

VETERINARY MEDICINE

Penicillin Cures Dairy Cattle Disease

► **PENICILLIN** has more curative power than any other tested drug for common mastitis, the most prevalent disease among dairy cattle.

Used in three large doses of 50,000 units each, at 24-hour intervals, penicillin cured 92%, in University of Wisconsin tests. Single large doses cured about half the cases, and more where the infection was not serious or of long standing.

The drug proved generally helpful for dry and milking cows, causing little irritation, and had no apparent effect on milk production. It was more valuable in chronic cases than in acute flareups.

The tests were conducted upon mastitis caused by a streptococcus, which is the most common form. The veterinary scientists at the University of Wisconsin stated that other forms of the disease may respond better to sulfa drugs than to penicillin. Dairy men were advised to rely on a veterinarian's diagnosis.

With cows of average value it will often be practical to try first a single treatment with 50,000 units. If that fails, and the animal is valuable enough, a series of treatments can be used, administering three treatments of 50,000 units each at 24-hour intervals.

The University scientists emphasized, however, that drugs can only cure, and will not prevent the disease or reinfection with it, thereby making it as important as ever to hold mastitis to a minimum by practicing strict sanitation.

Science News Letter, May 4, 1946

GEOPHYSICS

Oil Search in New Deep Sea Diving Bell

► **A NEW** diving bell will permit scientists to descend 250 feet into coastal waters carrying gravity meters to search for new off-shore oil deposits. Eugene Frowe, of the Robert H. Ray Co., Houston, Tex., has reported this to the Society of Exploration Geophysicists.

Gravity meters are used extensively for land prospecting to detect sub-surface structural changes that tell where oil is likely to be found. They have not been successful under water because of boat motions and ocean currents. The new diving bell will give the instrument the same stability under the sea surface down to 250 feet as it would have on land.

Fifty inches high and 60 inches in diameter, the bell has two concentric

cylinders with water ballast separating them. It uses two air lines, one for breathing and one for regulating the ballast, and is designed to be lowered and raised from a crane mounted on a barge.

Both air lines can be used for ventilation as a safety measure, while a device is provided for automatically blowing the water out from between the cylinders in event of a power failure. An additional safety feature is an escape lung similar to those used on submarines.

Science News Letter, May 4, 1946

PUBLIC HEALTH

Better Protection of Workers Against Silicosis

► **BETTER PROTECTION** of workers in certain industries from the hazard of silicosis appears likely as a result of a new method of sorting the dust in air developed by the Industrial Hygiene Foundation at Mellon Institute, Pittsburgh.

Silica particles so fine that more than 100 million can be piled on the head of a pin can now with the new method be sorted out of larger dust in factory air, Dr. Francis R. Holden, of the Foundation, said in reporting the new development at the meeting of the American Industrial Hygiene Association in Chicago.

The finer the silica dust, Dr. Holden continued, the greater the danger, because only microscopic particles smaller than five microns are likely to damage the deep lungs. Particles larger than five microns, which is about the size of a red blood cell, are more readily trapped in the filter mechanism of the nose and throat.

Dr. Holden described the collecting, counting and analysis of dust in the dangerous size ranges as follows:

"Visible and invisible dust in the workplace is determined by condensing dust floating in atmosphere equivalent in size to a small room, into a capsule-sized sample. This is done by drawing a measured volume of air through a powdery substance (salicylic acid). The substance is then dissolved in alcohol and the dust sample remains."

Through a process of sedimentation the total dust sample is divided into particle sizes above and below five microns. After the smaller particles have been counted and analyzed by X-ray, the chemist can now determine the degree of a silica hazard with greater accuracy than formerly.

Science News Letter, May 4, 1946

IN SCIENCE

ENGINEERING

Dwelling Houses Quickly Built of Vacuum Concrete

► **BY SUCKING** water and air out of concrete, dwelling houses of this non-critical material may be more quickly constructed. The process involves the use of a vacuum to cause concrete to harden rapidly, and a mechanical lifter which raises precast sidewalls into position without danger of damage.

The vacuum concrete process is not new; it has been in use for about eight years. The details of the process, however, have been pretty well confined within the trade. The mechanical lifter is new; with it, entire sidewalls, precast in horizontal forms lying on the earth, can be handled quickly and easily.

The vacuum process, by means of plywood mats under which a vacuum is created by a vacuum pump, removes the water in the plastic mixture that is not needed to hydrate the cement. It removes entrapped air also. This permits the concrete to shrink as it hardens. In the process, suction alone is not used. With it is combined pressure to compact the material. This pressure is an integral part of the process, and it approximates 1,500 pounds per square foot.

Science News Letter, May 4, 1946

ELECTRONICS

Radar Used Successfully Against Ground Targets

► **RADAR EQUIPMENT** intended primarily for use against enemy aircraft proved highly useful in fighting on the ground, it is revealed in the *Coast Artillery Journal* (March-April).

Early in the development of radar, it was discovered that it could detect and track shells fired from mortars and field artillery pieces. This knowledge was put to good use in finding well-concealed enemy batteries. American shells sent back along the same courses silenced the batteries.

It was also found possible to detect and track enemy tanks, mobile guns and even moving bodies of troops. To do this, it was necessary to modify the radar so that it would filter out echoes from stationary objects and register only the echoes from things that moved.

Science News Letter, May 4, 1946

CE FIELDS

PHYSICS

Additional Weather Data From New Sound "Radar"

► A NEW WAY of probing the atmosphere immediately above our heads for weather predicting data by bouncing sound echoes was announced to the American Physical Society by two Bell Telephone Laboratories physicists, G. W. Gilman and F. H. Willis.

This acoustic "radar" detects large changes in temperature overhead by the fact that the amount of sound returned is increased several times in volume when hot and cold air are intermingling violently. Such an atmospheric condition occurs when there is what is called a cold or warm front, likely to be accompanied by storm.

The new device, christened "sodar", launches vertically upward from the ground a sound of low-power that is in range of human hearing. The echoes are received and changed into oscilloscope patterns that can be viewed visually.

Since the behavior of microwave radio signals as well as many weather phenomena depend upon the distribution of temperature, humidity and air movement in the atmosphere, sodar promises to be important in forecasting radio conditions in the future.

Science News Letter, May 4, 1946

GEOLOGY

Mississippi River's "Grand Canyon" Discovered

► A CANYON five miles wide with walls more than 600 feet high has been discovered along the lower Mississippi river by oil prospectors. You can not "see" it without a seismograph for studying the geological structure of the area.

The Mississippi's "Grand Canyon" was described by Walter J. Osterhoudt of the Gulf Research and Development Co.

Geologists have known for some time that there should be a canyon on the lower part of the "Father of Waters," but where it was or what had happened to it was one of the principal unsolved problems of submarine geology.

The answer, discovered by oil prospecting parties in the Mississippi delta region, is that the canyon is still there, but

it has been filled in with sand and mud.

The huge canyon, cut by the river within recent geological history, was first spotted by seismograph readings in the region south of Timbalier Bay in Louisiana that revealed a sharp deepening beneath the surface of the delta. This underground structure proved to be the east bank of the missing canyon.

Further tests revealed evidence of the canyon at three other points near the present river channel from Houma, La., to the Gulf of Mexico.

The Mississippi was once so much more powerful than it is today that it could scour the deep channel far below sea level.

Science News Letter, May 4, 1946

NUTRITION

Yeast Eaters Missed Out On Vitamins, Study Shows

► THOSE PERSONS who regularly ate one or more squares of fresh baker's yeast daily with the idea of supplying themselves with extra amounts of B vitamins missed out, University of Wisconsin scientists report.

The yeast eaters not only failed to get extra amounts of B vitamins but may even have lost some of the vitamins they had gotten from other foods.

Yeast was promoted as a good source of vitamins because of its high content of them. The living cells of fresh baker's yeast, however, hang on to their thiamin and riboflavin so the yeast eater does not get any of these vitamins, Drs. Helen T. Noss, Echo L. Price and Helen T. Parsons have found. The living yeast cells, moreover, probably take some of the thiamin released from other food.

These new findings will be reflected in changes in the labels of compressed yeast, or fresh baker's yeast, if the labels have not already been changed.

If the yeast is killed by boiling or by a commercial process in preparing dried yeast, it becomes a good source of thiamin and riboflavin for human nutrition.

Carp and some seafoods, if eaten raw, the scientists reported, also may interfere with utilization of thiamin. This is because an enzyme in the fish and seafood destroys the vitamin. Cooking, in turn, destroys the enzyme. So eating raw clams may rob you of all the vitamin B₁, or thiamin, you would get from the rest of your meal, while clams cooked, as in chowder, would not.

The vitamin studies were reported at a joint meeting of the Wisconsin Academy of Sciences, Arts and Letters with four other Wisconsin organizations.

Science News Letter, May 4, 1946

ASTRONOMY

First-Hand Account of Fall of Meteorites

► IF IT HAPPENED now, the cry would be: "Atomic bomb!" When a shower of meteorites was actually witnessed in broad daylight by a large number of Moros in the Philippines in 1938 many believed the end of the world had come.

Just reported scientifically after this lapse of eight years, astronomers are analyzing the unusual story.

Few men have ever had the opportunity of watching "shooting stars" actually fall to earth, and of recovering bits of these visitors from space while still hot from their flight.

But a college-trained man, H. J. Detrick, witnessed the fall of the Pantar, Lanao, Philippine Islands meteorites and talked with natives who were only a few feet from where the aerolites fell.

Sounding like explosions from the exhaust of an airplane, and continuously emitting ringlets of smoke, the fireball sped on its course across the sky, on June 16, 1938, at 8:45 a.m., Mr. Detrick states in his report. Its career ended with terrific explosions and thunderous vibrations that caused doors and windows throughout the town and countryside to rattle. These mighty explosions created a huge gray-and-black cloud, filled with bursts of flame, that spread out in the heavens. The cloud persisted for more than 30 minutes.

At Pantar, immediately beneath these mighty blasts, a number of Moros saw fiery objects with tails of smoke shooting out from the cloud during the terrific blasts. The fiery dots disappeared a short distance from the cloud, but a few seconds later many small objects fell to earth.

"Several galvanized-iron-roofed houses of these Moros were in the zone where small objects, 'as big as corn and rice grains,' fell by the thousands in a great shower—the pattering sounding like hail!" Mr. Detrick reports. Some of the meteorites, falling directly to the ground, sank a foot and a half into the ground. The deepest one, found 20 inches below the surface and smelling like burned gunpowder, was recovered while still hot 10 steps from where the Moros stood.

The detailed account of the phenomena recently reached Dr. H. H. Nininger, director of the American Meteorite Laboratory in Denver, and was published scientifically in the journal, *Popular Astronomy* (April).

Science News Letter, May 4, 1946