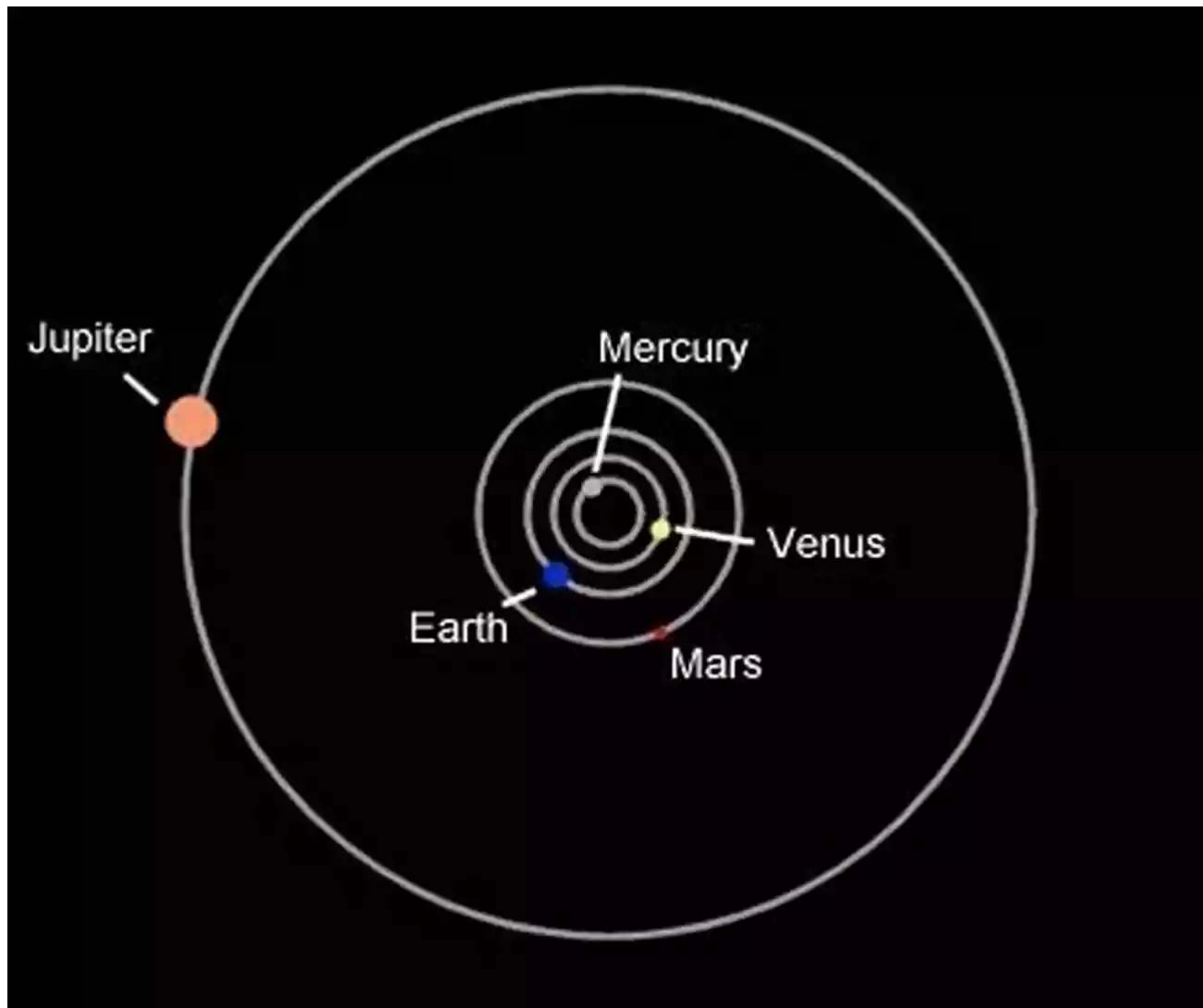


The Gap Between Mars And Jupiter: Arm Chair Astronomy 10



Have you ever gazed up at the night sky, wondering about the vastness of the universe and the mysteries it holds? Astronomy is a fascinating field of study that allows us to explore the celestial bodies that exist beyond our planet. In this article, we will delve into the armchair astronomy series and focus on understanding the gap between Mars and Jupiter. So, get ready to embark on a cosmic journey from the comfort of your armchair!

The Solar System

Before we dive into the specific gap between Mars and Jupiter, let's briefly overview the solar system. Our solar system consists of eight planets, including Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune. These planets revolve around the Sun, our closest star, each with its own unique characteristics.

The Asteroid Belt: The Gap
Between Mars and Jupiter



Edited by
Patrick Bruskiewich

Volume Ten: The Arm Chair Astronomy Series

The Asteroid Belt: The Gap Between Mars and Jupiter (Arm Chair Astronomy Series Book 10)

by Jan Vansina (Kindle Edition)

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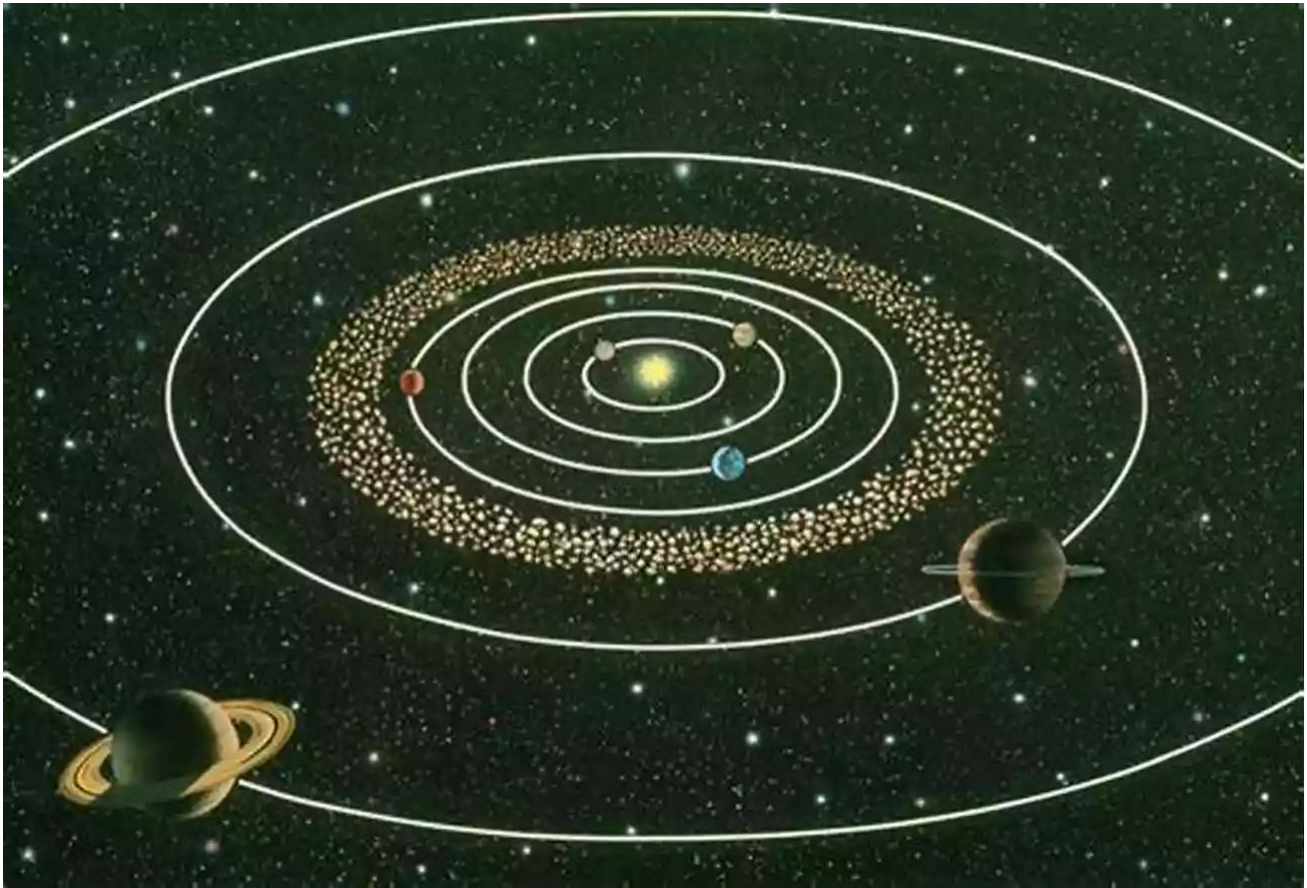
Now, let's focus on the gap between Mars and Jupiter. To understand this gap, we need to introduce the term "asteroid belt." The asteroid belt is a region located between the orbits of Mars and Jupiter, consisting of numerous small rocky objects called asteroids. These asteroids vary in size, ranging from a few meters to hundreds of kilometers in diameter.

Formation of the Asteroid Belt

The formation of the asteroid belt can be attributed to the gravitational forces exerted by Jupiter. It is believed that the gravitational pull of Jupiter prevented the formation of a planet in that region. Instead, the material present in this space gradually accumulated to form the asteroid belt we observe today.

Asteroids: The Building Blocks

Asteroids are remnants from the early stages of our solar system's formation. They are made up of a variety of materials, such as rock, metal, and even organic compounds. Scientists study asteroids to gain insights into the conditions that prevailed during the formation of our solar system.



Exploring the Asteroid Belt

Various space missions have been sent to explore the asteroid belt and study its composition. NASA's Dawn mission, launched in 2007, provided valuable

information about the asteroids Vesta and Ceres. Vesta is one of the largest asteroids in the belt, while Ceres is a dwarf planet.

The Importance of Understanding the Gap

Studying the gap between Mars and Jupiter is crucial as it helps us better understand the dynamics of our solar system. By analyzing the asteroid belt, scientists can gain insights into the early stages of planet formation and the processes that shaped our celestial neighborhood.

Armchair astronomy allows us to explore the wonders of the cosmos without leaving the comfort of our homes. In this article, we delved into the gap between Mars and Jupiter, which is occupied by the asteroid belt. We discussed the formation of the belt, the nature of asteroids, and the importance of studying this region. So, next time you find yourself in your favorite armchair, take a moment to ponder the mysteries lying beyond the gap between Mars and Jupiter.

Related Articles:

- The Fascinating World of Armchair Astronomy
- Exploring Our Solar System: A Journey Through Planets

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The discovery of the first asteroid, Ceres, in 1801 was a monumental moment in the history of modern astronomy.

The existence of 'a planet' between Mars and Jupiter was hypothesized using the Titius-Bode Rule. The 17th century version of the rule predicts the existence of a planet at 2.8 A.U. When Ceres was first discovered in 1801 it was found at a distance of 2.55 A.U, not quite midway between Mars (at 1.52 A.U.) and Jupiter (at 5.2 A.U.). Ceres was so small that it was called an asteroid. An asteroid is considered a small object that looks much like a distant star but is in orbit around the sun. Ceres is now described as a planetoid, or sometimes a dwarf planet. Pluto is also such an object.

The discovery of Ceres started a whole new branch of astronomy. It also triggered a debate as to whether there was once a missing planet in the gap between Mars and Jupiter, or whether the influence of giant Jupiter prevented a planet to form to begin with. In many ways that debate continues to the present day, some two hundred and twenty years later.

Each year new asteroids are discovered so that today there are well over 15,000 listed and many times that number yet to be named or label. It seems natural to ask how these asteroids are distributed in the gap between Mars and Jupiter. The initial assumption was that they may be randomly distributed in the gap. Well ... this turned out not to be the case!

The discovery by Kirkwood of groupings of asteroids in 1858 was another monumental discovery in astronomy. The gaps seen in the asteroid belt are now known as Kirkwood Gaps. The grouping depends on resonances in the orbital

periods of the asteroids and nearby Jupiter. Then there are the Trojans as well. In a subsequent book in the Arm Chair Astronomy series orbital resonances, the Kirkwood Gap and the Trojans will be discussed.

In the early 1960's the science writer Willy Ley predicted that the first planetoid visited would be Eros and he was correct. There is a short description of the first visit to Eros, half a century after Willy Ley predicted!

It was also a matter of time before Ceres would also been visited by interplanetary spacecraft. There is a short description of the first visit to Ceres and Vesta.

Appendix One gives a technique to derive the Titius-Bode Rule using Natural Logarithms. Appendix Two provides for a three step technique and a modern algorithm.

Our solar system is teeming with objects of varied sizes, some of which orbit between Mars and Jupiter, and some that either zip past the Earth or which sometimes come down with tremendous energy. In recent years we have found more and more evidence of great catastrophes involving Earth crossing 'asteroids' ... one has only to think of Tunguska event of 1908 or the more recent Chelyabinsk event from February, 2013. Each month there are also reports of close encounters with our fragile Earth. There is not much use hiding under your bed ... if it happens ... it happens!

In the Epilogue to this book there is a challenge to test your understanding of the Titius-Bode Rule.



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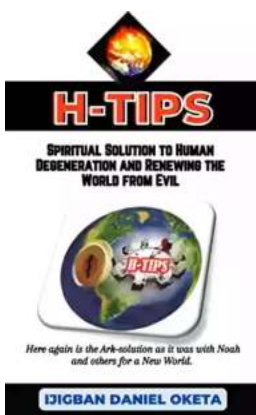
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