ARCHAEOLOGY

Pottery-Makers Used Coal Centuries Ago in Arizona

➤ DIGGINGS in the pueblos of Hopi Indians in Arizona indicate that coal was used in this country in the 13th century in burning pottery, the U. S. Bureau of Mines revealed.

The archaeological investigations have produced proof of this in unearthing old coal workings in which the primitive tools used for mining were found.

Virginia is recognized as the first state within the present limits of the United States in which coal was mined commercially. This was in 1750 in the Richmond coal basin, where coal was found about 1700. Coal was found by white men in Arizona in 1881, but production even in these latter years in that state has been only about 10,000 tons annually.

Science News Letter, August 23, 1947

MEDICINE

Synthetic Vitamin K Aids X-Rays in Cancer Fighting

➤ A SYNTHETIC substitute for vitamin K, the anti-bleeding vitamin, is being tried as a weapon against cancer.

No curative value is claimed by the Cambridge University scientists, Prof. J. S. Mitchell and Mrs. I. Simon-Reuss, in their report to the journal, *Nature*.

But, they report, the vitamin K substitute checked the division of cancer cells. The division process, known as mitosis, is that by which more cancer cells are produced and the cancer grows.

When X-ray treatments were given after the vitamin had been injected into the muscles daily for several weeks, the effect on cancer cell division was even more pronounced. Bits of tissue from a cancer on the floor of the mouth were examined under the microscope. After the synthetic vitamin K substitute treatment there was a "highly significant reduction" in the frequency of cancer cell division. This would indicate that the cancer's growth was being checked.

X-ray treatments were then given and after that it was impossible to count the dividing cells in a bit of the cancer tissue because all the cancer cells were grossly degenerate. Similar checking of cell division was observed in chick embryos.

The synthetic vitamin substitute had no toxic or ill effect on the 25 patients to whom it was given, showing that it would be safe to use if it proves effective.

The anti-bleeding action of vitamin K was first discovered in relation to chickens. It has since been used to save newborn babies and sick grown-ups who were in danger of bleeding to death in certain kinds of jaundice and liver disease.

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NAVIGATION

Collars Make Buoys Easy to See at Night

➤ REFLECTING COLLARS, that fit around harbor, bay and river buoys to mark shipping channels, make the anchored warning floats more easily seen at night when searchlight beams fall on them.

The principle employed is similar to that used in roadside reflectors to warn automobile drivers. Their installation has been revealed by the U. S. Coast Guard which already has several thousand in place on New England waters and in the Mississippi river area.

The reflecting material is sheet metal and is either red or black, depending upon the color of the buoy. In the surface of the metal band are many small crystals that cause the reflection. These buoys are visible at all angles because the minute crystals reflect light beams striking them from any direction.

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CHEMISTRY

Improved Method Extracts Thorium from Minerals

➤ ONE of the most widely known of British chemists, Dr. Frederick Soddy, retired Oxford University professor, has received U. S. patent 2,425,573 on an improved method for extracting thorium from minerals containing it.

Thorium is another element with an unfamiliar-looking name; actually, however, it was a household article not so long ago. Its oxide was the stuff gas mantles were made of. It is still used in ceramics and other industries, and is a definite possibility in the development of atomic energy.

Basically, Dr. Soddy's method consists of using less sulfuric acid than customary in getting the thorium out of the phosphatic minerals, and in exploiting the phosphoric acid thus released in the separation of cerium and other rare-earth elements from the thorium.

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IN SCIEN

NUTRITION

Dried Celery Tops Found To Make Good Chicken Feed

➤ CELERY TOPS and trimmings make good chicken feed when dried. Research at the Florida State Agricultural Experiment Station has shown that dehydrated celery tops compare quite well with alfalfa meal as a chicken feed, and the tops are now being commercially dehydrated at Sarasota and Tampa.

Heretofore, approximately 75,000 tons of celery trimmings have been hauled from Florida packing houses to fields each year and used as fertilizer.

Science News Letter, August 23, 1947

PARASITOLOGY

Rubber Tree Termite Pest Attacked by New Fungus

➤ TROPICAL termites are not satisfied with a diet of houses, furniture, books and other valuable things made of wood and its products; some species infest living trees. One species, in particular, has become a pest of the plantation rubber tree, *Hevea brasiliensis*.

Now it appears that this pest becomes victim to a pest of its own, a fungus that parasitizes and kills it. This discovery has been reported to the editor of *Nature* (July 26) by R. A. Altson, a scientist on the staff of the Rubber Research Institute of Malaya, at Kuala Lumpur.

Mr. Altson had numbers of the pest termites caged in his laboratory for study. He found that they were dying off faster than they normally should. Postmortem examinations disclosed a fungus in their bodies.

It proved easy to propagate this fungus on rice-bran. Healthy captive termites fed on rice-bran thus infected died to the last insect within 48 hours. Similar numbers of uninfected termites had a mortality of only three per cent. The evidence seems conclusive.

It was already known that a Cuban termite genus is similarly infected by a fungus known botanically as *Conidiobolus*. The Malayon fungus appears to be similar to this, though not identical with it. For this reason Mr. Altson regards his discovery tentatively as a new species.

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SCIENCE FIELDS

CHEMISTRY

New Glycol Type Alcohol Has Unusual Properties

➤ USEFUL as a dirt remover, a new glycol alcohol has a combination of properties not found in other such chemicals. It is expected to have wide usage in soaps and what are known as cleaning detergents, and also in oils, greases, and lubricating preparations.

One type of glycol is well-known. It is used in anti-freeze mixtures in automobile radiators. This is ethylene glycol. The new type, developed by Celanese Chemical Corporation, is methylpentanediol. It has a higher boiling point, 215 degrees Centigrade. It has unusual solubility for a wide range of resins, and mixes well with common solvents. It has limited solubility in water.

Glycols are alcohols somewhat similar to the common ethyl alcohol, and also somewhat similar to glycerine. The best known of them, the ethylene glycol, is a colorless liquid with a boiling point of 197.5 degrees Centigrade and, in solution, freezes at a temperature several degrees lower than the freezing point of water. The unmixed ethylene glycol freezes at about minus 16 degrees Centigrade.

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NUTRITION

World Food Outlook Grim With Increased Shipments

➤ MOST of the hungry people of the earth are going to have to keep their belts pulled tight for another year, despite a large step-up of grain imports into deficit areas, according to the Food and Agriculture Organization of UN.

Shipments of the crop year 1947-48 will amount to between 30 and 34 million tons of grain, as against 28 million for 1946-47. But the minimum need is for from 34 to 38 million tons. Even with increased quantities of potatoes, sugar and fats, FAO comments, "the situation will continue to be grim."

There is still time, the report continues, to help our hungry neighbors to help themselves with a better 1948 harvest in their own lands. This can be done by increasing shipments of farm machinery, fertilizers and pesticides during the next six months.

For long-term improvement in world dietary conditions, FAO sees a necessity for modernizing agriculture in Asia, together with building up other industries at which the crowded populations of that continent may earn a living off the land. With this should go the opening of lands on the world's last great frontiers, Africa and Latin-America.

At the forthcoming Geneva conference, to open Aug. 25, representatives of the 60 constituent members will be asked to decide upon a proposal to set up a council for the carrying out of a five-point program intended both to meet present emergency food situations and to work towards a stabilized increase in the world's nutritional condition.

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DENTISTRY

Diet To Banish Pain After Tooth Is Pulled

➤ A HIGH alkaline diet will prevent pain after a tooth has been pulled, Dr. Leonard S. Morvay of Newark, N. J., advised at the American Dental Association meeting in Boston.

For 24 hours before and 48 hours after tooth pulling, he tells his patients to eat a diet including plenty of citrus fruits and juices, leafy green vegetables and tomatoes, and at least one quart of milk daily.

Such a diet gives the blood a heavy alkalinizing, he said, and this makes for ideal healing conditions in bony tissue.

Acid-producing foods should be avoided. These include meat, fish, fowl, fats, cheese, grain, sweets, cranberries, rhubarb, alcohol, coffee, tea and chocolate.

Excessive exercise should also be avoided, Dr. Morvay advised, because it creates lactic acid and lessens the body's alkali reserve.

Patients having teeth pulled should always, in his opinion, drink large quantities of water following the operation.

A high acid content of the blood is usually present in cases of "dry socket," he said. This is a condition in which a satisfactory blood clot has not formed after the teeth are pulled. In many such cases, pain persists even after the patient is given morphine or other sedatives. Bone tissue, he said, does not regenerate quickly when the acid content of the blood is high.

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BIOCHEMISTRY

Wild Mushrooms Contain Penicillin-Like Compounds

➤ ANTIBIOTICS, or penicillin-like compounds, are not only in soil molds but in their evolutionally higher relatives, the fleshy fungi or mushrooms. A survey by Dr. William J. Robbins and a group of co-workers at Columbia University and the New York Botanical Garden disclosed germ-stopping powers in 213 out of 332 species of mushrooms examined.

Now Dr. Robbins, with Dr. Frederick Kavanagh and Miss Annette Hervey, have made a more intensive study of two species of wild mushrooms cultivated in the laboratory, and have been able to isolate the antibiotic substances in them. From one species, *Pleurotus griseus,* they have obtained a substance which they have named pleurotin, and they suspect that the mushroom contains a second antibiotic, not yet isolated. Pleurotin is able to check growth of the boil germ, Staphylococcus, as well as the tuberculosis germ in laboratory vessels. Beyond determining that it is non-toxic to white mice in moderately heavy doses its possible medicinal value has not yet been explored.

The second mushroom species, *Polyporus biformis,* yielded two germ-stopping compounds which have been named biformin and biforminic acid. Biformin proved effective against the two test organisms, the germs of boils and of tuberculosis, in glass vessels. Addition of rabbit blood greatly reduced its activity, so that it was not surprising to find that it had no effects against the same two germ species in the bodies of mice.

Details of the research are given in two reports published in the official journal of the National Academy of Sciences (June).

Science News Letter, August 23, 1947

CHEMISTRY

DDT Relative Recommended Because It Is Not So Toxic

➤ METHOXYCHLOR, close chemical relative of DDT but claimed to be only one-fortieth as poisonous to man and warm-blooded animals, was recommended for that reason as a protector of fruits and vegetables to the meeting of the International Apple Association by Dr. W. H. Tisdale, du Pont research chemist.

Spelled out in full, methoxychlor is bis-(methoxyphenyl)-trichloro-ethane.

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