MEDICINE

New Infantile Paralysis Treatment Gets Approval

Sister Kenny Method Using Hot Packs To Relieve Spasm With Early Attempts at Motion Confirmed in Trials

INFANTILE paralysis patients in the future may recover with a shorter period of pain and with less crippling and deformity as a result of a revolutionary change in treatment which was approved by the National Foundation for Infantile Paralysis at its second annual medical meeting in New York.

The new treatment, known as the Sister Kenny method, was developed by Miss Elizabeth Kenny, whose nursing title in Australia is "Sister." Instead of using splints and casts to keep muscles at complete rest, with the idea of thus preventing further deformity, Sister Kenny uses hot packs to relieve painful muscle spasm, and as soon as this is accomplished, she starts teaching the patients to think of and gradually to achieve motion in the affected muscles.

Satisfactory results with this treatment at the University of Minnesota Medical School were reported to the Foundation, which sponsored this trial of the Sister Kenny method.

Support for abandonment of immobilization in treatment of infantile paralysis appeared also in studies reported by several of the scientists whose work the Foundation has supported.

Shortening and distortion of limbs, contrary to previous opinion, are not caused by the pull of unbalanced powerful muscles on paralyzed ones. Rather they are caused by contraction of a severely paralyzed group of muscles which has been allowed to remain in one position for any length of time, Dr. Arthur Steindler, of the State University of Iowa, reported.

Frequent motion and use of muscles, within the limits of fatigue and without splinting, have given as good results, in patients treated so far, as any other method, he reported, although the number of patients is small compared with the number treated by immobilization.

Keeping a leg motionless produces the same kind of changes in the muscles of that leg as does removal of the nerves controlling the muscles, Dr. Donald Young Solandt, of the University of Toronto, discovered in animal studies.

Restricting the activity of infantile paralysis patients may delay recovery, it appears from findings in animals reported by Dr. Harry M. Hines and associates at the State University of Iowa.

In the animals, restriction of activity failed to enhance recovery of paralyzed muscle and Dr. Hines found some evidence that it might be delaying recovery.

Science News Letter, December 13, 1941

Muscles Flash Light

SIGNALS flashed in a bulb by the electrical energy of transplanted muscles are helping infantile paralysis victims learn to walk, Dr. Dallas B. Phemister, of the University of Chicago, reported.

The muscle electric flash signal is used, he explained, for patients of fairly low mental aptitude. Such patients usually are unable to get muscle recoordination clues from either a sense of position or from watching the knee-cap being retracted. (*Turn to page 380*).

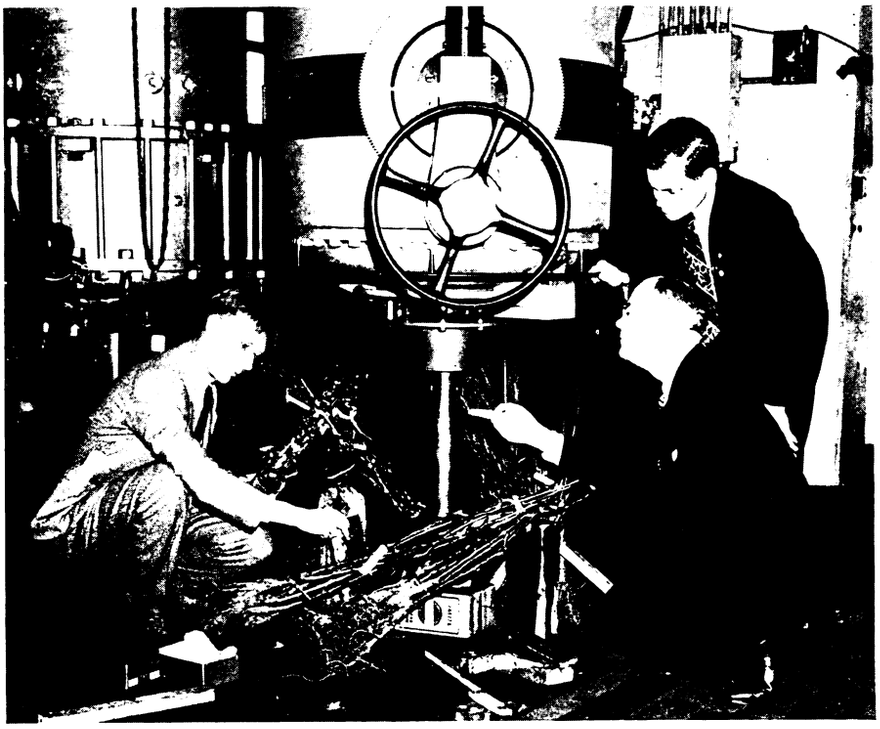
GENETICS

Million-Volt X-ray Used to Change Heredity

X-RAYS at million-volt intensity were used on fruit trees, berry bushes and vegetable seeds in the laboratories of the General Electric Company, to change the physical set-up of the herdity-bearing cells and produce, if possible, new varieties of plants.

The trees and bushes were exposed to the million-volt bombardment for an hour, the seeds for intervals stepped up from 12 to 60 minutes. They have been planted by genetical researchers at the New York State Experiment Station at Geneva. The exposures were conducted by Dr. Bernhard Nebel of Cornell University, assisted by Dr. E. E. Charlton and C. D. Moriarty, of General Electric.

Science News Letter, December 13, 1941



CHANGING CHROMOSOMES

By bombardment with million-volt X-rays, it is hoped the chromosomes of these young apple trees will be altered so that future fruit may have better color, size, flavor and resistance to disease. Dr. Bernard Nebel, of Cornell University (left) is shown here with Dr. E. E. Charlton and C. D. Moriarty, of the General Electric Laboratories where the experiment is taking place. The box beneath the tube contains seeds.

MINERALOGY

Bauxite, Vital Strategic Ore Accessible to All Powers

Many Workable Beds in U. S., But We Have Preferred Supplementing Our Supply by Imports from Surinam

BAUXITE, ore of aluminum, more prominent in the national eye than ever since American soldiers moved in on the Dutch Guiana fields, is one of the most impartially distributed of all strategic minerals. None of the warring powers has a monopoly of it. There are large deposits in both North and South America, to meet this country's requirements. Britain has Empire sources in India, Africa and Australia, and her Dutch ally plenty in the Netherlands Indies. There are vast beds of bauxite in the USSR. The Axis powers, on their side, have mines in their own and conquered territories: Hungary, Italy, Yugoslavia and France, with undeveloped deposits also in Greece and Rumania.

Greatest deposits in the United States are in Arkansas, but there are also workable beds in Alabama, Georgia. Mississippi, Tennessee and Virginia. The Alumium Company of America, until now this country's only producer of aluminum directly from the ore, has not worked the domestic beds to the limit, preferring to supplement the home supply with high-grade bauxite from Surinam (Dutch Guiana) and thereby conserve the ore resources within the boundaries of the United States. In addition to the Surinam bauxite, there are known to be immense deposits in Brazil, but these have not been opened up as yet.

Bauxite is a mineral that looks very much like hardened, fine-grained clay. Essentially it is an oxide of aluminum, with some water intimately bound in. But combinations of other elements are almost always found with it: iron, silicon and titanium principally, with much smaller quantities of calcium, magnesium, sulfur, manganese and chromium. In its purest form, bauxite is grayish white, slightly tinged with yellow; but presence of the other elements, notably iron, gives it a wide range of shades, from pink or yellow to dark red or brown.

The mineral gets its name from the village of Les Baux, in southern France, near the city of Arles. Here it was first identified and described by a French scientist, P. Berthier, just 120 years ago.

Dictionaries disagree on the pronunciation of the word. Webster's Unabridged and Funk and Wagnalls say it should be pronounced "boze-ite," but the Century Dictionary holds for "bawksite," admitting a popular modification to "box-ite." So you can say it as you please.

Interestingly enough, the super-dreadnaught of all dictionaries, the massive, ten-volume Oxford, does not list the word at all. The reason apparently is that the first volume, containing all the A-B words, was published in 1888, when aluminum was still only a chemical curiosity and its ore of no particular interest except to a few mineralogists.

Science News Letter, December 13, 1941

From Page 371

In these patients the lower end of the muscle that bends the knee, located on the under and outer portion of the leg above the knee, is transferred to the paralyzed quadriceps muscle at its lower end on the knee cap. The quadriceps is the muscle on top of the upper leg which extends the lower leg and straightens the knee.

After the operation, the patient must learn how to use the transposed healthy muscle. This knowledge does not come spontaneously or by a trial and error process of learning. The patient "discovers" how to use his transposed muscle after random attempts. Once discovered, however, the ability to use the muscle is immediately retained by most patients without having to learn it by repetition.

In order to learn how the readjustment of transposed muscles proceeds, why some patients do better than others, and how much can be expected from the operation in a given case, Dr. Phemister has used an apparatus which records the electrical activity produced by the muscle in action, somewhat similar to the electrocardiagram.

Working with him under a grant from the Foundation were Dr. Paul A. Weiss, Dr. C. Howard Hatcher, and Dr. Paul Brown.

Science News Letter, December 13, 1941

Bronchial Tubes Suspected

THE VIRUS that causes infantile paralysis may be inhaled with the dusty air of summer and fall and invade the body through the bronchial tubes.

This new, though as yet unproved, theory of how the crippling malady spreads and strikes was presented by Dr. Harold K. Faber, of Stanford University.

Monkeys got infantile paralysis by inhaling finely divided, dried droplets of material carrying the virus of the disease, he reported. The infectious particles were fine enough to be inhaled deep into the branches of the windpip leading to the lungs.

The bronchial membranes are liberally supplied with nerve endings, and there are nerve end organs very near the surface in the air terminals of the lungs, he pointed out. The virus might therefore easily reach the nerves of the spinal cord from the bronchial tubes.

Dr. Faber's results were obtained with monkeys, and so far only with a few of these animals. He emphasized that they are by no means conclusive and that they only suggest a way that humans may get infantile paralysis.

Heretofore scientists have thought that the infantile paralysis virus invaded the body either along the olfactory nerve from the nose or along nerves from the stomach after being swallowed. The olfactory route was definitely excluded and the stomach route probably excluded in Dr. Faber's experiments.

Infantile paralysis occurs oftenest in summer and fall, and at those seasons there is more dust in the air than in the colder and wetter spring and summer. This aspect of the situation has had very little attention in the past and Dr. Faber proposes to investigate it further.

Science News Letter, December 13, 1941