

XIII. *The Disparition of Saturn's Ring, observed by Joseph Varelaz, Lieutenant of the Royal Navy of the King of Spain, and Professor of Mathematics, in the Academy of Guard-Marine at Cadiz. In a Letter to Dr. Morton.*

Translated from the Spanish.

Cadiz, October 12, 1773.

S I R,  
 Redde, Dec. 23, 1773. **I**T has been my luck to observe the celebrated phænomenon of *the round phase of Saturn*, which was so much recommended to Astronomers, in the Gazette of France of July 23. From the 24th of September to the 4th of October, I saw, clearly and distinctly the two *ansæ* of the ring; but with this particular circumstance, that the occidental *ansa* appeared more strongly  
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Cadiz, 12 de Octubre de 1773.

Muy Senor mio,  
**A**CABO de observar el celebre fenomeno de la phase redonda de Saturno, que tanto se recomendó á los Astronomos en la Gazeta de Francia de 23 de Julio de este ano. Desde el dia 24 de Septiembre hasta el 4 de Octubre he visto clara y distintamente las dos asas del anillo, aunque con la particularidad de que el asa occidental parecia mas bien iluminada  
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illuminated than the oriental. The atmosphere was thicker on the 5th, and I could only see the occidental. The 6th, I thought I could discern some faint remains of the ring ; but that might be a deception of my sight, because the atmosphere remained very thick, and the planet could not be seen well terminated. On the 7th, the atmosphere being more transparent, and the heavens clearer than I have ever seen them, I observed the total disparition of the ring ; and, having repeated the same observation the following day, I was convinced that this famous phænomenon took place the 6th day of the month, in which determination I have all the exactness, which can be expected in observations of this kind. The most striking circumstances of this phænomenon were the following ; 1. The occidental *ansa* constantly appeared more bright than the oriental. 2. On the disc of the planet, one could clearly distinguish the line of the shadow projected from the

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que la oriental. El dia 5 estaba la atmosfera algo densa, y solo pude distinguir el asa occidental. El dia 6 me pareció haver percivido algun vislumbre del anillo, pero tal vez feria una ilusion de mi vista, porque estaba la atmosfera sumamente densa, y no se podia ver el planeta bien terminado. El dia 7, con la atmosfera mui limpia y el cielo mas claro que he visto jamas, observé la total desaparicion del anillo, y habiendo repetido la misma observacion al dia siguiente, me aseguré en que esta celebre phase se havia verificado el dia 6 de este mes, en cuya determinacion hay toda aquesta exactitud de que son susceptibles estas observaciones. Las particularidades mas notables de este fenomeno han sido las siguientes. 1. El asa occidental parecia siempre mas bien iluminada que la oriental. 2. En el disco del planeta se distinguia claramente la linea de la sombra que pro-

the thickness of the ring. 3. On the extremities of this, some luminous points were perceived, which reflected the light more strongly than the others. 4. I did not observe a sensible variation in the apparent diameter of the ring.

I made use, for this observation, of a five-foot reflector of Mr. Short, of another of four of Mr. Nairne, and of an excellent acromatic telescope of Mr. Dollond, to which I applied one of the strongest and brightest magnifiers.

I assure you, Sir, that I have given to this observation all the attention, which the importance of the matter required; and this joined to three others, form a set of observations on the planets, the occultations of fixed stars by the moon, and the Satellites of Jupiter. I shall send you a copy of the whole, if you think proper to present them to the Royal Society, and will accept of my correspondence.

Don

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yecta el espesor del anillo. 3. En los extremos de este se percibian unos puntos luminosos que reflectaban la luz con mas viveza que los otros. 4. En el diametro aparente del anillo no hubo una variacion sensible. Me servi para esta observacion de un telescopio de 5 pies de Mr. Short, de otro de 4 de Mr. Nairne, y de un excelente antejo acromatico de Mr. Dollond, al qual apliquè uno delos tubos mas fuertes y claros.

Aseguro a vm. haver hecho esta observacion con toda la prolixidad, que pide la importancia de la materia, y con la misma tre formado un Quaderno de observaciones sobre los planetas, ocultaciones de estrellas fixas per la Luna, y Satelites de Jupiter. De todo embiare à vm. una copia, si gustare presentarla à la Sociedad Real, y admitir mi correspondencia.

Dn.

Don Vincent Tofino Captain of a frigate in the King's fleet, and Director of the Academy of the *Guarde-marines*, has had a great share in these observations. He is no less desirous, than myself, that they should be communicated to the Royal Society: for which purpose, I request an answer from you, which you will please to address to,

S I R,

Your most humble obedient servant,

JOSEPH VARELAZ,

Lieutenant in the Royal Navy, and  
Professor of Mathematicks in the  
Academy of *Guarde Marines*.

Don. Vincente Tofino, Capitan de Fragata de la Rl. Armada, y Director de la Academia de Guardias-Marinas, ha tenido mucha parte en estas observaciones. Desea como yo comunicarlas à la Sociedad Real, à cuyo fin suplico à vm. que me responda, y que me mande como à

Su mas rendido y obediente fervidor,

JOSEF VARELAZ,

Teniente de Navio de la Real Armada y Profesor de Mathematicas en la Academia de Guardias Marinas.