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# *the* BARNARD STAR

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A PUBLICATION OF THE  
BARNARD ASTRONOMICAL SOCIETY

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4503 COVE LANE  
CHATTANOOGA, TN 37415-2306  
ADDRESS CORRECTION REQUESTED

Dr. Gary B. Caldwell  
Membership Expires - May 11  
6034 Browntown Rd.  
Chattanooga, TN 37415

**MEETING NOTICE:** The regular meeting of the BARNARD ASTRONOMICAL SOCIETY will be held **Thursday, September 9<sup>th</sup>** at Jones Observatory on Brainerd Rd. The observatory doors will open at 6:45 p.m. Refreshments and social hour begin at 7:00 p.m. The program will be presented at 7:30 p.m. followed by the business meeting at 8:30.

**PROGRAM:** "Cataclysmic Variables", presented by Jon Mannone.

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The Barnard STAR is the official publication of the Barnard Astronomical Society.



**Planned Activities to Enjoy**  
**The Wonders of Astronomy—**

**Celebrating Amateurs Who Are Professional in**  
**Knowledge**

“Giving amateurs their due: The term ‘amateur’ is often used negatively as a synonym for ‘unskilled.’ Not here! In astronomy, the word remains true to its Latin root, amator, meaning ‘lover.’ Amateur astronomers spend countless hours under the starry sky purely for the love of it. Many become as skilled at telescope observing or astrophotography as any professional—often more so.”

**Discovering the Joy of Astronomy**

“The joy of astronomy comes from finding your way around the starry sky and understanding what you see.” –The Editors, SKY AND TELESCOPE MAGAZINE

**Mourning the Increasing Loss of Dark Night Skies in Our Cities**

“There is no more important task for the modern amateur astronomer than to fight the steady growth of light pollution in urban areas. Already we are witnessing the tragedy of the first generation of city children who might never see the beauty of a dark night sky.”

–Director, Observatory, Houston Museum of Natural Science.

Note: BAS endorses outdoor lighting restriction efforts by the International Dark Sky Association (IDSA) and also by local organizations such as Save Roane Starry Skies (SRSS) at The Tamke-Allan Observatory, Roane State College, Harriman, TN.

**Technical Areas of Specialization within BAS for Member Participation**

**Large Aperture/Dark Sky/Deep Space Optical Astronomy at Several Home Observatories**

For more information, contact Bobby Thompson, Tom Mozingo, or Victor Rogers.

**Astrophotography**

For more information, contact David Hanon, Dr. Gary Caldwell, or Ed Sunder.

**Amateur Radio Astronomy Using Specialized Antennas, Receivers, and Computer Software to Receive Signals Generated by Natural Processes from The Sun, Jupiter, Galactic Hydrogen Clouds, and Other Cosmic Sources**

For more information, contact Bill Seymour or John Mannone; and local Consultants Dr. David Fields or Dick Castle.

**Sidewalk Astronomy—“Chattanooga Out of This World” Challenging Optical Viewing of The Earth’s Moon and The Inner Planets for the General Public from Downtown Locations Surrounded By Bright City Lights**

For more information, contact Tom Adkins, Joe D’Agostono or Dr. Gary Caldwell.

**BAS JULY MEETING**

**Program**

Ed Sunder gave a very interesting PowerPoint presentation titled, “Getting Started in Astrophotography.” Illustrating his talk with a box full of hardware, cameras, and accessories, Ed covered a wide range of activities from the simple end (sky photos with a camera and tripod) to the moderately difficult (deep sky images that require tracking and time exposures) to the challenging (eclipses; solar and filters) to the difficult (planetary).

Equipment on hand to show the audience included cameras (Nikon D5LR, Nikon D50, DSI’s), off-axis guider, Barlow lens, focal reducer, Hartmann mask, filters, etc.

This program essentially traced Ed’s personal astrophotography story over a period of less than three years, beginning with no knowledge and no equipment and very rapidly moving to an intermediate level—greatly aided by his expertise in computer image processing from his professional career.

**The Basics**

**The Magnitude System**

In the second century B.C., Greek astronomer Hipparchus of Rhodes cataloged a list of 850 stars into six brightness ranges, or magnitudes. The brightest he called 1st magnitude stars and the faintest that can be seen with the unaided eye 6th magnitude. Skywatchers used his system for 1,800 years.

Then, Italian astronomer Galileo Galilei noted that his new telescope revealed otherwise invisible objects. Galileo coined the term “7th magnitude stars.”

The use of the telescope gradually resulted in refinement of the magnitude classifications. By the 18th century, a loose system defined two stars differing by 1 magnitude as having a brightness difference of 2.5 times.

In 1856, English astronomer Norman Pogson suggested a constant to calibrate all magnitudes. He changed the ratio between magnitudes from 2.5 to 2.5118865. This number, multiplied by itself 5 times, equals 100. So, Sirius (Alpha Canis Majoris) at magnitude -1.47 is 100 times as bright as Wasat (Delta Geminorum) at magnitude 3.54, which is 5 magnitudes fainter.

Nineteenth century astronomers also noticed that some stars are brighter than magnitude 1. And, the bright planets, as well as the Sun and Earth's Moon, are even brighter. So, they established magnitudes with negative values. (Sirius, the brightest star in the sky is -1.47; the Sun is -26.5; the full moon is -12; and, Venus at its brightest is -4.5)

How bright a celestial object appears from Earth is its Apparent Magnitude ( $m$ ). There is also another type of magnitude—standardized and defined as Absolute Magnitude ( $M$ )—that allows professional astronomers to compare the real brightness of objects, and not just how bright they seem to be when viewed from earth. Absolute Magnitude is defined as the brightness a celestial object would have if its distance were 32.6 light years (10 parsecs) from Earth.

### The Amateur Estimates Limiting Magnitude

There is still a third type of magnitude that should be taken into consideration, particularly for amateur astronomers. Nighttime observing conditions, which can vary widely, determine how well a celestial object can be seen by a ground-based observer; and this is known as Limiting Magnitude. During field observing, it is desirable to estimate just how good the viewing conditions are. Such an estimate helps compare the quality of observations over many sessions. Assigning an arbitrary value, most amateurs take a Limiting Magnitude estimate near the zenith (the overhead point) where lights on the earth are less obvious and there is less atmosphere to look through. Another option is to make a Limiting Magnitude estimate using the stars near Polaris (Alpha Ursae Minoris). For example, how well can all four stars in the bowl of the Little Dipper be seen, if at all ?

Ref: New Edition Atlas of The Stars;  
Astronomy Magazine, 2010.



I think I have just been volunteered to be the chairman of the loaner program. The telescopes pictured are ready to be borrowed. As pictured from left to right is the Drake 6" RV6, Seymour Edscope 6", and Coredell's beautiful 6" ATM telescope. They all will have powers of ~ 48x and 96x. 48x is good for easily finding those sky fuzzes and looking at the whole Moon. 96x will give you more detail in clusters, Moon, and planets.

The max power of these scopes is ~ between 200x and 300x but these powers are not fun. These scopes are not for photography.

The scopes are located at my house in Chickamauga, and you can borrow one at the next meeting for 30 days with a \$25 deposit, an ID, membership in BAS, and a signed contract of responsibility. This program is for you to learn how to use a telescope and to see if you would like to buy a telescope. Also the scope must be brought to star parties. Our new member, Jason, has already borrowed one. I have 3 more in the works. I will be glad to teach you how to use it. Contact me at 757-303-6177 or [bobby-thompson@utc.edu](mailto:bobby-thompson@utc.edu)

Bobby Thompson



### A Eulogy and Remembrance for Jack Horkheimer

As astronomers we are deeply saddened by the passing of Jack Horkheimer at age 72. As a fellow traveler at the eyepiece he was an inspiration through our lifetime of viewing the universe. My own introduction to Jack came at the Texas Star Party, when I recognized his "Voice" from his PBS evening broadcast, "Looking Up".

Indeed many thousands of children, young astronomers, have come to their "Feel" for the telescope and their first view of the stars and planets by way of Jack's evening programs.

Please know all that inspiration such as his comes only a few times even in my own 78 years, two thirds of which I've given to Physics, Cosmology and Astronomy. I can count on the fingers of one hand the men and women in my own life that offered his kinship in the stars.

Good Seeing! --- And "Look Up".

### TELESCOPES WANTED

We want everyone in our club to have access to a great telescope. Our plan is to refurbish telescopes so that we can loan them to astronomers without scopes of their own. If you have a telescope or accessories you are no longer using, please let us have it. We promise someone will use it and treat it with care and respect. Of course you can have a receipt for your tax write-off and every penny is welcome if you would like to donate money so we can buy or fix up a telescope.

Contact Gary Caldwell or Adam Krause if you have a donation, we will happily come to your door to pick up your unwanted telescope. Sponsorship information will be posted on the web and in the Barnard Star.

### Telescopes For Sale

BAS Members and Friends,

Got a call from a Mr. Mike Greson who asked if I would let the astronomy club know that he has a telescope for sale. Mike said he has a 10 inch Meade LX200 GPS Schmidt-Cassegrain telescope for sale. He has a 2 inch star diagonal with the telescope. It comes with a set of 3 Meade Series 5000 Ultra Wide Angle 82 degree apparent field eyepieces in the 30 mm (2"barrel),

18 mm (1 1/4") and 6.7 mm (1 1/4") focal lengths. The eyepiece set comes in a case.

Mike is asking \$1,600 for the telescope and eyepiece set. He is hoping to sell to someone who is local, if possible. Mike said that although he had never been to a BAS meeting and is not a member, he did find our website, and got my name and number from there.

Since Mike is in the Chattanooga area, a local buyer could avoid shipping charges, and could meet Mike and examine the telescope in detail before buying it. Mike said that he really needs to sell quickly due to some pressing financial needs, and he indicated there might be some flexibility in the price. Mike is hoping to sell the telescope and eyepiece set together, although, I suppose it couldn't hurt to ask if he might consider splitting them up.

If interested, call 637-9564. It is a local number, so there is no need to dial the 423 area code. Tell whoever answers that you are interested in the telescope Mike has for sale.

David Witt

Hi there, I'm in Cobb County and I have a Celestron 8 with a bunch of extras I would like to sell. Do you know of a budding star gazer that would be interested or maybe a hobby specific classified ad type web site? I cannot give this away as it was given to me by my father and I wanted to forward the proceeds to him but I am not opposed to helping out a student or hobbyist with a decent deal. I would really appreciate your help.

Thanks in advance,

Todd Lilley  
770-855-9332

A friend of mine is trying to sell a Meade ETX125ec. Full goto with tracking. Only used twice. Only lacks a tripod. This scope is in beautiful condition.

Included: eyepiece, 8x25 RA view finder, 90deg eyepiece holder, fork mount, computer control panel, drive base, hole cove for optional tripod legs, RA/DEC setting circles, 1/4-20 photo tripod adapter block, flip mirror control knobs, photo port, electric controller with attached coil cord.

If you know of anyone interested please let me know. My friend needs to sell this great scope very quickly!

Email for price!

Jason Liechty [jliechty786@gmail.com](mailto:jliechty786@gmail.com)

## Officers

President.....	Robert Coulter
Vice-President.....	Ed Sunder
Secretary.....	Bill Seymour
Treasurer.....	David Witt
STAR Editor.....	Steve Ramey
Webmaster.....	Ed Sunder
Star Party Chairman.....	Victor Rogers
Outreach Coordinator.....	John Mannone
Program Committee Chair.....	Tom Atkins
Member-at Large.....	David Witt

## August Minutes

President Robert Coulter led a discussion on the following topics:

## I. Old Business

## A. Financial;

A treasurer's report sent by David Witt, who was unable to attend, showing a bank balance of \$1,250.88; Astronomical League dues of \$275 have been paid; Tax exempt filing by David Witt.

## B. BAS Chairs and Appointed/Volunteer Positions

Affirmed; Steve Ramey, BARNARD STAR Editor; Victor Rogers, Observing Chair; Ed Sunder, Webmaster.

## II. New Business

## A. Upcoming Star Parties;

1. Victor Rogers wants to host an Orion Acres event on the first new moon weekend in September, weather permitting (watch for e-mail announcement);

2. Peach State Star Gaze will be October 3-10 (see AtlantaAstronomy.org for details). B. Yahoo Group; Bobby Thompson has set up a BAS group, and Ed Sunder is deferring his efforts at a BAS list serve because Ed feels that Yahoo will be better. Yahoo is a controlled group where members must be approved, posts are saved, and only members can post. Bobby and Ed have agreed to be co-moderators.

## B. Scheduling of Upcoming BAS Programs;

1. September –“Cataclysmic Variables” by John Mannone;

2. October--Field Trip to Astronomy Lab and Cordell-Lorenz Observatory at

The University of The South (Tom Adkins to make the arrangements);

3. November—“Flocking A Telescope; A Before and After Practical Demonstration” by Bobby Thompson and Tom Mozingo.

4. December—(St. Peters Church on Ashland Terrace may no longer be available to BAS for Xmas party due to retirement of Tom Adkins wife from church staff.) Ed Sunder will look at alternative church in St. Elmo area.

Respectfully presented by Bill Seymour

**REMINDER-** Your annual BAS dues of are now due on the anniversary of your membership in accordance with the adopted amendment to the by-laws. The due date appears below your name on the address on the front of this newsletter. If your expiration date says “Overdue” or if you don’t agree with the date shown, contact David Witt to resolve discrepancies. The current dues rates are as follows: REGULAR \$15.00, REGULAR ASSOCIATE \$7.00, JUNIOR \$8.00, JUNIOR ASSOCIATE \$5.00. Your Sky & Telescope or Astronomy subscription will continue to be handled as in the past. When you receive your subscription reminder card, submit it to:

David Witt  
4503 Cove Lane  
Chattanooga, TN 37415-2306

Along with the group subscription rate of \$32.95 for a year of Sky and Telescope, and/or \$34.00 for a year of Astronomy, or \$60.00 for two years of Astronomy.

**DEADLINE-** All articles and other materials for publication in the next STAR are due no later than Wednesday, October 6<sup>th</sup>. Email any media or articles to [bas@chattanooga.net](mailto:bas@chattanooga.net) or [stramey@catt.com](mailto:stramey@catt.com) and attach a file or mail to:

Steve Ramey  
8007 Hamilton Mill Drive  
Chattanooga, TN 37421

PHOTOGRAPHS ARE ALSO ACCEPTABLE.

## BARNARD ASTRONOMICAL SOCIETY MEMBERSHIP LIST

Adkins, Tom	3937 Forest Highland, Chattanooga, TN 37415	(423) 877-4639
Bell, George	1948 Light Tower Cir., Hixson, TN 37343	(423) 842-7757
Caldwell, Dr. Gary B.	6034 Browntown Rd., Chattanooga, TN 37415	(423) 875-6668
Childress, Chris	1516 Springvale Rd #B, East Ridge, TN 37412	(423) 316-7800
Cioni, Philip T.	2018 River Bluff Drive, Hixson, TN 37343	(423) 847-8687
Clark, Kathie W.	1022 Canyon Rim Dr., Soddy Daisy, TN 37379	(423) 451-0006
Cordell, Francis M, Sr	1018 Holly Ave, South Pittsburg, TN 37380	(423) 837-7403
Coulter, Robert Bruce	20 Holiday Lane, Chattanooga TN 37415	(423) 877-0953
Cross, Jim	571 Kashaya Ln, Soddy Daisy, TN 37379	(423) 322-2862
Cummings, V. L. (Lee)	6636 Shallowford Rd., Chattanooga TN 37421	(423) 855-0303
D'Agostono, Joe	205 Stone Creek Rd. Rising Fawn, GA 30738	(706) 398-2729
Delay, Sam, J. L.	6837 Hickory Lane Chattanooga TN 37421	(423) 892-7376
Drake, Brian	535 Pierce Drive Ringgold GA 30736	(706) 861-1464
Dube, Richard L.	6018 Mill Rd. Hixson TN 37343	(423) 877-0787
Durig, Douglas T.	735 University Ave, SPO 1291, Sewanee, TN 37383	(931) 639-1149
Floyd, Ronny	1053 Harvest Knoll, Soddy Daisy, TN 37379	(423) 847-1707
Gartenhaus, Paul	338 Chambers Ln, Ringgold, GA 30736	(706) 935-8550
Gmeiner, Andy	651 Burgertown Rd, Copperhill, TN 37317	(423) 496-3377
Goswick, Jeffery	114 Heritage Dr NW Adairsville, GA 30103	(770) 877-3016
Grafton, Brad & William	522 Forest Ave, Chattanooga, TN 37405	(423) 364-5426
Graziadei, Camille	167 Crystal Ter SE, Cleveland, TN 37323	(423) 472-1656
Graziadei, Charles	167 Crystal Ter SE, Cleveland, TN 37323	(423) 472-1656
Hanon, David	3762 Three Notch Rd., Ringgold, GA 30736	(706) 937-3593
Hanon, Linda	3762 Three Notch Rd., Ringgold, GA 30736	(706) 937-3593
Haynes Bryant	5007 Browntown Rd., Chattanooga, TN 37415	(423) 876-7359
Hereford, Kenneth M.	2440 Haven Cove, Chattanooga, TN 37421	(423) 892-2123
Krause, Adam	5702 Taggart Drive Hixson TN 37343	(423) 877-9341
Lauck, James	PO Box 755, Datil, NM 87821	(575) 772-5164
Liechty, Jason	4040 Mt Creek Rd Apt 1404, Chattanooga, TN 37415	(423) 779-8924
Lord, Bill & Melinda	354 N West Circle NW, Cleveland, TN 37312	(423) 478-9043
Mannone, John	1574 County Rd. 250, Niota TN 37826	(423) 337-2197
Mansfield, Joseph	305 Whitehall Rd Chattanooga, TN 37405	(615) 469-2396
Marlowe, Robert L.	535 Elinor St. Chattanooga, TN 37405	(423) 266-9316
McConnell, Ralph	3538 Valley High Lane, Chattanooga, TN 37415	(423) 238-4171
McKnight, Charles	1061 Blanton Dr. East Ridge TN 37412	(423) 894-2705
Mills, Dr. Buell B.	435 Meadow Lark Ln. Palm Harbor FL 34683	
Michalski, Robert A.	9011 Quail Run Dr. Chattanooga, TN 37421	(423) 894-9203
Michalski, Georgia S	9011 Quail Run Dr. Chattanooga, TN 37421	(423) 894-9203
Mozingo, Thomas	6409 Ware Branch Cove Dr Harrison, TN 37341	(423) 344-9545
Murphy, Thomas W. Jr.	UCSD, 9500 Gilman Dr., LaJolla, CA 92093	
Newton, Jeff	122 Pleasant Hill Rd., Lookout Mtn., GA 30750	(706) 398-3338
Parashak, Paul	1820 Colonial Shores Dr, Hixson, TN 37343	(423) 991-3000
Politte, John	3912 Reaching Way Soddy Daisy TN 37379	(423) 332-7186
Ramey, Steve	8007 Hamilton Mill Dr., Chattanooga, TN 37321	(423) 508-2177
Ramey, Tedra	8007 Hamilton Mill Dr., Chattanooga, TN 37321	(423) 400-5507
Rhoton, Alex II	204 Windmere Dr. Chattanooga TN 37411	(423) 622-8288
Richardson, Kevin	9977 Deer Ridge Drive, Ooltewah TN 37363	
Rogers, Victor	11047 Old Hotwater Road, Soddy-Daisy, TN 37379	(423) 332-6445
Ruch, Rod	11819 Thatch Rd. Harrison, TN 37341	(423) 344-4513
Sajwaj, Thomas	1703 Carroll Lane Chattanooga TN 37405	(423) 240-5231
Seymour, Bill	923 Kentucky Ave, Signal Mountain, TN 37377	(423) 468-3260
Smith, Jr., Duane	5555 Hixson Pike, Apt. 435 Hixson TN 37343	
Smith, Richard B.	522 Forrester White Dr., Hixson, TN 37343	(423) 870-3981
Spence, George W.	400 N. Castle Rd., Dalton, GA 30720	(706) 226-3092
Sullivan, Stephen	2008 Blythe Ave, Cleveland, TN 37311	(423) 244-7217
Sunder, Edward W.	267 Hidden Oaks Drive, Flintstone, GA 30725	(706) 820-1738
Teas, Michael Jeff	9122 Hundley Rd, Chattanooga, TN 37416	(423) 593-3932
Thompson, Bobby	24 Martin Clement Dr, Chickamauga, GA 30707	(706) 375-7415
Trayer, David M.	1915 Lake Peninsula Dr., Hixson, TN 37343	(423) 843-1521
Tomazewski, Tina	20 Holiday Ln., Chattanooga TN 37415	(423) 877-0953
Watson, George R.	518 Grand Mountain Drive, Chattanooga TN 37421	(423) 495-3152
Westman, Carl	802 Susan Carol Lane, Chattanooga, TN 37421	(423) 954-1939
Wilson, Charles	4201 Gann Store Rd, Hixson, TN 37343	(423) 877-5042
Witt, David	4503 Cove Lane, Chattanooga TN 37415	(423) 877-6505

<b>Last Name</b>	<b>First Name</b>	<b>Membership Anniversary Month (Pay Dues in this Month)</b>
Adkins	Tom	June
Bell	George	June
Caldwell	Dr. Gary B.	May
Childress	Chris	March
Cioni	Philip T.	August
Clarke	Kathie W.	May
Cordell	Francis M., Sr.	June
Coulter	Robert Bruce	June
Cross	Jim	June
Cummings	V. L. (Lee)	January
D'Agostono	Joe	January
Delay	Sam, J. L.	January
Drake	Brian	May
Dube	Richard L.	December
Durig	Douglas T.	August
Floyd	Ronny	June
Gartenhaus	Paul	August
Gmeiner	Andy	August
Goswick	Jeffery	September
Grafton	Brad	January
Grafton	William	January
Graziadei	Charles	December
Graziadei	Camille	December
Hanon	David	November
Hanon	Linda	November
Haynes	Bryant	July
Hereford	Kenneth M.	June
Krause	Adam	July
Lauck	James	July
Liechty	Jason	January
Lord	Bill	May
Lord	Melinda	May
Mannone	John	May
Mansfield	Joseph	August
Marlowe	Robert L.	October
McConnell	Ralph	March
McKnight	Charles	January
Mills	Dr. Buell B.	September
Michalski	Robert A.	September
Michalski	Georgia S.	September
Mozingo	Thomas	June
Newton	Jeff	August
Parashak	Paul	August
Politte	John	August
Ramey	Steve	June
Ramey	Tedra	June
Rhoton	Alex II	November
Richardson	Kevin	August
Rogers	Victor	June
Ruch	Rod	September
Sajwaj	Thomas	June
Seymour	Bill	March
Smith, Jr.	Duane	November
Smith	Richard B.	August
Spence	George W.	January
Sullivan	Stephen	August
Sunder	Edward W.	May
Teas	Michael "Jeff"	March
Thompson	Bobby	November
Trayer	David M.	August
Tomazewski	Tina	June
Watson	George R.	October
Westman	Carl	May
Wilson	Charles	November
Witt	David	June



# ORION ACRES

*Once a month, weather permitting, members of the Barnard Astronomical Society gather at Orion Acres to marvel at the beauty of the heavens, to share the brotherhood that comes from the numinary experience of observing the countless wonders of the nighttime sky.*

*Members of the BAS encourage everyone who's interested in participating in the "star parties" to contact the association to verify dates, times and directions. (Orion Acres is a dark sky observing site located near Palmer, TN on the Cumberland Plateau, about 1.5 hours driving time from Chattanooga.)*

*For more information see The Barnard Astronomical Society web site: [pas.chattanooga.net](http://pas.chattanooga.net).*

**Orion Acres — "Where heaven meets the earth"**

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Members of the Barnard Astronomical Society set up for one of the club's most memorable star parties, June 16-17, 2007. Excellent "seeing" and clement temperatues were enjoyed by all.