MEDICINE-BACTERIOLOGY

Germs from the Sea May Aid Cancer Fight

➤ GERMS from the sea may become future weapons against cancer. This possibility is suggested by Drs. Frederick D. Sisler and Claude E. ZoBell, of the Scripps Institution of Oceanography, in a report to the journal, *Science,* (Nov. 28).

So far, it is only a possibility and one which cancer researchers and other medical scientists will have to investigate further. The California scientists got the idea in the course of a survey of the part bacteria play in decomposing petroleum hydrocarbons and chemically related compounds.

Some of the petroleum hydrocarbons have long been known as chemicals that could cause cancer in experimental animals, and, in some cases, in man. Chimney-sweeps' cancer is an example of a human cancer which was due to the irritating action of coal tar chemicals in soot in chimneys.

Cancer-causing petroleum hydrocarbons are among the chemicals which marine bacteria can decompose, the California scientists found. The bacteria, like other bacteria from the sea and the soil and some molds and yeasts, use the coal tars as a source of energy.

The action of the bacteria in breaking down hydrocarbons to get energy might be applied, the California scientists suggest, to the prevention or treatment of cancer.

Science News Letter, December 13, 1947

CHEMISTRY

New Powerful Insecticide Makes Chickens Inedible

➤ BENZENE HEXACHLORIDE, though a powerful insecticide, is not good for use around chickens, warn Prof. Ephraim Hixson and Dr. Martin H. Muma in *Science,* (Oct. 31). Their flesh will become so ill-flavored as to be inedible if the compound is sprayed on the birds themselves or on the walls of their house, or if it gets into their food.

The two men kept chickens in contact with benzene hexachloride in all three ways last summer. The chickens themselves apparently didn't like the taste of the insecticide, for when some of them were offered grain on which it had been sprayed they preferred starvation to eating it.

After groups of chickens had been exposed for periods of from two to ten weeks, they were killed and cooked; then their meat was sampled for odor and taste. They were all noticeably tainted.

Since benzene hexachloride, known also as Gammexane and 666, has been used in poultrymen's insecticide mixtures by some manufacturers, Prof. Hixson and Dr. Muma consider a warning to be called for.

But this "socially impossible" insecticide has had its handicap turned into an advantage in at least one case, U. S. Department of Agriculture scientists report.

Benzene hexachloride has been used effectively against a highly specialized cattle parasite in the Southwest, a tick that attacks only the insides of the animals' ears.

Pine oil containing from three to five percent of benzene hexachloride, when squirted into cows' ears, not only kills the ticks already present but serves as a repellant to hold new attackers at bay for at least 17 days. Counting both killing and repellant action, one dose "deticks" a cow for about a month, at the cost of one cent per ear.

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ENGINEERING

Giant Harbor Dredge Will Remove 6,000 Tons an Hour

➤ A GIANT dredge to maintain sea approaches to New York harbor will soon be in operation. It is an ocean-going dredge with a capacity of sucking up 6,000 tons of dirt and muck from ship channel beds every hour.

The new dredge, especially designed for the New York harbor, is the latest weapon in the U. S. Corps of Engineers' constant battle to keep harbors and approaches navigable. The dredge is a product of Sun Shipbuilding and Dry Dock Company, Chester, Pa. All steam and electrical equipment were built by Westinghouse. It is a twin-screw turbine-electric vessel, propelled by two 4,000-horsepower motors.

For dredging, it has two giant swivel-jointed steel tubes 100 feet long projecting from the sides of the vessel. In action these are lowered until their mouths drag along the bottom of the channel. Then, two 1850-horsepower pump motors go into action, sucking up 100 tons of mud per minute.

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IN SCIENC

BIOPHYSICS

Roses and Rats to Show Radioactive Effects

➤ ROSES and rats will be used in demonstrating biologic effects of radioactive elements, at a conference on the use of radioactive isotopes in agricultural research, to be held at the Alabama Polytechnic Institute Dec. 18 through 20.

Dr. Ralph T. Overman of the Clinton National Laboratory at Oak Ridge, Tenn., stated that he will immerse a rose branch with one open flower and one bud in a solution of radioactive phosphorus, and after a time measure the radioactivity in various parts of the plant. From past experience, it is expected that the bud will show the greatest intensity of radioactivity.

White rats will be used to show how various elements and compounds "tagged" with radioactivity travel through the animal body and become concentrated in particular organs. A familiar example is the rapid accumulation of radioactive iodine in the thyroid gland, making the rat's throat region the most active when tested with detecting instruments. Another is the absorption of radioactive potassium into the red cells of the blood.

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ELECTRONICS

Radar Users in Colleges Need Government License

➤ RADAR users in training courses in college laboratories have received a note of warning from the Federal Communications Commission. Both station and operator licenses must be obtained from the government before starting to use the equipment. This precaution is to prevent interference with the transmitters of recognized radio services.

Most of the radar equipment in use in college training courses was obtained from surplus army stocks. It is used primarily in training engineering students on radar techniques. The Commission realizes the need for such training but does not intend to let student equipment interfere with established radio services, particularly radio and radar navigational aids.

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E FIELDS

NUTRITION

Potatoes Top Vegetable, Year's Survey Discloses

➤ AMERICANS in general are still "meat and potato" people, a survey made by New York's state college of agriculture at Cornell University indicates.

The survey was made of vegetable purchases in the course of a year at three stores. Potatoes accounted for more than 42% of the 1,500,000 pounds.

Forty-six different vegetables were included, with lettuce ranking as a poor second to potatoes in popularity. Out of every 100 pounds of vegetables, seven and a half pounds were lettuce, six were dry onions and celery, cabbage and carrots each claimed five pounds.

Potatoes also cost the most money in the vegetable budget, with tomatoes ranking second.

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ARCHAEOLOGY

Remains of Indian Life at Site of New Reservoirs

➤ ARCHAEOLOGISTS, racing against time in areas to be flooded for dam construction projects, this summer located more than 500 sites of Indian life which will be underwater in new reservoirs in the Missouri basin.

The survey of Indian sites in the basin was conducted by the River Basin Surveys of the Smithsonian Institution under the field direction of Dr. Waldo R. Wedel of the U. S. National Museum, with Dr. Frank H. H. Roberts, Jr., associate chief of the Bureau of American Ethnology, directing the entire project. Cooperating in the preflooding archaeological studies are the Bureau of Reclamation, National Park Service and the Corps of Engineers of the Department of the Army.

Plans call for the most important of the sites to be excavated for detailed study before the man-made flood is set loose.

Remains of at least a thousand years of human life have been discovered in 93 Indian sites recorded where Fort Randall Reservoir will be located in South Dakota.

Perhaps ten times as ancient remains may be scheduled for flooding in areas in Montana and Wyoming, the survey indicated. Other remains, of a time before the Indians learned the art of pottery, were found in the Garrison reservoir area in North Dakota and in Nebraska at the proposed site of the Medicine Creek reservoir.

Construction is already underway at the Bald Hill reservoir on the Sheyenne river in North Dakota. This area has been identified as being on the path followed by ancient immigrants coming into the great plains from the eastern woodlands.

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METALLURGY

Metal Bars Tested By Magnetic Comparison

➤ WHETHER a metal rod containing iron in a stock pile is identical with a standard specimen in composition and characteristics can be determined by a simple instrument that compares their electrical or magnetic quantities, the Instrument Society of America was told by D. E. Bovey of the General Electric Company.

The instrument, a war development with improvements, is called a metals comparator. It is relatively small and inexpensive, and so simple to operate that it can be used for inspection in stock rooms or on a production line. Its use in no way injures the metal being tested.

The comparator consists of a solenoid, a coil of wire through which an electric current is passed to create a magnetic field, which forms one leg of a balanced circuit. The other leg is a variable resistance that can be changed until the circuits from the two legs are in balance. In use, the standard specimen is inserted in the solenoid first and a balance obtained. Then the rod of unknown properties is inserted in the coil. If the balance holds, it is identical with the specimen in composition and characteristics. In searching the stockpile for an identical metal, one rod after another is tested until one is found that holds the balance. Rods can be used as fast as they can be insterted in the solenoid.

The instrument has been used to differentiate between annealed and unannealed steel bars. It has also been used to sort finished metal parts, including plated parts, on the basis of composition or heat treatment. Ferrous metals can be assorted on the basis of average hardness. Materials or parts to be tested need not be wiped, cleaned or otherwise specially prepared.

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PALEONTOLOGY

Story of Ancient Animals Learned from Skeletons

➤ LEARNING what the lobster's oldest uncles were like by studying their cast-off garments is the task to which a leading English scientist, Dr. H. B. Whittington of the University of Birmingham, devoted himself at the U. S. National Museum in Washington.

The animals are trilobites, creatures that dominated earth's primal seas a half-billion years ago. They had jointed outside skeletons, like present-day lobsters and shrimp; though their kinship to modern crustaceans is extremely distant. They have, as a matter of fact, no direct descendants and no really near relatives.

Dr. Whittington was in Washington to study them partly because the Shenandoah valley, not far from there, is one of the world's best hunting grounds for trilobite fossils. There they can be found in all sizes and stages of development—for they shed their outer crusts from time to time as they grew, just as present-day lobsters and crabs do. It thus becomes possible to work out a trilobite life-cycle, from infancy to full growth, by examining series of these shed shells, just as you could tell a good deal about a long-departed great-uncle if you found a chest full of the clothes he had worn from the time he was seven until he was seventy.

The fossils in the Shenandoah valley belong to the heyday of the trilobites, when they were the highest form of life on earth. That was about 400,000,000 years ago, in the Ordovician geologic age. These were not the earliest trilobites, however. More primitive forms at least 100,000,000 years older are known; and it is practically certain that there were others, as yet undiscovered, much older than that, for these earliest ones, of Cambrian age, were already quite diversified and highly evolved.

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ENGINEERING

Coal Is Made Dust-Free By Coating with Asphalt

➤ COAL is made dust-free by coating with asphalt from a colloidal suspension in water, in the process on which patent 2,431,891 was granted to C. R. Rosencranse of Pittsburg, Kans. All grades of coal, from anthracite through bituminous to lignite, can be thus protected, the inventor states.

Science News Letter, December 13, 1947