

METEOROLOGY

Commonplace Transformed Into Beauty by Frost

See Front Cover

CHILDREN find in the work of frost, on windowpane or wayside pool, an endless source of wonder and delight. As we grow older, we unfortunately lose this pristine capacity for marveling at beauty too often repeated. But once in a while the beauty is so stressed and underlined, as in the photograph that adorns the front cover of the present issue of the SCIENCE NEWS LETTER, that for a breathless moment we regain our childhood eyes. Only crystals of solidified water on the leaves of a common kitchen herb, yet beauty such as no Cellini could ever quite capture in even the most obedient of silver.

Science News Letter, November 28, 1936

CHEMISTRY

Peat Used as Fertilizer On German Farm Land

THE USE of peat for fertilizer is expanding rapidly in Germany, reports the American Consulate General there. A peat base product containing 3 per cent each of nitrogen, phosphoric acid and potash is being marketed.

Science News Letter, November 28, 1936

ENGINEERING

Highway Scientists Urge More Banking on Curves

MORE than 900 road tests have been made by scientists at speeds up to seventy miles an hour to check the amount of bank needed on highway curves. The tests are part of the work of the committee on the Relation of Curvature to Speed of the Highway Research Board.

Joseph Barnett, senior highway design engineer of the U. S. Bureau of Public Roads, as chairman of the committee, revealed the report.

Aim of the investigation was to find the minimum speed at which side pitch is felt by the driver or passengers in rounding a curve. It was assumed that an ample margin of safety would still exist if the car did not exceed this side pitch speed.

Side pitch was felt at lower speeds on wet pavements than on dry ones. Cars with individual front wheel suspension showed side pitch at lower speeds than did those with the standard front axles, disclosed Mr. Barnett.

From its findings, the committee urged that highway curves be super-elevated, or banked, wherever possible so that the centrifugal force would be counteracted for speeds equal to three-fourths of the assumed design speed of the curve.

The potential results of this practice, said chairman Barnett, were:

1. Aid to slow moving vehicles without penalizing faster moving vehicles.
2. A safer highway when all traffic moves slowly due to the pavement being slippery from rain or ice.
3. No effect in future redesigns to reasonably higher speeds.
4. Greater uniformity of curve design and a more pleasing appearance.

Science News Letter, November 28, 1936

METEOROLOGY

Aviation Weather Forecasts Set Style for Service

NEEED of commercial aviation for immediate and detailed weather information, kept right up to the minute, rather than the looser, more generalized reporting for a whole day at a time that was thought good enough before men trusted themselves and their goods to the upper air, is bringing about a revolution in weather service for non-flying purposes too, states W. R. Gregg, chief of the U. S. Weather Bureau, in his annual report.

The new type of weather reporting is of course costlier than the old, but it is absolutely indispensable if flying is to be carried on in safety. And now the same kind of weather information is beginning to be appreciated as valuable by shipping interests, farmers, dairymen, promoters of athletics and other forms of outdoor entertainment, and many other people.

Demands on the Weather Bureau during the past year have been abnormally heavy, because of the variety and violence of the weather during the period covered by the report. Unusual winter cold, blizzards, spring floods, blazing summer heat, desperate drought—all these have called for special surveys, reports, maps, and the Bureau has supplied them.

The Weather Bureau looks toward the future, too, Mr. Gregg indicates. Special attention is being paid to two modern developments in meteorology, the method of air mass analysis, and efforts to learn weather trends farther ahead than the few days that at present limit reliable forecasting.

Science News Letter, November 28, 1936

IN SCIENCE

MEDICINE

Medical East Meets West In Modern China

OLD-FASHIONED medicine and new are in sharp contrast in China.

Sick people in China may still be seen going to the temple of the god of barbers to get a prescription, according to Orientalists at the Field Museum of Natural History. Around the temple wall are displayed 100 prescriptions for men, 100 for women, and 100 for children, and presumed to include healing for all the ills of mankind. The patient shakes a receptacle containing numbered bamboo sticks until a numbered stick falls out. Then the sick person is given a printed prescription matching that number by the priest, and goes off to get it filled by an apothecary.

The modern scientific spirit in China is typified by a society in Nanking for "popularizing medical knowledge and introducing new discoveries." This society introduces modern medicine to the Chinese public by publishing a magazine.

Science News Letter, November 28, 1936

SEISMOLOGY

Strong Earthquake Near Coast of Guatemala

A STRONG earthquake shook the Central American republic of Guatemala on Thursday afternoon, Nov. 19, centering on or near the Pacific coastline, the U. S. Coast and Geodetic Survey determined from an examination of data collected telegraphically by Science Service. The epicenter was in latitude 14 degrees north, longitude 91 degrees west; time of origin was 4:10.3 p.m., eastern standard time.

Stations reporting were: State College of Pennsylvania, University of Michigan, University of California, the Dominion Observatory at Ottawa, the Dominion Meteorological Observatory at Victoria, B. C., Fordham University, Canisius College at Buffalo, and the observatories of the U. S. Coast and Geodetic Survey at Ukiah, Calif., and Tucson, Ariz.

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E FIELDS

CHEMISTRY

Juice of "Melon Tree" To Tame Tough Steaks

CIVILIZED man is at last going to have a chance at a cooking aid that South Sea Islanders have enjoyed for centuries. A commercial company in Cincinnati, Ohio, is preparing to put up the juice of the papaya tree in retail-size bottles, for home use in tenderizing tough cuts of meat.

The juice of this tree, sometimes called the melon tree because of the shape of its tasty fruit, contains a vegetable analogue of pepsin, that has the power to digest proteins. For a long time this substance, known to the pharmacist as papain, has been a standard ingredient of indigestion remedies. But although the brown natives of the warmer islands of the world have long been known to use the juice in its crude state to make meat more digestible before they cooked it, no effort has been made until now to make it available as a white man's cooking aid.

Papayas have been grown in Florida on a modest scale for their fruits, which are now beginning to make their way even into northern markets. Because the fruit is sometimes called papaw, there has been a tendency to confuse it with the native American papaw, which it does not at all resemble and to which it is not related.

Science News Letter, November 28, 1936

RADIO

Natural Color Television Forecast by New Patent

THE achievement of television in natural color is claimed in a patent (No. 2,055,557) granted to D. E. Replogle, of Leonia, N. J. The patent is assigned to the Radio Corporation of America.

As in colored motion pictures using a two-color process, the scene or picture to be transmitted would be split up in two "ranges of color values." Thus there would be two television cameras; one would scan the scene through a green filter; the other through a red filter.

Each would convert the color values representing the televised scene into corresponding electrical impulses that would be simultaneously broadcast over two separate channels.

At the receiving station, two synchronized television receivers, one for each channel, would pick up the incoming impulses. Those coming over the "red channel" would be picked up by the "red" television receiver which would reconvert the received electric impulses into a red-colored image, corresponding to the red rays of the original scene or picture.

The "green" receiver would give a corresponding green image. The two images, red and green, would be combined or synthesized by means of prisms and mirrors, so that a person looking at the television screen would see a single reproduction, in natural color, of the original scene being televised.

The system, claims the inventor, can also be used for transmitting colored pictures over wires, as in wire-photo, widely used by newspapers.

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PALEONTOLOGY

Fossil Brain of Peccary Found in Northwest

DISCOVERY of the fossilized brain of a primitive pig-like animal, the Oreodon, which existed in the western United States during early eocene times, some 40 million years ago, has just been reported by Irving G. Reimann, curator of geology at the Buffalo Museum of Science.

Mr. Reimann discovered the brain while collecting the remains of these extinct peccaries at a famous locality near Scenic, S. D., in the Badlands. He found the place well picked over when he arrived, with fragments of bones littering the ground. As he was turning away with disappointment, he noticed the skull of an Oreodon, badly weathered. As he picked it up, the top of the cranium came off, revealing an excellent cast of the brain. The various areas and convolutions could be recognized.

Although brain-casts of extinct fossil animals are not unique, they are sufficiently rare to interest scientists. Usually the task of freeing the fossil brain from its outer covering is very difficult, but in this case the outer bone crumbles easily. Mr. Reimann expects to work out the brain without injuring it.

The Oreodon was about the size of a shepherd dog, and once roamed the western plains in large droves.

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MEDICINE

Virus Plus Bacterium May Cause Influenza

POSSIBILITY that influenza may be caused by the combined action of a virus and a larger disease germ, a bacterium, was discussed by Dr. Richard E. Shope of the Rockefeller Institute for Medical Research at a meeting of the Yale Medical Society.

Dr. Shope has investigated swine influenza, a disease much like human influenza. He and his associate, Dr. Paul A. Lewis, found that the swine disease is caused by the concerted action of a virus and a bacterium. While this suggests that the same mechanism is involved in human influenza, there is no way as yet, Dr. Shope said, of telling whether human influenza is a pure virus infection or whether, like the swine disease, both the virus and a bacterium are essential to its causation.

In the swine disease, the bacterium is similar in all respects to that found in human influenza by Pfeiffer in 1892. Until the 1918 influenza epidemic, this bacterium was considered the cause of human influenza. Research during and following the 1918 epidemic threw much doubt on the theory that influenza was caused by this bacterium. Recently workers in England and America have found a virus that plays a rôle in causing influenza.

This human influenza virus is not the same as the swine influenza virus, although the two viruses cause identical disease pictures in mice and ferrets. The swine flu virus does not cause disease in man now, but there is evidence that at some time in the past it did infect man. The theory has been advanced that the swine virus represents the surviving prototype of the virus responsible for the 1918 human influenza epidemic.

Science News Letter, November 28, 1936

MEDICINE

Snake Serum for Tourists Sold in Czechoslovakia

TOURISTS in Czechoslovakia can now buy serum for viper snake bites from the State Serological Institute, according to a report received by the U. S. Bureau of Foreign and Domestic Commerce. An injection syringe and 10 cubic centimeters of serum are sold in a unit.

Science News Letter, November 28, 1936