

Harford County Astronomical Society

Bel Air, Maryland
www.harfordastro.org



Volume 33 Issue 6

June 2007

Public Star Party (Open House):

June 23, 2007 at dusk

At the Observatory

General Meeting:

June 30, 2007, 7:30pm

At the Observatory

Club Calendar for 2007:

Open House/Public Star Party

July 21, 2007
Aug 18, 2007
Sept 22, 2007
Oct 20, 2007
Nov 17, 2007
Dec 15, 2007

Meeting Night

July 28, 2007
Aug 25, 2007
Sept 29, 2007
Oct 27, 2007
Nov 24, 2007
Dec 22, 2007

Please check the website for possible schedule updates and changes:

<http://www.harfordastro.org>

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Recent Open House and Outreach Presentations

By Grace Wyatt, Tom Rusek and Tim Kamel

Saturday, May 26, was our second attempt at an open house at the observatory. Mark Kregel, Irv Koplovitz, Sal Rodano, Tom Rusek, Karen Carey and family and Grace Wyatt came out to help with the event. Mark, Irv, Karen and daughter Maggie set up scopes outside of the observatory. Sal ran the telescope in the observatory. Tom helped out at the observatory, escorted people to the observatory and whatever else was needed. Grace directed people from the parking lot to the observatory. Although not quite as cloudy as our first attempt, there was quite a bit of cloud cover that night. The moon and occasionally Saturn were the only targets shining through the clouds. We had 15 people come out for the event. All parked in the parking lot at Harford Technical and walked back to the observatory. No one seemed to mind the inconvenience of walking the short distance to the observatory. The public truly enjoys going to the observatory building to look through the telescope. When word gets out the building is open and we are using it for the open house events, attendance will go up. Think about coming out to help with the open house events. You don't need a telescope. We need people to direct customers from the parking lot to the observatory. If crowds get large, we will also need help with traffic up to and down from the dome.

- Grace Wyatt

Folks,

Another month has gone by with the outreach program stretching its wings over Harford County. On May 15th, a presentation was given at St. Joan of Arc Elementary School in Aberdeen. The first graders were learning about the moon and so Tom gave a talk on the moon, its phases and a couple of hands-on exercises to show the 22 students how the phases of the moon work. Everyone had a great time. Also, a very successful venture involving indoor and outdoor programs, was completed in Whitehall on Saturday, June 22nd. An enthusiastic crowd of approximately 150 scouts and their families received an indoor presentation by Tom and Barbara on the springtime constellations, planets, and other oddities of the universe. Following the indoor talk, everyone was treated to a show of the night sky by our members. This was a close call due to local haziness but the club rebounded to views of Venus, Saturn, Arcturus, and a constellation or two later on in the evening. Deepest thanks to the real stars of the evening; Mark Kregel, Tim Kamel, Karen and Maggie Carey, Jim Garrett, Mike Talbard and Roy Troxel. A very special thanks goes out to 7 year old Maggie Carey who entertained the observers with her telescope and was truly a dynamic example of hospitality and dedication. Keep up the good work, Maggie. Stay tuned because there is more to come this year.

- Tom Rusek

Hidden Valley Scout Program

June 2, 2007

On June 2nd, The HCAS provided an outreach programs at a Boy Scout camporee held at Hidden Valley Camp in White Hall, MD. Tom Rusek started off the event with a 1-hour in-door presentation that was followed by a 90-minute outdoor session under what was hoped to be fairly dark skies.

Participation by the public was good, with some 70 scouts of various ages (mostly under 12 years old, I think) and their scout leaders, parents and siblings. Participation by the club was also very good. Mark Kregel brought his 14" Dob. Mike Talbard had his 11" SCT. Roy Troxel had his 120 mm Refractor. Karen Carey brought her 4.5" reflector and he daughter Maggie brought a 60 mm Refractor. Jim Garrett brought Binoculars and I brought my 70 mm ETX-70 Refractor. The temperature was mild and insect presence would be considered light, though most of us were prepared and applied repellent.

Unfortunately, the weather did not cooperate very much. About the time the sun was setting, there was a layer of haze that was becoming more pronounced as time went on and was substantial as twilight was ending. We had a lot of trouble locating Venus through the murk but did eventually find it. We were unable to locate anything else by the time we started the session at 9:00 PM. Mercury was not found but would have been difficult behind the trees. There was no hint of Saturn. Or any stars for that matter.

With the scouts anxiously waiting for views, we all started to put Venus in the field of view when it occurred to me that I could take advantage of a certain feature of my GOTO scope. I aligned to the north using a compass, accepted the two alignment stars, Arcturus and Vega, even though I could not see them, and punched up Venus. As would be expected with a rough alignment like this, Venus was way off, 10-15 degrees. No matter. I brought Venus into the middle of the field and then I synchronized the scope, basically telling the scope that these are the coordinates for the planet. With this adjustment, I could now slew to nearby objects with reasonable confidence and I punched in Saturn. Sure enough, in the field of view of a 7 mm eyepiece was a 50-power view of Saturn right through the haze. The view was shaky but settled down every so often and the rings were readily seen. Shortly thereafter, Jim and Mike were able to located Saturn using averted vision and bring in views also. The remaining 4 scopes showed a bright Venus with a 50% disk. Lines of people to look through the scopes were long and, judging from their comments, many were evidently having their first ever views through a scope.

The haze near the horizon never did clear and I was never able to see Saturn naked eye. I tried slewing to the Beehive, which is close to Saturn but could not see it. As it got after 10:00 PM, Venus was below the trees. The sky cleared somewhat overhead and we could see Arcturus and the Big Dipper and were able to show some doubles.

We ended the session shortly thereafter.

- Tim Kamel

Recent HCAS Observing Sessions

Cherry Springs Star Party

May 17–20, 2007

First Day and Night

By Tim Kamel

The four of us, Jeremy Kirkendall, Joe Manning, Roy Troxel and I, attended the 2007 installment of the Cherry Springs Star Party on May 17th through the 20th. This is a star party that is put on by the Astronomical Society of Harrisburg and this year it was moved ahead to May in the hope of avoiding the cloudy weather that afflicted the previous two years' star parties that were scheduled for mid June. Jeremy and I had gone last year and only had one night of viewing out of three.



Cherry Springs State Park, Pennsylvania

We started checking the weather forecast 10 days before the event and were elated at predictions of three perfectly clear nights and nice warm days. Our elation turned to dismay as the forecast deteriorated day by day, first losing one night to clouds and then two, and eventually having a prediction of mostly or mainly (what is the difference between these two, anyway?) cloudy with scattered rain and with cool temperature and wind chills in the low to mid 20s at night.

Amateur astronomers being the eternal optimists, we all decided to go. So we packed our warm clothes and hand warmers (though some, who shall remain nameless, packed too many shorts. That was too much optimism), along with scopes and equipment, books and observing lists and off we went.

We all got there before 12 Noon and met at the southwest part of the park as previously arranged. Though this spot was furthest away from all services such as food wagon, the presentation pavilion, vendors tent, etc., we chose it because it was least crowded, allowing us space to spread out. It has the best view to the south and we wanted that for views of Scorpius and Sagittarius. It also allowed space for other members of another group the Jeremy belongs to, called Our Dark Skies, to join us. Lucky for us, the park had added another set of electrical outlets near our position and we were able to use it. Roy opted to stay in a hotel in nearby Coudersport. The rest of us chose to camp out at the park. After registering and setting up the

tents and equipment, we took a walking tour of the park and then drove into town for dinner. We then settled down to wait for nightfall.



Joe Manning, Roy Troxel, Tim Kamel, Jeremy Kirkendall

The camp had been fairly filled when we arrived and continued to get more crowded as the day went on. You never can tell whom you'll run into as a neighbor next to us turned out to be a member of the Howard County Astronomical Society. As would be expected, there were a variety of scopes there. All types were represented with Dobs being the most dominant and the largest. Near us were a 36" and a 30". There were several in the 20"-24" range. I do not have a good enough eye to tell which were home built and which were store bought but I suspect most were home made.

The weather was best described as changeable. It varied from mostly cloudy to mostly clear. When the sun was behind the clouds, it was downright chilly and it was fairly comfortable with the sun out. There was a modest breeze that stayed with us through the night.

For this first night of observing, I set up my 8", f/7.8 Criterion RV-8 on an LXD 75 mount. Joe brought his 20" home made reflector on a Dob base with digital setting circles. Jeremy set up both his scopes – an 8" Celestron SCT and an 80 mm ED, both, I believe, on GOTO mounts. Roy brought his 120 mm Orion f/8 on a PUSH TO equatorial mount.



Many people and scopes!

At sunset, the weather cooperated and we had mostly clear skies. We completed our alignments and started doing some observing. Initial subjects were Venus and Saturn along with some old friends in the immediate area, such as the Beehive.

As twilight ended, it became incredibly dark. The sky became so full of stars that picking out bright constellations became difficult. On the other hand, dimmer constellations, such as Cancer, could be readily seen. The Milky Way was bright and distinct. It became evident, however, that seeing was not good. Views of Saturn were lacking in detail, at least in my scope. However, in Joe's 20" reflector, views of Saturn were picture perfect, with the Cassini division and the shadow of the planet on the rings clearly seen.



Photo: Scorpius rising (J. Kirkendall)

Our clear skies were short lived, however, and clouds started rolling in. Slowly at first, covering the sky to the northwest, and eventually being completely clouded over by 10:30 PM.

We waiting for conditions to improve and though there were periodic gaps in the clouds, there was not much we could work with and by 12:30 AM I decided to pack it in. I covered up my scope and went to bed.

At 2:00 AM I woke up to excited voices and decided to investigate. I found that the sky was again completely clear. I was expecting clouds to roll in again any minute and debated uncovering the scope. After 10 minutes or so of peeking through scopes of other people, I convinced my self that this might be the only night of viewing I was going to have and that I should take advantage of it. So I uncovered the scope and started viewing.

First target was Jupiter. It was very bright and dominating the southern skies. View, however, was disappointing. Seeing was still poor and

would remain poor the rest of the night. Contrast was poor and little detail could be seen.

I then spent some time looking at the objects in Scorpius and Sagittarius using a set of Celestron Ultimas/Orion Ultrascopics. I saw the Butterfly Cluster, M6, (bright and low density); the Whale Galaxy, NGC 4631, (very long and diffuse); M 108 (faint and diffuse) and Owl Nebula, M97, (large and very faint). I also picked up four small and reasonably bright globular clusters – M 62, M69, M54 and M71. I also saw M 109, a very faint galaxy. I tried for M 101 but could not see it. All these objects were a first for me. I also saw several objects in Sagittarius that I had seen in the past including the Lagoon, Trifid, and Eagle Nebulas as well as others that I did not log.

Overall, a good nights work considering the changeable clouds. The GOTO on the mount worked perfectly and was on target from one end of the sky to the other. The darkness was amazing. Seeing was disappointing and spoiled views of the planets. Detail on some DSOs was less than I remembered from last year, especially since I was using a bigger scope. I could only see the nebulosity in the Sagittarius nebulas by averted vision.

A little after 4:00 am the eastern sky was brightening and by 4:30 or so it was too bright to progress any more. I packed up the scope and was in bed by 4:45.

One last piece of information for this night was that it was fairly cold and I am thankful that I brought layers of clothing and an overcoat. I regret not bringing long johns because my legs and feet were cold. There was frost on the OTA but I did not have any problems with the eyepieces or the mirrors.

Cherry Springs Star Party
May 18, 2007
Second Day and Night

Our second day at Cherry Spring, Friday, started off poorly for me. I was unable to sleep and kept waking up, eventually giving up by 8 AM with less than three hours of sleep. I would have to deal with this otherwise viewing tonight, if it happened, was going to be a problem.

After breakfast and a couple of hot cups of tea at the food vendor, I was feeling better. The sky was mostly clear and the weather was warming. We walked over to the registration desk and got the first of many weather checks. Basically, clouds were moving in during the day, followed by clearing till 10 PM, after which it was to be overcast. Bad news.

We returned to our campsite and fussed around, checking equipment, books, viewing lists and whatnot. Some of Jeremy's friends from last year arrived and we spent some time getting introduced.

Joe uncovered his scope and we had several visitors come over and inquire about the scope and its riggings. Several took photos.



After lunch from the vendor, we again checked the weather and found there was no change. We fussed around some more, reading books and discussing plans. I was able to squeeze in a 2-hour nap and felt ready to take on whatever the night would throw at us.

We then got our best news of the star party. The weather was going to clear and stay clear. We were in for a cloudless night.

For tonight's session, I replaced my 8" with my 10" f/4.7 Polaris reflector on the LXD-75 mount. I had not moved the mount since the previous night so I am hoping my GOTOs will still be good. I have been working on my Messier list, on and off, for the last two years and mostly have galaxies left. Tonight, I want to put a dent into what remains, and this dark site, along with this scope, should be the ticket. I check my collimation, and it is still good.

Roy and I drive into town for dinner. The running hot water in the men's room is just what I need to get my contact lenses on. Now, I am ready.

Sunset is finally here but looking at the faint fuzzies will have to wait a bit. We need to wait for twilight to end and the moon is still up, only a day past new. It is a thin sliver of a crescent and earthlight is apparent.

We also get a treat! Mercury is present, just above the tree line. This would be the second time that I have seen it. It would be Joe's first. Most of the viewing is through Joe's 20" reflector and under high power. The image is dancing around but a gibbous disk is clearly seen. We also view Venus. It is darn close to being 50% gibbous. We try several different filters but no details are visible. We also look at the moon and try some filters to dim it down. Try a red filter and the moon looks like lava. Saturn is picture book perfect in the 20" scope. We can see five moons though one is difficult.

By 11 O'clock, the moon is gone and it is pitch dark. The Milky Way is again prominent. Some people say that it is bright enough to cast a shadow. Not to me! It is so darn dark that dark objects, such as my observing chair (black and dark red) and scope (dark blue) are almost invisible unless I am right next to them. Forget about finding the porta-potties without a flashlight, or finding your way back.

There are no clouds, at least not that we could see. Clouds become visible when illuminated from underneath by lights. There are no lights and clouds become apparent only when they block out stars and one happens to be looking in that direction. Seeing, on the other hand, remains below average, as predicted by the Clear Sky Clock. And with the planets being so low on the horizon, views of them are really suffering.

For the next four and half hours or so, we are observing deep sky objects. Though we all had our own scopes and were using them, we were also at Joe's scope and Joe was sharing views through his scope. I saw M 13 at over 500 X and the resolution was fantastic. The Sombrero Galaxy showed the dust lane. Views of M 101 (pinwheel) and M 51 (whirlpool) were wonderful as was the Veil with hydrogen filter.

Working my own scope, I spent the early part of the session in Virgo's Realm of Galaxies, starting with Markarian's Chain and M 84 and 86. Though I use a wide field eyepiece, I do not see anything else that I could recognize besides the two galaxies. I have an observing list of Messier objects sorted by best viewing time and I use my GOTO to view each item. I get to see M 105, M 98, M 100, M 85, M 88, M 91, M 89, M 90, M 58, M 59, and M 60. Mostly, these are dim extended objects that show no features other than a puff of smoke of different shapes. Some, such as M 89 and M 105 are almost invisible and are difficult to see. I also got to see M 95 and M 96, two dim galaxies in the same field of view, and the Leo Triplet, also dim but different than the rest. Lastly, we get to a showstopper. Last night, I was unable to see M 101 (Pinwheel Galaxy) in my 8". Tonight, in the 10", it was fairly bright, large and somewhat indistinct though there was no apparent structure. I asked Joe to bring it in using the 20", and though difficult because it was almost overhead, he was able to locate it. What an incredible view. The spiral structure was readily seen as well as dark lanes between the arms. The core was compact and bright. Simply magnificent and our group and some others in the area must have spent some 20 minutes climbing up the ladder and looking at it. We followed this with M 51 (Whirlpool Galaxy) and satellite. A lane of stars could be seen connecting the galaxy with its satellite. Again, impressive.

Also during this night, I diverged from my list a little and looked at some old friends, such as M 44, M 67, and also saw a globular cluster, M 68. I also hit some of the object I saw last night in Sagittarius.

I close off the night with Jupiter, and catch the tail end of Jupiter's occultation of Io as Io emerges from behind the giant.

By 3:30, I am pretty much wiped out. The lack of sleep is getting to me and, even though I brought an observing chair along, I hardly use it. I have been standing since sunset and my feet hurt. Also, it is cold and there is frost forming on the ground (but nothing on my equipment!). My feet are cold through two sets of socks. Roy had handed out some hand warmers and these helped a lot but not completely. I pack up my scope and pack it in at 4:00 AM just as the east starts to brighten. The rest of the group has already packed it in.

A darn good night, busy but satisfying. I am able to accomplish my goal of hitting many of the Messier galaxies that I had not seen previously. Though most are dim and dull, some were spectacular. I also visited some nice open clusters, got to see Mercury again as well as Venus, Saturn and Jupiter, and see the end of an occultation of one of Jupiter's moons. The GOTO mount worked OK, not as good as last night but well enough. The scope itself was fine and I got to use some of my 2" eyepieces.

Cherry Springs Star Party

May 19, 2007

Third Day and Night

Third day, Saturday, starts off much better than yesterday did. I was able to get 5 hours of sleep and the day starts off perfectly clear with nice blue skies. We hope this is a good omen.

After breakfast and hot tea at the vendor stand, we visit the registration tent and get a weather update. Prediction is for clouds rolling in and then out during the day. We will have a clear night till about 1 PM after which it will be overcast.



Our campsite. That's Joe's scope to the right. Mine is under the tarp. Jeremy is to the left.



We basically do the same things as yesterday and the day before, checking viewing plans, reading books, having lunch, etc. I try to take a nap to make up for some lost sleep but to no success. The sun is fairly bright and the tent is too warm and there is too much activity going on.

Today, the vendor tent is open and there is also a swap meet. We go and check it out and I am able to buy a used set of Burnham's Celestial Guide, all three volumes, for a good price. They look almost new. Otherwise, participation by vendors is low. The swap meet is minimal. Joe's scope again gets a lot of attention from others who come over and ask questions and take pictures. I go to the registration tent again and buy some more raffle tickets for the astronomical hardware being given away. The drawing is at 7 PM and one must be present to collect. We all go, but none of us win anything. Oh well.

For tonight's session, I go back to the RV-8, intending to do some high power planetary viewing. But otherwise, I have no agenda.

After sunset, the moon is out and is at conjunction with Venus. The moon will not set till almost midnight and during the night I could look at the moon and see and see it closer than it was the last time I looked. Earth light is still prominent. Mercury is also still there, in a gap in the tree line. My scope is not positioned for the view with trees in the way but I can see it in my binoculars if I move over a few feet. I spend some time with Saturn.



Conjunction: Moon and Venus.

I then turn on the "Tonight's Tour" feature on my Autostar and look at what is featured, and I stop with Jupiter. One of our neighbors lets me see Herschel's Garnet Star, a carbon star that is supposed to be red but looks more orange to me. It is now about midnight and I take a break, heading to the food vendor for a tea. This is not an easy

task, mind you. It is at the other end of the park and, even with a red flashlight, landmarks are tough in this darkness and it is easy to take the wrong way. Basically, we over shot and had to work our way back. Intending to resume the night's tour I find clouds are now rolling in. I am tired and a little cold and I gladly pack it in, some time around 1:00 AM.

It is a restless night and I finally wake up at about 7 AM on Sunday. It has been raining and every thing is wet. The rain stops and I start packing up my scope before it starts again. It doesn't and I keep going, packing up the tent and other stuff. Jeremy is now up and he is also packing up. He had packed up his scopes the night before. Joe is also packing up.

We head out about 9:00 AM or so, but it is a tough ride back home! I am OK till we get onto the highway outside of Harrisburg, and then I have a tough time keeping my eyes open. The missing sleep finally catches up with me. Though Jeremy does a good job of keeping me talking, it is hopeless and I pull off in Shrewsbury and spend 25 minutes walking around and getting my circulation going. We make it back in one piece some time around 1:30 or 2:00 PM.

Overall, a great event and I am already looking forward to next year. Likely I will work a different list, such as RASC Finest or maybe the Best and Brightest 200. These are mostly NGC objects.

Some regrets – I had some eyepieces I wanted to check out but did not have the chance. I have a 2" Barlow that I bought at last year's event and have yet to try out. I did not get a chance to try that one either. I think next year I might pack some cooking supplies. It would fill the time during the day and I like barbecues. Definitely will pack long johns.

Cherry Springs

June 9 and 10, 2007

By Roy Troxel

After returning home from the star party in May, I decided to monitor the sky clock for Cherry Springs and wait for the next period of two clear nights, with no moon. (The Cherry Springs clock is located on the Web at: <http://cleardarksky.com/csk/>.) I had learned not to plan too far ahead, but prepared mentally to leave within 24 hours' notice. To my delight, June 9 and 10 offered two nights in a row of no clouds, better-than-average transparency and better-than-average seeing. I packed up my scope (120mm Orion SkyView Pro), and left for northern Pennsylvania.

I arrived at the park about 3pm on Saturday, June 9. There were about 20 people there, some of them still setting up their scopes.

Most of the telescopes were Dobsons, ranging from 12" to 25". A doctor from Philadelphia also had a 7.1" refractor. At this time, I began to get a case of aperture fever, so the doc and his friends recommended three brands: Obsession, StarMaster and TeleKit. (In fact, three of the scopes there were Obsessions, but they were definitely pricey.) The TeleKit was the least expensive, but, as the name suggests, needs to be assembled completely by the owner. Many of the observers there recommended shopping at Astromart.com for the best bargains (but some of you probably already knew that).

OK, enough consumerism. My game plan for the weekend was to observe all the double systems on the Astronomical League's Double Star list, plus every star cluster visible. I mostly revisited these objects because I wanted to see them under the excellent dark sky conditions of Cherry Springs. I also wanted to spend some time just panning my scope cross the Milky Way, to see what would appear.

Both Saturday and Sunday nights were exceptional. In fact, several observers commented that they had never seen any better nights at CS. There were about 20 people there on Saturday night and about 10 on Sunday. I spent most the time doing my survey of double stars and clusters in Cygnus, Aquila, Ophiuchus, Sagittarius and Scorpius - all along the Milky Way's silvery clouds and dark bands.

The Milky Way was so bright, you could see it as a series of distinct star clouds, rather than just a long streak of stars. You could see the black nebulae in Cygnus very clearly, and it was obvious that they were floating somewhere between earth and the stars of the Milky Way. The view was almost three-dimensional.

All the horizons were unusually clear. I watched Altair rise in the east, and it was as bright and steady as Arcturus, which was near the zenith. Similarly, the M7 star cluster was sitting very near the Southern horizon, on the Scorpion's stinger, but it was as clear as M13, which was almost overhead. Behind the various Sagittarius clusters were large clouds of stars, shining like footlights on the vast stage. This naked-eye view was in fact as spectacular as anything seen through a telescope. You almost didn't need to look at the distant galaxies, because you were already looking at the Milky Way up close, and from the inside. I stepped back from my scope when I realized this, and just let my eyes absorb the view for a while.

By midnight, Cepheus and Cassiopeia were rising in the north, with the Great Square of Pegasus ascending diagonally in the east. My first thought was to check out the Double-Cluster. Although it was only about 15 degrees or so above the horizon, I used the 22mm Lanthanum eyepiece to obtain my best view yet of these clusters. Next, I aimed the scope at Delta Cephei, which is not only a variable star, but a beautiful double as well.

They all appeared as tight points of light in the refractor. Porrima (Gamma Virginis), with only .8" separation, looked like it did last month: two egg yolks trying to separate. However, Alpha Hercules was spectacular, with both stars a burning metallic red. Their glow was even more intense with higher powers, as was the Lyra double-double. I think a refractor is well-suited for this kind of viewing, although I've probably pushed my 120mm to its limit.

Then there were the planets: Venus, Saturn and Jupiter. Venus was just going into its crescent phase. Using the Green #58 filter, I could detect some faint gray areas along the terminator. Turning upward toward Saturn, I noticed that the seeing was definitely better than in May, and the planet displayed two central bands clearly, with Cassini's Division very clearly defined, as were the shadows of the rings. This was not, however, the best view I've had of Saturn, despite my using the light blue #82A and deep yellow #15 filters. I've had slightly better views at Broad Creek and Darlington. A few hours later, I viewed Jupiter as it transited in the south. It was extremely bright, so in order to see any detail, I needed to apply my darkest filters (#80 blue and #25 red), which did display five or six bands. Couldn't see the red spot, however.

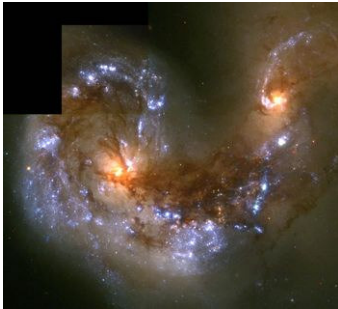
The doctor from Philadelphia with the 15" Obsession was using an OIII filter on Jupiter which made the red spot stand out like a huge black whatever. (We were all lined up for that view.) Also, through his 7.1 inch refractor, we could pick out black nebulae in Sagittarius. I returned to my own scope and saw the Lagoon and Trifid nebulae, using the Orion narrowband filter. They were unusually bright, considering how close they were to the horizon

With members of the Princeton club (with their 25-inch Obsession), we viewed two colliding galaxies in Canes Venatici. The galaxies had numbers from some obscure catalogs (not Messier or NGC, but Hickson and Arp), so I can't give you any coordinates. However, it was obviously two colliding galaxies, perpendicular to each other!

Halton Arp's *Atlas of Peculiar Galaxies* is a catalog of [photographs](#) of different kinds of structures found among nearby galaxies. Arp felt that the reason why galaxies formed into spiral or elliptical shapes was not well understood. He perceived these galaxies as small "experiments" that

astronomers could use to understand the physical processes that distort spiral or elliptical galaxies. Most of them are spiral galaxies, still in their formative period.

You can read more about them here: http://en.wikipedia.org/wiki/Arp_galaxies



Arp 244: The Antennae Galaxies

You can obtain a guide for locating these galaxies, as well as other lesser-known but interesting objects at:

<http://www.faintfuzzies.com/ArpGuide.htm>

However, these are very dim objects and present a challenge to most amateurs, even those with large scopes. You can see some amateur photos here:

<http://members.aol.com/anonglxy/besthick.htm>

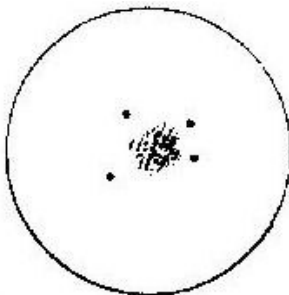
On Monday morning, just after sunrise, I took the scenic route home: Route 44 through Susquehannock State Park. With the morning sunrays shining through the green foliage, I was reminded what an attractive planetary site Earth is.

Messier Objects for Summer

By Steve Krall

Steve uses a 10-inch, F/5 reflector unless otherwise noted. The observations were made in Kingsville, Maryland. He prefers the star-hopping method over using a go-to device.

M4

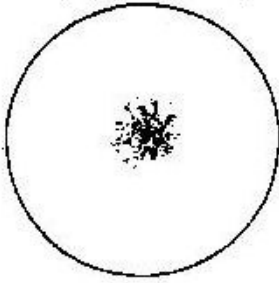


07/13/95, 10:10pm, 8" Reflector, 175x

Tracking down this odd-looking globular was a snap. Just zero in on brilliant Antares with your Telrad and shift your focus a degree directly westward, where it appears as a rounded, milky-white ball. It is a little compressed, partially resolved and enveloped in a thin nebulosity. Higher power showed it as being more compact and brighter. I could resolve many more stars but I was especially attracted to the center where I could see a prominent row of glittering stars in turmoil, linked together as a chain, girdling the entire cluster.

M4 is very resolvable and can even be seen by some observers with the unaided eye on a clear dark night. I recommend medium to high power. While you are in the neighborhood, you can also take in another interesting Messier object, M80, just a few degrees north of M4.

M5

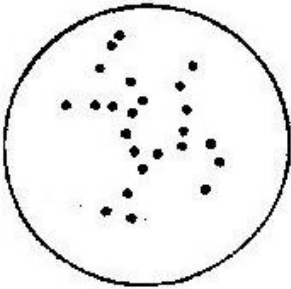


07/01/95, 11:30pm, 290x

Finding this particularly fine globular cluster located in Serpens (a sparse part of the sky that lacks bright guide stars) can be a daunting task. First try for it using your lowest power on an exceptionally clear night. It lies about seven degrees (four fingers wide) west and a tad south of the faint star, Alpha Serpens Caput, where it appears as a round, soft-glowing, blue-gray patch of light surrounded by a thin

haze. By increasing the power, however, M5 becomes a stunning display of many stars seemingly gushing out in every direction from its star-packed core. M5 is one jaw-dropping cluster deserving a lot more notice, and I like to compare it to M13. Use as much power as you care on this one! Ironically, Messier described M5 as "a fine nebula which I am sure contains no star."

M7

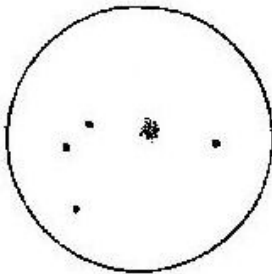


07/31/95, 12:25am, 50x

Being the southernmost of all the Messier objects, this wide-open cluster might be difficult to spot. Although very low in the sky, some discerning observers claim it can be bright enough to be seen with the naked eye on a prime night. I cannot claim such visual acuity - not from my back yard, anyway. However, when optimum conditions are not at hand, one sure way to find this beautiful cluster is to first

pin down the bright nearby M6, then slide down a few degrees southeast, where you can locate M7, abounding with brilliant blue-white stars and about a degree wide. I particularly liked M7's extra-large size and easy resolvability. I could easily observe this wonderful cluster with my 4-1/4" reflector, with no less fascination than with a 10" reflector.

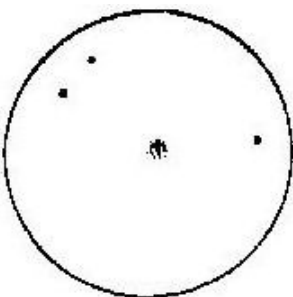
M9



07/30/95, 11:30pm, 50x

Surprisingly, I found M9 to be an easy target, just three degrees to the southeast of Eta Ophiuchi. At first glance, it appeared as an unremarkable-looking, small, round, very faint hazy patch of light. Using higher power, it showed up a little brighter, a little more compressed, but still unresolved and looking strikingly similar to close-by M19, just to its south. Uncovering M9 also gave me the opportunity to investigate some of the other close-by attractions.

M19

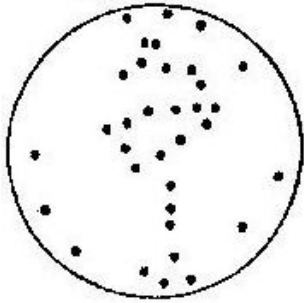


07/30/95, 11:20pm, 90x

Finding this cluster is a piece of cake. Simply shift eastward on a parallel line about 8 degrees from Antares. Under low power, M19 appears as a very small, featureless, soft-glowing, opaque,

compressed, smoke-gray sphere. It appears much fainter than its neighbor, M62.

M23

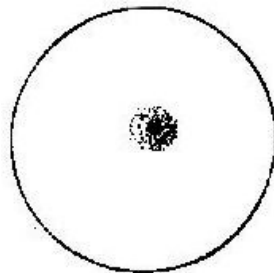


7/31/95, 12:00am, 50x

Lying in the constellation Sagittarius, in a somewhat blank area, with only a few pilot stars to guide you, locating M23 can be a daunting task. One way to get the range of this spectacular cluster is to sweep an area about ten degrees northwest of Lambda Sagittarii. You should come upon this impressive cluster which is comparable to the beauty of the Butterfly Cluster (M6) and the vastness of the Beehive (M44). M23 is a classic open cluster, and more. It is exceptionally large, teeming with a mixture of large and small stars randomly strewn about. It also contains a unique, distinctive pattern of stars at

its center resembling a futurist style of sculpture. I think a fairly large, low power, rich-field telescope would be ideally suited to view this gem.

M53

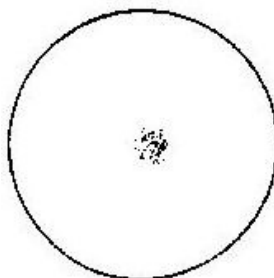


07/19/95, 10:45pm, 100x

You need an excellent night to spot this pretty globular cluster located in Coma Berenices, a small lackluster constellation wanting in bright pilot stars. Try for it about one degree northeast of Alpha, a 4th magnitude star. Your Telrad finder's target rings can be particularly helpful here. At first glance, M53 looks moderately large and bright, and somewhat brighter toward the well-compressed center. It is round and silvery in color and appears to be surrounded by a very faint halo.

Increasing the magnification further enhanced this cluster's brightness and I could glimpse the twinkling of many small stars, barely resolvable at the edge. For optimum results, wait for a clear night when it is on or about the meridian to view this distant cluster lying on the edge of the Milky Way. While you are there, you might take the opportunity to shift your scope only a couple of degrees north and visit another interesting object, M64, the "Black Eye" galaxy.

M62



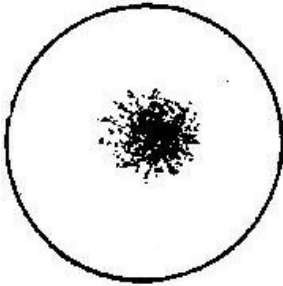
07/30/95, 10:25pm, 300x

If you ever had any concerns about finding M62, first locate M19 in Ophiuchus (see above) and then just rappel straight down four degrees where you will arrive at M62. (Your Telrad's four-degree ring will come in handy here.) This globular is fairly large, ashen-gray in color, fairly compressed and brighter toward the center. It flaunts an overall pleasant, soft radiance. It perked up at higher power, revealing

a larger, brighter core but I could not resolve any individual stars. I did sense a flickering star light, just out of reach, trying to come through its cocoon-like veil. Although not appearing really unique or distinctive, I found M62 impressive enough to observe it for a time.

According to Messier, M62 “resembles a little comet, bright in the center and is surrounded by a glow.”

M92



07/30/95, 10:35pm, 300x

I could easily locate this lovely globular cluster in Hercules with low power. Look for this gem lying several degrees due north of Pi Herculis. Initially, it appeared similar to M62, but just a wee bit brighter and hazier. At moderate power, it began to take on the aspect of M13 (though somewhat smaller) as numerous stars were readily resolved to the edge. Using more magnification, even more stars were resolved.

Eventually, using my highest practical power, a myriad of sparkling stars filled the field of my eyepiece as they seemed to explode out of the heart of the cluster in absolute bedlam. M92 is an overwhelming object and I was especially drawn to the compressed mass of stars at its center. Higher magnification is the way to go to resolve this fascinating cluster in all its glory.

According to Messier, M92 “contains no star. The center is bright and clear, surrounded by nebulosity.” [Messier’s scopes failed to resolve most star clusters. It was not until the Herschel family’s reflectors were used that these objects’ true nature was known.]

M102



04/27/98, 10:55pm, 50x

When I first glimpsed M102, it appeared as a slender, slightly arched, elongated, extremely faint, smoke-gray plume. Residing in Draco, a vacant part of the sky, without bright guide stars, M102 can be troublesome to find and its dim light easily overlooked. However, you can find it rather easily if you first locate M101, a brighter neighbor, then carefully slide eastward about one hour on that same parallel

where you can find M102 lying near one of three bright stars which form a distinctive triangular configuration. Once there, higher magnification will brighten up this evasive galaxy whose light has transited through space for 30 million years before touching the retinal cells of your eyes.

M102 is also charted as NGC5866.

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