

PLANT PHYSIOLOGY

Roots Grown on Petals Under Aseptic Conditions

PETALS and all other parts of flowers have been induced to form roots, in experiments reported by Prof. Carl D. LaRue of the University of Michigan.

Secret of this surprising feat was Prof. LaRue's new technique for keeping the small and delicate pieces of plant tissue alive and in good condition. He washed the petals and other parts in antiseptic solutions, strong enough to kill bacteria and molds but not strong enough to injure their tissues. Then he placed them on a sterile nutrient jelly containing sugar and essential mineral salts.

On this the parts lived indefinitely, and had plenty of time to strike root, after the more familiar but rougher cuttings of greenhouse and windowbox practice. Some of the species needed to be encouraged with the growth-promoting chemical, indole-3-acetic acid, but others started their roots without any outside stimulus.

Several specimens not only sprouted roots but started stems and leaves as well, and eventually grew up into complete, normal plants.

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PHYSIOLOGY

Drinking Is Really a Bitter World After All

AT LEAST in the realm of beverages it's a bitter world after all. Think back through the liquids you drink during a day. Such a list might well include tomato juice, orange juice, pineapple juice, or grapefruit juice for breakfast. Then water, tea, coffee, milk, chocolate milk, soft drinks, and possibly beer, wines, other alcoholic beverages. Not that any one person would drink all of these beverages during a single day or even in a lifetime, but they represent a cross section of what some Americans do drink, each to his inclinations. Of all these milk and water are about the only ones which do not have a tinge of bitterness.

The Industrial Bulletin of Arthur D. Little, Inc., points out that some people like their milk with chocolate flavor, which is bitter. Coffee and coffee substitutes are bitter and "burnt" flavored. Tea is bitter and astringent; cocoa is bitter and aromatic; tomato and the citrus juices and many "soft" drinks are bitter and sour. Beer, says the Bulletin, is outstandingly bitter.

Bitter, indeed, is America's quick breakfast of bitter grapefruit, bitter coffee and bitter orange marmalade although, in truth, sweetness is added to tone down the bitterness.

Actually bitterness—as one of the four fundamental tastes—has to be included in all highly-seasoned foods and drinks. "There is a sound physiological basis," states the Bulletin, "for table condiments including sugar for sweetness, salt for saltiness, vinegar or lemon juice for sour tang, and meat sauces, pepper and mustard competing for use in imparting bitterness."

There is the old belief—now not so well regarded as it was a generation ago—that bitters stimulate the appetite. The vogue of "stomach bitters," which provided a boon for proprietary medicines, was the result. It has never been disclosed, however, how much the alcoholic content of these "bitters" influenced zealous teetotalers to use them.

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PHYSICS

Scientist Reports "Dewbow" Formed on Surface of Lake

ALMOST everyone has seen a rainbow in the sky; but did you ever find one resting on the surface of a lake? Richard M. Sutton of Haverford College recently stood on the shores of Pocono Lake in northern Pennsylvania one bright morning, gasped, and saw a brilliant-hued rainbow almost beneath his feet.

In a recent issue of *Science* (Dec. 3), the scientist describes the amazing phenomenon and offers an explanation of its origin as determined by experiments in his laboratory.

Droplets of dew resting on the surface of the lake formed the colors, he reports, for he was able to duplicate the happening by spraying water on to a smoked plate of glass which the water will not wet. The drops, separate but lying close together, simulated the mass of falling raindrops in their physical effect on light.

Some time during the night, believes the scientist, the surface of the lake became covered with an invisible film of some organic material which allowed the water drops of dew to rest on the surface of the lake without wetting it. Then the sun came up and its rays were refracted by the dewdrops into the rainbow effect. Mr. Sutton calls the phenomenon a dewbow, rather than a rainbow.

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IN SCIENCE

ASTRONOMY

Flickering Planetoid Comes Close to Earth

EROS, the 35-mile-long flickering planetoid, was only 20,000,000 miles from earth last week. Turning over and over in space, exposing first its dull and then its shiny side, the coffin-shaped mass of cosmic junk kept about this distance for several days before starting its journey outward to beyond the orbit of Mars.

Discovered in 1898 by DeWitt, of Berlin's Urania Observatory, the little planetoid, one of many hundreds now known, has twice, in 1898 and 1931, come within about 16,000,000 miles of the earth.

Hermes, the half-mile-long celestial runaway which came within only 362,000 miles of the earth last October, has now gone too far away to be seen.

It is believed that many, perhaps all, of the planetoids are not spherical but irregular in shape.

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OCEANOGRAPHY

Ice-Breaker Party Drifting Faster Than Polar Campers

THREE Russian ice-breakers, caught fast in the ice of the Laptev Sea off the northern coast of Siberia, are drifting northward far more rapidly than Ivan Papanin and his three ice-floe camper companions have drifted since they landed near the North Pole, Tass, Soviet news agency, reports.

The three ice-breakers are the "Sedov," "Sadko," and "Malygin."

"We are drifting with the ice much more rapidly than the people of the 'North Pole' station—Papanin's ice-floe in seven months has advanced 1,500 kilometers whereas in only two months we have covered 770 kilometers," the party on the ice-breakers report. "Our average speed is close to 12 kilometers a day."

"Our ice-breakers drift northwestward. The direction of the drift partly coincides with that of the drift of Nansen's 'Fram.'"

Science News Letter, January 29, 1938

E FIELDS

MEDICINE

Keeping Warm Is Vital For New-Born Babies

KEEPING new-born babies warm is a simple but important way of helping to cut down infant deaths, Dr. Horton Casparis of Vanderbilt University pointed out at the Conference on Better Care for Mothers and Babies held under the auspices of the U. S. Children's Bureau in Washington, D. C.

Before birth the baby has been living in an environment with a temperature of 98.6 degrees Fahrenheit, which may be compared to the wilting heat of mid-summer. An infant, especially a prematurely born infant, needs to be gradually acclimated to the temperature of his new environment, just as an adult is careful about not getting chilled after a hot bath. Failure to protect the baby against the change in temperature at birth may, directly or indirectly, be responsible for his death.

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BIOPHYSICS

M-Rays' Existence Doubted In Research Council Report

"NOT PROVEN" is the Scotch verdict returned by two critical biophysicists after a careful investigation of the disputed phenomenon of mitogenetic radiation, or M-rays. The two men, Drs. Alexander Hollaender and Walter D. Claus, pursued their researches at the University of Wisconsin for the National Research Council. (*AN EXPERIMENTAL STUDY OF THE PROBLEM OF MITOGENETIC RADIATION*—Alexander Hollaender and Walter D. Claus—*National Research Council*, 96 p., \$1.)

Mitogenetic radiation, known also by the convenient nickname of M-rays, was first reported by a Russian, A. Gurwitsch, some years ago. He stated that tissues of rapidly dividing cells, such as root tips, emanated some kind of short-wave radiation, of very low intensity, that nevertheless was capable of stimulating other cells to divide also.

Many other investigators, using many methods, have followed the work of Gurwitsch. A favorite set-up is an onion

root tip as source of the rays and a small mass of yeast cells as "biological detector."

Although many efforts have been made to detect the rays with mechanical apparatus, such as modifications of the Geiger counter used in cosmic ray work, none of them has ever been successful. This, however, does not necessarily militate against the validity of the observations, for living organisms are still far better detectors of many natural forces than any mechanism yet devised.

However, when Drs. Hollaender and Claus repeated the work very critically, using both physical apparatus and biological detectors and checking carefully every step in every experiment, they were unable to obtain any evidence satisfactory to themselves of the existence of mitogenetic radiation. They therefore rest their case with a negative verdict, at the same time stating their willingness to re-open it again if supporters of the M-ray hypothesis come forward with positive evidence produced under really rigorous experimental conditions.

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ARCHAEOLOGY

Cadmus of Alphabet Fame Believed To Be Myth

PHOENICIAN Cadmus, popular hero credited with fathering our alphabet, never existed, so far as archaeologists can learn. We should honor some Unknown Phoenician for teaching the Greeks ABC's, and the alphabet idea is older than Phoenicians, anyway.

Reporting latest views on the still-mysterious alphabet, Dr. John Day of Barnard College told the Archaeological Institute of America that Greeks probably derived the alphabet from Phoenicians about the middle of the ninth century B. C. Dr. Day succeeded in narrowing down the date by demonstrating from old inscriptions that five of the Greek letters could not have evolved later than the ninth century, and five other Greek letters could not have evolved earlier.

Questioning the recent assertion by "an eminent authority," that Cadmus lived about 1400 B. C., Dr. Day pointed out that when archaeologists dug at the citadel of Thebes, Greek town supposedly founded by Cadmus, they found no trace of Phoenician relics or writings.

"We must conclude," he declared, "that the only definite historical element contained in the legend concerning the letters of Cadmus is the fact of the Phoenician origin of the Greek alphabet."

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AVIATION

Air Pressure Difference Will Seal Doors of Planes

STRATOSPHERE luxury liners of the future will use the low air pressure at high altitudes itself to seal their doors against the relative lack of air outside and to maintain normal atmospheric pressure inside, according to an invention patented by Stephen J. Zand of Forest Hills, N. Y.

A rubber tube around the door jamb is filled with air at ground-level pressure. Because of the difference between the pressure inside the tube and outside the plane it will swell up to make an airtight seal, according to the specifications accompanying the patent, numbered 2,104,144.

The new method worked out by Mr. Zand, noted as an airplane soundproofing engineer, is also claimed to be effective as a further means of locking the plane's door when it is in flight, for the swollen tube will make it more difficult to open.

The device takes advantage of the fact that air pressure decreases rapidly as the plane goes higher. At an altitude of three miles, the air confined in the tube would be at approximately twice the pressure of the air outside. Much like a balloon loaded with gas at a pressure higher than that of the surrounding atmosphere, the tube will swell up, filling every crevice between the door and the fuselage of the plane. The higher the plane goes, the lower the pressure outside and consequently, the tighter the seal.

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HORTICULTURE

"Canned Heat" Used for Killing Slugs and Snails

AUSTRALIAN gardeners are quite literally "putting the heat" on slugs and snails that chew up their pet plants.

It has been discovered, in England, that these garden pests can be so paralyzed by a chemical known as metaldehyde that they remain helpless while the sun dries them out and kills them. In Australia metaldehyde is not obtainable in ordinary chemical trade. But a form of "canned heat," sold under the trade name Meta, consists almost entirely of metaldehyde. So Australians grind it up, mix it with slightly moistened bran, and spread it where the slugs and snails come to feast.

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