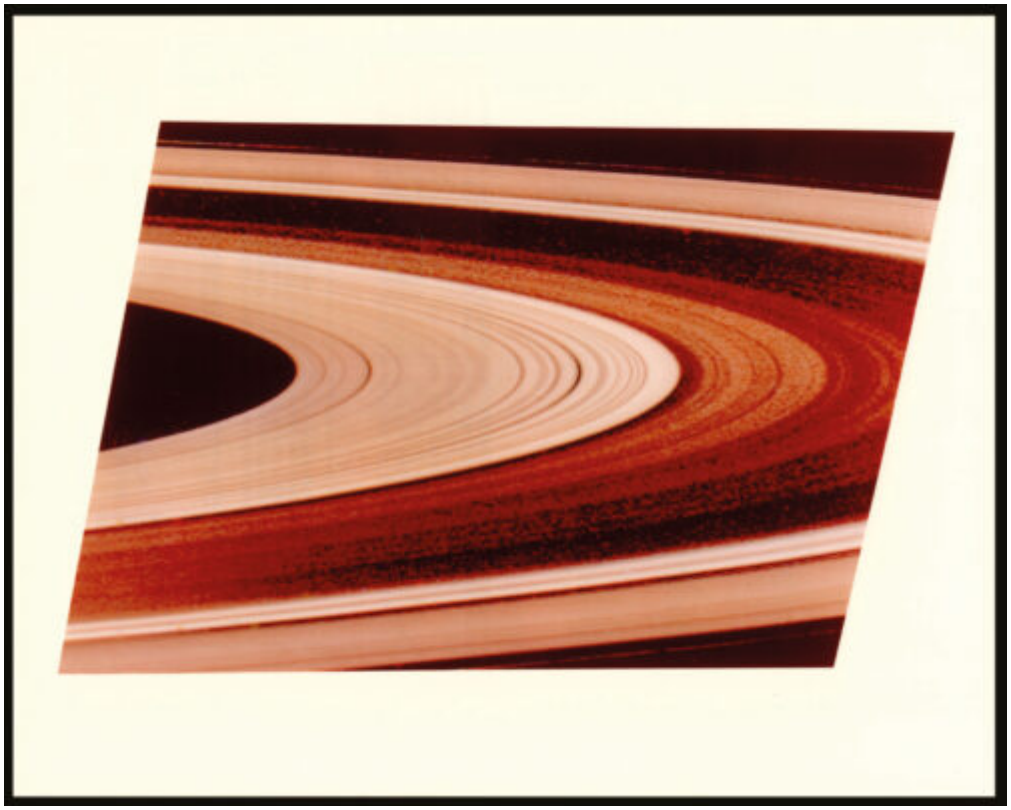

A group of four vintage chromogenic prints, Voyager 2, watermarked “This Manufactured by Kodak”.

“THE PLANET SATURN IS NOT ALONE”

[The rings of Saturn]

Author
NASA

Publication date
1980-1981].

Publisher
[NASA/ Jet Propulsion Laboratory,

Publication place

Physical description
A group of four vintage chromogenic prints, Voyager 2, watermarked “This Manufactured by Kodak”.

Dimensions
202 by 254mm. (8 by 10 inches).

Notes
The rings of Saturn are the most extensive ring system of any planet in the Solar System. They consist of countless small particles, ranging in size from micrometers to meters that orbit around Saturn. The ring particles are made almost entirely of water ice, with a trace component of rocky material.

Galileo Galilei (1564-1642) was the first to observe the rings of Saturn in 1610 using his telescope, but was unable to identify them as such. He wrote to the Duke of Tuscany that “The planet Saturn is not alone, but is composed of three, which almost touch one another and never move nor change with respect to one another. They are arranged in a line parallel to the zodiac, and the middle one (Saturn itself) is about three times the size of the lateral ones.” He also described the rings as Saturn’s “ears”. In 1612 the Earth passed through the plane of the rings and they became invisible. Mystified, Galileo remarked “I do not know what to say in a case so surprising, so unlooked for and so novel.” He mused, “Has Saturn swallowed his children?” — referring to the myth of the Titan Saturn devouring his offspring to forestall the prophecy of them overthrowing him

Christiaan Huygens (1629-1695) began grinding lenses with his brother Constantijn in 1655 and was able to observe Saturn with greater detail using a 43× power refracting telescope that he designed himself. He was the first to suggest that Saturn was surrounded by a ring detached from the planet, and famously published the anagram: “aaaaaaaccccccdeeeeeghiiiiiiiillllmmnnnnnnnnnnoooooppqrrs-ttttttuuuuu”. Three years later, he revealed it to mean Annuto cingitur, tenui, plano, nusquam coherente, ad eclipticam inclinato (“[Saturn] is surrounded by a thin, flat, ring, nowhere touching, inclined to the ecliptic”). He published his ring theory in Systema Saturnium (1659) which also included his discovery of Saturn’s moon, Titan, as well as the first clear outline of the dimensions of the Solar System.

In 1675, Giovanni Domenico Cassini (1625-1712) determined that Saturn’s ring was composed of multiple smaller rings with gaps between them; the largest of these gaps was later named the Cassini Division. This division is a 4,800-km (3000 mile) wide region between the A ring and B Ring. In 1787, Pierre-Simon Laplace proved that a uniform solid ring would be unstable and suggested that the rings were composed of a large number of solid ringlets. In 1859, James Clerk Maxwell demonstrated that a nonuniform solid ring, solid ringlets or a continuous fluid ring would also not be stable, indicating that the ring must be composed of numerous small particles, all independently orbiting Saturn.

Bibliography

Provenance

Price: £35000

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