UNDERSTANDING LUNAR CYCLES

NODAL PRECESSION

APSIDAL PRECESSION

PHASE

DISTANCE

EARTH-MOON RELATIVE SIZE

LUNAR SHAPE

LUNAR MOOD

SUPERMOON

BLUE MOON

SKINNY JEANS POPULAR

DIRE MOON

GOLDEN AGE OF TV

TOTAL ECLIPSE OF THE SEA

29.5 DAYS

27.5 DAYS

18.6 YEARS

8.7 YEARS

GOOD

BAD

EARTH BIGGER

MOON BIGGER

SQUARE

CIRCLE

PHASE × DISTANCE
Howard Astronomical League

July 18, 2019
Who am I?
I’m 4.6 billion years old
12 men and no women have visited me
I make all visitors feel good about their “weight”.
From the Enquirer ... What ever happened to the Astronaut that stowed away?
Howard Astronomical League

July 18, 2019
Introductions
Green Bank Star Quest XVII
Green Bank Star Quest XVII
Side Trip to Steve Jaworowsky’s
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It's time once again for:

Astronomy
Past
Present
Future
There was a time when the Moon did not exist
460 BCE – 370 BCE

Democritus and Anaxagoras taught that there was a time when the Earth was without the Moon. Aristotle wrote that Arcadia in Greece, before being inhabited by the Hellenes, had a population of Pelasgians, and that these aborigines occupied the land already before there was a moon in the sky above the Earth; for this reason they were called Proselenes.

Proselenes – Those that were before the Moon. Lived in the central mountains of Greece called Arcadia.
Modeling early meteorite impacts on the moon

Date: July 10, 2019
Source: University of California - Davis
Summary: A detailed reconstruction of meteorite impacts resolves a longstanding problem and gives new insight into how the moon formed.

Elements such as gold, iridium, platinum and palladium (known as highly siderophile or 'iron-loving' elements) are relatively scarce on the moon compared to Earth.

Why is this??
Captains Log: Star Date the future
A Special Feature from “What’s Out Tonight”
Clusters, Nebulae, Galaxies +

- Albireo. This 3rd magnitude stars becomes two stars, a blue and gold splendor, in a telescope with just 50x.
- Coma Cluster. Sprinkle of 40+ stars. Appears as a faint haze in dark skies. Spans 4.5°. In COMA BERENICES.
- Coathanger Cluster. Ten stars that form the shape of a singlewire coathanger. In VULPECULA.
- IC4665. A cluster of 30 stars that is best in binoculars. It spans an area larger than the Moon. In OPHIUCHUS.
- Kemble’s Cascade. Twenty magnitude 8 stars in a 2.5° line. The middle star is a “bright” 5th mag. In CAMELopardalis
- Mizar. Two stars with good eyes or binoculars. Three stars with a telescope at 50x. Located in the handle of the Big Dipper.
- M6. Similar to and above M7, this cluster also has 80 stars but it is a little fainter and 1/4 the size. In SCORPIUS.
- M7. Ptolemy’s Cluster. A great cluster, nice in binoculars or telescope. About 80 stars at magnitude 3.3 spanning an area larger than the Moon. Can see as a “patch” with eyes. In SCORPIUS.
- M22. Globular Cluster. Distance: 10,400 ly / Diameter: 88 ly / Mag 5.1 / Spans 29'. 100,000+ stars. In SAGITTARIUS.
- M57. Ring Nebula (Planetary). Distance: 1360 ly / Diameter: 0.5 to 1 ly / Mag 9 / Spans 1.3'. In LYRA. Remnants of a dying star.
Visual Observers Corner
Tonight’s Guest Speaker

Caitlin Ahrens
“Pluto: From the Lab to the Maps”
Member Astrophotos, Sketches, and Paintings
July Hot & Hazy = Steady Seeing!

07/13/2019 02:13 UT

07/14/2019 Jupiter with GRS, Saturn a few days past opposition.

Captured with 6" reflector, + 2.5 Barlow and DFK21AU042 camera
MOON
MARE SERENITATIS
MARE VOPRUM
MARE TRANQUILLITATIS

Highlighted Area
Longitude: 16°S - 28°N
Latitude: 8°E - 40°E

Date: 04/22/2018
Time: 09:51 PM EDT
Location: Elkridge, MD

Telescope: 3.5" Questar
Camera: ZWO ASI 178MM
Frames captured=20
Binning=2x2
ROI=1544x1040
FPS (avg.)=17
Shutter=4.623ms
Gain=212 (41%)

Processing:
RegiStax6
Adobe Photoshop
Adobe Lightroom

Image by: Phil Whitebloom
M17 (Swan/Omega Nebula)
Emission Nebula & Open Cluster

Constellation: Sagittarius
Magnitude: 6.0
Distance: 5,500 light years
Actual Size Nebula: 30 light years across
Apparent Size Nebula: 20 x 15 arcminutes
Apparent Size Cluster: 27 arcminutes

Telescope: 110mm Refractor
Eyepieces: 13mm Ethos (59x) & 6mm Delos (128x)
Filter: Nebulstar Type 2 & OIII
Orientation: Diagonal View

Date: 22-23 June - 2019
Time: 22:35 to 00:20
Location: Carrs Mill Park
Drawing by: Richard Orr
JUPITER, GALILEAN SATELLITES & IO’s SHADOW

Date: July 13, 2019
Time: 21:00 EDT
Magnitude: -2.55
Distance: 409,005,600 miles
Size: 44 by 42 arcseconds

Telescope: 85mm Refractor
Eyepiece: 4.5mm Delos (124x)
Orientation: Inverted (South up)
Location: Deck of House
Drawing by: Richard Orr
Upcoming Events

• July 20: Public Star Party – Alpha Ridge
• August 1-4: Stellafane Convention – Springfield, VT
• August 3: Members Star Party – Alpha Ridge
• August 10: Public Star Party – Alpha Ridge
• August 16: HAL Monthly Meeting
• August 21-25: York County Star Party – Susquehannock State Park
• August 31: Members Star Party – Alpha Ridge
Lunar Humor
Next month’s meeting is on Thursday, July 20st, 2019 at 7 PM

Dr. Lou Strogler – Scientist, Space Telescope Science Institute in Baltimore

Title: High Redshift Supernovae: Beyond the Epoch of Dark Energy