

STAR GAZER NEWS

NEWSLETTER OF THE DELMARVA STARGAZERS

December 2002

WWW.DelmarvaStarGazers.Org

Volume 10 Number 6

At the November Meeting

Don Surles brought the meeting to order at 7:15 with 22 members and guests attending.

New Members:

Martha Gay & Carol Beigel, Greenbelt, MD
Joel Miller, Cheverly, MD

Outreach:

Killens Pond November 16-17 The scheduled all night presentations and Leonid Observations were cancelled because of inclement weather.

Join us for our

Annual Holiday Party

Saturday, December 7th 1:00 p.m.

First Presbyterian Church, Smyrna

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Shehan Audubon Sanctuary December 4

An *Under the Stars* astronomy presentation is scheduled for this dark sky site near Easton MD for Wednesday, Dec. 4. The program starts at 7:00 p.m. with Stargazing activities and ends around 9:00 p.m. with drinking coffee and hot chocolate around a campfire.

Constellation of the Month- Cygnus (SIG-nus)

Presented by Lyle Jones

Cygnus, the Swan, is visible in the Northern Hemisphere from June through October and there is a wealth of objects. Scanning this region with binoculars reveals field after field of star clusters and groupings.

Mythology Just as he was beginning his life as a great Trojan hero, Cygnus was tragically killed in battle by the famed and clever warrior, Achilles. As Cygnus drew a last breath of life, his father, Poseidon, transformed the young man into a beautiful swan and carried him to the heights of Mount Olympus, home of the gods. Here, Cygnus displayed his grand grace and elegance, inspiring the King of the Gods to change himself into a swan, too. Disguised as the majestic creature, Zeus sped to earth and courted the lovely Leda, who gave birth to their sons, Castor and Pollux. Zeus also took the form of the swan to trick Nemesis, the stern goddess of Divinity from Cygnus' attack. In the starry skies, the great white swan forever flies, with wings outstretched, southward along the Milky Way. Another version of the story is that the swan is Orpheus, who was killed by Achilles at the battle of Troy and placed in the stars near his beloved harp (Lyra).

Cygnus, the swan, was not always a swan. Greek legend tells a tragic story of Apollo's son, Phaeton, who tried to drive Apollo's chariot across the sky. Apollo warned him not to drive too close to the Earth lest he set it on fire. Phaeton lost control of the wild horses, and to spare the Earth a fiery destruction, Zeus threw a lightning bolt at the young boy, killing him instantly. The horses climbed higher into the sky, scorching a path that became the Milky Way. Phaeton fell into the river Eridanus. Cygnus dove repeatedly into the river to try to retrieve the body of his friend but failed. Zeus was so impressed with Cygnus' devotion to his Phaeton that he turned him into a swan, enabling him to dive more easily. Cygnus was eventually rewarded for his gallantry by a prominent place in the summer skies within the cloudy path of the Milky Way.

Astronomy

Objects of Interest in Cygnus

M-39. Through binoculars, this open cluster is very impressive. It is large and bright and stands out well from the background having an overall triangular shape. Through a telescope, it loses some of its impact, because of its size and the fact that it is not very concentrated to the center.

M-29. It is one of Messier's least conspicuous star

Monthly Meeting Tuesday, December 3

Eyepieces - which one and why

Don Surles and others

7:00 p.m. First Presbyterian Church, Smyrna

clusters. This small open cluster is seen through binoculars as a diamond shaped grouping of about 6-8 stars in a nice field. In a telescope, the count increases to about 15 sparsely concentrated stars.

NGC 7000 - The North America Nebula. Best seen with the naked eye as a milky patch just to the east of the bright star Deneb. The "Gulf of Mexico" region stands out particularly well. Try holding an O-III or UHC filter in front of your eyes to increase the contrast.

NGC 6969/6992-5 - The Veil Nebula. This is a large supernova remnant best seen at low power, divided into two major segments. NGC 6969 is the more difficult to see, as the bright star 52 Cygni overwhelms it. NGC 6992-5 lies to the east, and shows a wealth of

filamentary detail, especially when using a filter.
NGC 6826- Blinking Planetary. The planetary lay 2 1/2 degrees SE of Iota Cygni. A 4 inch scope will

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show it as a small round bluish green disk.

Le Gentil 3 First dark nebula ever cataloged in 1755 and published in 1755 by French astronomer Guillaume Le Gentil. It can be seen with naked eye or binocular as a dark lane jutting across the Milky Way and Deneb.

Alberio This is a classic double star. Easily split, it shows a beautiful contrast of yellow-orange and blue stars.

Deneb Its older name is Arided which is completely obsolete. Deneb is the 19th brightest star in the sky. It is the faintest of the three stars in the summer triangle (Vega, Deneb and Altair). Its name comes from AL Dhnal al Dajajah (The hen's trail). Deneb is one of the greatest supergiant stars, equaled only by Rigel. It is 60,000 times more luminous than the sun. Absolute magnitude is -7.1 and is about 1600 light years away. It is the chief source of illumination for North American Nebula.

2003 Club Dues (\$15.00)

are payable in January

Make check payable to *Delmarva Stargazers* and mail to Kathy Sheldon

61 Cygni 61 Cygni is a double star that is 11.4 light years from us and the 13th closest star system to our sun. The companion star is an orange dwarf which is only 30 seconds from the larger star. This separation makes the pair easy to separate with a small scope.

Cygnus X-1 X-1 is one of the strongest X-ray energy sources known. The source of the energy is less than 100 miles in diameter. Some think it might be a completely collapsed black hole. It lies 0.5 degrees ENE of Eta Cygni.

Radio Astronomy of Cygnus As a bonus, this was an unannounced addenda to the Cygnus program. It was presented by Ron Tatman. It dealt with Cygnus and other radio sources in Cygnus including the quasars discovered in 1963 as optical components of strong

radio sources.

Some of these were red shifted 37%. The strongest and most distant Quasar of course is 3c273 in Virgo, thought to be powered by a black holes. Those further interested in these areas should contact Ron Tatman.

Program: Barlows and their Use

Presented by Don Surles with others

In its very basic form, a barlow lens is a negative reducing lens, located between the eyepiece and the objective. To use a metaphor, the Barlow makes the eyepiece think that the objective is double its focal length and therefore gives twice the magnifying power.

Since the magnification is the focal length of the objective divided by the focal length of the eye piece, if you double the apparent focal length you double the magnifying power. The barlow not only increases the magnifying power, but does so without sacrificing *eye relief*. Eye relief is the distance between the eyeball and eye lens when the observer can clearly see the full field of view. Thus barlows are necessary when you want higher magnification than you can get with your present telescope and eyepiece combination or when you want better eye relief than is available with your short focal length eyepieces. Here are some examples: you have a telescope with a focal length of 1000mm and your shortest focal length eyepiece is 20mm; then your magnification is 1000 divided by 20 or 50X.

With a 2X barlow you can increase the mag to 2 times 50 or 100 power. On the other hand you could buy a 10mm eyepiece and obtain the same magnification – but, your “eye relief” will be much less with the 10mm eyepiece than with the 20mm and the 2X barlow combination. This can be advantageous for those who must use eyeglasses when viewing.

Barlows come in all standard size barrels and powers of 1.5X to 3X and also “variable powers”. There are shorty versions as well as normal length. The shortys are for use in star diagonals but may be used in other scopes. Now, if you are using a telescope that has a star diagonal, you have the option of putting the barlow in front of or behind the star diagonal. Don suggests putting the barlow in front of the diagonal since the barlow will multiply any imperfections in the star diagonal if it is placed behind it.

For those who dislike barlows, it might be because their optical system just will not support the higher magnifications created by barlows. Remember the rule for scopes and mags – a max of 50-60X per inch of aperture. So, if your image goes caput when using a

barlow, do some math...could be you have exceeded your scope's max mag per inch of aperture or ...heaven forbid, your scope's optical quality may not be up to the highest standards.

Rules for buying barlows: Since this is a multiplier for your optical system, it should be of the highest quality. Typically, an apochromat (3 element) is better than an achromat (2 element). Anti-reflection coatings, baffled tubes, and blackened edges, are a must. Buy the best you can afford.

Finally, what is a Klee? It is just University Optics' name for a barlow it sells. So, have fun with or without your barlow, now that you know all about them.

From the President's Desk....

November 17, 2002 Here comes Winter and the beauty of Orion, Canis Major, Gemini, and Taurus. The clear and transparent nights of Winter are much more revealing than their Summer cousins. Dew has given way to frost and the honks of geese have replaced the T-hoe Mosquito's buzz. Get your scopes ready; find those mukluk boots, the heavy gloves, your thermals; make a list and get the essentials together so that when you arrive at the observing site you will be prepared to enjoy the wonders of Mother Nature's Winter Sky Show. Bring along a snack and some hot drinks to combat the nighttime cold and to satisfy the munchies. An extra jacket or pair of gloves for a less prepared fellow Star Gazer is also a good idea.

By the time you get this maybe the weather will have improved for stargazing. This weekend we experienced our second major nor'easter of the season. What a mess! My gutters are packed with leaves. Oh, is your rain bucket full? Think what this could have been if the temp was a few degrees lower.

Have you made your "wants and needs" known to Santa? Seasoned (meaning more than one Christmas without Naglers under the tree) Star Gazers know it is absolutely necessary to provide Santa with the specs of your "just gotta have its" so that he and his elves know what to deliver. Apparently Santa does not do a lot of stargazing –

heck he's disadvantaged. He's only out one night a year and then he has to look at the south end of a reindeer thru the glow of Rudolph's red nose. Well, at least the nose is red. Someone should insist on a 31mm Nagler and that someone should be willing to share. One thing's for sure: if someone does get a 31mm Nagler for Christmas and demonstrates anything less than a sharing nature I am sure he or she will be on Santa's, and my, \$#!% list for next year.

There are still some slots left in the mirror making and prom scope making session to be held Feb 28 – Mar 2, 2003. If you would like to learn mirror making from successful mirror makers or build your own prominence viewing scope and enjoy a nice weekend with some of the best amateur astronomers in the world please give Lyle a call (302-736-9842) and reserve your place. Speaking of Christmas gifts...I am sure Santa could fit a certificate for the Seminar into a Star Gazer's stocking. So, the spec is: Mid-Atlantic Mirror Maker's Seminar #3, Feb 28 – Mar 2, 2003; call Lyle Jones (302-736-9842) to obtain the certificate.

It's time for us to renew our subscriptions to Astronomy, Sky & Telescope, and to Delmarva Star Gazers. Please see or contact Keith Lohmeyer to renew subscriptions. To renew your membership in Delmarva Star Gazers please send Kathy Sheldon a check – see your newsletter for details.

This past month I was fortunate. I received an email from a young man who credited his growing interest in astronomy to me. Honestly, I don't remember the young man but it is good to know you have been a positive influence on someone's life. In addition, some fellow Star Gazers and I were fortunate to have the opportunity to assist a couple of students from Johns Hopkins Masters program in their required observing program. We are truly fortunate when we can purposefully share our interest in astronomy with others. We should make the effort to share as much as possible as often as possible. Also, I placed my 17.5" scope at the end of my driveway on Halloween night, just

How to Join the Delmarva Star Gazers: Anyone with an interest in any aspect of astronomy is welcome to Join.

NAME _____

ADDRESS _____

CITY, STATE & ZIP _____

E-MAIL ADDRESS (If any) _____

SPECIAL INTERESTS OR TALENTS _____

Please attach a check for \$15 made payable to Delmarva Stargazers and mail to Kathy Sheldon, 20985 Fleatown Rd, Lincoln, DE 19960. Call club President Don Surles at 302-653-9445 for more info.

as I have done for several years. I certainly don't know all the little ghosts, princesses, and space critters that have looked through the old 17.5 over the years but the children remember "the house with the telescope". And, folks, you ought to see a little child dressed in Halloween garb standing at the top of a ladder, with a bucket of candy in one hand, and a death grip on the ladder with the other, look into the eyepiece and say, "Wow!". That is certainly one of those credit card "priceless" moments. Oh, I almost forgot the Christmas Party. It is December 7, 1:00 – 5:00 PM, in the fellowship hall of First Presbyterian Church, Smyrna, DE, our normal meeting place. All are invited to come and enjoy what Star Gazers do best – eat and talk! Please put the date on your calendar and call Kathy Sheldon for details (302-422-4695).
Till next time – Don

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PLAN TO ATTEND

OUR ANNUAL STARGAZERS HOLIDAY PARTY

DECEMBER 7, 2002 1:00 p.m.- 5:00 p.m.
1st Presbyterian Church, Smyrna, DE

(plan to eat around 2:00)

**The Club will cook the Turkey, Stuffin',
gravy & provide Drinks**

**BRING YOUR FAVORITE TRIMMIN' OR DESSERT
RSVP**

Help us plan how large a Turkey to roast by
calling Lyle Jones at 302 736 9842

**WHITE ELEPHANT GIFT EXCHANGE?
Why Not? BE Creative - Bring your worst!**

The Editor's Quadrant....

The Solar System in December

Mercury- will be too close to the sun during the first part of December but will emerge as an evening star near the end of the month. **Venus** shines as a morning star for all of December but is at its best in the early part of the month reaching a magnitude of -4.7 and a disk size of 44" **Mars**- improves as a morning star in December as the Sun rises ever later. **Jupiter** rises ever earlier in December increasing both in size and magnitude. **Saturn** also improves in December as it goes into opposition with the Sun. Both **Uranus** and **Neptune** are still in Capricornus and **Pluto** will be going into conjunction with the Sun in December.

Clear Skies!, Frank Sheldon *f.a.sheldon@att.net*

Club Activities..

Club Meetings- We meet in the First Presbyterian Church in Smyrna, DE (653-8000) on the first Tuesday of each month from 7-9 PM. From US 13, turn west at Wendy's and go one stoplight on Commerce Street; the church is on

Field Trip to the Hayden Planetarium

by James T. Morgan

Mike Turco, President of the Chester County Astronomical Society is putting together a field trip to New York City in January of next year. This will be to the Hayden Planetarium which is located in Manhattan. I asked if he would open it up to other groups and he enthusiastically said by all means.

Here is a chance to make an interesting trip to a new facility devoted to astronomy. He is planning a trip during a weekday to minimize crowds. If there is enough interest we could do this by bus. If you are interested please email me with your name and the number in your party. We need to get some numbers now so we can pursue arranging for a bus. As soon as I have information about the date and cost I will email you that information. Contact me at (302) 738-4741 or morganjt56@yahoo.com.

the right directly across from the Fire Hall.

Future Meetings...The meeting date remaining for 2002 is December 03.

The regular meeting format includes discussion of club activities, observing highlights and an advertised presentation. We solicit suggestions for topics and presenters.

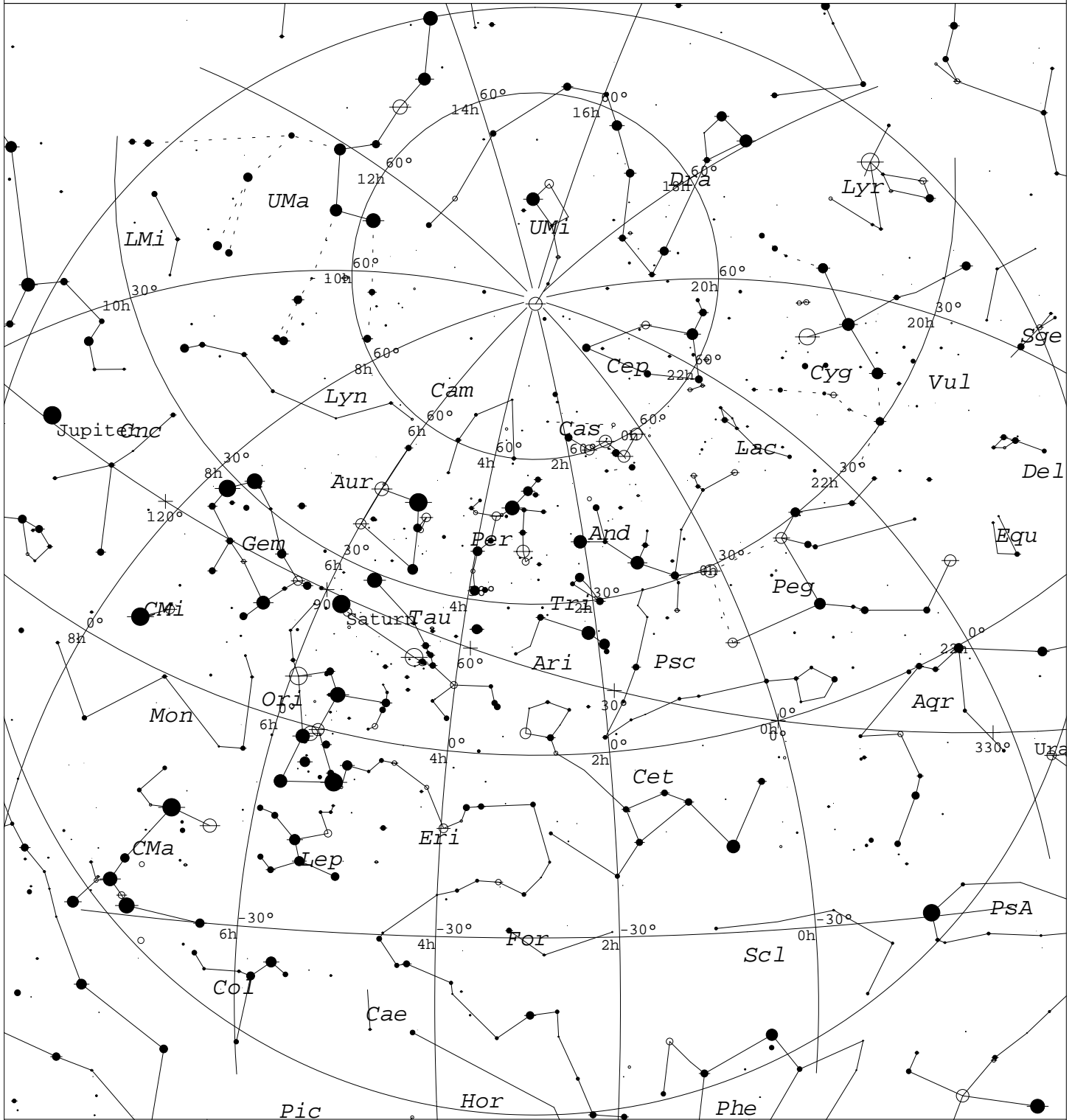
Club Observing... Observing is (usually) scheduled for the Friday nearest the New Moon to maximize the hours of *deepnight* without the moon in the sky. Unless otherwise stated, the monthly observing site will be at the baseball field in the camping area at Tuckahoe State Park. The remaining observing day for the year 2002 is December 6.

The cloud or rain date for the monthly Friday observing will be the following Saturday, but don't trust the weather man! Go outside and look for yourself or check the CNN weather link on our web page. If you still can't decide, Call Don Surles (302) 653-9445 or Lyle Jones (302) 736-9842.

Delmarva Star Gazers Officers for 2001-2002

President.....Don Surles 302 653 9445
Vice President.....Lyle Jones 302 736 9842
Secretary.....Keith Lohmeyer 410 482 6077
Treasurer.....Kathy Sheldon 302 422 4695

SKYMAP FOR DECEMBER 2002



<p>STARS</p> <ul style="list-style-type: none"> ● <1 ● 3.5 ● 1.5 ● 4 ● 2 ● 4.5 ● 2.5 ● >5 ● 3 	<p>SYMBOLS</p> <ul style="list-style-type: none"> ● Multiple star ○ Variable star ☄ Comet ☉ Galaxy □ Bright nebula 	<p>SYMBOLS</p> <ul style="list-style-type: none"> ■ Dark nebula ⊕ Globular cluster ⊗ Open cluster ⊖ Planetary nebula ⊙ Quasar △ Radio source × X-ray source ○ Other object 	<p>TUCKAHOE STATE PARK DECEMBER 6, 2200 HOURS EST</p>
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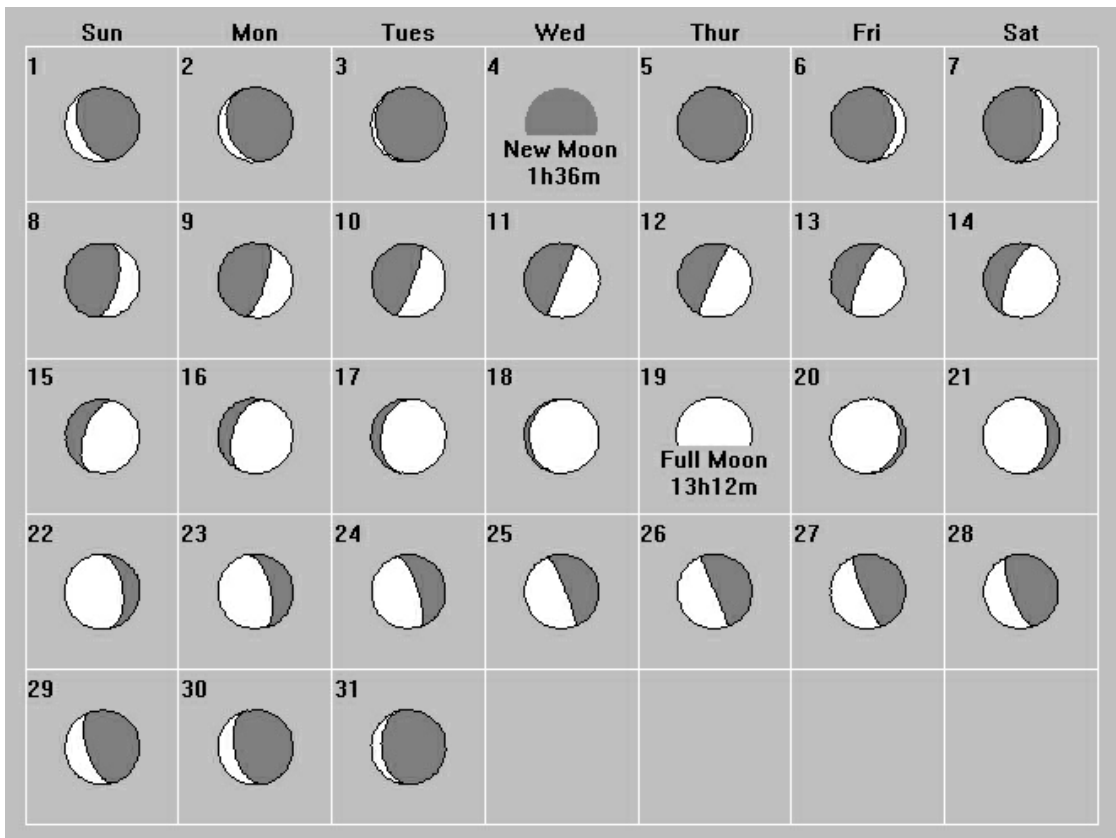
Local Time: 22:00:00 6-Dec-2002
Location: 38° 59' 0" N 76° 56' 0" W

UTC: 03:00:00 7-Dec-2002
RA: 2h55m08s Dec: +38° 58' Field: 182.0°

Sidereal Time: 02:55:07
Julian Day: 2452615.6250

SUN AND MOON DATA FOR DECEMBER 2002 TUCKAHOE STATE PARK, MD
 38.59°N 75.56°W 4.5hrW Standard Time Astronomical Twilight

Date	Sun				Moon				%
	Twil.	Rise	Transit	Set	Twil.	Rise	Transit	Set	
12/01/2002	5:57a	7:31a	12:21p	5:11p	6:46p	4:08a	9:55a	3:32p	10
12/02/2002	5:58a	7:32a	12:22p	5:11p	6:46p	5:23a	10:49a	4:06p	4
12/03/2002	5:58a	7:33a	12:22p	5:11p	6:46p	6:39a	11:46a	4:45p	1
12/04/2002	5:59a	7:34a	12:22p	5:11p	6:46p	7:54a	12:46p	5:32p	0
12/05/2002	6:00a	7:35a	12:23p	5:11p	6:46p	9:05a	1:47p	6:27p	3
12/06/2002	6:01a	7:36a	12:23p	5:11p	6:46p	10:07a	2:47p	7:28p	7
12/07/2002	6:02a	7:36a	12:24p	5:11p	6:46p	11:00a	3:45p	8:33p	14
12/08/2002	6:02a	7:37a	12:24p	5:11p	6:46p	11:42a	4:38p	9:39p	22
12/09/2002	6:03a	7:38a	12:25p	5:11p	6:46p	12:17p	5:27p	10:43p	31
12/10/2002	6:04a	7:39a	12:25p	5:11p	6:46p	12:47p	6:12p	11:44p	41
12/11/2002	6:05a	7:40a	12:26p	5:11p	6:46p	1:12p	6:54p	****	50
12/12/2002	6:05a	7:41a	12:26p	5:11p	6:47p	1:36p	7:34p	12:43a	60
12/13/2002	6:06a	7:41a	12:26p	5:12p	6:47p	1:58p	8:14p	1:41a	69
12/14/2002	6:07a	7:42a	12:27p	5:12p	6:47p	2:21p	8:54p	2:38a	77
12/15/2002	6:07a	7:43a	12:27p	5:12p	6:47p	2:46p	9:36p	3:36a	85
12/16/2002	6:08a	7:43a	12:28p	5:12p	6:48p	3:13p	10:20p	4:35a	91
12/17/2002	6:09a	7:44a	12:28p	5:13p	6:48p	3:45p	11:07p	5:36a	96
12/18/2002	6:09a	7:45a	12:29p	5:13p	6:49p	4:22p	11:58p	6:38a	99
12/19/2002	6:10a	7:45a	12:29p	5:14p	6:49p	5:07p	****	7:40a	100
12/20/2002	6:10a	7:46a	12:30p	5:14p	6:50p	6:00p	12:52a	8:39a	99
12/21/2002	6:11a	7:46a	12:30p	5:14p	6:50p	7:00p	1:47a	9:32a	96
12/22/2002	6:11a	7:47a	12:31p	5:15p	6:50p	8:06p	2:43a	10:20a	91
12/23/2002	6:12a	7:47a	12:31p	5:15p	6:51p	9:15p	3:38a	11:00a	84
12/24/2002	6:12a	7:48a	12:32p	5:16p	6:52p	10:25p	4:30a	11:36a	75
12/25/2002	6:13a	7:48a	12:32p	5:17p	6:52p	11:34p	5:21a	12:07p	65
12/26/2002	6:13a	7:48a	12:33p	5:17p	6:53p	****	6:10a	12:35p	54
12/27/2002	6:13a	7:49a	12:33p	5:18p	6:53p	12:43a	6:58a	1:03p	42
12/28/2002	6:14a	7:49a	12:34p	5:19p	6:54p	1:54a	7:47a	1:32p	31
12/29/2002	6:14a	7:49a	12:34p	5:19p	6:55p	3:05a	8:38a	2:03p	21
12/30/2002	6:14a	7:50a	12:35p	5:20p	6:55p	4:18a	9:32a	2:39p	13
12/31/2002	6:15a	7:50a	12:35p	5:21p	6:56p	5:32a	10:29a	3:21p	6



Moondark for December: The Big Three-O

This December 14th, it will be thirty years since humans left the Moon. While we've been in space more or less continually since then, we have no definitive plans to return humans to the Moon or to travel elsewhere anytime soon. The writers in magazines have weighed in, and here are my thoughts on this anniversary. But what really matters is what you think.



Of the towering Saturn V-Apollo rocket, all that splashed down in the Pacific was the very tip-top Command Module. Getting people into space is energetically expensive: their weight along with that of life sustaining machines has to be lifted up and out of the Earth's gravitational potential. And these are two-way voyages: we have to bring them back to Earth alive. While it proved possible to get to the Moon and return with the existing technology, the Apollo missions demanded a human presence for reasons of both mission contingency and geopolitics.



Today, digital technology is such that a virtual human presence is feasible: spacecraft extend our senses into the solar system. Ironically, we took the first steps in this direction as part of the manned space race: exploring with the robotic Ranger crashers, Lunar Orbiters and Surveyor landers well before humans arrived. Remarkably, today's space heroes aren't men, they are Clementine, Sojourner, Hubble, Galileo and very soon, Cassini, all robots that we *named* after humans. The fundamental limitation on exploration now is that of the speed of light, but we can make robots smart enough to think for themselves in the meantime. Things move much faster here nowadays, and we lack the patience and pocketbook to put people out there.



The big question is how exploration will continue. Robots get us there faster, cheaper and with less risk. It's not easy, nor is it inexpensive. Costs are in the hundreds of millions of dollars. But if NASA is about planetary exploration--including this planet--then that is the way forward. If exploitation is the driving force, then commercial entities and free enterprise will continue to develop and expand. If geopolitics is worth pursuing via space, then I'm all for the International Space Station Alpha. But space telescope and satellite repairmen don't seem much like explorers or heroes to me.



That's my view, but it's your opinion that counts. As taxpayers, you've spent a lot of money over the last fifty years flying into space. As a civic duty, you vote to elect representatives controlling how that money is spent. As informed members of the public, your knowledge of astronomy and space makes you extraordinarily qualified to voice an opinion on these matters. As citizens of the United States of America, what this country does up there, and down here, reflects on us and how we are viewed by other countries.



Americans are at their core pioneers and cowboys in my opinion, and that spirit of independence and confidence got us to the Moon first. For me, the most significant achievement of Apollo was not coming back with moon rocks but a snapshot from a mission that didn't even land on the Moon proving that we all live on the one "good Earth." In the last three decades, this basic fact has only become more vital to every one of the 6 billion people on this planet.

Kudos to [NASA for making many Apollo photos \(first, third and fourth, at right\)](#) easily available on the web. The [Smithsonian Institution has a great web site](#) too (second and bottom images). In hardcopy, I recommend two books: *Sightseeing, A Space Panorama* by Barbara Hitchcock, and *Space Shuttle, The First 20 Years* in the own words of the shuttle astronauts. Moondark is written by [Doug Miller](#), published [on the web](#), and printed in the [Delmarva Star Gazers' Star Gazer News](#). This document was last revised on 24 November 2002. *Text copyright © 2002 Douglas C. Miller, All Rights Reserved. This material may not be reproduced in any form without prior permission.*

