CHEMISTRY

Virus Chemical Disarmed Without Destroying It

DISARMING without destruction of the newly discovered protein causing a virus disease in tobacco has been accomplished by Dr. W. M. Stanley, of the Rockefeller Institute for Medical Research laboratories.

Dr. Stanley recently demonstrated that a crystalline substance, protein in nature, has the properties of the hitherto invisible virus causing tobacco mosaic disease. Medical scientists were much interested because the plant disease seems to be similar to human virus diseases, among them infantile paralysis, smallpox, and encephalitis. The non-living protein seemed to actually "grow" or increase in amount in the plant as though it were alive.

Now Dr. Stanley has reported (*Science,* June 26), that treating the disease-producing protein with mild agents, including ultraviolet light, hydrogen peroxide, formaldehyde and nitrous acid, makes it harmless although it is still definitely protein in nature. Dr. Stanley believes that a very slight change in the chemical structure of the protein takes place, enough to rob it of its ability to produce disease.

Science News Letter, July 11, 1936

ASTRONOMY

Peltier Comet Becomes Visible to Eye on July 14

See Front Cover

ONE of the most spectacular celestial displays since famous Halley's comet swept the sky in 1910 will be the appearance of the new Peltier comet to observers using only their own eyes, about the middle of July.

On the night of May 14, Leslie C. Peltier, of Delphos, Ohio, one of America's best-known comet hunters (with four comet discoveries then already to his credit), was scanning the northeast sky with his small telescope. Just below the constellation of Cepheus east of the North Star he saw a blurry, diffuse glow which was out of place in the well-charted vistas of the sky. From a little after 10 p.m. until 1 a.m. he watched it, although at first it seemed not to move. Its motion, if any, was extremely slow. On the morning of May 15, Peltier wired to Dr. G. Van Biesbroeck of Yerkes Observatory, Williams Bay, Wisconsin, this cryptic message:

"Verify extremely slow motion ninth magnitude comet, 23 h 59 m plus 74 degrees."

The hours and minutes, with the degrees sign, told Dr. Van Biesbroeck where to turn the large 40-inch diameter refracting telescope of Yerkes in the sky and confirm the find.

For nearly two months now astronomers have been watching the new comet nightly through their instruments. Gradually it has been coming nearer to the earth and getting brighter. Soon the naked eye, instead of a small telescope, should serve for observation.

Dr. Fred L. Whipple of the Harvard Observatory staff estimates that by July 20 the Peltier comet will easily be visible and on August 4 it will reach its peak brightness, flashing to a magnitude of 3.5. At this time it will be just about as bright as the fainter stars in the familiar Big Dipper, or one quarter as brilliant as the North Star.

When first discovered the Peltier comet was 120,000,000 miles from the earth. At its nearest distance on August 4 it will be only 16,000,000 miles away, hardly one-sixth of the distance between the sun and earth.

The comet is still located near the constellation of Cepheus where it was first sighted, but it is moving across the heavens toward the Milky Way where it will be located during most of its visible epoch. During the last stages of its "life," from the standpoint of visibility to the eye, it will move through the constellation of Pegasus near the northeastern horizon. (*See* SNL, June 27, for maps showing its location.)

The cover illustration shows the comet's discoverer at his telescope.

Science News Letter, July 11, 1936

NUTRITION

Apples Differ in Content Of Vitamin C

NEW experiments with apples revealing that different apple varieties show marked differences in the amount of vitamin C they contain were reported to the meeting of the American Home Economics Association.

Using guinea pigs to test the nutritive value of western apple varieties, Dr. E. N. Todhunter of the State College of Washington, reported that apples lose vitamin C when stored. Destruction of vitamin C, he said, increases with the length of time apples are kept in storage and is progressively greater with storage temperatures above 32 degrees Fahrenheit.

Science News Letter, July 11, 1936

IN SCIENCE

ARCHAEOLOGY

Carve Slices From Great Indian Pyramid in Illinois

A TWO-ACRE Indian pyramid near Metropolis, southern Illinois, is to be sliced and tunneled by exploring archaeologists from the University of Chicago.

Excavations will reveal whether the great flat-topped pyramid, 40 feet high, contains evidences of prehistoric Indian life in the region, or whether it was raised merely as a high earthen foundation for ceremonial buildings.

Dr. Thorne Deuel, of the University, is directing the expedition, which consists of 14 young student archaeologists.

The Kincaid mounds, where the great mound is located, are believed to have been an important center of Indian trade in the upper Mississippi Valley, and previous excavations have shown that the earth ten feet deep is sown with debris of human occupation. The lost cemetery of the ancient settlement is also to be sought.

Science News Letter, July 11, 1936

AERONAUTICS

International Prize Given For Rocket Research

ENGINEERING formulae and designs for a rocket calculated to reach a height of seven miles have won for an American engineer, Alfred Africano, the five-thousand-franc International Rep-Hirsch Prize. Official announcement of the award was made in Paris on June 29 by the Astronomical Society of France.

The award was made jointly to Mr. Africano and the American Rocket Society, of which he is vice-president. The work of the Society is not aimed at romantic "trips to the moon" but at the more sober scientific objectives of devising rockets useful in the investigation of the earth's upper atmosphere.

The International Rep-Hirsch Prize was founded by two Frenchmen, Robert Esnault-Pelterie, airplane engineer and manufacturer, and Andre Hirsch, banker.

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FIELDS

SEISMOLOGY

Quake North of Japan Recorded by Instruments

A SEVERE earthquake occurred in the region of the Kurile Islands, north of Japan, at 10:06 a.m., eastern standard time, on Tuesday, June 30. Scientists of the U. S. Coast and Geodetic Survey, working with data collected telegraphically by Science Service, gave a preliminary epicenter determination as in 51 degrees north latitude, 160 degrees east longitude. The actual location, or focus, of the quake may have been deep beneath the surface.

Observatories reporting were those of Canisius College, Buffalo, N. Y.; Fordham University, New York City; St. Louis University, St. Louis, Mo.; the University of California, Berkeley, Calif.; Seismological Observatory, Pasadena, Calif.; Pennsylvania State College; the Franklin Institute, Philadelphia; the U. S. Coast and Geodetic Survey's stations at Ukiah, Calif., and Chicago, Ill.; the private observatory of Mrs. M. M. Seeburger, Des Moines, Iowa; Dominion Observatory, Ottawa, Canada; and the Dominion Meteorological Observatory, Victoria, B. C.

Science News Letter, July 11, 1936

ROENTGENOLOGY

X-Rays Look Inside Wide Range of Materials

LOOKING inside of all sorts of materials, from concrete to tobacco, is becoming a common task for X-rays, usually considered a tool for use of doctors in hospitals.

Foundries and welding shops use X-rays as a routine for control and inspection of the metal they produce. Earnshaw Cook of the American Brake Shoe and Foundry Company, Mahwah, N. J., told the American Society for Testing Materials meeting in Atlantic City that "the installation of X-ray laboratories in commercial jobbing foundries is an economic measure, inherently profitable to the manufacturer and a reliable assurance of improved and maintained quality to the trade."

X-rays allow the detection of holes, cracks, inclusions and other defects in metal. With the growth of welding, X-ray equipments have multiplied for use in inspection of joints and other products made by welding.

In building the giant hydraulic power penstocks of Boulder Dam, 270,000 feet of X-ray film were used for the examination of their welded joints, J. C. Hodge of Babcock and Wilcox Company, Barberton, Ohio, told the A.S.T.M. meeting.

X-rays have solved problems in connection with ceramics, concrete, mica, coal, asbestos, foods, tobacco, plastics, textiles, paper, leather, wood and other materials, Herman E. Seemann, of Eastman Kodak Company, reported.

Radioactive substances, such as radium, giving off gamma radiation similar to but more powerful than X-rays, are also being used for non-destructive testing of materials, and Norman L. Mochel, Westinghouse engineer, predicted greater utilization of radium in materials testing, particularly where portability is an advantage.

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ARCHAEOLOGY

Log-Cabin Quilt Pattern Came from Ancient Egypt

MAYBE Grandmother never suspected it, but her log-cabin patchwork quilt pattern was borrowed from the Egyptians. So anthropologists at the meeting of the American Association for the Advancement of Science were told.

Mrs. Gertrude S. Evans of Freeport, N. Y., told of examining mummies of Egypt's sacred monkeys and shrews and sacred birds in collections of the Brooklyn Central Museum and the Metropolitan Museum of Art, and of finding that Egyptians wrapped these mummies in "log-cabin" designs making a pattern of strips arranged in steps around an enclosure. The origin of the idea was the pyramid tombs. A pyramid viewed from above makes this picture, and one-fourth of a patchwork quilt log-cabin square makes a pyramid in profile.

In what is believed to be the original pattern of the old-fashioned log-cabin quilt, the block contains six steps, and six steps were characteristic of an early form of Egyptian pyramid. Six steps or units have been counted in some of the mummy wrapping designs.

The pyramid pattern had a grandeur and dignity which it lent to the mummy wrappings, and later to handmade bed quilts, Mrs. Evans declared.

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AVIATION

Double-Decker Craft To Cruise Long Distances

WITH almost all Europe in a military airplane race and trans-Atlantic airplane mail flights promised within a time varying from a few months to three years, new interest is aroused over the new Mayo composite aircraft which the British Air Ministry is studying.

Big problem in a direct trans-Atlantic airplane crossing—and of course any long-range bombing program in general—is fuel plus useful payload.

One solution proposed has been refueling the proposed trans-oceanic plane after it has arrived at its flying altitude. The British Mayo composite airplane would achieve this same effect in a strikingly different fashion.

A giant flying boat of a type comparable to those in Caribbean or trans-Pacific service would take off with a four-motored pontoon-fitted seaplane mounted above it. The composite craft would gain flying altitude and travel some hundreds of miles, using the fuel of the flying boat. Then the two units would be detached and the seaplane would continue on its way while the flying boat would return to the home port.

Comments the technical journal, *Mechanical Engineering,* in its May issue:

"The fact that the Air Ministry seems to be officially interested in the experiment (with an eye possibly on the use of a similar combination to facilitate the start of a heavily laden long-distance bomber) suggests that the scheme has more aeronautical merits than are obvious at first sight. It is expected that flight trials of the composite aircraft will be begun in August.

The whole trend of European political events last year, adds *Mechanical Engineering,* is bound to have its effect on aeronautical development. In England, in particular, emphasis is now turning from improvements in tried and existing types of airplanes to research on completely new designs. No one talks longer in terms of 250-mile-an-hour speeds. The minimum discussed is 350 miles an hour.

The advent of scientifically-minded Germany into the international military airplane picture is one cause of this change, at least.

Science News Letter, July 11, 1936