarctic Laboratory

The recently completed U.S. Antarctic Biological Research Laboratory has begun full operation. The laboratory, built and equipped through a National Science Foundation grant of $82,000 made to the Arctic Institute of North America, is located at the Naval Air Facility on Ross Island, McMurdo Sound. Work currently being performed by two biologists spending the winter there includes research in entomology, microbiology, and marine taxonomy. The laboratory and research work are part of the United States Antarctic Research Program arranged by the National Science Foundation in consultation with the NAS-NRC Committee of Polar Research.

An extensive survey of land invertebrates is now being conducted by Madison E. Pryor of the University of Tennessee, station scientific leader. Objectives of the research are to determine the kinds and numbers of invertebrates in the region, the relationships between plants and animals, and methods by which invertebrates have adapted to extremes of climate. Under study as part of a Stanford University project are the population characteristics of antarctic fishes, their growth rates and metabolic rates, and the identity, distribution, abundance, and ecology of inshore marine invertebrates. The project is under the direction of Donald E. Wohlschlag of Stanford, who was in the antarctic last summer.

Present plans call for extensive field work to be performed at the laboratory during the coming austral summer. The program will be expanded to include additional work in pathology and microbiology.

Machine Translation of Russian

Experiments in machine translation which the National Bureau of Standards has been performing for the Army Office of Ordnance Research now point the way to practical production of English text from Russian technical literature, according to the bureau's news bulletin. In a translation scheme recently developed, an electronic computer is instructed to weld together the English equivalents of the Russian word in a given text to make a meaningful reproduction of the original sentence. Studies have been carried out on a high-speed electronic computer by a member of the mathematical staff.

The machine is first instructed to change the words of a Russian sentence into a highly condensed form for matching in the glossary. The machine is then told to recognize the syntactical relations between the words. After this, it puts together the English words into a meaningful sentence. Expected improvements and short cuts in the programming, and use of the advanced computers now under construction, may reduce the expense to a point where machine translation will cost no more than employing a human translator.

Combined Curriculum

Columbia University and Wittenberg College, Springfield, Ohio, will offer a 5-year combined program in liberal arts and engineering, officials of the two schools announced recently. The plan will enable students to earn both the bachelor of arts and the bachelor of science degrees in a 5-year period. Under the program the student will study for 3 years at Wittenberg and for 2 years and a summer at Columbia's School of Engineering. After completing the graduation requirements of each institution, the student will receive a bachelor of arts degree from Wittenberg and a bachelor of science degree in a specialized engineering field from Columbia.

Columbia has arrangements with 41 other American colleges for such a combined curriculum.

Zero Gradient Synchrotron

Construction of a 12.5 billion electron volt particle accelerator, the Zero Gradient Synchrotron, has begun at the Argonne National Laboratory near Lemont, Ill. The facility is operated by the University of Chicago, under contract with the Atomic Energy Commission. Officials from Congress, the Atomic Energy Commission, and Argonne National Laboratory participated in the groundbreaking ceremony. Construction of the synchrotron, at an estimated cost of $29 million, is expected to be completed early in 1962.

Three buildings will be constructed for study purposes at different sites

around the accelerator ring. The site will also include an equipment structure located inside the ring, a laboratory and office building, and a shop and assembly structure. A tower will be provided for cooling the water necessary for operation of the giant magnet.

Image Tube

An image tube, a device which may make the new 120-inch telescope at the University of California's Lick Observatory as powerful as an even larger instrument, will be tested at the observatory in September. This was disclosed during recent dedication ceremonies for the telescope, second largest in the world, at Mount Hamilton, California. The image tube, still in the early developmental stages, is a device designed to multiply the power of optical telescopes. Speakers at the dedication were Clark Kerr, president of the University of California; Donald H. McLaughlin, chairman of the regents of the university; and A. E. Whitford, director of the Lick Observatory.

According to Whitford, major studies will be made of distant galaxies that can be studied only with the 120-inch telescope and the 200-inch telescope at Palomar, and of young stars still in their formative stage. These studies may yield new understanding of the evolution of the universe.

Through instruments and ingenuity, Whitford said, it may be possible to multiply the basic power of the telescope and "bring into view objects never yet recognized."

Soviet Patents and Inventions

For the first time since 1940, the Soviet Union is permitting export of copies of a bulletin listing patent specifications and applications. The action was authorized by the Committee on Inventions and Discoveries of the U.S.S.R. Council of Ministers. The bulletin, which is published 24 times a year, gives information on the approximately 10,000 patents issued each year. It also includes descriptions of inventions of previous years. Until recently, dissemination of such data was prohibited by a specific statute concerning inventions and technical improvements. Pergamon Press will publish a monthly translation of the bulletin under the title *U.S.S.R. Patents and Inventions.*

News Briefs

A controlled-environment laboratory for studying the effects of environment on plants and animals will be constructed at the University of Wisconsin with the assistance of a $1,500,000 grant from the National Science Foundation. In this combined plant-study and animal-study facility, botanists and zoologists will be able to consider common scientific problems and their interaction. Present plans call for 30 artificially lit environmental growth rooms and for both conventional and controlled-temperature greenhouses in the plant-research section. There will be rooms for studying the effects of dew, rain, high air velocity, and especially low temperature coupled with high light intensity. Areas for sterilization, storage, potting, harvesting, and photography, special instrumentation, and equipment and space for nutrient-culture work will be provided.

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Atomic Energy of Canada Limited is planning early construction of a large-scale atomic power station, at an estimated cost of about $60 million, exclusive of design and development costs. The site has not yet been selected. The station will probably be completed and in operation by late 1964 or early 1965. Known as CANDU (Canadian Deuterium Uranium), the power station will produce 200,000 kilowatts of electricity and will use a natural-uranium heavy-water system.

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Ten secondary schools in the United States have been cited by the American Association of Physics Teachers for excellence in the teaching of physics. They are as follows: John Burroughs School, St. Louis, Mo.; Bronx High School of Science, New York, N.Y.; Chamblee High School, DeKalb County System, Chamblee, Ga.; Corvallis Senior High School, Corvallis, Ore.; South High School, Denver, Colo.; Phillips Exeter Academy, Exeter, N.H.; Evanston Township High School, Evanston, Ill.; Green River High School, Green River, Wyo.; North Phoenix High School, Phoenix, Ariz.; Washington–Lee High School, Arlington, Va.

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Annual Reviews, Inc., of Palo Alto, Calif. announces the organization of a new series of reviews: the *Annual Review of Pharmacology.* The first volume is scheduled to appear in April 1961. Windsor C. Cutting of Stanford University has been appointed editor and Henry W. Elliott of the University of California, associate director. Members of the editorial committee, under whose direction the reviews will be organized, are as follows: Windsor C. Cutting (chairman); Bernard B. Brodie, National Heart Institute; Maynard B. Chenoweth, Dow Chemical Company; Louis S. Goodman, University of Utah; G. B. Koelle, University of Pennsylvania; Chauncey D. Leake, Ohio State University; and Maurice H. Seevers, University of Michigan.

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A center for nuclear technology will be established at Cornell University this fall. A National Science Foundation grant of $475,000 assured construction of the center, which will include a nuclear reactor unit that can be used for both research and training. The entire project will cost $1,550,000. The center will be under the direction of Trevor R. Cuykendall and David D. Clark of Cornell's department of engineering physics. The nuclear unit includes a zero power core for research, obtained under the National Science Foundation grant, and a training core called a TRIGA (*t*raining *r*esearch *i*sotope *g*eneral *a*tomics) toward the cost of which $150,000 has been granted by the Atomic Energy Commission. TRIGA will also be used in studies involving radioactive isotopes.

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The Atomic Energy Commission plans to issue a permit to the State College of Washington for construction of a water-cooled and water-moderated pool-type reactor on the campus at Pullman. There will be laboratories and equipment for research on radiation effects and for instruction in nuclear science and engineering. The college plans to use the facility for a series of experiments on the uses of radioactivity in agriculture and biology and for experiments demonstrating the basic principles of reactor physics.

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A committee of the National Academy of Sciences–National Research Council has recommended a set of procedures for the disposal of radioactive wastes from nuclear-powered ships that would permit the operation of a fleet of 300 such vessels without undue hazard to human health from marine contamination. The recommendations are contained in a report of the committee on the effects of atomic radiation on oceanography and fisheries, part of the Academy's continuing study of the biological effects of atomic radiation. The report,