

MEDICINE

Backache in Some Cases Relieved by Operation

► SOME of the many backache sufferers in the world may have their pain because a small tumor of fat has bulged, like a hernia or rupture, through the bands of tissue covering the muscles in the lower back.

In six such cases, some with such severe pain they could not get out of bed or turn over, operation to remove the fat tumor brought speedy relief, Dr. Ralph Herz of Cleveland reports. (*Journal, American Medical Association*, July 28)

The operation is not a panacea for all types of backaches, he warns. There are many causes of back pain for which there are standard treatments. In many cases, however, the cause remains hidden in spite of careful searching, and these patients go on having their backaches with little or no relief from the usual treatments. In some of these, perhaps a fairly large proportion, Dr. Herz suggests, the cause may be the fat tumors herniating through the bands of tissue that cover and connect muscle, known as fascia.

The little tumors or masses can usually be detected by feeling for them. Pressure on them produces the severe pain the patient has complained of, including in some cases radiation of the pain down the leg. Injections of anesthetic solution around the mass or tumor bring prompt but temporary relief of the pain. This relief following injection of anesthetic, however, confirms the diagnosis.

After Dr. Herz had operated on three patients he found that Drs. W. S. C. Copeman and W. L. Ackerman had reported 10 similar cases among men in the armed forces. All of these patients also had striking relief after the fatty tumors had been removed.

Science News Letter, August 4, 1945

NUTRITION

Electronic Blanching Destroys Less Vitamin

► A REVOLUTION in the preparation of fresh vegetables for either quick-freezing or dehydration is pending, if experiments carried on at the New York State Experiment Station by Dr. James C. Moyer and Dr. Elmer Stotz prove applicable on a commercial scale.

A necessary step in the processing of vegetables for either type of preservation is known as blanching. It consists in a

brief application of heat to stop the action of the plant's own enzymes, which would otherwise produce a kind of self-digestion, spoiling both flavor and food value. Blanching is now done either by steaming or dipping in scalding water.

Because both present methods of blanching cause material decreases in the vegetables' content of vitamins, especially carotin and ascorbic acid, Drs. Moyer and Stotz decided to test the possibilities of electronic heating. They exposed samples of shredded cabbage to the action of a high-frequency field for two and one-half minutes, while similar samples from the same head were put through the conventional steam and hot-water blanching processes.

Tests for ascorbic acid, before and after blanching, showed that whereas the samples treated with steam lost 32% of this important vitamin, and those scalded in hot water lost 40%, the electronically blanched cabbage lost only 3%.

In announcing the results of these preliminary experiments (*Science*, July 20) Drs. Moyer and Stotz state also that they have tried out their method on other vegetables, and that further and more extensive studies are now in progress.

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METALLURGY

Magnesium Smelted Right Out of Silicate Ores

► MAGNESIUM, the light metal that has revolutionized airplane construction since the beginning of the war, can be smelted directly out of magnesium-silicate ores by a new process on which U. S. patent, 2,379,576 has been issued, to Dr. Fritz J. Hansgig, Austrian-born metallurgist who has already made notable contributions to American war industries. Dr. Hansgig is at present carrying on his researches at Black Mountain College, in North Carolina.

The siliceous ore is crushed and mixed with powdered coke, and the mixture is pressed into tablets with coal tar as a binder. The tablets are heated in a rotating kiln, until the silicon comes out of the compound in pure elemental state, leaving the magnesium still combined with oxygen. The partly reduced ore is again pressed into tablets, this time with the addition of calcined lime. Heated to a high temperature in a high-vacuum retort, the silicon combines with the oxygen of the partly reduced ore and with the lime, forming calcium silicate, which is useful in glass-making. The magnesium comes out as the pure metal.

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IN SCIEN

MEDICINE

Penicillin Fails as Spotted Fever Remedy

► HOPE that penicillin might prove an effective remedy for Rocky Mountain spotted fever seems considerably dimmed by a study reported by Dr. Florence K. Fitzpatrick, of the medical research division of Sharp and Dohme (*Science*, July 27).

Six guinea pigs infected with the disease were given penicillin in amounts believed large enough to bring about recovery if the mold chemical had any value in this disease. All six died. Of 16 infected animals getting no specific treatment, eight survived and eight died. Another six were given spotted fever rabbit immune serum. All these survived.

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ENGINEERING

Fluorescein Detects Leaks In Pipeline Under Channel

► THE CHEMICAL compound, fluorescein, used by airmen forced down at sea to color the surface water around their rubber rafts and mark their locations, also played an important part in locating leaks in the pipelines laid under the English Channel from England to France to supply the Allies in Normandy with gasoline and oil.

Fluorescein on the surface of seawater produces a large colored patch visible at great distances to patrolling aircraft or surface ships. It occurred to authorities that a solution of the same chemical pumped through a fractured pipeline would rise to the surface of the water at the break, thus revealing its position.

The scheme proved successful, although a special solution of the chemical had to be developed and large quantities prepared. It was pumped into the English end of a damaged pipeline, and in due time aircraft and ships noted a large colored patch on the surface that located one end of the broken pipe. To locate the other end of the break, quantities of the solution were taken to France and pumped into the French end of the line. With the two ends of the fracture located, repairs were easily made. The method was employed several times on later breaks.

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CHILD FIELDS

PLANT PATHOLOGY

Sulfur Compounds Check Fungus Causing Orange Decay

► ORANGES may be prevented from decaying, with consequent large savings both nutritional and financial, by means of several sulfur-containing organic compounds investigated by Dr. J. F. L. Childs and Dr. E. A. Siegler, of the U. S. Department of Agriculture, at the Federal experiment station at Orlando, Florida (*Science*, July 20).

Most of the storage and market spoilage of oranges is traceable to two kinds of fungus that cause stem-end rot and two others that are known respectively as blue and green molds. Damage by all four of these fungi was cut down very materially by three compounds, all characterized by the presence of sulfur in combination with nitrogen-containing atomic structures known as amino groups.

Untreated lots of oranges exposed to the same conditions of infection underwent decay in percentages ranging from 32.9 to 42.2. Oranges treated with a 5% solution of thioacetamide produced only 1.7% of decayed specimens. Treatment with 8-hydroxyquinoline sulfate and 2-aminothiazole, in the same strength, was not quite so effective, but still reduced decay to a fraction of what it was in untreated oranges.

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PLANT PATHOLOGY

Brown Berry Proven to Be Serious Virus Disease

► BROWN BERRY, a plant ailment attacking black raspberries, and hitherto regarded merely as a physiological response to unfavorable environmental conditions, is actually a serious virus disease, Dr. George L. Zundel of the Pennsylvania State College has discovered. He has also found that mild streak, long considered a distinct disease and known to be caused by a virus, is another symptom of the brown-berry infection.

For the present, Dr. Zundel thinks, plant pathologists will apply the hyphenated brown berry-mild streak combination name to the disease, and that later a more appropriate name may be devised.

Not satisfied with the accepted belief that brown berry resulted from drought, frost, lack of pollination, or some other "catch-all" environmental factor, Dr. Zundel made a study of the disease. This led to observations which later were confirmed through grafting operations with the aid of experiment experts.

Although satisfied that environmental conditions alone do not cause the disease, Dr. Zundel does not rule out the possibility that environment plays a role in its development since the disease has been observed more generally in low places and near wooded areas.

Because the disease does not strike entire raspberry patches uniformly, Dr. Zundel prefers to leave it to the grower's judgment as to whether he wants to rogue out all of his plants, or just those most severely affected. Plants less seriously affected, he reasons, may return at least a part of a crop while new and disease-free plantings are getting established elsewhere.

Roguing out, he explains, is the most effective control measure, followed, of course, by the use only of plants that are known to be disease-free. Where stock is obtained from nurseries which do not originate their own plants, he advises tracing the plants through all handlers to their origin.

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INVENTION

Yoke-Type Life Preserver For Soldiers at Sea

► AMERICAN soldiers crossing the ocean on transport vessels are now being provided with a new yoke-type life preserver, designed to wear with full infantry equipment, developed by the U. S. Navy. It is made of kapok, and will replace the present carbon dioxide dual-tube life belt which is worn with difficulty by a soldier laden with a full pack and equipment.

The new preserver, perfected as a result of extensive tests, is worn over the neck and is adjusted by combination leg and waist straps. A soldier's pack can be removed without taking off the life preserver. Also the preserver can be removed without interfering with the pack. It will support a man in the water equipped with helmet, rifle, ammunition and pack.

Because of the scarcity of kapok and other materials used in its manufacture, the new preservers are issued only to troops in troop-carrying vessels.

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SEISMOLOGY

Carolina-Georgia Area Reports Earthquake

► THE EARTHQUAKE reported from towns over a fairly wide area in the western Carolinas and northern Georgia on Thursday, July 26, apparently was one of a long succession of mild shocks that have been felt from time to time in the Southern Appalachians, seismologists of the U. S. Coast and Geodetic Survey told *Science Service*. From there, the spots on the epicenter map "scatter out like birdshot" up the whole mountain system as far as New England, then swing towards the northwest, up into the Canadian highlands.

None of these earthquakes in the southern mountains has ever been reported as serious.

Quite different was the story of the Southeast's one really major earthquake, which hit Charleston, S. C., in 1886. This was a real "smasher", and it practically wiped out the city. This, however, seems to have been strictly a coastal-plain affair, having no connection with geological events in the mountains.

Ever since the Charleston earthquake, there have been minor tremors from time to time, centering in the immediate neighborhood of Summerville, about 25 miles northwest of Charleston.

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GENERAL SCIENCE

Boys and Girls Exceed Milkweed Floss Quota

► CREDITING the assistance of the Science Clubs of America with its 7,000 clubs in the nation's high schools for a part in the achievement, the War Administration has announced that the program last year for the collection of milkweed floss was entirely successful. More than 1,700,000 pounds of the floss were gathered, whereas the quota set by the War Production Board was 1,500,000 pounds. Milkweed floss was needed as a substitute for kapok for use in life preservers.

In the past few months the situation has changed materially as substantial quantities of kapok are now being received from the Philippines and other South Pacific islands. These supplies, together with the milkweed floss on hand, are expected to take care of the situation permanently.

No milkweed pod collecting program for 1946 is being planned as a result.

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