# STAR GAZER NEWS

NEWSLETTER OF THE DELMARVA STARGAZERS

May 2004 **WWW.DelmarvaStarGazers.Org** Volume 11 Number 11

**At the April Meeting..**

Lyle Jones brought the meeting to order at 7:15 with 20 members and guests attending.

**New Members**

Pamela Bernard, Centreville,MD
Teri Munz, Annapolis, MD

**Hubble Dilemma**

NASA has suspended servicing the Hubble Space Telescope indefinitely because of potential hazards in flying the Space Shuttle. If you would like to see this valuable work continued, please write to your senators and representatives.

Monthly Meeting, Tuesday, May 4

## Great Observatories of the World Yesterday and Today

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

**History of the Telescope** presented by Mike Borgia in Power Point

**Humble Beginnings**

The magnifying power of convex lenses had been known since antiquity. In the 14th century, craftsmen began making "Lentils Of Glass" suspended in frames About a century later, the first concave spectacles were invented for myopia.

In the year 1608 Hans Lipperhey, in the Hague, tried to patent a device, used for "seeing far away things as though nearby".

**Galileo And The Refractor**

Galileo learned of Lipperhey's accomplishments and soon turned his attention to creating better lenses. In 1609, Galileo created a 4x telescope followed by a 9x telescope.

By 1610, he had a crude 20x telescope. This telescope employed a convex objective lens with a concave ocular (eyepiece) producing an erect image. In 1610, he discovered the three-lobed appearance of Saturn (Saturn has ears!), the phases of Venus, sunspots, and the largest four moons of Jupiter.

In 1611, Johannes Kepler demonstrated that still higher magnification could be achieved by using a convex ocular. This however created an inverted image. This inverted image could be corrected with the use of a third convex lens.

During the 1600's, refractors grew in popularity (even though Galileo's discoveries had served to get him excommunicated by the church).

Refractors suffer from three major problems.

(1) Lenses do not bend different colors of light equally, thereby creating an error called "chromatic aberration".

(2) As lenses get larger, they become extremely heavy and telescopes grow impractically long.

(3) Technology of the time limited the curvature of the objective lenses and thus created telescopes of very narrow fields of view.

**Newton and the Reflector**

Sir Isaac Newton had known for years about the effects of lenses on colored light and developed his own method for light gathering by using mirrors. Since light does not pass through the mirror, there is no chromatic aberration.

In 1671, Newton created the first reflecting telescope using a copper-tin mirror.

Because of the ease with which the mirror tarnished and the resultant damage during repolishing, Newton's ideas went very quickly from sensation, to afterthought.

In the early 1700's, James Hadley invented a technique for producing a long lasting polished mirror.

This opened the door for more growth of the reflector telescope. By the 1750's reflectors were being built in the six inch class. These reflectors all suffered from an error called *spherical aberration*, because a spherical mirror will not bring all rays to equal focus on the flat secondary mirror. William Herschel and James Short simply replaced the spherical mirror with a parabolic mirror, thus eliminating *spherical aberration.*

**The Cassegrain**

Large Newtonian telescopes, like refractors before them, soon became impractical and awkward to use because of their size. In the early 1800's, the Cassegrain variant of Newton's reflector used an opening in the center of the primary mirror to place

## Nomination of Club Officers for 2004-2005

At the May 4th Meeting

an ocular at the objective end of the telescope. This *folded design* made the scopes much easier to use in larger sizes.
Later designs (Richty-Chretien) used a curved secondary mirror to produce very long focal lengths in very short tubes. This design is the basis of most large optical telescopes and today's popular Schmidt-Cassegrain designs.

**The Greatest Observatories**

**Yerkes Observatory**: Home of world's largest refractor. **Mount Wilson:** First 100 inch telescope
**Mount Palomar:** First 200 inch telescope
**Kitt Peak:** First Multiple Mirror telescope
**Mauna Kea:** First 400 inch telescope
NASA Great Space Observatories:
Hubble, Compton, Gamma Ray, Chandra X-Ray Spitzer Infrared.

**The Telescope Wars**

The Telescope Wars: Celestron vs. Meade.
Celestron was founded in the 1950's principally as a binocular company. It became the first major manufacturer of large aperture, mass produced compact telescopes.
Meade Instrument Corporation was founded in the 1970's and became a major competitor to Celestron.
In the early part of this decade, a once peaceful rivalry between the two companies became hostile. The "wars" started when both companies introduced "Go To" technology in the early 2000's.
Meade sued Celestron, charging copyright infringement. Though the trial court is still reviewing ancillary issues, most of Meade's major complaints have been summarily dismissed.
Celestron was purchased by Tasco in 1997. When Tasco folded in 2001, it nearly took Celestron with it.
Meade's attempted takeover of Celestron was averted in early 2003 when the bankruptcy court allowed the sale of Celestron back to its original owners.
So who is better?
It is a consensus viewpoint that Meade produces more accessories and a wider telescope product line and sells at a lower price than Celestron. Meade also pioneers more new technology. Celestron produces superior optics and higher quality products, but at a substantially higher price. Celestron equipment is better supported and considered more reliable.

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**Also in this Issue**



**From the Presidents Desk**

Delmarva Star Gazers, the early years continued.
Our first year began with approximately ten members and ended with a very successful Delmarva Star Gaze #1 completed and "under our belts". Our membership was around 30 at the beginning of the Star Gaze and as I reported last month it had doubled by the end of the Party. Dan Kennedy and his group of "Salisbury observers" were the largest single increase in membership our organization has experienced.
So, we were off and running on year number two. We continued with monthly meetings inside at the Church and moved our organized star gazing to Killen's Pond State Park. We participated in a couple of Park-sponsored observing sessions, observed a couple of bright comets and also held a Perseid Meteor Shower watch for the public at Killens' Pond. As the Star Gazers spent more time together it became obvious our group had more in common than a desire to view. We began to enjoy the company of the group. Some nights the sky just would not cooperate but we would pull up a chair and share stories, coffee, hot dogs, etc, until the wee hours. This continues to be characteristic of our outings today.
Our finances increased somewhat and we purchased our first piece of Star Gazer equipment…an overhead projector. We also established the tradition of a Fourth of July Picnic and a Christmas Party the first week of December. Soon, it was time to begin planning for Star Gaze #2. Again, we chose Killens' Pond. And again, the weather was clear but not as comfortable as the first year. The first day and night were OK but the second afternoon the wind began to BLOW and the sky was not as clear as the first night. We had erected a large tent on the observing field and I was concerned it might not survive! We also had some powerful lights to contend with, a foul-fowl odor of poultry waste that had been spread on the surrounding fields, and some inebriated "guests" cruising around the observing field each night obviously trying to satisfy their curiosities. Our presentations were very successful and I am sure the attendees enjoyed the plentiful door prizes. We also

acquired our second piece of equipment during Star Gaze #2 – the Meade 8" LX6 now known as the Horton Telescope. It was a gift from the family of Robert Horton after he passed on. I am sorry to say we never met Mr. Horton but we have made him and his scope permanent members of our group.

During this time we began to look for other facilities for our inside meetings as well as observing. We held a couple of meetings in a state government building in Dover. It was a very nice room but we did not have a key and we had to be out by 9:00 PM – kind of cramped our unstructured style. So, we re-settled for the Church and we remain there. For observing, we tried a landing strip below Dover, Blackbird Forest northwest of Smyrna, Uncle Melvin and Aunt Kitty's farm, Dave Winkler's farm near Sudlersville, and a farm near Templeville. Then, at the urging of Herman Kline, Chuck McLaurin, and Joe Morris, we looked into the possibility of observing from the ball field at Tuckahoe State Park. This seemed to satisfy our needs for dark sky, security, capacity, and easy access. The Park management made it clear they wanted to work with us. The relationship took root and we continue to treasure and nurture it.

The "other" star parties in our area were Mason Dixon in June, Stellafane in August, and StellaDella in October. There was no place to go in September, so Lyle and I decided to sponsor a No-Frills party during the weekend of the new moon at Tuckahoe Youth Camping Area. This required us to reserve and pay for the Youth Camping Area. We offered nothing but a place to camp and set up your scope and we expected eight or ten folks. I believe we charged a whopping $5. Luck would have it that a LOT of people showed up. We covered our expenses and decided to indulge in some of the local September corn and watermelons with the remaining funds. Needless to say, the No Frillers liked corn on the cob boiled in a large propane heated pot. Others donated hamburgers, soup, etc. The weekend was spent sharing and enjoying the company and the camaraderie that is so elusive in most organizations.

A quick and informal poll showed the attendees liked Tuckahoe so we decided to hold the next Spring Star Gaze #3 at Tuckahoe's Youth Camping Area.

The main event for SG #3 was making a mirror, silvering it, and putting it in a scope built on site. This was quite a project. We began grinding the mirror at 7:00 am Saturday. By noon it was fully polished and handed over to Dave Groski for figuring and silvering. We made a "testing tunnel" from polyethylene. Dave set up his magic silvering chemistry set and by 3:00 PM we had the optics. Another member, Dave Pletch, had precut the various pieces for assembly of the Dobsonian style scope. Several folks pitched in to help…well, the rest is history. We finished the scope and raffled it to cover expenses. Someone got a nice star party made scope! Again, our financial status improved. We began publishing an eight page format newsletter – the same as today. I believe it was during this time that we established a website.

Our website and the World Wide Web has been a phenomenal boost for amateur astronomy. It has allowed amateur astronomers to COMMUNICATE with each other. Sharing ideas, finding observing sites and observing partners, spur of the moment observing sessions, selling and buying used equipment…all of this is so much more efficient today vs pre-WWW days when we relied on S&T, Astronomy, and The Starry Messenger for communication with a built-in 60 to 90 day delay.

We also purchased some necessary cooking equipment because those who like to eat must have cooking capacity. Fried fish and hushpuppies would soon replace corn on the cob and almost cold pizza as our favorite food. Yes, we still like hot dogs. I tell people the reason why we have hot dogs is that no one ever got sick from eating them…if you eat enuf of them they may kill you but you will not get "upset stomach sick" from eating hot dogs loaded with preservatives.

During this time we were also contacting the public via Girl and Boy Scouts, libraries, the Parks, and special requests from schools and summer camps. But, we continued to find most of our great memories centered around actual observing. We enjoyed learning about our world through the eyepiece (Naglers were/are the eyepiece of choice…). I have never been disappointed sharing and learning with fellow Star Gazers.

Enuf of history for this month. To the present…we will accept nominations for officers at the May meeting and select next years officers via vote at the June meeting. See you at the Church or Tuckahoe.

Don…

### Stargaze X Observer Feedback

Thanks to all of the Delmarvastargazers who gave of their time in making sure that those of us in attendance could have a nice weekend at Tuckahoe. I have never been here before as my son and I are newbies, but the site was nice and we met some nice helpful people. Looking at the Sun through the Coronado scope on

**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)_____

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

Saturday was quite a treat. The telescope optics and correction seminar by Bill Hanagan was great. And even better was his assistance in collimating and checking out our telescope. Also thanks to the guys from the Princeton club who provided the Allen keys that Bill needed to do the adjustments. Bill also helped us with some observing Saturday night.
The fish fry was a nice additional touch. I drank at least my fair share of the coffee.
Alex and I will be back again. He was particularly excited by finding the Orion Nebula completely on his own, Friday night and by seeing a few Messier objects that Bill helped us find.
Sam-- Sam Walters,Baltimore, MD

Thanks for a great star party, Delmarva Stargazers! The site was great, the skies were great, and most importantly the company was great! and also thanks for organizing the bottle rocket project Saturday afternoon.
My son Lincoln had a total blast "flowering" his nose cone time and again! (And it was fun for me, too!)
Ron Robisch Monrovia, MD

Indeed, it certainly was a great party. Like Ron's Lincoln, my 4 year old Maggie had a great time with the bottle rockets. In fact, it's currently hanging from her bedroom ceiling.
And the observing was great. I managed to finish drawings for 23 Arp galaxies that I had not previously recorded. That ties my record for a
star party (also a Delmarva Star Gaze) and brings my total number of Arp drawings up to 225 Many thanks to all those in the club who did the hard work; from arranging everything to getting the supplies, to making those wonderful dogs to washing the dishes. Many, many thanks
Bob Bunge, Bowie, MD

Let me add my voice to the chorus of thanks for the fine time at StarGaze X. The presentation on calculating the distance to the sun by transit of Venus was first-rate, and the congeniality of this group was outstanding. Friday was my first chance to set up Igor, my new homebuilt 6-incher, under really dark skies, and that was great fun. With the help of kind neighbors, I picked out a number of galaxies that are invisible from my home, and it was nice to compare views through other scopes, too. That was quite a collection of equipment on the field! So here's another "attaboy" and "attagirl" to you all.
Tom Dove, Chester, MD

**The Solar system in May** *by Paul Riley*
If you are traveling away from the Western Hemisphere this month, there is a total lunar eclipse on May 4th. If you can't travel, you'll have to wait for the next eclipse on Oct 28th.
**Three bright comets are in the sky in May. The C**omet C/2002 T7 (Linear) will just clear the horizon by month's end, approaching Alphard in the constellation Hydra. Comet C/2001 Q4 (NEAT) is traveling up from the west this month, reaching the constellation Cancer by mid month, and approaching Ursa Major by month's end. A new Comet, discovered 4/16/2004, C/2004 F4 (Comet Bradfield) will be arcing under the square of Pegasus approaching the Andromeda galaxy by mid-month.
Can you estimate the brightness of a comet? Sure you can, it's easy, just follow these instructions. First find a few stars, with listed brightness, that are near the comet, but not too close. Now pick one star and de-focus that star so that it is the same size as the coma, compare it's de-focus brightness to the in-focus coma. Pick a few more stars, brighter or dimmer, as needed, and repeat the process until you get a close match! There you have it. This method works well with comets with stable brightness.
Look for Venus 0.3 Deg S of the moon on May 21st and Mars 1.6 Deg. North of Saturn on May 24th.

**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 the right directly across from the Fire Hall.
**Future Meetings..**The annual meeting dates for 2004 are: January 6, February 3, March 2, April 6, May 4, July 3 Picnic at Tuckahoe, August 3 No inside meeting;event to be scheduled, September 7, October 5, November 2 and December 7.
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 observing days for 2004 are:
January 16, January 23, February 20, March 19,.**April 14-18 ( Stargaze X)**, April 23, May 14, June 18, July 16, August 13, August 20, **September 15-19 (No Frills IX)**, October 15, November 12, and December 10.
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 Gazer Officers 2003-2004**
**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**

## **Delmarva Stargaze X** *by Kent Blackwell*

This past April 14-18, 2004, the 10th annual Maryland Delmarva Stargaze was held at Tuckahoe State Park in the equestrian area rather than the usual youth activity area. Despite the sudden venue change, the observing field worked out nicely. In fact, the large area gave participants plenty of room, and provided adequate space for even more people.
The star party began on Wednesday, April 14. Though I did not arrive on that date, I heard the weather was rather messy, with driving rains all day and night. By the time I arrived the following day the skies had cleared beautifully, but the wind was blowing fiercely. As darkness approached those winds diminished and the stars came out. I couldn't help but be moved by the beauty of a large barn and silo sitting in the observing field silhouetted by the night sky. It reminded me of those romantic painting we've all seen in astronomy books of years gone by.

Thursday night proved to be very clear, but seeing was on the rough side. Nevertheless it was a descent night for observing deep-sky objects. I tackled "named" objects such as the Hourglass Nebula, Sombrerro, Cat's Eye, Ghost Of Jupiter, and even had time to see no less than five comets!

By mid-day Friday the observing field was filling up with about 90+ amateur astronomers. Each was prepared for another clear night, and none was disappointed. Friday night was even clearer, with better seeing conditions. This time I was prepared to probe deeply into the Leo galaxy cluster Abell 1367, where 13th magnitude NGC 3842 lies centered with at least 30 galaxies in a one-square-degree area. There were so many smudges of light in I simply got lost. Walter Scott Houston, my guru, had written about this marvelous field of galaxies years ago. Scotty was way ahead of his time combing regions such as this when you and I were still marveling at "show objects". If you own a 15" or larger telescope dedicate an entire evening to studying this area of the sky. I'll give you a bit of advice though; print out a detailed chart before tacking it.I walked around the observing field, asking if I could peek into other people's telescopes. The exotic refractors showed a wealth of detail on Jupiter. Some of the large Dobsonians were trained on the brighter galaxies in Leo and Virgo. Don Surles pointed his 25" toward M 51, the Whirlpool Galaxy. I almost fell off his 8' ladder witnessing those spiral arms wrapping around in a hurricane-type facsimile.

Just after midnight Bob Bunge asked me to climb the steps of his tall ladder to peer into his 20" f/6 Dobsonian at the distant Serpens galaxy, Arp 28. Let me tell you, that galaxy shown with just a whisper of light, but it got me excited enough to rush back over to my 25" to see it. It wasn't any brighter in my scope either, but still a delight to see! One of the last objects I viewed before retiring for the night was Comet C/2003 K4 LINEAR. Of all the comets gracing our skies this is the best, and is currently shinning at 11.5 magnitude. Saturday was a beautifully warm and sunny spring day, only hinting at the approaching summer weather we will soon be experiencing. It was a great day to just relax and think about what to observe once the sun sets. As the afternoon approached the skies became soupy thick with high clouds. It was looking so bad many made the decision to throw in the towel and go home. I probably would have followed suit had I lived nearby, but since my home is in Virginia Beach, VA I was there to stay.

Don Surles and the Delmarva Stargazers crowd cooked up wonderful hush puppies and fish for dinner. Who cares if it's clear or cloudy with food like this? Of course the fish couldn't compare to one of the 3:00 am "been in the pot for hours" Tuckahoe hot dogs, but it came pretty close.
Fortunately, the haze began to dissipate by 11:00 pm, and the sky remained clear all night. Since many had packed their scopes away they joined me to view delightful objects through the 25", objects such as the dark dust lane in M 104, the obscuring mass in the galaxy M 64 and glorious myriad of stars embedded in the globular clusters M 3 and M 13. We also saw the ephemeral, almost mystical blue-green color of the Cat's Eye nebula in Draco.

Well, the clock soon struck 3:00 am, time for dear Kent to go to bed. Crawling into my makeshift bed, all I could think about was what I had seen the past few nights. Even more important was how so many friends had once again been gathered under one roof. The Delmarva Stargaze remains my favorite star party, and I look forward to next fall, when once again we will gather to enjoy good company, the beautiful night sky and our fair share of sleep deprivation.

Kent Blackwell





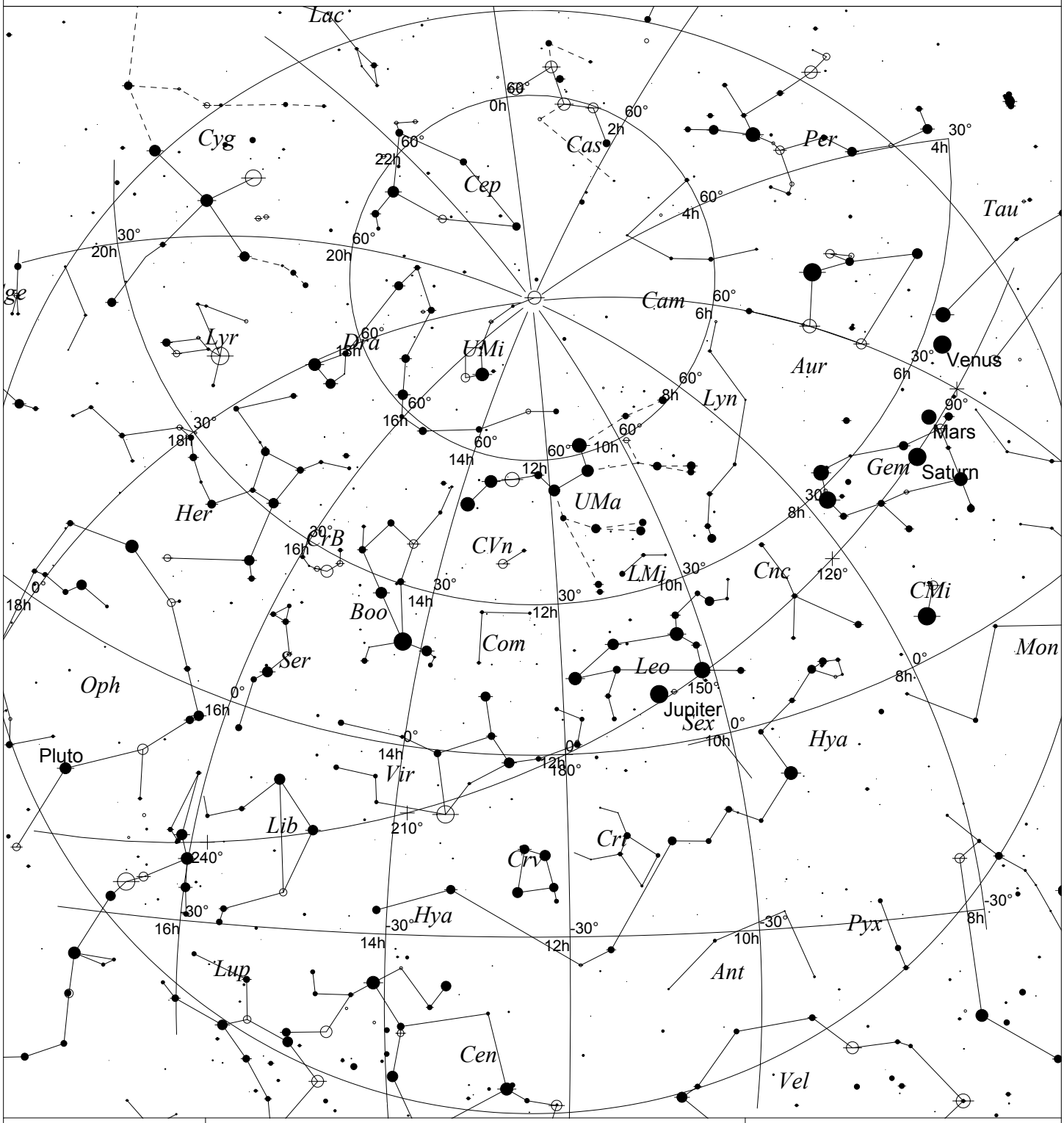


# Star Gaze X Images April 2004





# SKYMAP FOR MAY 2004




STARS

<1 • 3.5
1.5 • 4
2 • 4.5
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3

SYMBOLS

Multiple star
Variable star
Comet
Galaxy
Bright nebula
Dark nebula
Globular cluster
Open cluster
Planetary nebula
Quasar
Radio source
X-ray source
Other object

*TUCKAHOE STATE PARK, MD*
*MAY 14, 2200 HOURS DST*

Local Time: 22:00:00 14-May-2004 UTC: 02:00:00 15-May-2004 Sidereal Time: 12:24:49
Location: 38° 58' 0" N 76° 56' 0" W RA: 12h24m50s Dec: +38° 57' Field: 182.0° Julian Day: 2453140.5833

## Moondark for May: Down Underneath the Milky Way

Orion was obvious, if upside down. To his right was Saturn in Gemini, then Leo with brilliant Jupiter, and finally Virgo. Although that star is orange-tinged Arcturus, I strained to pick out the kite-shape of Bootes. The Big Dipper, the familiar guide to this part of the sky was well below the northern horizon. I was just outside the city of Gisborne, on the east coast of New Zealand. The city's lights caused surprizingly little sky glow—a departing cyclone blew away lingering clouds and humidity. With the first quarter Moon set, I hoped for one of the darkest nights I'd ever experienced. When clouds are silhouetted dark against an inky background, you know the sky is *really* dark.

At 178º E, Cook Observatory is the *easternmost* observatory in the world

Familiar southern constellations shown brightly: the Pointers, Alpha and Beta Centauri, Crux, the Southern Cross, Vela's False Cross, and Canopus, south of the only brighter star, Sirius. There were familiar regions too: Scorpius was rising in the east, but this was the first time I ever noticed a bright spur of the Milky Way cutting across it. Ophichus's head was low on the northern horizon, but Hercules was upright from down under.

Wainui Beach near sunset

My most vivid impressions of my nights on East Cape are of the Milky Way. Unlike the view from mid-northern latitudes, the center and brightest parts pass directly overhead. At this time of year, our galaxy arcs from east to west across the whole sky. It is unmistakably pancake-shaped: from inside the disk, you stare into the central bulge at dark dust lanes and brushstrokes of stars. And it appears to me that we're slightly south of the middle of the disk. I don't know whether astronomers have found this to be accurate, but the impression is unmistakably three-dimensional. You sense distance and enormous size, yet you also recognize that you've got a perfect celestial vantage point for the awesome show overhead.

Crux, the Southern Cross

Observing deep sky objects with the unaided eye is a delight. The show-stopping globular cluster, Omega Centauri, was a fuzzy glow much like the Orion Nebula. Nearby were the luminous knots of Eta Carinae. Grainy M7 was readily visible just off Scorpius' stinger, yet the Lagoon, M8, was impossible to discern amid the swirling nebulosity. Later, I logged another naked-eye globular, 47 Tucanae. The Large Magellanic Cloud was as bright as most of the Milky Way but well off it, appearing decidedly elongated, about two-finger widths across. I had to wait to the wee hours of the night to see the Small Magellanic Cloud. While it's hardly possible to mistake these for "clouds," it is marvelous to be able to view other galaxies just by looking up.

Some of New Zealand's 40,000,000 sheep

Night ended with a cone of zodiacal light in the east. I first mistook this for nearby street lights or maybe moonlight spilling into the sky. Both were impossibilities: the Moon was on the other side of the Sun, and to the east and north there were no lights, only the ocean for thousands of miles. Shorelines and beaches were what brought me to East Cape—for research and teaching materials from marine habitats unlike any found near home. It's syrupy to say that in traveling far from home you more often find out about where you live. But standing beneath the Milky Way, I certainly came away with an enhanced cosmic perspective. Fortunately for me, the earthbound part of the trip was far from over: there was a low tide to catch.

Coastline near Lottin Point on East Cape

Moondark is written by Doug Miller, published on the Moondark web site, and printed in the Delmarva Star Gazers' Star Gazer News. This document was last revised on 25 April 2004.