

MEDICINE

Heal Bed Sores by Dried Blood Plasma

► **ULCERATED** BED sores can be made to heal rapidly by putting on them a paste of dried blood plasma and Peruvian balsam, Drs. A. Bernice Clark and Howard A. Rusk of New York University College of Medicine report in the *Journal of the American Medical Association* (Oct. 31).

They tried the blood plasma paste with the thought that it would provide a nearly natural nutritional environment. The specific cause of ulcerated bed sores is not known but poor nutrition to the part is thought to be a major contributing factor.

The results with the dried blood plasma, however, suggested that it might also have an enzymatic action that dissolved dead and infected tissue. One long-standing ulcer with considerable necrotic tissue and infection was clean in 12 days, after the third dressing with the plasma paste.

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DENTISTRY

Antibiotic Fillings Help to Check Decay

► **ADDING** A mixture of antibiotics to the fillings for cavities in teeth can help check further decay, it appears from studies reported by a dentist, Dr. Maxwell B. Colton, and a chemical engineer, Eugene Ehrlich, of New York, in the *Journal of the American Dental Association* (Nov.).

The antibiotics in the mixture tested were aureomycin, bacitracin, chloramphenicol and streptomycin.

Zinc cements, silicate cements and silver amalgam, they report, have some bacteria-killing effect and, therefore, play a part in preventing further decay. Adding the antibiotics increases this effect, and also gives germ-killing effect to direct filling resins that otherwise lack it.

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ENTOMOLOGY

Break Down of Muscle Ends Aphid Flying Days

► **WINGED** APHIDS lose their ability to fly after a few days due to autolysis, or self-digestion of their flight muscles.

Scientists have observed before that winged aphids, or plant lice, seem to fly more during their first four days than during later periods. Bruce Johnson, an entomologist at the Rothamsted Experimental Station, has found that this is due to a breakdown of the flight muscles.

Autolysis of flight muscles has previously been found among ants and mosquitoes. In these insects, the nitrogen released during autolysis of the muscles is thought to be utilized for egg production. The similar condition among aphids also appears to be associated with reproduction, Mr. Johnson reported in *Nature* (Oct. 24).

Since they spread plant viruses during the few days of the flight period, aphids are economically important. The length of this period appears to be limited by the number of larvae laid by each aphid.

When reproduction was delayed, the flight period was correspondingly lengthened. After aphids have lost the ability to fly, they may live for as long as three weeks, producing one to four larvae each day.

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PLANT PATHOLOGY

Way Nicotine Forms In Plants Unknown

► **ALTHOUGH** MANY millions of people every day smoke tobacco in which nicotine is an important ingredient, the way in which the tobacco plant makes chemically the nicotine in its leaves is still unknown scientifically.

Dr. K. Bowden of the department of organic chemistry, Leeds University, reported in *Nature* (Oct. 24) that the suggestion that nicotine is formed in the plant from the amino acid, tryptophane, has been tested and found wanting.

Formation of nicotinic acid from tryptophane in animals and microorganisms had been demonstrated two years ago. Dr. Bowden put a kind of tryptophane, which was radioactively tagged, into the soil in which the young tobacco plants were growing. The leaves did become radioactive, but the nicotine separated out from them showed no activity, indicating that the tryptophane molecule as a whole is not converted into nicotine.

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MEDICINE

Ringworm Remedy For Patchy Baldness

► **THE** KIND of baldness that comes in sharply defined patches, known medically as alopecia areata, can be helped by a ringworm remedy, two Baltimore doctors announced at the meeting of the Southern Medical Association in Atlanta, Ga.

The doctors, H. M. Robinson Sr. and his son, R. C. V. Robinson, discovered the hair-growing capacity of the chemical more or less by accident.

The chemical is benzyl benzoate. They were using it on patients with ringworm of the scalp, trying to determine its value in this condition. They noticed a rapid growth of hair in the bald areas of the ringworm patients who were putting the chemical on their scalps. So they decided to try it in the patchy baldness that afflicts some people.

Of 40 patients followed for a year, 36 got good results with the benzyl benzoate treatments. This chemical proved superior to such other methods as liquefied phenol, ultraviolet light and ointments, and it also did not require too frequent visits to the doctor.

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IN SCIEN

PLANT PATHOLOGY

Find Chemical Control For Virus X of Potatoes

► **POTATO** VIRUS X, a widespread mosaic disease that stunts plants and reduces yields, can be controlled chemically with malachite green, Dr. D. Norris of Australia's Commonwealth Scientific and Industrial Research Organization at Canberra has reported.

Laboratory tests show malachite green, a diaminotriphenylmethane dye, reduces the virus X content in potato plants to a very low level.

At the present time, mosaic diseases are fought by developing resistant plant varieties and by destroying insects that transmit the viruses. A successful means of attack with chemicals has been sought throughout the world.

The general problem of plant virus control has been handicapped by lack of demonstration that there is a sufficient difference between the chemical processes of the virus and the host to make selective chemical therapy possible, Dr. Norris stated in *Nature* (Oct. 31).

In his tests, stems of potato plants were put in nutrient cultures, some being exposed to malachite green and the virus, and others only to the virus. All plants of the untreated series had a high content of virus X, while in the treated series, one plant was free of the virus and the others had only small amounts of virus.

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NUTRITION

Three Vitamins Needed For Disease Resistance

► **FORMATION** OF disease-fighting antibodies seems to depend on getting plenty of three vitamins in the diet, Dr. A. E. Axelrod of Western Reserve University, Cleveland, reported at a symposium on protein metabolism at the University of Toronto, Canada.

The vitamins are pantothenic acid, folic acid and pyridoxine. When rats were on diets deficient in these, the antibodies circulating in their blood in response to injection of a foreign protein were "markedly decreased," Dr. Axelrod found.

The foreign protein in this case consisted of human red blood cells that should stimulate antibody formation in rats. Disease germs also should stimulate antibody formation. If further tests show that response to disease germs is blocked by lack of the vitamins, it will help to clear up the problem of the role of nutrition in resistance to disease.

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CE FIELDS

PHYSICS

Soviet's "Different" Ice Proved Crystal "Ghost"

► A STRANGE sort of ice reported by a Soviet scientist in 1936 is being "melted" out of the scientific literature.

"Beta" ice, supposed to be different from the normal hexagonal crystals of ice, is now shown to be merely a sort of "ghost" of ordinary ice in X-ray crystallographic photographs. The verdict of "no evidence" to support the existence of this "beta" form of ice is given by Drs. Carl Berger and Charles M. Saffer Jr., Commonwealth Engineering Company of Ohio, Dayton, in *Science* (Oct. 30), who cite X-ray studies by Dr. Barbara W. Low.

Soviet scientist N. Seljakov reported the "beta" ice as crystals grown from water at air temperatures ranging from 5 to 16 degrees below zero Centigrade, 23 to 2 degrees Fahrenheit. The American scientists grew ice crystals under these conditions, and demonstrated that the X-ray crystal pattern found by the Soviet scientist was obtained with ordinary ice when the crystals were set in the apparatus at a slight angle.

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BIOCHEMISTRY

New Vision Chemical May Help to See Red

► CREATION OF a new vision chemical for daylight seeing which may even be the red-seeing chemical of the eyes is announced by Drs. George Wald, Paul K. Brown and Patricia H. Smith of Harvard University.

The chemical is a light-sensitive, blue substance called cyanopsin. It has not yet been extracted from any eye retina. However, it could be expected to exist in the eyes of freshwater fish, or any eyes that contain a special form of vitamin A and two other vision chemicals, retinene 2 and cone opsin. Cone opsin comes from the cones, which are the cells of the eyes that operate in daylight.

Dr. Wald and his associates made the new vision chemical, cyanopsin, from an extract of dark-adapted rods and cones from chicken eye retinas. The extract contains a mixture of two chemicals, rhodopsin and iodopsin, they report in *Science* (Oct. 30).

Deep red light was used to bleach the iodopsin to a mixture of all trans retinene 2 and cone opsin. To this they added a small amount of the specific cis isomer of retinene 2. In this way, cyanopsin is synthesized within five minutes in the dark at room temperature.

The new pigment plays a part in the daylight seeing of fresh water fish, tortoises

and American turtles, the Harvard scientists believe, because, even though it has not been extracted from any eyes, the eyes of these animals contain the chemicals necessary for its formation.

Because cyanopsin absorbs light waves far into the red part of the spectrum, Dr. Wald suspects that it may be the eye chemical with which the color red is seen. It is the first eye pigment that could serve in a "red receptor," he states.

With two other previously known visual pigments, rhodopsin and iodopsin, it might form the basis for a system of three-color vision. But so far, Dr. Wald says, there is no evidence for this.

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SURGERY

Suicide Danger in Plastic Surgery Delay

► CANCER PATIENTS who have had one-third to one-half of the face cut away may go into a profound depression and even commit suicide unless the surgeon immediately outlines hopeful plans for reconstruction, Drs. J. J. Longacre, John Leichter and Paul Jolly of Cincinnati warned at the meeting of the American Society of Plastic and Reconstructive Surgery in San Diego, Calif.

The reconstruction can be started six months to a year after the original operation when the surgeon is sure all cancerous tissue has been cut out. When repair will be extensive, the first stage can be started even earlier, thus encouraging the patient.

"It is not delayed treatment, but putting treatment that seems to lessen the quality of results," Dr. Longacre declared. Less than four percent of the cancers recurred in the cases he described, although three out of every five patients had had recurrences following earlier treatment by X-ray, radium and less radical surgery.

When reconstruction was complete, he said, the patients returned to their jobs and resumed their former roles in the community.

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GENERAL SCIENCE

Defense Efforts Curtail Other Scientific Research

► THE MAN-HOURS and man-years of research the chemical industry's limited number of technical experts are devoting to national defense represent an unavoidable delay in the achievement of constructive goals by applied chemistry, Charles S. Munson, chairman of the board of Air Reduction Company, Inc., said in accepting the 1953 Society of Chemical Industry Medal in New York.

"Perhaps the chemist who has developed a new rocket fuel to power a guided missile with an atomic warhead is the very man who might otherwise have discovered a polio vaccine a few years ago," he said.

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MEDICINE

Ultrasonic Treatment Helps Bursitis Patients

► RESULTS OF more than 3,000 treatments with ultrasonics, or high frequency sound waves that cannot be heard by human ears, given to 300 patients were announced by Dr. Ferdinand F. Schwartz of Birmingham, Ala., at the meeting of the Southern Medical Association in Atlanta, Ga.

Patients who were helped were those with osteoarthritis, neuritis, varicose ulcers, sprains, and bursitis with or without lime deposits. Most of the bursitis patients got relief after the second or third "sounding," as the ultrasonic treatments are called.

This treatment requires experience and great care, Dr. Schwartz stressed. The method is still so new that no definite dosage, time element or signs for its use have been established.

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SURGERY

Birth Wasted Tissue To Cover Large Wounds

► AFTER-BIRTH TISSUES, normally thrown away after a baby is born, may be converted into temporary coverings for large burns and other big wounds, if experiments live up to present promise.

The experiments were reported by Dr. Beverly Douglas of Vanderbilt University, Nashville, Tenn., and Drs. Herbert Conway, Richard B. Stark, Doyle Joslin and Guillermo Nieto-Cano of New York Hospital-Cornell Medical Center, New York, at the meeting of the American Society of Plastic and Reconstructive Surgery in San Diego, Calif.

Three human burn victims have already had such after-birth tissues transplanted to protect the surface of their wounds, Dr. Douglas reported. These transplants survived for three weeks.

In mouse experiments, Dr. Conway and the Cornell group found that 18 human membranes transplanted to open wounds on the mice survived an average of 12 days. Transplants of mouse membranes to mice lasted even longer. This compares with five and a half days for survival of skin grafts that are sometimes used to cover large wounds and burns.

Such wounds need fast covering by skin or other tissues to prevent death from loss of fluids, salts and blood elements.

The after-birth membranes are readily available in large amounts in the maternity wing of any hospital, the doctors pointed out.

Skin grafts from dead donors, available through a bank of such skin, for covering large wounds were reported as another solution to the problem by Dr. James Barrett Brown of Washington University School of Medicine, St. Louis, at the American College of Surgeons meeting in October.

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