

The Sun's New Trans-Neptunian Planet

Astronomy

Lowell Observatory Confirms Its Founder's Prediction

By Dr. V. M. Slipher
Director, Lowell Observatory

THE Lowell Observatory has made the discovery of a celestial body whose rate of motion and path among the stars indicates that it is a new member of the sun's family of planets out beyond Neptune.

Twenty-five years ago, Dr. Percival Lowell, director and founder of the Observatory at Flagstaff, Ariz., began a mathematical investigation for a planet beyond Neptune, based upon certain unaccounted for motions of the planet Uranus. The problem of locating such a body in the heavens was a very difficult one, and involved an enormous amount of intricate computations. In 1914 he announced in an extensive memoir as a result of his mathematical work, the position of the predicted body.

The search of the sky directed by Dr. Lowell's theoretical investigation was begun by photography in 1905 and has been continued with interruptions to the present time. Use has been made of the best available instruments covering that band around the sky in which the planets travel. Early in 1929 the new Lawrence Lowell telescope, a special instrument for the research, was put in operation.

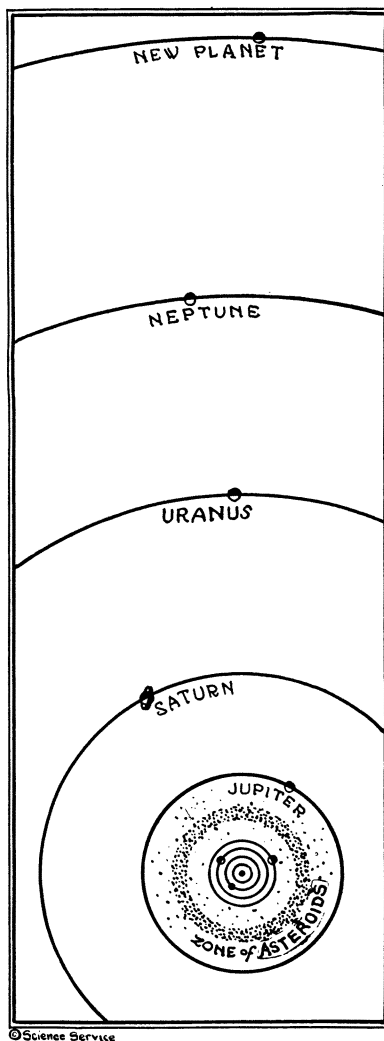
Some weeks ago Mr. C. W. Tombaugh found an object on his plates with this telescope, which has since been followed carefully also with the Lowell forty-two inch reflector, by C. O. Lampland. It has been observed visually with the large refractor by the various members of the Lowell Observatory staff.

The object is now (March 13) about twelve seconds west from delta Geminorum, westward motion about two seconds per day. The position of the new object substantially agrees with Lowell's prediction of its position and distance. Due to the very great distance of this body and its consequent small apparent size even in a large telescope it has been necessary in learning of its nature to rely almost wholly upon a critical analysis of its motion during the past seven weeks covered by the observations. It will therefore be necessary to continue observation of it for months in order to learn its orbit and period and true nature.

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The discovery of a new planet beyond Neptune by Lowell Observatory is one of astronomy's outstanding discoveries. The year 1930 will be remembered for the detection of the ninth planet.

The diagram shows the relative distance of the new planet from the sun. From the sun outward, the unlabeled planets are: Mercury, Venus, Earth, Mars.



A cranberry placed $3\frac{1}{4}$ miles from a globe two feet in diameter make a model of the new planet in relation to the sun. Mercury, innermost planet, would be represented by a mustard seed 82 feet from the two foot globe representing the sun; Venus by a pea at 142 feet; the earth by a little larger pea at 215 feet; Mars by a grain of corn at 327 feet; the asteroids by 1500 or more grains of dust and sand scattered in a circle about 700 feet away; Jupiter by an orange at a quarter of a mile; Saturn by a small orange at $\frac{2}{5}$ of a mile; Uranus by a cherry at $1\frac{1}{4}$ mile. The nearest star would be represented by a globe a foot or more in diameter at 7500 miles.

By Clyde W. Tombaugh
Discoverer of New Planet

IN searching for the new planet I was carrying out a systematically arranged program and was fortunate in being assigned to this work with the splendid new Lowell photographic telescope. I was determined to examine the ecliptic thoroughly and carefully all the way around the sky. In the course of several months of arduous research I had been ever expecting to find the new planet predicted by Prof. Lowell.

Examination of plate after plate failed to reveal it, but many asteroids and variable stars were found. I had figured out just how the object sought for should appear. The ecliptic survey was nearly half completed when one day I found an object on my plates that fulfilled expectations. Almost instantly I felt that it was the one looked for, and, of course, felt greatly elated. I was reminded of my sister's class prophecy back in high school days.

The work on the planet, however, is far from finished. Now that it is found, the elements of its orbit, and much else concerning it, must be learned, so doubtless it will be a much observed object. I am not a mathematician, and so the work on the planet is being carried on largely by the senior members of the observatory staff.

I was born February 4, 1906, near Streator, Ill., the son of Muron and Della Tombaugh; received my elementary education in the rural schools and attended Streator High School for two years. The family moved to Kansas in 1922, where I assisted my father in raising wheat. I was graduated from Burdette High School in 1925.

Since then my summer seasons were given to farming, my winters to constructing reflecting telescopes. During recent years much of my spare time was spent in observing with my telescopes and reading astronomical books. In January, 1929, I came to the Lowell Observatory and commenced work with the telescope with which the new planet was discovered.

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New York home-making experts recommend molasses for children's sweets because of its rich content of iron and calcium.