

ASTRONOMY

Gigantic Stellar Explosion Great Event of Astronomy

Heavenly Happening Seven Million Years Ago Now Visible To Astronomers as Super Nova Virginis, 1936

SEVEN million years ago a terrific outburst occurred in the distant part of the universe that astronomers know as the "nebulae of the Virgo cluster."

Now at the Carnegie Institution of Washington's Mount Wilson Observatory, Calif., there has been discovered this gigantic stellar event which astronomers call a "super nova," an extraordinary new or temporary star.

It is one of the most energetic star explosions ever recorded by astronomers, and so remote that news of its happening, via light waves, has just arrived on earth.

So faint that the world's largest telescope, the 100-inch on Mount Wilson, was needed to record its brief rise to fame and fall to obscurity, the super nova nevertheless at its maximum gave off thirty million times as much light as our sun.

In the brilliant explosion, the star attained a velocity of expansion of 3,700 miles a second or more than 13,000,000 miles an hour.

Dr. Edwin Hubble, astrophysicist of Mount Wilson Observatory, famed for his discoveries of distant galaxies of stars, and Glenn Moore, assistant on the 100-inch telescope, discovered "Super nova Virginis, 1936" as the star will be called.

For seven years they had been patiently searching among the nebulae of the Virgo cluster for such a stellar outburst.

One in 500 Years

The rarity of such a happening in the heavens can be realized by the estimated frequency of one super nova per nebula or galaxy of stars in each five hundred to a thousand years. Thus seven years was a short period of searching.

The outburst happened in the nebula listed in astronomical records as NGC 4273. The star affected is 29 seconds of arc from the nucleus or heart of this nebula. First photographed on Jan. 21, it attained on Feb. 16 its maximum of astronomical magnitudes ranging 14 to 15.4. Then it faded rapidly.

The tiny pinpoint of light, while an exploding star, is so faint as viewed from the earth because it is so distant from us. By other observations, astronomers estimate that the nebula in which the super nova is located is so remote that light takes seven million years to travel from there to the earth. Light is the speediest thing in the universe, traveling 186,000 miles per second, or six million times a million miles per year. Multiply this latter figure by seven million and you have the mileage from here to the extraordinary new discovery.

The super nova has now faded from view even through the largest telescopes. It will probably never be sighted again. But it has won a secure place in astronomical records and study of its light spectra is expected to give more information on the way the universe operates.

Others Brighter

Famous among the rare super novae of the past is Tycho's star, which appeared in November, 1572, and was for some days visible in daylight and brighter than Venus at her best. Another temporary star, observed by Kepler in 1604, was as bright as Jupiter and remained visible for two years. These were much closer to the earth than the super nova just discovered and were therefore seen with unaided eyes.

Latest of novae or temporary stars, but not in the super class with the latest Mount Wilson discovery, was Nova Herculis, which burst forth shortly before Christmas, 1934, and became easily visible in the northwestern evening sky. The super nova in Virgo just observed probably put forth some two thousand times the energy of Nova Herculis, but the latter was more brilliant only because it was closer and in our own galaxy of stars.

Scientists speculate on what remains of novae when they fade away. One suggestion is that they become stars consisting of neutrons with no ordinary matter in their make-up. The neutron is one of the basic building blocks of matter and it was discovered in 1934.

Such a spent star of neutrons would be extremely dense. The earth's mass on the same density would be a ball less than two miles diameter.

The outburst of a nova transcends in magnitude all other known physical catastrophes. Astronomers do not know just what happens. Favorite among theories is that there is a tremendous release of energy within the atoms of matter composing the star. Another suggestion is that novae occur when two stars collide.

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ARCHAEOLOGY

Librarians Had Troubles, Even in Ancient Greece

EVEN in cultured old Athens, it turns out, Greek readers would sneak books out of libraries, against the rules.

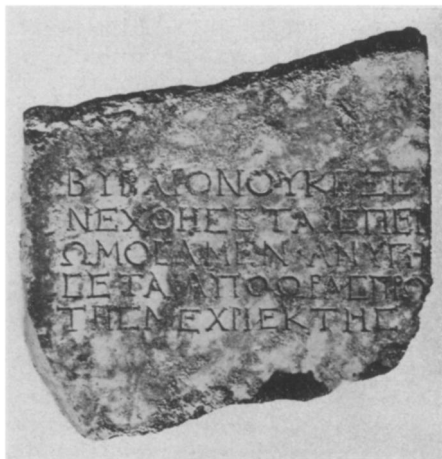
This marble sign that some desperate librarian set up, 1,800 years ago, has been unearthed by American excavators in Athens:

"No book shall be taken out. We have sworn it! The library will be open from the first hour until the sixth."

The notice, inscribed in Pentelic marble, has been uncovered by the expedition of the American School of Classical Studies, Prof. T. Leslie Shear of Princeton, field director of the expedition, announced.

The Greek inscription was dug up in the Athenian market place, and is believed to have belonged in front of the Library of Trajan, about 100 A.D. Library hours, "first hour until the sixth," were from seven in the morning until noon.

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WARNING

This marble sign reveals that in Athens librarians faced problems that are still familiar.