

# S.C.R.A.P.S.

Society's Chronological Astronomical Papers



## From the President by Bob Arr

Summer, the glories of the Milky Way, and good food. Are we havin' fun or what? On July 19, SMAS will have its annual picnic at Tamke Allen Observatory, guest of David Fields. We're starting earlier than in the past, at 4 pm, in an effort to get the phood phase phinished before the general public shows up (it's a public observing night). Please coordinate your covered dish with Angela Quick, and if you can't bring phood, bring an appetite and your wallet (and a telescope, of course). And be very careful driving up the access road which is heavily rutted. (Maps on our website.)

The Unicoi Crest star party of June 28 succumbed to weather--clouds (that ultimately passed), fog (that ultimately dispersed), but finally, high humidity that dewed up optics in minutes and lasted the rest of the night. C'est la vie. On July 5, we have a Publicly Advertised star party at Look Pebble. Think Clear.

There is a wonderful new document on <http://www.cloudynights.com/howto/filters.htm> which compares the images delivered by different filters. Written by David Knisely of the Prairie Astronomy Club of Lincoln, NE, it details 81 emission nebulae, as seen through each of four filters--Lumicon's DEEP-SKY, UHC, OIII, and H-BETA--on the same telescope.

Then it recommends the best. It's a tour de force for Mr Knisely, but at 24 pages in length, it is not handy. We have summarized the recommendations and offer it to our members as a worthy addition to their log books on Page 5.



**3 Visitors to the SMAS Starparty at Unicoi Crest Waiting for the Fog to Lift--  
Photo by Mike Littleton**

## June Meeting by Angela Quick

The SMAS Meeting was held on Friday, June 6, 2003 at the Division Street Campus, Pellissippi State Technical Community College. President Bob Arr began the meeting at 7 PM by introducing three guests: John Widloski, who has attended previous meetings and star parties, and two of John's friends, Andrew Burkhardt and Namita Bisana. Bob gave each visitor a copy of the SMAS CD.

### Announcements:

- There will be no meeting in July. Instead, members will gather at Tamke Allen Observatory for the annual picnic on Saturday, July 19. Begin gathering at 4; we plan to eat between 5 and 5:30. Angela Quick has volunteered to organize the picnic and will be sending out a sign-up sheet of what to bring via email.
- If anyone from SMAS is attending July's ALCON in Nashville, please let Bob know two weeks in advance so you can vote for SMAS in the meetings. If no one is going to the convention, we will donate

## June Meeting (Continued)

our vote to proxy.

- The Boy Scouts are holding a Camporee for the southeastern US at the IJAMS Nature Center October 4. Would anyone like to volunteer to organize daytime and evening astronomy activities for this event? (Owen Hoffman will coordinate; Steve Rothschild, Ed Gorney, and Angela Quick will assist.)
- We needed three volunteers to help complete more telescopes for kids Sunday the 8th. Parts were ready to go. (Robb Feldhege and Erik Iverson volunteered.)
- We briefly addressed some confusion about the Yahoo group. If you have signed up for the group, you WILL receive ALL messages posted to the group, not just independent messages intended only for you. (That's the whole point of an online discussion group.) If you do not want to get bombarded with emails, you can change your sign-up options so that you receive a daily DIGEST (all the day's SMAS messages in one email message) or sign up for NOMAIL, which means that you will have to go to the YAHOO page to read group discussion, and will also miss reminder emails sent to the club at large.
- Bob has Edmund Mag 5 star atlases available. The Mag 5 star atlas is an excellent introduction to what to look for in the night sky. \$10 each; see Bob to purchase!

Our main presentation, "How I Became a Stargazer," was given by Owen Hoffman. Owen has lived in East Tennessee for 27 years, but also spent a period of time as a naturalist in the National Park Service. His presentation took us on photographic tours of several Western parks, including Crater Lake and Yosemite, and highlighted the dark sky resources of the National Park system.

Ed Gorney gave a brief presentation on the Clear Sky Clock, an Internet site that compiles weather and climate information for North America and uses it to predict sky transparency hour by hour. Ed says he has found the predictions on transparency to be accurate about 80% of the time. The site is experimenting with predicting seeing as well, but that data is not yet as reliable. When you look at the site, you will be able to click on a map to find nearby observing locations – Tamke Allen Observatory, Look Rock, Sassafras Ridge (this is our Unicoi Crest observing site) and Knoxville are all options. Clicking on a location will bring up a chart for the next 48 hours, with a little square representing each hour. The darker the little square, the better the viewing! You can find the site at [http:// www.cleardarksky.com](http://www.cleardarksky.com)

We ended the meeting with an open discussion of what activities members would like to see included in future meetings. Suggestions from the group were:

- A project time at the end of the meeting for hands-on learning – things like collimating a reflector, cleaning eyepieces, balancing a telescope on a mount, finding the apparent fields of view of eyepieces, etc.
- Telescope showcase – have one or two members bring their scope and demonstrate how it is set up and how it operates.
- Add a "what's up" presentation to each meeting, giving a quick snapshot of what to look for in the night sky at the current time of year. This presentation could rotate among club members. If we prepare an item list / sky map to go with the presentation, we could all look for the highlighted items at the next star party.
- Workshops (maybe not at meetings, unless we planned ahead of time to devote the entire meeting to a workshop) on topics like planning a star hop, modifying or improving a particular kind of telescope, etc.

## **LUNAR TERMINOLOGY BY Bob Bohm**

### **Lehigh Valley Amateur Astronomical Society, Inc.**

### **Used by Permission**

Novice moonwatchers find it reasonably easy to learn the Latin terms and plurals for lunar features: mare and maria, mons and montes, palus and paludes, vallis and valles. And titles like Serenitatis, Tranquilitatis, Nectaris and Foecunditatis are close enough to their English equivalents to be not too difficult to learn. But then comes learning the craters. In addition to encountering common and easily remembered names like Adams, Brown, Franklin, Miller, Scott, and Robinson, all of which identify lunar features, the novice bumps into monickers that are a real challenge to the memory: Anaxagoras, Anaximander, Anaximenes, Archytas, and Arzachel. Some names not in frequent use, like Faraday and Fahrenheit, are nonetheless likely to be familiar to everyone, but ones like Lamech and Lamont are likely to be unknown even to astronomers.

Astronomers do have a special advantage learning lunar names because they already know names the general population might not recognize. For example of two prominent, naked eye features on the moon, although Copernicus is a rather uncommon name it is nonetheless known to most folk, but the name Tycho is likely to be familiar only to astronomers. Similarly, crater names like Bailley, Bode, Cassini, Fraunhofer, Messier, Olbers, and Ramsden, although unfamiliar to the general public, probably strike responsive chords in the memories of amateur astronomers:

- Bailley's beads appear during a solar eclipse.
- Bode's law of planetary distances prompted the conjecture that a planet should be between Mars and Jupiter where the asteroid belt was later found.
- Cassini's divisions appear in the rings of Saturn.
- Fraunhofer lines are part of spectra that identify stellar elements or measure red shift.
- Messier's list is a basic starting point for many observers.
- Olbers proposed a paradox about the night sky's darkness.
- Ramsden's name distinguishes a type of eyepiece.

Has Einstein made it to the moon? Yes, but because of libration his namesake crater is well seen on only one or two nights of the year. Appropriate for one who explored new dimensions of the physical world. Einstein lies between Balboa, an explorer, and Bohr, a physicist, and next to Vasco DeGama, another explorer. Marco Polo is up there too, but in another quadrant. Fair enough. Balboa and deGama sailed west; Marco Polo traveled east.

Ancient astronomers are represented on the moon by Aristarchus, who in the third century BCE calculated the size and distance of the sun and moon, and by Hipparchus, who in the second century BCE was the first known to have used trigonometry and who discovered equinoctial precession. Since cosmology was a frequent theme of ancient philosophers, Plato and Aristotle are naturally mentioned, but their craters are on opposite sides of the Alpine Valley, a reminder of the division separating their schools of thought. Next to Aristotle lies Eudoxus, a mathematician who was first to construct a mathematical model of concentric spheres to explain stellar and planetary motion. Near to Plato are two disciples whose names are titles of two of his cosmological dialogues: Timaeus, probably a fictional character, and Theaetetus, a real mathematician quoted a century later by Euclid. Other ancient philosophers include Seneca and the neoplatonist Proclus, but not Plotinus or Porphyry. Among more recent philosophers Descartes and Kant have become selenographic eponyms.

Ancient poets often did more than simply make a passing reference to the moon or a star; they did whole

## Lunar Terminology (continued)

works on astronomy. Both a crater and a rima are named for Hesiod, with Homer the oldest Greek poet, whose *Theogony* has an account of the creation of the world and whose *Astronomia* is quoted by later writers but does not survive. With him on the moon are Aratus, who did a versification of an astronomical treatise by Eudoxus quoted by St. Paul in Acts 17:28, and Manilius, whose five book interweaving in dactylic hexameter of sound astronomy and fanciful astrology was edited by A. E. Housman, a professor of classics better known as the poet of *A Shropshire Lad* in which appears the anthology favorite, "To an Athlete Dying Young". Julius Caesar's appearance on the moon, that soldier and statesman, may at first seem strange until it's recalled that he introduced the Julian calendar. The other calendar reformer, Pope Gregory, didn't make the cut. Julius' successor, Caesar Augustus himself isn't named, but his right hand man, Agrippa, is as the author of a geographical commentary on a large map of the known world set up in Rome. Two other ancient writers on geography lending their names to craters are Strabo and Plutarch, better known for his entertaining though often inaccurate biographies.

Besides for philosophers and poets, lunar landmarks are named for the Greek historian Herodotus, both a mountain and a crater, and the Roman historian Tacitus, but the Greek historian Thucydides and the Roman historian Livy have not been similarly honored. Among all the moon's bewildering variety of names my own favorite is the one applied to a crater on the northeast limb: Endymion. He is one of only a few mythical figures named on the moon. Perhaps more about him, and them, at a later date.

## THE WIZ

Hey Wiz, am I goin' nuts er what? This jerk at the last star party said he didn't think it was worth getting to the site until midnight cause the sky didn't really get dark til then. I've been to star parties when it was inky black by 9--what's wrong with him? I. Relative

Dear Itzall,

C'mon, you know days are longer in the summer, so it gets dark later, right? That's the obvious part of the problem. The mysterious part of the problem is where the sun goes after it goes down, and you can't keep track of it.

In the winter, it goes 113° below Polaris in the middle of the night. Hey, that's way down in the southern hemisphere! But in the summer it only goes 67° below Polaris. Considering that Polaris is 36° above our horizon, that means the sun is only 31° below our horizon, and that's not very far! So around here, we actually get a little spillover light from the sun in our northern sky in the middle of the night in the middle of the summer. Not a whole lot, but enough to be noticeable.

Next Star Party at Unicoi Crest, see if the southern sky doesn't look darker than the northern sky. (That ain't the sky dome of Tellico Plains!) Dusk in the west gradually darkens and becomes a little light pollution in the north by midnight standard time (1 am daylight time). Then it very gradually shifts east, brightening slightly, and finally becoming dawn. Maybe midnight isn't such a bad idea...but you're right, he is a jerk.

## CONDUCT A THOUGHT EXPERIMENT!

Share your astronomical experience with the rest of SMAS and everyone on the Internet by writing an article for SCRAPS. Contact Mike Littleton at (865) 671-1022 or email [littlem@ix.netcom.com](mailto:littlem@ix.netcom.com).

## Recommended Nebular Filters by Dave Knisely

NGC 40 DEEP-SKY/UHC (near tie).  
 NGC 246 OIII. (H-Beta not recommended).  
 NGC 281 UHC/OIII.  
 NGC 604 OIII/UHC.  
 NGC 896/IC 1795 UHC/OIII (H-beta not recommended).  
 NGC 1360 OIII/UHC (H-beta not recommended).  
 NGC 1499 (CALIFORNIA NEBULA) H-BETA.  
 NGC 1999 DEEP-SKY  
 NGC 1514 OIII/UHC (H-Beta not recommended).  
 NGC 1999 DEEP-SKY  
 NGC 2022 OIII/UHC (H-Beta not recommended).  
 NGC 2024 DEEP-SKY/UHC (near tie).  
 NGC 2174 UHC/OIII (near tie) (H-Beta Not recommended).  
 NGC 2327 H-BETA/UHC  
 NGC 2237-9 (ROSETTE NEBULA) OIII/UHC (near tie).  
 NGC 2264 (CONE NEBULA) UHC.  
 NGC 2346 UHC/OIII (near tie) (H-beta not recommended).  
 NGC 2438 OIII (H-Beta not recommended).  
 NGC 2359 OIII/UHC (H-Beta not recommended).  
 NGC 2467 OIII/UHC (H-Beta not recommended).  
 NGC 2371-2 OIII/UHC (near tie) (H-Beta not recommended)  
 NGC 2392 OIII/UHC. (H-Beta not recommended).  
 NGC 3242 UHC/OIII (near tie) (H-Beta not recommended).  
 NGC 4361 UHC/OIII (near tie), (H-Beta not recommended).  
 NGC 6210 OIII/UHC (H-Beta not recommended).  
 NGC 6302 OIII/UHC (H-Beta not recommended).  
 NGC 6334 UHC (OIII and H-beta also useful).  
 NGC 6445 UHC/OIII (H-beta not recommended).  
 NGC 6537 OIII/UHC (H-Beta not recommended).  
 NGC 6543 OIII/UHC (H-Beta not recommended).  
 NGC 6559 UHC  
 NGC 6781 OIII/UHC (H-beta not recommended).  
 NGC 6804 OIII/UHC (H-beta not recommended).  
 NGC 6888 OIII/UHC (near tie). H-beta not recommended)  
 NGC 6960-95 (VEIL NEBULA) OIII (UHC is helpful, but not quite as much as the OIII. H-BETA is not recommended).  
 NGC 7000 UHC/OIII but both H-BETA/Deep-Sky are useful on the object (UHC was brighter, but OIII shows more contrast).  
 NGC 7009 Filters are not needed, but OIII/UHC will help bring out the fainter detail (H-BETA not recommended).  
 NGC 7023 DEEP-SKY.  
 NGC 7027 OIII/UHC near tie (H-BETA not recommended).  
 NGC 7129-33 UHC/OIII  
 NGC 7293 OIII/UHC (H-beta not recommended).  
 NGC 7538 UHC/OIII (H-beta not recommended).  
 NGC 7635 OIII/UHC.  
 NGC 7662 Filters are not really needed, but UHC/OIII may help with locating it at low power via "blinking" (H-BETA is not recommended).  
 NGC 7822 UHC (H-Beta and OIII also useful).

M1 UHC/DEEP-SKY (H-beta not recommended).  
 M8 UHC/OIII  
 M16 UHC/OIII, but H-BETA hurts the view.  
 M17 OIII/UHC (H-BETA not recommended).  
 M20 UHC/H-BETA.  
 M27 UHC (OIII also useful in showing some inner detail, but H-BETA is not recommended).  
 M42 UHC/OIII (near-tie)  
 M43 H-BETA (UHC and Deep-Sky also help).  
 M57 UHC/OIII. Nebula is bright and small enough not to really benefit enormously from filter use, but UHC does improve it to a degree (H-BETA is not recommended).  
 M76 OIII/UHC (H-BETA not recommended).  
 M97 OIII/UHC (H-beta not recommended).

IC 405 DEEP-SKY/UHC (no filter helps a lot, and may be mostly a reflection nebula).  
 IC 410 OIII/UHC. (H-beta not recommended).  
 IC 434 (HORSEHEAD) Lumicon H-BETA (UHC also helps, but OIII not recommended).  
 IC 1318 H-BETA/UHC (near tie) (OIII not recommended)  
 IC 1396 UHC/DEEP-SKY. (OIII not recommended).  
 IC 1848 UHC (H-beta not recommended)  
 IC 2177 H-BETA/UHC.  
 IC 4628 UHC.  
 IC 5067 UHC/OIII, Deep-sky also useful on the object (UHC was brighter, but OIII shows more detail).  
 IC 5146 H-BETA/UHC near tie (OIII not recom-

PK204+14.1 OIII/UHC near tie (H-beta not recommended).  
 PK164+31.1 UHC/OIII near tie (H-beta not recommended).  
 SH-2-13 UHC  
 Sh-2-54 UHC  
 Sh-2-85 UHC.  
 Sh-2-101 UHC/H-BETA.  
 Sh-2-112 OIII/UHC (H-beta not recommended).  
 Sh-2-132 OIII/UHC.  
 Sh-2-155 DEEP-SKY (probable reflection nebula).  
 Sh-2-157 UHC/OIII  
 Sh-2-170 UHC  
 Sh-2-171 UHC (Deep-Sky and OIII filters also useful).  
 Sh-2-261 UHC/OIII (near tie).  
 Sh-2-276 H-BETA/UHC. (OIII not recommended)  
 Sh-2-235 H-BETA/DEEP-SKY (UHC also helps.)  
 vdB93 H-BETA/UHC (OIII not recommended).



# July 2003

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SUN	MON	TUE	WED	THU	FRI	SAT
		1	2	3	4	5 Starparty TAO
6 1st Qt. Moon	7	8	9	10	11	12
13 Full Moon	14	15	16	17	18 UTK	19 SMAS Picnic
20	21 Last Qt. Moon	22	23	24	25	26 Starparty
27	28	29 New Moon	30	31		

### SCHEDULE OF EVENTS

**SMAS Website:**  
<http://www.smokymtnastro.org>

- **7/5/03** SMAS starparty off 5:14 AM; Uranus rises at 10:50 PM  
 Foothills Parkway at "Look Pebble"
- **7/18/03** Public observing from the roof of the Physics Building at UTK
- **7/15/03** Mercury setss at 9:40 PM; Venus rises at 5:45 AM; Mars rises at 11:27 PM Jupiter sets at 12:05 AM; Saturn rises at
- **7/19/03 5 PM** SMAS Picnic at Tamke-Allen Observatory
- **7/26/03** SMAS starparty at Unicoi Crest, NC