

PLANT PHYSIOLOGY

Christmas Trees May Be Kept Green by Chemical

SCIENCE has come to the aid of those people who will have a spruce or fir tree this coming Christmas. Remember how green and fresh your Christmas tree looked last year when you first set it up and trimmed it? And how soon it became dull and dropped its needles?

This year, however, you can go to the drug store and buy three inexpensive chemicals and make a solution which will preserve your cut tree fragrant and green for the full week of holiday festivities. You can thank Dr. R. H. Carr, professor of agricultural chemistry at Purdue University, for the following directions.

Go to your druggist and buy 15 grams of calcium carbonate, 5 grams of citric acid and 6 grams of malic acid. Mix the last two, which are both liquids, in three quarts of water. Save the calcium carbonate until you are ready to set up your tree.

Set the base of your Christmas tree in a wide-mouthed gallon bottle or a pickle crock and brace it with small, unnoticed wires. Then mix the calcium carbonate in the citric-malic acid solution and pour it all into the crock. As the tree drinks up the solution, add more water.

Hemlock is about the only tree which appears not to be aided by this treatment.

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PHYSIOLOGY

Eye Strain at College Measured by Physician

THE STUDENT pays dearly for a college education when, in addition to financial costs, he gives up part of his precious eyesight. It has long been suspected that four years of close and long attention to books might impair the vision. Tests of grade and high school students have been made to determine the effect of school work on eyesight, but there has been little actual knowledge of what happens to the eyesight of college students.

The extent of damage to vision resulting from the strain on the eyes incurred in obtaining a college education has now been measured on one thousand University of Minnesota students.

Of these thousand, about one in six had seriously defective vision on entering college, Dr. Ruth E. Boynton, asso-

ciate professor of preventive medicine and public health at the university, found. At the end of the four years in college, this percentage had increased. About one in four of the students had seriously defective vision at the time of graduation.

Most of these students were enrolled in the medical school or the college of education. Upon entering the university, eye examinations showed that about half of them had normal vision. About another third (30 per cent) had slight defects in vision, and 18 per cent, not quite a fifth, had serious defects in vision. The number with seriously defective vision increased to nearly a fourth (24 per cent) by the time of graduation.

College work was hardest on the eyesight of those students who started out with the greatest visual handicap, Dr. Boynton told a conference of the National Society for the Prevention of Blindness.

"Students having the lowest visual acuity when entering the university had the most marked decrease in vision at the end of four years."

The layman will be surprised to learn that nearsightedness is apparently less of a handicap to the college student than either farsightedness or astigmatism. A large percentage of nearsighted students were among those with the highest scholastic records.

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METEOROLOGY

Indians Watch White Men For Weather Portents

ALL THIS time white men have been watching squirrels for weather signs. And now it turns out Indians have been watching white men for the same reason. Maybe the squirrels watch the Indians—who knows?

Matching the weather lore that a hard winter is coming when squirrels hide lots of nuts, is the old Onondaga Indian belief that when the white man cuts "heap much wood for fire" it is going to be a long hard winter.

The New York State College of Forestry, has called attention to this Indian weather superstition. If the white wood-chopper is no more accurate a forecaster than the squirrels, he is not much of a weather prophet. Meteorologists have disproved repeatedly the reliability of such weather signs.

Anyway, here's the news: The white man is cutting much firewood this year.

Science News Letter, December 19, 1936

IN SCIENCE

PHYSIOLOGY

Newborn Cannot Breathe Without Elastic Muscles

A NEWBORN baby cannot start breathing unless his muscles have sufficient elasticity, even though he has been making respiratory or breathing movements for many weeks before birth, Dr. Yandell Henderson of Yale University told members of the Connecticut Academy of Arts and Sciences.

At birth this muscle elasticity—doctors call it tonus—should normally start in response to messages from the motor centers of the spinal cord, Dr. Henderson explained. Many times, however, this does not happen, and the baby is born in asphyxia and is in danger of dying from a form of suffocation.

Dr. Henderson compared the baby born in asphyxia to a stalled automobile engine.

"As with the motor, so with the baby, a restoration of activity may be induced in two ways," Dr. Henderson said. "The motor may be cranked and spun until, in spite of poor carburetion and ignition a 'cough' is induced. The baby likewise may be manhandled, as it formerly was, until a reflex gasp is elicited. Or, on the contrary, in the car the carburetor and ignition may be adjusted until the motor starts at a touch. And in the baby the oxygen and carbon dioxide that its nervous system needs may be supplied by inhalation, as has now become the accepted practice; and resuscitation is thus effected without 'cranking.' In such resuscitation it is not merely respiration that is involved."

The Dionne quintuplets were saved by the latter method, Dr. A. R. Dafoe using the inhalation method introduced by Dr. Henderson.

Dr. Henderson's conception of how breathing begins and is maintained includes the following succession of events: at birth the motor centers of the spinal cord come into action; by inducing tonus in the musculature of the body they increase metabolism and heat production, and render respiration effective. Without muscle tonus the blood would stagnate in the tissues, and the circulation would fail, he concluded.

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E FIELDS

ARCHAEOLOGY

Christmas Story Told In Egyptian Frescoes

EGYPT, the land where the infant Jesus found refuge from his cruel enemy, Herod, has yielded a new picture-story of his life, particularly of his birth and childhood, on the walls of a tiny, old, unpretentious church near the extreme southern boundary of the land, at the Second Cataract of the Nile. A German archaeologist, Prof. Friederich Wilhelm Freiherr von Bissing, has visited the place, almost as lowly as the Stable of Bethlehem itself, and has brought back notes and pictures of the ancient, marred frescoes that still adorn its mud walls.

The church was built in the seventh or eighth century, and the frescoes are done in the formalized style of that date; they seem quaint to modern eyes. But they tell the old familiar story of the Nativity in their own way: the Infant in the manger, the coming of the shepherds, the visit of the Magi. A less conventional scene shows little Jesus getting a bath, like any other baby.

Other frescoes take up the life of Christ in his later years. The tragic Cross of Golgotha figures prominently. God the Father and the Holy Ghost are also shown, not bearded as in the art of northern lands, but young and clean-shaven.

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GEOLOGY

Retreating Advance Is Paradox of Glaciers

THE PARADOX of a moving force pressing steadily forward and yet at the same time receding is offered in the glaciers of Mount Rainier National Park. The glaciers are constantly flowing downward from their source, veritable rivers of ice. But at the same time they are melting backward at the outer end, or snout.

Nisqually Glacier, for instance, which is well known to visitors to Paradise Valley as the park's most easily accessible ice mass, retreated 65 feet in 1936, as against 54 feet in 1935, according to measurements taken annually by

scientists of the national park staff. The snout of the Nisqually Glacier may be seen from the road halfway between the park entrance near Longmire Springs and Paradise Valley.

Park records show that in 1857, when the first summit climb of Mount Rainier was attempted, this glacier extended to a point 750 feet below the present automobile bridge over Nisqually River. Now the ice has retreated to a point approximately three-quarters of a mile above the bridge.

Paradise Glacier, another favorite with visitors to the Paradise Valley and locale of the famous "tin-pants sliding" on paraffined-seated pants, also showed a marked retreat. One point on this glacier's snout, where no record could be made last year because of snow conditions, showed a retreat of 76 feet in a two-year period. Another point showed an ice retreat of 83 feet. A third point, also under snow last year and therefore not measured then, showed a 34-foot recession in two years. The average recession of Paradise Glacier in 1935, at points that could be checked, was 48.7 feet.

The Carbon Glacier, while not so well known to the visiting public as the two above mentioned, staged a relatively more spectacular recession, with 67 feet in 1936 as against only 24 feet in 1935.

Emmons Glacier, longest in the United States, retreated 45, 100, and 193 feet at three points measured in 1936, but these high figures were caused by peculiar melting and other conditions at those particular points and the figure of 45 feet is taken by park authorities as the local recession for 1936, as against 48.5 feet for 1935. South Tahoma Glacier showed 1936 recessions of 79 and 66 feet from two points, as against 61 feet last year. Stevens Glacier lost 146 feet in 1936.

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METEOROLOGY

New Device is Aid In Measuring Rainfall

A NEW instrument for measuring rainfall has been invented by an employe of the State Meteorological Hydrographical Institute, and several of the instruments are already in use in Sweden.

The new measuring device is reported to be very light in weight, to have unusual accuracy, and to keep records for a week at a time without being touched. The inventor has applied for a patent.

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BIOPHYSICS

Virus Crystals Produced By Whirling in Centrifuge

PROTEIN crystals of the virus responsible for the mosaic disease of tobacco have been prepared by whirling at terrific speed in a centrifuge, instead of the more conventional methods involving chemical treatment and evaporation, by Drs. Ralph W. G. Wyckoff and Robert B. Corey of the Rockefeller Institute for Medical Research (*Science*, Dec. 4).

Clear juice pressed from diseased tobacco plants was centrifuged until a pressure of 40,000 times gravity was produced. Small solid pellets were found in the apparatus, which under the microscope were plainly crystalline in structure. These were compared, by X-ray analysis, with crystals of the mosaic-protein substance obtained in the conventional way, and the ray-patterns thus produced were indistinguishable. "The two substances must, therefore, be substantially identical," Drs. Wyckoff and Corey conclude.

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ASTRONOMY

Was Star of Bethlehem Three Bright Planets?

WISE men wondered about a certain star they saw in the East, nearly 2000 years ago. Today's wise men are wondering still.

Was this bright celestial herald really a triple phenomenon? Modern astronomers suggest that it may have been the planets Jupiter, Saturn, and Mars, grouped closely together in a little triangle. Such a grouping, astronomers calculate, occurred about Feb. 25, in the year 6 B. C. It is generally agreed now that due to a calendar miscalculation during the Middle Ages, the real date of the birth of Jesus occurred between 4 and 11 B. C. So the suggestion is not an impossible one.

The planetaria now possessed by four American cities and more than a score of European ones make it possible to project a picture of the skies of Judea, as of that date, on the inside of a great dome. The three bright planets are thus shown in a miraculously bright triangle.

Other suggestions for a natural explanation for the appearance of the Star of Bethlehem include comets, novae or suddenly flashing "new" stars, and fireballs or great meteors.

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