MEDICINE

Nerve Operation Makes Polio-Shortened Leg Grow

➤ A CHILD'S polio-shortened leg may be stimulated to grow by a nerve-cutting operation, Drs. John A. Reidy, Thomas F. Broderick, Jr., and Joseph F. Barr of Boston reported at the meeting of the American Academy of Orthopaedic Surgeons.

The operation consists in removing a mass of nerve cells, called a ganglion, along the spinal cord on the side of the short leg. One result of such operation on the sympathetic nervous system is that the blood flow to the legs is increased strikingly.

Polio-shortened legs seem to have less blood supply than normal. Theoretically, therefore, the nerve-cutting operation should stimulate the growth of the short leg by increasing its supply of blood. Although there has not been much experimental work to support this theory, definite evidence of growth stimulation has been seen in patients who have had the operation.

Science News Letter, February 25, 1950

PHYSICS

Synthetic Quartz Crystal From German Process

➤ THE present successful process of making quartz crystals in the laboratory for use in radio and telephone applications was developed from a method in Germany found by postwar allied scientists, Dr. Albert C. Walker, Bell Telephone Laboratories, stated in Ithaca, N. Y.

Scientists tried to synthesize quartz over 100 years ago, he said. The purpose then was to learn more about the geological formation of the earth. In recent days the attempts to form quartz crystals in the laboratory have been to obtain a domestic supply for use in controlling radio transmission frequencies and in certain telephone applications.

Few crystals suitable for this purpose have ever been found in the United States. For the millions needed during the recent war, importation was necessary, although a few substitutes were developed.

Early synthesized quartz crystals were too small to be of practical use. From information secured in Germany in 1946, it appeared that Prof. R. Nacken at the University of Frankfort had grown quartz crystals in a few hours by a hydrothermal process, Dr. Walker stated. Unfortunately Prof. Nacken could make his process work for only short intervals of about 24 hours. To get large crystals, the process had to be repeated on a single crystal.

After nearly a year of research in the Bell Laboratories, the limitations of the German process were overcome. It is now possible to grow a quartz crystal weighing over one-quarter of a pound in a period of two weeks.

The value of the quartz crystal in radio and telephone applications is its piezoelectric property. Certain other crystals are piezoelectric but are either too costly or not satisfactory in such applications. Piezoelectric crystals, when subjected to mechanical pressure, give off electric charges; conversely, they can convert electrical energy into mechanical energy.

Science News Letter, February 25, 1950

ENTOMOLOGY

Plastic Film Seals Tobacco Warehouses

➤ TOBACCO men, forced frequently to fumigate warehouses to kill destructive insects that otherwise would damage the stored crop, are now using a plastic film on the warehouse walls to prevent fumigant gas from escaping.

More effective fumigation is the result. There is also a saving in fumigation cost because less of the insecticide is required. Vinylite plastic is used for the coating. It is the same material employed to protect military and naval equipment against weather and rust. It is applied as a spray. Skilled labor is not required.

A coating only five thousandths of an inch thick will prevent the fumigant gas from escaping from the warehouse, officials of Union Carbide and Carbon Corporation state. This company manufactures the preparation used. The spray solution dries to a tough film that is resistant to weather, flame and chemicals.

Science News Letter, February 25, 1950

ARCHAEOLOGY

Inca Language Gets Its First ABC's

➤ A NEW set of ABC's has been devised in Cuzco, Peru. It is for an ancient language that has been spoken for thousands of years but never written or spelled out until recently, so far as anyone knows now.

The language, Quechua, was the official language of the Incas 2,000 or more years ago and is still spoken every day by thousands of Indians in this and neighboring countries.

Books in Quechua have appeared in recent years, though they are rare. And they are confusing and hard to read, even for those who speak the language easily, because each author has had to devise his own method of putting the language into letters and words.

The new alphabet, worked out last year by writers in Quechua and experts in the spoken language, made its first appearance in the first issue of a new journal, TRACHCION, published in Peru.

Science News Letter, February 25, 1950

IN SCIEN

MEDICINE

Chloromycetin Conquests Are Foreseen

➤ NEW triumphs for chloromycetin, one of the newer antibiotic drugs of the penicillin class, are foreseen by Dr. J. D. Gray, London pathologist.

"Future uses of this antibiotic in respiratory (breathing) tract infections seem almost limitless, if observations made on the upper respiratory tract can be extended to include the whole tract," he declared in a report to the medical journal, LANCET (Jan. 28).

Complete sterilization of the upper respiratory tract was achieved by the drug given by mouth. This sterilization, or freedom from germs, lasted two or three days after the last dose of the drug.

This property of the drug, he pointed out, "will enable the chest surgeons to work in a field as sterile as any purist could desire."

The cough and vomiting of whooping cough are stopped by the drug, Dr. Gray also reported, and the children recover more quickly.

Science News Letter, February 25, 1950

MEDICINE

Rare Skin Disease Yields To Aureomycin Treatment

➤ HOPE that pemphigus, rare but serious skin disease, may yield to one of the mold remedies, aureomycin, is suggested by Dr. F. Ray Bettley, dermatologist to the Middlesex Hospital, in a report to the LANCET (Jan. 14).

A patient who had been sick with this blistering skin condition for a month, who was hardly eating because of the sores in her mouth and for whom the prospects of recovery were poor, began to get better within 24 hours after aureomycin treatment was started. Her temperature started to go down, reaching normal on the third day. No more blisters developed, although ordinarily in this disease fresh ones develop sometimes before the last ones have healed.

The patient left the hospital apparently cured, about eight weeks after aureomycin treatment was started.

Pemphigus is characterized by periods in which the patient apparently recovers only to have a relapse. Dr. Bettley therefore points out that "it would be most rash" to claim that this patient's apparent recovery was the result of the aureomycin treatment. But the results were so good that he thinks further trial of this drug is warranted in other cases of pemphigus.

Science News Letter, February 25, 1950

CE FIELDS

MEDICINE

New Cortisone Treatment Method Relieves Arthritis

➤ A NEW way of using cortisone to treat rheumatoid arthritis is giving "encouraging" results, the discoverer of the drug, Dr. Edward C. Kendall of the Mayo Clinic, reported to an American Chemical Society meeting in Chicago, Ill.

Time is an important factor in the treatment, recent research at the Mayo Clinic shows.

"If cortisone is given to a patient with rheumatoid arthritis for two weeks and use of it is then stopped, the symptoms return promptly and sometimes in an aggravated form," Dr. Kendall said.

"If cortisone is again administered for two weeks and stopped, the symptoms may return more slowly and in milder form. This type of treatment is now under investigation. The results have been encouraging."

The best method of using the drug for arthritis and rheumatic fever has not yet been worked out.

The "only avenue of supply which can furnish an unlimited amount of cortisone," is total synthesis from simple chemicals in the laboratory, Dr. Kendall declared. It may be months or perhaps even years before this is achieved.

At present it is partly synthesized starting with ox or sheep bile. The yield is so small, however, that 40 head of cattle are needed to provide the cortisone needed by one patient for one day.

Science News Letter, February 25, 1950

RADIO

One Camera, One Receiver Tube in Color TV System

➤ CHEAPER and better color television is promised with developments that utilize only one tube at the camera and one at the receiver, it was revealed recently.

The equipment was developed by a small company of San Francisco, financed by interested business men of the state. Color Television, Inc., is the name of the company. Arthur S. Matthews is its president. George E. Sleeper, Jr., inventor of the process, is vice president.

The system is an all-electronic method. In transmission, standard black-and-white equipment is used with some modifications and additions. At the camera, three color filters are used with a special optical system. Three optical images are focused side by side and scanned as though they were a single black-and-white image. The signals generated are transmitted in a normal manner through standard black-and-white equipment.

At the receiver, superimposing lenses are employed to register three images, each fluorescing in a different primary color (red, green, blue) from the end of a single cathode-ray projection tube to a projection screen.

The single tube projection receiver utilized by Color Television, Inc., is satisfactory today and provides a picture of high quality color balance and adequate brilliance, Mr. Matthews declared.

A direct view color tube is a foreseeable early development, he added. Its addition can be made without any change in the standards of FCC, the federal governing agency in radio and television transmissions.

The two most important and essential features of the Color Television, Inc., method are the utilization of present black-and-white equipment and the fact that present 6-megacycle black-and-white channels may be used for the transmission of color as well as black-and-white.

Owners of black-and-white receivers will be able to pick up color transmission in black-and-white, but not in color. To get pictures in color, a color receiver will be necessary.

"Under this system, using one tube at the camera and one at the receiver, we expect to prove the worthiness of our process as compared to other systems submitted to the FCC," Mr. Matthews stated.

Science News Letter, February 25, 1950

NUCLEAR PHYSICS

Glass Cows Produce Milk Too Hot to Handle

➤ GLASS "cows" producing radioactive "milk" too "hot" to handle except by remote control have been unwrapped from the secrecy of atomic bomb research.

The Brookhaven National Laboratory device was nicknamed a glass "cow" because it resembles an udder. It provides a method of stopping a rotating funnel at the right place and time to discharge radioactive fluids into the proper outlet.

L. G. Stang, Jr. and G. J. Selvin in Upton, N. Y., devised the use of solenoids to accomplish this. Solenoids are wire coils which, when an electric current is flowing through them, act as a magnet. The solenoids are placed around the outside of the flask, in positions corresponding to the outlets. The glass or plastic funnel outlet is covered with soft iron.

As many solenoids are used as there are outlets needed, each one having its own power switch.

Thus radioactive liquids can be diverted into one of several outlets by an operator located at a distance where he is safe from the harmful effects of radiation.

Science News Letter, February 25, 1950

DENTISTRY

Doodling for 4-Yr. Olds Instead of Thumb-Sucking

➤ IF the children are still thumb-suckers at the age of four, parents should teach them to doodle instead. This advice comes from a group of dentists who held a session on dentistry for children at the University of Illinois College of Dentistry, Chicago, Ill.

The doodling was suggested as a substitute for thumb and finger sucking because if these sucking habits are persisted in after age six, when the permanent incisor teeth begin to erupt, the child's bite will be seriously damaged and "buck-tooth" result. Finger sucking usually stops by the age of four years, the dentists pointed out.

Science News Letter, February 25, 1950

MEDICINE

Molecules of Blood May Detect Artery Disease

➤ "DEFECTIVE" giant molecules in the blood may give doctors a way of detecting the most serious form of hardening of the arteries before symptoms of the disease appear.

These defective molecules and their relation to the artery hardening called atherosclerosis were discovered in efforts to learn more about the effects of atom bomb and other radiation.

The findings are announced by Dr. John W. Gofman and associates of the University of California in the journal, SCIENCE (Feb. 11).

Many giant molecules carried in the blood have as one of their components the fatty chemical, cholesterol. This chemical has long been suspected of being involved in the particularly fatal artery hardening condition called atherosclerosis.

One type of cholesterol-bearing giant molecule can be present in the blood without any atherosclerosis being present, the California scientists discovered. But when certain other, apparently "defective" giant molecules with cholesterol in them are in the blood, atherosclerosis is also present.

One of the differences between the two kinds of molecules is in their content of protein. The defective ones contain little or none in contrast to the other cholesterol-bearing molecules which have a protein content of 25% by weight.

When patients were put on a diet restricted in cholesterol or fat, within two weeks to one month the number of the "defective" giant molecules was definitely reduced or even brought to such a low level that they could not be detected.

Detection of the giant molecules and distinguishing the defective ones from the non-defectives involves the use of an ultracentrifuge which spins at a rate of 60,000 revolutions per minute.

Science News Letter, February 25, 1950