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DAVIDSON

NOTES ON SATURN.

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ASTRONOMICAL NOTES

FROM BULLETIN No. 5

OF THE

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BY

GEORGE DAVIDSON.

1886.

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## NOTES ON SATURN.

By Prof. GEORGE DAVIDSON, A. M., Ph. D.

After midnight of Friday, the 13th November, 1885, the atmosphere was unusually steady; sky clear; no wind; atmosphere saturated with aqueous vapor; heavy dew falling. The satellites of Saturn were plainly visible with a moderate power to the equatorial of 6.4 inches objective. The planet was examined for nearly two hours with different powers, the best effects being obtained with powers of 300 to 350 diameters; and the summary of the matters of interest is as follows:

The Encke division was traced for  $120^\circ$  about each end of the major axis, leaving only  $120^\circ$  not seen. The division was faint but it was there, a little outside the middle of the ring *A*.

In the ring *B* the inner part presented such an appearance in its delicate shading as would arise from a rapid horizontal rotary motion being given to a disc of irregularly distributed and yielding matter. I could detect no atmospheric unsteadiness that would give rise to this phenomenon.

The dusky ring presented equally distinct ansæ; on former occasions I had been satisfied that they were sometimes of different brightness, and had endeavored to find some law for this variation. The dusky ring was well defined at the ansæ and across the body of the planet, but I was convinced that the limb of the planet was visible through the dusky ring, very nearly, if not quite up to the inner edge of ring *B*.

The shadow of the planet was cast upon the preceding side, and where it reached the outer edge of the ring *B*, it was recurved farther from the planet as if the outer edge of *B* had a round moulding above the general level of the plane.

The markings of the planet were quite distinct. The darker color of the pole was gradually toned down until it met the second moderately faint belt south of the equator. The second belt was quite dark but appeared to have a more marked darkness on the following side of the central line, where it should have been brighter on account of the sunlight. Then came the bright equatorial belt without markings and north of it a narrow dark band about half as broad as the trace of the dusky ring across the planet, with a narrow dark band about half as broad as the trace of the dusky ring across the planet, with a narrow lighter space between it and the edge of the dusky ring.

January 8, 1886. The atmosphere was unsteady, but at quiet moments I saw the Encke division by using a power of 250 diameters. Observations made with the Clark Equatorial of 6.4 inches.

January 25, 1886. The atmosphere was wonderfully steady. I saw the dusky ring of Saturn with powers as low as 150 diameters, and the equatorial beltings were beautifully sharp. The shape of the shadow on the outer part of the *B* ring was apparently not so recurved as heretofore. I saw the limbs of the planet through the dusky ring to the inner edge of ring *B*. I was able to follow the grayish inner edge of the *B* ring across the body of the planet and in contrast with the dusky ring below it. The Encke division at the preceding part of the ellipse was clearly outside the middle of *A*; at the following part it was barely outside the middle of *A*; no difference of breadth of the Cassini division could be distinguished at either extreme.

February 14, 1886. Atmosphere steady. Carried powers to 450 diameters. The Encke division clearly exhibited; on the preceding side it is outside the middle of *A*, on the following side it is barely inside the middle of *A*; I carry it well down to the narrow part of the ellipse. The dusky ring is well seen and it seems that the inner edge extends more than half way from *B* to the planet. The limbs of the

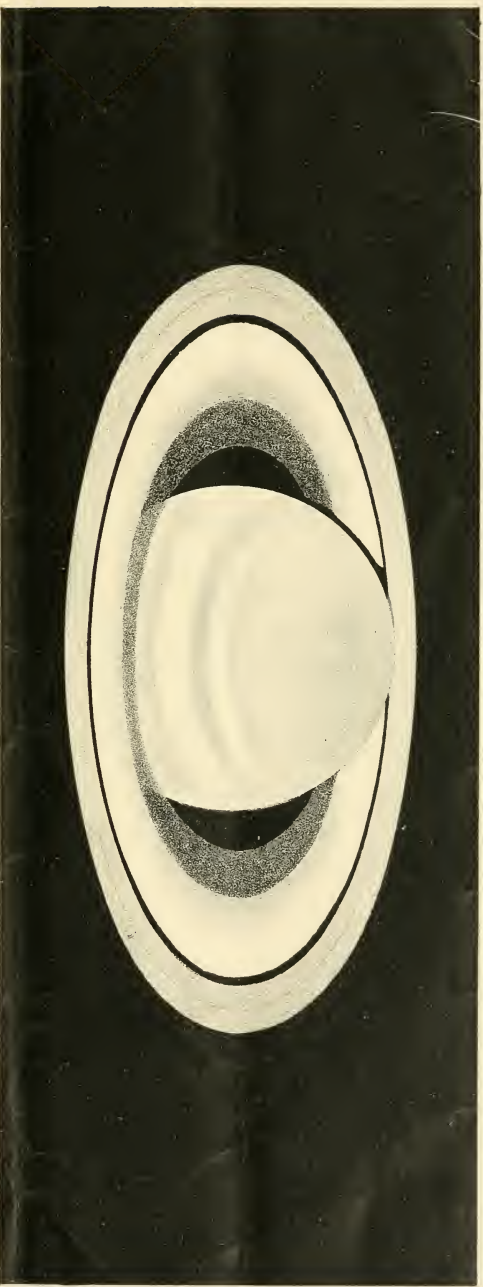


planet are seen through the dusky ring and the inner edge of *B*. I cannot determine any difference of brightness between the preceding and following parts of the dusky ring.

I have watched carefully and repeatedly a minute—excessively minute—and white protuberance on each side of the planet apparently off the broad bright equatorial belt, but really at the points where the faintly dark belt nearest the dusky ring disappears at either limb. This would seem to indicate that this faint dark belt is raised above the general surface of the spheroid.

March 31, 1886. To this date I have not been able, on account of atmospheric conditions, to test the last observations of February 14.





LIT. BRITTON & KEY

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## SATURN

Davidson Observatory.

As seen in an Inverting Telescope

November 13<sup>th</sup> 13 hr 21 m















