

ASTRONOMY

Violent Solar Explosion

Sun erupted with violence of 100,000,000 hydrogen bombs in February, astronomer reports to American Astronomical Society. Outbursts interrupted shortwave radio.

► THE SUN exploded with the violence of 100,000,000 hydrogen bombs on Feb. 10, hurling a flaming gas bubble at least 200,000 miles above its surface.

The giant tongue of gas, 1,000,000,000 tons of the sun's substance, was roughly 20,000 miles in diameter. In a two-minute period, it speeded up from a velocity of 60 miles per second to 700 miles per second, thought to be the record for visual prominences.

The force required to produce so rapid a change of velocity exceeds that of terrestrial gravity more than 1,000 times, Dr. Donald H. Menzel, director of Harvard College Observatory, told the American Astronomical Society meeting in Columbus.

He showed motion pictures of this striking flare at the sun's edge. They were taken with the patrol coronagraph at the Air Force Sacramento Peak Observatory, New Mexico, in a study made jointly with Elske P. Smith, Howard Demastus, Harvey Ramsey and George Schnable of the Sacramento staff.

The solar outbursts affected shortwave radio communications and caused blasts of radio static, Robert Lawrence of the National Bureau of Standards laboratory at Boulder, Colo., reported.

The bubble of gas, expanding at the rate of about 60 miles per second, first appeared at the eastern limb, or edge of the sun, Dr. Menzel said, and increased rapidly in brilliance over an interval of from five to ten minutes.

This flare coincided with a marked decrease in the signal strength of shortwave radio, indicating an increased absorption in the ionosphere, or electrified layers of the earth's high atmosphere, which reflects radio waves, caused by an outburst of very strong, ultraviolet light from the flare.

At about the time the flare reached its greatest brilliance, the upper portion underwent the remarkable acceleration, exploding with such force that a constant velocity of 700 miles per second was maintained until the ejected material faded from view some 200,000 miles above the solar surface.

Observations taken with the high dispersion spectrograph attached to the large coronagraph displayed a very broad hydrogen line, so that only a very small fraction of the total radiation passed through the filter. This limb flare, therefore, must have been extremely brilliant when its total output of radiation in all wavelengths is taken into account.

Science News Letter, April 7, 1956

PSYCHOLOGY

Man's Stress Reaction

► A SIMPLE TEST that will show how a man will react under stress was reported to the Eastern Psychological Association meeting in Atlantic City, N. J.

The test required the men to punch a map pin into the center of each of a series of small circles along the path of a maze.

Only 30 seconds were allowed, so the task required accurate and rapid finger and hand movements. A group of 220 airborne trainees were tested at the beginning of their training and again while they were waiting to board an airplane for their first parachute jump.

Comparison was made between the scores of each man on the two tests.

The men who could not hit the center of the circles as well just before the jump were those who turned out to be more scared on jumping and they had more physiological reactions to the stress such as trembling fingers and sweating palms.

Previous experience under stress was found to be related to increase in errors on the maze test. The man whose errors

did not increase was more likely to have had experience on a football team than was the one who could not hit the circles.

The study was reported by Dr. Richard D. Walk of Cornell University, who performed the research while he was at the Human Resources Research Office, George Washington University, Washington, D. C.

Science News Letter, April 7, 1956

HORTICULTURE

Anjou Pear Yield Increased by Spray

► THE ANJOU PEAR will be a more common delicacy on American dinner tables if experiments with a new fruit-set spray are successful.

Spraying the pear trees with the chemical 2,4,5-TP has increased the Anjou yield as much as 60%, horticulturists E. S. Degman and L. P. Batjer of the U. S. Department of Agriculture have found.

Science News Letter, April 7, 1956

• RADIO

Saturday, April 14, 1956, 2:05-2:15 p.m. EST
"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Mr. Wade Weaver, director of steel conservation and gravity control, Republic Steel Corp., Cleveland, Ohio, will discuss "Quality Control in Steel."

VIROLOGY

Viruses Shape Selves For Easy Packaging

► SMALL VIRUSES, such as the polio virus and the tobacco mosaic virus, have a packaging problem. This is why they are always either rod-shaped or spherical.

Studies showing this are reported by Dr. F. H. C. Crick and J. D. Watson from Cavendish Laboratory, Cambridge, Eng., in *Nature*, (March 10).

Just as you must have a box or paper to protect the contents of a package, the virus must have an outer wrapping or shell to protect its vital nucleic acid. The virus shell is made of protein. It has to be rather large, and the virus inside a plant or animal body cell finds it easier to control production of a large number of identical small protein molecules than one or two large protein molecules.

These small protein molecules cluster around the nucleic acid in a regular way. They can only do this in a limited number of ways if they are to use the same packing arrangement repeatedly. Therefore small viruses are either rods or spheres, the scientists declared.

The number of sub-units in a rod-shaped virus is probably not limited. In a spherical virus, however, it is likely to be a multiple of 12.

To understand why there are so few ways of building a spherical shell, the scientists suggest trying to draw identical shapes covering a tennis ball.

Science News Letter, April 7, 1956

DENTISTRY

False Teeth Cut Taste for Sweets

► THE PERSON with false teeth may still have his sweet tooth, so far as liking sweets is concerned, but ordinary sweet foods will not taste as sweet.

Tests with cookies showing this were reported by Drs. W. A. Coy and R. S. Manly of Tufts University School of Dental Medicine, Boston, at the meeting of the International Association for Dental Research in St. Louis.

They fed especially prepared large soft sugar cookies to 20 people wearing false teeth, or artificial dentures, and to 20 similar people who had their own teeth. Those with their own teeth were more accurate in telling differences in sweetness of the cookies than those with false teeth.

Science News Letter, April 7, 1956