

Benjamin Banneker

. . . on the Sky, Eclipses & the Almanac





October 9, 1806





CAUTION!!

COLORED PEOPLE

OF BOSTON, ONE & ALL,

You are hereby respectfully **CAUTIONED** and
advised, to avoid conversing with the

Watchmen and Police Officers
of Boston,

For since the recent **ORDER OF THE MAYOR &
ALDERMEN**, they are empowered to act as

KIDNAPPERS

AND

Slave Catchers,

And they have already been actually employed in
KIDNAPPING, CATCHING, AND KEEPING
SLAVES. Therefore, if you value your **LIBERTY,**
and the *Welfare of the Fugitives* among you, *Shun*
them in every possible manner, as so many **HOUNDS**
on the track of the most unfortunate of your race.

Keep a Sharp Look Out for
KIDNAPPERS, and have
TOP EYE open.

APRIL 24, 1851.



Molly Bannaky

written by
Alice McGill

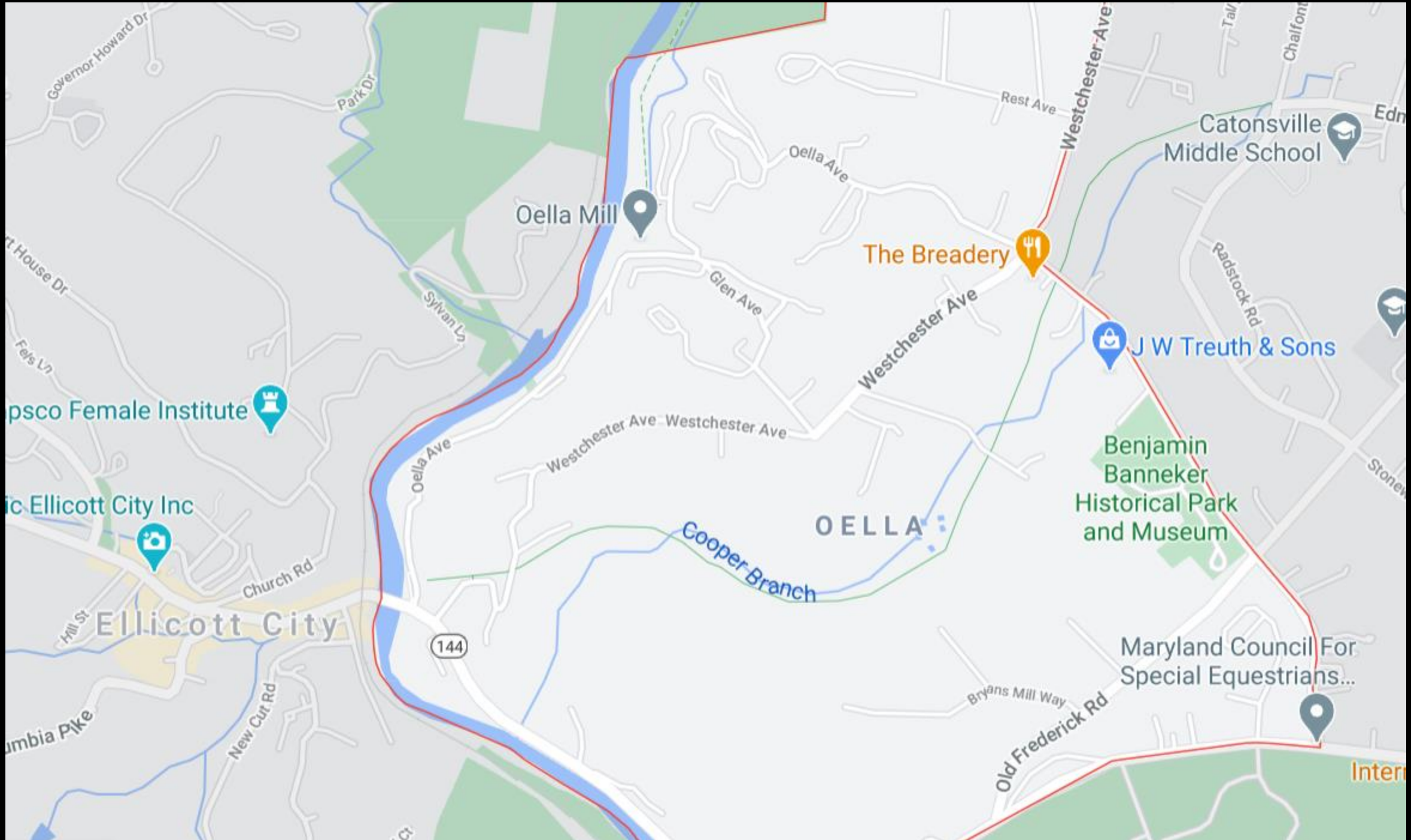
pictures by
Chris K. Soenpjet



The Dogon







Oella Mill

The Breadery

J W Treuth & Sons

Benjamin Banneker Historical Park and Museum

Ellicott City

144

Maryland Council For Special Equestrians...

Catonsville Middle School

psco Female Institute

ic Ellicott City Inc

Bryans Mill Way

Old Frederick Rd

New Cut Rd

Columbia Pike

Hill St

Church Rd

Westchester Ave Westchester Ave

Westchester Ave

Westchester Ave

Rest Ave

Oella Ave

Glen Ave

Oella Ave

Park Dr

Sylvan Ln

Governor Howard Dr

rt House Dr

Fel's Ln

Tau

Chaifont

Edm

Radstock Rd

Stonew

Inter



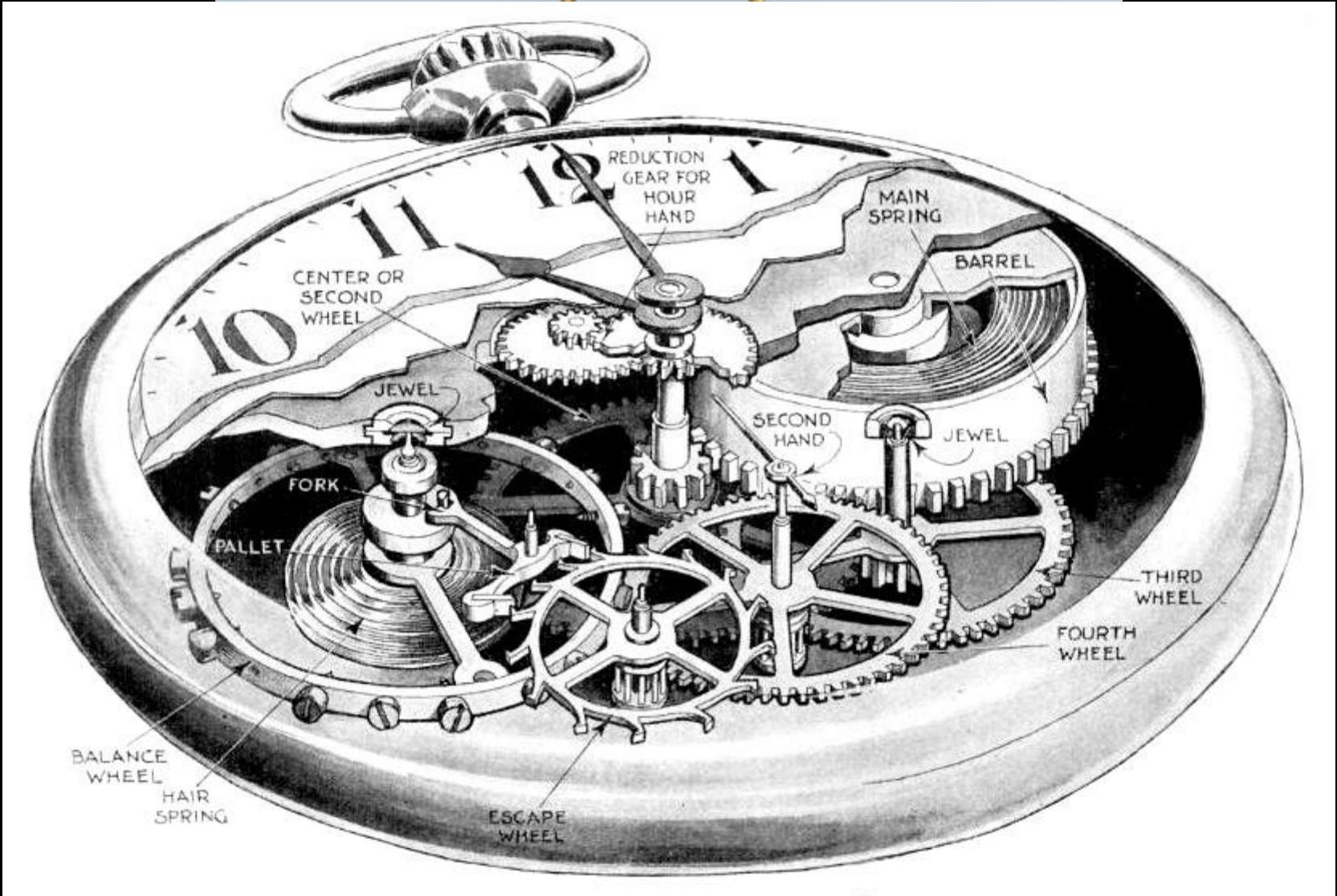
THE HOLY
B I B L E,
CONTAINING
THE OLD AND NEW
TESTAMENTS:
Newly Translated out of the Original Tongues.
AND WITH THE FORMER
TRANSLATIONS
DILIGENTLY COMPARED AND REVISED.

AMSTERDAM,
PRINTED IN THE YEAR
MDCCLXXX.

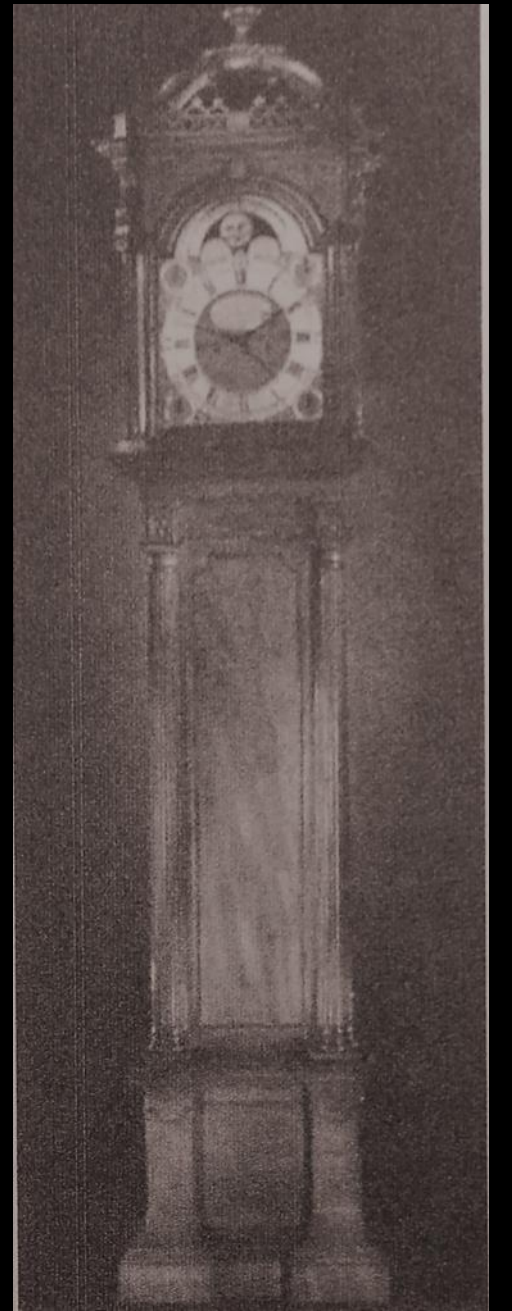
A night sky photograph showing the Milky Way galaxy and a bright star, with a quote overlaid at the bottom.

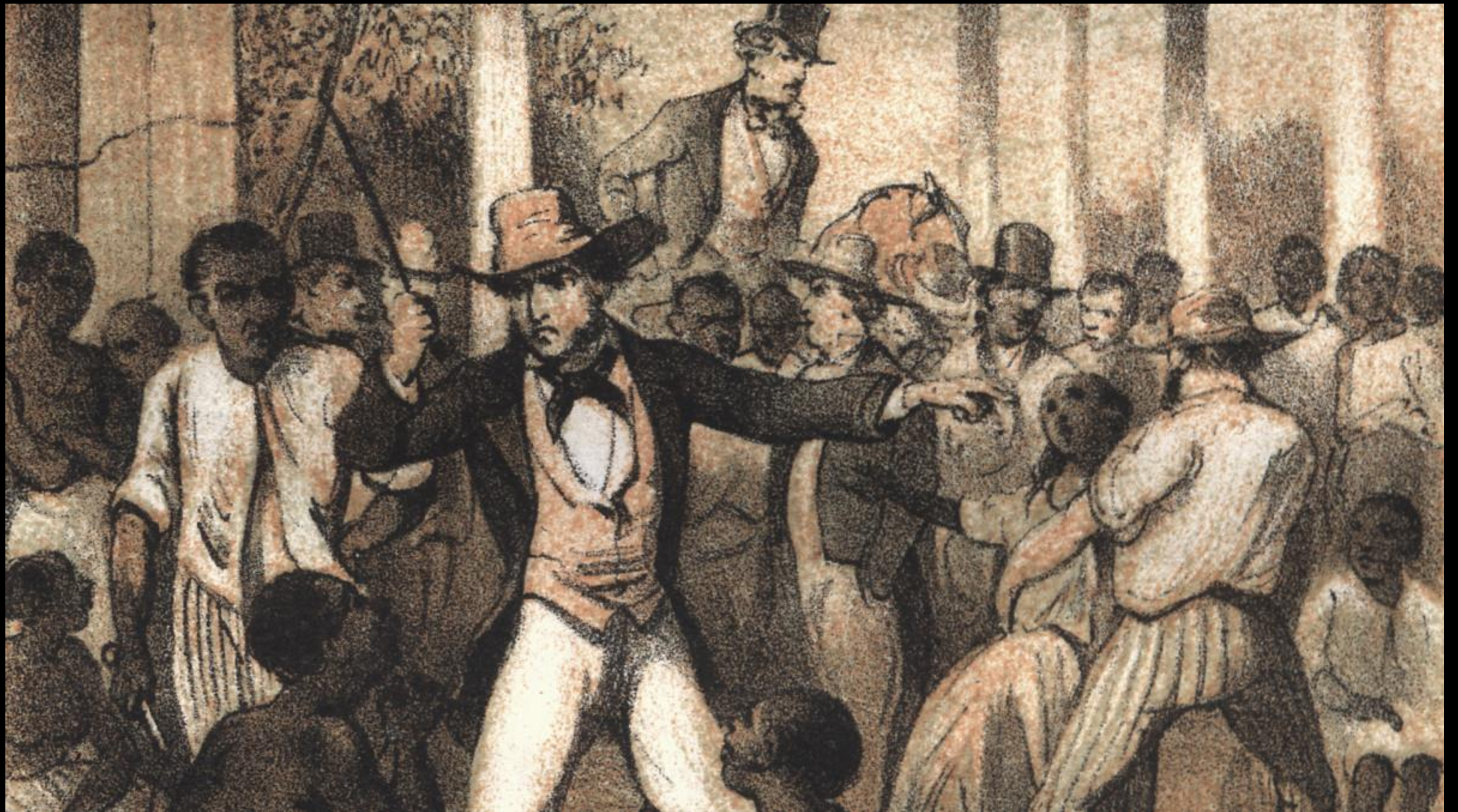
“The soil I work with & the stars up there are all part of the same thing. Both were made for a purpose.”





Ellicott Brothers





A gentleman sent his servant with £100 to buy ¹⁰⁰ cattle, with orders to give £5 for each bullock, 20 Shilling for cows, and one Shilling for each Sheep, the question is to know what number of each sort he brought to his master

| | | |
|-------------------------|------|---------------------|
| Answer | | Elippes for 1797 |
| 19 bullocks at 5 £ each | £ 95 | first June 9 - D |
| 1 Cow at 20 s - | 1 | second June 24 - C |
| 80 Sheep at 1 s each | 80 | Third Novem. 15 - C |
| 100 proof | 100 | Fourth Decemb 3 - D |
| | | Fifth Decemb 18 - C |

Common Hols and moveable feasts for the year. 1797

| | | | |
|--------------------|----|----------------|----------|
| Domical Letter | A | Easter Sunday | April |
| Cycle of the Sun | 18 | Ascension Day | May |
| Golden Number | 12 | Whitsunday | June |
| Epact | 4 | Trinity Sunday | June |
| Number of Quarters | 26 | Advent Sunday | December |

December 13th 1797 I dreamed I saw some thing passing by me to and fro, and when I attempted to go to the door, it would move and repeat it twice or thrice; at length I got on the infernal spirit he told me that he had been concerned with a woman by the name of the Freeman (I never heard the name as I remember) by some means into a Skirmish, and I threw him behind the fire and endeavored to run up but all in vain - I know not what became of him but he was all formed being some part of him in shape of a man, but he was as a beast, his feet was circular and a rather globular and did not include a half an diameter, but while I held him in the fire he was respecting he was able to stand it, but I forgot his words
B.D. Jan 1798

A
TREATISE
OF
PRACTICAL SURVEYING;

FROM
EVERY THING

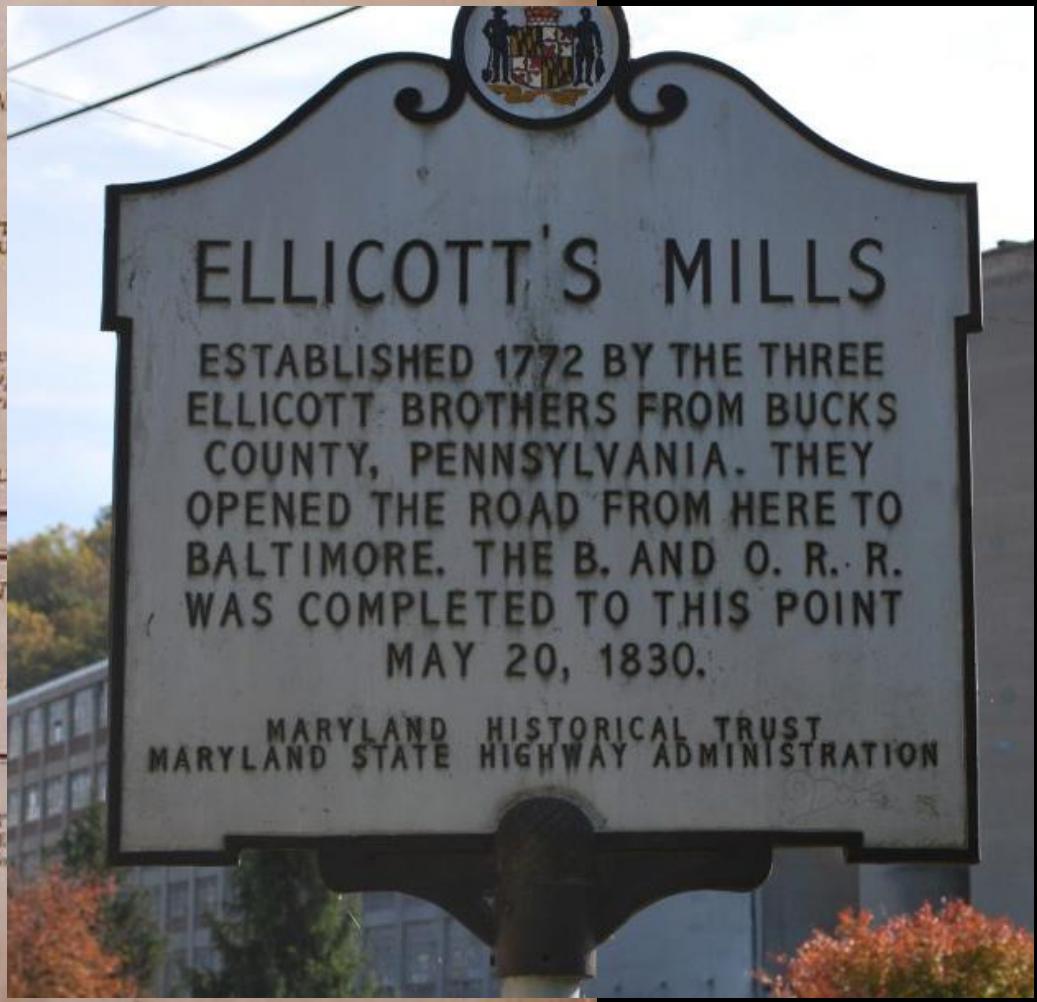
Three new and
Right-lined Figures
as the Geometrical

THE WHOLE

By ROBERT

With alterations

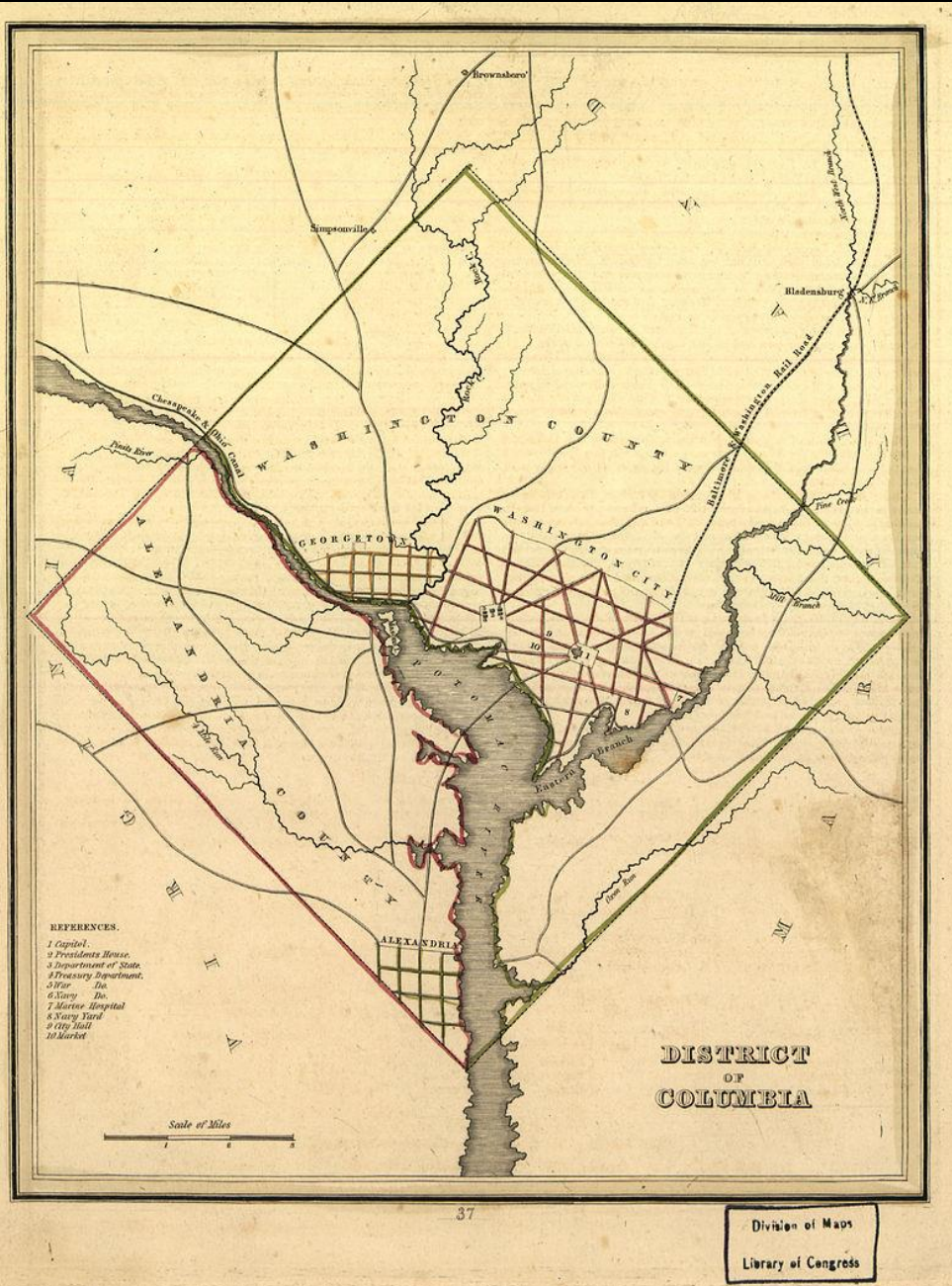
PRINTED
For Cadell & Tan
Jacob, T. & J. S.



April 14, 1789 – predicts solar eclipse!



February, 1791





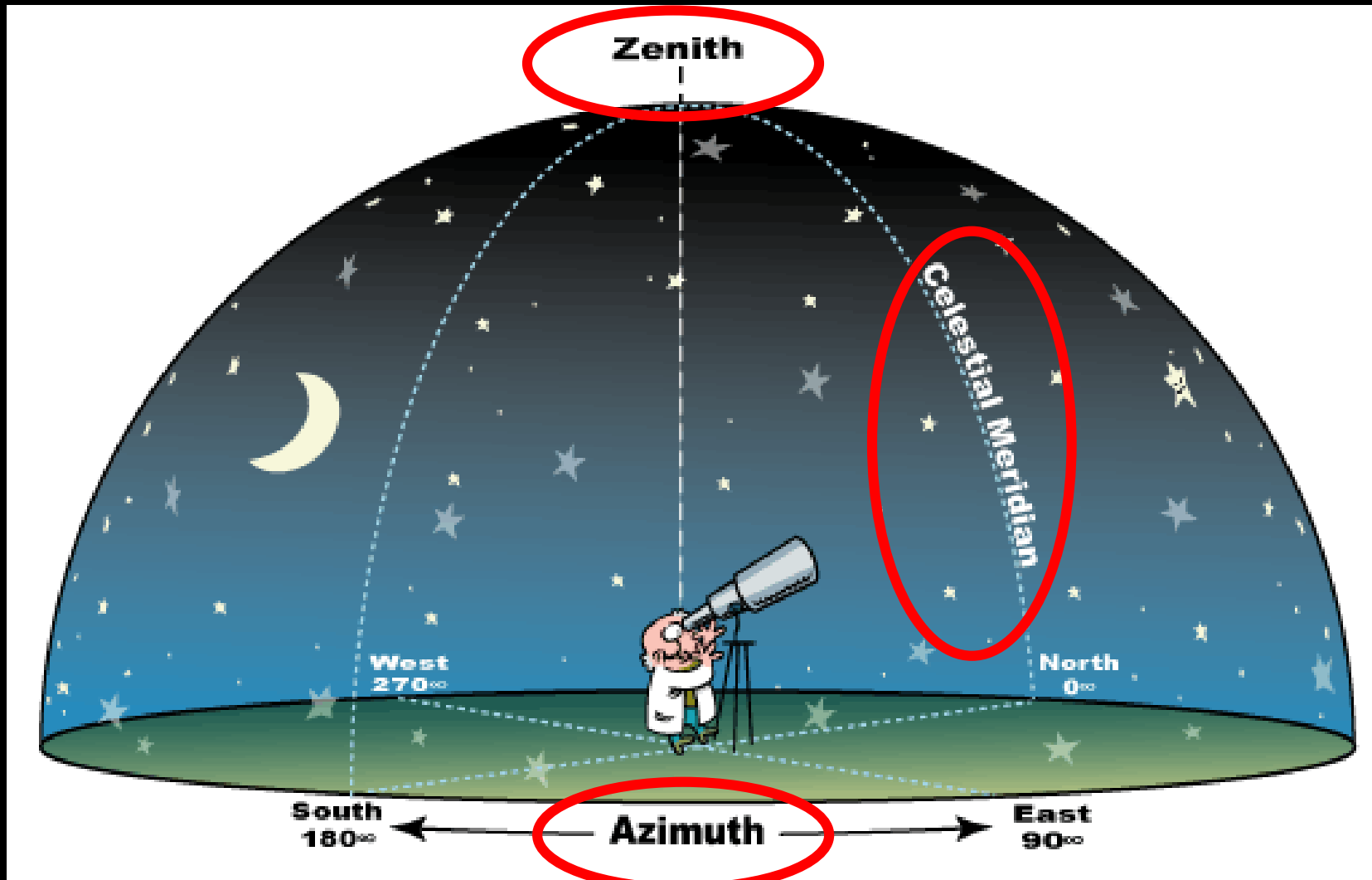


Horizon Line



10 degrees





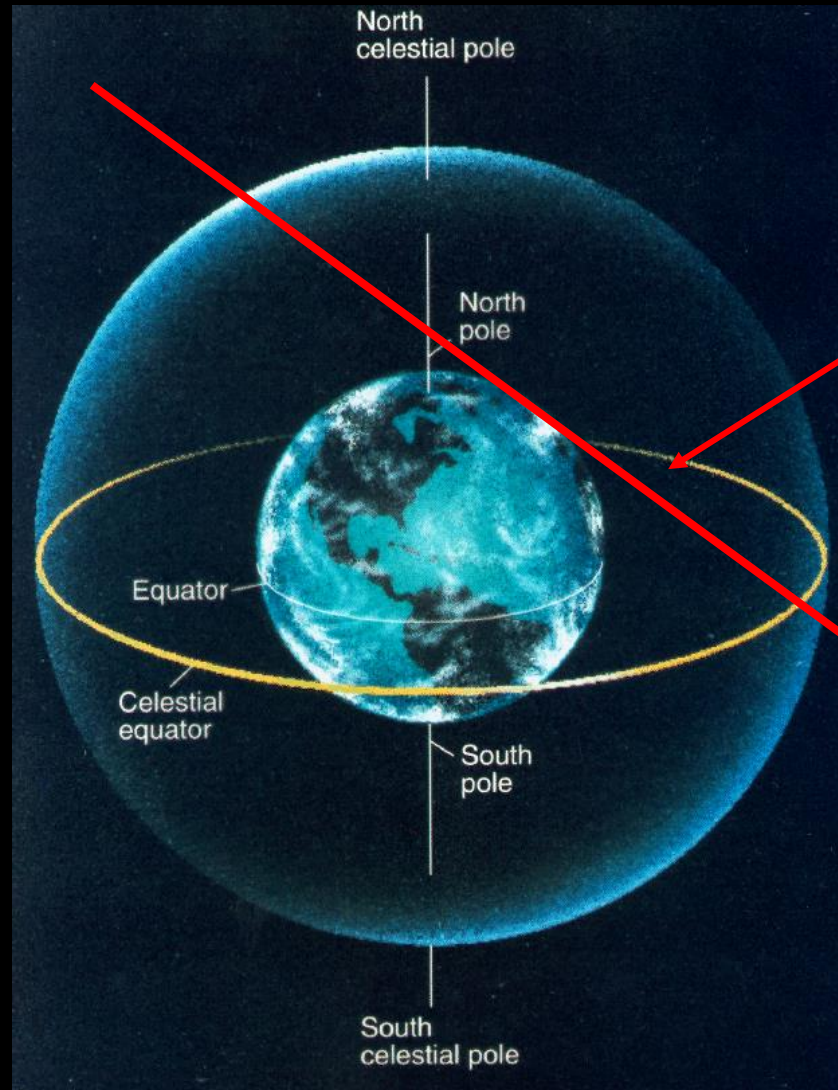
“Zenith” – the point straight up, directly above your head

“Meridian” – imaginary arc connecting north to south

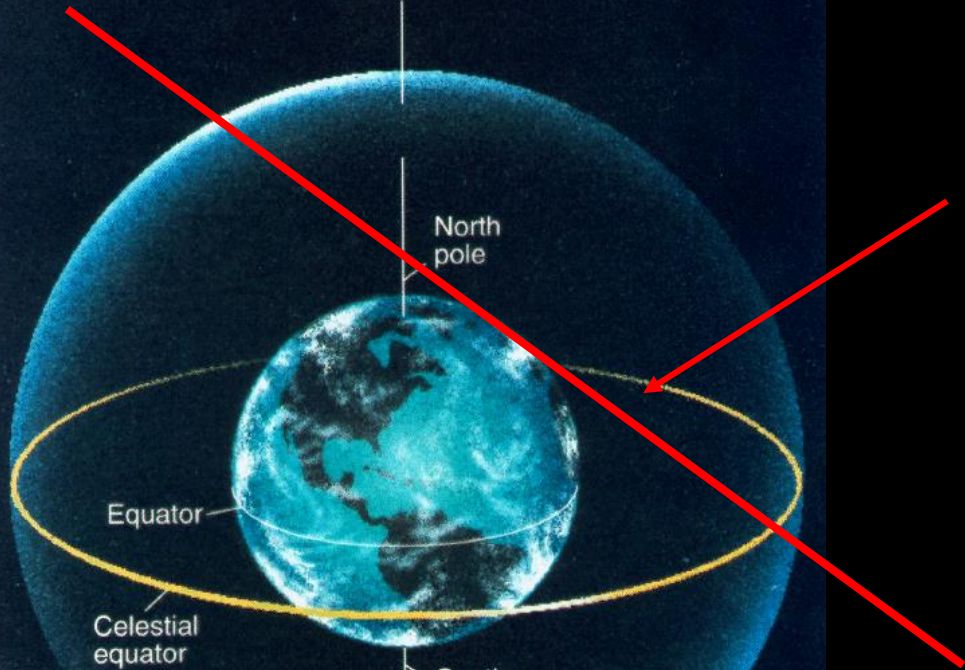
“Altitude” – number of degrees above the horizon. Zenith is 90°.

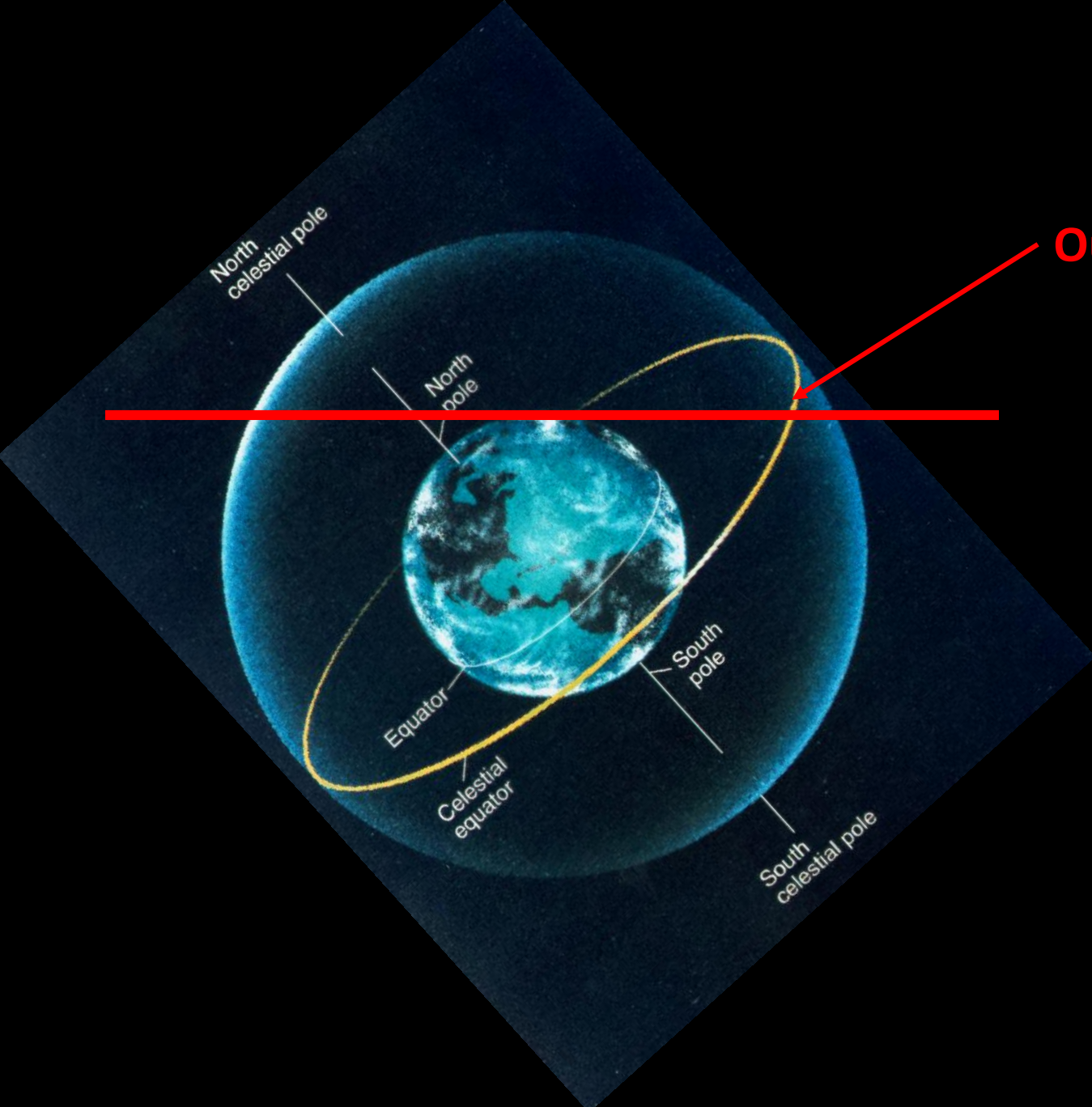
“Azimuth” – a measure along the horizon, 0 to 360°.

“Celestial Sphere”

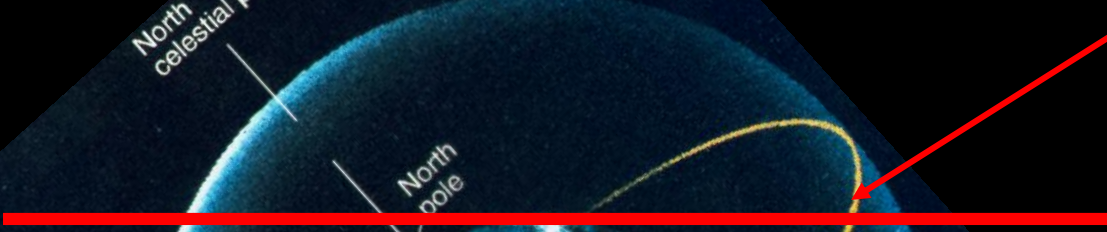


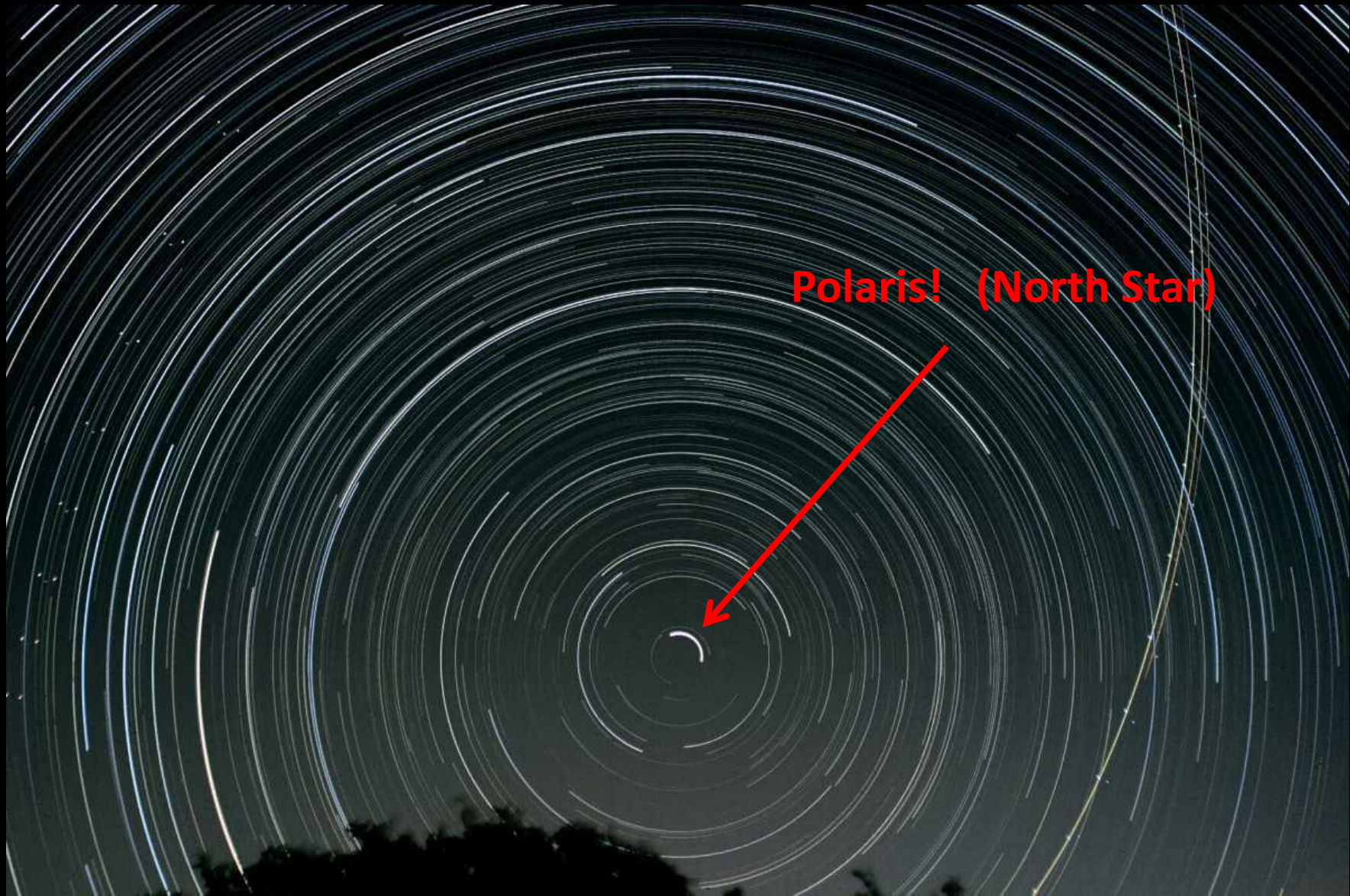
Our horizon





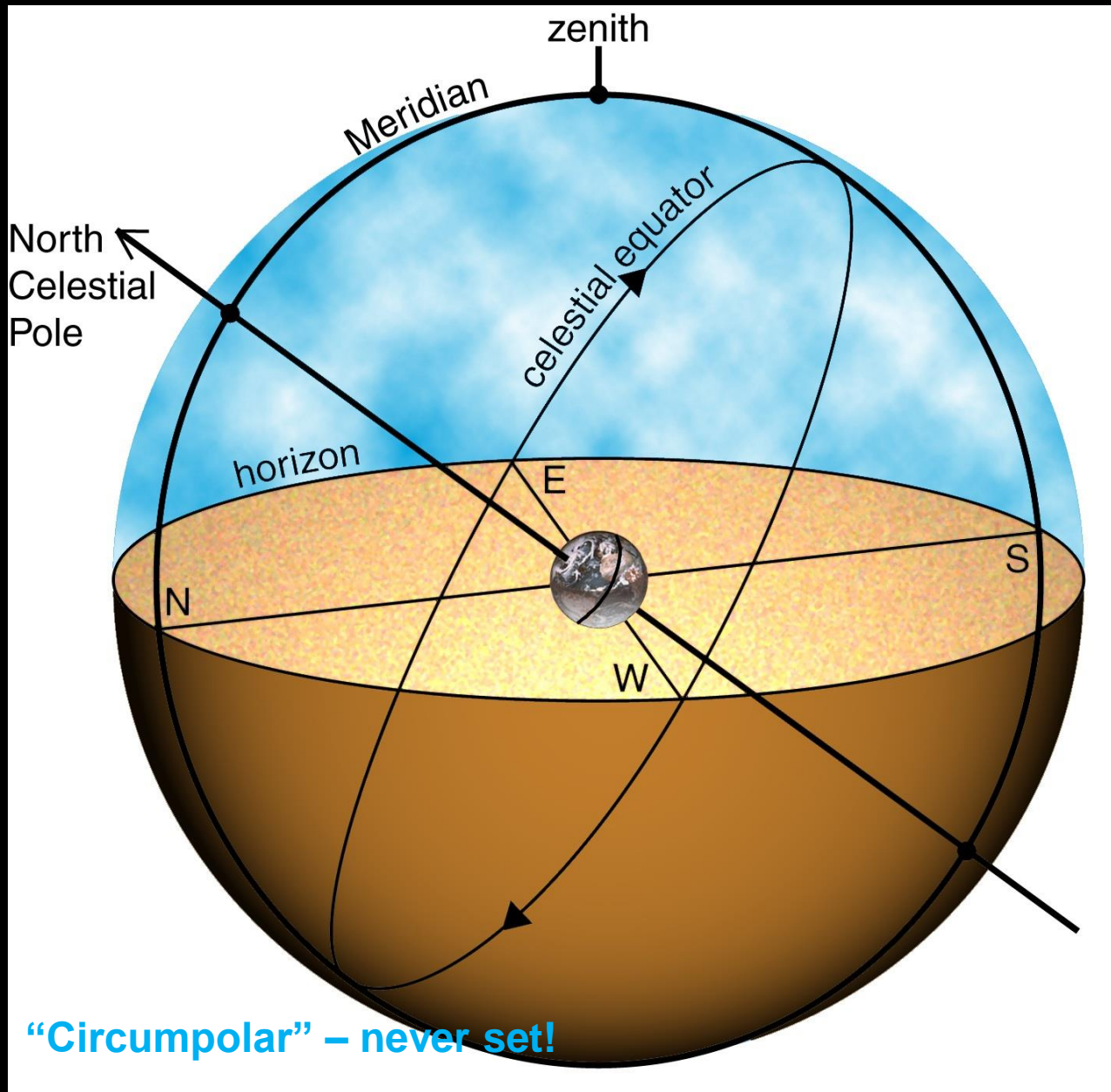
Our horizon





Polaris! (North Star)

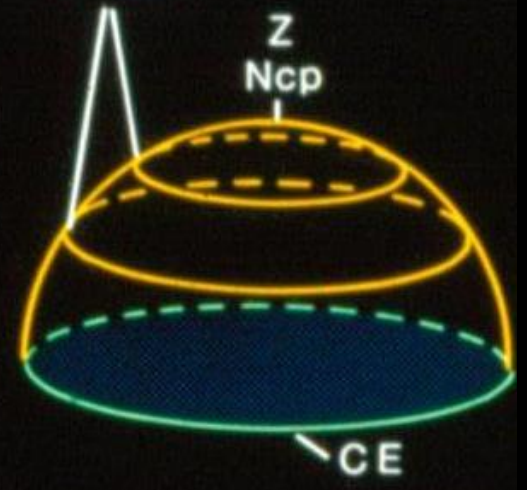




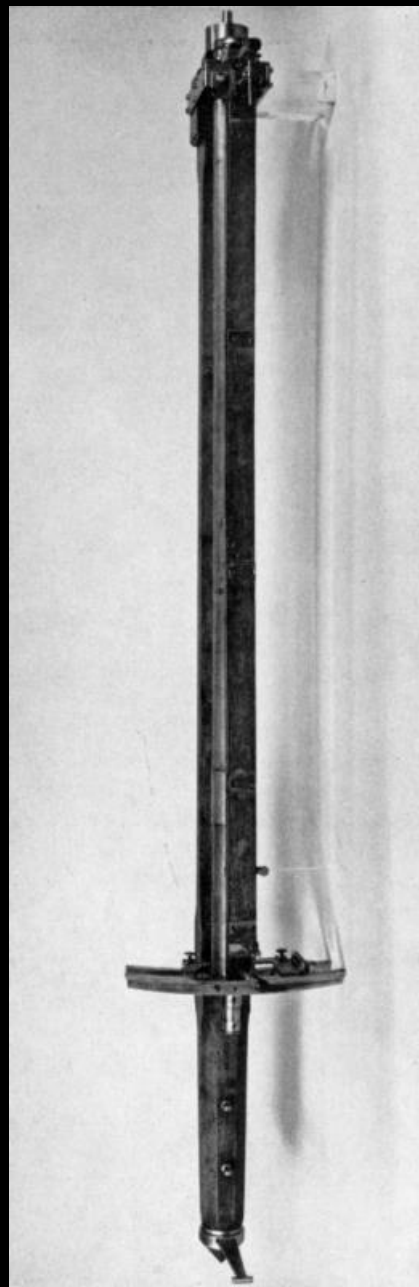
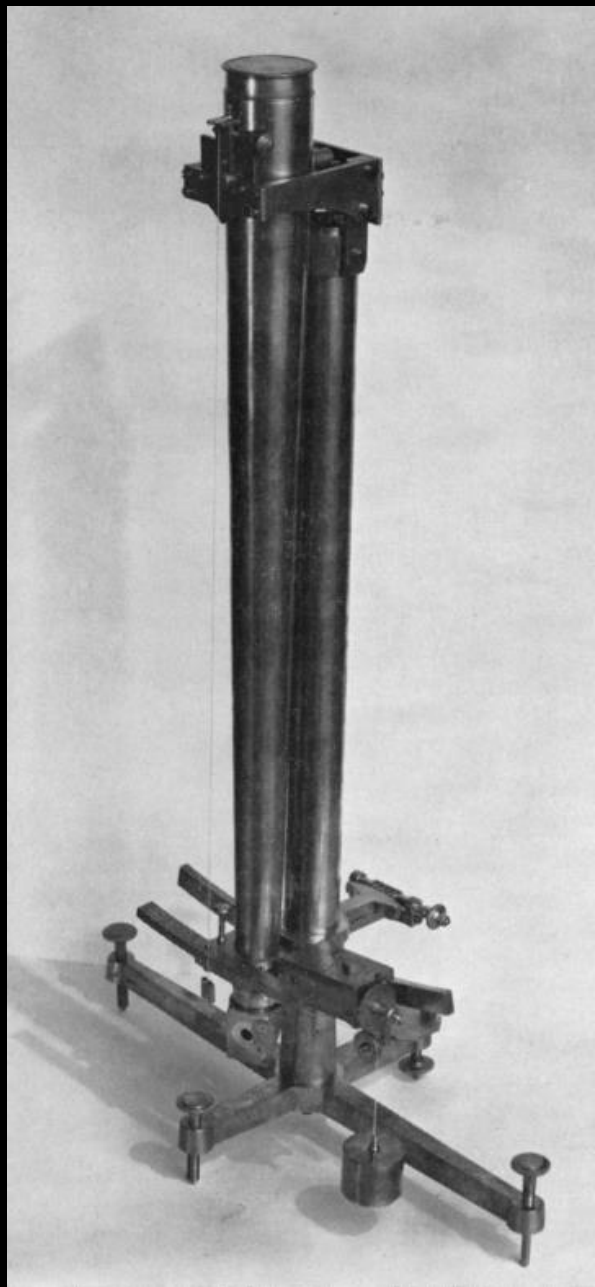
Try [this](#)

“Circumpolar” – never set!

Diurnal
circles
parallel to
horizon



Sky from North Pole



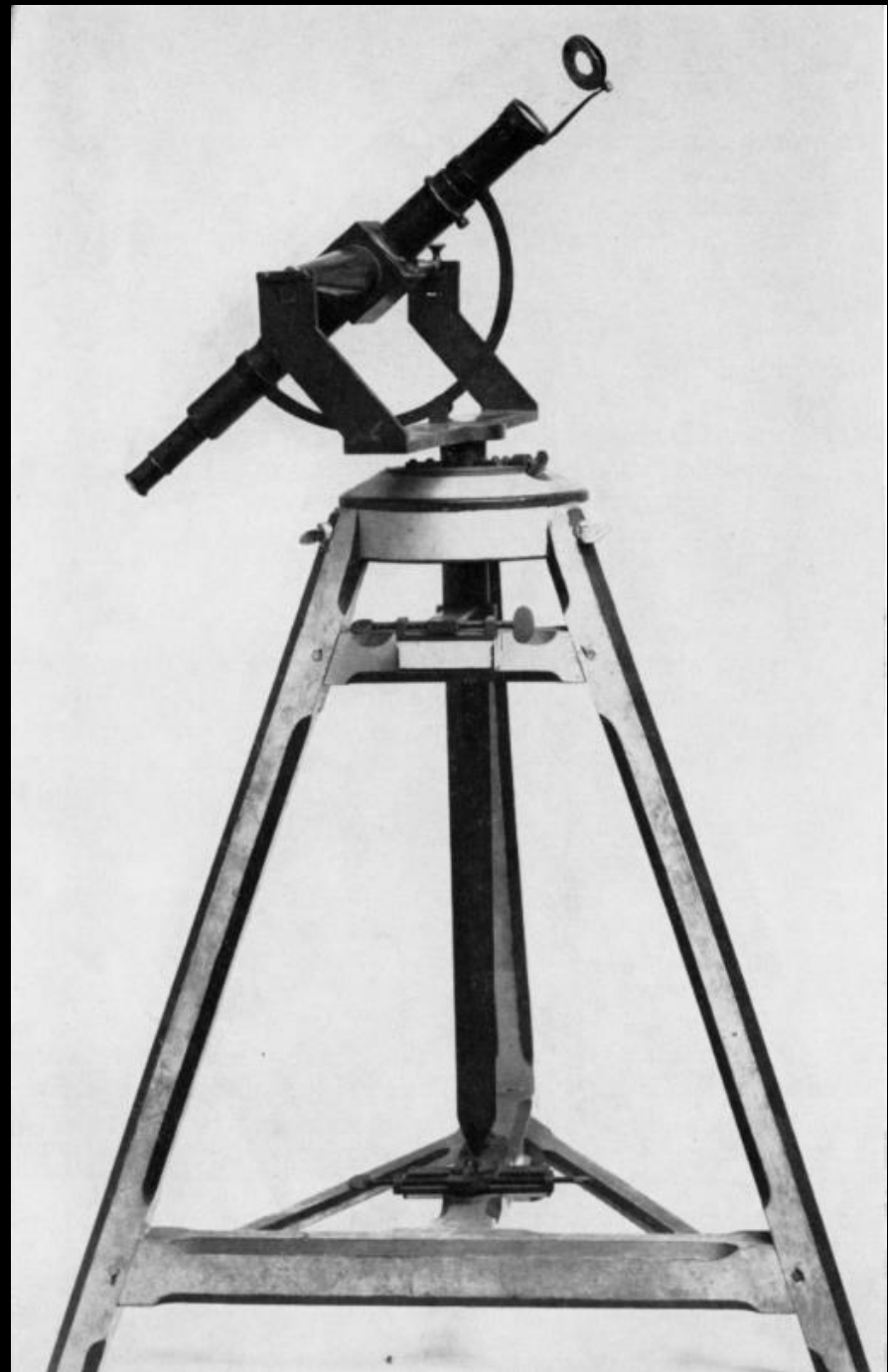
“Zenith Sector”

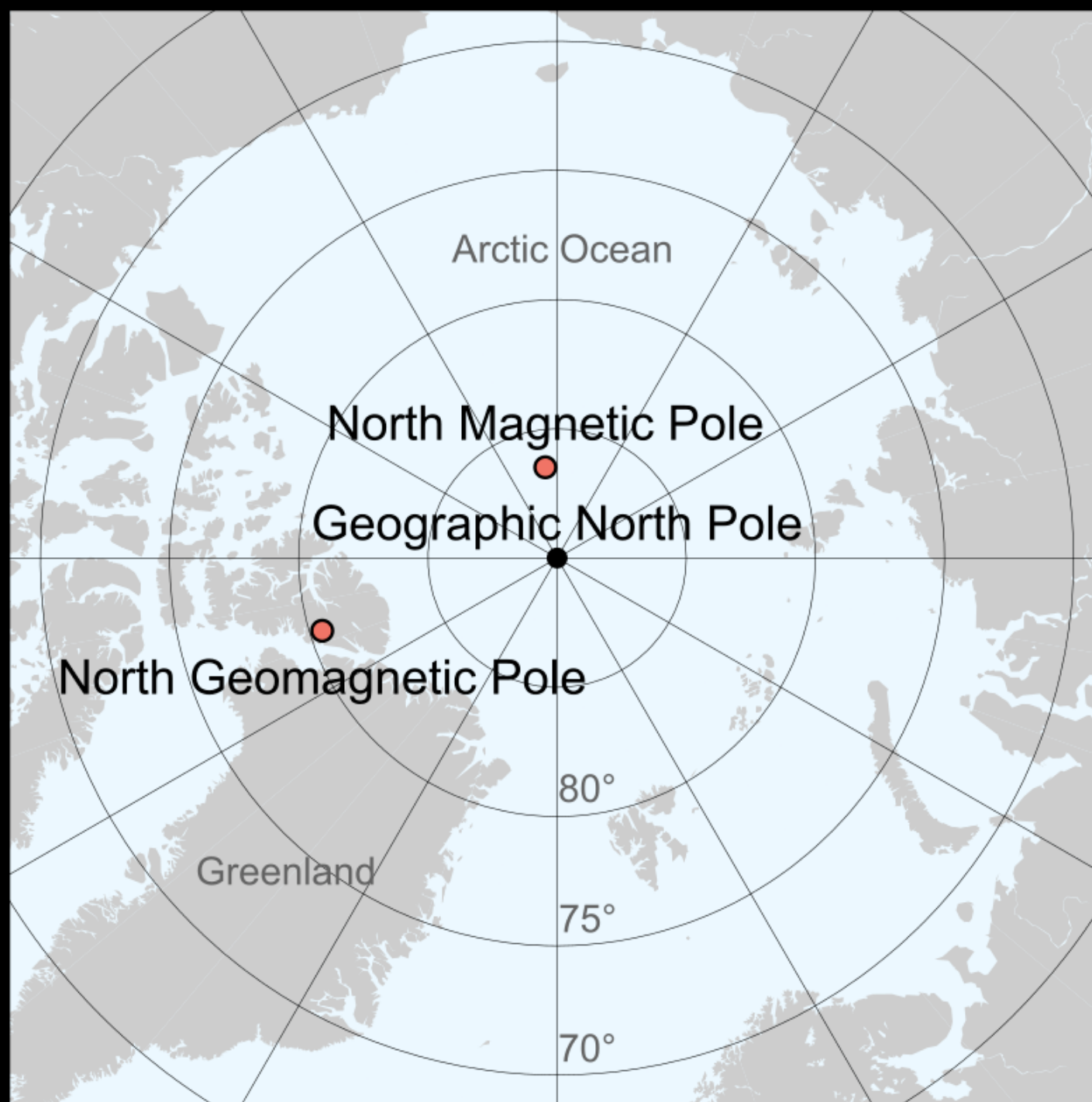
- “Zenith” = straight up
- Observe stars as they cross “meridian” (north/south line) and compare to star catalog = latitude
- Minimize effect of atmosphere

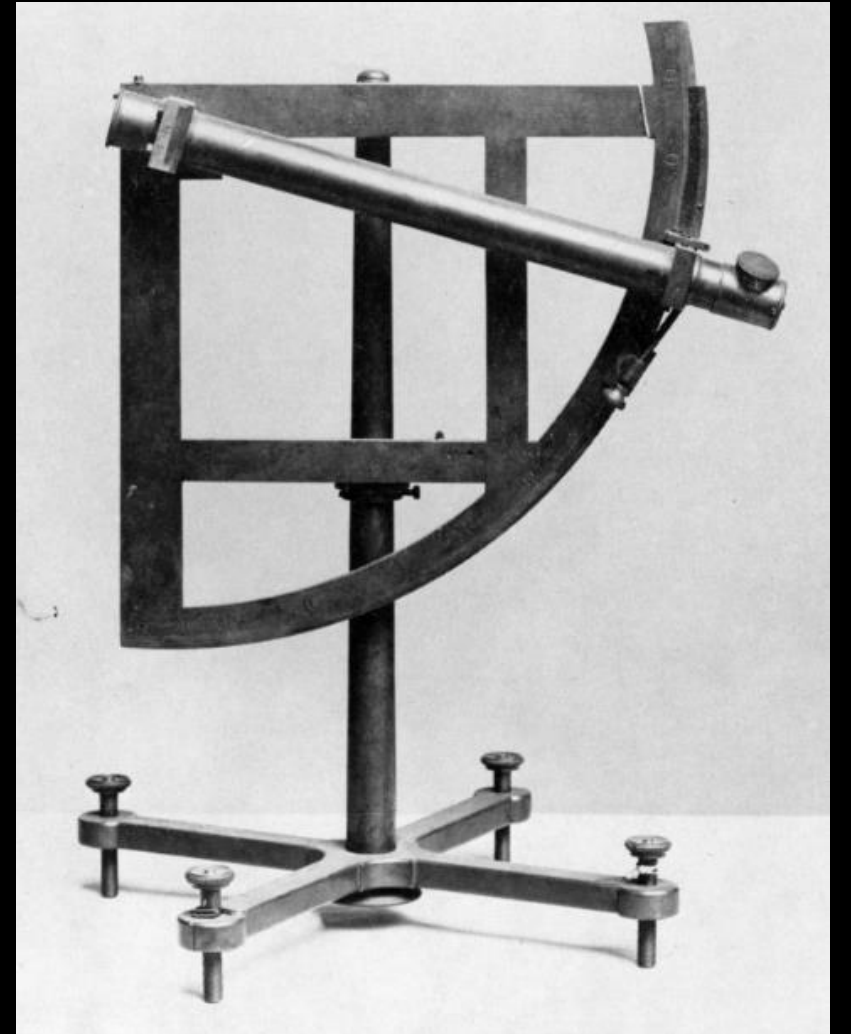
David Rittenhouse (1732-1796)

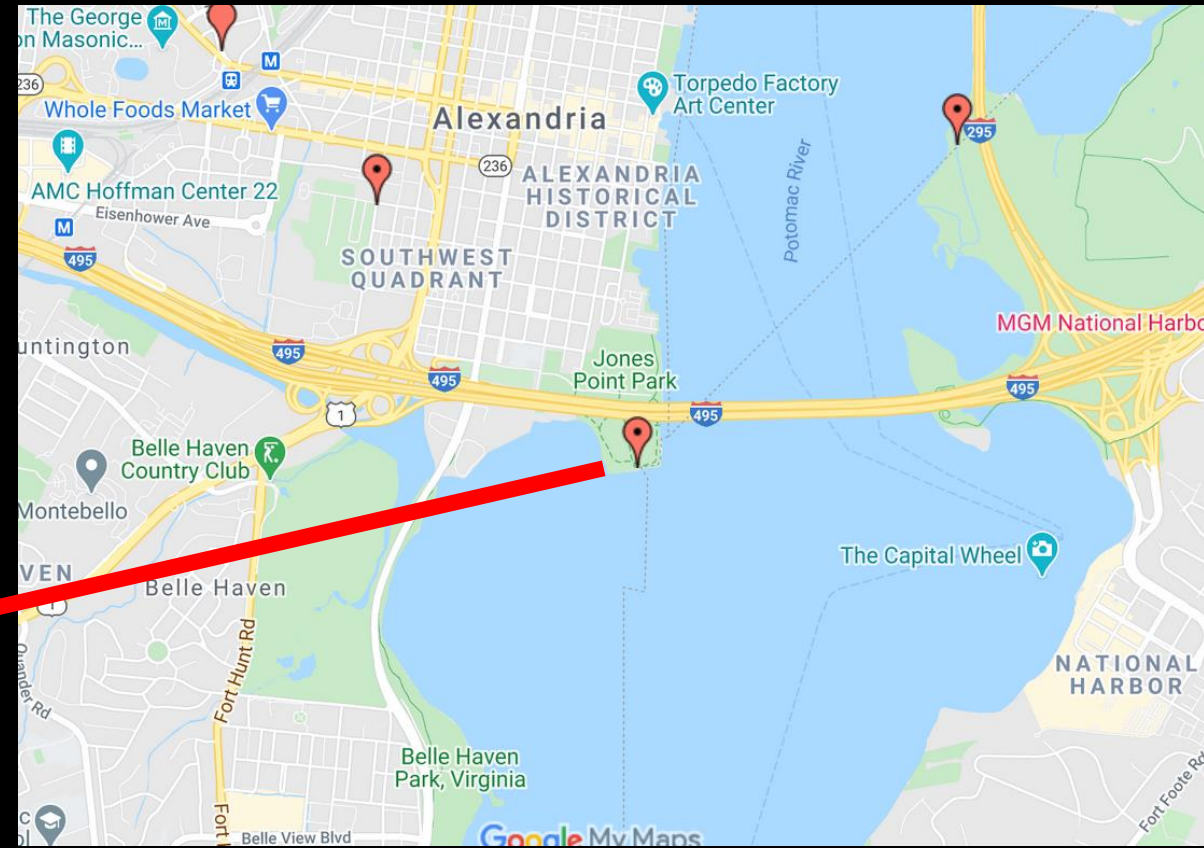
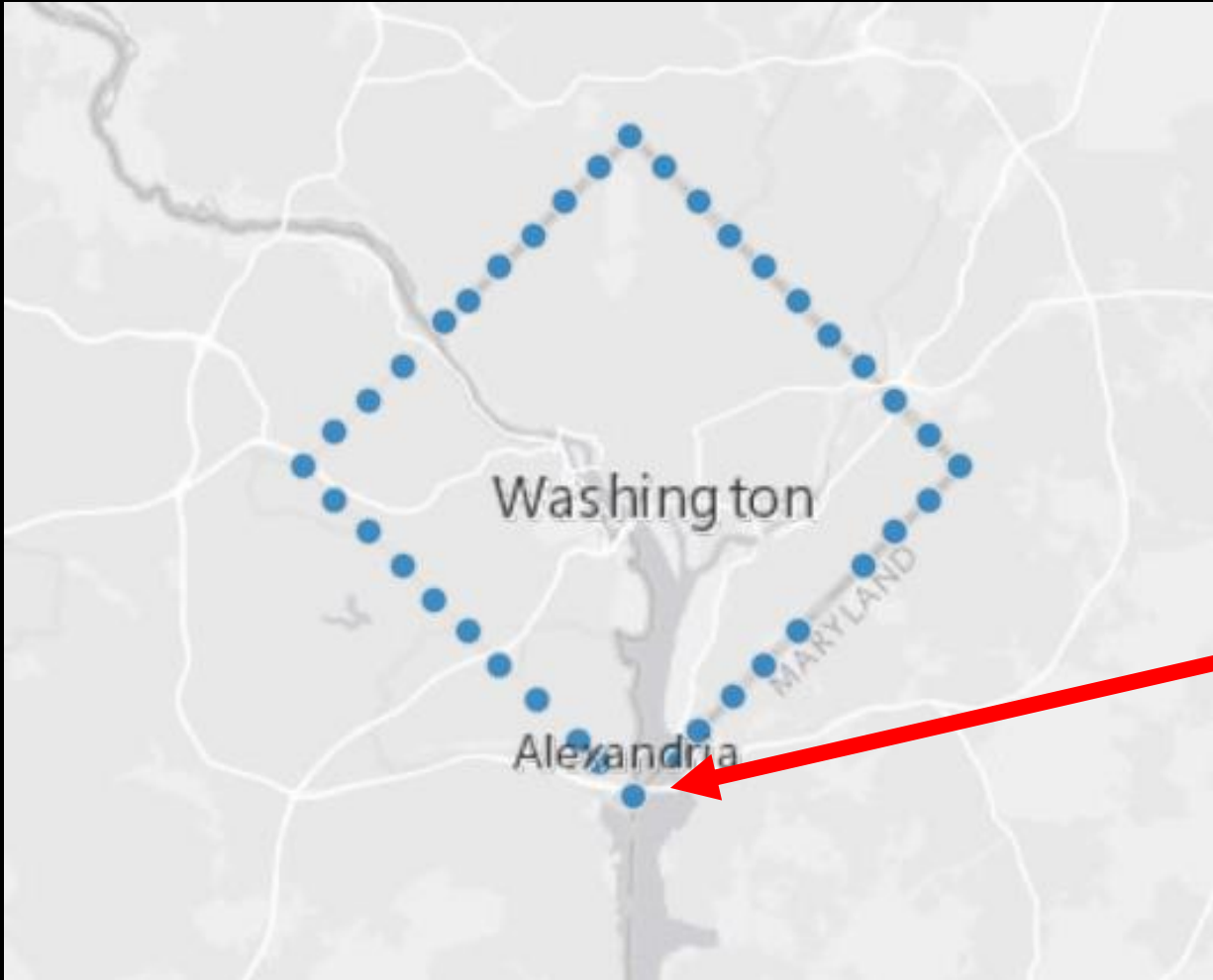
- First director of US Mint
- American astronomer
- Built wooden clock at age 17
- Built own telescope – observed transit of Venus (Venus had atmosphere)
- Assisted with Mason-Dixon line
- 1st American to see Uranus (?)
- Professor of Astronomy, U of PA



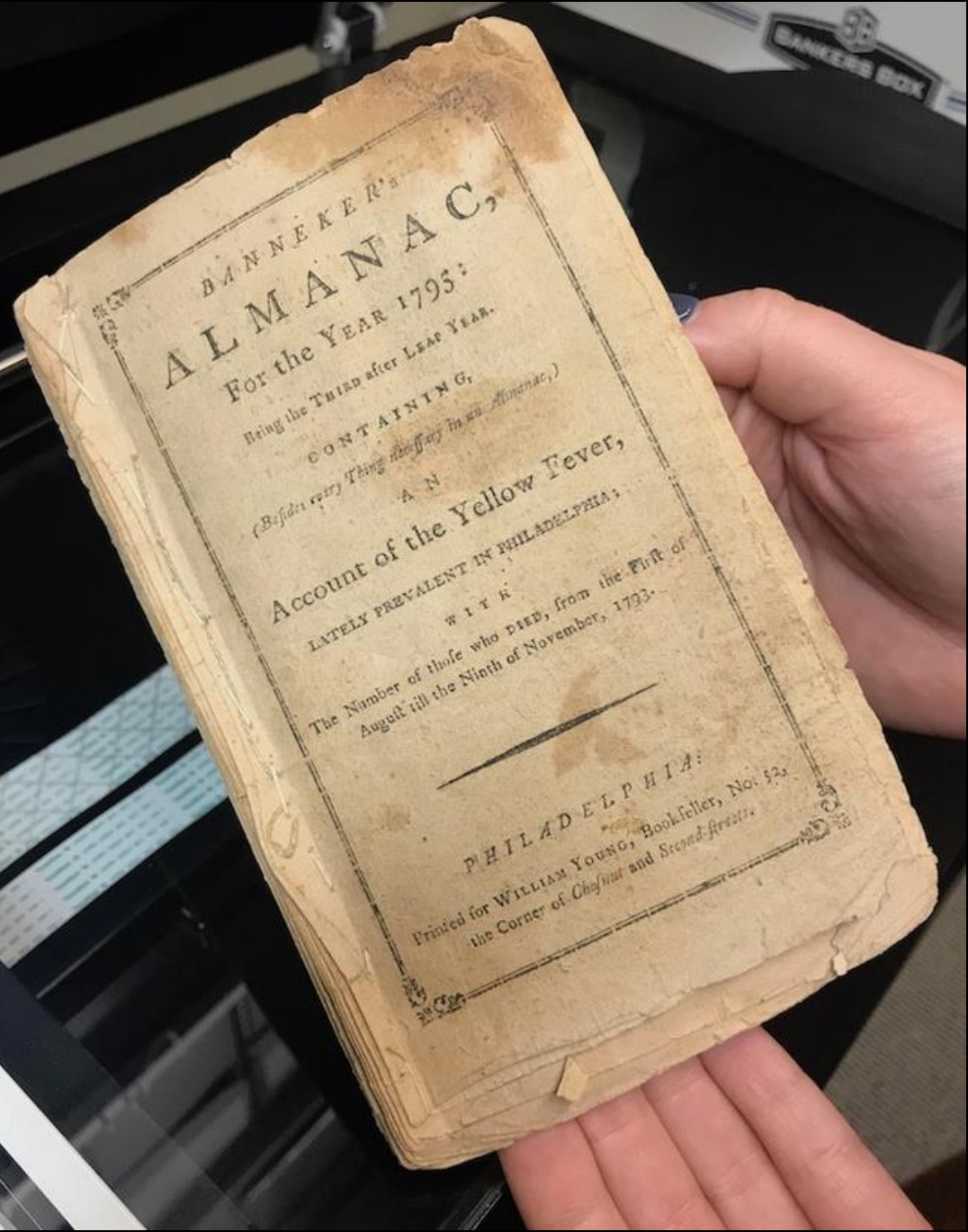












BANNER'S
ALMANAC,
For the YEAR 1795:

Being the THIRD after LEAP YEAR.
CONTAINING,
(Besides every Thing necessary in an Almanac,)

AN
ACCOUNT of the Yellow Fever,
LATELY PREVALENT IN PHILADELPHIA:

WITH
The Number of those who DIED, from the FIRST of
August till the Ninth of November, 1793.

PHILADELPHIA:
Printed for WILLIAM YOUNG, Bookseller, No. 52,
the Corner of Chestnut and Second Streets.

The ANATOMY of Man's Body, as said to be governed
by the Twelve CONSTELLATIONS.

♈ Aries, the Head and Face.

♉ Taurus,
Neck.

♋ Cancer,
Breast.

♍ Virgo,
Bowels.

♏ Scorpio,
Secrets.

♐ Capricorn,
Knees.



♊ Gemini,
Arms.

♌ Leo,
Heart.

♎ Libra,
Reins.

♐ Sagittarius,
Thighs.

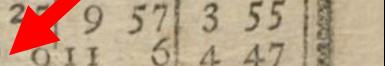
♑ Aquarius,
Legs.

♒ Pisces, the Feet.

JANUARY, First Month, hath 31 Days.

| D. H. M. | | | Days | Planets' Places, &c. | | | | | | |
|------------------------------------|----|----------|------|----------------------|----|----|----|----|-----|------|
| Lat | ☉ | ☽ | | ☿ | ♁ | ♂ | ♀ | ♃ | ♄ | |
| 5 6 0 M. | 12 | 4 29 M. | 1 | 12 | 24 | 25 | 12 | 18 | 12 | 2 S. |
| 18 11 4 A. | 7 | 18 24 26 | 7 | 18 | 24 | 26 | 17 | 25 | 44 | N. |
| 26 11 4 A. | 13 | 24 24 27 | 13 | 24 | 24 | 27 | 22 | 3 | 43 | N. |
| { 1 19 } { 11 18 } { 21 17 } | 19 | 25 28 27 | 19 | 25 | 28 | 27 | 10 | 10 | 64 | S. |
| | 25 | 6 25 29 | 25 | 6 | 25 | 29 | 1 | 17 | 124 | S. |

| Remarkable days, &c. | | ☿ | ♁ | ♂ | ♀ | ♃ | ♄ |
|----------------------|-------------------------|---|----|---|----|----|----------|
| 1 | 3 Circumcis. ☿ ☉ ♀ ori. | 7 | 20 | 4 | 40 | 12 | 8 58 |
| 2 | 4 Days increase 4 m. | 7 | 20 | 4 | 40 | 12 | 9 55 |
| 3 | 5 ♁ stationary. | 7 | 20 | 4 | 40 | 24 | 10 53 |
| 4 | 6 Pleiades south 8 33 | 7 | 19 | 4 | 41 | 6 | 11 48 |
| 5 | 7 Cold, with | 7 | 19 | 4 | 41 | 19 | morn. |
| 6 | F Epiphany. | 7 | 18 | 4 | 42 | 2 | 0 48 |
| 7 | 2 fly'ng clouds, | 7 | 18 | 4 | 42 | 15 | 1 48 |
| 8 | 3 Sirius south 11 26 | 7 | 17 | 4 | 43 | 29 | 3 0 |
| 9 | 4 followed by | 7 | 17 | 4 | 43 | 13 | 4 5 |
| 10 | 5 Arcturus rises 11 23 | 7 | 16 | 4 | 44 | 27 | 5 7 |
| 11 | 6 Spica ♁ rises 12 16 | 7 | 15 | 4 | 45 | 12 | 6 8 |
| 12 | 7 cold rain | 7 | 15 | 4 | 45 | 27 | fets aft |
| 13 | F 1st after Epiphany. | 7 | 14 | 4 | 46 | 12 | 6 32 |
| 14 | 2 or snow. | 7 | 13 | 4 | 47 | 27 | 7 2 |
| 15 | 3 Bull's eye south 8 34 | 7 | 13 | 4 | 47 | 11 | 8 54 |
| 16 | 4 Day 9 36 | 7 | 12 | 4 | 48 | 27 | 9 57 |
| 17 | 5 High wind, | 7 | 11 | 4 | 49 | 9 | 11 6 |
| 18 | 6 Pleiades south 7 32 | 7 | 10 | 4 | 50 | 23 | morn. |
| 19 | 7 ☉ ♁ | 7 | 10 | 4 | 50 | 6 | 8 6 |



E.g.: January 3, 1793

| | | 17 J | 25 | 6 | 25 | 29 | ☿ | 1 | 17 | 12 | 4 | S. |
|----------------------|---|----------------|-----|----|-----|------|-----|----|-------|----|------|----|
| Remarkable days, &c. | | ☿ | ri. | ☿ | set | ☽ | pl. | ☽ | rise | ☽ | fou. | |
| 1 | 3 | Circumcis. | ♂ | ☉ | ♀ | ori. | | | | | | |
| 2 | 4 | Days increase | 4 | m. | | | m | 0 | 8 | 58 | 2 | 58 |
| 3 | 5 | ☿ stationary. | | | | | | 12 | 9 | 55 | 3 | 44 |
| 4 | 6 | Pleiades south | 8 | 33 | | | | 24 | 10 | 53 | 4 | 27 |
| 5 | 7 | Cold, with | | | | | ☽ | 6 | 11 | 48 | 5 | 12 |
| 6 | F | Epiphany. | | | | | | 19 | morn. | | 5 | 57 |
| 7 | 2 | ☽ in cloud | | | | | m | 2 | 0 | 48 | 6 | 43 |



A TABLE of the Value of any Number of the following Coins
in Pennsylvania, New-Jersey, Delaware, and Maryland.

| | FRENCH | | | ENGLISH | | | FRENCH | | | | | |
|----|----------|----|---|---------|----|---|----------|----|---|------|----|---|
| | Dollars. | | | Crowns. | | | Guineas. | | | | | |
| 1 | £. 0 | 7 | 6 | £. 0 | 8 | 4 | £. 1 | 15 | 0 | £. 1 | 14 | 6 |
| 2 | 0 | 15 | 0 | 0 | 16 | 8 | 3 | 10 | 0 | 3 | 9 | 0 |
| 3 | 1 | 2 | 6 | 1 | 5 | 0 | 5 | 5 | 0 | 5 | 3 | 6 |
| 4 | 1 | 10 | 0 | 1 | 13 | 4 | 7 | 0 | 0 | 6 | 18 | 0 |
| 5 | 1 | 17 | 6 | 2 | 1 | 8 | 8 | 15 | 0 | 8 | 12 | 6 |
| 6 | 2 | 5 | 0 | 2 | 10 | 0 | 10 | 10 | 0 | 10 | 7 | 0 |
| 7 | 2 | 12 | 6 | 2 | 18 | 4 | 12 | 5 | 0 | 12 | 1 | 6 |
| 8 | 3 | 0 | 0 | 3 | 6 | 8 | 14 | 0 | 0 | 13 | 16 | 0 |
| 9 | 3 | 7 | 6 | 3 | 15 | 0 | 15 | 15 | 0 | 15 | 10 | 6 |
| 10 | 3 | 15 | 0 | 4 | 3 | 4 | 17 | 10 | 0 | 17 | 5 | 0 |
| 11 | 4 | 2 | 6 | 4 | 11 | 8 | 19 | 5 | 0 | 18 | 19 | 6 |
| 12 | 4 | 10 | 0 | 5 | 0 | 0 | 21 | 0 | 0 | 20 | 14 | 0 |
| 13 | 4 | 17 | 6 | 5 | 8 | 4 | 22 | 15 | 0 | 22 | 8 | 6 |
| 14 | 5 | 5 | 0 | 5 | 16 | 8 | 24 | 10 | 0 | 24 | 3 | 0 |
| 15 | 5 | 12 | 6 | 6 | 5 | 0 | 26 | 5 | 0 | 25 | 17 | 6 |
| 16 | 6 | 0 | 0 | 6 | 13 | 4 | 28 | 0 | 0 | 27 | 12 | 0 |
| 17 | 6 | 7 | 6 | 7 | 1 | 8 | 29 | 15 | 0 | 29 | 6 | 6 |
| 18 | 6 | 15 | 0 | 7 | 10 | 0 | 31 | 10 | 0 | 31 | 1 | 0 |
| 19 | 7 | 2 | 6 | 7 | 18 | 4 | 33 | 5 | 0 | 32 | 15 | 6 |
| 20 | 7 | 10 | 0 | 8 | 6 | 8 | 35 | 0 | 0 | 34 | 10 | 0 |

COURTS OF LAW. FEDERAL COURTS.

The Supreme Court

WILL hold two sessions annually, at the seat of general Government, one to commence on the first Monday in February, the other on the first Monday in August.

The Circuit Court

WILL hold two sessions annually, in each of the following states viz.

In New-Hampshire, on the 24th May and 24th December, at Portsmouth and Exeter.

In Massachusetts, on the 12th May and 12th December, at Boston.

In Rhode-Island, on the 7th December and 7th June, at Newport and Providence.

In Connecticut, on the 25th April and 25th November, at Hartford and New-Haven.

In New-York, on the 5th April and 5th November, at New-York.

In New-Jersey, on the 2d April and 2d November, at Trenton.

In Pennsylvania, on the 11th April and 11th November, at Philadelphia and York-Town.

In Delaware, on the 27th April and 27th November, at New-castle and Dover.

In Maryland, on the 7th May and 7th December, at Annapolis and Easton.

In Virginia, on the 22d May and 22d December, at Richmond.

In North-Carolina, on the 18th June and 8th November, at Newbern.

EXTRACT FROM *WILKINSON'S APPEAL TO ENGLAND ON
BEHALF OF THE ABUSED AFRICANS.*

ARE negroes savage? Britons once were so,
And little knew beyond the dart and bow.
Of Europe's kings the muse with ease could tell,
How at their nod, the heads of subjects fell—
Ah, polish'd Europe! should we backward trace
The early deeds of thy superior race,
How should we find thy ruffian heroes then,
Like Afric's now, profane the rights of men?
Should find defenceless captives 'raign'd around,
Pale, silent, trembling on the blushing ground,
While flashing swords arose, and every blow
With savage triumph brought a brother low.
Now humaniz'd around, the battle o'er,
The soldier from his falchion wipes the gore,
Returns it to its sheath, and gently leads
His captive homewards; comforts, clothes, and feeds,
Till he by ransom or exchange regains
The wish'd for comfort of his native plains.
But should he labour with domestic woe,
To his own land, at once, he bids him go.
Thus Europe from her barb'rous maxims past,
And shall not Afric raise her views at last?

ROADS *Westward.*

| | | | | | |
|-----------------|-------|-----------------|-------|-----------------|--------|
| FROM Philad. | To- | Miller's | 6 47 | Hendrick's | 3 105 |
| to Schuylkill | 2 1/2 | Douglafs's | 3 50 | Chalmer's | 11 116 |
| Blackhorse | 4 6 | The Hat | 4 54 | Carlisle | 3 119 |
| Prince of Wales | 4 10 | D. of Cumber. | 3 57 | Shippensburg | 21 140 |
| Buck | 1 11 | Red-lion | 3 60 | B. Chambers's | 11 151 |
| Sorrel-horse | 1 12 | Coneflogo creek | 4 64 | Fort Loudon | 13 164 |
| Plough | 1 13 | Lancaster C. H. | 2 66 | Fort Littleton | 18 182 |
| Unicora | 3 16 | Scott's | 9 75 | Juniata | 19 201 |
| Blue-ball | 4 20 | Bayley's | 5 80 | Bedford | 14 215 |
| Adm. Warren | 3 23 | Hugh's | 4 84 | Foot of Alleg. | 15 230 |
| White-horse | 3 26 | Sample's | 4 88 | Stoney creek | 15 245 |
| Downing's | 7 33 | Sweetarra | 3 91 | E. side Lau. H. | 12 257 |
| The Ship | 2 35 | Taylor's | 3 94 | Fort Ligonier | 9 266 |
| Waggon | 6 41 | Harris's ferry | 8 102 | Pittsburg | 54 320 |

Roads *Northwestward.*

| | | | | | |
|----------------|------|----------------|------|-------------|------|
| FROM Philadel. | | Bartlefall's | 4 18 | Potts's | 8 38 |
| to R. Hood | 4 4 | Perkioming cr. | 6 24 | Drury's | 9 47 |
| F. St. David's | 1 5 | Shrack's | 2 26 | The Compass | 2 49 |
| Plymouth meet. | 9 14 | Widow Lloyd's | 4 30 | Reading | 7 56 |

Roads *from Reading to Easton.*

| | | | | | |
|-------------|-------|----------------|------|-----------|-------|
| To Parvin's | 6 6 | Traxler's | 4 26 | Bethlehem | 5 40 |
| D. Levan's | 12 13 | Cedar creek | 6 32 | Easton | 10 50 |
| County line | 4 22 | W. B. of Dela. | 3 35 | | |

Roads *from Reading to Lancaster.*

| | | | | | |
|----------------|-----|----------------|------|---------------|------|
| To Sink-spring | 4 4 | J. Kiffinger's | 3 11 | Biar's Mill | 5 24 |
| Cokefing creek | | | | Peri Landis's | 2 27 |

ECLIPSES *for the* YEAR 1793.

I. Of the *Moon*, on the 25th of February, in the afternoon; partly visible.

| | H. | M. |
|---------------------------------|----|----|
| Beginning of the eclipse, - - - | 4 | 42 |
| Greatest obscuration, - - - | 5 | 59 |
| End of the eclipse, - - - | 7 | 18 |
| Duration, - - - | 2 | 36 |

Digits eclipsed, 5 2-3, from the south side of the earth's shadow. N. B. The Moon rises 4 3-4 digits eclipsed.

II. Of the *Sun*, on the 12th of March, at 8 minutes past 1 in the morning; invisible.

III. Of the *Moon*, on the 21st of August, at 57 minutes past 9 in the morning; invisible.

IV. Of the *Sun*, on the 5th of September, in the morning; the sun will be 9 1-2 digits eclipsed at London; but a very small portion of it can be seen here; the western limb of the moon abandons the eastern limb of the sun 7 minutes after sun-rise.

These calculations are according to Ferguson's Astronomy, explained upon sir Isaac Newton's principles.

B. B.

Partial

1793 Feb 25

Saros 110

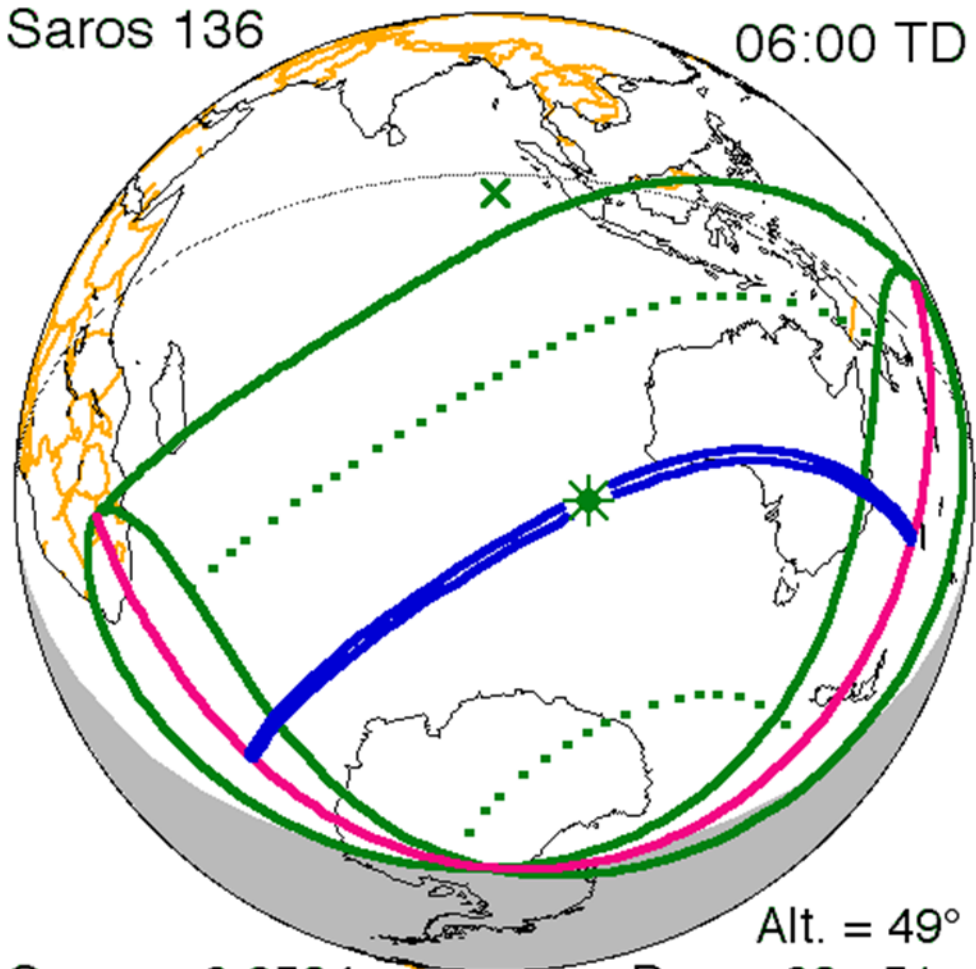
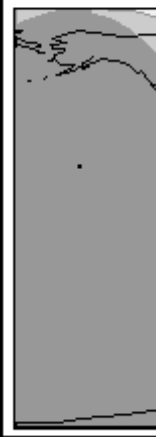
Total

1793 Mar 12

Saros 136

06:00 TD

Par. =
Gam.



Gam. = -0.6524

Dur. = 02m51s

Alt. = 49°

Partial

1793 Aug 21

Saros 115

14:55 TD

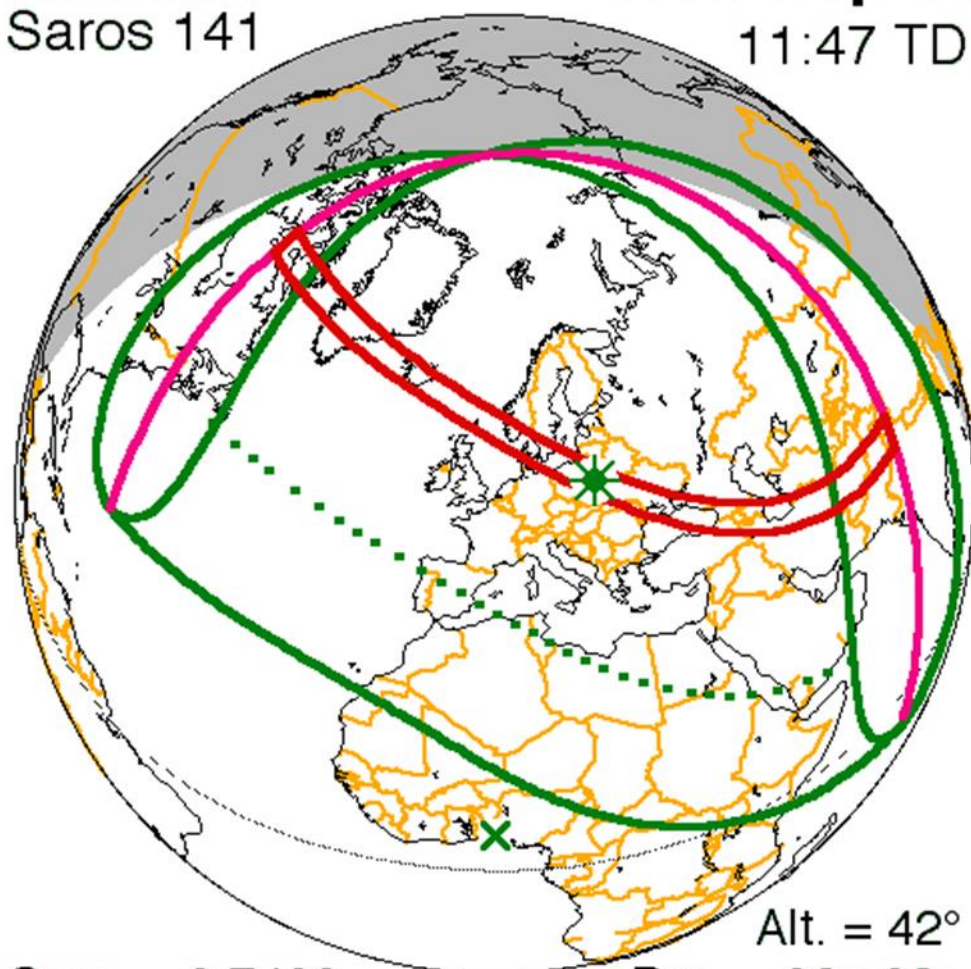
Annular

1793 Sep 05

Saros 141

11:47 TD

Par. = 16
Gam. = 0



Gam. = 0.7408

Dur. = 06m02s

Alt. = 42°

A TABLE of INTEREST at 6^{per} CENT.

INTEREST, at Six Pounds per Cent. from Five Shillings to a Hundred Pounds, and Fractions, it is as near the Truth as possibly it can be.

| Principal. | One Month. | | Three Months. | | Six Months. | | Nine Months. | | A YEAR. | |
|------------|------------|--------|---------------|--------|-------------|--------|--------------|---------|---------|---------|
| | s. | d. q. | s. | d. q. | s. | d. q. | s. | d. q. | s. | d. q. |
| Shillings. | 5 | 0 1 | 0 0 3 | 0 1 3 | 0 2 3 | 0 3 2 | 0 4 2 | 0 5 2 | 0 6 2 | 0 7 1 |
| 10 | 0 2 | 0 1 3 | 0 3 2 | 0 4 2 | 0 5 2 | 0 6 2 | 0 7 1 | 0 8 1 | 0 9 1 | 0 10 2 |
| 15 | 0 3 | 0 2 3 | 0 4 2 | 0 5 2 | 0 6 2 | 0 7 1 | 0 8 1 | 0 9 1 | 0 10 2 | 0 11 2 |
| Pounds. | 1 | 0 1 1 | 0 3 2 | 0 7 1 | 0 10 2 | 1 2 2 | 1 6 2 | 1 10 2 | 2 2 2 | 2 6 2 |
| 2 | 0 2 2 | 0 7 1 | 1 2 2 | 1 6 2 | 2 10 2 | 2 4 3 | 2 8 2 | 3 2 2 | 3 6 2 | 4 0 2 |
| 3 | 0 3 2 | 0 10 2 | 1 6 2 | 2 10 2 | 2 4 3 | 3 2 2 | 3 6 2 | 4 0 2 | 4 4 3 | 4 8 2 |
| 4 | 0 4 3 | 1 2 2 | 2 4 3 | 3 2 2 | 3 6 2 | 4 0 2 | 4 4 3 | 5 0 2 | 5 4 3 | 5 8 2 |
| 5 | 0 6 0 | 1 6 0 | 3 0 0 | 4 6 0 | 4 6 0 | 5 0 0 | 5 4 3 | 6 0 0 | 6 4 3 | 6 8 2 |
| 6 | 0 7 1 | 1 9 2 | 3 7 1 | 5 4 3 | 6 3 2 | 6 3 2 | 7 0 0 | 7 4 3 | 7 8 2 | 8 2 2 |
| 7 | 0 8 2 | 2 1 1 | 4 2 2 | 6 3 2 | 7 2 2 | 7 2 2 | 8 0 0 | 8 4 3 | 8 8 2 | 9 2 2 |
| 8 | 0 9 2 | 2 4 3 | 4 9 2 | 7 2 2 | 8 1 1 | 8 1 1 | 9 0 0 | 9 4 3 | 9 8 2 | 10 2 2 |
| 9 | 0 10 3 | 2 8 2 | 5 4 3 | 8 1 1 | 9 0 0 | 9 0 0 | 10 0 0 | 10 4 3 | 10 8 2 | 11 2 2 |
| Pounds. | 10 | 0 1 0 | 0 3 0 | 0 6 0 | 0 9 0 | 0 12 0 | 0 15 0 | 0 18 0 | 0 21 0 | 0 24 0 |
| 20 | 0 2 0 | 0 6 0 | 0 12 0 | 0 18 0 | 0 24 0 | 0 30 0 | 0 36 0 | 0 42 0 | 0 48 0 | 0 54 0 |
| 30 | 0 3 0 | 0 9 0 | 0 18 0 | 0 27 0 | 0 36 0 | 0 45 0 | 0 54 0 | 0 63 0 | 0 72 0 | 0 81 0 |
| 40 | 0 4 0 | 0 12 0 | 0 24 0 | 0 36 0 | 0 48 0 | 0 60 0 | 0 72 0 | 0 84 0 | 0 96 0 | 0 108 0 |
| 50 | 0 5 0 | 0 15 0 | 0 30 0 | 0 45 0 | 0 60 0 | 0 75 0 | 0 90 0 | 0 105 0 | 0 120 0 | 0 135 0 |
| 60 | 0 6 0 | 0 18 0 | 0 36 0 | 0 54 0 | 0 72 0 | 0 90 0 | 0 108 0 | 0 126 0 | 0 144 0 | 0 162 0 |

R U L E

To find the Time of HIGH-WATER at the following Places.

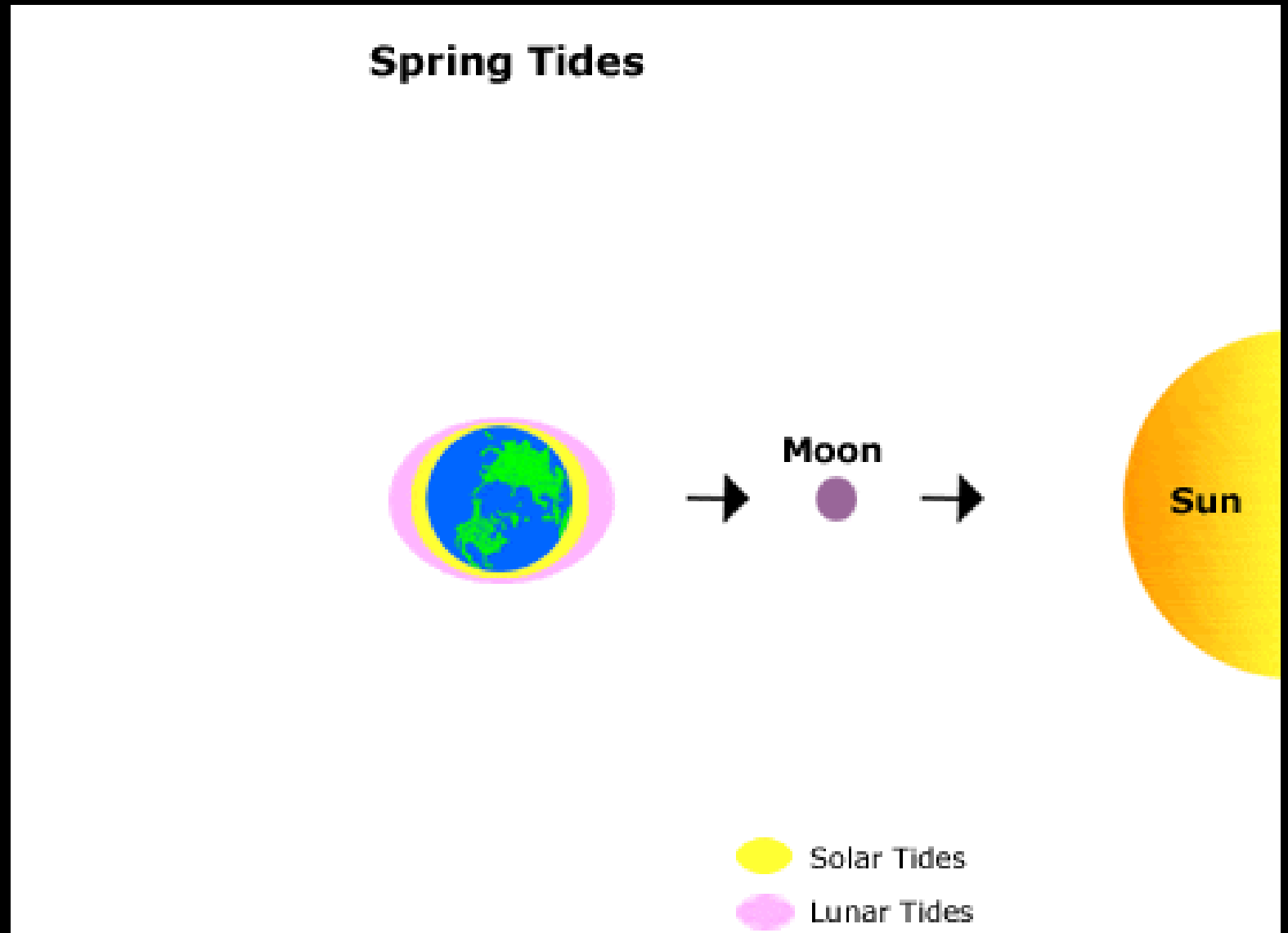
| To the time of the moon's southing in the calendar, add, for | Places. | H. M. | For the time of high-water at the proposed place. |
|--|---|-------|---|
| } | Cape May, Cape Henlopen, Port Roseway, and Amboy, | 8 15 | } |
| | Wilmington in Delaware State, | 0 10 | |
| | New-York and Burlington, | 9 0 | |
| | Cape Henry and Cape Hatteras, | 11 0 | |
| | Charleston Light-house and Georgetown Bar, | 7 0 | |
| | Cape Canso and Island Sable, | 8 30 | |
| | Halifax, Cape Sable, and New-Providence, | 8 0 | |
| | Boston and Cape Ann Light-house, | 10 0 | |
| | Nantucket Shoals and Sandwich Bay, | 9 0 | |
| | Newbury-Port and Williamsburg, | 11 30 | |

N. B. If, after the addition, the sum be greater than twelve hours, throw twelve hours away, and the remainder is the time of high-water.

Tides

- Try [this](#)

in [action](#)



IN CONGRESS, July 4, 1776.

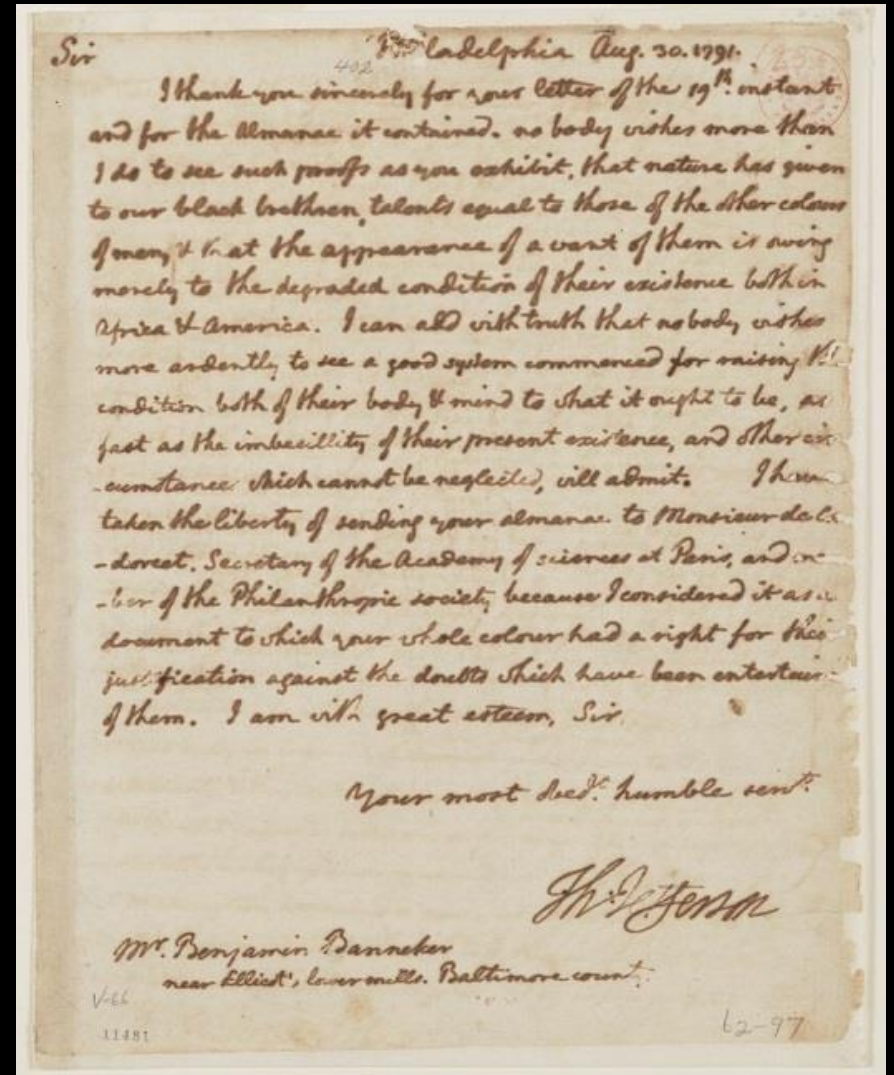
The unanimous Declaration of the thirteen united States of America.

“We are a race of beings, who have long labored under the abuse and censure of the world; we have long been looked upon with an eye of contempt. However diversified in situation or color, we are all of the same family.”

[Faint, mostly illegible text of the original document, including the beginning of the preamble and the start of the list of signatories.]

Thomas Jefferson

“I considered it as a document to which your whole colour had a right for their justification against the doubts which have been entertained of them.”



“Benjamin Banniker [’s] . . . abilities, as a surveyor, and an astronomer, clearly prove that Mr. Jefferson’s concluding that race of men were void of mental endowments, was without foundation.”

- Georgetown Weekly Ledger



"I consider this Negro s fresh proof that the powers of the mind are disconnected with the color of the skin."

*- James McHenry
(in forward)*

Benjamin Banneker's
PENNSYLVANIA, DELAWARE,
MARYLAND and VIRGINIA

Almanack

A N D

E P H E M E R I S,
FOR THE YEAR OF OUR LORD,

1 7 9 2 ;

Being BISSEXTILE, or LEAP-YEAR, and the SIXTEENTH YEAR of AMERICAN INDEPENDENCE, which commenced July 4, 1776.

CONTAINING, the Motions of the Sun and Moon, the true Places and Aspects of the Planets, the Rising and Setting of the Sun, and the Rising, Setting and Southing, Place and Age of the Moon, &c.—The Lunations, Conjunctions, Eclipses, Judgements of the Weather, Festivals, and other remarkable Days; Days for holding the Supreme and Circuit Courts of the United States, as also the usual Courts in Pennsylvania, Delaware, Maryland, and Virginia.—Also, several useful Tables, and valuable Receipts.—Various Selections from the Commonplace-Book of the *Kentucky Philosopher*, an *American Sage*; with interesting and entertaining Essays, in Prose and Verse—the whole comprising a greater, more pleasing, and useful Variety, than any Work of the Kind and Price in North-America.

BALTIMORE: Printed and Sold, Wholesale and Retail, by WILLIAM GODDARD and JAMES ANSELL, at their Printing-Office, in Market-Street.—Sold, also, by Mr. JOSEPH CRUKSHANK, Printer, in Market-Street, and Mr. DANIEL HUMPHREYS, Printer, in South-Front-Street, Philadelphia—and by Messrs. HANSON and BOND, Printers, in Alexandria.

BENJAMIN
BANNEKER
1731 — 1806
SCIENTIST

BURIED IN AN UNMARKED GRAVE NEAR HERE LIES THE
REMAINS OF BENJAMIN BANNEKER, DISTINGUISHED SON
OF MARYLAND, WHO WAS BORN, LIVED AND DIED IN THIS AREA
ERECTED IN MEMORIAM BY THE MARYLAND
BICENTENNIAL COMMISSION AND THE STATE COMMISSION
ON AFRICAN AMERICAN HISTORY AND CULTURE 1977

Remember 2017?



Photo by Jeff Bryant

Why does the Moon change its appearance?

- A. The Earth's shadow covers the Moon
- B. Clouds cover the Moon
- C. The Moon turns its dark side towards us
- D. We see different parts of the lighted face

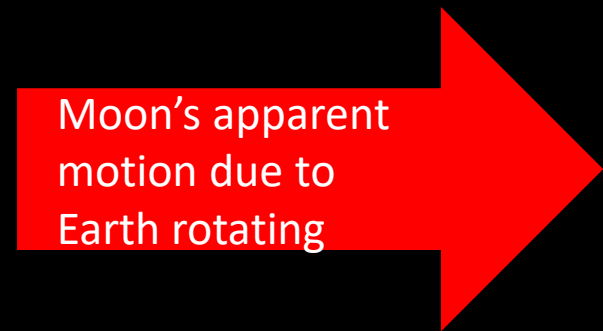
Phases of the Moon

“Moonth”



View From Earth





EAST

Moon rises an average of 50 minutes later each night.

WEST

Does the Moon spin?

2007 Oct 11 00:00:00 UT



**Sun is 400 times larger than Moon,
but it is also 400 times further away!**



So they appear about the same size in the sky

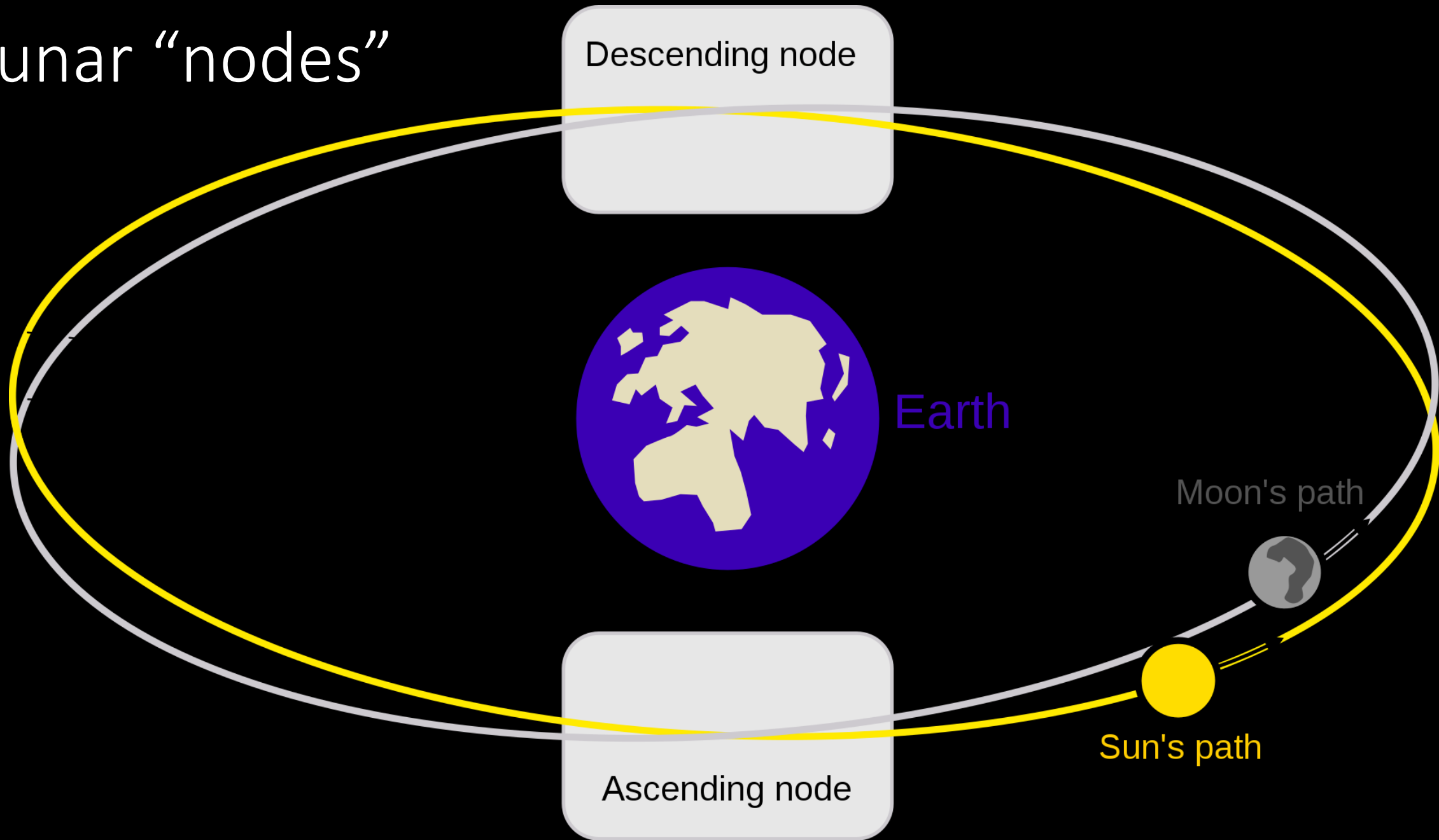
Why don't eclipses happen every month?

The moon's orbit is tilted.

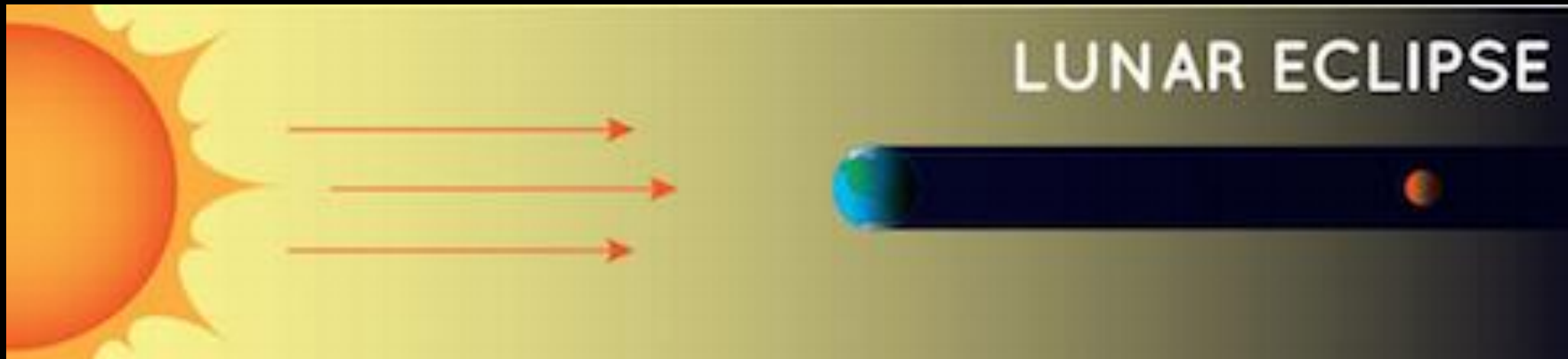
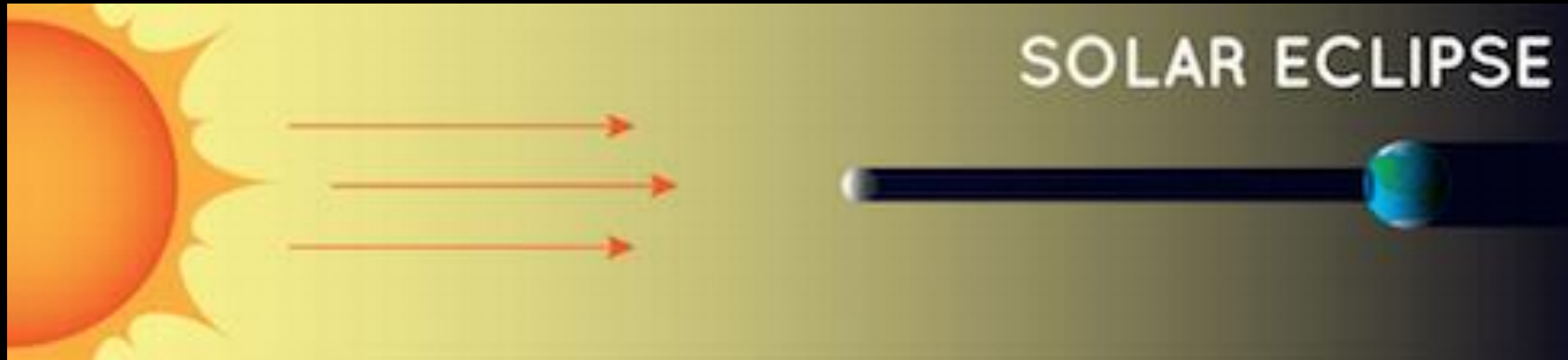


[link](#)

Lunar "nodes"



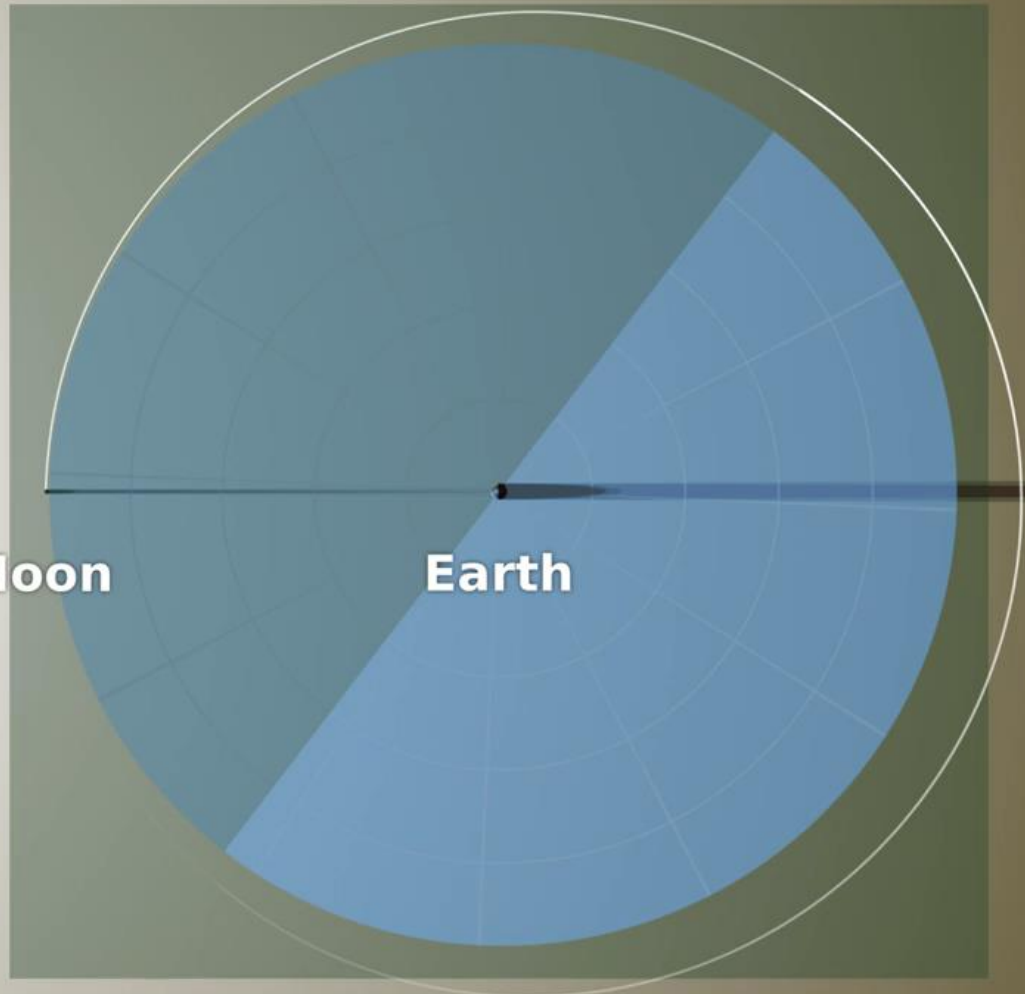
Basic types of eclipses



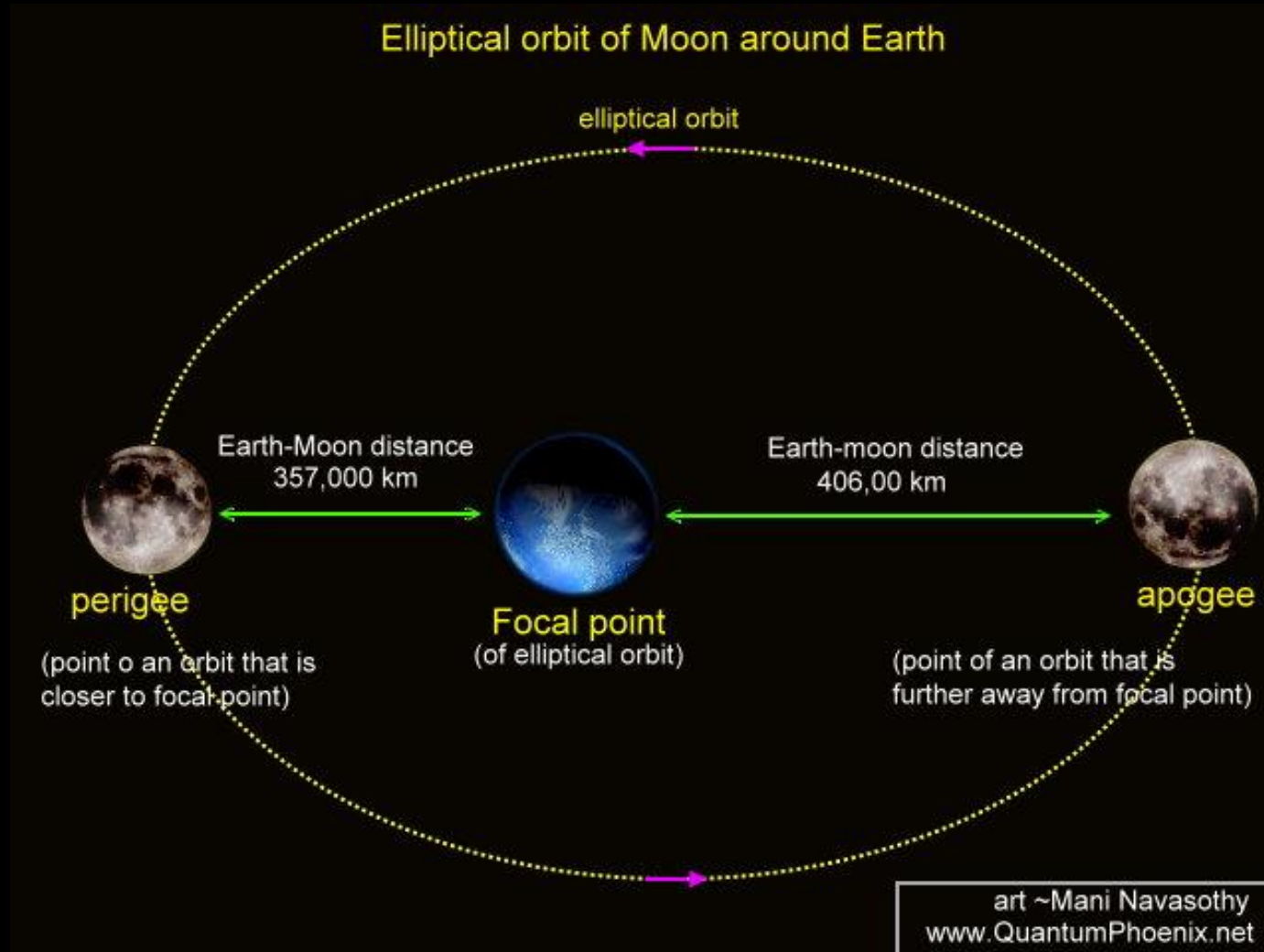
Illustrations not to scale

Moon

Earth



Distance . . . Moon's orbit is not a perfect circle



“SUPERMOON?”



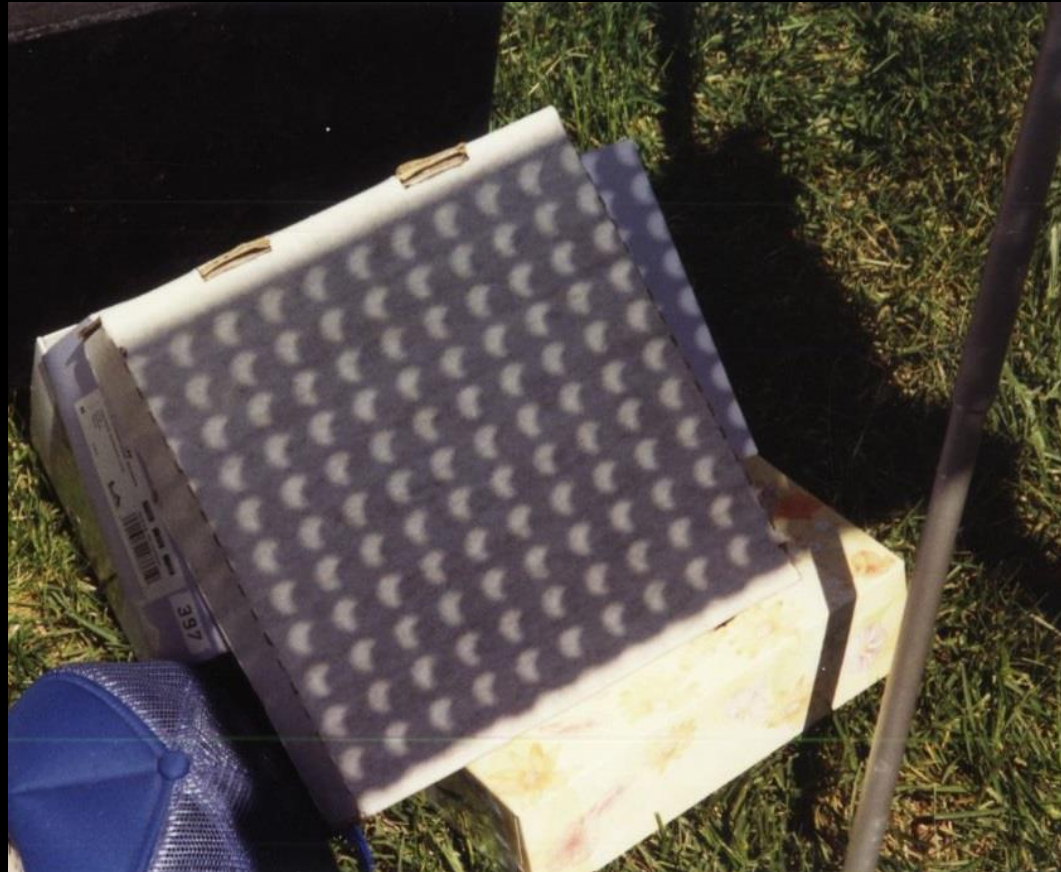
20 Dec 2010

19 Mar 2011

Annular eclipse

- Moon at “apogee” – appears smaller

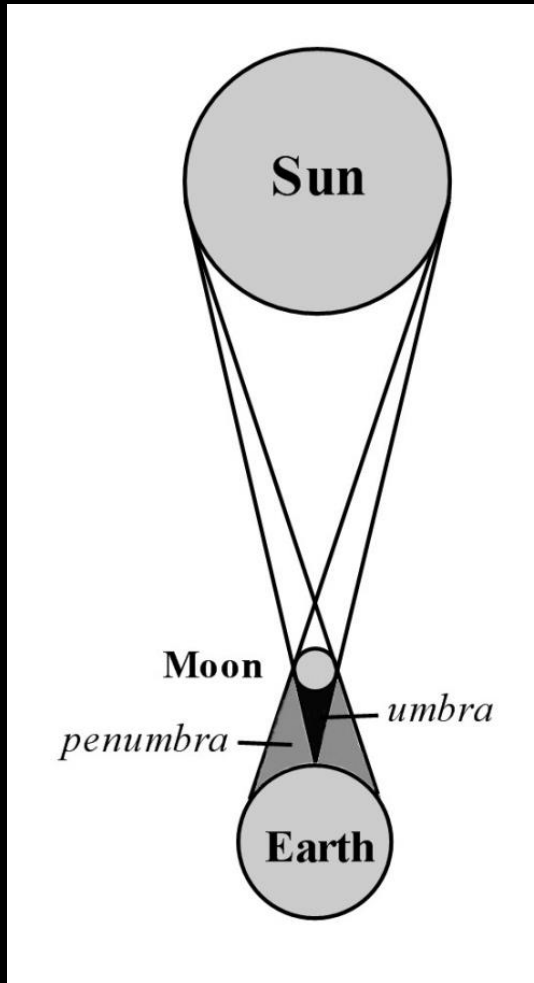
May 10, 1994



1994



Solar Eclipses



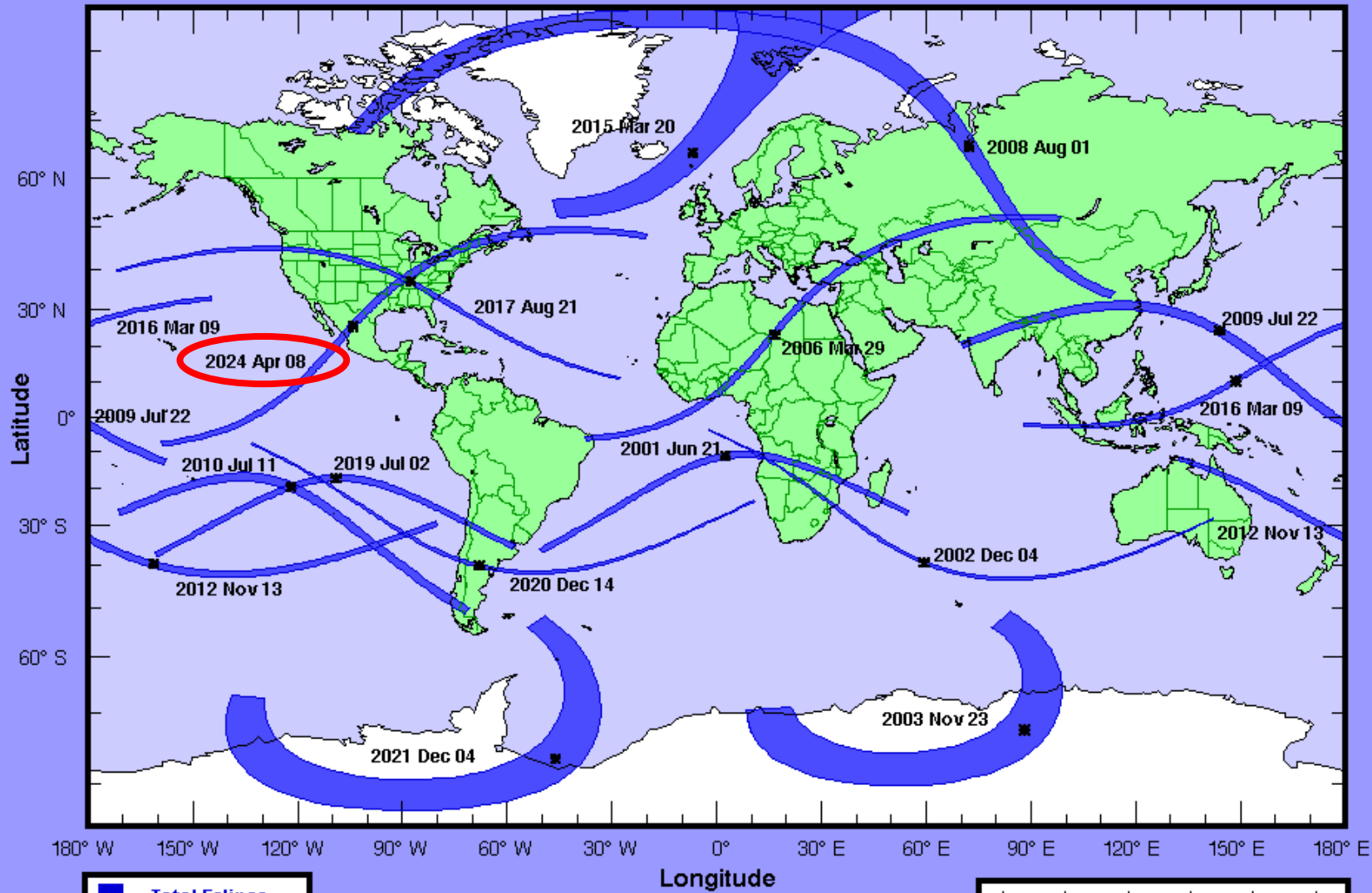
Total Solar Eclipse of 1999 August 11



Solar Eclipses: 2021 - 2030

| Calendar Date <i>(Link to Global Map)</i> | TD of Greatest Eclipse <i>(Link to Animation)</i> | Eclipse Type <i>(Link to Google Map)</i> | Saros Series <i>(Link to Saros)</i> | Eclipse Magnitude | Central Duration <i>(Link to Path Table)</i> | Geographic Region of Eclipse Visibility |
|--|--|---|--|-------------------|---|---|
| 2021 Jun 10 | 10:43:06 | Annular | 147 | 0.943 | 03m51s | n N. America, Europe, Asia [Annular: n Canada, Greenland, Russia] |
| 2021 Dec 04 | 07:34:38 | Total | 152 | 1.037 | 01m54s | Antarctica, S. Africa, s Atlantic [Total: Antarctica] |
| 2022 Apr 30 | 20:42:36 | Partial | 119 | 0.640 | - | se Pacific, s S. America |
| 2022 Oct 25 | 11:01:19 | Partial | 124 | 0.862 | - | Europe, ne Africa, Mid East, w Asia |
| 2023 Apr 20 | 04:17:55 | Hybrid | 129 | 1.013 | 01m16s | se Asia, E. Indies, Australia, Philippines. N.Z. [Hybrid: Indonesia, Australia, Papua New Guinea] |
| 2023 Oct 14 | 18:00:40 | Annular | 134 | 0.952 | 05m17s | N. America, C. America, S. America [Annular: w US, C. America, Colombia, Brazil] |
| 2024 Apr 08 | 18:18:29 | Total | 139 | 1.057 | 04m28s | N. America, C. America [Total: Mexico, c US, e Canada] |
| 2024 Oct 02 | 18:46:13 | Annular | 144 | 0.933 | 07m25s | Pacific, s S. America [Annular: s Chile, s Argentina] |

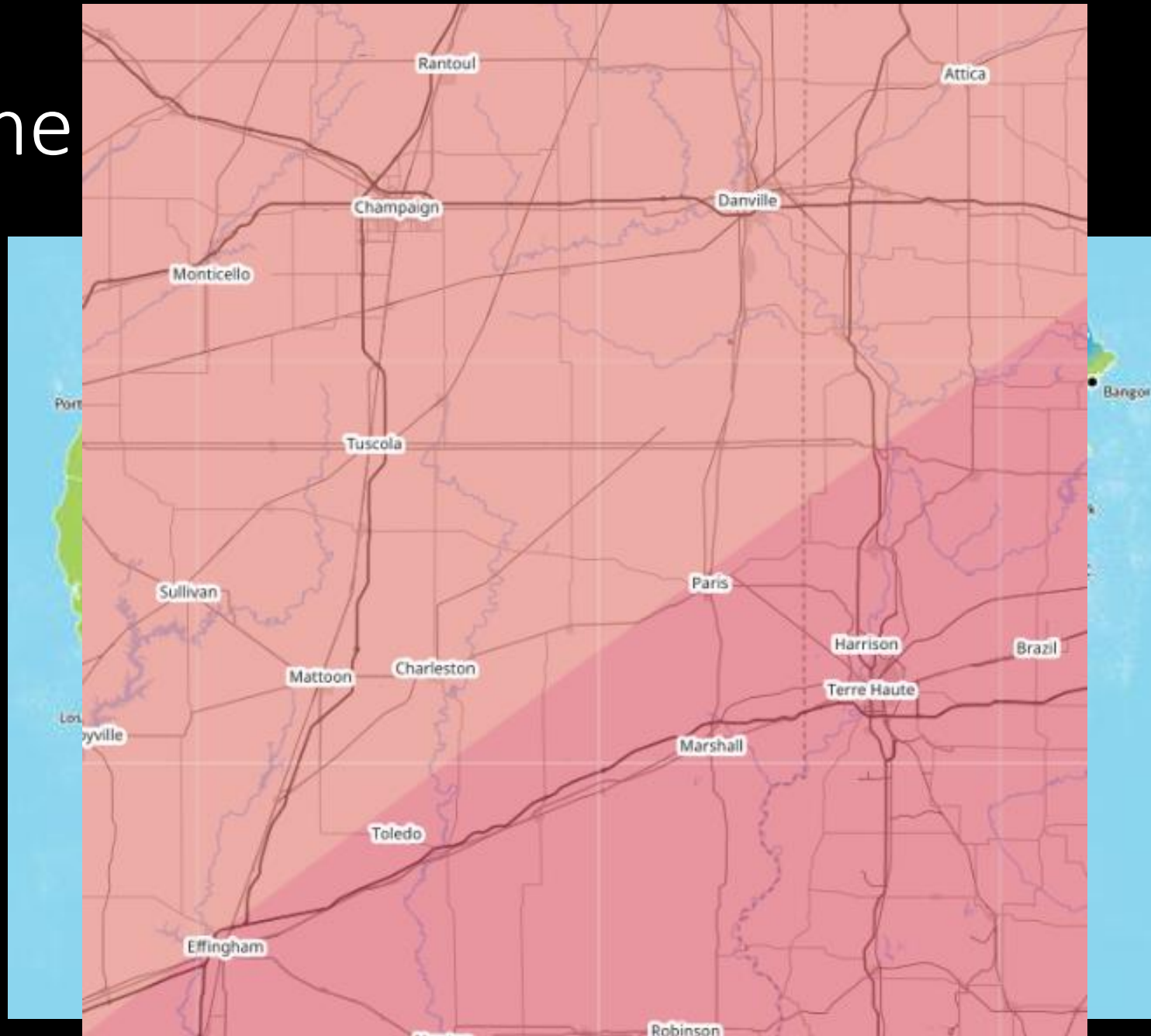
Total Solar Eclipse Paths: 2001-2025



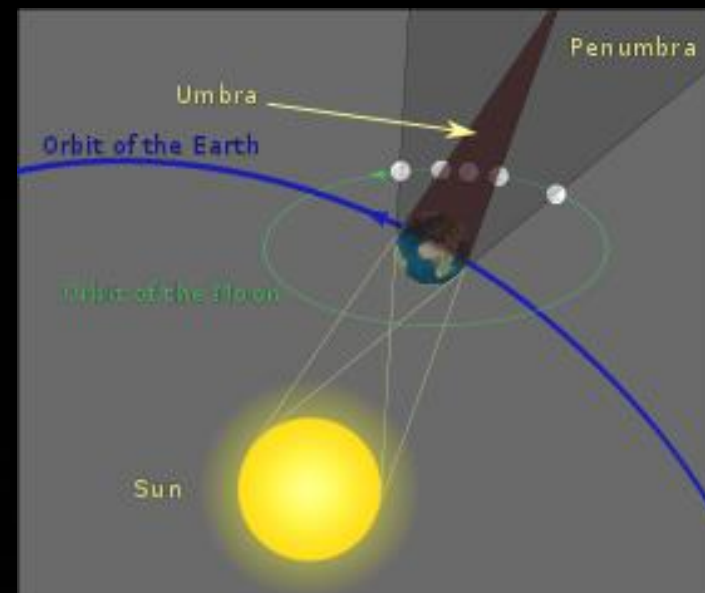
- Total Eclipse
- Annular Eclipse
- Hybrid Eclipse

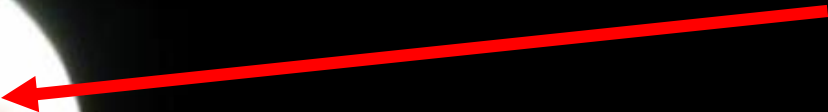


Next one

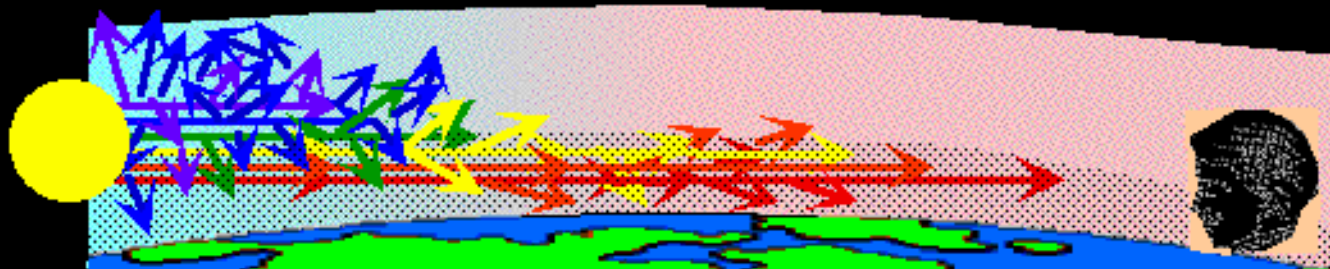
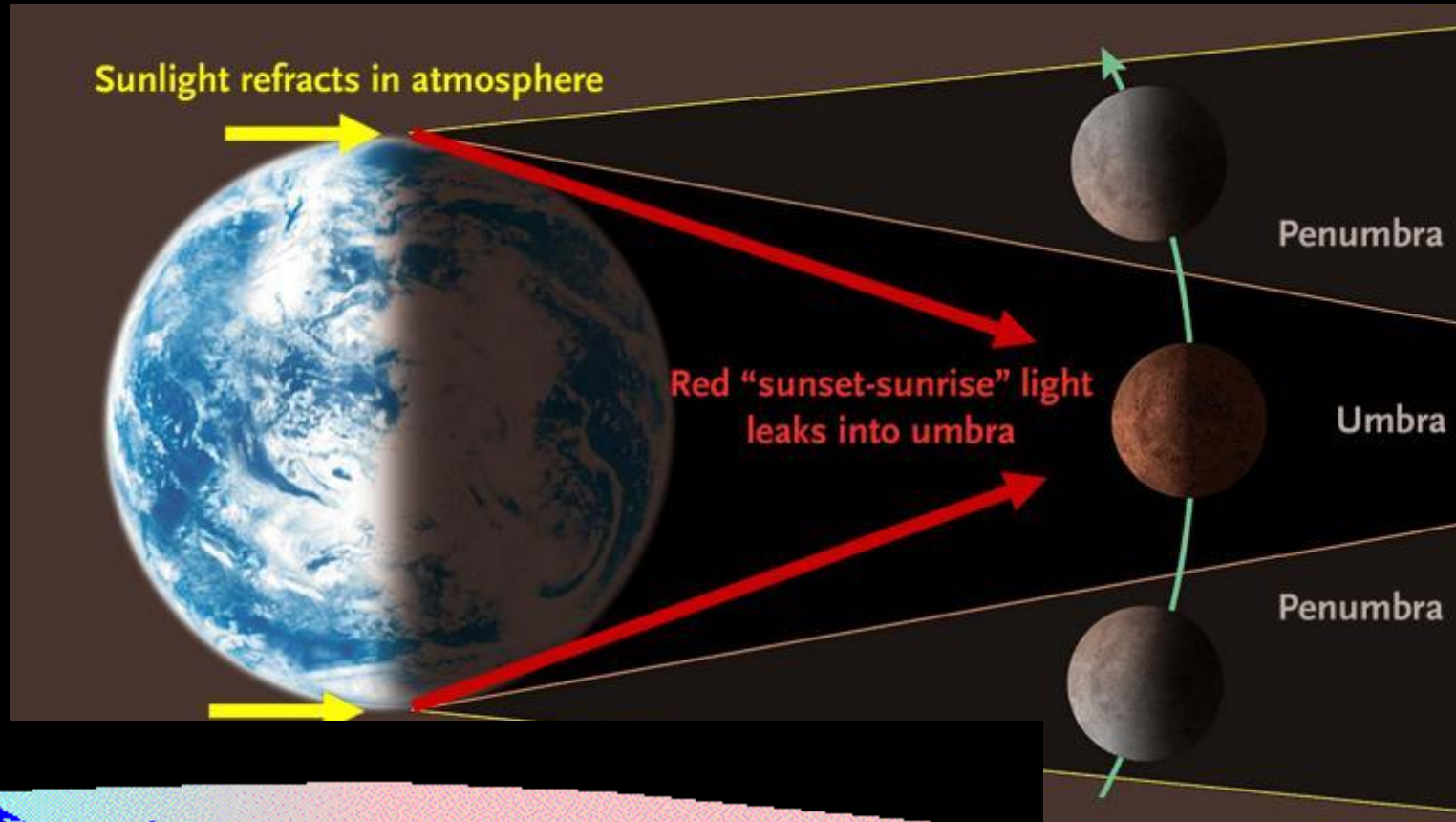


Lunar Eclipses





"Blood Moons?"



Lunar Eclipses: 2021 - 2030

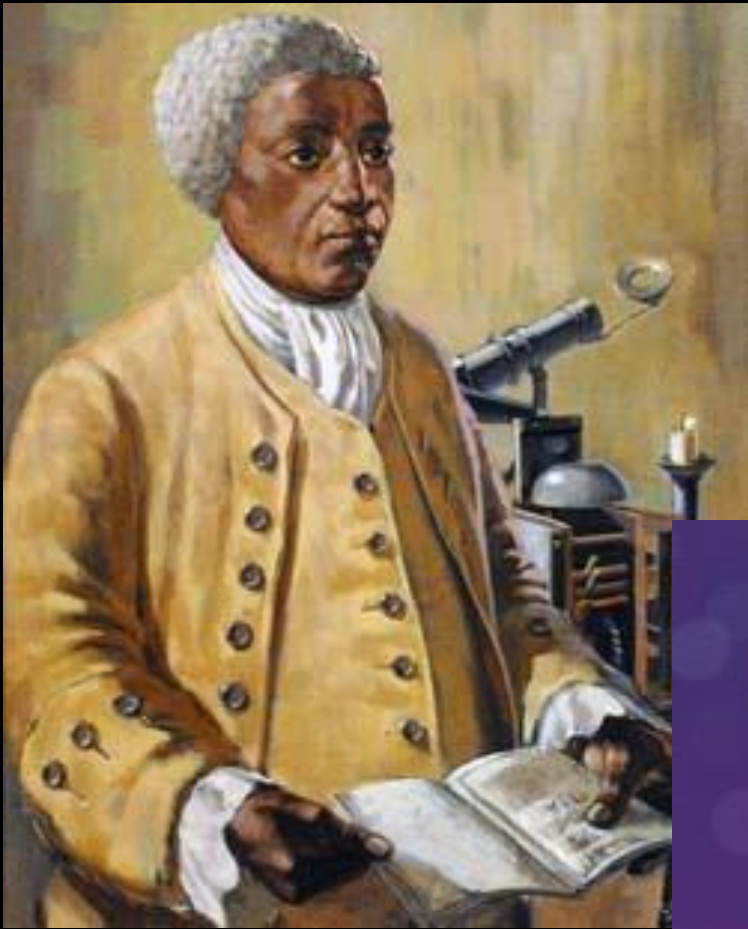
| Calendar Date | TD of Greatest Eclipse | Eclipse Type | Saros Series | Umbral Magnitude | Eclipse Duration | Geographic Region of Eclipse Visibility |
|------------------------------------|------------------------|--------------|----------------------------|------------------|-------------------------|--|
| <u>2021 May 26</u> | 11:19:53 | Total | <u>121</u> | 1.009 | 03h07m 00h15m | e Asia, Australia, Pacific, Americas |
| <u>2021 Nov 19</u> | 09:04:06 | Partial | <u>126</u> | 0.974 | 03h28m | Americas, n Europe, e Asia, Australia, Pacific |
| <u>2022 May 16</u> | 04:12:42 | Total | <u>131</u> | 1.414 | 03h27m 01h25m | Americas, Europe, Africa |
| <u>2022 Nov 08</u> | 11:00:22 | Total | <u>136</u> | 1.359 | 03h40m 01h25m | Asia, Australia, Pacific, Americas |
| <u>2023 May 05</u> | 17:24:05 | Penumbral | <u>141</u> | -0.046 | - | Africa, Asia, Australia |
| <u>2023 Oct 28</u> | 20:15:18 | Partial | <u>146</u> | 0.122 | 01h17m | e Americas, Europe, Africa, Asia, Australia |
| <u>2024 Mar 25</u> | 07:13:59 | Penumbral | <u>113</u> | -0.132 | - | Americas |
| <u>2024 Sep 18</u> | 02:45:25 | Partial | <u>118</u> | 0.085 | 01h03m | Americas, Europe, Africa |
| <u>2025 Mar 14</u> | 06:59:56 | Total | <u>123</u> | 1.178 | 03h38m 01h05m | Pacific, Americas, w Europe, w Africa |
| <u>2025 Sep 07</u> | 18:12:58 | Total | <u>128</u> | 1.362 | 03h29m 01h22m | Europe, Africa, Asia, Australia |



Benjamin Banneker Historical Park & Museum



Cherchez
votre
la route
la route
Publie
l'Etat de q



Dara Norman



Neil deGrasse Tyson



Aomawa Shields



Ben Peery



Louise Edwards



Moiya McTier



Gibor Basri

