

solid surface,
with hills,
valleys,
craters and other topographic features,
primarily made of ice

HD-Video, colour with sound (11:44 min.), 2014

How They Trailed a New Planet

Study of many photos of stars disclosed to a farm boy what may prove a new world where a famous astronomer said it would be. Old theories are upset by find.

By

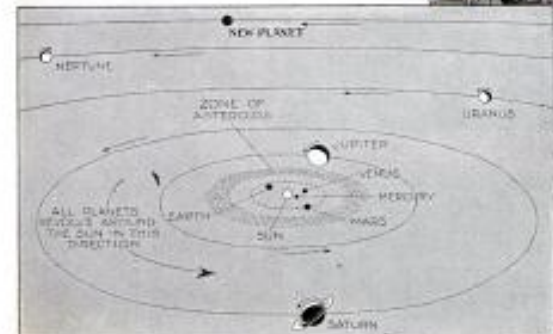
ALDEN P. ARMAGNAC

A NEW planet has been announced. Out in space, four billion miles beyond the globe we live on, a yellowish object, a little larger than the earth, swings in a vast circle about the sun; a frigid little world, bathed in the dim light of perpetual dusk. Its discovery is called the most important event in astronomy in nearly a hundred years.

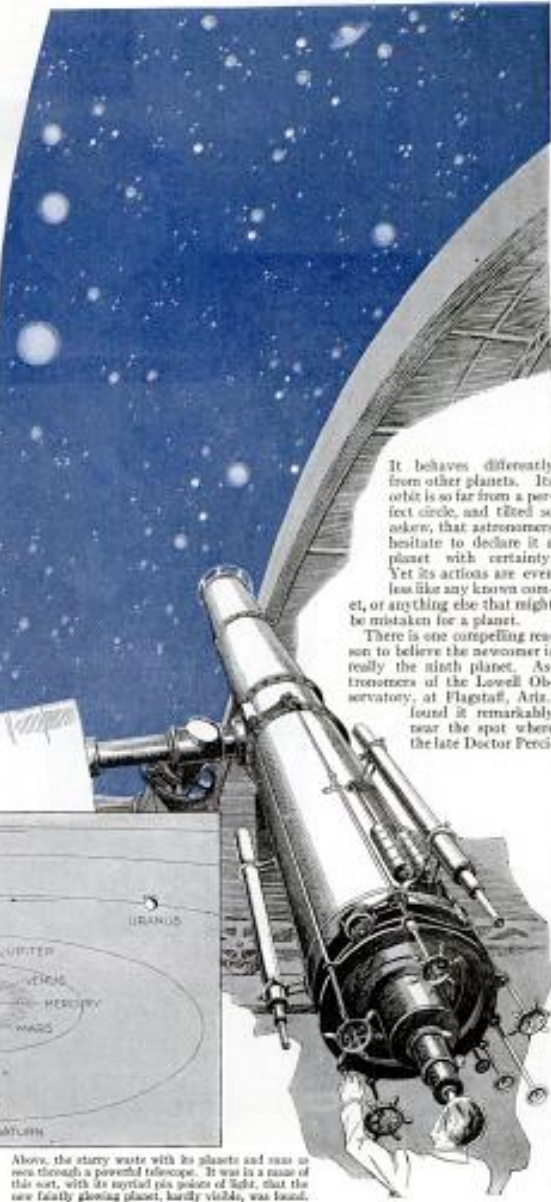
A new planet is not found every day. As many of us learned in school, a planet is one of the exclusive company of heavenly bodies that get their light and heat from the sun. They swing about it, as the earth does, in great circular paths, or orbits. These earthlike worlds are so few in number that they may be counted on the fingers.

Six, visible to the naked eye, were known to the ancients. In outward order from the sun they are: Mercury, Venus, Earth, Mars, Jupiter, and Saturn. Only two more, far-away Uranus and Neptune, were added comparatively recently when peering at the sky with telescopes came into fashion.

Now there is a ninth.
The ninth awaits positive confirmation.



On the outer rim of the solar system which the new planet. This perspective view shows the planets in about the positions they occupied when the ninth member of the family was first sighted by man.



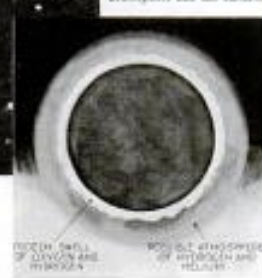
It behaves differently from other planets. Its orbit is so far from a perfect circle, and tilted so askew, that astronomers hesitate to declare it a planet with certainty. Yet its actions are even less like any known comet, or anything else that might be mistaken for a planet.

There is one compelling reason to believe the newcomer is really the ninth planet. Astronomers at the Lowell Observatory, at Flagstaff, Ariz., found it remarkably near the spot where the late Doctor Percival

Above, the starry waste with its planets and sun as seen through a powerful telescope. It was in a haze of this sort, with its myriad pin points of light, that the new faintly glowing planet, hardly visible, was found.



Here is the new planet, indicated by the arrow, as seen in a photograph taken at Flagstaff, Ariz. The large disk of light at the left is a big star in the constellation of Gemini. Below, a suggestion of how the new planet would look to a man by observer. It is too cold to have atmosphere like the earth's.



Lowell, founder and director of the observatory, predicted it fifteen years ago. When Clyde Tombaugh, one-time Kansas farm boy who came to the observatory to study astronomy, spotted it as a flash of light on a photographic plate, the long search was believed ended.

Far away as the new planet is—so far that its light, racing through space at 186,000 miles a second, takes six hours to reach our telescopes—its discovery has practical significance for many besides the astronomers.

Even dictionary-makers and book publishers are upset by the discovery. At least two widely-used standard dictionaries felt safe in listing, to round out their definitions of "planet," the names of the first eight, without such qualification as "so far known." Now the dictionaries to be up to date must publish a new edition. Meanwhile, for a brief time, there are no complete books whatever on general astronomy. A New York publisher of school books told *POPULAR SCIENCE MONTHLY* that revised editions, probably available next fall, would describe the new planet.

Anyone who has ever had the curiosity to wonder where the earth itself came from is further concerned in the discovery of the new planet, for, astronomers say, it throws a new light on the way the earth was born. Its finding solves other long-standing mysteries of the heavens, too—for instance, visible in the motions of Uranus and Neptune, the two planets nearest to it, and strange delays of several days in the returns of Halley's comet, a flashy periodic visitor to our sky.

Yet the planet itself is no easy object to see. Few Americans



This rare photo shows the late Dr. Percival Lowell at the large telescope used at the Lowell Observatory.



This diagram gives an idea of the comparative sizes of the planets. Note that the new planet lies in between the earth and Uranus.

will ever see it except in photographs. It is far too faint to be seen in the night sky by the naked eye; or, for that matter, through anything short of a sixteen-inch telescope such as a large observatory would possess. Even that would require good "seeing weather." Astronomers classify the planet as of the "fifteenth magnitude" in brightness, which would make it about a thousand times fainter than Neptune.

A concrete picture of this degree of brightness is suggested by Dr. Donald H. Menzel, of the Lick Observatory at Mt. Hamilton, Calif. If mountains, atmosphere, and the earth's curvature did not intervene, astronomers at the Lick Observatory could see New York, 3,000 miles or so away, through their great telescope. Then, if someone stood on top of New York's tallest building and held out a brick in his hand, the sunlight reflected from that single brick would appear as bright as does the new planet in powerful telescopes. Another example of its brightness is that it corresponds to the light of a tallow candle seen at a distance

of 430 miles, the approximate distance between New York and Cleveland, O.

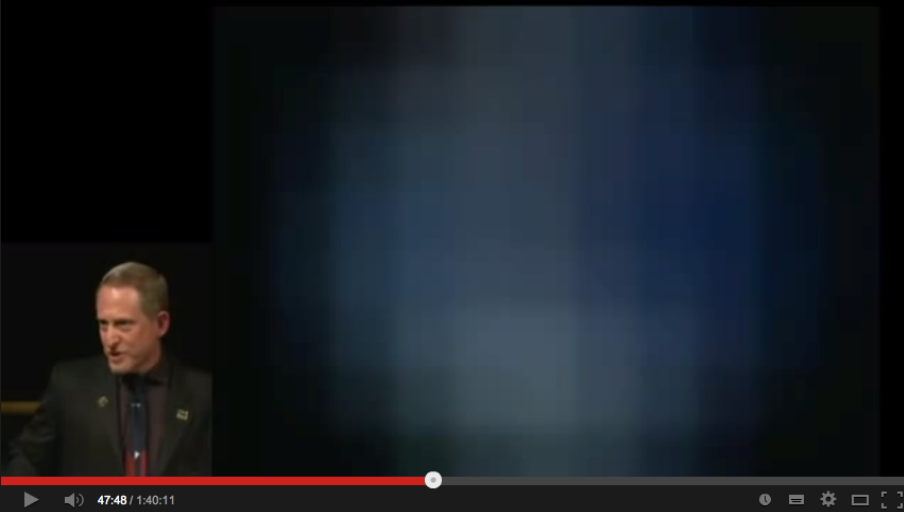
When such an object must be picked out from among some 30,000,000,000 stars in the sky, many of them far brighter, it is no wonder that the world's greatest observatories failed to notice it in the past.

It was picked up first at the Flagstaff observatory because Dr. Percival Lowell had built that lookout post and equipped the turret dome for the sole purpose of finding it. This he did at his own private expense. He was sure of himself. Working with pencil, paper, and intricate equations, he had already

(Continued on page 135)



Clyde Tombaugh, 24-year-old astronomer, once a farm boy at Beretta, Kan., now studying at the Lowell Observatory, first saw the new planet.



© Lecture at Smithsonian 'Exploring Pluto and its Satellites at the Solar System's Frontier'; Alan Stern (principal investigator of the New Horizons Mission)
<https://www.youtube.com/watch?v=2Ch4Mz0ItPo>











Image Credit: NASA/JHUAPL/SwRI
<http://www.nasa.gov/image-feature/global-mosaic-of-pluto-in-true-color>



Seite 2



OVERVIEW EFFECT

1ST LAUNCH - JANUARY 10TH -
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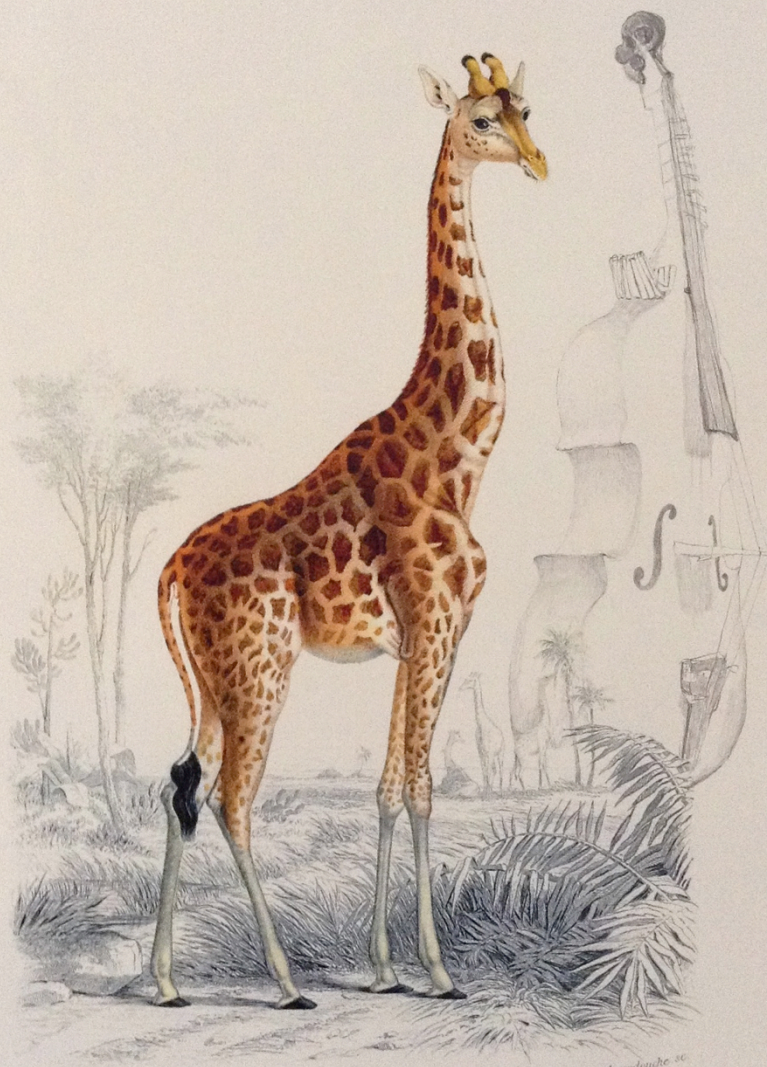
Playing to the Birds

HD-Video, colour with sound (14 min.) , 2013









1^{re} SÉRIE. QUADRUPÈDES SANS OS MARSEILLAIS. (1^{er} G. S. H. L.)

7^{me} Ordre
RUMINANTS.

Giraffe. (Camelopardalis girafa, F. Levaux) 1/24 de gr. nat.

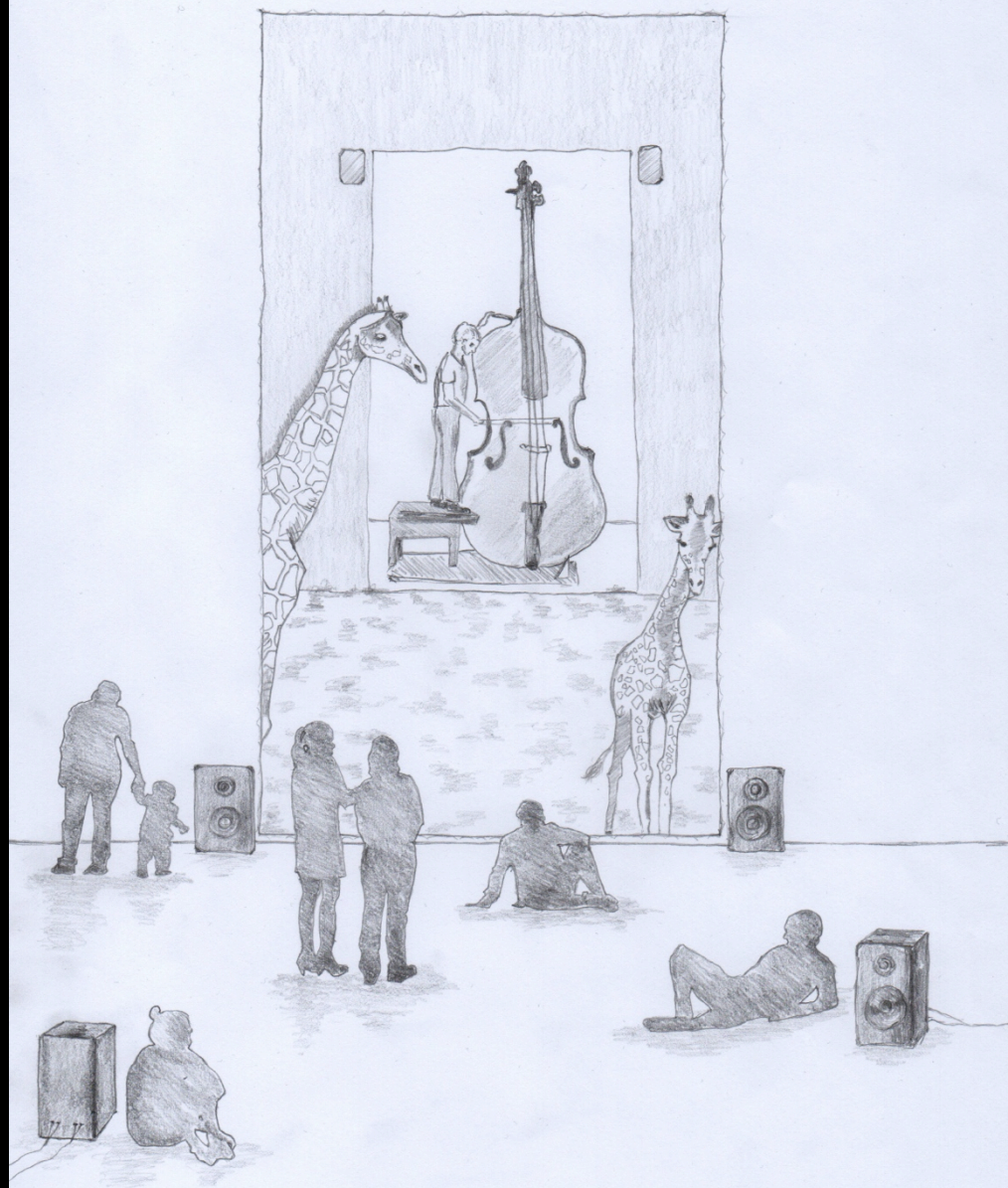




Image Credit: NASA/JPL-Caltech/MSSS/Texas A&M Univ.
<http://www.jpl.nasa.gov/news/news.php?feature=4581>