

Diagram 1A:

Occultation
shown here: *The hiding of a star or celestial body
when the moon passes between the
earth and the star or celestial body.*

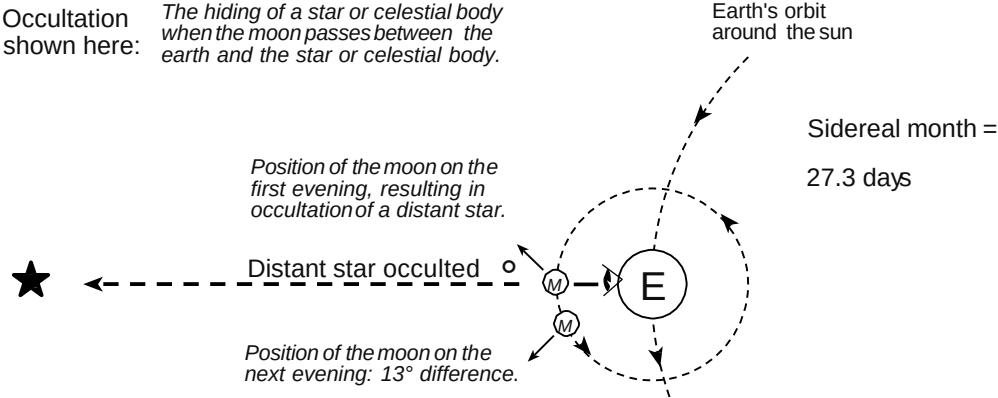


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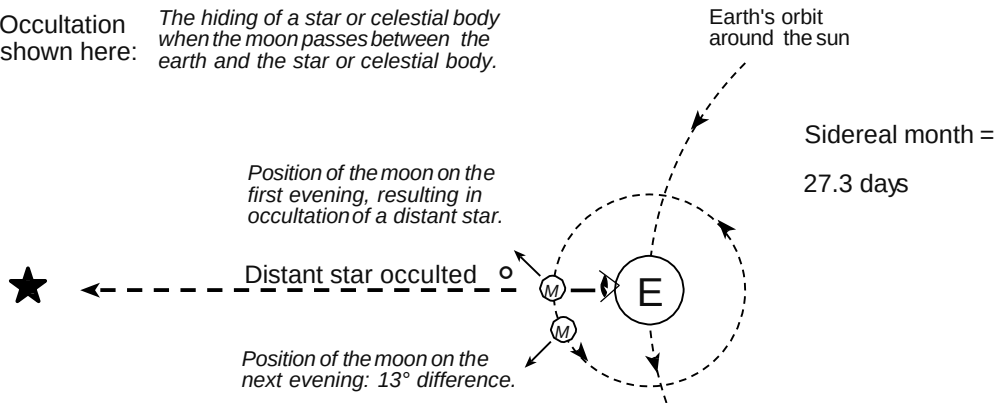


Diagram 1B:

After one revolution of the moon

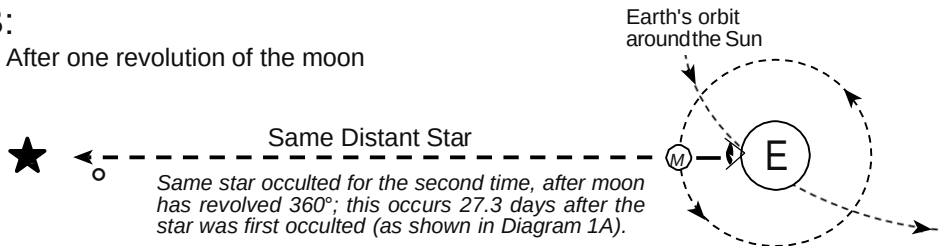
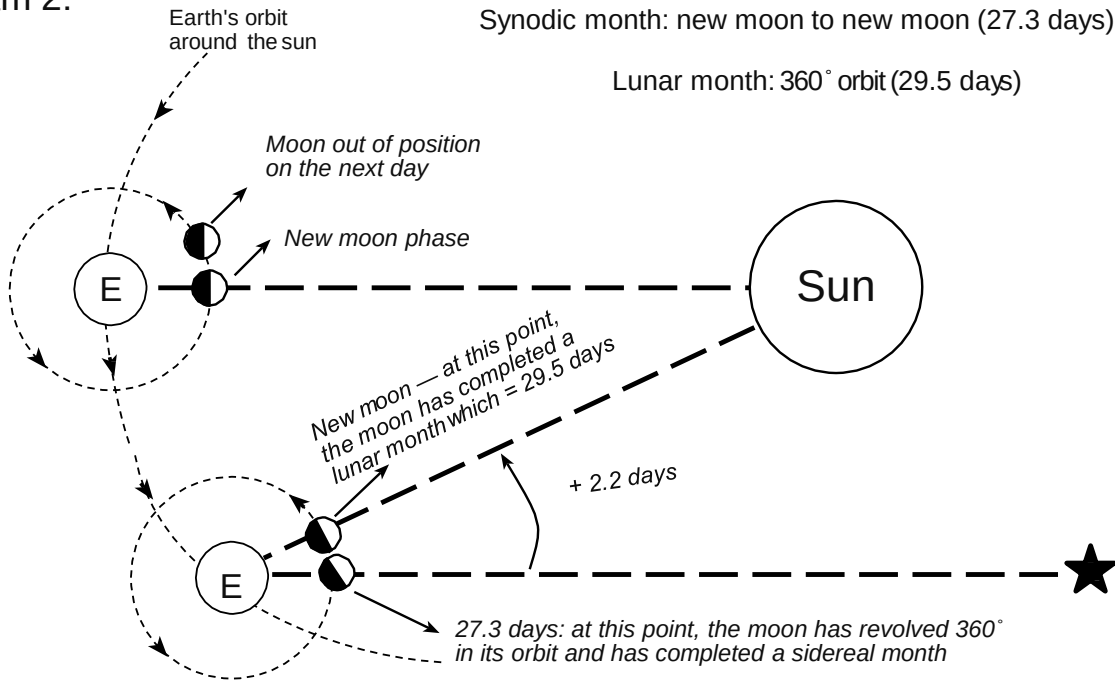


Diagram 2:

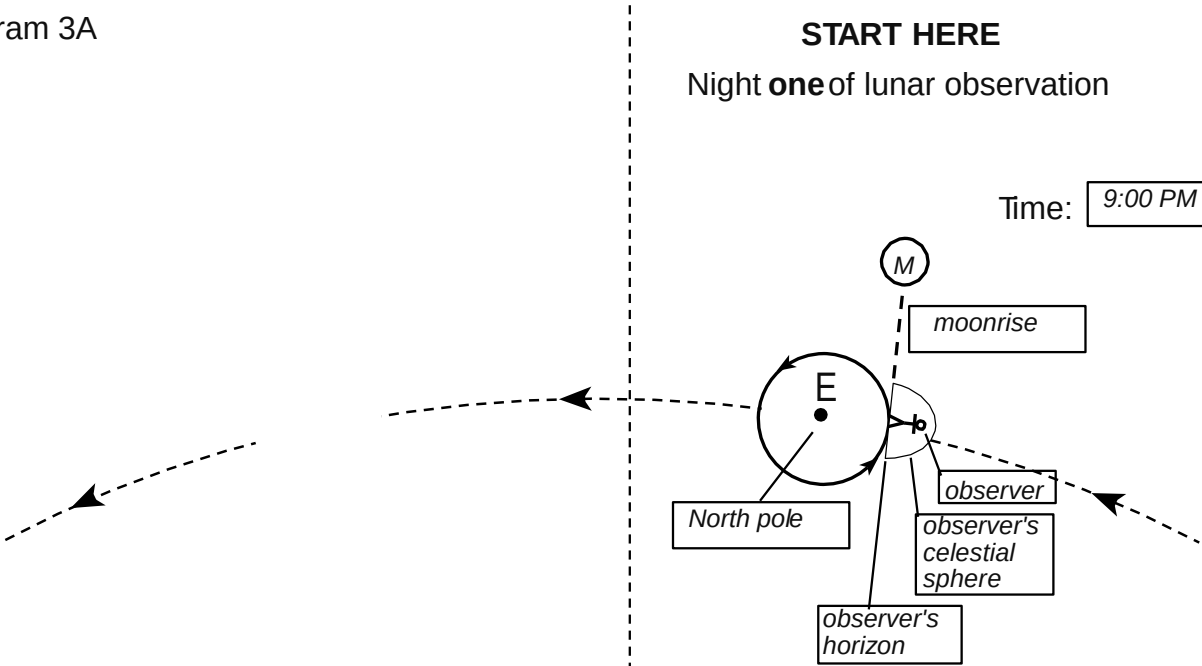


The Changing Times of Moonrise as a Result of Sidereal Motion

Diagram 3A

START HERE
Night **one** of lunar observation

Time: 9:00 PM



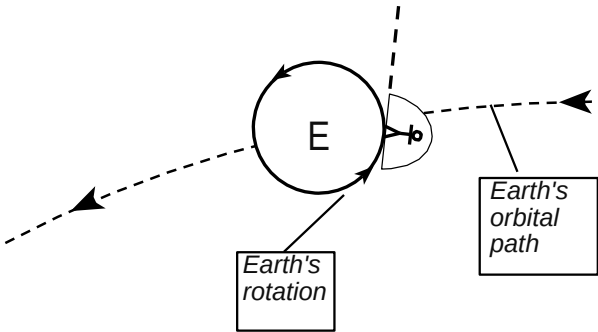
The Changing Times of Moonrise as a Result of Sidereal Motion

Diagram 3A

Night **two** of lunar observation

Time: 9:00 PM

No Moon! Why?



START HERE

Night **one** of lunar observation

Time: 9:00 PM

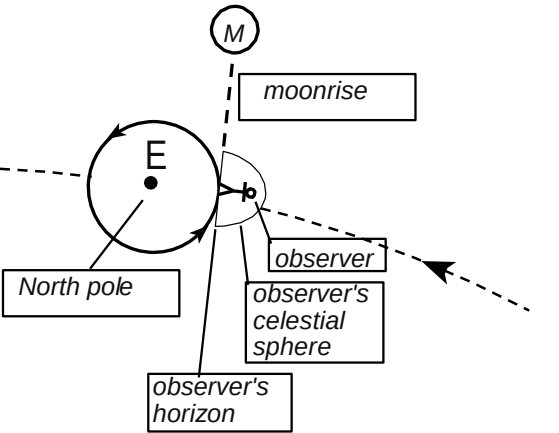


Diagram 3B

Night **one** of lunar observation

Time: 9:00 PM

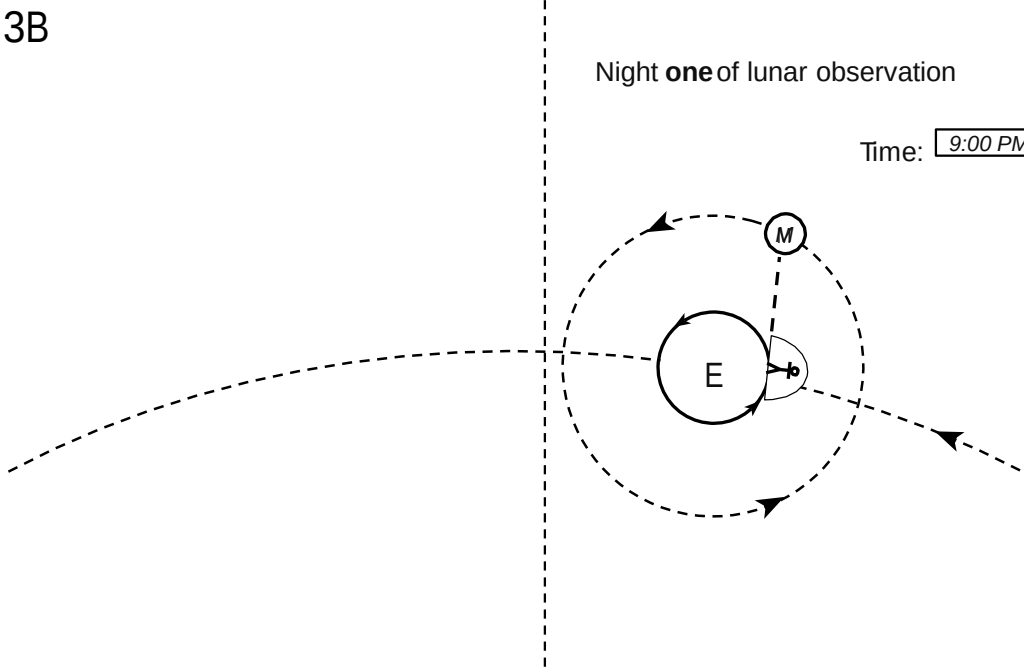
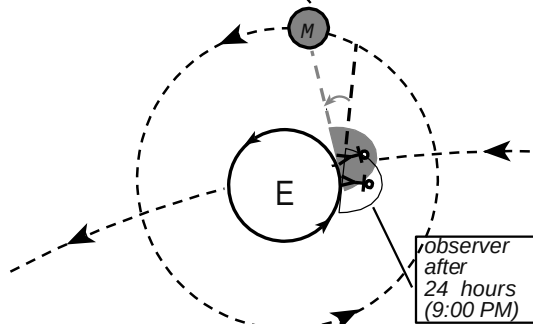


Diagram 3B

Night **two** of lunar observation

*Moon out of position by 13°:
Earth must rotate observer
for 52 additional minutes to
"catch up with the Moon"**

Time: 9:52 PM



Night **one** of lunar observation

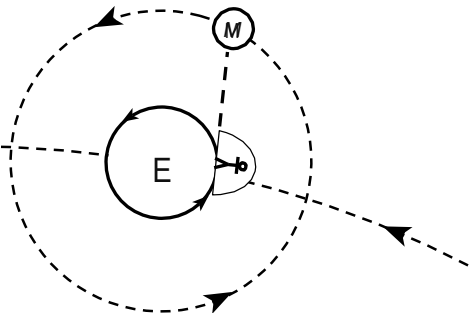
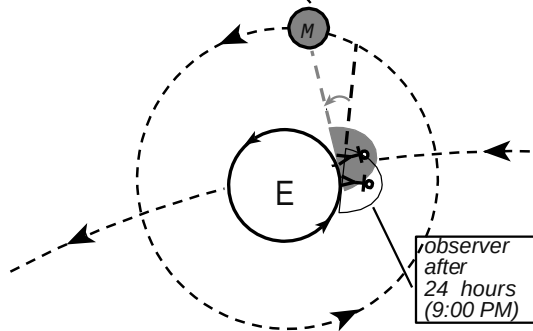
Time: 9:00 PM

Diagram 3B

Night **two** of lunar observation

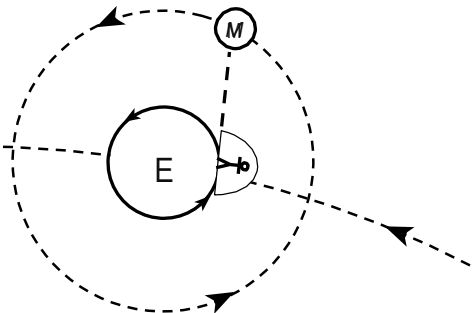
*Moon out of position by 13°:
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Time: 9:52 PM



Night **one** of lunar observation

Time: 9:00 PM



* Moon takes 27.3 days to revolve 360°

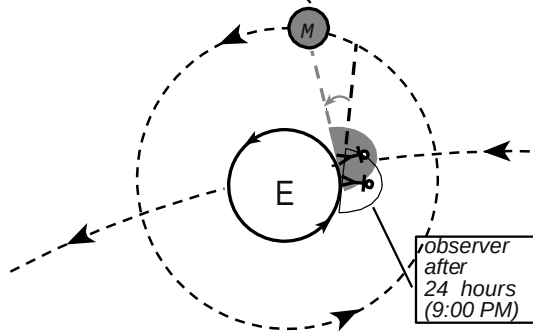
$$\frac{360^\circ}{27.3 \text{ days}} = \text{about } 13^\circ \text{ of Moon's orbital motion per day}$$

Diagram 3B

Night **two** of lunar observation

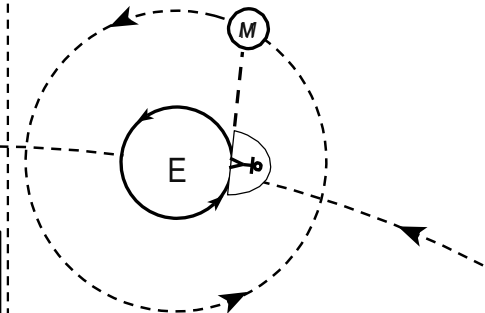
*Moon out of position by 13°:
Earth must rotate observer
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Time: 9:52 PM



Night **one** of lunar observation

Time: 9:00 PM



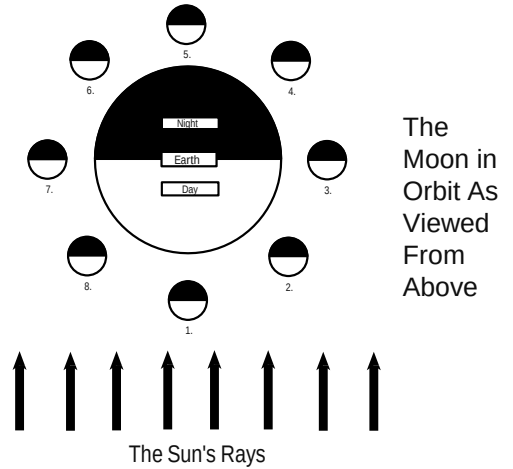
* Moon takes 27.3 days to revolve 360°

$\frac{360^\circ}{27.3 \text{ days}} = \text{about } 13^\circ \text{ of Moon's orbital motion per day}$

The Earth takes 52 minutes to rotate 13°, so the times of moonrise and moonset occur 52 minutes later each successive day over the course of a sidereal month. That is why it is sometimes possible to see the Moon during daylight hours.

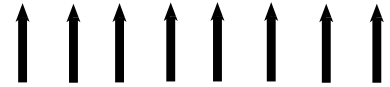
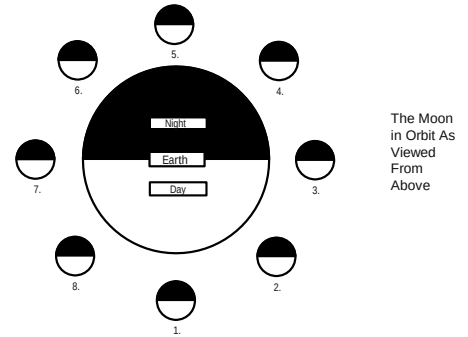
THE PHASES OF THE MOON AND THE EARTH

Diagram 4A



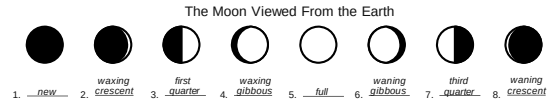
THE PHASES OF THE MOON AND THE EARTH

Diagram 4A



The Sun's Rays

Diagram 4B



THE PHASES OF THE MOON AND THE EARTH

Diagram 4A

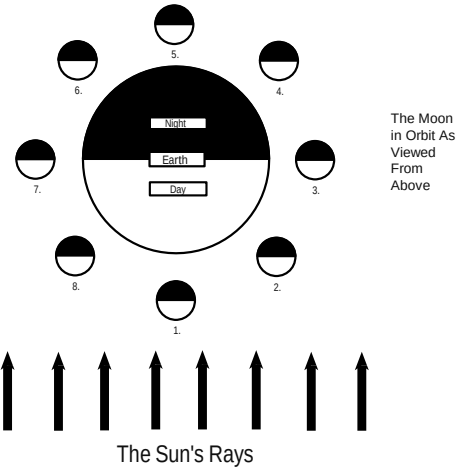


Diagram 4B

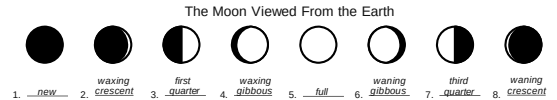


Diagram 4C

