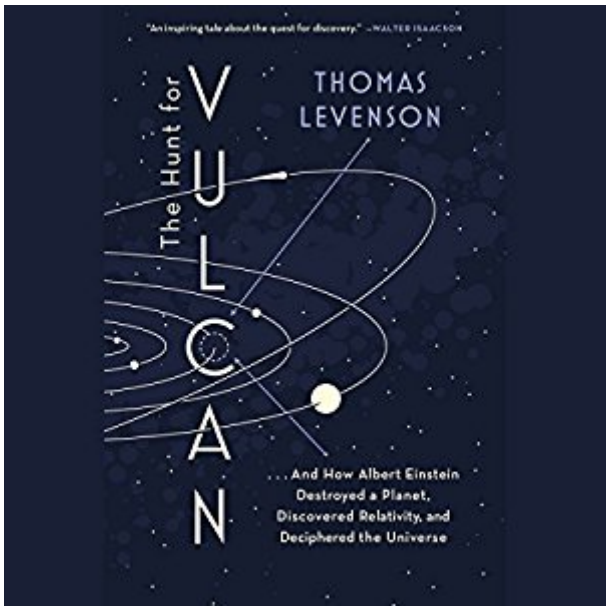
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The Hunt For Vulcan: Ã¢â,¬Â¦And How Albert Einstein Destroyed A Planet, Discovered Relativity, And Deciphered The Universe



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Synopsis

The captivating, all-but-forgotten story of Isaac Newton, Albert Einstein, and the search for a planet that never existed For more than 50 years, the world’s top scientists searched for the "missing" planet Vulcan, whose existence was mandated by Isaac Newton’s theories of gravity. Countless hours were spent on the hunt for the elusive orb, and some of the era’s most skilled astronomers even claimed to have found it. There was just one problem: It was never there. In The Hunt for Vulcan, Thomas Levenson follows the visionary scientists who inhabit the story of the phantom planet, starting with Isaac Newton, who, in 1687, provided an explanation for all matter in motion throughout the universe, leading to Urbain-Jean-Joseph Le Verrier, who, almost two centuries later, built on Newton’s theories and discovered Neptune, becoming the most famous scientist in the world. Le Verrier attempted to surpass that triumph by predicting the existence of yet another planet in our solar system: Vulcan. It took Albert Einstein to discern that the mystery of the missing planet was a problem not of measurements or math but of Newton’s theory of gravity itself. Einstein’s general theory of relativity proved that Vulcan did not and could not exist and that the search for it had merely been a quirk of operating under the wrong set of assumptions about the universe. Levenson tells the previously untold tale of how the "discovery" of Vulcan in the 19th century set the stage for Einstein’s monumental breakthrough, the greatest individual intellectual achievement of the 20th century. A dramatic human story of an epic quest, The Hunt for Vulcan offers insight into how science really advances (as opposed to the way we’re taught about it in school) and how the best work of the greatest scientists reveals an artist’s sensibility. Opening a new window onto our world, Levenson illuminates some of our most iconic ideas as he recounts one of the strangest episodes in the history of science.

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Customer Reviews

This short book has two parts, the first being about the prediction of and then failure to find the Planet Vulcan. The second is about Einstein’s development of the General theory of Relativity, and how it explained why there was no need to hypothesize a new planet. Despite the piece of the subtitle claiming "How Albert Einstein Destroyed a Planet", Vulcan was gone before before Einstein arose.After the fortuitous discovery of the planet Uranus, careful tracking of its orbit suggested there was an unaccounted for gravitational influence on it. Astronomers has gotten very good at using Newton’s law of gravity to calculate the influences the planets had on each other, and thereby predict their orbits. But Uranus’ wasn’t quite right. The brilliant, ambitious, and cunning French astronomer Urbain-Jean-Joseph Le Verrier predicted the orbit of another planet, and at his request the Berlin Observatory observed it. (Alexis Bouvard has earlier predicted the existence of another planet, and John Couch Adams also predicted an orbit for it. But it was Le Verrier who convinced someone to actually look for it based on his prediction.)Successfully predicting the location of the planet Neptune made Le Verrier’s career. Then another opportunity arose. His calculations of the orbit of Mercury didn’t match observations. He postulated another planet within Mercury’s orbit, "Vulcan", and predicted where it might be seen.Unlike the case of Neptune, where there was initially little interest in actually looking for it, many people wanted to be the first to see Vulcan. And several did, or so they thought. But it could never be found again after any of those observations. Eventually it became clear that there wasn’t another planet within Mercury’s orbit. The error in calculating Mercury’s orbit remained a mystery.The book then jumps to Einstein, and his sudden and amazing rise to the forefront of physics. In particular, his development of the Special Theory of Relativity, and its modification of Newton’s gravity. But the Special Theory didn’t account for accelerating objects. Einstein spent about ten years working on and off on the General Theory. It made two significant predictions that could be measured fairly easily. One explained the orbit of Mercury. The other was that the sun would bend the light from stars twice as much as Newton’s theory predicted. The 1919 eclipse allowed the second prediction to be tested, and General Relativity was established. And Mercury’s orbit was understood.This is actually a short book broken into two shorter books. The stories of Vulcan and Einstein share nothing other than the motivation to explain Mercury’s orbit. The first part will appeal to those how enjoy historical tales of mistaken chases. The second will

appeal to those who want a brief history of Einstein's development of the General Theory. How many will enjoy both is harder to predict.Interestingly, the author didn't delve into the later controversy about another predicted planet. With one found (Neptune), and one never there (Vulcan), there was later a concern that Neptune's orbit wasn't quite right. That turned out to be an error, but it did lead to the prediction of yet another planet. When Clyde Tombaugh searched in the predicted area he found, by a sheer fluke, Pluto; Pluto actually had nothing to do with Neptune's orbit. Had astronomers known how small Pluto was, and that its orbit was eccentric, inclined, and locked into a resonance with Neptune, they might never have called it a planet. But, believing it was a large body perturbing Neptune's orbit, it was considered a planet for decades. And its demotion to a minor planet thus became a big deal.I was provided a copy for review by the publisher.

This is a great book for those that enjoy reading about history and astronomy. It's a great balance between casual and scientific. Even perfectly average folks like me, that have a simple curiosity about the world, but not a deep knowledge of science/astronomy, can enjoy it. That said, I do recommend perfectly average folks like me waiting to pick it up when you're in the mood for something a little deeper. (If you're like me, the end of the year simply requires light and fluffy reads. I always tend to start the year out with deeper books, and I really think I'd have enjoyed it more in another reading season.)The book mostly revolves around scientists Sir Isaac Newton, La Verrier, and Albert Einstein. There are illustrations throughout, which I always appreciate. When reading about people, I enjoy getting an idea of what they look like without having to stop reading to do a photo search. (I like having a mental picture of real people as I read about them.)With Christmas coming up as I write this, I can't help but say this would be a nice gift for those interested in astronomy/history/science, especially for those that are super hard to pick gifts for!

It's really a fascinating and readable account of an era in science history. And showing the great minds of European science working heroically to find the reason why Mercury's orbit just didn't quite work within Newtonian physics. And not finding the explanation (which the existence of a planet closer to the sun might have fixed), but working heroically and working heroically and ... then just gave up. Einstein came along and resolved the issue a few decades later, but in sort of an unsatisfying deus ex machina way. Goes to show--science doesn't work exactly like they said in high school. One thing I would have liked is some footnotes or a link to the math behind some of these problems. Or maybe they're there, but it's too hard to thumb through a Kindle--possibly the paper book would have been better.

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