

Hot Ice

DR. P. W. BRIDGMAN of Harvard University has frozen water at a temperature of 180 degrees Fahrenheit, only 42 degrees below its boiling point. His product is ice as real as that which forms ice, so hot that it will burn one's hands.

It was made by putting water on ponds in the winter; but it is hot under a pressure of 290,000 pounds or 145 tons per square inch. Ordinary ice becomes unstable at pressures greater than 29,000 pounds per square inch and is replaced by other forms, one of which is stable at 290,000 pounds and temperatures as high as 180 degrees, Dr. Bridgman found.

He has conducted experiments with pressures as high as 580,000 pounds or 290 tons per square inch. Many interesting changes in the properties of substances take place under these unusual conditions.

Pressures of more than half a million pounds per square inch are meaningless until compared with atmospheric pressure of slightly less than 15 pounds, the pressure in steam boilers which seldom exceeds 1,200 pounds, or the pressure at the bottom of the deepest part of the Pacific Ocean which is little more than 15,000 pounds per square inch.

Physics

Science News-Letter, July 12, 1930

Babies Smile First

A BABY starts smiling at the world before he really laughs at it, Ruth W. Washburn, psychologist at the Yale Psycho-Clinic, has observed.

Miss Washburn, who has been watching the smiles and laughter of children under a year old, has found a few babies so sober that they warrant the title "non-laughers." Others dimpled, sparkled, drew up the corners of their mouths, wrinkled their noses, or otherwise displayed the technique of laughter and smiling whenever the least excuse was offered. Contrary to popular tradition, fat babies are not jollier than lightweights.

Seven ways of shaping the mouth in smiling were found among the babies observed. A baby's way of smiling changes as it develops, and these developmental differences are more important than individual differences, Miss Washburn concluded.

Babies never laugh until they cry, it was also found. Such violent

laughter is an adult form of amusement. The type of smiling called "coy" was seen in only two baby girls and this was the only sex difference in smiling noted throughout the experiment. Miss Washburn believes, however, that judging from her casual observations of a two year old boy, coquettishness may yet be found and scientifically recorded among baby boys.

Psychology

Science News-Letter, July 12, 1930

Machine Dancing

EVEN tap dancing may be coached with scientific technique. Men at the University of Illinois who are taking tap dancing as a pleasant form of physical education are having their mistakes set down against them as they dance, by a machine which records their foot beats on paper and compares the rhythm with a steadily beating metronome. The brass taps worn by the dancer are hooked up with an electrically recording apparatus for the tests.

The machine was invented by James J. Eddy, and the tests are under the supervision of Dr. Coleman R. Griffith, psychologist and director in research in athletics at the university.

The paper records, showing how well the student tap dancer keeps to the rhythms of the dance, are shellacked and kept as a guide to progress of the individual.

Physical Training

Science News-Letter, July 12, 1930

Keeping Lemon Juice

LEMON juice is such an important source of vitamin C that many efforts have been made to find conditions under which it can be stored without losing its anti-scorbutic power.

John Williams and J. W. Corran, at the Carrow Works, Norwich, England, have found that vitamin C in lemon juice is particularly unstable in the presence of preservatives.

Potassium metabisulphite, which is the best preservative for lemon juice against fermentation, was found to have a definitely destructive action on vitamin C. The same was true of other preservatives such as sodium benzoate, formic acid, and oil of cloves.

The best way of storing lemon juice without destroying the vitamin was to adjust the acidity with hydrochloric acid to a certain point.

Chemistry

Science News-Letter, July 12, 1930

IN VARIOUS S

Beam Microphone

AN artificial "whispering gallery" is one of the latest improvements in talking movies, for the device makes it possible to focus the microphone on the speakers, and shut out extraneous sounds. Recording engineers of the RKO Productions have developed the device, which is called the "beam microphone."

The device is really a searchlight turned backwards and using sound instead of light. A searchlight reflector has the shape known as a paraboloid. Light radiating from a point known as the focus is reflected in a parallel beam. The reflector also works backwards. If a parallel beam of light, as from a very distant object, falls squarely on the reflector, the light is concentrated at the focus. Searchlight mirrors have actually been used this way with sunlight to obtain high temperatures for experimental purposes. A reflecting telescope used by astronomers works the same way.

Waves of sound can also be concentrated by a parabolic reflector, and this is the principle of the beam microphone. A metal reflector about five feet in diameter is used, with the usual condenser microphone placed in the center at the focus. Around the outer edge is a cylinder of felt to shut out most of the sound that would come across the edge of the reflector.

Famous whispering galleries, in buildings throughout the world, depend on a similar principle of sound concentration. Some architectural freak may produce a curved wall that focusses the sound from a distant point. Then a person may hear a whisper from a position hundreds of feet away, but cannot hear ordinary conversation much closer.

Physics

Science News-Letter, July 12, 1930

Medal for Geologist

DR. LAUGE KOCH, Danish geologist and explorer of Greenland, will receive the American Geographical Society's Charles P. Daly gold medal for 1930 in recognition of his scientific studies in Greenland. Dr. José M. Sobral, head of the Argentina geological survey, will receive the society's David Livingstone centenary medal for 1930 as a tribute to his rapid mapping of the Andean area of Argentina.

Geology

Science News-Letter, July 12, 1930

SCIENCE FIELDS

Ice-Box Germination

CHILLING on ice hastens the germination of the large edible nut-pines regardless of their native habitats, according to G. R. Johnstone and Tema Shults Clare of the Botany department of the University of Southern California.

Torrey pine seeds from the Torrey Pine Preserve near La Jolla require 25 days of chilling, while the seeds of Coulter and Digger pines require 60 and 50 days respectively for the highest percentages of germination. Experiments dealing with the chilling of one-leaf pinon pine, another of the edible pine seeds, indicate that 30 days on ice are followed by the best germination.

Plant Physiology
Science News-Letter, July 12, 1930

Traveling Geologists

PRINCETON University's traveling summer school of geology has arrived at Grand Canyon National Park, Arizona, in its special car *Princeton* and is studying the geology of the Grand Canyon.

In its special pullman that serves as sleeper, diner, parlor car and classroom, a party of 25 students, traveling instructors and foreign geologists are crossing the country visiting mines, geological formations, oil fields and other places of mineralogical and economic interest.

Under the direction of Prof. Richard M. Field and Prof. Paul MacClintock, classes are held en route and supplemented by field hikes at various points along the route. Four foreign geologists are participating in this year's trip of the International Summer School of Geology and Natural Resources: Prof. Frank Debenham of Trinity College, Cambridge, England; Dr. H. Schneiderhöhn of Freiburg, Germany; Dr. P. Ramdohr of Aachen, Germany, and Dr. Otakar Matousek, of Prague, Czechoslovakia.

Geology
Science News-Letter, July 12, 1930

Locusts in Yucatan

THE first swarms of locusts, such as were reported in Guatemala in the last year, have advanced to the Mexican state of Yucatan, in the region of Mérida, and the Mexican Office of Agricultural Defense is preparing for battle.

Some scientists believe that it was plagues of locusts in the past that perhaps spelled the ruin of the Maya Empire, which mysteriously fell for no obvious good reason. The margin of agricultural security may never have been very great, and a severe plague of locusts alone, or in fortuitous combination with other causes, may have caused the downfall of an empire.

A little-known passage from Bernal Diaz, soldier of Cortes, indicates that there was a plague of locusts at the time of one of the early efforts of the Spaniards to conquer the land of the Mayas in 1518. He describes a battle with the Indians at Champoton in the Yucatecan peninsula:

"I remember that this fight took place in some fields where there were many locusts, and while we were fighting they jumped up and came flying in our faces, and as the Indian archers were pouring a hailstorm of arrows on us we sometimes mistook the arrows for locusts and did not shield ourselves from them and so got wounded; at other times we thought that they were arrows coming toward us, when they were only flying locusts, and it greatly hampered our fighting."

Entomology
Science News-Letter, July 12, 1930

For Better Gins

BECAUSE it is charged that the quality of cotton fiber today is being sacrificed to the god of efficiency who sits upon the top of the mechanical cotton gin, the Bureau of Agricultural Economics is shortly to begin researches in the south looking to the improvement of the machinery now being used.

An item of \$100,000 in the second deficiency bill which Congress passed before adjourning is specifically for cotton ginning investigations.

Representative W. M. Whittington of Mississippi, himself the owner of a ginning plant, told the House Committee on Appropriations that cloth manufacturers have complained that the cotton fiber today is not as good as that which used to be produced with the old-fashioned horse gin.

Both grade and staple are being damaged, he said, amounting to three to fifteen dollars per bale to the cotton grower. Long staple cotton is being damaged more than the short-staple, he contended.

Agricultural Engineering
Science News-Letter, July 12, 1930

Plague of Rats

A PLAGUE of field rats is invading nearly 200,000 acres of rich farm land around the Lake Chapala region in the state of Michoacan, Mexico.

The crop-eating pests appeared a year ago, and now they are a serious menace, cutting down the wheat fields and eating everything green, destroying all crops, but curiously leaving watermelons alone.

Dr. Alfonso Dampf, chief of investigations in the Office of Agricultural Defense of the Mexican Ministry of Agriculture, has just returned from the infested regions and is devising ways and means of fighting the invaders. He reports that an unusually large number of owls, natural enemies of the rats, have also appeared on the scene to help the farmers.

The rat plague has appeared in Mexico before and apparently has a cycle which, however, has not been determined. Like other biological and agricultural phenomena, he believes, it may be in some way linked with sunspot cycles, whose effects have a certain lag.

Some of the rats have been brought to Mexico City for study, and investigations are being made on them with Loeffler's enteritis organism. Rats may be infected with the disease and returned to their homes, so that they can spread the bad news to their companions.

Zoology
Science News-Letter, July 12, 1930

Boy Explorers

A SCIENTIFIC expedition consisting of a staff of 17 boy explorers, led by Hillis L. Howie and two experienced assistants, set out for the Southwest, July 2, to gather information and material for exhibition at the Children's Museum of Indianapolis.

The junior field party includes boys bearing the title of staff botanist, ornithologist, geologist, herpetologist, archaeologist, geographer, mammalogist, it is announced by Mrs. B. M. Golden, executive secretary of the museum. The boys, guided by the director, will take motion pictures and still photographs of wild life and historic scenes. They will use these pictures and their notes and measurements when they return to the museum, to build miniature settings of wild life and exhibits showing ancient Indian ruins.

Archaeology
Science News-Letter, July 12, 1930