

MEDICINE

New Antibiotic May Aid Fight on Athlete's Foot

► **DISCOVERY** of a new antibiotic drug, like penicillin and streptomycin, which might prove a remedy for fungus infections from athlete's foot to more serious diseases involving lungs, brain and nervous system, is reported in the *Proceedings of the Society for Experimental Biology and Medicine* (April).

The new drug, called Bacillomycin, was discovered at the Wyeth Institute of Applied Biochemistry in Philadelphia by Drs. M. Landy, now at the Army Medical Department Research and Graduate School, and G. H. Warren, S. B. Rosenman and L. G. Colio.

Bacillomycin comes from a strain of the organism, *Bacillus subtilis*, which has already yielded such antibiotic drugs as subtilin, bacitracin, bacillin and cumycin.

Unlike penicillin and most other antibiotic drugs, Bacillomycin has striking power against fungi and almost complete lack of action against bacteria.

Practically all the important fungi that affect the skin, technically called dermatophytes, and those that cause systemic, or internal, disease are sensitive to Bacillomycin's action in the test tube experiments reported.

Science News Letter, July 17, 1948

CHEMISTRY

Low-Cost Barium Chloride Made by New Process

► A **LOW-COST** method of making barium chloride, an important chemical reagent widely used in industries, was revealed by the University Department of Chemical Technology in Bombay, India. The process uses as raw materials the mineral barytes, which is barium sulfate, and magnesium chloride, perhaps the cheapest source of chlorine.

The method involves the roasting of barytes with wood charcoal, powdering the resulting mass, and heating the pulverized material with a 46% to 47% magnesium chloride solution at less than the boiling point of water. The low-cost barium chloride obtained is particularly suitable for the removal of sulfate impurities in brine, and many other possible commercial applications are being investigated.

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ENGINEERING

Hydraulic Jack System New Invention for Cars

► **GONE** are the days of the old-fashioned automobile jack, that you have to dig out of the junk in the bottom of the luggage space, and fuss around until you think it's under the axle, and then operate by elbow.

grease—only to have the darned thing slip out and let the wounded wheel down again with a "whoomsh." A new invention by Frank Sragal of Detroit promises to make it as obsolete as the hand crank on the nose of the Model T.

The basic idea is very simple. There are four hydraulic jacks permanently attached to the frame of the car, each near a wheel. All are connected to a master cylinder, which is operated by the conventional brake pedal. There is a selector mechanism, which the operator turns to open the inlet valve to the jack which he wishes to function. Then he pumps away with his foot until the wheel is lifted free of the road.

When the spare has been put on, the operator shifts the indicator from inlet to outlet. Then a coil spring that is wrapped around the jack rod pulls it back up into its normal retracted position. To make sure that none of the jacks is inadvertently pushed down to the road while driving (which would of course mess things up pretty badly) the apparatus is locked in inoperative position, and can be released only with the ignition key.

Mr. Sragal has received U. S. patent 2,444,272 on his invention.

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ZOOLOGY

Whales Are in Danger Of Becoming Extinct

► **WHALES** are in danger of traveling the unreturning road to extinction, in spite of the respite which the war gave them from the harpoon guns of whalers, declares J. E. Hamilton, veteran student of the ways of the great sea-beasts, in the British journal *Nature* (June 12). Mr. Hamilton, after years of research on the Antarctic whaling grounds, now lives at Stanley, on the Falkland Islands, which may be regarded as in the nearer suburbs of the whales' domain.

Whale catches since the war have contained fewer pregnant females than formerly, he states, and individual measurements of the two principal species are shorter than they used to be. Moreover, giant individual whales are no longer being caught. All three of these phenomena are marks of a dwindling population, he points out.

Mr. Hamilton is strongly of the opinion that the lower size limit for permitted catches is too small. It should be revised upward, especially for females, if the animals are to be given a chance to reproduce. Also, the practice of reckoning the catch in "blue whale units," with one blue whale counted as the equivalent of two fin whales, two and one-half humpback whales or six sei whales, conceals dangerously large kills of the smaller-sized whales.

He warns that today's whaling industry, in its eagerness for the greatest possible profits, may be dooming itself to extinction along with the great animals that are its foundation.

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IN SCIEN

METALLURGY

Sample Molten Steel by "Eye-Dropper" Technique

See Front Cover

► **SAMPLES** of molten steel at 2,700 degrees Fahrenheit are taken from the pot at the General Electric laboratory by what might be dubbed eye-dropper technique. The sampling tube is a heat-resistant glass with a rubber squeeze-bulb on the end.

In the sampling process, the glass tube, which is about the size of a lead pencil and 18 inches long, is stuck into a ladle of the molten steel with the rubber bulb compressed. When the bulb is released, as shown on the cover of this week's *SCIENCE NEWS LETTER*, the liquid metal runs up into the tube just as water or a medicine is drawn up into the familiar eye-dropper. When the metal has hardened, the glass tube is cracked off.

In testing the steel, the sample rod from the glass tube is sawed in two pieces and the pieces used as electrodes of a high-voltage electric arc. The light from the steel electrodes varies with the make-up of the metal. By the use of prisms, trained observers are able to judge the quality of any batch of steel sampled with the eye-dropper.

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ASTRONOMY

Ancient Explosion Just Revealed to Astronomers

► **AN EXPLOSION** that occurred 4,000,000 years ago has just been discovered. At that time a terrific atomic outburst caused a distant star in the constellation of Cygnus, the swan, to blaze forth in a burst of glory.

The new supernova is of the fifteenth magnitude, 4,000 times fainter than the faintest star visible with the naked eye. If as close to us as our sun, it would shine with the brightness of 2,000,000 suns. But this star is so distant it takes 4,000,000 years for its light to reach us. That is why we are just learning of the explosion.

The object was found on a photograph taken by Dr. N. U. Mayall of the University of California's Lick Observatory, Mt. Hamilton, Calif. The supernova apparently reached maximum brightness several weeks ago, and is expected slowly to become fainter during the next few months. Located in a spiral nebula known as NGC 6946, it is near the border of Cygnus toward the constellation of Cepheus.

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CE FIELDS

GEOGRAPHY

Cameras and Airplanes Are Photomapping Alaska

► A SUMMER-LONG aerial survey of 30,000 square miles of Alaska is now underway, the U. S. Navy revealed. Navy planes and Navy cameras are doing the job. It is being carried out in cooperation with the Department of the Interior and other government agencies.

Six Navy P2V Neptunes are being used.

Necessary modifications to fit them for this particular task were made at the Lockheed plant in California. The planes are based on the former Army airfield on Annette Island, near Ketchikan. The photographs are being taken from a height of approximately 20,000 feet.

Data secured from the photographs will be used to determine the waterpower possibilities of the panhandle region of Alaska, which stretches from Skagway to the south. They also will help estimate paper-pulp resources of the area. The survey will be of value to civil transportation by air because Alaska is on the Great Circle route from continental United States to points in Asia by way of the Aleutian islands. Alaska is also a valuable take-off point for planes to Europe by the North Polar route.

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PHYSIOLOGY

Jet Engine Noises Found Harmless to Shopmen

► WORKERS in jet-engine factories are unharmed by the high-pitched noises made by ordinary low-performance turbo-jets in tests carried out by U. S. Navy scientists. Final conclusions are not yet reached on the effects of very high frequency jet engine noises on the human body, but they may be harmful because ultra-high sound waves have already been proved harmful to mice and other animals.

The Navy conclusion is based on a 26-day test with 10 volunteers, including nine enlisted men and one medical officer, conducted at the Navy's Aero Medical Laboratory, Philadelphia. The engine used was a General Electric I-16 turbo-jet located in an open-end test cell.

The men were protected from audible noises by helmets, headphones, ear doughnuts or cotton ear plugs. They spent their time during the test periods in reading, drowsing or loafing.

The first report of the test appears in *All Hands* (July 11), a Navy publication. It states the study was undertaken because of ill-founded fears and rumors about the

harmful effects of turbo-jet engine noises to workmen in their vicinity. Jet engines are known to produce, at certain speeds, sound waves too high-pitched for the human ear to hear. They are somewhere between 20,000 and 500,000 double vibrations a second, the publication states. The upper limit of audible sounds for the human ear is about 20,000 double vibrations per second.

The general physical condition of the men did not change during the test, the Navy states. Neurological tests showed the nervous systems unchanged, and measurements of pulse, respiratory rate, temperature and blood pressure did not indicate the sound had caused any ill effects.

Five of the men undergoing the experiment lost weight, varying from about five to 19 pounds. All five felt abnormally tired or irritable. Of the other five, one felt abnormally nervous, and one more tired and irritable. The other three noted no physical or emotional change.

The general conclusion of the Navy scientists who conducted the tests is that, although ultra-high frequency does damage to some animal tissue, ill effects on human tissues appear unlikely unless the frequency is extremely high.

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GENERAL SCIENCE

M.I.T. Receives Estate for Teaching and Research

► ROUND HILL, the large estate of the late Colonel E. H. R. Green at Dartmouth, Mass., has been presented to the Massachusetts Institute of Technology by Mrs. Matthew Astor Wilks of New York, the present owner of the estate.

"While it is too early to make any specific plans, the estate offers exceptional possibilities as a center for technical education in various fields as well as for research," Dr. Karl T. Compton, president of the Institute, said.

The estate, with its stone mansion and numerous other buildings, occupies a plot of 277 acres on Buzzard's Bay, eight miles south of New Bedford. It includes a large farm with a farmhouse, barns and other buildings, several residences, and a radio station. At one time the estate had its own private airfield.

In 1925, when Colonel Green was living at Round Hill, he placed the estate at the disposal of the Massachusetts Institute of Technology for various research projects, and for the ensuing ten years the Institute's staff made important advances in radio communication, the navigation of aircraft, high voltage research, and meteorology.

From 1925 until his death in the spring of 1936, Colonel Green not only made his estate available to the Institute for research, but in addition gave it substantial financial support which resulted in notable contributions to the nation's welfare and to science in general.

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CHEMISTRY

Hard Water Softened by One of Polyphosphates

► HARD WATER is softened by dissolving glassy sodium phosphate in it. This keeps the calcium and magnesium in the water from combining with soap, the American Chemical Society was told at its meeting in Syracuse, N. Y., by Dr. Everett P. Partridge, Hall Laboratories, Pittsburgh.

This chemical is one of the group known as polyphosphates which are produced in large quantities and widely used in many industrial processes, including tanning sole leather and dyeing textiles.

Polyphosphates are used also in controlling the properties of mud used in drilling oil wells, improving the coating of paper for use in picture magazines, and conditioning water so that it will not form scale in boilers. The paste of titanium oxide and water used in paints will flow like milk if a small amount of this sodium phosphate is added.

Chemists are unable to explain the action of the glassy sodium phosphate in softening water, he stated. Some ordinary water softeners work by converting the soluble calcium and magnesium salts in the water into insoluble particles which settle on the bottom of the container. With the glassy sodium phosphate the water remains clear and there are no settlings. This softening without precipitation chemists call sequestration.

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ARCHAEOLOGY

Find Carving in Mexico Believed 20,000 Years Old

► WERE there native American artists in Mexico 20,000 years ago, at the same time that Cro-Magnon masters were frescoing the walls of caves in France and Spain, and carving images of ivory and reindeer horn?

First bit of evidence that such may have been the case was laid before the Archaeological Society of New Mexico by Dr. Hellmut de Terra of the Viking Fund, in the shape of a miniature sculpture which he found at Totolizingo in the Valley of Mexico. The find was made in the sand of what had once been a lake beach in the last centuries of the Pleistocene ice age. The geologic date is set by fossils of extinct species of horse, elephant and deer dug up at the same level. Further evidence of human occupation of this beach was indicated by three small bone points found by Dr. de Terra.

This small carving, the discoverer pointed out, apparently indicates the existence of a prehistoric race on this continent with an age at least double the 10,000 years estimated for Tepexpan Man, who since his discovery in February, 1947, has been considered America's oldest inhabitant.

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