



The Mason-Dixon Astronomer

Westminster Astronomical Society of Maryland

May 2000 - Vol. 16 No. 5



Coming Events

Weds. May 10 Bear
Branch Nature Center
Speaker and meeting

Sat., May 20
Astronomy Day Carroll
County Library -
Westminster 12-5 p

Sun, May 21
Astronomy Day at Bear
Branch

June 23-25 Mason-
Dixon Star Party

Inside this Issue

Astronomy Day Update	2
Delmarva Star Party Report	2
Cosmology	4
Astronomy Updates	5
Regional Star Parties	5
Newtonian to Dobsonian	6
May Skywatch Calendar	8
May Solar and Lunar Calendars	9

Presidential Message

By Skip Bird

Once again the cry of the night flying astronomy bird is heard echoing across the land.. " Is there anybody out there? "

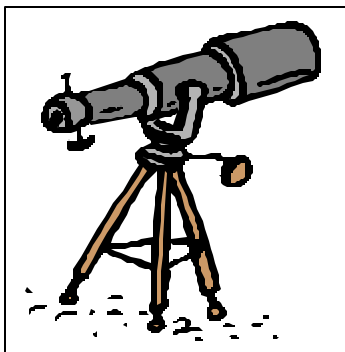
As I sit here looking out the windows at the rain, which is predicted to go on for days and days and years, I think back on all the things I have missed in my life. Don't worry I'm not going to get all depressed and melancholy. Like last nights Auroral display which no one from either astronomy club called to tell me about, luckily one of the naturalists at Soldiers Delight state park called me to ask what where they seeing. This allowed me to go outside and see the last few minutes of a fading, light hindered, auroral show. I've also signed up to get immediate Aurora display e-mail notices from now on.

Due to three days of rain in March of 1989 I missed another great show, even though a good friend in Texas called me to ask if I saw last nights display. Another time I was outside with a bunch of star partiers and happen to be looking down at the ground when I saw my shadow appear and everyone else yell "Look!", which we all know is too late. Even the Leonids conspired to keep their glory away from me by appearing in force over Europe. I've missed other things like a \$10,000 prize in a charity bowling tournament because I spent my \$1.00 on a beer instead, besides who would have thought that I would bowl 102 pins above my average (\$5,000) that night in one game and have high series above 650 (another \$5,000). I personally think it was that beer that made all the difference in my scores.

What does all this have to do with astronomy you ask? Don't ask me I don't know either! What I'm trying to say is don't have any REGRETS, because it will all even out in the end. Take for example my dad coming to my room when I was 13 and dragging me outside to catch the 1966 Leonid display, still the best meteor shower I have ever seen to date. Or another time when I was backpacking in the Colorado mountains setting out on a ledge watching what we thought was just the lights of Denver and Colorado Springs glowing in the distance. We watched them change from a soft white band to bright green and red spikes kind of like a crown. Later I figured out it was an Auroral display. Or the time just a few minutes after my shadow appeared that I was looking up in time to see another bolide streak almost all the way across the sky changing colors along the way. I also count myself lucky that I was able to be in Hawaii on Mt. Mona Kea when Halley's comet came to town. Even losing the bowling money was good, I found out later that one of the people who won the \$5,000 was out of work and the other gave it to his church. Once when laying out in my back yard watching for the Geminids, I remember seeing this coal black shadow crossing in front of the stars without a sound. I thought it was a Klingon bird of prey but it turned out to be a local bird of prey, a Great Horned Owl.

Heck even meeting my wife Phyllis was lucky, considering that she had never been in that city, or that bar and was only going to be in that state for only a couple of weeks more. I consider myself very fortunate for all the things I have seen and done in my life which involve astronomy and the good friends that go along with this hobby. I look forward to all the great sights that still await me, maybe seeing a solar eclipse from space, or witnessing a meteor fall (not to large I don't want to end up like the dinosaurs), or as Gene Dolphin did go to Alaska for several weeks and see Auroras almost every night. Who knows what wonders God still has in store for me.

So as a fellow stargazer would say " KEEP LOOKING UP..." and never look back!!!!



Astronomy Day Update

By Curt Roelle

As you may already know our observation of Astronomy Day shall be on Saturday May 20 12-5p at the Main Branch of the Carroll County Public Library (CCPL) in Westminster.

Likewise, I have been asked by the staff at Bear Branch Nature Center to prepare a planetarium program for two showings on the following day, Sunday May 21. We have also been asked to provide some exhibit material. Since this follows closely on the heels of the CCPL event it seemed a good opportunity to recycle programs. They are going to send a letter with more details but I think this is some type of Earth Day celebration.

So we have two days in a row of community outreach scheduled for late May. Members are encouraged to bring items relating to astronomy to both events, including telescopes for safe solar viewing if weather permits

Minutes of April Meeting

Phil Schmitz - Secretary (WAS)

Skip awarded two Astronomical League Pins, Jeff Asner received his Messier Pin & Certificate and Paul Henze received his Messier Binocular Pin & Certificate. He also awarded prizes to the March 31-April 1 Messier Marathon winners: Gerald Janke, who saw 97 Messier objects and won a signed copy of Masio Livio's The Accelerating Universe, and Mark McPherson, who saw 63 Messier objects, won a CD Rom of the Radio Wolf Program that is performed by Bill Wellington (Roanoke Astronomy Club). A few members, including Skip Bird, Curt Roelle and Carl Koch saw the Aurora on Thursday, April 6, 2000.

Chuck Kodak was the guest speaker and his topic was on Radio Astronomy.
Brian Eney had his 10" Dobsonian set up in the parking lot.

Delmarva Star Party Report

By Richard Orr

As luck would have it, the aurora of the decade hit on the first evening (April 6th) of the Delmarva Stargazers 6th Regional Star Party at Tuckahoe State Park on the eastern shore of Maryland. I watched spell bound as reds and oranges swept across a clear sky from 8:15 pm to well passed 9:30 pm (Eastern Daylight Time). I was skeptical at first that it was an aurora.

The aurora was materializing across the entire sky from the north-east eventually covering the whole sky in unearthly patches of red. The setting crescent moon along with Saturn and Jupiter were at times completely engulfed by the ethereal reddish glow. Even the southern constellation of Orion could not escape and was at times completely engulfed in the blood-like glow of the aurora.

What a way to start a Star Party! I have seen a number of auroras from the continental United States, but these were usually confined to the north and had more green than red in them. After the star party I checked the web page of Sky and Telescope and found out that the April 6th auroral display had been seen as far south as New Mexico and Florida. And that the unusual red color of this aurora was due to the energized low-level nitrogen molecules instead of the more common seen green from the high-level excitation of oxygen atoms.

Delmarva, continued

I have always enjoyed the Tuckahoe Star parties, which are held in the spring and fall of each year. These Star Parties are reasonably close by, have good facilities (showers, food, water, etc.), and a reasonably dark sky capable of surpassing magnitude 6.0 visibility. On one exceptional winter night a couple of years ago at Tuckahoe I bagged the Horse head nebulae in my 6-inch refractor with an H-B filter!

This year we had three 25 inch Dobsonians at the star party each trying to out do one another to the joy of the rest of us aperture-deprived attendees. I parked my 6-inch refractor next to one of these giants so that I could sneak a ladder climb when the wows 8 and I don't believe its8 reach an exceptionally high level. The spiral structure in the Whirlpool Galaxy (M-51) and the Bipolar Planetary (NGC 2371-2) with its large bipolar lobes of gas and central star were my favorites. However, the view of the major Globular Clusters was real close seconds. I love these large scopes. I have an 18-inch on order -- I just can't fit a 25 incher in the car or the pocket book.

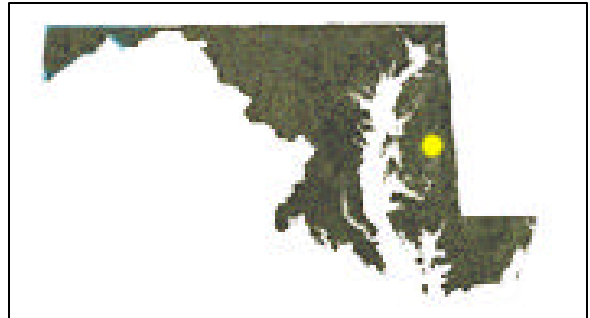
My plan was to finish off the Herschel 400 with my 6inch at this star party. I came close but since we were clouded/rained/snowed out the third night I fell just short of my goal. I still was able to bag all the Coma-Virgo galaxies that I went after plus many more that were not on the Herschel 400 list, so I am hardly complaining.

Another reason I like the Tuckahoe Star parties is that it is an excellent location for me to partake in a couple of my other hobbies. Tuckahoe State Park is a wonderful place to bird. This year, I and two other birders at the star party added a Maryland early record of a Swallow-tailed Kite. There have been less than a dozen sightings of this bird in Maryland and here it was flying over the telescopes on the evening of April 7th . In addition, I have been surveying for dragonflies and damselflies at Tuckahoe during the Star Parties and have managed to add a number of new Caroline and Queen Anne's County records. The large playground, park, equestrian center and lake also helps keep my family happy and occupied while I am off looking at birds, dragonflies, or other worlds.

Hopefully, I will see you at Tuckahoe this fall.



Tuckahoe Visitor's Center



Cosmology

By Jack Fogarty

The mysteries of the Cosmos are plenty. If we believe in the Big Bang origin of our universe (what came before?), then how did all that energy (material) get packed into whatever itty-bitty space. And how did it spew out into an apparently unending volume?

OK, we can believe that chaos would trigger the uniform matter to cluster by gravity into stars and then the stars could group into galaxies with lots of space in between, but where does the spin energy come from?

The galaxies are spinning and form flat discs. We can see Keplerian action with the inner stars revolving faster than the outer ones, but why do they string out in spiral arms rather than in uniform "slipping" rings? Assuming that we buy the spiral form, what about the barred spirals? Here the inner stars form radial spokes like dancers performing the "wheel" but then the outer stars break off into the "standard" spiral arm formation!

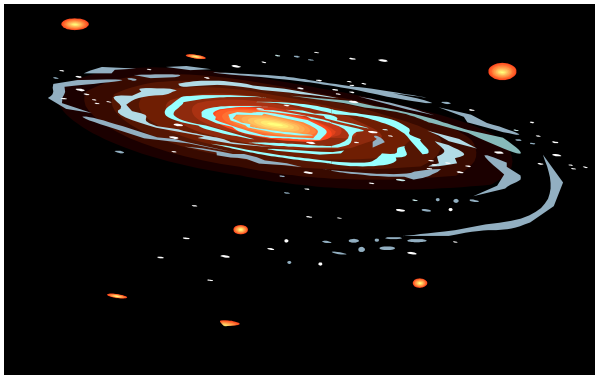
Our view of the universe is a variable time-delay picture. What we see is not all there at the same time. The distant galaxies are seen as they were much longer ago than the nearer ones. So where are they now? Presumably they're much farther away than they appear, if you believe the expanding universe conjecture based on the observed red-shift of light from these galaxies. But is this red-shift due to a Doppler effect or to an energy loss over the distance traveled?

All we see of the universe as we look out at it is the "things that glow in the dark." Is there any other matter out there, dark matter? There's plenty of space out there for it to hide in!

Gravity is something we're all familiar with. Is this "force" a distortion in the "space-time continuum"? Do ripples in this space-time continuum propagate instantaneously or at the speed of light? In other words, are gravity waves possible? And if so, are orbiting bodies continuously sending out gravity waves by a process analogous to synchrotron radiation?

Instantaneous motion of material objects is impossible according to relativity theory and the wave structure of matter, but how about instantaneous transmission of information? Some experiments in nuclear physics imply instantaneous knowledge of one particle by another particle... And if gravity has the velocity of propagation of light, then the gravitational tug of the Sun on our Earth is actually pulling on it where it was eight minutes ago! But then, how far can it move in eight minutes? About 8900 miles or one Earth diameter! Could be significant... Our Moon is being dragged by an off-center force due to tidal displacement of water mass on Earth - but it'll take a long time to slow us down. Maybe not that long. After all, didn't the Moon get locked into a synchronous rotation/revolution orbit by gravity-gradient stabilization?

Again, lots of questions but no answers. What do you think?



Astronomy Updates

By Brian Eney
Light Pollution News

DC Converts Streetlighting

Vanessa Burns, Director of Public Works of Washington DC reports to IDA, they are installing full cut-off lighting in their city. And will convert approximately 40,000 out of 66,000 streetlights to full cut-off fixtures under this new policy.

New York State Fights the Light

Two bills are currently in the New York Legislature- Assembly bill A06357 and Senate bill S6799. Both bills will correct the problem of brightly lit birds and airplanes at night. The bill in the Assembly goes as far as to set aside "dark areas" and will strictly limit lighting in these areas; specifically for astronomical observation, and the flora and fauna. For a copy of these bills visit www.ggw.org/selene.

Attending the Northeast Astronomy Forum

April 16th was the ninth annual NEAF in Suffern NY, which I attended for the second year in a row. This year I had a great time spending money for new toys and listening to some great lectures!! This year instead of stay at a hotel, I stayed with a friend, whom I met when I was in Spain for the Leo's. We briefly toured the city of New York. Unfortunately, we ran out of time to visit The New Hayden Planetarium, but one the speaker at the Forum was Neil de Grasse Tyson, Director of the Hayden. He gave interesting and humorous talk on behind the scenes of the reconstruction of the planetarium.

If I were to pick a word to describe the detail that went into the remodel it would be **WOW!!** The new Zeiss projector is incredible and way beyond state of the art!! The Zeiss projects the stars on to the ceiling at **the SUB-ARCMINUTE level** with **82 deep-sky objects** actually being projected on to the ceiling. The detail is so fine when you take some binos and look at M31 **it looks like M31**, complete with spiral arms and the central bulge! The next time I am in NY I will definitely make a special trip!

This year there were over 100 vendors selling their wares with some nice deals. The Forum is the best I have been to by far, even though the skies are horrible, the lecture and door prizes make it worth a four-hour trip.



Regional Star Parties

By Matt Orsie

Here is a listing with web sites of upcoming star parties:

June 1-3 Laurel Highland's Star Cruise: <http://members.aol.com/lhstarcruise>

June 23-25 Mason-Dixon SP: <http://home1.gte.net/dmdewey/mdsp.html>

July 28-30 Stellafane: <http://www.stellafane.com>

July 28-Aug 6 Mass Summer SP: <http://rocklandastronomy.com/noframe/rackbody.htm>

Sept. 1-4 Black Forest: http://members.xoom.com/_XOOM/black_forest/bfsp.html

Sept 29-Oct 1 Black water Fall's, WV SP: <http://www.earth1.net/kvas/bwfaw.htm>

Newtonian to Dobsonian

By Phil Schmitz

At the January 12th meeting, I approached Paul Henze (of binocular tripod construction fame) to convert my Meade Deep Sky 16" telescope (DS16) into a Dobsonian 16" telescope. There is a little story as to how this came about.

Back in September 1999, I went to Mt. Meadows with my Celestron C8 telescope that I bought back in 1974 (the one with the original orange tube). The C8 is great for taking piggyback, eyepiece projection and prime focus photography, and it is very portable. But it was no match for the behemoths I encountered at Mt. Meadows. I looked through several large scopes including Matt Orsie's 24 inch. The central star of the Ring Nebula (M57 - Planetary Nebula in Lyra) was visible amidst all the glowing gases that filled the eyepiece field. M33, the Pinwheel (spiral) galaxy in Triangulum easily showed three huge H2 (star forming) regions, one of which, NGC604, easily shows in my DS16, but no where near the detail. Also visible were numerous spiral arms. NGC253 (Spiral galaxy in Sculptor) was another impressive site, loaded with nebulosity. Matt even found the Egg nebula in Cygnus, the rift was easily visible between the two lobes. I must mention Stephen's Quintet (I have tried to see this in my DS16 but to no avail), all five galaxies were easily visible, they looked exactly like the photo in Burnham's Handbook. M13 resolved to the core, in fact, I don't remember seeing any of the "glow" behind the stars which were white, yellow, and orange. Even Saturn's Crepe ring was easily visible with Matt's scope as was a white oval larger than the earth. After going back to my C8, I would occasionally hear Matt's voice, Hickson 1234, mag 17.6, got another one! As much as I like my C8, I didn't want to look through it again that night. (I know these same objects will not look the same in my DS16, but they would be an improvement over the view in the C8.) However, in defense of my C8, I did manage to find eight new galaxies with it that weekend, bringing my deep space objects total to a measly 807.

My DS16 telescope is not very portable, I believe it weighs around 400 pounds, and I keep it garaged at my brother's (Mike- who is a member of WAS as well). I tried to visualize how I would get it (the DS16) to Mt. Meadows. It would fit in my station wagon if I put down the back seats and move the front seats as far forward as they would go. Of course, this would put my face up against the windshield, the steering wheel would be embedded in my chest, my feet would have to be tucked in under the front seat and my knees would be working the pedals (and I live about four hours from Mt. Meadows), that would not be a very pleasant drive! And besides all that, nothing else would fit; eyepieces, red light, charts, tent, sleeping bag, food, water, spare tire, gasoline, etc. would all have to be left behind, or I could rent a small trailer for everything else (I did not like the idea of putting the scope in a trailer). So my choices were: buy a van (\$25,000?) large enough to put the DS 16" in; second, buy an Obsession or Tectron Dobsonian telescope (\$4,000 - \$5,000); third, give up the whole idea and keep using the C8 at Mt. Meadows; fourth, convert my DS16 to a Dobsonian for a fraction of the cost! This last idea seemed to be the most plausible and cost effective (I already had the primary mirror). I knew of Paul Henze's ability to build binocular tripods, and I had seen the upper assembly that he built for the club's 24.5" scope. Now, back to January 12th.

Paul told me my timing was perfect, that he needed a project and that we could start that Saturday (January 15). I asked Paul if he thought it would be ready by the Messier marathon on March 31st, he thought it would be ready. I went up to his house in Westminister (Jan 15) and we went up to Lowe's to purchase the necessary wood, tubes, and some hardware items to get started. Paul did the work. He started on the upper assembly, making the necessary calculations, and got right down to work. During the course of the construction (I went up to Paul's about three or four more times), I basically just held the wood, while he cut and assembled it. I did some sanding and I crimped a couple of poles (this made me feel a little useful). Paul Henze and Ron Smith recommended that I buy a low profile focuser, a smaller secondary mirror and holder (with a dew zapper), and a four vane spider, instead of using the original items from my DS16 (my DS1 saw first light in April 1982 - it has served me well). These changes would make collimation easier.

The entire project went extremely well. Paul did a lot of the work on weeknights

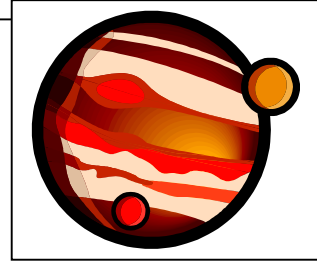
Newtonian... continued

when I was not there, so I am not aware of all of the work that went into the construction. In addition, to building my 16" Dobsonian, Paul decided to build himself a 12 1/2" Dobsonian about two weeks after starting mine, so he is building two scopes at once. As a last minute change, Paul decided that using Formica instead of plastic in the upper assembly, would make the upper assembly more rigid, so he did this, it also looks better. Paul finished the scope on February 26th, and I took it home, about six weeks after he started. That night was cloudy as was Sunday night. But Monday night was clear, so when I got home (around 10PM - I was over a friend's verifying some of my fossil shark teeth by species, I got most of them right! - fossils are my secondary hobby), I decided to set up the new scope. Keep in mind I live in Baltimore City (about a mile inside the city-county border), and the scope has no shroud yet (Paula, Paul's wife is making a shroud for both my 16" and Paul's 12 1/2" scopes). So all the streetlights and other city light pollution is cutting down on the "seeing". I did not try to collimate, I thought I would just check out a few brighter clusters, double stars and the Orion nebula (by 10 PM Jupiter and Saturn were behind the trees where I live). I started observing around 10:30 PM, my first object was the brightest star in the night sky, Sirius, night blindness was instant! The scope (Paul's handiwork) did not disappoint! The night was exceptionally clear. Next victim was the nebula (M42) in Orion, it was very impressive, the four bright stars of the Trapezium were easy. The nebulosity was all over the low power eyepiece field. I then decided to go for M65 and M66, two galaxies in the same low power field in Leo. M66 (Mag 9.04) was immediately visible, followed by M65 (Mag 9.34). WOW, from Baltimore City! And an uncollimated telescope! And the mirror had not yet met temperature equilibrium! I then trained the scope on NGC2392 (Mag 9.9), a planetary in Gemini known as the Eskimo or Clown Face nebula, instant gratification! I thought I was going to need sunglasses to cut down on the glare! The show continued, M44, the Beehive, and the other open cluster in Cancer, M67 were also very nice. Cor Caroli, Al Gieba, some other doubles and M3 all fell victim. Then I decided to get brave, go for M95, M96, and M105, all in Leo. M96 (Mag 9.24) was easy, M95 (Mag 9.71) a little more difficult, and M105 (Mag 9.26) was easy. In the field of M105, I did expect to see NGC3384 (Mag 9.96), and I did. I did not expect to see NGC3389, but after using averted vision the third galaxy (NGC3389) in the field was there! 11.8 magnitude from Baltimore City! By now, I was ready to tackle even a tougher group of galaxies, the NGC3190 group, also in Leo. This group includes NGC3190 (Mag 10.98), 3193 (Mag 10.92), 3187 (Mag 13.11) and 3185 (Mag 12.15), only the first two were visible (NGC3190 and 3193), I didn't expect to see the other two. That brought the total of 10 galaxies in Leo visible in Baltimore City light pollution. M51 (Mag 8.38) and its companion NGC5195 (Mag 9.63) were visible (no spiral structure), as was M81 and M82. To be fair, I tried to find M106 (could not find the right guide star), and M97 and M108, (had the field, these two just weren't visible).

Look out Mt. Meadows! Thank you Ron Smith for letting me come to Mt. Meadows and thanks to you Paul for building an incredible telescope! Looks like another clear night in Baltimore! (HMMMMMM: The Horsehead nebula?)

May Skywatch Calendar

Edited by Ron Smith



- 1) Gerald P. Kuiper discovers Neptune's moon Nereid, 1949
- 2) First non-stop transcontinental flight from New York to San Diego, 1923
- 4) New moon is at 12:12 a.m. EDT. Eta Aquarid meteor shower peaks
- 5) The moon passes 5° south of Mars, 2 a.m. EDT
- 6) The moon is at perigee (225,663 miles from Earth), 5:07 a.m. EDT
- 7) Jupiter is in conjunction with the sun, midnight EDT
- 8) Neptune is stationary, 9 a.m. EDT. Mercury is in superior conjunction, midnight EDT
- 10) First quarter moon is at 4:00 p.m. EDT. Saturn is in conjunction with the sun, 4 p.m. EDT.
- WAS monthly meeting. 7:30 p.m., Bear Branch Nature Center
- 11) John Herschel dies, 1871
- 14) Skylab – the United States first space station – launched, 1973
- 15) Astronaut Gordon Cooper makes the last Mercury program flight in Faith 7 with 22 orbits, 1963
- 17) First observation of cloud belts in Jupiter's atmosphere, 1630
- 18) Full moon **is at 3:34 a.m. EDT**. Mars passes 6° north of Aldebaran, 11 p.m. EDT
- 19) Mercury passes 7° north of Aldebaran, 7 a.m. EDT. Mercury passes 1.1° north of Mars, 11 a.m. EDT
- 20) Pioneer Venus launch, 1978
- 21) The moon is at apogee (251,921 miles from Earth), 11:58 p.m. EDT
- 23) The moon passes 1.2° south of Neptune, 10 p.m. EDT
- 24) Mikolij Kopernik / Nicholas Copernicus dies, 1543
- 25) The moon passes 1.5° south of Uranus, 2 a.m. EDT. Asteroid Hygiea is at opposition, 2 a.m. EDT. Uranus is stationary, 11 a.m. EDT
- 26) Last quarter moon is at 7:55 a.m. EDT
- 27) ASTRONOMY Magazine founded by Stephen Walther, 1973
- 28) Chimps Able and Baker flew in space, 1961
- 29) Solar Eclipse used to test Einstein's Theory of Relativity, 1919
- 30) Surveyor 1 launched, 1966
- 31) Jupiter passes 1.2° north of Saturn, 6 a.m. EDT

