

SURGERY

Operation Remedies Disfiguring Condition

► **GOOD RESULTS** with a new operation for the disfiguring and depressing condition, lymphedema or elephantiasis as it is sometimes called, are reported by Dr. Gerald H. Pratt of New York in the *Journal of the American Medical Association* (March 14).

The condition is one in which tissues are abnormally swollen due to inadequate drainage of lymph fluid. "Milk leg" is one example given by Dr. Pratt. In some cases the swelling is so great that patients ask to have the leg amputated. Some have committed suicide.

Dr. Pratt's operation consists, essentially, in stripping off the top layer of skin with a special electric machine. All the rest of the tissues down to the muscle are then removed. The skin strips are stitched together, cut to a cellophane pattern like that for a skin tight pants leg, and grafted back in place. Pressure dressings and blood transfusions are also used.

Besides reporting good results in 25 cases, Dr. Pratt suggests use of the technique for correcting disabling multiple superficial tumors, dead tissue resulting from burns, extensive post-thrombotic swelling and war injuries.

Science News Letter, March 28, 1953

INVENTION

To Cut Tooth Decay: Fluorine in Chewing Gum

► **A CHEWING** gum designed to reduce tooth decay, particularly in small children, has been patented by Frederick G. Merckel of Montclair, N. J., and Laszlo Reiner of Bloomfield, N. J.

The chewing gum, which may save Junior many a painful trip to the dentist, contains tiny amounts of fluorine, a chemical that combines with chemicals in the teeth to make them resistant to decay. The inventors say a stick of the gum a day should do an effective job of building good teeth.

Like other fluorine treatments aimed at cutting tooth decay, the fluoridated gum works best on children about four years old whose teeth are still forming and hardening. It is designed to coat the tooth enamel with a small amount of fluorine. It also supplies the body with fluorine dissolved in saliva. By normal bodily functions, this dissolved fluorine is carried to the teeth and dentin, giving even more protection.

The fluoridated gum requires a special base. Chemicals in the base of most commercial gums will combine with the fluorine and "block" it from being dissolved in saliva.

At present, teeth can be fortified with fluorine against decay by two methods: they can be coated with fluorine by qualified

dentists, or they can be "treated" with fluorine consumed in drinking water containing the chemical.

By chewing a stick of fluoridated gum a day under a dentist's prescription, the child can get a satisfactory amount of fluorine which, the inventors say, should help to reduce tooth decay.

The inventors assigned their patent, number 2,627,493, to Wallace and Tiernan Products, Inc., of Belleville, N. J.

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CHEMISTRY

Blood Prints Give Fast Poison Diagnosis

► **HOW** A new blood test revealed which of two sick babies had swallowed the contents of the aspirin bottle was told to members of the American Chemical Society meeting in Los Angeles.

The chemists learned of "drug prints" made by shining invisible light through extracts of the patient's blood. Each drug shows a characteristic pattern in this test, reported by Drs. James W. Brackett, Jr., and Lowell W. Bradford of the Santa Clara County Laboratory of Criminalistics, San Jose, Calif. A research grant from the National Institutes of Health aided the development of this rapid lifesaving test.

Needing only a small amount of blood, a few hours of time and an ultraviolet spectrograph, the analyst makes extracts of the patient's blood, using three organic solvents that are acid, neutral and alkaline in their properties.

Patterns that are unique for each drug show up when ultraviolet light is absorbed by each of the three extracts. The combination of these patterns pinpoints the unusual substance in the blood, and appropriate antidotes can be given promptly. Older methods of analysis often required days before this information could be obtained.

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MARINE BIOLOGY

Whalers Head Home With Catch of Blues

► **GRIZZLED WHALERS** are heading back to home port now that the 75-day open season on Antarctic whales has come to a close. International regulations permitted the whalers to take 16,000 toothless whales, mostly blue whales, from the Antarctic during the season that began Jan. 2.

Whaling operations in the Antarctic usually account for 90% of the total world output of whale oil, reports the U. S. Department of Agriculture.

Vessels from seven nations took part in the Antarctic whaling this season: Norway, the United Kingdom, Union of South Africa, Japan, Panama, the Netherlands, and the Soviet Union. Oil production from the toothless whale catch is expected to be around 383,000 short tons.

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METEOROLOGY

Warmer to Mid-April Predicted for West

► **THE WESTERN** half of the nation, except for right along the coast, will have a warmer spring than usual, the Weather Bureau's extended forecast section predicts for the period ending April 15.

The West Coast and the eastern half of the nation will find the period about as usual so far as temperature is concerned, but near the Great Lakes, temperatures will be below normal.

More rain than usual is predicted for the Ohio valley eastward to what the bureau calls "the middle and north North Atlantic states." Also, the West Coast can expect more than the normal amounts of rain. Except for some deficiency in the Northern Plains and over the Southwest, the rest of the nation can expect seasonally normal amounts of rain until mid-April.

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BIOCHEMISTRY

Nine Chemicals To Digest Fat

► **NINE SEMI-LIVING** chemical substances known as enzymes must work in unison to allow you to digest fat.

How the body can break down fatty acids consumed as food and convert them to its own needs has long been a puzzle. The solution was announced to the meeting of the American Chemical Society in Los Angeles by Dr. David E. Green of the University of Wisconsin Enzyme Institute.

Heading a team of eight research scientists, Dr. Green described how this new information on one of the body's fundamental chemical processes will aid in understanding what goes wrong in diseases such as diabetes and cancer.

The enzymes necessary for utilization of food chemicals are found in microscopic rod-shaped structures around the nucleus of cells in the body. From these structures the Wisconsin scientists have succeeded in separating the nine essential enzymes. Six of the nine had never been isolated before, and of these one proved not only novel but unexpected. The Wisconsin research team described it as a compound of a previously unknown kind of flavin, deep green in color, and playing the most important part in the digestive process.

Fatty acid digestion is in some ways similar to the previously known, but less complicated, breakdown of sugar in the body. The new discovery completes understanding of one phase of the chemistry of life.

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CE FIELDS

BIOCHEMISTRY

Germanium Needle Aids Radio Gold Treatment

► GLASS-LIKE NEEDLES that carry radioactive gold to the place where it is needed, then dissolve in body fluids, leaving the gold in place, were described by Drs. H. C. Dudley and T. G. Mitchell of the Radioisotope Laboratory of the U. S. Naval Hospital, St. Albans, N. Y., to the American Chemical Society meeting in Los Angeles.

The needles which dissolve harmlessly in the body are made of the fused oxide of germanium, a chemical element for which uses are just beginning to be found. This is the same element used for the transistor, small-sized substitute for the electron tube in radio circuits.

Chemically similar to silicon, the glass-making element, germanium forms an oxide which, like glass, can be drawn out into a thin sharp sliver. Gold can be imbedded in this "needle" and then irradiated to produce the isotope 198, used in study of cancer. The needle can then be inserted under the skin, where the gold is wanted. The germanium has little effect on the body because it is not poisonous, has little radioactivity and is rapidly dissolved and eliminated.

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MEDICINE

Glandular Fever Counters Leukemia

► A BOUT of glandular fever may help some patients with acute leukemia, at least temporarily.

This is suggested by Dr. A. W. Taylor, pathologist at the Kent and Sussex Hospital, Tunbridge Wells, England, in the *British Medical Journal* (March 14).

Dr. Taylor cites six cases of the malignant blood disease, in four of which temporary improvement, or "remissions," of varying degree seemed to follow infection by glandular fever. In the first case the infection was acquired accidentally. Following this leukemia patient's improvement, which was great enough to allow him to go back to work, Dr. Taylor deliberately gave glandular fever serum to five more patients.

Two of these failed to get glandular fever and their leukemia ran the usual rapid and fatal course. The other three had remissions, though all eventually died of the leukemia.

"It would be obviously most unwise to draw any sweeping conclusions from this very small series of cases," Dr. Taylor states. He thinks, however, that the improvement

in the patients' conditions and blood pictures were more than could be explained either by the blood transfusions some got or by chance. He feels further trial of the glandular fever treatment is "justified."

"It is even possible," he states, "that in suitable cases the effects might be more profound and lasting than in those described."

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ASTRONOMY

Fast-Moving Asteroid Comes Close to Earth

► THE FAST-MOVING asteroid, spotted March 9 in the northeastern sky, is slowing down, but its motion is still unusually large, Dr. Leland Cunningham of the University of California has found after computing the object's orbit.

Besides its speed, another reason for unusual interest is the asteroid's close approach—in millions of miles—to the earth. This was indicated by its great angular velocity (see SNL, March 21, p. 180), but astronomers have not yet computed exactly how close to the earth the asteroid was.

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MEDICINE

Big Cancer Weapon Better Than Hoped

► ONE OF medicine's big guns against cancer, the two million volt X-ray generator at the Massachusetts Institute of Technology, Cambridge, has brought results surpassing the expectations of Prof. John Trump of the Institute, Dr. Hugh F. Hare of the Lahey Clinic who is in charge of the treatments, and the American Cancer Society.

No effort has been made to estimate the cure rate because less than five years have passed since the machine was first used in treating patients. But 293 of the 455 patients treated between October, 1949, and October, 1952, are reported without apparent disease symptoms. The American Cancer Society announced the following statistics:

"Without evidence of disease were 12 of 25 patients with cancer of the bladder, 13 of 26 brain cancers, 9 of 21 breast cancers, 23 of 32 uterine cervical cancers, 9 of 21 cancers of the esophagus, 17 of 21 cancers of the larynx, 2 of 2 liver and spleen cancers, 17 of 37 lung cancers, 25 of 39 lymphoid tumors, 2 of 2 pancreatic cancers, 8 of 15 stomach cancers, 37 of 50 thyroid cancers, 2 of 2 uterine cancers, 2 of 3 kidney cancers and 8 of 8 parotid gland tumors.

"The figures are particularly impressive in the light of the advanced stage of many cases, many of whom had received no benefit from other types of treatment. Several types of cancers, such as of the lung, stomach and pancreas, have very low rates of cure by any means."

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GENERAL SCIENCE

Fellowships Untaxed In Proposed House Bill

► A BILL has been introduced into the House of Representatives which would reverse an Internal Revenue Bureau ruling that millions of dollars given by foundations to individuals for research and study is taxable as income.

The ruling is also being fought in the courts by some of the recipients of these gifts, such as the John Simon Guggenheim Memorial Fellowships. The bill, introduced by Congressman Richard M. Simpson (R., Pa.), would classify as gifts, and therefore tax-free, amounts paid to an individual by an educational organization or foundation for education, training, research or creative activity.

As a result of the Internal Revenue Bureau ruling, the Guggenheim Foundation had to pay more than \$250,000 extra to between 300 and 350 scientists, artists and writers who had already received grants on a tax-free basis. Since the ruling, the foundation has been able to grant far fewer fellowships.

"The effect of the bill would be to increase substantially the effectiveness of the policy of the foundations of granting fellowships. More fellowships could be awarded if the approximately 25% now paid in taxes were available for other fellowships," Rep. Simpson said.

Joseph Barker, president of the Research Corporation, which in 1952 made some 258 grants for scientific research and study, pointed out that, with one hand, the government taxes such grants, while with the other hand, it pays out money for fellowships through the National Science Foundation.

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INVENTION

Commercials Play When Music Stops

► A COMPLICATED electric gadget that may delight advertisers and make "innocent bystanders" scream in pain has been awarded a patent.

It plays commercials on juke boxes when the music stops.

A letter recently published in a national magazine begged somebody please, please to make a "silent" record for juke boxes so you could buy three minutes of quiet for a nickel. To that letter writer, this news will come as a blow. For when no one is playing the juke, the gadget goes into action and fills the silence with commercial advertisements.

"In this manner, new revenues may be obtained from the idle phonograph," inventor Sverre Rasmussen of New York candidly states.

The gadget received patent number 2,627,415.

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