used for long-distance communication, this in effect opens a new band for long-distance use.

The equipment at each of the two widely separated ground stations employs many of the recently developed computer, or "electronic brain," techniques. When the circuit detects a suitably located meteor trail in the upper atmosphere, the message previously stored at one station is transmitted automatically and rapidly to the other end of the circuit.

Because each meteor can be used only for about a second, transmission must take place in short bursts at very high speeds. The actual transmission speed is much too high to be received by standard teletype equipment. The incoming information, therefore, is held in storage and printed at normal speeds during the intervals between transmission bursts.

This high-speed "burst" transmission technique and the frequent presence of meteors in the upper atmosphere permit the passage of lengthy messages between stations in a relatively short time.

Because the signals reflected from the trails are largely independent of ionospheric conditions, such as disturbances caused by the aurora borealis, meteor trail transmissions will be particularly valuable for Canada with its vast distances in the aurora belt.

Tranquilizing Drugs and Behavioral Disorders

The behavioral disorders that commonly afflict mentally retarded children —ranging from destructiveness and breath holding to psychogenic vomiting and teeth grinding—have responded in many cases to treatment with tranquilizing drugs, particularly chlorpromazine ("Thorazine") and meprobamate ("Miltown"), according to a report in the June issue of the *International Record of Medicine and G. P. Clinics,* by I. N. Kugelmass, consultant to the Departmet of Health and Hospitals, New York City. The degree of relief varied with the type of disorder, but the two drugs were of value in from 40 to 80 percent of the cases in most disorders.

Meprobamate appeared to be more effective in relieving teeth grinding, nail biting, head banging, tics, phobias, anxiety, destructiveness, and sleeplessness. Chlorpromazine proved more helpful in relief from vomiting and abnormal appetite, restlessness, lip sucking, hyperactivity, anger, cruelty and aggression, negativism, sleepwalking, and night terrors.

Kugelmass emphasized that the drugs are not cures, that they "merely suppress the overt manifestations without eliminating the underlying pathology."

The study involved 250 mentally retarded children, treated individually and in institutions over a 5-year period. Ten drugs in all were evaluated for their effectiveness in treating 25 spearate symptoms, but only chlorpromazine and meprobamate were effective in relieving most of the symptoms.

Irrigation and Power in Australia

According to the National Geographic Society, a major irrigation project is under way in New South Wales, Australia. The Snowy River, which drains the Snowy Mountains of the Australian Alps and flows south to empty into the South Atlantic at a rate of 0.5 million gallons per minute, will be diverted through the mountains by means of a network of dams, tunnels, and canals, so that it will feed into the Murray and Murrumbidgee rivers, which flow through the arid plain northwest of the Snowy Mountains. The latter rivers are already being used to the maximum for irrigation. When the project is completed, it will consist of seven major dams, ten smaller dams, 85 miles of mountain tunnels, and 400 miles of canals.

It is expected that the entire construction project will require about 20 years, The system, when completed, will provide annually some 2,333,000 acre-feet of water for irrigation and about 3 million kilowatts of electricity for power. The latter will be developed by 17 power stations, some of which will be fed by water passing through penstocks that will pass vertically through as much as 1000 feet of rock.

Scientists on TV

Scientists from Harvard University and Massachusetts Institute of Technology will take part in a filmed series of 23 television programs designed to introduce viewers to the scope and methods of physics, chemistry, astronomy, and geology. The films are for national distribution to educational TV stations.

The series has been organized by Philippe LeCorbeiller, professor of general education and of applied physics at Harvard University. It will be produced by the Lowell Institute Cooperative Broadcasting Council in the studios of WGBH-TV, channel 2, Boston, under contract with the Educational Television and Radio Center, Ann Arbor, Mich.

Each program will focus on a single idea essential to an understanding of modern scientific thinking. The presentation will include experimental demonstrations and graphic illustrations. Some of the topics will be: "Science and common sense"; "The size and age of the universe"; "Are atoms real?" "How science grows"; "Nature and the laboratory"; and "The role of scientific imagination."

"My objective in giving this series on TV," LeCorbeiller points out, "will be to try to bridge the gap between the scientists and the public. It is out of the question to inform everybody about the endless intricacies of laboratory science. It is all the more important to find some way of making the American public a partner in the never-ending conquest of the unknown. The ideal way for that is television."

LeCorbeiller will be joined in the presentation of the programs by Gerald Holton, Leonard K. Nash, I. Bernard Cohen, Bart J. Bok, Harlow Shapley, Kirtley F. Mather, all of Harvard, and Sanborn C. Brown of Massachusetts Institute of Technology.

Laboratory for Gulf Fisheries

Problems related to finding, catching, and processing Gulf of Mexico fish and shellfish will be studied at the new fishery laboratory that is to be constructed this year at Pascagoula, Miss., for the U.S. Fish and Wildlife Service. The contract for the construction of the new laboratory and auxiliary buildings has been awarded to the Oden Construction Company of Hattiesburg, Miss., for $165,000. Engineers of the service's regional office in Atlanta, Ga., will exercise general supervision of construction.

Research on methods and techniques for providing the highest quality pack of shrimp, oysters, tuna, and other South Atlantic and Gulf seafoods will be one of the main tasks of the new laboratory. Heretofore technologic work for the Gulf and South Atlantic areas was handled through the service's laboratory at College Park, Md.

The new installation will provide facilities for the exploratory fishing and gear development program that is already being conducted in the Gulf area. The service's exploratory fishing vessel *Oregon,* which operates in the Gulf of Mexico, is based at Pascagoula in connection with this program.

Irregular Milking Schedule

According to a report to the *New York Times,* studies carried out during a period of 2 years at the Ruakura Animal Research Station in New Zealand show that carefully matched herds of cows produce as much milk and butterfat per day when they are milked at 16- and 8-hour intervals (at 8 A.M. and 4 P.M.) as when they are milked at the

traditional 12-hour intervals (at 5 A.M. and 5 P.M. in New Zealand).

If this finding should be accepted by dairy farmers, their working hours could be greatly modified. Similarly, work shifts in dairy factories, which manufacture butter and cheese, would be markedly changed.

Medical Reactor

The U.S. Atomic Energy Commission has recently awarded a contract for the construction of the first nuclear reactor designed specifically for medical research housed in a new medical center at Brookhaven National Laboratory. The center will include laboratories for medical physics, pathology, microbiology, biochemistry, and physiology as well as a 48-bed research hospital. The medical center, including the reactor, is scheduled for completion in 1958 at a cost of $6 million.

Employing thermal neutrons, the new medical reactor will produce a treatment beam having an intensity 50 times greater than that provided by the Brookhaven general research reactor and, thus, will insure wider medical application of neutrons and flexibility of treatment.

Fossil Palm

Roland W. Brown, paleontologist of the U.S. Geological Survey and the Smithsonian Institution, has recently discovered fossil imprints of palmlike leaves in a geologic formation in southwestern Colorado, which dates from the Triassic period. He has assigned the species tentatively to the palm family and described it as a hitherto unknown genus, *Sanmiguella,* of the great plant group of Monocotyledons, which includes palms, grasses, sedges, and many other flowering plants.

The fossils of the area where the fossils were discovered presumably accumulated on flood plains and in scattered pools and lakes at a time when the southwestern Colorado area was a few hundred feet above sea level. Plant remains are rare.

Teeth of ancient reptiles, the phytosars, which were somewhat similar to extant crocodiles although they belonged to a different family, were associated with the palmleaf imprints.

News Briefs

■ A bill that would have authorized Federal construction and operation of nuclear reactors for the production of electric power was recently returned to the Joint Atomic Energy Committee by a vote of 203 to 191 in the House of Representatives. In effect, this killed the bill, which had already passed the Senate.

■ Fabrication has begun on the nuclear research reactor designed and being built by Atomics International, a division of North American Aviation, Inc., for the Atomic Energy Research Institute of Japan. The 50-kilowatt reactor will use as fuel enriched uranyl sulphate dissolved in about 4 gallons of water and will be similar to the industrial research reactor designed and built by Atomics International for the Armour Research Foundation in Chicago, which began operating recently.

The reactor for Japan is designed to prevent the discharge of any radioactive gases or other fission products into the atmosphere. The gases will be retained inside the primary system, where they will be circulated and recombined. This will have the added advantage of providing a source of neutron-free gamma rays, which are essential in medical and scientific research.

The Atomic Energy Research Institute in Japan, a nonprofit foundation sponsored by the Japanese government and industry, will use the reactor for nuclear study—including medical research, drug sterilization, food preservation, production of radioisotopes, and research and study in reactor techniques—as well as for investigating the effects of atomic radiation on plastics, rubber, and similar materials, and for research in botany, biology, and agriculture.

■ An experimental seeding of quinoa, a hardy plant whose seeds and leaves have long been eaten by the upland natives of Peru, Bolivia, and Ecuador, will be undertaken in Greenland under the auspices of the U.S. Navy, according to a report from the National Geographic Society. If the seeding is successful, Greenland will have a staple food plant. On the altiplano of Peru and Bolivia, quinoa is a major food plant, which grows well at altitudes up to 13,000 feet.

Scientists in the News

HUGH R. GILMORE, JR., colonel in the Medical Corps, U.S. Army, and curator of the Medical Museum of the Armed Forces Institute of Pathology, has retired. He has been cited by Silas B. Hays, Surgeon General, U.S. Army, for 30 years of superior and devoted service to the Army Medical Service. His appointment to the Medical Museum post in 1953 climaxed a long association with military medicine. He received his M.D. in 1921 from the University of Pennsylvania and, after several years in private practice, joined the Army Medical Corps in 1926.

Gilmore is a former chief of pathology and allied sciences division of the Army Surgeon General's Office and has served in many capacities at medical installations, both in the United States and overseas. Throughout World War II, he was assigned as preventive medicine officer to various command headquarters in the North African and Italian theaters of operations. Gilmore served as acting curator of the Medical Museum for 9 months during a previous tour of duty at AFIP from 1935 to 1937.

SAMUEL W. KIME, captain, Medical Corps, U.S. Army, has been named acting curator of the Medical Museum.

MARVIN L. ENGLISH, who has been teaching engineering at North Carolina State College, will become associate professor of mechanical engineering in the University of Cincinnati College of Engineering on 1 Sept. 1956.

EARL H. DEARBORN has been appointed head of pharmacological research at Lederle Laboratories, American Cyanamid Company. He was formerly professor of pharmacology and chairman of the department at the Boston University School of Medicine.

JOHN H. GARLOCK, clinical professor of surgery at Columbia University and director of surgery at Mount Sinai Hospital, New York City, is at present on an extended teaching tour of South America. He is scheduled to give a series of lectures and hold didactic operative clinics in every important medical center. His itinerary includes Colombia, Chile, Peru, Argentina, and Brazil.

THEODORE EUGENE STERNE has left the staff of the U.S. Army's Ballistic Research Laboratories at Aberdeen, Md., and has been appointed to concurrent positions as associate director of the Astrophysical Observatory of the Smithsonian Institution in Cambridge, Mass., and as Simon Newcomb professor of astrophysics in Harvard University. At Aberdeen, Sterne's work was in the fields of exterior ballistics, terminal ballistics, wound ballistics, and weapon systems evaluation.

He was connected with Harvard University from 1931 to 1941, first as a National Research fellow in physics at Harvard and M.I.T., and then as a lecturer in astrophysics.

L. WHITTINGTON GORHAM has been made director emeritus and GEORGE K. HIRST has become acting director of the Public Health Research Institute of the City of New York, Inc.