

The Focal Point

The Atlanta Astronomy Club
Established 1947

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August 1998

Editor: Peter Macumber

General Meeting July 17th, 1998

- 1 The night's featured speaker was the club's Lennie Abbey and he presented his talk "Two Telescopes I Wish I had Known."
- 2 The observing chair announced an observing date at Rockmart on July 25th.
- 3 Awards were given to Sharon Macumber for binocular messier, and David Essen for honorary messier..
- 4 Maria Zorka gave word that they will be renting a house on St. George island to watch the November meteor "storm."
- 5 A reminder was issued to send in the questionnaires promptly.
- 6 Philip Sacco is donating \$100 to have convertible benches built for the club courtesy of Peter Macumber. Phil challenged all members to match his donation so that a total of four benches can be completed. The benches will have a plaque giving recognition to the donors.
- 7 This month's winners of the door prizes were: Peter Macumber, and Eric Shelton.
- 8 The "Big Scope Project" will be discussed at following meetings.
- 9 There are two good prospects for new dark sky sites: North Georgia Collage, and Jim Wyrosdick.
- 10 Any announcements that need to be made at the general meeting will have to be given to the President 3 days beforehand.
- 11 Phil Bracken, head of the dark site committee, got volunteers to search for new prospects.
- 12 The listserv was again introduced, to subscribe send message to atlastro@atlastro.ml.org saying "Subscribe "your name."

LADIES OF THE NIGHT...SKY MEETING

by Chrissy Mondell

Hi Gals,

I would like to Thank all the ladies that attended our first meeting. It was a lot of fun. I would like to have another meeting tentatively scheduled for August 17, (another Monday night) starting at around 7:00 or so.. This meeting will be more of a get together for an actual meeting to discuss issues that we may want to explore within the club.. I will serve some snacks and drinks. for this one... Please come if you can as I think it will turn out to be quite a fun aspect of the club.. Thanks again and I hope to see all the ladies that can attend. We did have a good time... (But I guess Ladies of the Night...Sky do!!!)hee hee!!! Confirmation on the date will be announced at the next meeting very briefly!!! Till then see ya!!

Many hands make light work. Chrissy :o)

Milky Way Nights

These mild summer nights are a perfect time to get out into the dark countryside and admire one of the night sky 's great wonders - the Milky Way.

It is, after all, our home in the universe.

If you take a star chart and a pair of binoculars along, there are a couple of interesting and little-known features you might look for in the dusty ribbon of stars. Find Cygnus the Swan; near the head of the swan and stretching all the way down to the horizon is a dark patch that splits the Milky Way down to the horizon. It's known as the Great Rift.

Many cultures regarded the Milky Way as the river of heaven. It wasn't until the late 18th century that studies by an astronomer named William Herschel led to the understanding that this great field of stars was actually our own galaxy.

If you're big on knowing exactly where you are, at any given moment, you should know that the main disk of our galaxy is about a hundred thousand light years across and our solar system lies about thirty thousand light years from the center - out in the stellar suburbs, so to speak.

Upcoming Speakers

by Rich Jakiel

Here's the upcoming speaker schedule as tentatively mapped out. As you can see, it covers the usual wide variety of topics:

Sept '98 - Phil Harrington (columnist of Astronomy, Sky n' Tel; author of several well known books) - Solar Eclipses (with special attention to the one in August '99)

October '98 - Ed Albin of Fernbank - Latest observational data on Mars (for a certain crotchety AAC member - I had considered this 6 months ago)

November '98 - Tom Polakis (Astronomy n' Sky n' Tel deepsky writer)- all sky photography; Arizona Observing

December '98 xmass program at Fernbank? (very much in the air..)

Tentative for early '99:

Jeffery Sandel (ALPO) - Solar Astronomy

Ron Buta (Univ. of Ala) - Ring Galaxies

From the Oval Office

by Philip Sacco

Welcome to the Atlanta Astronomy Club the following new members: Charlie Brown, Stewart Coley, Sara (Stuart & Sharon) Cott, Hal Crawford, Ethan Curbow, Jeffrey Graebner, Larry Hample, Jimmy & Dawn Hardwick, Bob McLeroy, Carey & Sabrina Morgan, Mark, Ken & Joyce Warren, Michael Elvis Hutto, Clint Rice, Sequoya, Dale R. Smith, Kris Wright. (Members joined in July and August.)

We had a Tremendous turn out for the July Orientation. With over 100+ guests and new members present it was quite the carnival atmosphere! We even had GREAT SKIES for a change! Imagine that!!

With turnouts like this for the club Orientations, it is imperative that our membership shows up in numbers to help out (and wear your nametags as I heard a number of people wondering whom to ask questions of. If you have another idea that would help identify our members in the dark, please speak up.) Please see Art Zorka, or your Observing VP Keith Burns, to get on the list of volunteers for the Orientations.

As announced at the July meeting, our **August 21st** meeting will be a business meeting at which we will open the discussion of the mobile telescope among other important issues. Everyone is invited to come and add your input for the decision making. If you don't come to offer your opinion, you will not have the privilege to complain later!

I hope everyone enjoyed the special talk on the **6th of August** by Dr. David Malin at Fernbank Science Center, cosponsored by the Atlanta Astronomy Club. Thank you Eugenia Abbey for being instrumental in helping to make this event possible!

I announced a \$100 Challenge to the club at the July meeting to sponsor the needed convertible Bench/Tables we need at the observatory. Any number of people may contribute to any one \$100 sponsorship. All who join in on the challenge will have a nameplate listing them as contributors placed on one of the Benches/Tables. As of yet, I stand alone in the challenge, and hope to see some of you join in on the fun. I will make the verbal challenge again at the next meeting for those who missed out. This is an opportunity for you to make a direct contribution to the club for a very worthy and needed cause, and 'Make a name for yourself' as well.....

I am pleased to announce the "Ladies of the Night.....Sky" had their first meeting, and I encourage all women of the club to join in. They apparently had a GREAT time socializing and sharing ideas! Remember, it is functions such as this which help make the AAC the family oriented club it is.

The center of last month's Focal Point had a short Member Survey printed on blue paper. For those of you who still haven't sent in your questionnaires, please take 5 minutes, complete, fold, and mail. It is already pre-addressed and stamped! Please do so as the deadline is fast approaching.

I hope you all have a happy and safe summer!

NO NEW TAXES!

Bradley Notes August 1998

By Chris De Pree

As summer draws to a close, we all hope for an end to the long, hot days. It has been a busy summer at the Observatory, and I wanted to let you all know of a few recent developments.

First, Peter Mack of Astronomical Consultants & Equipment (ACE; <http://www.astronomical.com/>), Inc. has nearly completed the upgrade of the control electronics for the 30" Beck Telescope. He spent a week installing encoders and motors on the two axes of the equatorial mount, customizing control software, and stripping off a lot of old, non-functioning equipment. The software that runs the system is installed on a Windows NT workstation that is permanently located in the dome, and I will be testing the system this week (as weather permits). Peter has one more component to ship to us to complete the system. One very nice aspect of the system is that we can now guide and set the Beck using a hand paddle, and also display its coordinates on a large screen that can be seen across the room.

Dr. Ed Albin of the Fernbank Science Center delivered a thrilling talk about the recent exploration of Mars on the night of July 24 (just as Peter Mack was running out the door to catch his plane back to Tucson!). Despite the gloomy weather, and multiple bulb failures on the projector, we had a great turnout and a very enlightening talk. I hope that Ed will return for future updates as more information flows in from the Mars missions now in orbit around the red planet.

Another person I want to mention (and thank) is George Birnbaum. George is a graduate of FIT in Space Science who is now in the Atlanta area. He has been volunteering at the Observatory this summer, helping us to clean out the dark room and other areas of the Observatory. He was also very helpful during the week that Peter Mack was here. I hope that he will continue to be helping out at the Observatory this fall.

I wanted to let you all know that my co-author and I recently completed the Complete Idiot's Guide to Astronomy. We should see the proofs any day now, and the book will be out early fall. I encourage readers to contact their local amateur astronomy club at several points in the text!

At the end of this month, classes resume at Agnes Scott College. The first day of classes will be August 27th, and this fall I will be teaching introductory astronomy and also the sophomore level, calculus-based class for majors. We have an exciting lecture schedule this year (see last month's column), and will also inaugurate the Equinox Concert Series, starting with a musical concert to celebrate the autumnal equinox in September. The first Open House of the 1998-1999 year will be **Friday, September 11 at 8 PM**.

I hope to see you all there.

Chris

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Observing Chairman

- EXCELLENT OBSERVER REMARKS

Keith Burns, Lunatic #100

We are approaching the last days of summer now as August arrives. August is a very active month for meteor showers. The Perseids meteor shower is the biggest. The peak of the Perseid shower occurs on the evening of the 12th and the morning of the 13th. Perseids the constellation clears the horizon around 11 p.m. on the 12th. Look for it in the northeast part of the sky. Moon rise takes place at 12:27 a.m. on the morning of the 13th. The moon will be at 68%. This will make meteor observing hard but you can still see the brighter ones. Besides the Perseids shower, there are several minor meteor showers. The constellation of Aquarius is where three minor meteor showers occur. Look for Aquarius in the southeastern part of the sky after darkness. Another interesting minor shower occurs in Capricornus. Although the number of meteors is few, the meteors are big and bright. Look for Capricornus in the southeast part of the sky. Capricornus is east of the constellation of Sagittarius and west of Aquarius. Sagittarius is the constellation that looks like a teapot. The constellation of Capricornus has the appearance of a smile in the sky although it named for the sea goat. Do you see a goat? Note that most of these showers will be active throughout the month of August. You don't need any fancy equipment to participate in this activity. I suggest a blanket or comfortable lawn chair. Lay back and enjoy the night time fireworks.

This is the first of a series of features that introduces you to the various Astronomical League observing club programs. We start with some Frenchmen who drew up a list of objects you should not look at. What? , You are saying. Yes, it's the messier list. This is a list of 110 bright deep sky objects. It includes galaxies, open clusters, globular clusters, planetary nebulas, a double star, and other assorted stuff. Charles Messier was famous as a comet hunter. He spent his nights scanning the skies for comets. In his search, Charles would find these fuzzy objects that looked like comets but weren't. So he developed a list of objects for astronomers'/ comet hunters to avoid. The list's title is the messier list of star clusters and nebula. The ironic part is that this list is now more famous than the comets that Messier discovered. These are the most observed deep sky objects in the night sky. Many astronomers often use a messier number to refer to a particular messier object on the list.

Here are the basic rules of the messier observing club. You need to observe 70 of these objects in a scope to receive a REGULAR messier certificate. If you observe all 110 of these objects, you receive the HONORARY messier certificate and pin. You need to keep notes of your observations. Your observing notes need to include the following information.

- 1) Date of observation.
- 2) Time of observation.
- 3) Seeing conditions.
- 4) Aperture size of the telescope.
- 5) Power / magnification used.
- 6) Note describing your observation of the object.

Seeing conditions refer to several things. The first is steadiness/seeing of the sky. Do the stars jump about in the sky? Second is the transparency of the sky. How clear is the sky? Weather conditions effect seeing conditions.

Finally the most important rule is that you must find these objects by star hopping. You can't use a computer to find the objects for you. This is how you learn the night sky. The list usually takes about a year to complete. Note that this list can be done in any scope that has an aperture of four inches or larger.

The August deep sky session will be held at Brasstown Bald. Directions to the site are below. The date for the event is **August 22nd** and the start time is dusk. We have REAL BATHROOMS this time. **August 29th** is the orientation date for Villa Rica. The orientation starts at 7 p.m. If you would like to help at the orientation, contact either me or Art Zorka. In September the start time for the open house is moving to 6 p.m..

Directions to Brasstown Bald

From Ga 400:

From I-285 take GA 400 north for 47 miles to GA 60. Turn left onto GA 60. Note that GA 60 is also US 19. Take Ga 60/US 19 north. Travel north on US 19 for 32 miles to Ga 180. Turn right onto Ga 180 and travel east for 8 miles. Look for the Ga 180 spur on the left. There should be a gate and sign for Brasstown Bald Mountain. Turn left onto the 180 spur and proceed for 1 to 2 miles. The road ends at a large parking area. We will set up in the middle two parking lanes.

From I-575:

Take I-575 north to Ga 515. Take Ga 515 north and eventually east to Blairsville. Note that the distance from the I-75/I-575 interchange to Blairsville is 93 miles. Take US 129 south at Blairsville and proceed for 8 miles to Ga 180. Turn left onto Ga 180 and proceed east for 8 miles. Look for the Ga 180 spur on the left. There should be a sign for Brasstown Bald Mtn and a gate. Turn left onto Spur 180 and proceed for about 1 to 2 miles to a large parking area. We will set up in the middle two parking lanes.

From I-85:

Take I-85 north to I-985. Take I-985 north for 21 miles to US 129(exit 6). Turn left onto US 129. Proceed north on US 129 for 25 miles to Ga 75 just north of Cleveland. Turn right onto Ga 75 and proceed north for 20 to 22 miles to Ga 180. Turn left onto Ga 180 and proceed west for 6 miles. Look for Ga 180 spur on the RIGHT. Look for a gate and Brasstown Bald sign. Turn right onto spur 180 and proceed for 1 to 2 miles to a large parking area at the top. We will set up in the middle two parking lanes.

Information:

- 1) The Brasstown Bald parking area is located below the top of the mountain.
- 2) Bathrooms are located on the northwest corner of the parking area at the edge of the woods. Look for a stone building.
- 3) Orange cones will be set up to mark the area where you can set up your equipment.
- 4) I suggest you get to Brasstown before dark so as to make it easier to find the place. Some of these mountain roads are hard to navigate after dark.

Lunatic Challenge

by Lunatic # 82

Well, another month is here, and with it comes the August LUNATIX CHALLENGE!

For those new to the challenge, come to the meeting on the 21st and get the details from me or e-mail me for the first challenge and prep info. Last month saw the beginning of the challenge, and you can look in the July 'Focal Point' for the info also.....

For August: Please note that all objects listed must be identified visually as well as answering any questions about them.....

Lunar Observing Challenge #2

Naked Eye Targets

1. Woman in the Moon Hint: Hare
2. Sinus Iridum - What is its English Name?
3. Crater Tycho - What is Tycho's most prominent feature?
4. Mare Tranquillitatis. Sea of.....? What historic event occurred in this Mare?
5. Challenge: Sinus Asperitatis-Bay of Asperity. Why is it so named?

Binocular Targets

1. Crater Grimaldi - Is it really a crater? (Hint: One of the darkest Moon features)
2. Crater Archimedes Hint: Smooth lava filled floor.
3. Crater Petavius (Hint: Rays!)
4. Challenge: Crater Theophilus - What Bay is it near? What Sea?

Telescope Targets

1. Rima Ariadaeus - What does rima or rille mean?
2. Messier/Messier A - How are they believed to have been created?
3. Alpine Valley - Why is it so named?
4. Challenge: Mons Hadley. What historical event took place near Mt. Hadley?
5. Locate and identify the feature at 82.5 South by 85 East.

I hope that this challenge will encourage more of you to gain an appreciation for our nearest neighbor, and join our growing ranks of lunatic!

Here's the ANSWER:

The old moon in the new moons arms is only several days old at this point.

The dark part of the moon was lit before the new moon.

New moon in the old moons arms is the opposite. The dark part is called new because it will soon be lit after the new moon.

Either way the dark part of the moon is lit by earth shine. That is why you can see it even though the side is now directly shining on it.

A Viewer's Focal Point

by Joanne Cirincione

I wanted to remind our new members and those that are not members yet that we do offer basic astronomy at our orientations. We offer all levels of astronomy. We take pride in offering what we know to those who don't. You just have to understand that sometimes we have so many new people at our sessions that it is very hard to tell who needs help if they don't join in.

There is nothing to be shy about. You see groups of people following other members around to see what they can learn. Some of us are still beginners! But just by listening to what others are saying and showing us, you will be amazed of how much information you pick up. It also helps to pick up a book or magazine to read. There are all kinds of beginner books out there!

So, I found this article I thought would be interesting for those of us who are still in that "beginning" stage.

07/28/98

Chicago Tribune

We saw "Armageddon." We know that the chances of a meteor hitting the Earth are slim to none.

And we know from "Contact" that star travel may be a possibility in the distant future. But there's a lot more to astronomy than what we see in the movies.

Astronomy is the study of the stars, planets, comets, galaxies, asteroids...you get the picture.

Checking out the sky is not an activity limited to expert astronomers, though. We talked to an astronomer at the Adler Planetarium in Chicago, about some cool projects that we can try out at home.

LUNAR LOOKOUT: Even though the moon is just as round as the Earth, the sun's light makes it seem like it changes shape. Every month, the moon goes through phases because the amount of the light it reflects changes as it orbits the Earth. You can use a chart to track the moon's shape each week through one complete cycle. Start off with a crescent moon on July 28. (Tonight)

STAR STUFF: Not many things are more relaxing than getting starry-eyed on a summer night.

For the best view, try to get away from the bright lights of the city. If you can't, at least stay away from nearby street lamps. Any light other than starlight can mess with your view.

It's fun to simply lie back and take in the awesomeness of the Milky Way - our own galaxy of planets and stars. But once you get acquainted with the sky, you can scout out some constellations, which are configurations of stars usually named after some animal or mythological creature. We'll get you started with the constellation Scorpius. Facing south, look almost directly overhead for Antares, a large red star. You'll use that as your landmark. (It is better to use a sky map from one of the magazines or a star atlas to help you find the other stars that form the shape of a scorpion.)

And once your eyes totally adjust to the night sky, you can try to analyze the stars themselves. If you look very closely, you can see that stars are slightly different in color. The temperature of the star determines what color it will be. The superhot stars are a bluish-white color, while cooler stars, like our sun, are yellow. And the coolest stars are bright red - but they could still make us sizzle like an egg in a frying pan!

PLANET POINTERS: Spotting the planets is pretty tricky with the naked

eye, so you might want a pair of binoculars or a small telescope to help you. The best time to see planets is just before sunrise, but if you're not an early bird, you can still try at night. You'll be able to tell them apart from the stars because planets don't glow - they are lit by the sun. If you look northeast, you might see Mars and Venus close to the horizon. Mars is a red-brown color and Venus is a little smaller and not as red.

Then if you face southeast, you can look for Saturn and Jupiter. These planets will be higher in the sky and larger than Mars or Venus. If you're using a telescope, you might be able to see Saturn's rings. (You will have to know when the planets are rising and setting and what season you are in. Your monthly astronomy magazines will help you)

Not only is astronomy a cool hobby, but it's also a great way to postpone your bedtime!

Ahhh, heavenly.

CAN'T GET ENOUGH OF ASTRONOMY ?

THEN JOIN THE ATLANTA ASTRONOMY CLUB!

IF YOU ARE A MEMBER THEN JOIN IN!

LADIES OF THE NIGHT...SKY MEETING

Directions to the Mondell Residence:

Take I 285 to the East side of Atlanta

Take Covington Highway exit and go East

Go approx. 1/2 mile east on Covington Hwy to first traffic light (at South Indian Creek.)

Go North(left) on South Indian Creek.

Go approx. 2 miles to Redan Road, and Go Right (east) on Redan Road.

Go 1.1 miles to the first entrance to Crystal Lakes subdivision. There is a grey picket fence, and banners flying out front.

Turn right into Crystal Lakes subdivision on To-Lani Farm Rd.

Take the first right onto Cherokee Heights.

Come up the hill to third house on left after culdesac...#1097 Cherokee Heights.

Number and name (Sacco) are on the mail box.

The August Focal Point

One of the largest single budget items in the AAC is the printing and mailing of the Focal Point. Help save the club money and order your Focal Point by e-mail.

The Focal Point can now be e-mailed to individual club members. You would receive the Focal Point in a PDF, Portable Document Format. An Adobe Acrobat reader, readily available on the web, can be used to view and/or print the PDF file.

The PDF version of the Focal Point contains the same information as the printed version, only more. It has color and crisper graphics.

To request your Focal Point to be delivered via e-mail, send me a message <macumber@BellSouth.net> and put Focal Point in the subject. You will start receiving the Focal Point via e-mail. If you want to try the PDF version, let me know, and I will send you this issue in PDF.

We have seventeen members receiving their Focal Point by e-mail.

THE RAINMAN

A young man of mien most laconical
Said once in a way almost comical
I must be a hero
Each night it's MO
Such is my fate astronomical !!

Time is on my Mind (oh, yes it is!)

So, we are at Orientation and Pres. Phil is aligning his scope on a star. "It is 3:15 on March 18th", says Phil. And you look at your watch and say "No, Phil. It's 10:15 p.m. on March 17th !" What's going on? Is Pres. Phil a victim of "MISSING TIME"?!?

While that may be possible, the official explanation is that Phil is using UT (Universal Time), the standard for astronomers all over the world. UT is the mean solar time at Greenwich, England (where the first line of longitude is located) and is based on a 24 hour clock. Atlanta is on EST (Eastern Standard Time) which is five time zones to the west of Greenwich, so we are five hours behind UT. In order to convert UT to EST, subtract 5 hours from UT. If the result is a negative number, add 24 hours and the date will be on the day previous to the UT day

To demonstrate with our example:

| |
|----------------------------------|
| 3:15 UT March 18 th |
| <u>-5:00</u> |
| -2:15 |
| <u>+24:00</u> |
| 22:15 EST March 17 th |
| 10:15 p.m. |

In Eastern Daylight Savings Time (EDT) use 4 hours instead of 5.

I find it easier to remember the EST at midnight UT. At 24:00 or 0:00 hrs UT, the calendar turns over to the next day. It is five hours earlier in EST (4 hours in EDT), so that means midnight UT occurs at 19:00 hours or 7:00 p.m. EST (20:00 hrs or 8:00 p.m. EDT). Anything that occurs AFTER 7:00 p.m. EST (8:00 p.m. EDT) is on the next days date; anything before is on the current date. All you need to do is add the UT time to the 19:00 hrs (20:00 EDT) to get the time.

For example:

| UT | EST | EDT |
|--------------|--------------------|--------------------|
| 0:00 | 19:00 = 7:00 p.m. | 20:00 = 8:00 p.m. |
| <u>+3:15</u> | <u>+3:15</u> | <u>+3:15</u> |
| 3:15 | 22:15 = 10:15 p.m. | 23:15 = 11:15 p.m. |

Of course, the easiest way to figure it out is to do as Peter does: wear a watch with two time zones and set one for local time and for UT. Maybe Peter has Phil's MISSING TIME.

Giants of the Summer Skies

A tour of some of the most spectacular planetary nebula.

by Richard Jakiel

The *Cat's Eye*, the *Egg*, and the (*Etched*) *Hourglass* nebulae are among many spectacular images returned by the Hubble Space Telescope (HST) over the past several years. These are examples of planetary nebulae, a term coined by the great visual astronomer William Herschel in 1791. Today, there are about 1500 known planetaries (pn) in our Milky Way galaxy, more than all the known open and globular clusters combined. Yet, only *four* representatives are found in the popular Messier catalogue, far short of the nearly sixty open and globular clusters listed. This discrepancy can be traced to their relatively small size and faint visual magnitude. In the well known reference book *Astrophysical Data: Planets and Stars (1991)*, statistics on nearly 800 planetaries is presented. The mean size of these objects is a mere 20", making them easily the smallest class of deep-sky object normally accessible to amateurs. Their average magnitude is 12.9, so their faintness isn't quite so daunting.

Statistics can be misleading, and that's certainly the case with planetaries. Though typically small, faint objects "diligently" avoided by most amateurs - there are exceptions to the rule! Near the summer Milky Way, there are a number of pn's large and bright enough to make good targets for the deep-sky observer. Some of them can be viewed in almost any sized instrument, while others are a bit more challenging. All the pn's on this tour are the 'giants' of their class, being at least 80" across - the largest nearly 1/2 the size of the full Moon. For the best viewing, try to observe them under good, dark skies and use nebula filters (UHC, O III) to best advantage.

Riding the tail of the Scorpion..

Our first target is perhaps the most bizarre looking planetary in the sky. **NGC 6302**, or **The Bug**, is a young pn located west of the scorpion's stinger. It has faint filaments that extend up 200 arc-seconds long, and with a visual magnitude of 9.6, the Bug fits both our criteria of "big and bright". It is a classic "bi-polar" or two-lobed planetary with apparent explosive structure surrounding a bright central core. The name "bug" was coined by great American astronomer E.E. Barnard in a 1906 paper. Using the great 36-inch refractor at Lick, he described the object as:

"Two of the nebulae had faint streamers running north preceding, while the third, the following component, had two nebulous arches springing from it..."

..The entire nebula, especially the following part, looked like a ghostly bug of some kind; the third mass being the head and antennae."

Spectacular in large telescopes, the Bug doesn't disappoint in smaller backyard scopes. In a 6 or 8-inch scope, it resembles a narrow "bow-tie" measuring ~ 2' x 1'. Medium sized and larger instruments begin to reveal some of the delicate filaments of the Bug. Certainly my most memorable view was with a huge 33-inch Dobsonian, as the Bug came "alive" with long streamers and plumes emanating from a vivid green core.

Touring the Milky Way

The constellations of Aquila and Scutum are hotbeds of planetary nebula formation. Just a quick glance in a detailed star atlas will reveal dozens of objects of all shapes and sizes. Our first stop is the pretty **NGC 6781**, a very photogenic pn located about 3 1/2 degrees northwest of α *Aquilae*. Most backyard scopes should be able to detect a large, ghostly ring measuring almost 2' in diameter in a very rich star field. Closer examination will display a dark center and the asymmetry of the ring. While the ring itself is nearly circular, careful observation shows a brighter western edge while the eastern half is more diffuse.

In nearby Scutum is the large, diffuse planetary **IC 1295**. It is located in the central part of the constellation, and lies only 20' ESE of the 8th magnitude globular cluster NGC 6712 making identification easier. Visually, it appears as an 'imperfect', fainter version of NGC 6781 and requires at least an 8 or 10-inch scope for detection. The field is very rich in stars, and many shine through the oval nebulosity.

Between these two planetaries is **Sharpless 2-71**, one of the weirdest looking objects in the summer sky. It was originally designated as an emission nebula, but later re-classified as a pn. It is a large object, the "bright" core measuring ~ 130" x 220", and up to 300" on deep CCD images. Although no more difficult than IC 1295, a large telescope is best for viewing the odd shape. My best view was with the Puckett Observatory's 24-inch f/8 Ritchey-Cretien at 246x and an O III filter. I saw a large, twisted horseshoe, with the open end pointing south and a series of faint condensations along the rim. It is truly a remarkable sight and worthy of more attention.

The Bright and Easy..

Escaping northward from faint, challenging planetaries of the Aquila-Scutum region are two much easier targets. The **Ring Nebula**, or **M57** is perhaps the best known, most studied planetary in the sky. A popular object even for binocular observers, it is wonderful summertime favorite for any sized instrument. The bright oval annulus, which lends the Ring its nickname measures a mere 85" x 62" , but the outer halo tilts the scale at over 200" across. This halo can be glimpsed by moderately large backyard scopes equipped with UHC or O III filters. Close to the bright inner ring, low contrast filaments and plumes may be visible at magnifications greater than 300x .

Another popular, though difficult target in M57 is the faint central star. Discovered back in 1800 by F. von Hahn, this 15.3 magnitude star was once considered variable due to the uneven reports of its detection. It has been spotted in scopes as small as 8 to 10-inches, and yet frustrated others using equipment three times as large! The key to its observation is *high* magnification and excellent seeing conditions. An even more daunting target is the *second* star inside the ring. It is a background object ~ 0.75 magnitudes fainter than the central star. This is a very challenging target to tackle - try to use aperture at least 18 to 20-inches in diameter for any chance of success.

Almost as famous as the Ring, is the beautiful **Dumbbell Nebula** or **M27**. First discovered by Charles Messier in 1764, it is an easy target for the binocular or small scope. The "dumbbell" name is derived from the shape of the bright central region. Another nickname is the "*apple-core*" which is perhaps a better description of its overall shape. Faint nebulosity fills in the cavities of the "core" to form an oval shaped halo measuring an impressive 240" by 480" across. Embedded in the core is a faint central star of 13.8 magnitude. It is a much easier target than the one in M57 and can be detected with an 8-inch telescope under moderate magnification.

Far to the north is the spectacular **Cat's Eye Nebula** or **NGC 6543** in the constellation of Draco. It has been a recent target of the HST and its image has graced the cover of magazines and journals. The intricate gas shells, knots and jets are thought to be the result of the dynamic action of a close double star system. Some of these knots and jets have been known for over 100 years, leading to the H. D. Curtis' nickname the **Helical Nebula**. All of these structures are located in the small main body of the planetary, an insignificant 23" by 20" oval. This is surrounded by an impressive extended halo measuring ~ 6' across and noted for its filamentary fragments. The largest filament is designated as **IC 4677** and was originally misclassified as a "galaxy". Observers with medium sized or larger scopes should be able to glimpse it as a dim, diffuse knot of 15th magnitude under good, dark skies. The extended halo is more difficult, and usually requires a 12-inch or larger scope for confirmation. When I observed this object

with a 24-inch, the halo had a “rice paper” texture as the larger filaments were being resolved.

The Giant Rings

Our last two entries are located away from the hustle and bustle of the Milky Way. Both are extreme examples of their class and among the largest planetaries in the sky. The first giant is catalogued as **Jones 1** (= *PK 104-29.1*) is an immense ethereal ring measuring over 6' in diameter. Located in northern realm of Pegasus, it is about 8 degrees ENE of the bright star *b Pegasi*. Despite its size and low surface brightness, has become a popular target at star parties in the recent years. An observer equipped with a 10-inch scope and an O III filter may discern two faint arcs within the subtle glow. Larger telescopes are useful in detecting the brightness variations within the ring.

Saving the ‘best’ for last, **The Helix** or **NGC 7293** is one of the most famous non-Messier objects in the sky. Like many other planetaries, it has been a subject of intensive study by the HST over the last couple years. The Helix is the second largest planetary in the sky, and only the obscure PuWe 1 in Lynx is larger. This object spans 15', or nearly 1/2 the size of the Moon! Its visual magnitude has been estimated to be 6.5, and it may in fact be a naked eye object for keen-eyed observers in the southern hemisphere. Although an it is an easy binocular target under dark rural skies, it can be much more frustrating in areas with even modest light pollution. Even small scopes, the Helix isn't a featureless disk, but will show

some annularity. Observers with large backyard instruments may detect hints of the helical structure buried within the broad ring. The central star isn't overly challenging either. At 13.6 magnitude, it is more accessible than most others of its class.

Epilogue

Though this survey is finished, it's far from being complete. I have deliberately omitted a number of other large planetaries in hopes that it might inspire some of you to hunt them down for yourselves. A good follow-up list might include NGC's 6772, 7008, 7094 and IC 5148/50. These are large and fairly bright, plus having interesting structure that readily apparent in moderate size instruments. Others, including many of the Abell planetaries are much more challenging and will test even the most serious observer. And finally, amateur astronomy is a *fun* and *rewarding* pursuit. Always try to design an observing program that works best for you, and not someone else's expectations.

Selected References:

Hynes, S. 1991. *Planetary Nebula*, Willmann-Bell, Inc., Richmond, VA.
 Jones, G.J. (Ed). 1979. *Planetary and Gaseous Nebulae, Vol2*, Webb Society DSOH #2, Enslow Pub., NJ; 149pp.

Table 1: Planetary Nebula Data

| Object | RA (2000) | Dec (2000) | Magnitude (v) | Size | Extended Halo |
|----------------|-------------|------------|---------------|-------------|---------------|
| NGC 6302 | 17hr 13.73m | -37d 06.2m | 9.6 | 240" x 90" | > 250" |
| NGC 6543 | 17hr 58.58m | 66d 37.0m | 8.1 | 23" x 20" | 386" |
| NGC 6720 (M57) | 18hr 53.56m | 33d 01.8m | 9.7 | 85" x 62" | 216" |
| IC 1295 | 18hr 54.63m | -08d 50.2 | 12.5 | 90" x 83" | 130" |
| Sh2-71 | 19hr 01.0m | +02d 09.4m | 12.3 | 120" x 220" | >300" |
| NGC 6781 | 19hr 18.47m | +06d 32.4m | 11.6 | 108" | 158" |
| NGC 6853 (M27) | 19hr 59.6m | 22d 43.0m | 7.1 | 240" x 480" | 907" |
| NGC 7293 | 22hr 29.64m | -20d 50.3m | 6.5 | 900" x 720" | 1680" |
| Jones 1 | 23hr 35.89m | 30d 28.0m | 13 | 320" | ? |

The Remote Planets in 1998

By Richard W. Schmude, Jr.

The three remote planets are Uranus Neptune and Pluto. All three planets will be well placed for evening viewing the months of July through September. Since 1989, the remote Planets section has received over 800 photoelectric magnitude measurements and over 1000 eyeball magnitude estimates of Uranus and Neptune. This short newsletter will explain where to look for Uranus and Neptune as well as give some information on where to look for satellites of Uranus, Neptune and Pluto. Dr. Richard W. Schmude would like to receive any drawings, magnitude measurements or other observations of the remote planets. His addresses are listed below.

The figure, Uranus & Neptune Map, shows the movements of Uranus and Neptune during 1998. Although there are several stars near Uranus and Neptune; it is recommended that the comparison star for photoelectric measurements be one of the stars with magnitudes in square brackets. A

remote planets observing form has been included with this newsletter.

Table 1 lists the greatest northern elongations of Titania and Oberon - the two brightest satellites of Uranus, and Charon - Pluto's moon. Also listed is the greatest eastern elongation of Trigon - the brightest moon orbiting Neptune. Elongations are listed for June, other elongation times can be determined by adding the orbital period which is listed below each satellite in table 1.

Dr Richard W. Schmude, Jr.

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Table 1: Elongation times are for Titania, Oberon, Charon, and Triton: all times are in Universal Time (UT). (*Elongations are from the Nautical Almanac for the Year 1997, U.S. Govt. Printing Office, Washington, D.C.*)

| Greatest Northern Elongations | | | Greatest Eastern Elongation |
|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Titania (8 ^d 17h) | Oberon (13d 11.2h) | Charon (6d 9.3h) | Triton (5 ^d 21.1h) |
| 1 ^d 15.9 ^h | 5 ^d 17.9 ^h | 1 ^d 20.1 ^h | 6 ^d 13.5 ^h |
| 10 ^d 08.9 ^h | 19 ^d 05.1 ^h | 8 ^d 05.4 ^h | 12 ^d 10.6 ^h |
| 19 ^d 01.8 ^h | | 14 ^d 14.8 ^h | 18 ^d 07.7 ^h |
| 27 ^d 18.7 ^h | | 21 ^d 00.1 ^h | 24 ^d 04.8 ^h |
| | | 27 ^d 09.4 ^h | 30 ^d 01.9 ^h |

Meteor Shower with a Friend

| Shower Name | Date | Peak | Number of Meteors per hour |
|-------------------------|----------------|--------|----------------------------|
| Southern Delta Aquarids | July 12-Aug 19 | Jul 28 | Southern Delta Aquarids 20 |
| Alpha Capricornids | July 3-Aug 15 | Jul 30 | Alpha Capricornids 4 |
| Southern Iota Aquarids | July 25-Aug 15 | Aug 4 | Southern Iota Aquarids 2 |
| Northern Delta Aquarids | July 15-Aug 25 | Aug 8 | Northern Delta Aquarids 4 |
| Perseids | July 17-Aug 24 | Aug 12 | Perseids 90 |
| Kappa Cygnids | Aug 3-Aug 25 | Aug 18 | Kappa Cygnids 3 |
| Northern Iota Aquarids | Aug 11-Aug 31 | Aug 20 | Northern Iota Aquarids 3 |
| Alpha Aurigids | Aug 25-Sept 5 | Sept 1 | Alpha Aurigids 10 |
| | | | Delta Aurigids 6 |

Note the Aquarids refers to the constellation of Aquarius and so on.

The number of meteors per hour is listed below. This number is better known as the ZHR or Zenith Hourly Rate. The number of meteors seen per hour when the constellation is located at it's highest point in the sky.

Although some of these numbers are small, they add up fast given the fact that the showers occur in August.

This page contained the locator chart and map for Neptune and Uranus. It will be available on-line at a later time. Please request it from me if you wish an on-line copy.

The following page contained the ALPO sheet for recording planetary observations. This too will be available at a latter date.

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AAC CALENDAR of EVENTS

| | | |
|------------------------|--------------------|------------------|
| August 06, Thursday | Dr. Malin | Fernbank |
| August 14, Friday | ATM | Bradley Obs. |
| August 21, Friday | Business Mtg | Emory White Hall |
| August 22, Saturday | Deep Sky | Brasstown Mtn |
| August 29, Saturday | Orientation | Villa Rica |
| September 11, Friday | Bradley Open House | Bradley Obs. 8PM |
| September 12, Saturday | Orientation | Villa Rica |
| September 18, Friday | General Meeting | Emory White Hall |
| September 19, Saturday | Deep Sky | |
| October 17, Saturday | Deep Sky | |

Focal Point

by Peter Macumber

AUGUST 31st is the **deadline** for the **September Focal Point**. It is also the greatest western elongation of a planet (18'). Please send your committee reports and articles to me by then.

Today we have 324 members.

Here's the QUESTION:

How old is the moon when old moon is in new moons arms and vise/versa?

August Meeting

The special presentation by Dr. Malin will replace the the regular general of the Astronomy Club in August.

The AAC meeting on **August 21st** will be a business meeting only.

Atlanta Astronomy Club

August

Dr Malin's presentation at Fernbank on August 6th replaced the regular monthly meeting. There will be a business on the regular Friday night, **August 21st**. Discussions of telescopes, darksites and Villa Rica are sure to warm ones tem. er .. heart.

Look inside this months months issue for tips on showers, viewing remotes, Ladies of the Night...Sky, words from the prez. A couple of articles from previously unknown talented writers. There is also some drival to fill in the white spaces to show people that I could write almost anything and have it go un-noticed.

- | | | |
|----------------------------|------------------|-------------------------|
| 1) ? 0.9° north of moon | 10 th | A) Pergee |
| 2) Moon at | 11 th | B) Saturn |
| 3) ? 6° south of Pollux | 11 th | C) moon |
| 4) ? 2° north of Moon | 13 th | D) Jupiter |
| 5) Mecury in | 13 th | E) Mars |
| 6) Ceres 0.9° south of | 15 th | F) inferior conjunction |
| 7) Aldebaran 0.2° south of | 15 th | G) moon |
| 8) planet stationary | 16 th | H) Pluto |
| 9) planet stationary | 18 th | I) Saturn |

1-D 2-A 3-E 4-B 5-F 6-C 7-G 8-I 9-H



The Focal Point

Newsletter of The Atlanta Astronomy Club, Inc.

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