News of Science

Yerkes Laboratories

Operation of the Yerkes Laboratories of Primate Biology at Orange Park, Fla., has been transferred from Yale University to Emory University. Research will be continued under the auspices of Emory, with the same primary emphasis on the behavioral sciences. An international reputation has been built by the Yerkes Laboratories for studies of the chimpanzee growth and development, sex, and comparative psychology. The station's long-term scientific records are unique.

Investigations have shown that the chimpanzee most nearly approaches man in emotional responses. Because of the work at Orange Park, more is said to be known about the animal than is known about any other animal except the white rat.

Grants in support of continued research total almost $700,000, to be administered over periods varying from 1 year to 5 years. About $170,000 will be available for the coming year. Research is supported by the Ford, Rockefeller, and Carnegie foundations, the National Science Foundation, the Atomic Energy Commission, the National Research Council, and the National Institute of Mental Health.

The laboratories were established in New Haven in 1924 and moved to Florida in 1930. Yale is giving up the laboratories chiefly because of their distance from New Haven and of difficulties in coordinating the work of scientists in Orange Park with the organization of the Yale faculty. Emory was selected for the transfer because of its outstanding research programs in the basic sciences, biology, psychology, and other areas.

The 182-acre facility can accommodate 60 chimpanzees. Research at the laboratories has contributed to the development of the prefrontal lobotomy in treatment of insanity, and the Yerkes center was the home of the celebrated Viki, the subject of an experiment in rearing a chimpanzee in a human environment. Viki was raised in the home of a scientist. Other research has included investigations of sex behavior, learning, and effects of radiation. More than 400 research papers from study at the laboratories have been published in scientific journals.

Henry Nissen, director of the laboratories, will continue as director under the new sponsorship. The same board of scientific directors will continue to serve. It consists of Leonard Carmichael of the Smithsonian Institution, chairman, and George W. Corner, Rockefeller Institute of Medical Research; C. N. H. Long, former dean of the School of Medicine, Yale; J. Lawrence Pool, Columbia University; William H. Taliaferro, University of Chicago; Karl S. Lashley and Frederick L. Hisaw, Harvard University; and Nissen, ex-officio member. The laboratories are chartered as a nonprofit corporation under the Florida laws, and new officers of the corporation will be named later by the Emory board of trustees.

The late Prof. Robert M. Yerkes, a noted psychobiologist, started the unusual project in New Haven under the name, "Laboratories of Comparative Psychobiology." Need for a warmer climate for the animals resulted in the move to Orange Park, when the name was changed to "Yale Laboratories of Primate Biology." In 1942, one year after Yerkes retired, the name was changed to "Yerkes Laboratories" in his honor. Although the property was held by Yale, Harvard joined in operation of the center in 1942. Harvard's Dr. Lashley became director in 1942, and upon his retirement in 1955, Nissen was named to the post.

Paper Permanency: Labeled Sulfur Tests

It is well known that paper of good quality and high alpha cellulose content can be kept intact for several centuries. However, even good quality paper can become brittle at the edges. It has been pointed out that this may be because portions of the paper in old documents and books have been attacked by a strong acid. Since analysis of such old paper revealed a high sulfate content, it was assumed that sulfuric acid from the atmosphere was responsible for this deterioration. The concentration of sulfur dioxide in industrial atmospheres is of the order of 0.5 part per million; it is supposed that catalysts in paper accelerate the conversion of this sulfur dioxide to sulfuric acid.

By exposing paper under damp conditions to atmospheres containing about 0.5 percent sulfur dioxide, (10,000 times that of many industrial atmospheres), W. H. Langwell measured the increase in sulfur in the paper by extracting it with water and precipitating it as barium sulfate. F. L. Hudson and W. D. Milner have described a far more sensitive method, using sulfur-35 [*Nature* **179**, 590 (15 Sept. 1956)]. With their technique and under Langwell's experimental conditions, it was possible to detect the uptake of sulfur dioxide after a 2-hour exposure; after 24 hours it could be determined that the papers tested fell in general into the order already established by chemical means.

All papers were exposed to atmosphere before counting to allow gaseous sulfur dioxide to diffuse out. A steady counting rate was obtained after 4 hours.

Labeled paper samples, after exposure to sulfur dioxide under both wet and dry conditions, were placed between x-ray films for 3 weeks and then developed. The radioautographs showed some general uptake of sulfur, but they also showed random distribution of intense black spots with dark areas spreading from them. Next the paper was developed with acid potassium ferrocyanide, and it was found that the dark areas correspond to iron and in some cases to bronze spots in the paper. The take-up of sulfur dioxide is therefore partly general and partly localized.—K. L.-H.

National Library of Medicine

The Armed Forces Medical Library was transferred on 1 Oct. to the Public Health Service, Department of Health, Education, and Welfare. The National Library of Medicine Act, signed by President Eisenhower on 3 Aug., establishes a National Library of Medicine in the Public Health Service "to assist the advancement of medical and related sciences and to aid the dissemination and exchange of scientific and other information important to the progress of medicine and to public health." The Armed Forces Medical Library will form the nucleus of the National Library, which is to be headed by Col. Frank B. Rogers, director of the Armed Forces Medical Library.

The Armed Forces Medical Library was founded in 1836 as the Library of the Surgeon General's Office, U.S. Army. It contains almost a million volumes, representing literature on medicine, dentistry, pharmacy, and allied sciences in all languages and of all times. Its books

are loaned to other libraries throughout the United States.

In administering the National Library of Medicine, the Surgeon General of the Public Health Service will be assisted by a board of regents consisting of ten persons to be appointed by the President and confirmed by the Senate. Ex-officio members of the board will be the surgeons general of the Public Health Service, and the Army, Navy, and Air Force, the chief medical director of the Department of Medicine and Surgery of the Veterans Administration, the assistant director for biological and medical sciences of the National Science Foundation, and the Librarian of Congress.

The National Library of Medicine Act also authorizes the construction of adequate facilities to house the library on a site to be selected by the Surgeon General of the Public Health Service at the direction of the board of regents.

U.S.S.R. Opens New Research Center

The Joint Nuclear Research Institute that has been established by the Soviet Union and 11 satellite countries was officially opened at the end of last month. It is located in the small town of Pubna, U.S.S.R., approximately 95 miles northeast of Moscow. Institute officials estimate that the buildings and equipment cost about $125 million.

The purpose of the new center is to conduct high-energy research and to provide research facilities for training of nuclear physicists from all member states. In a press conference, Dmitri Blokhintsev stated: "There will be no secret work here. The results of all research done here will be published." Foreign correspondents from all over the world, including the United States, were taken on an extensive tour of the new institute. They were permitted to see all the important pieces of equipment and laboratories.

India Makes Penicillin

India's first penicillin plant, and in fact the first such plant in the whole of South Asia, was formally opened in August. The new $4-million facility, Hindustan Biotics, is in Pimpri, Bombay State. Seven factory buildings, some accessory structures, and a housing colony have been erected on a 200-acre site.

The World Health Organization assembled an international staff of construction engineers, chemical engineers, and medical officers who collaborated with Indian engineers on the plans. The United Nations Children's Fund which has supplied substantial amounts of penicillin to India, provided all the major items of machinery and equipment needed for the plant, at a cost of about $850,000. The expenses of land and building construction were borne by the Indian Government.

New Zealand Oil Search

More than $4 million is being spent by two groups of oil companies in a search for oil in commercial quantities in New Zealand. The British Petroleum Company has joined forces with another New Zealand company to carry out a search of the east coast, including offshore, extending over an area of 12,000 square miles. The two companies are spending an initial $1.4 million. At the same time, another joint company exploration, which calls for an expenditure of $2.8 million, is taking place on the west coast of North Island.

Several searches in the past have failed to uncover deposits in sufficient quantities to make recovery feasible. However, there are surface indications of the presence of oil in parts of New Zealand and, since New Zealand now imports all the oil the country uses—1.5 million tons of petroleum products last year—the discovery of oil would be of very great economic importance.

Molecular Chemistry of Mental Disease

The molecular chemistry of mental disease, a new area of research, is being investigated at California Institute of Technology under the direction of Linus Pauling. The program is underwritten by a $450,000 grant from the Ford Foundation, which will support the project for 5 years.

The research will be carried out largely in C.I.T.'s newly constructed Norman W. Church Laboratory for Chemical Biology. A part of the work will also be done in Pacific State Hospital of the California State Department of Mental Hygiene, with the collaboration of George Tarjan, superintendent and medical director of the hospital; Stanley Wright of the School of Medicine, University of California at Los Angeles; and Richard Morgan, statistical research officer of the State Department of Mental Hygiene. Pauling said last year when delivering the Edsel B. Ford lecture at the International Symposium on Enzymes:

"I forsee the day when many of the diseases that are caused by abnormal enzyme molecules will be treated by the use of artificial enzymes. When our understanding of enzyme activity becomes great enough, it may be possible, for example, to synthesize a catalyst for the oxidation of phenylalanine to tyrosine. A small amount of this catalyst could be attached to a framework inside a small open ended tube, which could be permanently placed within the artery of a newborn child who had been shown by chemical tests to have inherited the mental disease phenylketonuria. Through the action of the artificial enzyme, the child could then develop in a normal way."

In commenting on the probable course of the new research program at C.I.T. Pauling said: "We shall in general attempt to uncover basic principles rather than to attack specific practical problems. Nevertheless, it is expected that practical discoveries useful in specific fields may be made incidentally in the course of the fundamental investigations, and these discoveries are not to be ignored. Our major emphasis will be on basic research, but we hope to develop ideas that will provide the basis of clinical research on the medical problem of mental retardation."

Suicide in Denmark

An interesting comment on suicide in Denmark is contained in a letter from Milton I. Levine, M.D., that appeared in a recent issue of Ciba's *Medical News*. After describing Denmark's remarkable interest in pediatrics, Levine comments: "It is surprising that the suicide rate in Denmark is the highest in the world. According to WHO statistics, nearly one-fourth of all deaths among males are suicides in the 25–34 age group, while 13% of the deaths among females are suicides in the 15–19 age group. This fact seems almost incredible to anyone meeting these friendly people."

AEC Assistance for Foreign Reactors

The U.S. Atomic Energy Commission and the State Department are distributing to interested embassies and this country's industrial organizations the details of the program for U.S. grants of up to $350,000 for research reactor projects undertaken by friendly nations that have Agreements for Cooperation with the United States. The procedures are substantially those already used and tested in handling the first requests for assistance received following the offer made by President Eisenhower last year to strengthen the atomic research programs of those nations included in the bilateral agreement program.

As previously announced, grants of $350,000 each have been made to Brazil, Spain, Denmark, and the Netherlands. Negotiations for similar commitments are in progress with several other nations.