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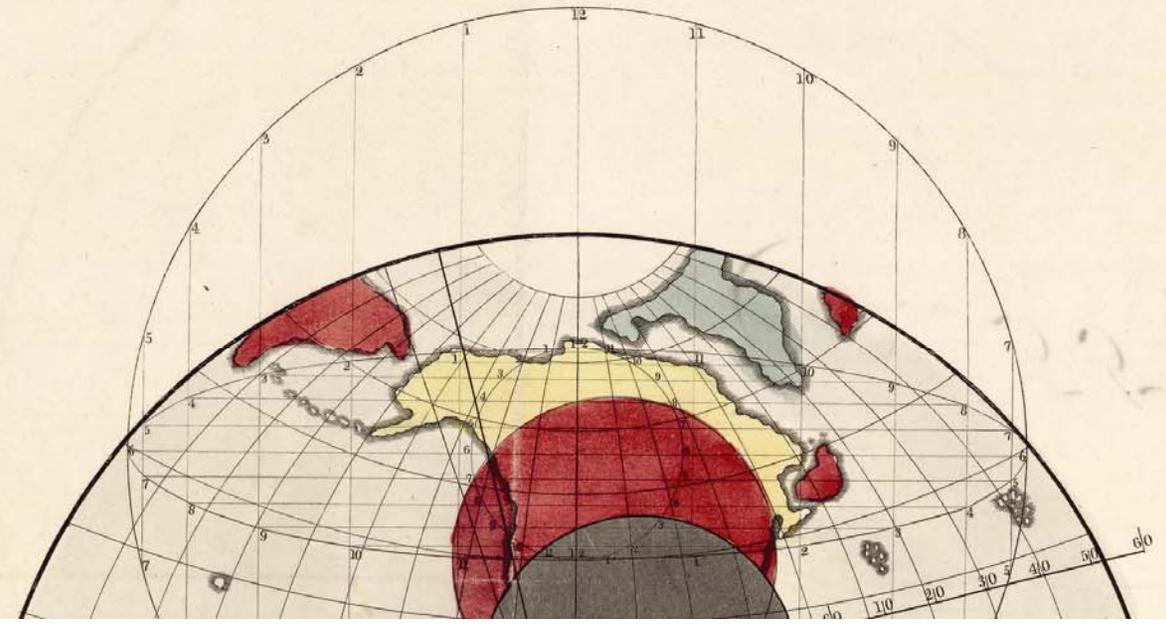
368.

April

# ECLIPSE OF THE SUN, 1846.

APRIL 25.

Eclipse Begins at New York	11. 03 .	Morning.
Middle of Eclipse . . . .	0. 21 .	Past Noon.
Eclipse Ends . . . . .	1. 53 .	
Whole Duration . . . . .	2. 50 .	
Digits Eclipsed . . . . .	7 .	Nearly.



rest

18. 1846.

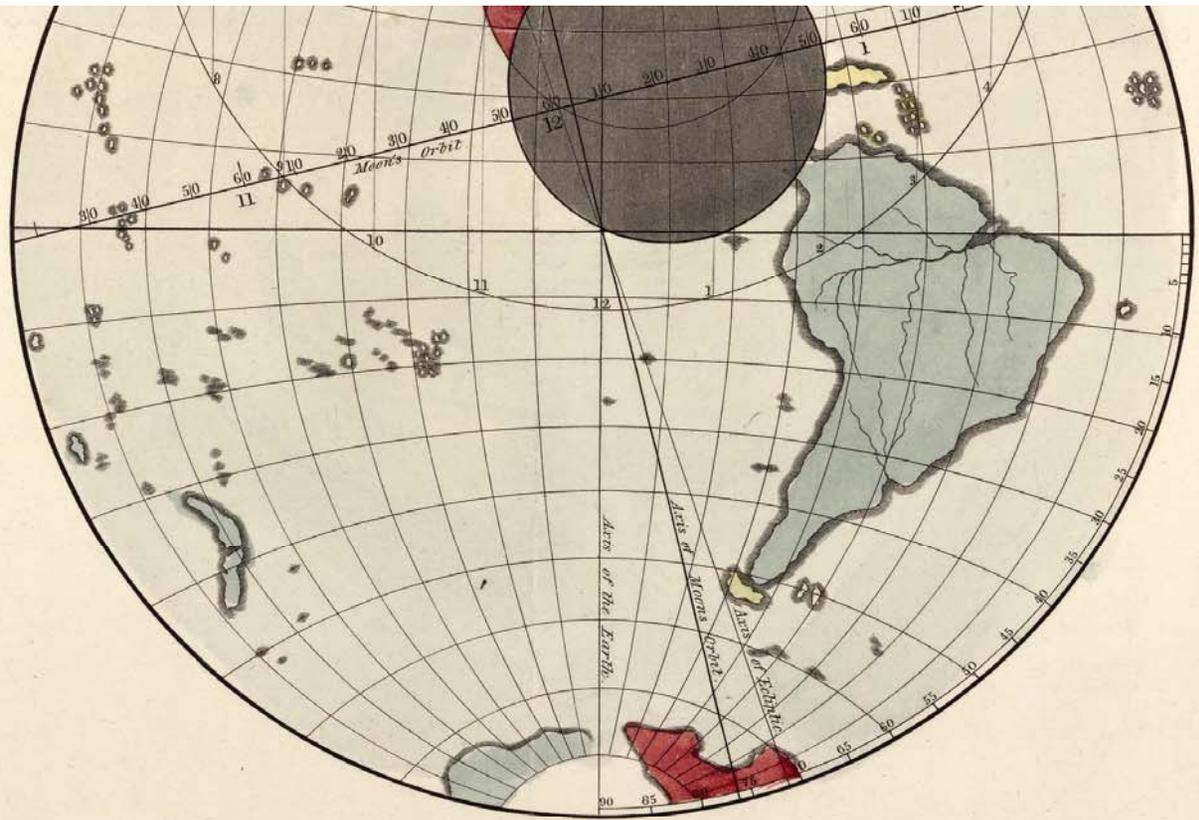
# MAGNIFICENT ECLIPSE OF THE SUN, APRIL 25TH, 1846.

**This is the greatest Eclipse visible in the United States until May 26th. 1854.**

There will be an Eclipse of the Sun, on the 25th. day of April next, commencing at New-York, at 11 o'clock 3 minutes, in the forenoon, and should the atmosphere be clear it will present as sublime a spectacle as we seldom witness; although Eclipses are not viewed by mankind at the present day with horror and alarm as they were by the ancients, who considered them as indications of the wrath of an offended Deity, which was soon to be visited upon them, yet they are witnessed at the present day, with much curiosity and delight, as affording a positive demonstration of the ability of Astronomers to solve the great problems of the heavens, which for ages were hid in the immensity of space, and obscured by the ignorance of man.

Among all the sciences known to mankind, that of Astronomy is the most sublime, the most interesting, the most useful and the most elevating to the mind and character of man. Our very faculties are enlarged with the grandeur of the ideas it conveys, our minds are exalted above the low contracted prejudices of the ignorant, and our understanding clearly convinced of the existence, wisdom, power, goodness, immutability, and omnipotence of the Supreme

True apparent time of new moon 25th day 0 hours, 3 minutes, 44 seconds, (noon.)	
Sun's true longitude in the ecliptic,.....ls.	50. 18'. 36"
Sun's right ascension at the time,.....	2. 1. 27.
Sun's declination north increasing,.....	13. 18. 24.
Sun's semi diameter,.....	15. 59.
Sun's hourly motion,.....	2. 25.
Moon's horizontal parallex, or semi-diameter of the earth's disk as seen from the moon,	57. 44.
Moon's hourly motion in her orbit around the earth,.....	33. 49.
Moon's semi-diameter as seen from the earth,	15. 47.
Moon's hourly motion from the sun,.....	31. 24.
Moon's latitude—North, Decreasing,.....	12. 50.
Semi-diameter of the moon's penumbra,....	32. 46.
Angle the axis of the ecliptic makes with the axis of the earth—West,.....	19°. 30. 17.
Angle the axis of the moon's orbit makes with the axis of the ecliptic—East,.....	5. 39. 00.
Angle the axis of the moon's orbit makes with the axis of the earth—West,.....	19. 51. 17.



5 10 15 20 25 30 35 40 45 50 55 60  
 Moons hourly motion from Sun.

Scale  
 5 10 15 20 25 30 35 40 45 50 55 60

*Calculated and Drawn by* **A. SMITH,** *Principal Teacher of*

**PUBLIC SCHOOL N<sup>o</sup> 12. NEW YORK.**

*Deposited in the Clerk's Office for the Southern District of New York*

clearly convinced of the existence, wisdom, power, goodness, immutability and superintendency of the Supreme being. It conducts the mind through the remotest ethereal regions, lays open to view the long hidden mysteries of the heavens, and presents to the mind, in their proper light, the wonderful works of the deity. The first appearance of this Eclipse since the creation of the world, (according to Sacred Chronology.) was in the year 1041, January 14th., old style, when the moon's shadow just touched the earth at the South Pole, it has appeared every Nineteenth year since, and at every return the moon's shadow passed over the earth from west to east a little further to the north, until the year 1756, March 2nd., when the centre of the moon's shadow passed a little to the north of the earth's centre, (the moon being  $5' 19''$  from her descending Node,) which was its 38th. periodical return. The present Eclipse will be its 43rd. periodical appearance. It will appear again in 1864, May 6th., but will be invisible in the *United States*. It will also appear in 1882, May 16th. at 7 o'clock, 41 minutes, 36 seconds in the morning, when the Sun will be almost totally Eclipsed, it will continue to appear every Nineteenth year, until the year 2441, May 17th. at 1 o'clock, 43 minutes, morning, when the moon's shadow will just touch the earth at the north pole, which will be its 77th. periodical and last appearance until the expiration of 12492 years, when it will come on again at the south pole, and go through a similar course.

The moon's penumbra will first strike the American Continent in Mexico, on the coast of the Pacific Ocean, it will pass in a northeast direction, over Texas, West India Islands, northern part of South America, United States, cross the Atlantic Ocean, and disappear in the west of Europe at the setting of the Sun.

The elements from which this eclipse was drawn, and the positions of the Sun, Earth and Moon at the time, by careful calculations; have been found to be as follows, viz :

Angle the axis of the moon's orbit makes with the axis of the earth— $^{\circ} 51' 17''$   
 Moon's true distance from her ascending node,.....  $58. 27. 47. 17.$

**THE CAUSE OF ECLIPSES.**

The moon revolves around the earth once in about 29½ days, or from one new moon to another—consequently the moon passes between the earth and sun once during each revolution of the moon around the earth, and also passes in opposition or is upon the opposite side of the earth from the sun once during each revolution. An Eclipse of the sun must always take place at new moon, and is caused by the moon passing between the sun and the earth in such a manner that the shadow of the moon falls upon the earth, or hides the sun from our view. An Eclipse of the moon must always take place at full moon, and is caused by the moon passing through the earth's shadow, but most generally at new moon, the moon passes either to high or to low for the moon's shadow to strike any part of the earth, and at full moon the moon generally passes either above or below the earth's shadow consequently there is no eclipse. The greatest number of Eclipses that can happen in one year are 7, the least number, two, in this case both will be of the sun.

**EXPLANATION OF THE ECLIPSE.**

The dark circular shade upon the Hemisphere, represents the moon passing between the earth and sun, the red, circular shade represents the sun partly eclipsed by the moon. To view this Eclipse as it will appear in the heavens, face the south, and **HOLD IT UP TO THE SUN AND LOOK THROUGH THE BACK** towards the place where the eclipse will appear, you will then have the exact position of the earth, sun & moon at its greatest obscuration. The moon will come in contact with the sun on the west, at 11 o'clock, 3 minutes, and will pass over the sun from west to east, at an angle inclining to the north of about 15°. Degrees.

Entered, according to Act of Congress, in the year 1846, by ASA SMITH, in the Clerk's office of the District Court of the Southern District of New-York.

February 21, 1846.