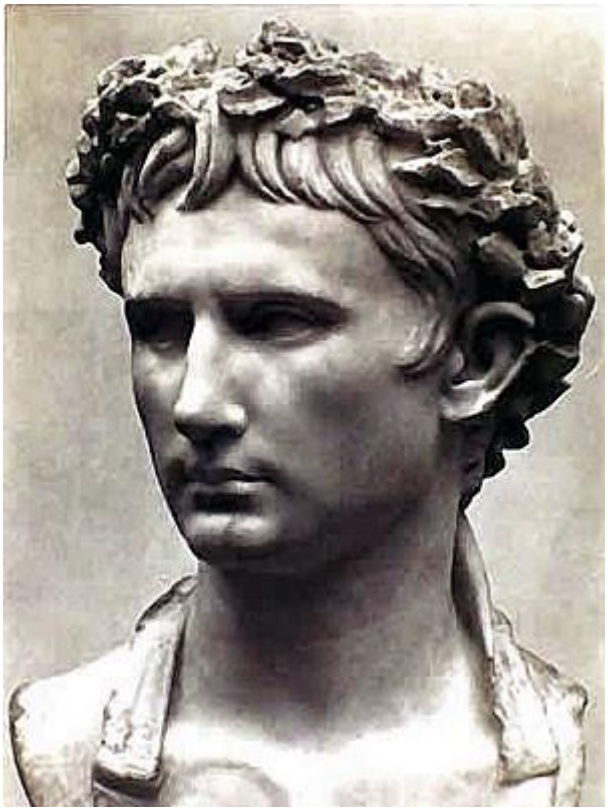
ASEM Newsletter

August 2013

Photo by Dan Crowson

Augustus



Month of Augustus Caesar

Second Emperor of Rome

August Notes

By Stacey Thater, Executive Director

With the unseasonably cooler temperatures, I hope it has been a pleasant summer for you all. The July meeting was a great success at the conference center at Klondike Park. The meeting for August is scheduled to be at the Interpretive Center. At the July meeting, I mentioned that we would be taking steps to alleviate the possibility of leaving the building unsecured. As of this time, the Interpretive Center has decided to provide a security person to ensure that the building is secure. This will require us to hold to our scheduled meeting times only, with no time overruns. While this is generally not an issue, it is something I wanted the membership to be aware of.

I have purchased a new accounting software package that will make it easier to have a floating invoice price. What this means is that you will be receiving an invoice for the traditional $50 membership cost. An enclosed letter will list the alternative prices available for membership. In order to select one of the other levels, simply enclose the appropriate payment. The levels vary from as little as $10 for a partial membership, to the $50 level for a family membership. Please see your upcoming invoice for complete details.

The September meeting will be at the Broemmelsiek Park pavilion like last year. The auction will be held at this meeting. If you have any items you would like to donate to the auction, please let me know so that I can have them added to the list. Enjoy the cooler temperatures, and I hope to see you soon!

Stacey Thater

AFA Executive Director

July Calendars

Social

August 1 - 7pm Beginner Meeting Broemmelsiek Park

August 10 - 6pm Pot luck dinner.

7pm General Meeting. Weldon Spring, 7295 Highway 94 South, St. Charles, MO 63304

August 20 – 7pm DigitalSIG. Astrophoto group meeting Weldon Spring, 7295 Highway 94 South, St. Charles, MO 63304

August 28 – 7PM DIY-ATMSIG For the telescope maker to display his wares or those who wish to see what folks have been doing in their workshops. Weldon Spring, 7295 Highway 94 South, St. Charles, MO 63304

August 2, 9, 16, 23, 30 - 9:000 pm start times Broemmelsiek Park Public Viewing, weather permitting.

Astronomical

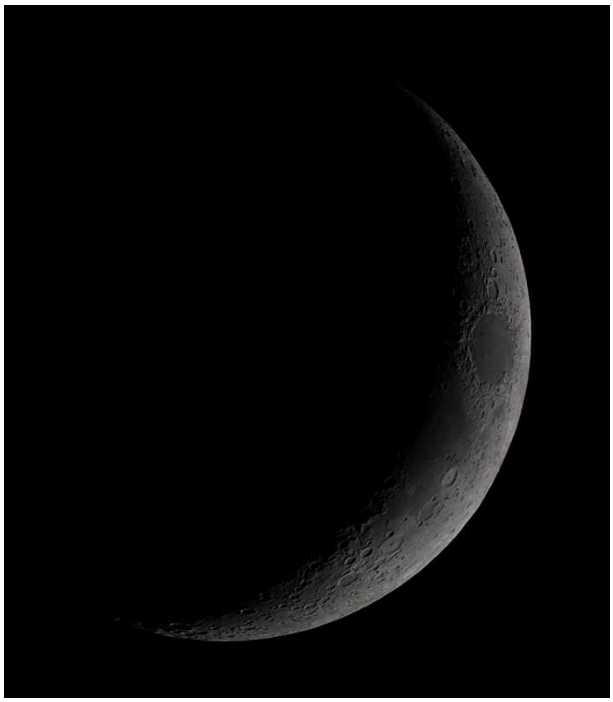
The premier meteor shower of the season, the Perseids, will be on peak display the night of August 12/13 with the best showing after midnight. The waxing moon will have set and a skyward glance may reveal 100 or more meteors per hour.

Viewing Highlight This Month—August 2013

By Jim Curry

Photos by Crowson & Curry

The Moon



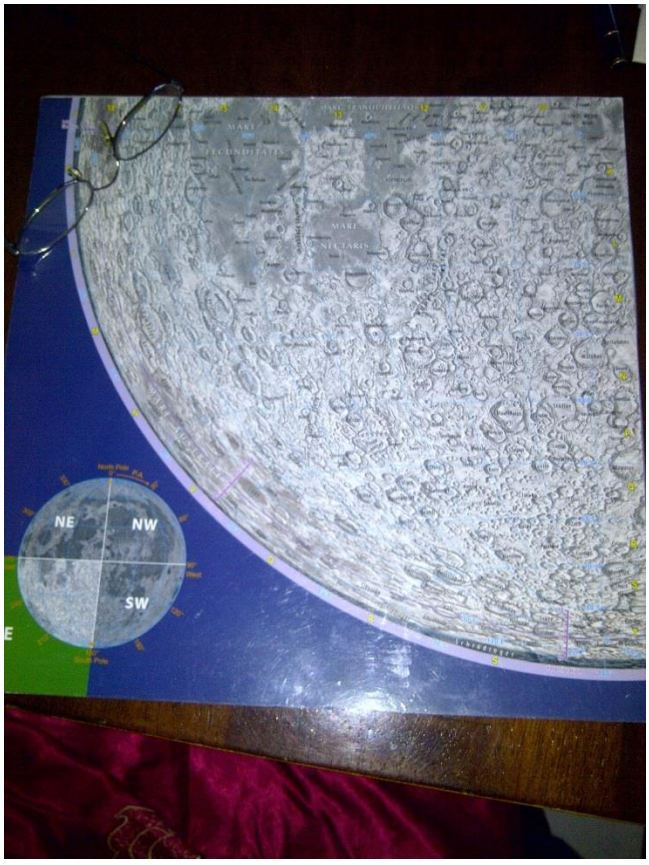
I know most of us are consumed with various deep sky observing programs ranging from star clusters to galaxy groups. I have pursued the Herschel 400 down to the last 10 or so from that list. City life brings light

polluted skies so what's an astronomer to do without packing up a car load of gear and traipsing out of town for 30-90 minutes in pursuit of dark skies? My backyard observing regimen is now taken up with double star and lunar observing. Lunar observing will be this month's topic.

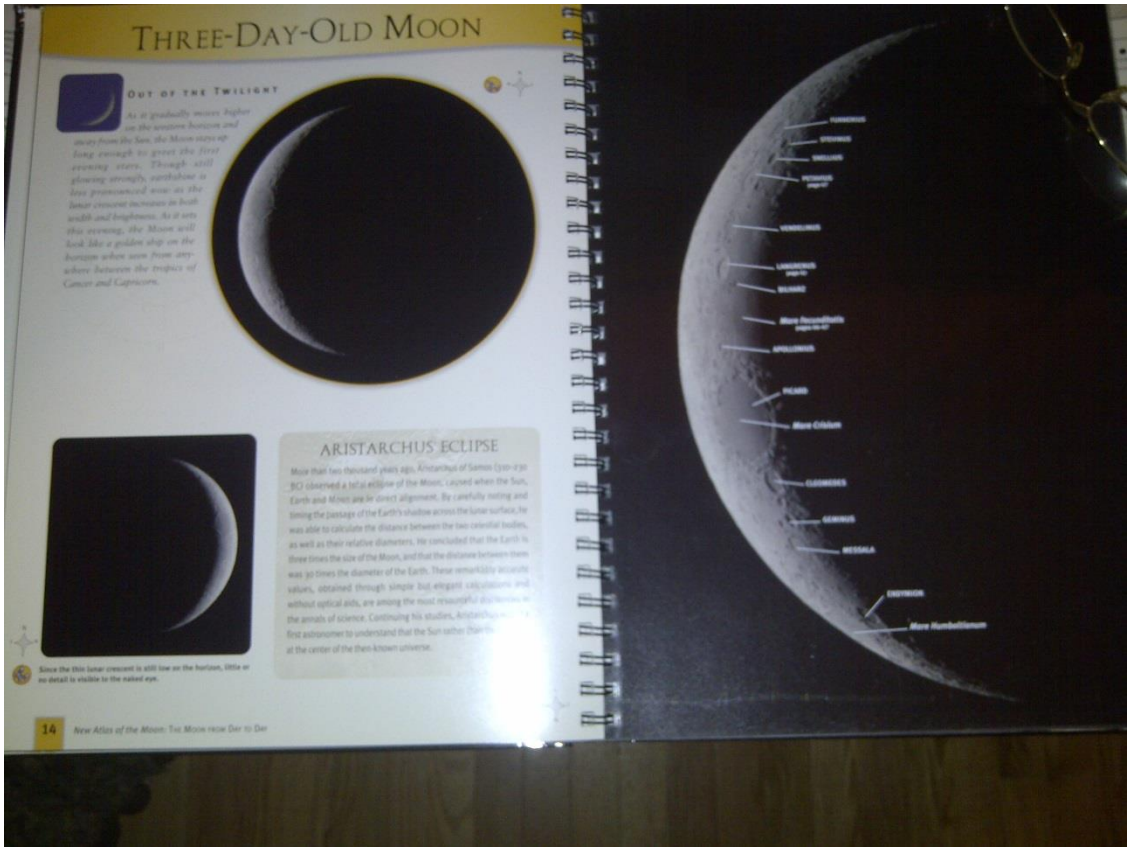
Like many astronomical sights there exist observing lists of must see features on the moon. Charles Wood, a noted writer on the subject (books and regular S&T column) has a Lunar 100 list. The Astronomical League has their Lunar 100 list as well, which include many of Woods'. Locating and noting these features provide a great introduction to lunar cartography. Sky & Telescope has an article almost every month of more obscure features or small details that can be seen in these listed items as well as many others.

I, like many astronomers, have regarded the moon as the ultimate light pollution for deep sky observing. From the darkest site the waxing moon can ruin a week to 10 days of early evening galaxy pursuits which is a substantial portion of a month especially when you factor in the demands or limitations of cloudy weather, weekends, family and everything else in life. Imprisoned under the STL light dome I have come to realize that I can make lemonade out of this celestial lemon. My library includes a dozen or more books about the moon including several noteworthy atlases. Most of these atlases are suitable for reference at your desk and are not suitable for dewy conditions scope-side without ruining the pages. Aside from spacecraft photography Antonin Rukl's lunar cartography is probably the most highly regarded in our age. His recent book, "Atlas of the Moon", of which there were two printings, are sold out and command a price on the used market. Any older publication, even 50-60 years old if available at a decent price, will provide a useable reference. For regular use under our sometimes humid skies I use what I consider the two premier scope-side references, the Sky & Telescope laminated "Field Map" (available in mirror image or inverted image printings) and the "New Atlas of the Moon" by Legault & Bromer.

The S&T Field Map is a 24" square map, heavily laminated and pre-folded so you have 4 quadrants to flip between, each a 12" square. This was prepared by Antonin Rukl as well. There is enough overlap between quadrants that it is confusing when you open it up to view the entire globe. You do get used to it. The obverse has several hundred craters and features listed with coordinates for easy location. See photo:



In my experience the "New Atlas of the Moon" is a perfect companion to the S&T map. I have a copy of the Firefly publication. It is out of print but if you peruse Astromart or used book sites these occasionally come up for sale. A want ad would probably stir something up. This is an 11" x 14" spiral bound, dew proof, heavy weight paper for use at the scope. The first 2/3rds of the book is printed with a full page (11" x 14") photograph of each day of the lunar cycle. On a left facing page is a narrative of that day, the right facing page is the photograph. Every other odd numbered day of the lunar month they include a heavy plastic overlay with prominent features along the terminator identified.



On any given night the terminator may not be in the exact location as photographed, but it is close enough on any respective night it is easy to pick out the prominent features and quickly navigate your eye to details you seek. The final third of the book has page after page of mare, crater and mountain details with additional photographs and narrative. I find the combination of these two resources to be the route to quick eyeball navigation and learning the intricate details of lunar features.

I know many of us, after a few glances at the moon, can get bored. You've seen one crater you've seen 'em all, right? I've found a way to rekindle my interest that will provide me with a lifetime of pursuits. Chatting on Cloudy Nights in the Lunar Forum there is a fellow, Mike Sarkikos, who has compiled a spreadsheet of 2,538 features including what we call "Lunarisms". The word is kind of a spin on "Asterisms" only lunar feature based of imagined shapes. With his permission, I've attached his latest copy of the spreadsheet to our August Newsletter. Because any given feature on the moon is discerned by the contrast between light and shadow they appear to change as the sun moves across the surface. Many casual observers have heard of the "Lunar X", a capital "X" type feature visible for a few hours on the terminator. It's such a "popular" feature to observe that folks on Cloudy Nights and other internet resources are out there with day/times for best observation in any given month. It's only visible for a few hours as the sun progresses across the terminator. I've seen it on the waxing quarter but never the waning.

When you get through Mike's list let us know :>).

Astronomical League Observing Program of the Month—August 2013

Submitted by Steve Boerner

Wikipedia defines **Outreach** as an activity of providing services to populations who might not otherwise have access to those services. A key component of outreach is that the groups providing it are not stationary, but mobile; in other words they are meeting those in need of outreach services at the locations where those in need are. In addition to delivering services, outreach has an educational role, raising the awareness of existing services.

Our web page says:

> The Astronomical Society of Eastern Missouri is the public outreach activity of the Alliance for Astronomy, Inc., a Missouri non-profit corporation. The mission of Alliance is to promote public awareness, appreciation and education in astronomy and related sciences.

That statement pretty much sums up why we sing and dance out at Broemmelsiek on Friday nights and haul our equipment for miles to let strangers look through our eyepieces. By now you've guessed the Astronomical League Program of the month is the **Outreach Program**.

The AL's web site lists the following four reasons for including an award for Outreach as part of their observing programs:

1. Outreach is simply **paramount** to the **survival of our hobby**! You know and have seen the Sky & Telescope statistics. And look around you: our meetings are "graying."
2. The highly-successful League Observing Programs are popular and inviting. By making Astronomy Outreach **on the same level** as other League Observing Programs, it promotes the importance of outreach among our many members. It would also encourage clubs/societies to become more involved.
3. The Astronomical League is the organization that has historically tied together amateur clubs and societies. The League is, therefore, the best vehicle by far to recognize and reward individual outreach efforts. The League already recognizes efforts by clubs/societies for Astronomy Day. Yet we need to practice outreach on more than one day per year - and many of us do just that. It is often the individual who makes this happen.
4. You cannot have too much outreach nor recognize outreach efforts often enough!

I'll add a fifth and say that virtually every ASEM member was first introduced to the organization as part of some outreach activity, whether FNOH, Beginner Meeting, or General Meeting. Outreach is how we attract new members and grow. ASEM needs your help doing outreach.

There are three levels of Outreach recognition based on contact events and hours:

Level	**Requirements**

Outreach Award	• A minimum of five-2 hour (minimum each outreach) outreach events
	• Document each event:
	  ○ Date, time (started and ended), location
	  ○ What you did for the outreach
	  ○ Estimate of the number of people attending

Stellar Outreach Award	• In addition to the (basic) Outreach Award, the Stellar Outreach recipients will need an additional fifty hours (minimum) in outreach events • Again, document each event: ○ Date, time (started and ended), location

	○ What you did for the outreach ○ Estimate of the number of people attending • The recipient will "report" on one of his/her outreach events; these reports can be used in *The Reflector* and elsewhere to overview what amateurs are doing in Outreach and share ideas.
Master Outreach Award	• In addition to the Outreach and Stellar Outreach Awards, the Master Outreach recipients will need an additional one hundred hours (minimum) in outreach events • As with the first two levels, document each event: ○ Date, time (started and ended), location ○ What you did for the outreach ○ Estimate of the number of people attending • The Master Outreach Award nominee will report on what seems to work best for their outreach efforts; this can be specific activities, locations, etc. Like with the Stellar Outreach Award, these reports can be used in *The Reflector*.

There is a spreadsheet log provided by the AL to track your outreach hours and it is available **here**. Consider using the spreadsheet even if you are not interested in the award. It is easy to fill out and understand, but if you have any problems drop Jim Twellman or me a note and we'll do our best to help. I've included a line from my log below. For the most part it is self explanatory. The #67 means that the event was my sixty seventy outreach activity logged. The two columns that may cause problems are the Start-End Times and Hour(s). Simple math says that it is 3 hours between 7:15 and 10:15 so why only 2.5 hours? The explanation is that only actual contact time with the public may be uses. Time spent on the drive, setup, teardown, standing around, breaks or socializing with the membership are not included in the numbers.

#	Level	Date	Location	Outreach Performed; activities	Start-End Times	Hours(s)	#Participants
67	M	4/5/2013	Broemmelsiek Park	Public viewing with C14: Located, described & explained various object to the public. Jupiter, M42, M41, M38, M37, M36. Half the audience was kids under 10.	7:15pm-10:15 p.m CDT	2.5	50

This is one of those sneaky programs…you do the work, but don't know about the program, so you don't count your hours, so you don't get credit, then you forget when you did it, you forget what you did, and you don't qualify. When I first joined ASEM I started going to every FNOH. I didn't know about the program and as a result I missed many sessions before I discovered the requirements on the AL web site. I was lucky in that Jim Roe did a pretty good job of recording participants in the Broemmelsiek Log book. Later Chuck Simms poured over the logs and shared the results with the Friday night regulars. We're not very good about entering things in the log now, so new people may be falling through the cracks. The reason I've moved this program to the top of the stack is to let everybody know to keep track of the hours they spend not only at FNOHs but any time they are front of the public advocating astronomy.

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     ASEM Members who've achieved various
levels

     of the Outreach Award include:

     #70     Jim Twellman    2013  Masters
#80      Marvin Stewart  2006
#132     John Furlong    2007
#422-S   Steve Boerner   2013  Stellar
#423-S   Chuck Simms     2013  Stellar
#424-O   Grant Martin    2011
#474-O   Eddie Agha      2012
#476-O   Amy White       2012
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If you are there, the hours will come. There is always room for more help at any of our Outreach sessions and they are all listed on ASEM's calendar on our web page. Even if you don't have a telescope you can be a greeter, photographer, help a visitor setting their scope up for the first time or crowd control. If you have a laser pointer or a long finger you can point out bright stars and constellations, explaining star lore as part of the process. Some in the organization will say that I don't know enough to stand in front of the public and expound…it's only for the people who really know things. I'll remind everyone that we were all beginners once, all of our "Star Lecturers" had to learn somehow, and that a FNOH is a good place for shy beginner to start making the transition to a knowledgeable expert. If you are afraid of standing in front of the public, then come out on a Friday night to learn what it takes to step up to the next level.

One of the Alliance for Astronomy's Visions is "Establishment of a corps of trained and qualified volunteers who will carry out the day-to-day activities in pursuit of our vision and accomplishment of this mission." Be there on a Friday night, because it is where it happens.

Beginners Group Notes
Submitted by Amy White

Beginners Meeting Thursday, August 1, 2013. It starts at 7:00pm and will be held at the Broemmelsiek Park Astronomy Site. Please visit the www.asemonline.org website for directions. Bring a chair, a cold beverage, and bug spray. We will focus on finding naked eye, binocular, and telescope objects in the Summer Triangle and Scorpius. No telescope is necessary. If you want help setting up and using your telescope, a Beginners Meeting is an excellent way to get started.

When will the stars pop out in the evening sky? When will the Moon be up? What phase is the Moon today? The US Naval Observatory website has all the data you need. Visit http://aa.usno.navy.mil/data/docs/RS_OneDay.php

There are several definitions of "twilight" used in astronomy. These definitions are found at the US Naval Observatory's website.

Civil twilight is defined to begin in the morning, and to end in the evening when the center of the Sun is geometrically 6 degrees below the horizon. This is the limit at which twilight illumination is sufficient, under good weather conditions, for terrestrial objects to be clearly distinguished; at the beginning of morning civil twilight, or end of evening civil twilight, the horizon is clearly defined and the brightest stars are visible under good atmospheric conditions in the absence of moonlight or other illumination. In the morning before the beginning of civil twilight and in the evening after the end of civil twilight, artificial illumination is normally required to carry on ordinary outdoor activities.

Nautical twilight is defined to begin in the morning, and to end in the evening, when the center of the sun is geometrically 12 degrees below the horizon. At the beginning or end of nautical twilight, under good atmospheric conditions and in the absence of other illumination, general outlines of ground objects may be distinguishable, but detailed outdoor operations are not possible. During nautical twilight the illumination level is such that the horizon is still visible even on a Moonless night allowing mariners to take reliable star sights for navigational purposes, hence the name.

Astronomical twilight is defined to begin in the morning, and to end in the evening when the center of the Sun is geometrically 18 degrees below the horizon. Before the beginning of astronomical twilight in the morning and after the end of astronomical twilight in the evening, scattered light from the Sun is less than that from starlight and other natural sources. For a considerable interval after the beginning of the morning twilight and before the end of evening twilight, sky illumination is so faint that it is practically imperceptible.

Respectfully submitted,

Amy White

DIY-ATM GROUP
SUBMITTED BY CARL TUREK

Meeting started with John Duchek showing the group his progress to date on a homemade clear sky meter utilizing an Arduino and a light sensor.

The Arduino outputs its data to a two line LCD display. The Arduino sketch (programming code) consisted of only 50 or so lines of code.

John Duchek also presented and discussed the uses of a Raspberry Pi. The Raspberry Pi is a credit card size computer that boots from an operating system installed on a SD card. The device connects to a keyboard/mouse/display using onboard USB (2), RJ45 network port, HDMI video, Composite video, 3.5mm stereo audio. The unit requires 5v input thru a mini usb port. John is experimenting with the Raspberry Pi to operate a wireless electric focuser.

Carl Turek displayed a vintage ammo box converted to a battery box. The box has an interior panel with multiple style 12v outlet sockets and charging port. The box featured a digital LCD display that shows the current battery voltage, current load in amps and watts and session ampere hours. The box is powered by two 5 amp hour gel cel batteries installed under the display panel.

Tom Richards brought for inspection his 80mm refractor that is used as an imaging guide scope. Tom described issues with the objective lens. It appears that chips are developing in the anti-reflective coatings. The group discussed possible repair/replacement options.

Finally, just a footnote here: we are meeting every 4th Wednesday of the Month now. So, for those creative home builders, keep those ideas and projects coming! Thanks to all that participate.

JULY DIGITAL SIG MEETING NOTES
SUBMITTED BY DAN CROWSON

The theme of July's Digital SIG meeting was "Image Processing". Several people braved the heat at the Weldon Spring's Interpretive Center to see how to process images. I worked through a stack of images taken with a digital camera from a previous meeting at Broemmelsiek Park.

The next Digital SIG meeting will be Tuesday, August 20th, 2013 at 7 PM at the Weldon Spring Interpretive Center. We hope that the air conditioning will be fixed by then but there are several battery-operated fans that work well if not. The topic for the night will be Solar Viewing and Imaging. Steve Sands will give a presentation on different equipment and ways to view the Sun. Steve has been doing solar outreach for years and is a fantastic presenter. The second part of the meeting will be a presentation on Solar Imaging by Brian Maynard. It seems like there are a lot more clear days than nights and a couple hours can give you enough data to last weeks.

Building on what we've learned over the last few months, August will give us another opportunity to put things into practice. The nights are getting longer. An imaging party will take place at the Danville Department of Conservation site on Friday, August 9th or Saturday, August 10th. I'll probably head up other days around the new moon if the skies are clear. This is a good time to see some dark skies, get help and spend time with others doing the same. We'd really like to see some new people come out. Visit the Yahoo Group for more up to date information including weather backup plans (link below).

The latest news can always be found in the **ASEM Digital SIG Yahoo Group**.

Late Breaking Astronomical News

Doctors and scientists are reporting that telescopes will soon be implanted into the human eye. No kidding, see this STL Today article: http://www.stltoday.com/lifestyles/health-med-fit/implantable-telescope-brings-new-sight-to-older-americans/article_3f2590a8-1335-5754-a478-dd053371687d.html

Club Contacts

Membership

Membership issues can be addressed through our executive director Stacey Thater (pronounced "totter") at these addresses:

Email: **sthater@stchas.edu**

Snail mail:

Alliance for Astronomy (ASEM)

PO Box 141

New Melle MO 63365

Committees

Comments, questions, suggestions and money (just kidding) may be sent to the following addresses:

program@asemonline.org

Use this address to communicate with the program committee. If you have something to present at a meeting or wish to contribute and let someone else perform, send it here. Questions and/or suggestions about programming etc. Remember, they are here to help you. This is a user friendly society and we like to see members get up and share.

equipment@asemonline.org

This address is used to find out about ASEM loaner equipment. If you find something amiss at BPark by all means report it here. If you are curious about borrowing an item, put in a request via this address.

hospitality@asemonline.org

Got a main dish you'd like to bring to the potluck? We sure could use it AND you will be reimbursed for your expenses.

newsletter@asemonline.org

Primary contact for the newsletter. Got an article or notice you'd like to see published? Send it here and be famous!

Outreach@asemonline.org

Special requests for groups at Broemmelsiek Park including:

- Notice of large party (more than groups of twenty)
- Request for specific requirements needed (school assignment, merit badge requirements, etc.)
- Requests for Star Party / Telescope event at another location

steve.boerner@asemonline.org

Web page and all other communications not covered above

Entertainment

Late breaking news and member adventures (or shenanigans as the case may be) can usually be found at STLAstronomy in yahoo groups. If you aren't a member, you should join. Go to

http://tech.groups.yahoo.com/group/STLAstronomy/

and click "Join"