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Busted: Planet Vulcan Exists

Nineteenth-century astronomers observed Mercury's orbit was odd. It was not acting according to Newton's laws of gravity. Today, scientists know Mercury has an elliptical orbit. But in the nineteenth century, astronomers believed another planet was to blame. They thought this mystery planet was between Mercury and the Sun. It was pulling Mercury into this odd orbit. They asked Le Verrier to calculate the position of the missing

planet. He had already done so for Uranus.

Based on his calculations, Le Verrier thought the planet should be easily visible. He called it Vulcan after the Roman god of fire. He asked astronomers to pay special attention to sun spots. One of these might be the shadow of Vulcan crossing the path of the Sun. In December 1859, Le Verrier received a letter from an amateur astronomer. He claimed to have seen a circular object passing across the sun on March 26, 1859. Le Verrier believed it was Vulcan. Other astronomers, however, could not confirm his findings. Le Verrier calculated the object was too small to affect Mercury.



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Mercury's odd orbit convinced scientists another planet existed between it and the sun.

The search continued. For the next decade, astronomers began to doubt the existence of Vulcan. Those doubts persisted into the twentieth century. Astronomers could

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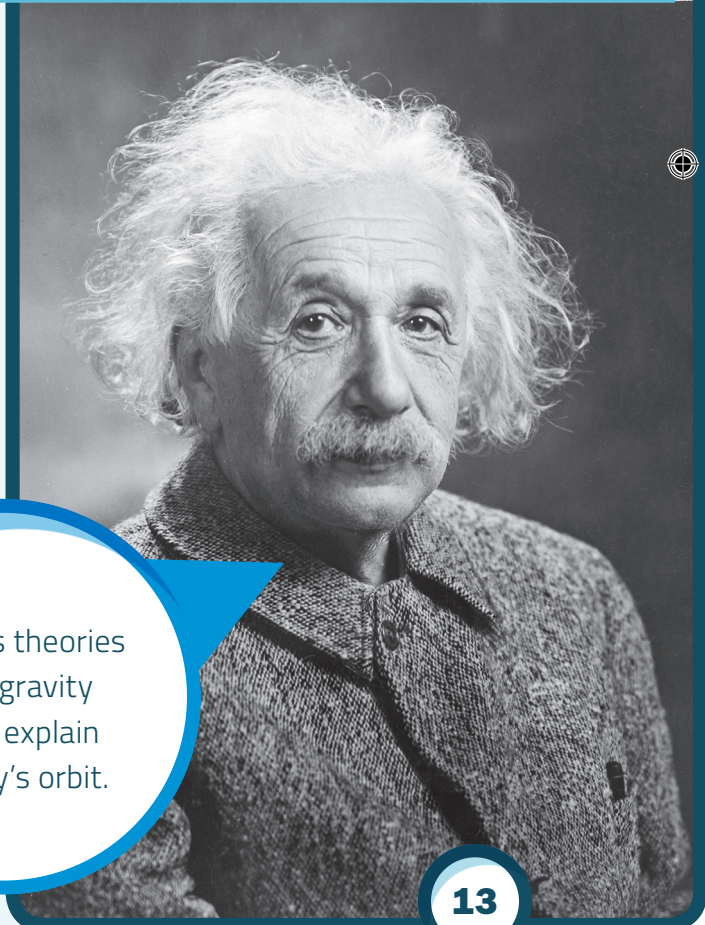
Planet in the solar system Vulcan would have been if it existed.

- Nineteenth-century astronomers observed Mercury's odd orbit and believed it was caused by another unknown planet.
- They searched for Vulcan for decades.
- In the twentieth century, Einstein's new theory about gravity solved the Mercury mystery.

EINSTEIN'S GRAVITY

Newton believed gravity pulled on an object like a rubber band does. Einstein believed gravity warped the fabric of space and time. Imagine a piece of fabric pulled tight. That is space. When a heavy object—such as a planet—sits on it, the fabric stretches and dips according to how massive the object is. That dip is gravity.

not find Vulcan. Yet nothing quite explained Mercury's odd orbit—until 1915. That year, Albert Einstein resolved the problem of Mercury's orbit using his new theories on gravity. He believed gravity changed relative to the distance between two bodies in motion. Changes in the pull of gravity would change a body's orbit. Changing gravity explained Mercury's odd orbit. This theory radically altered our view on how gravity really works.



Einstein's theories about gravity helped explain Mercury's orbit.