January, and its power has been progressively increased since then. It is now producing 30,000 kilowatts of heat energy, three-fourths of the total capacity that is expected to be reached in a few weeks. When the maximum power of 40,000 kilowatts of heat energy is reached, approximately 5000 kilowatts of electricity will be produced. However, between 7000 and 8000 kilowatts are needed to run the blowers that cool the pile.

The Marcoule center is primarily a producer of plutonium. Electricity on a commercial basis will not be produced in France before 1959, when a plant in the Loire Valley is constructed. It will have a capacity of 300,000 kilowatts.

Hyksos Tomb

Hebrew University archeologists working in the area of the biblical town of Tel Hazor, in northern Galilee, have reported the discovery of what seems to be an unopened royal tomb of the Hyksos period. Yigal Yadin, former chief of staff of the Israeli Army, and Jean Perrot have found a circular staircase leading into a rock tunnel that is behind an arch such as is found only in royal tombs. The tunnel is still blocked by tons of debris.

The Hyksos were the earliest invaders of Egypt, conquering it about 1685 B.C., according to Josephus, Jewish historian at the start of the Christian Era. He also identified them as Israelites. Historical records of the Hyksos period are rare, and few archeological traces of it have been found.

Salk and Sabin Vaccines

The National Foundation for Infantile Paralysis has announced that recent work reported by Albert B. Sabin of the University of Cincinnati in the development of a live-virus vaccine against paralytic poliomyelitis does not affect the current use of the Salk vaccine. The foundation has supported the work of both Sabin and Salk. Sabin's experimental oral vaccine contains attenuated strains of live virus, while the Salk killed-virus vaccine is injected in a series of three shots spaced over a period of 8 months.

In a statement to the press, Thomas M. Rivers, medical director of the foundation, said: "The Salk vaccine is safe, effective and available today. The Sabin vaccine still is in an experimental stage. As Dr. Sabin himself has pointed out, it is impossible to estimate how long it might take to test and prove the effectiveness of the new vaccine in human beings. But we know that the Salk vaccine has been 75 to 80 per cent effective. It would be tragic if parents, misled by the report of a possible future vaccine, delayed the use of the vaccine which now is available for protection against paralytic polio." Rivers also commented that the foundation has received no request from Sabin for mass testing of his new product.

Engineering Graduates Here and Abroad

Comparative data for the graduating classes of engineers for 1954 in Great Britain, the United States, and the U.S.S.R. are as follows: Great Britain graduated 57 engineers per million of population; the United States graduated 136 engineers per million of population; and the U.S.S.R. graduated 280 engineers per million of population.

The available data for the U.S.S.R. show that the Soviet Union is graduating an additional 326 lower-grade engineers per million of population. Although the population of the U.S.S.R. is about one-third greater than that of the United States, she is graduating more than twice as many engineers as the United States.

Doctor Draft

The special draft law passed in 1950 that permitted the induction of physicians and dentists up to the age of 50 will expire next June, and the Department of Defense has let it be known that next year the military will rely instead on the regular draft to get its medical staff. More than 30,000 physicians, dentists, and veterinarians have been called to duty under the provisions of the law, which was extended in 1951 and 1953 and again in 1955.

The American Medical Association and the American Dental Association have long protested that the law was discriminatory. Under the regular draft, men under 35 may be inducted. Only about 200 more doctors are expected to be called before the law expires.

Erythromycin Molecule

The complete molecular structure of erythromycin has been determined after 4 years of research at Eli Lilly and Company, Indianapolis, Ind. The team of organic chemists who participated in the work included Edwin H. Flynn, Koert Gerzon, Max V. Sigal, Jr., Paul F. Wiley, Ollidene Weaver, Rosemarie Monahan, and U. Carol Quarck (who is now at the Organic Chemistry Institute, Technical University, Berlin-Charlottenburg).

Erythromycin, which is produced by the soil mold *Streptomyces erythreus,* is widely used by the medical profession, particularly against common bacterial infections. It was discovered in the Lilly laboratories in 1951 and given the trade mark Ilotycin (Erythromycin, Lilly). The determination of the molecular formula will aid research to develop new forms of the antibiotic and to study its metabolism and physiological action.

The formula is $C_{37}H_{67}NO_{13}$. The molecule consists of a large lactone ring, called erythronolide, to which are attached two unusual sugars, desosamine and cladinose. The desosamine structure was worked out by chemists of another laboratory after the Lilly group had isolated, characterized, and named it.

Part of the structure work on erythromycin has been detailed in the *Journal of the American Chemical Society* [**78,** 388, 808 (1956)], and the final reports are to appear in that publication in the near future.

Report of the Pentagon's New Industrial Security System

The Department of Defense has issued an unusual 200-page report on the functioning of its arms plant security system. This *First Annual Report* of the Pentagon's Industrial Personnel Security Review Program, subtitled "Security at work" has an illustrated cover, charts, and a clearly written text.

Breaking precedent, the report cites 30 case-histories to illustrate how the security system works. Although most of the cases seem to be clear-cut ones in which security clearance should have been withheld, one case-history disclosed that a "research scientist of national stature" had been finally granted clearance in the face of charges that his mother was a known Communist and his father a supporter of Communist-front organizations, and that he himself had gone to Russia to do research work in the 1930's, had read the *Daily Worker,* and had shown a "sympathetic interest" in Communism.

The report stresses that the Government has a duty to release as much information as possible regarding security cases, to avoid the "confusion and misunderstanding" that has resulted in the past because of partial disclosures. It also defends the limited use of "faceless informers." In general, the report presented the following information.

Under the new centralized control system and improved local screening procedures, the number of disputed security cases arising among the some 2 million employees of defense plants has been sharply reduced since April 1955 when the clearance system was revised.

For fewer clearance denials are forwarded by local agencies to the Pentagon, and of these, clearance is being granted in a higher percentage of cases. During the first 14 months of the present system,

418 cases were submitted for Pentagon screening; in 250 cases lower authorities were overruled and clearances were granted. This is a 60-percent approval rate, compared with 37 percent during the previous 2 years, when only 622 of 1672 appeals for clearance were granted. In addition, a much larger percentage of cases was settled before the people involved had to be notified and hearings held, with the consequent harm done to those concerned.

In a news conference about the report, Jerome D. Fenton, director of the Defense Department Office of Personnel Security Personnel Policy, stated that of all the cases considered, about half involved loyalty questions and half personal charges such as homosexuality, drunkenness, and criminal records. He said that, although the number of cases has decreased, the percentage of clearances remains about the same.

U.S.-Soviet Cooperation

The U.S. Government has offered to enter into an agreement with the U.S.S.R. under which Soviet and American planes would fly between Nome, Alaska, and Murmansk in the U.S.S.R. for observation of Arctic ice in connection with the International Geophysical Year. The reciprocal agreement would include exchanges of landing rights and the use of equipment, facilities, and personnel related to the flights.

At the Arctic conference of the IGY in Stockholm in May 1956, the U.S. National Committee for the IGY had suggested coordination of the ice observation flights of the two countries. The Soviet representatives then proposed that alternate flights be exchanged "in order to obtain a more comprehensive photographic record of the polar icepack and its changes."

New ARDC Research Branch

The Air Research and Development Command has established a new branch to conduct research, development, evaluation, and integration of flight-control systems displays in all Air Force aircraft. The new design engineering branch of the Flight Control Laboratory at ARDC's Wright Air Development Center, Dayton, Ohio, will carry out plans of the Control-Display Integration Working Group, which is composed of representatives from several laboratories and other units at WADC concerned with aircraft instruments.

The new branch is headed by C. J. Snyder and is composed of three sections: the display engineering section, with Jack Kearns as chief, which conducts research and development on whole panel instrumentation concepts for new weapon systems; the systems integration section, headed by Maj. B. S. Emrick (who is also chairman of the Working Group), which conducts research and development on problems of integration of whole panel instrumentation concepts with other subsystems; and the specifications and standards section, under John Hart, which provides engineering guidance and formulates general requirements for test procedures, acceptance standards, and reliability criteria.

News Briefs

■ The ministers of education of Central America recently took part in a meeting at which all five of the republics represented agreed to coordinate their systems of instruction. The participants have agreed to meet again on 5 Dec. in San Salvador to work out arrangements for a permanent organization to be established in Managua under the auspices of the Organization of Central American States.

■ The U.S. Atomic Energy Commission has announced that a hearing on the safety of the reactor being constructed by the Power Reactor Development Company of Detroit, Mich., will be held in Washington, D.C., on 13 Nov. Jay A. Kyle, assistant chief hearing examiner for the Federal Communications Commission, will be the presiding officer.

■ The effective tagging of fleas with radioactive isotopes for the study of the epidemiology of plague has been reported by the University of California Medical Center and the U.S. Public Health Service's communicable disease laboratory in San Francisco. Cerium-144, an isotope of one of the rare earths, has proved a practical and simple tracer for fleas, which heretofore have been especially difficult to tag. With the new technique, fleas can now be released on wild rodents and their life-cycle can be studied with radiation-detecting equipment.

Scientists in the News

THOMAS M. RIVERS of New York City, formerly vice president of the Rockefeller Institute for Medical Research, has been appointed medical director of the National Foundation for Infantile Paralysis. He succeeds HART E. VAN RIPER, who is leaving the National Foundation on 31 Oct. to become medical director of Geigy Pharmaceuticals of Ardsley, N.Y.

Rivers, who has been closely associated with the development and testing of the Salk vaccine, takes over his new post on 1 Nov., 1 year after joining the National Foundation's professional staff as assistant to the president of the foundation.

The following scientists received awards during the American Chemical Society's 130th National Meeting.

ROBERT B. WOODWARD, professor of chemistry, Harvard University, the ACS award for creative work in synthetic organic chemistry, sponsored by the Synthetic Organic Chemical Manufacturers Association, "for brilliant achievements in the synthesis of alkaloids."

WARREN K. LEWIS, professor emeritus, Massachusetts Institute of Technology, the ACS award in industrial and engineering chemistry, sponsored by the Esso Research and Engineering Company, "for his major part in developing fluidized bed systems for gas-solid contacting and chemical reactions."

MELVIN CALVIN, professor of chemistry, University of California, the ACS award for nuclear applications in chemistry, sponsored by the Nuclear Instrument and Chemical Corporation, "for skillful and diverse demonstrations of the power of radioisotopes in experimental chemistry."

GILBERT J. STORK, professor, Columbia University, the ACS award in pure chemistry, sponsored by Alpha Chi Sigma Fraternity, "for extraordinary work in the structure and stereospecific synthesis of natural products."

Ralph H. MÜLLER, staff member, Los Alamos Scientific Laboratory, University of California, the Beckman award in chemical instrumentation, sponsored by Beckman Instruments, Inc., "for a long series of 'firsts' in better ways to get chemical information from physical measurements."

STUART PATTON, associate professor, Pennsylvania State University, the Borden award in the chemistry of milk, sponsored by the Borden Company Foundation, Inc., "for ingenious application of organic chemistry techniques to problems of heat-induced deterioration of milk."

HAROLD A. SCHERAGE, associate professor, Cornell University, the Eli Lilly and Company award in biological chemistry, "for valuable additions to the knowledge of protein interactions and protein and macromolecular structure."

JOHN H. YOE, chairman, department of chemistry, University of Virginia, the Fisher award in analytical chemistry, sponsored by the Fisher Scientific Company, "for pioneering work in colorimetric analysis and organic analytical reagents."

D. H. R. BARTON, Regius professor of chemistry, University of Glasgow, the Fritzsche award, sponsored by Fritzsche