

# STAR GAZER NEWS

NEWSLETTER OF THE DELMARVA STARGAZERS

July 2003

WWW.DelmarvaStarGazers.Org

Volume 11 Number 1

## At the June Meeting .....

Don Surles brought the meeting to order at 7:15 with 21 members and guests attending.

## New Members

James Brown , Newcastle DE  
Harriet Stewart, Sterling VA  
Randall Willis, Avondale PA  
Leonard White, Dover DE

**Outreach:** No current activity

In lieu of our July Meeting  
**A SUMMER PICNIC & STAR GAZE**  
will be held in the Pavilion at  
**Blackbird State Forest, DE**  
Saturday, July 5 4:00 PM - 11:00PM  
*See directions on page 5*

Since there is no July indoor meeting, there was no July constellation of the month. I took the liberty of including the write up of Steve Long's May presentation of Draco, which we were unable to squeeze into the June newsletter.

## The Constellation Draco (The Dragon) Mythology and History

Today Polaris is the pole star; but 4,000 years ago Thuban (alpha Draconis) held this position. In ancient times the heavens appeared to revolve around this constellation instead of Ursa Minor. The great Egyptian pyramid of Khufu, located at

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Gizeh, seem to have been planned and built with Thuban as a guide when Thuban was the Pole Star around 3000 B.C. The pyramid was built in such a way that Thuban was visible day and night from the bottom of one of the pyramid's deep air shafts. (Orion's belt was visible from another.) Other pyramids also seem to have been planned and built with the then Pole Star as a focal point.

The origin of the constellation, Draco, and of most dragon lore as well, was probably the Chaldean dragon Tiamat, the sea serpent who existed even before the sea and sky had been divided from each other, the dragon of chaos. Tiamat was a monster of primeval darkness, just such a monster as exists in almost every mythology and must be overcome by the powers of sunlight before the creation of the world can take place.

Early Greek myths tell of a great battle between the young gods and the older ones who had ruled for so long. The new gods included Zeus and his brothers Poseidon and Hades, Hera, Demeter, and Athena, the Goddess of Arts, Crafts and War. They fought against monsters known as Titans, who represented the universal forces of evil and were cast up out of the volcanic fires from the center of the Earth.

During the battle, one the Titans hurled a fierce dragon at Athena. She caught the dragon and swung him high into the heavens. Up he soared, coming to rest in the northern sky, and becoming fixed to that region around which the northern stars circle. Today we see him as the twisted constellation Draco.

The Persians regarded Draco as a man-eating serpent called Azhdeha.

In early Hindu worship, Draco was given the form of an alligator known as Shi-shu-mara. Another legend about Draco is the eleventh labor of Hercules. Hercules was asked to obtain fruit from the golden apple tree that was planted in Hera's garden and guarded by the dragon Ladon. In accomplishing the task, Hercules killed the dragon. Hera wept for Ladon and set his image in the stars.

## Telescopic Objects of Interest

Two of the most interesting objects in the constellation Draco for the deep-space observer are a bright planetary nebula and a missing Messier object.

The "Cat's Eye Nebula" (NGC 6543) lies in Draco near the star Gamma Draconis, at RA 17:58 and declination 66:38. It was missed by Messier, and later discovered by Herschel in 1786. Though photographically its surrounding shell of luminous gas can be seen to extend almost six arc-minutes, its brighter center is only about 1/3 arc-minute across in ordinary telescopes. Its visual brightness is 8.3; thus its small size should make it easy to locate. Interestingly, this nebula lies almost along

the North Ecliptic Pole, perpendicular to the plane of rotation of our planetary system.

There has been a controversy surrounding M102 since its discovery in 1784 by Messier as an object between Bootes and Draco. The sighting was later recanted, and was claimed to be a duplicate sighting of M101. Many astronomers (including Stepeh O'Meara) and Messier observers count the two objects as one and the same. However, there are those who do not, citing a plethora of evidence both objective and assumed. Whatever Messier did or did not do, there IS an interesting object located approximately where he said M102 could be found, and it is an intriguing sight. The edge-on galaxy NGC5866 is the most likely candidate for the missing M102, lying in the correct direction (assuming an identification error by Messier), and even having a bright star of the proper magnitude nearby. This galaxy is pretty bright, mag 9.9, and is spindle-shaped. Smaller telescopes should find the galaxy without difficulty, and larger optics might be able to discern the threadlike dust lane that bisects it. M102's location is RA 15:7, DEC 55:46, almost exactly one hour east of M101.

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Information about deep space objects in Draco has been gathered from the following three Web sites:

<http://www.seds.org/>

<http://www.virtualcolony.com/sac/>

The Mythology and History information for the constellation Draco was obtained primarily from the planetarium Web site of the Legg Middle School in Coldwater, Michigan. Its Web address is:

<http://www.coldwater.k12.mi.us/lms/planetarium/index.html>

Steve Long

## **Program- Upgrading and your Old Scope**

Presented by Lyle Jones

### **What is wrong???**

**You can not see anything---- perhaps it's your eyes!**

How long have you been into astronomy? How many pair of eyeglasses have you had? I rest my point. It is your eyes.

**When was your scope last collimated?** Get your buddy to help you collimate it before you have any drinks. Borrow the Club's Howie Glatter or Orion's laser collimator. Be sure to check your diagonal!! Is it located properly or has it moved!!! How do to collimate a telescope?

**Collimation is the process by which an instruments optical components are brought into precise alignment with its optical axis and mechanical axis. Any sharp jolt will knock a reflector or Schmidt-Cassegrain out of collimation.**

The astronomy magazines have a lot of good information to help you with collimation

#### Sky & Telescope

Aug. 2002—"How to Collimate Your Newtonian Reflector

Aug.2000—"Sizing Up the Newtonian Secondary"

Sept. 2000—"Understanding Thermal behavior of Newtonian Reflectors"

Jan. 2003 –Collimation with Barlowed Laser, Astronomy

March 2002 Star-Test your Telescope ----- Star test!!!!!!

**My images are still not right----** Does your mirror need recoating? Can you see light through your mirror, when you hold it up to light and look through the back of mirror?

Or is your mirror under stress in the mirror mount? How long ago have you cleaned your optics? Even Refractors and Schmidt-Cassegrain will get dirty. Optics including mirrors should only be cleaned when dirty. Everyone will tell you how but go to a good reference!!!

**My focuser won't hold my five inch Nagler?!!!!!!**

**It is hard to hold the kitchen sink still?!**

Have you cleaned your focuser? What about replacing the stiff grease? What the hell is this "stuff"? The "stuff" is silicone grease with

graphite called Kilopoise grease by a firm called "Rocol"

**You can not find anything with your finder??**

You do not know what you're looking for?!

**What is NGC 3665?**

Check to see if the finder scope is in focus. Is the finder aligned with your scope optical path? Is it covered with insect repellent or dirty finger prints? You can buy a new one but throw it away! Buy a Tetrad instead!!!! All telescopes should come with a TELRAD!!!!

**The mount won't track? You got too much stuff on it!!!! How many pounds of equipment is the mount carrying?**

I did know a DOB would track? Poncet Mount is a platform for a DOB that allows the DOB to track RA for short periods of time. See this web site for more information--

[http://homepage.ntlworld.com/molyned/the\\_equatorial\\_platform.htm#THE%20DESIGN](http://homepage.ntlworld.com/molyned/the_equatorial_platform.htm#THE%20DESIGN)

Is the mount right for your telescope? Does it have back lash! Your CG-5 can be rebuilt in nine hours. Disassemble the equatorial head, move the old grease. Polish internal bearings. Re-grease with synthetic grease and carefully adjust the worm gear and other components.

See (CG-5 Equatorial Mount---Robert Burns' Souped up CG-5)

: <http://overtontamu.edu/rdb/CG5/>

Some solutions a for CG-5 mount:

1. R. A. Locking lever interferes with D.E.C motor--file it down
2. D.E.C. motor plug is a phone plug connection and can break off. Attach a small brass plate and replace the circuit board mounted receptical with a mini phone cord union.
3. Handle Paddle Power connection will snag the power cord on battery pack or hand paddles and may become unplugged. Attach with Velcro
4. SLO-MO Knobs make the knob bigger.
5. Replace the aluminum with wooden legs

**My DOB is not smooth!!!** Was it ever?

Replace the Teflon and/or ruff it up. Is it in the proper

position (120 degrees apart--- can it be moved???? Is the Formica Ebony star or is it a type that is too smooth. Have your screws or nails loosened-up on the Teflon pads and are they scratching your Formica?

**My motors won't work my drive!!!!**

**It said use only 12 volts not 110 volts- stupid!**

Check that awful grease! Have your connections corroded and are your battery terminals clean or corroded. Maybe your circuit board is bad?? Talk to some one about the electronics. Not me!

**My scope's not pretty any more. In other words you want to spend some money!!!**

Consider remaking your mount or buy an already made one. Check out Teeter's Telescope Dobsonian Conversions. <http://www.teeterstelescopes.com/> They are very nice.

**I want more aperture!!!** Your viewing site is only magnitude 2!!!

**THIS ONE IS YOUR PROBLEM!!!!**

**NOW MY PROJECT----** My ORIGINAL SCOPE--- MY FIRST SCOPE !!!! ---an 8 inch 5.7 F.L.

Dobsonian Reflector: The mirror was from Coulter Optical Co. and was the last 8 inch F6 they had in stock. They had plenty of larger mirrors but not any 8 inchers. The tube was a Parks' fiberglass tube. The mirror mount, spider, and diagonal came from Novak in Lady Smyth, Wisconsin.

In 1976, I built the scope with help from my chemistry professor at the University of Arkansas and then built an equatorial mount for it based upon on an astronomy book that I had. But the scope was too big for the mount. When I looked at a star, I had a sine wave in the eyepiece!! So a friend and member of the Northwest Arkansas Astronomy Club and I built, a Dobsonian mount. It was the first big DOB in the Arkansas Club. The Teflon came from the first automated chicken catcher! It did not work because it broke too many chicken legs. That is why I got the Teflon.

The scope and mount were 27 years old and needed repair, but it was not broken! The mirror needed to be recoated since the aluminum coating was very thin.

After stripping the coating off the mirror at our Mirror Making Forum, I decided to rebuild the entire scope.

**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.

Over time I drilled holes and holes in the tube. The outside coating on the fiberglass was checking badly and a large clip had popped off the tube near the base. The DOB mount was beginning to fall apart and the altitude bearing was too small!!! Originally, I used two toilet flanges. I now built a new Dobsonian mount and used Velcro (Hooks) for the altitude bearing (10 inches in diameter) instead of Formica. Velcro works well. I used a non-smooth Formica for the bottom bearing. Now to the fiberglass tube, my down fall. I bought some photo-sensitive fiberglass; It bubbled! Now the tube had small poxes. After 6 months of sanding, the poxes were gone. Then I covered the tube with an exterior auto body resin which worked well. My tube was finally repaired with no extra holes or bubbles.

### **From the President's Desk....**

June 14, 2003 And the rains continued for forty days and forty nights. Do you feel like Noah? Are you a descendent of the 2 AA's on board the ark? When will the skies clear and rains return to "normal"? When will the cloud filter be perfected? I guess we should be content because somewhere in this world there are people suffering through terrible droughts and pestilence but I am willing to share some of our rain.

Believe it or not we, Delmarva Star Gazers, have been doing some amateur astronomy all during this monsoon. For example, Joe Morris is working with the Mountain Institute near Spruce Knob, West Virginia, to produce a week of amateur astronomy for some deserving high school students. The week begins June 22. I understand several Star Gazers will participate in the adventure. And we have been making plans for our coming year. Here is a recap of our June 7 meeting at Kathy and Frank Sheldon's home.

Kathy and Frank hosted approximately fifteen Star Gazers Saturday afternoon afternoon June 7, for what was supposed to be an afternoon of sitting outside, under sunny skies, cooking some fish and corn-on-the-cob, consuming some bottled liquid refreshments, and in the process planning for our coming year of AA. Mother Nature delivered another scenario. She dumped a monsoon on us so we retreated to the interiors of the Sheldon's home for our social hours and planning. Frank's studio did double duty as a place to cook our fish and hushpuppies. We didn't fish or boat or swim in the lake but we did get wet and we did eat well so all in all we had a great time as we always manage to do when Star Gazers get together.

And here is a skinned down version of our plans for next year. We will have ten monthly meetings, September 2003 through June 2004, the first Tuesday of each month in First Presbyterian Church, Smyrna, DE. We will continue to observe on the baseball field at

Tuckahoe State Park the weekend nearest the new moon. We will host two regional starparties (April and September), the Mid-Atlantic Mirror maker's weekend, and a weekend retreat for regional amateur astronomy club leadership. We value the camaraderie and friendliness of our organization and we will renew our efforts to improve these qualities. We will emphasize bringing astronomy to the young people who attend our star parties and to those we reach through our community events specifically we will have equipment and activities aimed at young people. Ron Zink will lead our efforts to participate in and to promote Science Saturdays. We will purchase equipment, literature, and other materials as necessary. We will purchase Delmarva Star gazers hats for resale to members and others in lots of 1 dozen. We will take orders for Delmarva Star Gazers shirts and have them made in small lots on an "I just gotta have one" basis, ie, we do not intend to have a hat and shirt inventory. For info, we have located the vendor who made the original DSG hats and shirts and she assures us she can repeat the process. The monthly meeting format will consist of 5-10 minutes segments for equipment review, software review, book review, a Southern constellation review, and of course the main monthly program will be a longer segment. Everyone seems to be excited about the emphasizing the Southern constellations.

We will actively seek to involve more members in the Club's activities. The intent is to increase the amount of activities as well as disperse the responsibilities for our events. And in the process maybe we will create an interest for future Club leadership.

Now, let's focus on our next event: the Fourth of July Picnic. We were unable to secure the pavilion at Tuckahoe for Saturday, July 5<sup>th</sup>. And the date of Saturday, June 28, has proved to be an inconvenient day for most of the folks who would normally attend our picnic (most of them have other engagements). So, we have secured the Pavilion at Blackbird State Forest for Saturday, July 5, from 4:00 PM to 11:00 PM for our picnic.

ere are directions: From Hwy 13 coming from the south of Smyrna proceed thru Smyrna to the first traffic light north of Smyrna (there is a Citgo station on your left) - turn left on Road 487 for .5 miles - turn right onto Duck Creek Road for ¼ mile - turn left onto Van Dyke/Greenspring Road. You will cross a railroad and in approx 2 miles you will turn right onto Blackbird Forest Road for approx 1.2 miles. Blackbird Forest (Tybouts Tract) entrance is on your right - follow the main path to the picnic area.

For those coming from the north on Hwy 13 you will turn right at the first traffic light past Ronny's Market (this is Road 487) - then follow the instructions above

for the remainder of your pilgrimage.  
For those coming from the west - follow route 300 E to Hwy 13 - turn left on Hwy 13 to the first traffic light

### **Directions to Blackbird State Forest**

#### **On Hwy 13 coming from the South**

Proceed thru Smyrna to the first traffic light north of Smyrna (there is a Citgo station on your left) - turn left on Road 487 for .5 miles - turn right onto Duck Creek Road for ¼ mile - turn left onto Van Dyke/Greenspring Road. You will cross a railroad and in approx 2 miles you will turn right onto Blackbird Forest Road for approx 1.2 miles. Blackbird Forest (Tybouts Tract) entrance is on your right - follow the main path to the picnic area.

#### **On Hwy 13 coming from the North**

Turn right at the first traffic light past Ronny's Market (this is Road 487) - then follow the instructions above for the remainder of your pilgrimage.

#### **Coming from the West**

Follow Route 300 E to Hwy 13. Turn left on Hwy 13 to the first traffic light north of Smyrna and follow the instructions above from Road 487.

If you are coming from the east you don't need any instructions!

north of Smyrna and follow the instructions above from Road 487.

If you are coming from the east you don't need any instructions!

A word of caution: there are many paths to and from Blackbird State Forest but they all look alike; please follow my instructions and you will not become lost in the Forest.

FYI, the Club will supply hotdogs, hamburgers, fixin's, sodas, corn-on-the-cob, and BBSF mosquitoes. Please contact Kathy for other details.

There is a small open area for scope setup at the picnic area. See you at Blackbird State Forest on July 5 at 4:00 PM. Don..

#### **Observing Notes from the Tuckahoe Irregulars Tuckahoe June 6, 2003...Keith Lohmeyer**

Seven observers showed up on this partly cloudy week night for the first chance to observe in a good while. I started the night by taking a look at the first qtr moon and Jupiter while they were still up. As it got darker I was able to view some of the brighter M objects through breaks in the clouds. The list includes 3, 10, 12, 13, 92, 5, 9, 14. After the moon set I was able find a couple of galaxies 51, 81, 82. The observers present exchanged views through their scopes when the clouds allowed. I packed up a little after midnight.

Keith Lohmeyer

#### **Tuckahoe June 5, 2003...Dave Wells**

Thursday night was a great night at Tuckahoe. The viewing conditions were far from ideal, but in between great conversations we did manage to satisfy our hunger for some good views of some interesting objects.

I for one finally managed to get the Whirlpool Galaxy (M51) in my eyepiece, as well as M5, M12, M14, M15 and M67. We had a great time comparing views with the various scopes and eyepieces assembled on the ball field. As an added bonus we got a great look at the ISS passing over.

Mike Stephano joined us for the evening, driving up from Onancock. And luckily for me he hung in to the very end while I was packing up. My car battery was dead and neither Mike or I had jumpers, but Mike did have a small adjustable wrench and we managed to swap for my 33 amp hour, deep discharge battery I use to power my scope and dew heaters. This successfully started my car and I made it home no problem (at 3 a.m.). Thanks again Mike. Dave

\*\*\*\*\*

#### **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 remaining meeting dates for 2003 will be: June 03, July 05 (Picnic at Tuckahoe), August 05 (No meeting at church - schedule special event) September 02, October 07, November 04 and December 02 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 days for the year 2003 will be: May 30, June 27, July 25, August 1, August 29, September 24 - 28 (No-Frills VII) October 24, November 21, December 19. 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**

## Moondark for July: DIY Spectroscopy 101

You can do many things with starlight: you can stare at it, photograph it, or just admire it. Professional astronomers take a more technical approach, employing the tools of astrometry, photometry and interferometry. Perhaps the most commonly used astrophysical tool is spectroscopy—spreading the star's light into its constituent colors. This is how we “sample” something impossibly far away and remote—the spectrum tells us temperature, elemental composition, relative speed, density and pressure, and can even reveal a magnetic field.

Curiously this powerful methodology is scarcely used by amateurs, most likely because real spectroscopy is highly technical and quantitative. But you need not have a Ph.D. in physics to learn about stars, just a way to disperse the wavelengths. Ordinary prisms and thin film gratings (actually inexpensive plastic replicas of true gratings) are fine for demonstration purposes, but to spread starlight by eye requires a grating optimized for this purpose, and at least one such product is available commercially to amateurs.

The Rainbow Optics' Star Spectroscope transmission diffraction grating (review in October 1995 *Sky and Telescope*) looks like a filter and simply screws into the eyepiece. Compared to a plastic film, these rulings on glass have been optimized for angular dispersion and blazed to send most of the light to one side so the spectrum is brighter. On a medium-sized telescope, and using the provided cylindrical lens to broaden the spectrum, absorption lines can be readily seen on bright stars, their strength distinguishing among the classical spectral types: O, B, A, F, G, K and M.

In a historically interesting way, this grating can be used to photograph spectra with enough resolution to classify spectral types—the forefront of astrophysics in the early 20th century. Here's how I took the photographs at right. The grating was slipped into filter holder in front of a telephoto lens (focused at infinity) on a 35-mm camera loaded with fast print film. The camera was fixed on a tripod and pointed at a bright star for exposures of up to 4 minutes. The trick is to orient the grating's dispersed light and camera frame perpendicular to the star's motion across the sky. Trailing broadens the spectrum so that lines and bands are visible—effectively using the Earth's rotation as the slit in a conventional spectrograph. The film was processed and printed as for any other nighttime photos. Spectra of Sirius and the Great Orion Nebula showing absorption and emission lines (respectively) are presented at right.

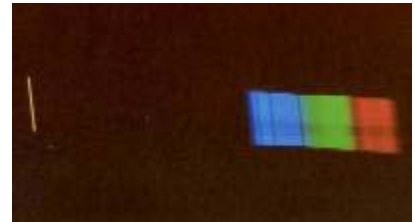
Granted, not much if any modern, cutting-edge astrophysics can be done with this setup. But turned to an exceptionally bright nova or Milky Way supernova, changing spectral lines would reflect the life and death of the star. Since neither is likely to occur anytime soon, collecting more light and using a more sensitive detector is the way forward in amateur astronomical spectroscopy.

Two great resources for those interested in this activity are: the [Forum for Amateur Astrospectroscopy](#) web site, and **Practical Amateur Spectroscopy** edited by Stephen F. Tonkin (Springer, 2002).

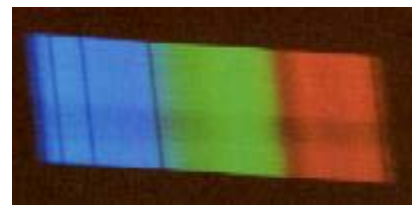
Moondark is written by [Doug Miller](#), published [on the web](#), and printed in the [Delmarva Star Gazers' Star Gazer News](#). This document was last revised on 22 June 2003. *Text and images copyright © 2003 by Douglas C. Miller, All Rights Reserved. This material may not be reproduced in any form without prior permission.*



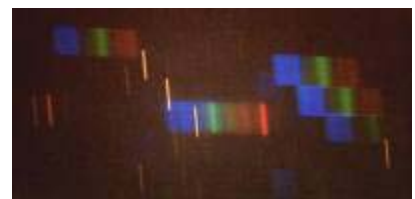
*Grating mounted as an "objective" in front of 205-mm telephoto lens*



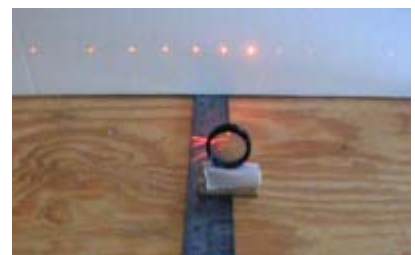
*Sirius (trailed, at left) and its spectrum recorded on ISO 400 Fuji film in 4-min exposure at 205-mm f.l.*



*Enlargement of above spectrum, showing hydrogen absorbing lines delta, gamma and beta (from left to right in blue section) and H-alpha (at extreme right edge of red)*



*Orion's Belt and Nebula, showing spectra with distinct green O-III and red H-alpha emission lines (4-min at 85-mm f.l.)*



*A laser beam shows that "blazing" concentrates light into the brightest, first-order spectrum (just right of center), an advantage for faint, astronomical targets*

## Review of Orion StarBlast Telescope vs. Edmund Astroscan

Kent Blackwell

Some years ago I purchased an Astroscan 4.5" f/4 telescope from Edmund Scientific Company. Though pricey back then (\$400) it was still a versatile low power telescope. No scope at the time could compete with its ease of use. A major disadvantage of the Astroscan continues to be that the user cannot align the optics. The secondary mirror at the top of the tube is permanently mounted in a cell attached to an optical window. The optical window is a nice touch, as it eliminates diffraction patterns from a spider secondary support and keeps the optics sealed. The primary mirror is not only glued to its cell, but is also not accessible by the user. At very low power, it's doubtful whether one could see a difference if the optics weren't perfectly aligned. However, at magnifications greater than 50x accurate collimation would certainly be of the greatest benefit.

Even though one cannot align the Astroscan, it's still a very good 2<sup>nd</sup> telescope. Incidentally, a different company now markets the Astroscan. The new company is Edmund Scientific's, Scientifics located in Tonawanda, NY. The new Astroscans are made in China. I have compared the new Chinese units with the two USA-made ones I own, and can tell you I can see no difference. The nicety is the price has been reduced nearly in half. The new telescope retails for \$209. The Astroscan comes with a 1-1/4" friction-type focuser, a 28mm & 15mm Plossl eyepiece and an ingeniously simple peep-sighting device.

So, how does the Edmund Astroscan perform? Quite well at low power. With a 28mm eyepiece all three stars in the belt of Orion fit in the same field of view. Pretty impressive. But every Astroscan I have seen seems to come delivered out of collimation. At magnifications over 50x the image is distorted, and pretty much useless for any planetary or double star work.

I recently purchased a similarly designed telescope, an Orion 4.5" f/4 StarBlast. This little scope physically differs from the "bowling ball" shape of the vivid red Edmund Astroscan. The Orion is a very compact Dobsonian design. I have been very pleased with the performance of the Orion. The attractive deep green optical tube is all aluminum. The laminate Dobsonian mount is also very attractive. The Orion StarBlast retails for \$149, and includes a 17mm & 6mm Orion eyepiece, an 1-1/4" geared rack & pinion focuser as well as a variable brightness illuminated zero power Daisy BB-type finder. The real beauty with this telescope is that both the primary and secondary mirrors are easily user-collimated, and the primary mirror is even center dotted with a bulls-eye ring. Orion also includes a collimating cap to assist. The telescope's Dobsonian mount moves about the sky in buttery smooth motions, and is rock solid. At 75x the scope takes less than 2 seconds to stop vibrating after I tapped the telescope tube with my hand.

The real test of any telescope's optical performance is viewing the diffraction pattern of an out of focus star. Though both the Edmund Astroscan and Orion StarBlast telescope mirrors discussed here are true parabolas, the Astroscan does not star test well because of the collimation problems mentioned. The StarBlast I received tested very well indeed. In fact, I'd estimate the primary is figured accurately to approximately 1/5-wave, pretty good for any f/4 system, especially one selling under \$200. With such a fast system you'll get the sharpest images with the object centered in the field. I could easily see the reddish-brown color of the cloud belts on Jupiter, and Jupiter's moons were tiny pinpoints. Lunar craters were sharp, and the view was amazingly contrasty.

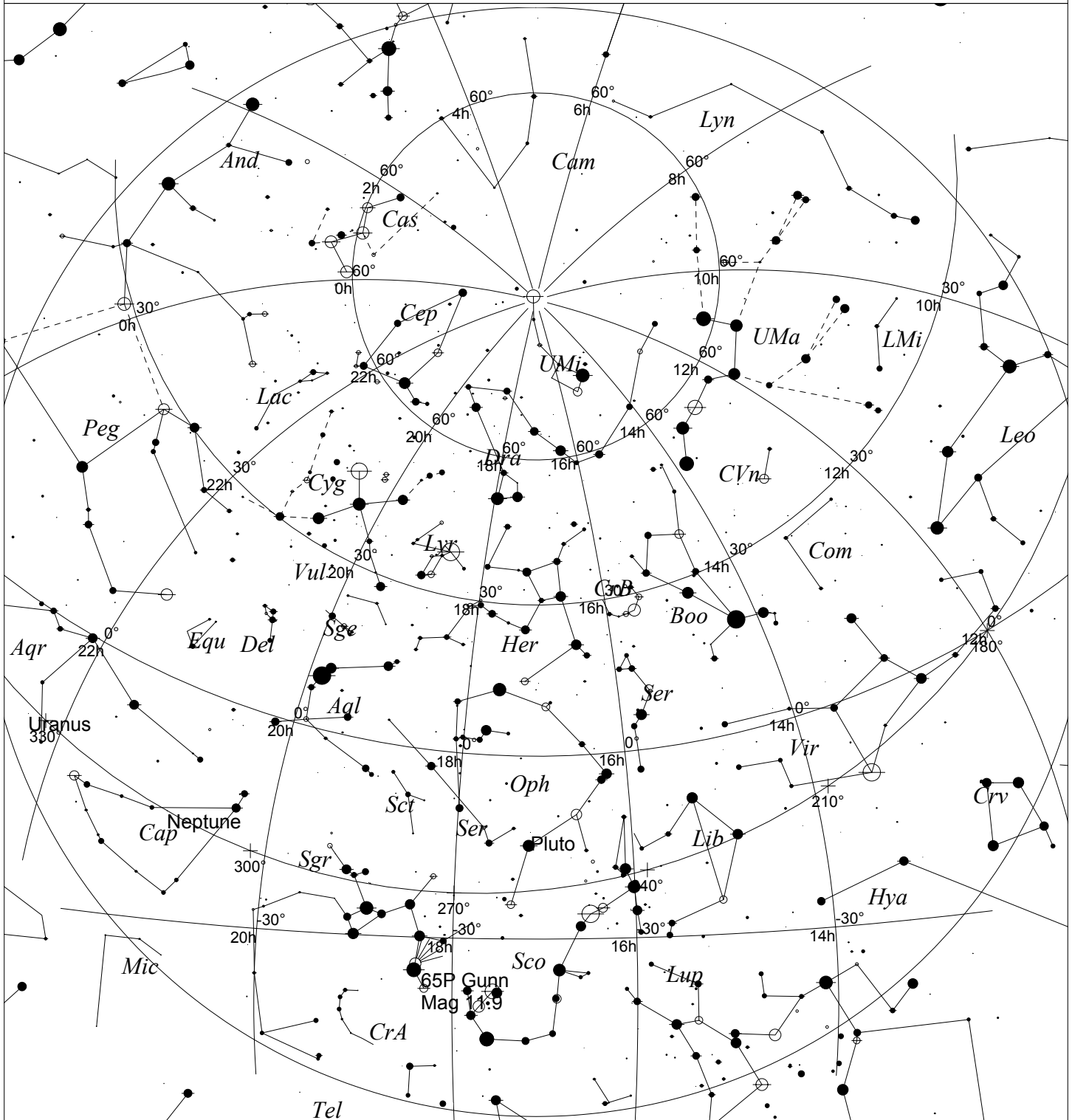
Since the Orion StarBlast sells for less money than the Edmund Astroscan I would recommend it over the Edmund. Be aware that both telescopes are sold with very short mounts designed to be placed on a tabletop. A small solid tripod would be a highly recommended accessory for the Astroscan, and I found that a laundry detergent bucket was just the ticket on which to rest the Orion StarBlast. You might fill the bucket with sand (or leave the detergent in it). Uhhh, I guess if the bucket were empty it could be considered a "light bucket".

Although I recommend either of these telescopes, I only suggest them only as a 2<sup>nd</sup> telescope. If you are looking for a more generalized scope one with a longer focal length would be a better choice. A 4.5" f/10 or a 6" f/8 would be an excellent all-around entry-level telescope. If, on the other hand, your needs call for a very compact telescope that easily fits in the back seat of your car the Orion StarBlast is mighty hard to beat. I'm looking forward to many nights using this jewel of a telescope.

Edmund Scientific's, Scientifics  
PO Box 1815  
Tonawanda, NY 14150-6711  
800-728-6999  
[www.scientificsonline.com](http://www.scientificsonline.com)

Orion Telescopes & Binoculars  
60 Pearce Avenue  
Santa Cruz, CA 95061-1815  
800-447-1001  
[www.telescope.com](http://www.telescope.com)

# SKYMAP FOR JULY 2003



<p><b>STARS</b></p> <ul style="list-style-type: none"> <li>● &lt;1    ● 3.5</li> <li>● 1.5    ● 4</li> <li>● 2      ● 4.5</li> <li>● 2.5    ● &gt;5</li> <li>● 3</li> </ul>	<p><b>SYMBOLS</b></p> <ul style="list-style-type: none"> <li>● Multiple star</li> <li>○ Variable star</li> <li>☄ Comet</li> <li>☉ Galaxy</li> <li>□ Bright nebula</li> <li>☐ Dark nebula</li> <li>⊕ Globular cluster</li> <li>⊙ Open cluster</li> <li>☉ Planetary nebula</li> <li>☉ Quasar</li> </ul>	<p><b>SYMBOLS</b></p> <ul style="list-style-type: none"> <li>△ Radio source</li> <li>× X-ray source</li> <li>○ Other object</li> </ul>	<p>TUCKAHOE STATE PARK JULY 25, 2200 HOURS</p>
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Local Time: 22:00:00 25-Jul-2003

UTC: 02:00:00 26-Jul-2003

Sidereal Time: 17:05:42

Location: 38° 58' 0" N 76° 56' 0" W RA: 17h05m42s Dec: +38° 57' Field: 182.0°

Julian Day: 2452846.5833