

BOTANY

Dead Plant Cells Continue Food Manufacturing Process

GREEN cells of plants need not be alive to carry on the manufacture of food substances out of carbon dioxide and water, it is indicated in experiments reported by Prof. O. L. Inman of Antioch College (*Science*, Dec. 9). Prof. Inman conducted his work as part of the research program of the C. F. Kettering Foundation for the Study of Chlorophyll and Photosynthesis.

Cells using carbon dioxide in food manufacture indicate that the process is going on by giving off oxygen in the presence of light. Using delicate chemical and bio-assay tests, Prof. Inman was able to show that oxygen was produced from the green content squeezed out of living cells, and also from cells that had been killed by freezing. In no case, however, was this post-mortem "vital" activity of the cells very long-continued.

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MEDICINE

Protecting Young Women Against Tuberculosis

GIRLS and young women between the ages of 15 and 25 years are and apparently always have been more likely to die of tuberculosis than any other group in the population. Many theories have been evolved to explain the situation and to provide the basis for preventive efforts.

Among the theoretical causes, familiar to the young women themselves, who hear them in parental admonitions, are the diet fad and desire for a slender figure; flimsy dress; cigarette smoking; excesses of the "jazz age;" and the increasing industrialization of women.

All these can be thrown out, it appears from studies conducted by Edna E. Nicholson for the National Tuberculosis Association. Miss Nicholson has talked to close relatives and friends of all the young women dying of tuberculosis in Detroit and New York City in a certain year. She found out how these girls and young women dressed, what they ate, how much sleep they got, how much they earned if employed, whether they were married, how much schooling they had, and many other things about their lives before they got tuberculosis and died.

Her studies show that the reason for the high tuberculosis mortality among girls and women of this age group is

simply that they are girls and women of this age. The psychic and physical changes of adolescent and early adult life in girls cause them to be unusually susceptible to tuberculosis.

The tuberculosis death rate will probably always be higher among this group than any other in the population, Miss Nicholson says, but many lives can be saved by recognizing the fact that these young women are unusually susceptible, and by having them examined regularly and carefully to detect the first signs of the disease so that proper care can be promptly started.

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ANTHROPOLOGY

Indian Skeletons at Scene Of Pocahontas Kidnaping

THE INDIAN town from which Pocahontas was kidnaped by the English in 1612 has been located, and is being excavated by Dr. T. D. Stewart, Smithsonian Institution anthropologist.

Identifying the place by aid of Capt. John Smith's map of Virginia, Dr. Stewart says there is no doubt this was Patawomeke on the Potomac River west bank, where lovely Pocahontas was hidden by her father after Capt. John Smith left Jamestown. Indian fears that Pocahontas might be seized as a valuable hostage to the English proved well founded, when Capt. Argall used an Indian to lure the Indian maid away from Patawomeke, and held her captive until her father ransomed her by an exchange of English prisoners.

It was during this captivity, says Dr. Stewart, that Pocahontas fell in love with John Rolfe, whom she married.

Archaeologists have long known that a large Indian town existed at the site now identified as Patawomeke. Excavations there by Judge W. J. Graham, about a year ago, brought to light hundreds of Indian burials, including the biggest normal human skull that has ever been found. It is possible that this giant-brained Indian was alive at Patawomeke when Pocahontas plunged the town into international complications.

Dr. Stewart has now traced the outline of the town by imprints of holes where the stockade ran. Patawomeke was the biggest Indian town in Virginia. Its buildings were presumably flimsy log huts covered with bark.

Skeletal remains found by Judge Graham are being studied by Dr. Stewart, who says they appear to be typical of the Algonquian Indians.

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IN SCIENCE

AERONAUTICS

Fabric Fuel Tank Is Announced by Glenn Martin

SUCCESSFUL development of fabric fuel tanks for airplanes is announced by the Glenn L. Martin Company, well-known manufacturers of flying boats and bombing planes.

Practically indestructible by vibration, in contrast with the metal tanks now in standard use, the new tanks are also "leak resistant," the fabric tending to close up to slow loss of fuel. Leaks can be repaired as easily as a leak in an automobile tire's inner tube.

Known as the Mareng fuel cell, the tank is made of fabric impregnated with synthetic rubber. Ordinary rubber is dissolved by gasoline, but the synthetic variety is not. Each fuel cell is actually made a little larger than the compartment into which it is placed, in order that, even when it is full, the fabric will not be stretched.

The Mareng cell successfully withstood 700 hours of violent vibration, still being gas-tight when engineers finally stopped trying to wear it out.

Its ability to slow leakage of gasoline when punctured, as, for example, by a machine gun bullet, is illustrated in the experience of an unnamed pilot flying a Mareng-cell-equipped Martin plane in an unnamed war, according to the company's statement. His fuel tank pierced by bullets, he was still able to fly 100 miles back to his base for a safe landing and repairs. After the repair, the tank was as good as new, it was claimed.

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CHEMISTRY

Dean At Minnesota To Head Chemical Society

DR. Samuel Colville Lind, dean of the Institute of Technology of the University of Minnesota, has been elected president of the American Chemical Society to take office in 1940. Dr. Lind assumed the title of president-elect on January 1, 1939, at which time Prof. Charles A. Kraus of Brown University became president.

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E FIELDS

CHEMISTRY

British Chemists Develop Incendiary Bomb Proof Paint

A MINERAL paint that has been found to check damage from incendiary bombs has just been produced from the research laboratories of Imperial Chemical Industries, it is reported.

Beams, joists and floors coated with it were indicated by tests to resist the intense heat of a small thermite bomb until it exhausts itself. At a demonstration by the chemists, it was indicated that the flame of a one-pound bomb could consume the attic of a house in 30 minutes. The same type structure coated with the new mineral paint will survive, scorched but intact, after the bomb has burned itself out in 10 minutes.

The mixture is said to be cheap and can be painted on one-sixteenth of an inch thick with a single application and still be effective.

According to military authorities, a rain of small incendiary bombs, as many as 10,000 at a time, is more likely in war than the use of heavy incendiaries. The Home Office tested the new mineral coating by firing light incendiary bombs of the type likely to be used in war, at the same velocity as they would have if dropped from an airplane. The objective was a home selected for the purpose and it was found that after passing through the tiles, bombs would penetrate no further than the first wooden floor. Further research is now in progress to make floors of offices, art galleries and other large public places also fireproof.

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ARCHAEOLOGY

Egyptian Art Used Assembly Technique

EGYPT'S sculptors used to assemble statues. They could even split a statue job in half, we are told, and one man could produce the right half of a wooden or stone god, while the other turned out the left. And the resulting figure appeared with eyes that matched, cheeks equally rounded, both ears at the same height!

This was possible, of course, because

Egyptian art cared little for perfect likenesses, but aimed to produce standard or ideal features. In technique, this art foreshadowed our machine age, showing what remarkable precision could be achieved by human hands wielding simple tools.

One particular statue vastly impressed the Greek historian Diodorus, writing in the first century B.C. about "ancient sculptors." In some detail, he described a wooden Apollo carved by Egyptian brothers, for the people of Samos, Sicily. One brother worked in Samos, the other in Ephesus; and "the statue was divided in the middle, each part exactly matching the other at every point."

Scholars have marveled over this, explaining it as best they could. The latest explanation makes the Egyptian art stunt really believable. A British writer says that the statue mentioned by Diodorus was marked off into 21 parts with a small plus section, which allowed for hair or headdress. This was one Egyptian system for drawing human body proportions. The sculptor would mark the units on his block of wood or stone, then draw in the profile and cut away surplus material.

The brother sculptors, trained by the same master, knew so well what their Apollo should look like, that they could produce the halves as readily as two people might draw halves of a circle. And if the system failed at any point, the British writer explains, the irregularity could be smoothed off when Apollo was finally glued together.

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GENERAL SCIENCE

Carnegie Corporation Distributed \$3,830,135

THE Carnegie Corporation of New York distributed \$3,830,135 "for the diffusion of knowledge" in the United States and the British dominions and colonies during the fiscal year 1937-38, Frederick P. Keppel, president of the corporation, announced.

Grants made totaled 224 out of 1,329 proposals for aid submitted to the corporation. Recipients of the Carnegie funds included Radcliffe College, Barnard College, Columbia University's School of Library Service, Committee on Scientific Aids to Learning of the National Research Council, Princeton University, Phillips Academy, American City Planning Institute, Brookings Institution, Rockford College and Antioch College.

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PHYSIOLOGY

Cigaret Smoking Causes Rise in Blood Pressure

SMOKING cigarettes raises the blood pressure in both normal persons and in patients suffering with high blood pressure, Drs. E. A. Hines, Jr., and Grace M. Roth of the Mayo Clinic found in a study of 86 persons.

The effect of tobacco smoking on blood pressure is not due entirely to the action of a stimulus on specially sensitive blood vessel systems. Part of the effect, at least, is the result of some element in the tobacco smoke which causes constriction of the blood vessels. This element in the tobacco smoke was not identified in the report made by the two scientists at a recent staff meeting of the Clinic.

The rise in blood pressure following smoking was greater in high blood pressure patients than in normal persons except in the case of high blood pressure patients who had never smoked before. This latter difference is attributed to the fact that inexperienced smokers do not inhale as much smoke as regular smokers.

The test was made by having each person, after a 30-minute rest, smoke two cigarettes of a standard brand. Blood pressure and pulse rate were watched during the smoking and for a few minutes afterward. As a control, each person went through the same procedure except that he puffed at an unlighted cigarette.

The results were also compared with results of the cold pressor test, in which one hand is immersed over the wrist in a bucket of ice water. The blood pressure response to this test indicates whether or not a person has an especially sensitive, or hyperreactive, as scientists call it, blood vessel system. The excessive rises in blood pressure from smoking, the scientists found, occurred only in the patients who had, according to the cold pressor tests, hyperreactive blood vessel systems.

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GEOGRAPHY

American Geographical Society Has a New Director

DR. John Kirtland Wright has been appointed Director of the American Geographical Society. Dr. Wright has been librarian and research editor of the Society since joining the staff in 1920.

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