

SURGERY

Shoe Lace Machine Braids Nylon Arteries

► **SUCCESS WITH** the first use of a crimped, "no kink" artery of tightly woven nylon to restore a damaged femoral artery in a middle aged man was announced by Dr. W. Sterling Edwards of the Medical College of Alabama, Birmingham, Ala., at the meeting of the Society of University Surgeons in Houston, Tex.

An old machine formerly used for braiding shoe laces was used to braid the nylon to exact specifications. This is said to have been the critical point in development of the new kind of substitute arteries.

Dr. Edwards' patient, faced with amputation of a leg because of blocked circulation, recovered with good circulation in his foot one month after the nylon substitute artery was given him.

Fabric tubes have been made and used in the last two years in human artery replacement, but these were handmade tubes. A need exists for a prefabricated tube of various sizes so that surgeons in all communities, and especially in wartime, can have artery replacements readily available in large numbers. Surgeons at the Medical College of Alabama, with the cooperation and research assistance of The Chemstrand Corporation, producers of Chemstrand nylon and Acrilan acrylic fiber, have been working to develop an ideal prefabricated tube to bridge permanently arterial defects.

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NUTRITION

Thymus Chemical Seen as Vitamin Ingredient

► **AN IMPORTANT** ingredient of previously unknown vitamins has been discovered in an "intensely" yellow chemical from the thymus gland. The mystery of this gland's function may be solved and its hormone isolated as a result.

The chemical is probably a flavone, akin to Nature's yellow dyestuff. Its discovery was announced by Dr. Albert Szent-Gyorgyi, Hungarian-born Nobel Prize winner now at the Institute for Muscle Research, Woods Hole, Mass., at a New York Academy of Sciences conference in New York.

The newly discovered chemical is present in "amazingly big" quantities in thymus glands. The thymus of calves is known as the neck sweetbread. In children this gland in the chest is quite large, but in grown-ups it usually has shrunk to very small size.

Dr. Szent-Gyorgyi's yellow chemical may be part of a vitamin that keeps very small blood vessels healthy.

This chemical and other flavones react with metals. The flavone-metal combination may, Dr. Szent-Gyorgyi said, "hold the key to better understanding of the working of the machinery of life."

A related chemical, hesperidin, from citrus fruit when combined with vitamin

C seems to help strengthen the very small blood vessels called capillaries.

Living matter, Dr. Szent-Gyorgyi thinks, is a mechanism which in preciseness "surpasses by several dimensions the finest Swiss watch." When little blood vessels become fragile and leak blood, the living mechanism is out of order. The idea of putting this mechanism right with a decoction of orange peel seems to Dr. Szent-Gyorgyi like "repairing a Swiss watch by driving a nail into it."

"This absurdity can be resolved by a philosophical outlook," he continued. "In my eyes there is but one living matter on this globe. However different their shapes, colors and complexities, all living systems are but leaves of the same old tree of life and are based on the same common basic principles."

"There is no real difference between cabbages and kings. So if the king's capillaries do not work well, possibly because one of their constituents is missing, and you can put these capillaries right again by an extract of the cabbage, then this means that you have put one precision mechanism right by taking out an identical screw from another, similar precision mechanism, and the good fit only shows the close relation, the essential identity of the two systems."

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BIOLOGY

Hopes Parakeets Will Tell Secrets of Cancer

► **MOST PEOPLE** who have parakeets hope their pet talking birds will not learn to tell any secrets. But not Dr. Hans G. Schlumberger of Ohio State University in Columbus, Ohio. He is trying to get some parakeets to tell him some of the secrets of cancer.

Many cancers occur with unusual frequency in these birds. One of the commonest and most awesome tumors is that of the pituitary, the small gland that lies at the base of the brain and controls other hormone-producing glands of the body. These tumors may become so large that they push the birds' eyes out of their sockets. The birds become fat, flabby, blind, apathetic, impotent, and subject to convulsive seizures.

Shortly before death they often lose their appetite and seem to waste away. Dr. Schlumberger has examined 106 birds with these tumors and has been able to grow pieces of the tumors beneath the skin of normal parakeets. These birds then also become obese, as do those with the spontaneous tumors.

The parakeet's way of life, including its sex life, is now under study by Dr. Schlumberger because he thinks an abnormal functioning or excessive demand on the sex, adrenal, thyroid or other endocrine glands may make the pituitary grow larger than normal.

His studies are supported by the American Cancer Society.

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IN SCIENCE

ANTHROPOLOGY

Blond, Dark Children "Evolution in Operation"

► **"EVOLUTION CAUGHT** in the act of operation," is how Dr. Joseph Birdsell, University of California at Los Angeles anthropologist, describes the strikingly blond, dark-skinned children among the aborigines of the Australian desert.

These unusual children may be examples of a mutation that has occurred repeatedly in this region during thousands of years, Dr. Birdsell believes. He has just returned from a two-year study of genetic factors among Australian peoples.

Like most people who have survived for thousands of years in extremely hot areas, these people have very dark skins and brown eyes. Their eyebrows are black. Their blond hair darkens some as they grow older, turning a mousy color by adulthood, but it never becomes the black color characteristic of peoples of other hot regions.

Dr. Birdsell suggests that such blond hair may be a major pigment change resulting from a mutation.

"It is a unique characteristic which is not manifested in any other dark-skinned people," he reported, "although there is some suggestion of it in Melanesia."

The characteristic survived through the years, Dr. Birdsell speculates, because it is a manifestation of biochemical factors, resulting from the mutation, conducive to desert survival. The blond hair itself is probably not directly related to desert survival.

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TECHNOLOGY

Man-Made "Ice-Fog" Checked by New Device

► **MAN-MADE ICE-FOG** that "socks in" Arctic airfields can now be licked by a new device developed by the Armour Research Foundation, Chicago.

The fog is caused by internal combustion engines that spurt huge plumes of ice-fog from their exhausts when temperatures drop below minus 24 degrees Fahrenheit.

Tests by the U. S. Army Corps of Engineers in Alaska showed that when one of these ice-fog eliminators is installed in an engine, the plume is barely visible. The device removes the moisture from the exhaust by cooling it, mixing in cold air, then reheating the fumes before discharge.

Very little moisture is needed in extremely cold weather to saturate the atmosphere. In some cases, even vapor breathed out by humans is enough to cause ice-fog.

Reduced visibility is believed to be caused by small particles of ice in the air.

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CE FIELDS

ELECTRONICS

Tiny Radio Transmitter Fits Into 20mm Shell

➤ A RADIO transmitter about the size of the first joint of your ring finger has been developed by the Navy. Not only is it smaller than a wrist radio, but it is shock proof too, and works even after being shot out of a cannon.

The purpose of the tiny unit, called a spin sonde, is to trace the rotation of 20 millimeter projectiles as they speed toward their targets. The device, which fits inside the warhead, is powered by a mercury battery with a life of 200 hours and uses transistors instead of radio tubes. It is believed to be the smallest ever developed.

As the transmitter rotates along with the projectile in flight, it sends out radio messages that are picked up and recorded by an oscilloscope on the ground. The device was built to withstand shocks 30,000 times the force of gravity. It can be used over and over again since ordinarily it can withstand the shock of hitting the test target.

The transmitter was designed by Roy J. Smollett of the technical evaluation department of the Naval Ordnance Laboratory in Washington.

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BIOLOGY

Chinchilla Transfusion Needs No Blood Typing

➤ NO SCURRYING around to find a donor of the right blood type when a chinchilla gets sick or bleeds seriously enough to need a transfusion. Chinchillas, like many other rodents, all have essentially the same blood type.

This reassuring news for those who keep pet chinchillas or breed them for their fur comes from research by Mrs. Ruth L. Bass of Altadena, Calif., graduate student at the University of Southern California.

All the 750,000 chinchillas in this country are so closely related that only small individual differences in their blood can be detected with sensitive laboratory tests.

Ninety percent of the total chinchilla population represent the offspring of the four male and seven female animals brought to Inglewood, Calif., in 1923 by the late Mathias Chapman, an American mining engineer, from the 17,000-foot altitudes of the Andes mountains in Chile.

"The chinchilla in this country is a highly inbred form," Mrs. Bass said. "Whether the chinchilla in his native habitat is actually a single type of animal with a common heredity or the result of interbreeding of closely related animals is still open to question among scientists and breeders."

A soft-furred, gray rodent, the chinchilla has been highly inbred to make its fur more desirable. Recently breeders began to wonder if the animals had different blood types, and if such information could be used in breeding. The SC research was undertaken although rodents are noted for their lack of blood groups.

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BOTANY

Variegated Thistle Causes Cattle Deaths

➤ THE VARIEGATED thistle has been put on the public enemy list of poisonous plants in the United States for the first time.

Known also as the milk or bull thistle in many areas, the thistle has caused the death of several cattle in California, Drs. John W. Kendrick, John Tucker and S. Anderson Peoples of the School of Veterinary Medicine at the University of California, Davis, Calif., reported to the *Journal of the American Veterinary Medical Association* (Jan.).

A study of the cattle deaths indicated that nitrate poisoning, brought on by eating the variegated thistle, was the cause. The scientists stated that prior to the California outbreak, the thistle was not considered among the poisonous plants of this country. In some areas of the United States, they said, the mature thistle is used as a winter feed.

Symptoms of the nitrate poisoning, the California scientists stated, were a blue discoloration of the mucous membrane, a rapid pulse, accelerated and labored breathing, weak and staggering walk and diarrhea. Other animals from the affected herd were maintained on hay for two days and then moved to another pasture. No further deaths occurred, they reported.

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MEDICINE

High Heels Held Cause Of Sickness in Women

➤ HIGH HEELS that throw the body and its functioning out of balance were blamed for many of the gynecologic disorders of women of 30 or older.

The charge was made by Dr. Dudley J. Morton of New York in a report to the *Journal of the American Medical Women's Association* (Feb.).

Foot disorders, he pointed out, afflict women six to 10 times as often as men.

"Wide observations indicate that the popularity of the very high 'spike' heel has created the idea among women that the 2½ or 2-inch heel is a low heel," Dr. Morton said. "As a result, the constant use of the latter throughout women's daily activities has been a greater factor in causing their foot troubles than has the shorter and less enforced periods of weight-bearing associated with 'spike' heels."

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AGRICULTURE

California Turfgrass Worth \$650,000,000

➤ THE VALUE of California's lawns and other turfgrass installations "ain't hay." In fact, more than \$650,000,000 is invested in such plantings and the annual upkeep is estimated to be \$250,000,000 annually.

Marston H. Kimball, agricultural extension specialist in ornamental horticulture on the Los Angeles campus of the University of California, has compiled figures on a turfgrass survey of Los Angeles County by James Beutel of the University's Agricultural Extension Service and Fred Roewekamp of the Los Angeles Department of Recreation and Parks.

They found that Los Angeles County's turfgrass acreage of 63,000 is a \$262,000,000 investment and costs \$90,000,000 annually to maintain. More than 50,000 of these acres are in residential and apartment house lawns, which number 1,260,600 in Los Angeles County.

By interpolating the Los Angeles County figures on a population basis, there are 160,000 acres of such grass.

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MEDICINE

Atomic X-Rays Readied For War or Peace Use

➤ AN ATOMIC X-ray machine for war or peacetime use has been developed by the Army.

The machine uses radioactive thulium and radio-sensitive photo paper. Neither electricity, water nor dark room is needed to develop the picture, which shows immediately.

The whole machine with lead-lined case to protect personnel is contained in a 48-pound unit that packs nicely on a medical aidman's back.

For Army use, this means aidmen can carry it up to the battlefield and take X-ray pictures of the wounded where they lie. If necessary the aidman can look at the picture to detect broken bones that need splinting before the man is moved. Or he can have the X-ray pictures waiting for the wounded man when he reaches the battalion aid station where he sees the first doctor.

For civilian use, the new radio-X-ray machine can be carried in ambulances going to accidents or in the doctor's car. While it does not show detail as well as the conventional X-ray machines, it gives a clear enough picture for field use. When in production it is expected to cost \$200.

The radioactive thulium heart of the unit is expected to last about one year. Then it can be sent back to the atomic pile for rejuvenation for another one-year stretch of duty.

The unit was developed at the Armed Services Medical Research Laboratory at Fort Knox, Ky.

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