

The SPECTROGRAM

Newsletter for the Society of Telescopy, Astronomy, and Radio

September, 2002

September's Meeting

The next meeting of S*T*A*R will be Thursday, September 5th. The meeting will begin promptly at 8:00 PM at the King of Kings Lutheran Church, 250 Harmony Street, Middletown.

Our featured speaker will be Ernie Rossi of S*T*A*R Astronomy, who will give us a presentation about his observing trip to New Mexico Skies Inn, near Cloudcroft, NM.

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From the Editor

Thank you to this month's contributors. The Spectrogram is your newsletter and appreciates your support. Articles may be submitted to Greg Cantrell at monthly meetings or electronically at cantrell@optonline.net.

DUES are DUE in September!

Membership dues of \$25 per individual or \$35 per family are due in September. You may pay dues directly to Paul Nadolny at the meeting, through the mail to:
STAR Astronomy Club
P.O. Box 863
Red Bank, NJ 07701

Calendar

September 5, 2002

Ernie Rossie
STAR Astronomy Club

October 3, 2002

David Segelstein & Gordon Waite
STAR Astronomy Club

November 7, 2002

Dr. Haimin Wang
NJIT

December 5, 2002

Dr. Jerry Sellwood
Rutgers University

January 2, 2003

Dr. Eddie Guerra
Rowan University

February 6, 2003

TBA

March 6, 2003

Dr. Dale Gary
NJIT

April 3, 2003

TBA

May 1, 2003

TBA

June 5, 2003

Annual Business Meeting

President's Corner

by Greg Cantrell

Welcome to another year of STAR Astronomy! For me, summer seems to have passed all too quickly again and I can hardly believe that September has arrived. Yet here we are, and I admit that I've been looking forward with excitement, and maybe a little trepidation, to the agenda the Board has planned for the coming year.

Let me begin this year by extending a well deserved "Thank You" and "Well Done" to Gordon Waite. Gordon stepped up to the plate and took on the role of President as the Club was emerging from an extremely difficult period. His calm mannerism and patient leadership style brought the Club, quite literally, back from the brink. Thank you, Gordon.

Now, as I look to the Club's future, I see many challenges before us. And I'm not just thinking about issues like reduced membership, flagging volunteerism, or the financial challenges routinely faced by any non-profit organization. No. For me, the greatest challenge facing STAR today is this...the Club is faced with a crisis of identity. Consider this...when describing STAR, our web page states, in part, the follow:

*"Today, S*T*A*R is the focal point for amateur astronomy in Monmouth County, NJ, attracting members of all ages, occupations and educational backgrounds. Its objectives are to promote the enjoyment of astronomy, and to increase the level of astronomical knowledge among its members and the public."*

This sounds like a great organization, one that many of us would enjoy being a part of. But does it accurately describe our Club as it exists today? If you were asked to describe STAR to a friend, what would your say?

Are we an organization devoted to the goals and standards set forth on our web site, or merely a collection of individuals that meet occasionally to exchange a few remarks or listen to a speaker or two? Or, perhaps, you consider that the Club is something altogether different.

For me, this is the greatest challenge faced by STAR during the coming months and years, one that I would ask each of you to reflect upon. Is STAR truly the *focal point* of amateur astronomy in Monmouth County, and organization devoted to *promoting* the *enjoyment* of astronomy, to *increasing* the level of *astronomical knowledge* not only among our *membership*, but also among the *public*? And if not, what would need to be done to become that organization? And, this is perhaps much more important, what are each of us willing to do on behalf of STAR to achieve these goals?

During the summer, the Board began developing plans that I believe will move the Club in a positive direction. However, there is much to be done and opportunities exist for everyone to participate.

Once again, welcome to a New Year of STAR Astronomy. I hope that this year will be a rewarding experience for each of you, as well as for your Club!

Board Meeting Minutes

As many of you know, the elections for officers were held at the June meeting. The 2002 – 2003 officers are Greg Cantrell, President; Andy Zangle, Vice President; Paul Nadolny, Treasurer; Chris Olszewski, Secretary; Michael Lindner, Member at Large. The first meeting of the new Board was held on July 8th and the following topics were discussed:

Meeting Location – the Board resolved to remain at the current meeting location, King

of Kings Lutheran Church in Middletown, for at least another year. While this location is not ideally located for some club members, it offers several advantages over other sites that have been previously considered. Also, remaining at the same location for longer than a few months at a time could help to increase membership.

Membership – There has been no sustained growth in membership for quite some time. Some of this may be due to the club’s ‘nomadic’ nature, created by moving between many meeting locations over the past few years. This issue will be resolved by remaining at the King of Kings church. The Board will also take steps to advertise monthly meetings in local media, such as local newspapers or other media outlets as opportunities are presented. The Board also resolved to begin an outreach effort to former Club members.

Meetings – The Board resolved to begin meetings promptly at 8PM, and to establish a format that allows time for Club announcements and business as well as a speaker or other presentation.

Special Interest Groups – During the last few years, these activities have been loosely organized by groups of interested individuals. However, the Board feels that these Special Interest Groups offer unique opportunities for Club members to explore other aspects of the hobby, beyond observing or “arm chair” astronomy. Therefore, the Board resolved to recognize the Special Interest Groups as an integral and important part of Club activities, and to actively seek ways to expand participation by Club members.

Committees – Some issues require the creation of committees to research options available to the Club. After discussion, the Board resolved to create a Committee to consider the establishment of a Club observatory.

This Committee will be chaired by Andy Zangle, and will also consider a proposal by Joe Cascella for STAR to obtain a portable planetarium.

A Committee, chaired by Greg Cantrell, will review and recommend changes to the Club Bylaws, where appropriate.

Other Committees may be necessary to consider issues such as development of a “new member” welcome packet, determining what, if any, fund raising activities the Club should undertake, and to propose and develop special club educational activities such as field trips or meetings that focus on a specific activity (such as “how to use a telescope” for new members).

What’s Mike Been Up To?

By Michael Lindner

As some of you may know, a group of S*T*A*R members decided to get together over the summer to grind mirrors. I thought I’d give a progress report, as well as invite anyone who didn’t “get in on the ground floor” to join us.

There were seven of us originally, planning to grind mirrors from 6 to 10 inches in diameter. That number’s still about right, although some people changed their minds, and others joined in.

Early in June, Gordon Waite and I began to build grinding stands from plans given me by Don Surlis of the Delmarva Stargazers. These stands are used by the Stargazers’ Mid-Atlantic Mirror Grinding Seminar, and could vouch for their sturdiness and usefulness. Although you can grind almost anywhere (and John Dobson recommends a picnic bench), having a stable platform the right height makes the job easier.



The grinding stands took quite a bit more effort to build than I imagined. I guess one factor was that we were building seven of them instead of just one. Here's a picture of a finished grinding stand. Anyway, the stands were built, and we began collecting other materials for the grinding.



The glass had been ordered from Dan Cassaro, an ATM who provides inexpensive plate glass mirror blanks, in mid-May. However, although we were initially quoted two to three weeks, Dan had a large backlog of orders, and we are still, at the time of this writing, waiting for some materials from Dan.

The first session was held June 24th at Gordon's house (his driveway, to be exact).

Gordon was kind enough to provide food and a wide selection of beers to keep us going.



Several people came just to watch, and several grinders had not yet received glass to grind, but we made do, with some people taking turns. Dave Nelson of NJAA was able to provide us with several large drums of grinding grit, courtesy of NJAA (thanks!).

The first step in grinding a mirror is beveling the glass. Some of the blanks we had were already beveled; others had to be beveled before they could be ground. The "traditional" way is to use water and a grinding stone, but I discovered that diamond honing blocks work much faster (of course, I discovered this *after* we had beveled most of the blanks).



The next step in grinding a mirror is "hogging out", or rough grinding. In this stage, the object is to remove as much glass as you can, as quickly as you can, to get the glass close to the desired curve. Some of the mirror blanks came pre-generated (a diamond wheel had been used to cut away some of the glass to save time rough grinding).

Other blanks were flat, and required rough grinding. My preferred method is to use a cast-iron "ring" tool, since that removes glass quite quickly by hand. Gordon and I made several tools out of pipe flanges, and the grinders went to work, rubbing the surface of the glass with the tool, using 80 grit silicon carbide as a grinding agent.



The curves were measured with feeler gauges. A metal straight edge is placed across the center of the glass, and feelers are slipped between the straight edge and glass to measure the depth, or sagitta, of the curve. An alternate method, reflecting a flashlight or the sun off of the mirror to form an image, works better when the glass is more finely ground, but can be difficult at this stage, as the mirror is not very reflective, even when wet, and the shape is often non-spherical and doesn't form a very good image, making it difficult to find the point of best focus.



After the curve is rough ground, a tile tool is poured. The mirror is placed, face-up, on a level surface, and covered with plastic wrap. A piece of vertical blind is wrapped around the edge and duct-taped to form a dam.



Hard porcelain floor tiles are arranged on the mirror's face, and dental plaster is poured over them. The mold is tapped to let air bubbles rise and escape, and when the plaster is set enough, it is removed from the mirror.



Then comes the fun part. The spaces between the tiles have to be dug out slightly, to form channels. A screwdriver is handy for this, until the plaster gets too hard. Then it's time for a Dremel®.

Steve Fedor's was the first tool we made, and unfortunately, I used some tiles that had been donated to the club, which were not actually as hard as they should have been. Poor Steve has to keep re-channelling his tool, because the tiles are wearing away so fast.

A late comer to the process was Don Odegard. Don was initially skeptical of wanting to grind, but seeing our enthusiasm got him interested (or maybe it was the free beer?). Don decided to grind a 4.25" f/8 scope just for fun and to play around with different designs. Since Don's mirror is the smallest, and since Don has been doing "homework", he's close to being finished already.

The newly retired Steve Walters is another recent convert, grinding an old blank he has had for several years. Even Dan Pontone "walked 'round the barrel'" once. Once.

The rest of us are in various stages of grinding at this point. For my part, I am making my first lens, and finding some difficulties, even in rough grinding. If the center of the curve doesn't match the center of the blank, one edge of the glass will be thicker than the other.

For a normal mirror, the curve on the surface is the only important thing, but for a "flex" mirror (like Dave Nelson is making) or a lens (like I am making), the thickness of the glass matters as well. I have constructed a "wedge" tester to measure this unevenness, but it takes quite a bit of extra work to recenter the curve once it is off (which is almost always is, slightly – in my case about 1/8").

Gordon is also involved in a special project. He has constructed a grinding machine, but that's another article (hint hint, Gordon). Well, I'll be reporting on our progress from time to time. If you're interested, stop by one of our sessions (which are announced on our discussion board). You're welcome to watch, but beware; you might just end up making your own optics!

Star Party In The Catskills

by Ernie Rossi

Today you hear about clubs and star party events that are held usually once a year. Some star party events are free, and some charge a fee for you to set up your tent, RV, and equipment. I have had personal star parties with friends long before I purchased my dark sky home in the catskills. I would have many of my friends over and we would set up many telescopes on my lawn in light polluted Sayreville. It was a time of observing, a time of enjoying our friendship, sharing our knowledge of the sky and equipment

and having something to drink and eat during break time. Well, I have continued to do this now for many years, and over the 3 years I have had my home in the catskills. I have received so much fun and enjoyment out of these star parties it was so worth the cost many times over. Usually every month I have a star party except during the winter, and have at least 6 or more guests stay over and observe. So it probably safe to say I have more star parties then most clubs.

Over the last few months I have had some wonderful star parties and such great fun and pleasure. I am basically going to talk about my last star party since it's still very vivid in my mind. August 9 & 10 was scheduled for the star party, however, some of my friends and Star club members, Dan Pontone, Don O. and Tony Rousos went up on Thursday, August 8. The next day when I arrived I was told I had missed one amazing night, at least a 9 out of a 10 was the seeing conditions. Friday night was partially cloudy and I could only rate this night as slightly below average, however Saturday night was not a cloud in the sky, and very little dew. I am going to use Tony Rousos report as well as my own in describing the three great days and nights of the star party.

As the sky got darker and darker and the night set in, we were amazed by one of the best skies that I have ever seen in my life! It was probably a 9 out of 10. One of the things I want to mention is that you can see the Milky Way from horizon to horizon long before it gets completely dark. The Milky way is very bright and you can see every rift, and patches of clusters along it's entire length naked eye. The seeing was so incredibly good that we were wishing that it was later in the year so we could do some planet observing. Every star in the FOV (field of view) of our eyepieces was perfectly steady and looked like perfect pin-points! WOW! Surprising enough, galaxies didn't look that great this evening...but

planetary nebulas and globular clusters were the objects of the night. To give you an idea of how amazing the sky was, I put my 2" 30 mm widescan II eyepiece with its 84 degree field of view and checked out the Veil Nebula without a filter, and was clearly able to make out most of the wispy detail of the nebula!!! Once I added the 0-III filter...POW! It was jumping out of the eyepiece! Just amazing! Another highlight was the ring nebula in Lyra...a lot of structure and detail was visible and the central star could be seen in my 16", Awesome! Later on in the evening while hunting down more elusive prey, I found the Cheeseburger Nebula. This was a really cool find as it was VERY faint, and I had Dan verify it for me. The rest of the night was spent on Planetaryies and Globular Clusters, excellent night.

Friday I arrived around 2 PM and found Dan, Don, and Tony waiting to tell me how great the observing was Thursday night. We set up my scope and I decided to barbecue since everyone seemed hungry. Steve Fedor finally showed up around 5 PM, followed by Jeremy Carlo around 7 PM. The beginning of the night was mostly cloudy, but around 10 PM it started to clear but lingering clouds and haze persisted most of the night, not getting up to its pristine sky conditions. The Milky way could be seen brightly from horizon to horizon but lacked its normal sharpness, probably lots of moisture in the upper atmosphere. I first turned the 25" scope to Scorpius before it got to low in the sky to catch some of my favorite objects like M4, and M80. Next onto Sagittarius, Ophuchus, Scutum, trying to get a quick peak at all the fine clusters, and wonderful nebulas in this part of the sky. With this telescope in this sky some of these objects like M17, M8, M20, M13, M5 the Veil, look better than in most photographs. Many of these objects can be seen naked eye. The M27, the Dumbbell nebula without a filter looks so dense, yet many stars pear through its shell. Checking out Uranus and Neptune which are

low in the Southern sky in the early morning hours Uranus displayed 3 or its moons, probably Titania, Oberon, and Ariel, and Neptune moon Triton could easily be seen. After looking at probably more than 50-70 objects, at around 3 AM I called it a night, I was just to tired after being up early that day. During the night when we had some passing clouds we would tell jokes, stop for a coffee break, get something to eat and had a great time of just looking up at the sky.

Saturday was clear, not a cloud in the sky. We went out to a new diner for breakfast which is about 8 miles away. This is the closest place to my house except for farms, and some vacation homes. Prices out in the suburbs in upstate NY are more reasonable than NJ. After breakfast we did some target shooting with 22 and 30-06 for about 1 hour. Some of the guys like Dan, Tony, and Jeremy went down to the state park behind me for a quick swim. The evening looked like it might be even better than Thursday night, not one cloud in the sky, and all the guys couldn't wait until it got dark. Unfortunately, the transparency and seeing was not that good. You seemed to get spoiled and even a poor sky is better than any spot in NJ. After observing over the last 3 years you are able to tell so much about the observing conditions of the sky and can't wait to return each month. It also spoils you from wanting to observe in NJ and many other places around the area. If any of the readers have been to Cherry Springs they understand what I am talking about. Everyone had their own highlights of the evening. Dan tells me he has never been able to see some of these obscure dim objects from any other place. And all of you who know Dan, understands that he loves to find obscure difficult objects. I had no problem in seeing all the galaxies in Stephan Quintet. Some of the highlights for Tony were the Veil nebula, Bernard's galaxy, The Catseye, North American nebula, tons of planetarie's etc. Instead of going on, all of us had one incredible time observing

and the friendship, astronomy talk, food, jokes, made for such a wonderful time. I want to thank all my guests who came, Dan, Don, Jeremy, Tony, Steve Fedor for such an enjoyable weekend.

Observing the Messier Objects - September

by Greg Cantrell

During the years from 1758 to 1782, French astronomer and comet hunter Charles Messier compiled a list of objects that were difficult to distinguish from comets when observed in the telescopes of the day. Messier was an avid comet hunter (a great profession for astronomers of the 18th century), and his catalog was intended only to identify objects that were often mistaken as comets. Messier's catalog has, in modern times, become known as collection of the most beautiful objects of the night sky. Many amateur astronomers cut their observing teeth on this list, spending excited hours locating and cataloging these wonderful objects.

In this article, I'll describe a handful of the Messier Objects easily observed during September. My goal is to offer similar articles each month, covering the complete list of 110 objects by June, 2003. While the number of objects will vary month to month, successful completion of each monthly list will allow you to observe the entire Messier Catalog during the next 10 months.

This month will focus on a few of the constellations of summer, a season replete with views of the globular clusters that populate the bulge of our Milky Way. Globular clusters consist of tens of thousands to millions of gravitationally bound stars and are among the oldest objects in the night sky. This month's selection also includes two open clusters, groupings of gravitationally bound stars that are believed to have origi-

nated from large gas/dust clouds within the Milky Way.

M 13 (NGC 6205) – At magnitude 5.9, this magnificent globular cluster in Hercules is observable with the naked eye from very dark locations. Scopes with apertures of 8-10 inches will begin to resolve a few stars in this bright cluster, while in large aperture scopes it becomes an amazing blaze of tightly pack stars. Right Ascension (RA) 16:41.7, Declination (Dec) +36 28

M 92 (NGC 6341) – Another splendid globular cluster in Hercules, at magnitude 6.5 only slightly less bright than its neighbor, M 13. Easily observed with binoculars, this cluster is a magnificent sight in scopes of 8 inches aperture or larger. RA 17 17.1, Dec +43 08

M 10 (NGC 6254) – Found in Ophiuchus, this magnitude 6.6 globular cluster occupies an area about half the diameter of the full moon, and grow brighter and more concentrated toward its center or core. An easy object with binoculars, a scope larger than 8 inches in aperture is necessary to begin resolving this cluster into individual stars. RA 16 57.1, Dec –04 06

M 12 (NGC 6218) – Nearly the twin of M 10, this magnitude 6.6 globular cluster in Ophiuchus is slightly less concentrated toward its core. An easy binocular object, the cluster begins resolving into individual stars when viewed through scopes 8 inches or larger in aperture. RA 16 47.2, Dec –01 57

M 62 (NGC 6266) – This irregularly shaped 6.6 magnitude globular cluster in Ophiuchus may be deformed by the tidal forces it is experiencing, as M 62 resides very near the Galactic center. Not as large or obvious as M 10 in binoculars, M 62 cannot be resolved into individual stars by smaller scopes. RA 17 01.2, Dec –30 07

M 19 (NGC 6273) – The most oblate of the known globular clusters, this 7.2 magnitude object in Ophiuchus is deformed by the incredible forces found near the Galactic center. And like M 62, M 19 is less obvious in binoculars than M 10 and cannot be resolved into individual stars by smaller scopes. RA 17 02.6, Dec –26 16

M 9 (NGC 6333) – Found in Ophiuchus, this small magnitude 7.9 globular cluster lies near the edge of dark nebula B64, and is a difficult binocular object. RA 17 19.2, Dec –18 31

M 107 (NGC 6171) – This magnitude 8.1 globular cluster in Ophiuchus is visually quite small, and may require averted vision to be glimpsed in binoculars. When view telescopically, this cluster appears as a small, fuzzy patch of light. RA 16 32.5, Dec –13 03

M 14 (NGC 6402) – This slightly elliptical magnitude 7.6 globular cluster in Ophiuchus lacks a dense central concentration, appearing as smooth patch of light lacking detail in all but the largest scopes. M 14 is a difficult binocular object. RA 17 37.6, Dec –03 15

M 26 (NGC 6694) – A magnitude 8.0 open cluster in the constellation Scutum, this object is very difficult to find in binoculars, appearing as small hazy patch of light. This cluster of about 70 stars can be only partially resolved in smaller scopes. RA 18 45.2, Dec –09 24

M 11 (NGC 6705) – Also known as the Wild Duck Cluster, this rich and concentrated magnitude 5.8 open cluster can be glimpsed with the naked eye in dark locations. Consisting of nearly 2900 stars, this wonderful object in Scutum is easily resolved in scopes larger than 8 inches of aperture. RA 18 51.1, Dec –06 16

Upcoming Events

Star parties are an important part of the amateur astronomy experience. Listed below are several events offering dark skies and astronomical fellowship.

September 6 – 7, The Blackwater Falls Astronomy Weekend will be held at Blackwater Falls State Park, WV. For information, visit <http://www.kvas.org/AstronomyWeekend%202002.htm>

September 6 – 8, The 2002 Black Forest Star Party will be held at Cherry Springs State Park in Potter County, PA. For more information visit <http://www.bfsp.org/starparty/>

September 6 – 8, The Connecticut Star Party will be held by the Astronomical Society of New Haven. For more information visit http://www.asnh.org/spec_events/CSPindex.html

September 6 – 8, The 20th Annual Astronomers Conjunction, held in Northfield, MA. Visit <http://astroconjunction.tripod.com/> for more information.

October 2 – 6, No Frills VII Star Party will be hosted by the Delmarva Stargazers. Visit <http://www.delmarvastargazers.org/archive/nofrills2002/index.html> for more information.

October 4 – 6, South Jersey Star Party will be held by the South Jersey Astronomy Club at Belleplain State Forest in Cape May County, New Jersey. For more information, visit <http://hometown.aol.com/sjastroc/sjacsplb.html>

October 4 – 6, Stella Della Valley XVI will be held by Bucks-Mont Astronomical Society. Visit <http://bmaa.freeyellow.com/Sdv.html> for more information.

October 12, The 12th annual NOVAC Star Gaze will be held at Franklin Park, 45 miles west of Washington, DC. Information at <http://novac.com/gaze>.

October 28 – November 4, The 8th annual Mid-Atlantic Star Party will be held at a central North Carolina site that boasts mag 6.5 skies

and southern sky objects that cannot be viewed from New Jersey. For more information, visit <http://www.masp.org/maspindex.htm>.

November 3 – 10, The Chiefland Star Party 2002 will be hosted by the Chiefland Astronomy Village, Florida. For more information, visit <http://www.c-av.com/>.



Are You a S*T*A*R Member?

Memberships: () Individual...\$25
() Family.....\$35 () Institutional \$25

Name _____
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City _____ State ____
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Phone _____
E-mail _____

Make checks payable to: STAR Astronomy Society, Inc and send to P.O. Box 863, Red Bank, NJ 07701

Though you may join at any time, the membership year starts with the first meeting in September and runs for one year. Publications such as Sky and Telescope and Astronomy magazine are also available to S*T*A*R members available club discount rates. Subscriptions amounts must be paid in full before S*T*A*R will enter them. See Club Treasurer, Paul Nadolny, for details.

S*T*A*R is a non-profit organization. Your donations are appreciated and are tax exempt. (The IRS does not recognize dues as a donation).