The Valley Skywatcher

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Regular Features

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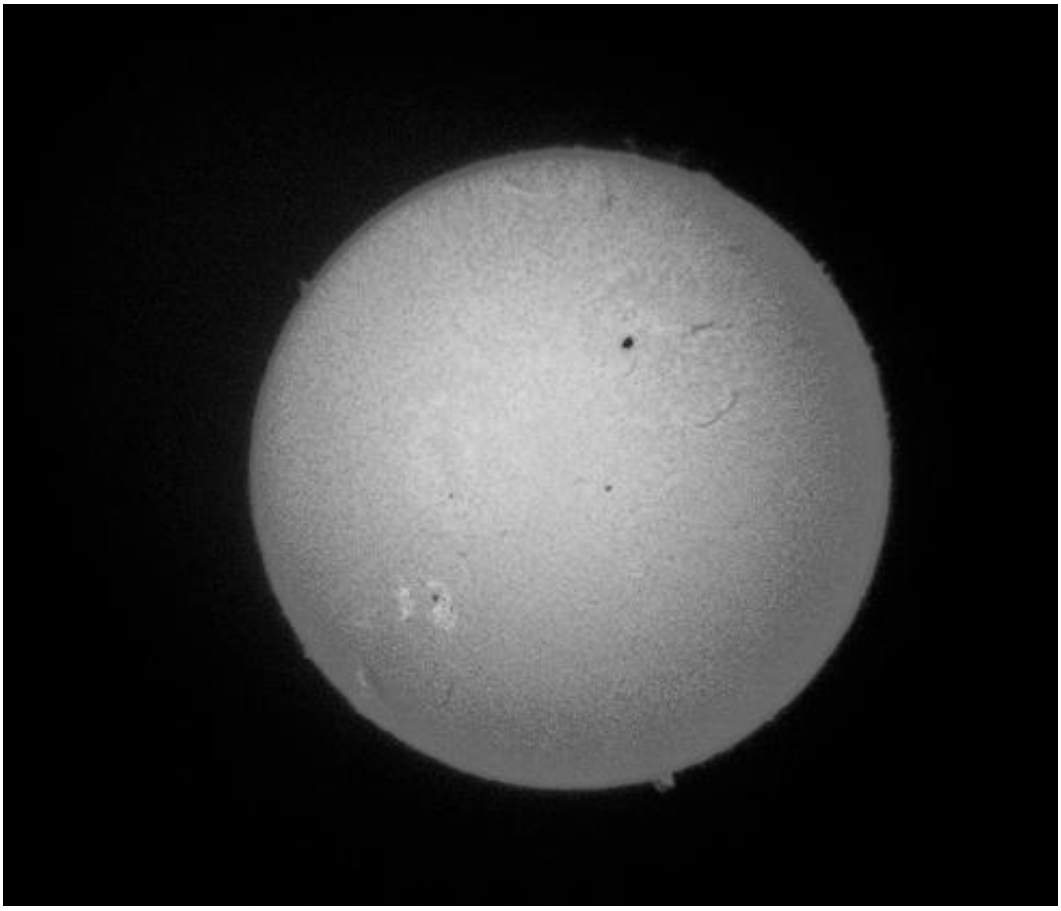


This photo of the sun was taken with a Coronado PST with a Panasonic GX7 and eyepiece projection using a Meade Series 4000 26mm eyepiece. By CVAS member Bruce Krobusek.

Friday, September 27, 2013: Quite a night at Indian Hill

By Marty Mullet

Armed with my usual stockpile of books, charts, and magazines, I stopped in at Indian Hill around 9:00pm. The setup procedure of the Stokes 16" was routine and by 9:30 I was ready to start viewing. Being partial to globular clusters, I started in Hercules with M13 and M92 using a 32mm eyepiece. I never tire of contrasting these two clusters. With M92 in the eyepiece, I dropped down to an 18mm eyepiece and noticed the skies were exceptionally steady. Feeling brave, I slipped in a 12mm Plossl and was amazed at how well the cluster resolved. This was one of the times I wished I owned a premium eyepiece, rather than my collection of generic and discount lenses. M92 resolved down to the core like I had never seen it before. A quick look at M30 and M72 with the 18mm and then the 12mm confirmed my suspicions that tonight's sky will take some serious magnifications.

Having just received the November issue of S&T, I recalled the article on the clusters of the Andromeda galaxy. As usual, I had it with me and about 10:00, I slew the 16" over to M31. Using M32 as my starting point, I inserted a 25mm lens and was able to star hop to HD 3431, a 6.8 mag white star at the southwest edge of M31. From there a simple star hop to 8.5 mag V354 Andromedae looked pretty straightforward. It wasn't. After eight or ten wrong turns, dead ends, and "there's supposed to be a star right there", I finally arrived. Using the 18mm, starhopping past a pair of attractive double stars and an asterism that reminded me of the Great Square, I reached an arc of five stars that for some reason reminded me of a grin. From the Cheshire Cat. From there globular cluster G1 was at the edge of my eyepiece, nestled between two very dim stars. I thought it looked distinctly nonstellar although I can't pinpoint why. It wasn't big, it wasn't fuzzy, but something about it made me think it wasn't just another star. Supposedly, G1 is the most luminous globular cluster in the local group with about twice the mass of Omega Centauri. From here, the article invites me to check out G2 since it is right in the area. No such luck. After losing my way, adding a Barlow, taking it out, going to a 12mm, and losing my way again, I conceded defeat. Time for a break anyway.

Next attempt was G76. At mag 14.3 I was semi-confident I could find it and returned to M32. From here I dropped down to HD 3914, a mag 7 star in the same low-power field as M32. Deciding this time to take the easiest, rather than the most direct route, I starhopped in a wide circle and snuck in from the south. Barely recognizable with the 25mm, I inserted the 18mm to be sure I was at my destination; a W shaped asterism with a lower center point. It reminded me of the way I learned to make a W in elementary school, many, many years ago. Surprisingly, it didn't remind me of Cassiopeia, maybe because the ends are much longer. Anyway, the three brightest stars in this asterism are about twelfth magnitude and easily visible. The rest were visible with averted vision, so I tried the 12mm. Wow! Just like that, this asterism popped into view. About 14 arc minutes wide, it filled the eyepiece. G76 was easily visible with direct vision, although it looked stellar. All the other members of the asterism are local stars so I thought it was pretty neat how G76 filled out the shape.

At about 11:30, I was checking my charts for my next target when an unexpected visit from a much closer astronomical member surprised me. I was looking downward when the observatory instantly filled with white light! Lasting two or three seconds, it was brighter than a full moon, nearly as bright as sunlight. Startled, I spun around and caught the last few seconds of the brightest, whitest meteor I have ever seen. It left a rather thick, lumpy trail that lasted for about 20 seconds. I took a minute to log the time, altitude, and location to report it to The American Meteor Society. www.amsmeteors.org (They have a cool website where you can report bright meteors and fireballs.) Then it was time for another break and for my night vision to return.

G156 is the closest globular to M32, so I naturally thought it should be the easiest to find. Maybe not. At magnitude 16.2, I thought it would be right at the limit for the 16", but this would be the night to try it. Back to M32, and a quick jump northwest to HIP 3333 (Wolf 14), a 9.3 mag star visible in the finder. In the

same field as Wolf 14, a line of three magnitude 16 stars should be visible with G156 as the middle one but slightly off center. With the 12mm eyepiece, I could just make out the two outer stars but no sign of the one I wanted. In went the 18mm with the 2x Barlow. No help. The two outer stars were easier to spot with averted vision, so I tried the 12mm with the Barlow. There it was! Well, maybe. Maybe not. I could just pick up the outer stars in the line with direct vision, but G156 remained elusive. Once or twice I thought I caught it with averted vision, but not enough to say for sure. So I logged that one as a definite 'maybe'.

By now it was after midnight, and fatigue was slowly taking over. I dialed back the power and stopped to look at Uranus since it was right in the neighborhood. I keep reminding myself that Jupiter only gets us halfway to Saturn and Saturn is only halfway to Uranus. No wonder it always looks so cold and forbidding to me. And yet, compared to what I had just seen, it is practically in our back yard!

As I was packing up and securing the place, I was thinking about the observing session I just had. If my calculations are correct, I was viewing at 316 power and 474 power. Granted, the views weren't perfect, actually mediocre at 474x, but I had never even approached such magnifications before. And seeing globular clusters from a different galaxy! Amazing! Something I never dreamed could even be done on amateur equipment. And top it all off with the brightest meteor I have seen in thirty years of looking up at the sky.

Quite a night.

President's Corner

By Gus Saikaly

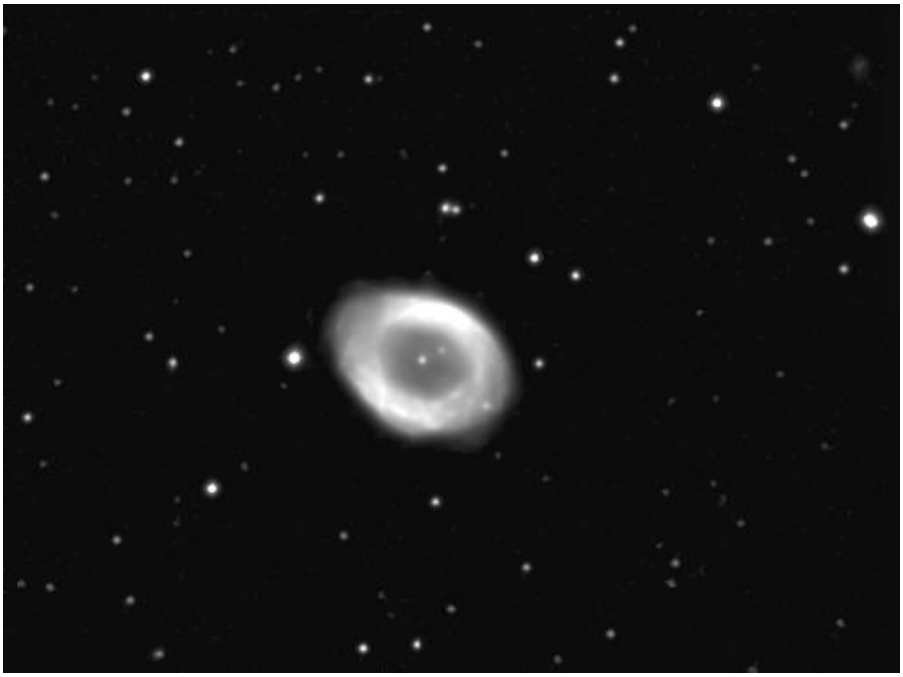
Well Friends, here we are 2014, another year hurtling through space hoping for an occasional glimpse of this Universe or any of its particulars. And once in a while we really get an opportunity that erases feelings of futility one experiences with your hobby. ISON was such an opportunity. It almost was the cherry on top of the cake, or the olive in the martini, if you prefer. Nonetheless, it provided excitement not experienced in a while. SOHO's images of ISON's approach to the Sun were nothing if not breathtaking. You could almost feel with Icarus (Tom's hero, or maybe fool!) as its impending doom neared yet cheering him on to survive "The Encounter". Lo and behold, it did for all to see; albeit a fraction of its original self. My several attempts to view it in the pre-dawn minutes were fruitless; but I was consoled by the view of comet Lovejoy as it traveled through Bootes. I hope you had a chance to follow Bob Modic's feeds (through emails) for ISON's activities. Fascinating! Maybe the hunt was for naught but the chase was thrilling. It capped a wonderful year for our club and our hobby.

2014 may or may not have such momentous events but we could make some of our own especially since we already have a number of projects underway: the completion and activation of the North Observatory remote access project; the building of observatory/platform number 4 for the 18 inch; the completion of the parking area; the regeneration and expansion of our star party program as well as sharing the great speaker series with a wider audience. With such an inventive group I have no doubt more ideas will come forth. In particular I urge highlighting and promoting scientific activities by club members. These are some topics to think about as we 'weather" the next few weeks of clouds.

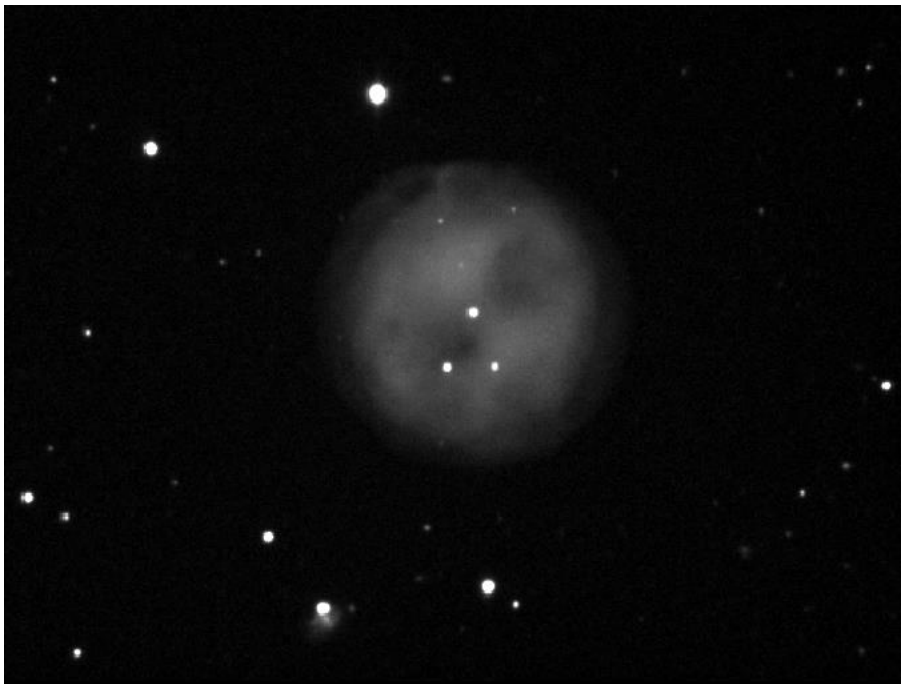
ASTROPHOTOGRAPHY

Planetary Nebulae

By Sam Bennici and Ron Baker



M57 Ring Nebula, mag 9V, white dwarf star mag 15V, roughly 2300 ly.
Telescope was manually guided for the 70 minute exposure.
Photo by SB



M97 Owl Nebula, mag 10V, white dwarf star mag 15V, roughly 2600 ly.
Photo by RB

Indian Hill – The Year in Review

By Ken Fisher

Well, there were basically four things on the books for 2013 and one lingering issue. During the year, I had hoped to get a deck built for the 18", get some clearing and site work done to expand our parking area and improve drainage, have the North Observatory fully automated, and have the place in shape for our 50th party. How did we do? Everything was operational and Indian Hill looked great for our party so there was one item down. Tom Puklavec and Russ Swaney sound like they are just about done with the North Observatory project so I'm hopeful that this will be complete in 2013 or very early 2014.

As to the parking expansion, the clearing was done by early fall but this project still needs some work – the hang up is that we need to get a piece of equipment out to the Hill for stump removal and cutting in the drainage. Once that gets done then I can install the drainage, bring in dirt, and grade the area. I've been dragging my feet a bit hoping we could kick up a free or relatively free piece of equipment but it's looking like that will not happen. So, while I would really rather not have to, it looks like I will end up renting something to accomplish the earthwork. I've done some checking and expect this to cost us about $650. I'm also expecting to spend about that much bringing in dirt.

The last step of grading and compacting the area might also require equipment rental in the $300 neighborhood. Any further progress in 2013 is pretty much out of the question so this project could well carry into summer of 2014.

As to the deck, Marty Mullet was able to get the main section of our "pier" assembled and out to the Hill. There was some discussion on starting this project in 2013 as well but judging by progress on everything else my preference was to hold off until other projects are completed. I'm still of that opinion but would be happy to get started on this prior to other projects being finished if we get a group of volunteers committed to working on this project. If interested, please contact me. Again this item is weather dependent so I expect this to begin spring/summer of 2014.

And our lingering problem is the 16". That scope has been consistently needing attention over the past several years. I think that next year we really need to open a discussion on what to do with this scope, mount, and controls. Continuing to pour money and time into it might not be the best answer.

Cleared land near parking area at Indian Hill.

Maintenance shed at Indian Hill.

What else got wrapped up in 2013? We did finish our tree clearing on the west side of the top of the Hill this year and that really opened up some horizon there. Plus we got one bonus project completed in the fall. I don't know how many folks have been in and out of the shed for anything, but for those that have you know what a catastrophe of a mess it was. Marty and Ray recently did a bang-up job of cleaning it out and what a difference that makes. I'm still hauling trash out of there that they had piled up outside the shed. This really made a huge difference. Job well done fellas!

Constellation Quiz

By Dan Rothstein

This month's questions:

1. The Battery of Volta and the Horse's Head are groupings in what modern constellation?
2. This member of the Royal Family can be seen as a cross, or part of a much larger dipper than any of the other three recognized dippers.
3. Where is the Retreat of the Howling Dog?
4. What celestial object is referred to as "the Knife of Time"?

Answers to last issue's questions:

1. Cassiopeia, the celestial queen was once described as being bound (chained) to her seat, even more tightly than her daughter Andromeda is chained to the rocks. If she wasn't, she would fall out. "Huyginus [about 1690] described the figure as bound to her seat and thus secure from falling out of it in going around the pole head downward-this spot in the sky being selected by the queen's enemies, the sea nymphs, to give her a effectual lesson in humility." She had compared her daughter Andromeda in beauty to the daughters of Poseidon, for which she was required to sacrifice her daughter to Cetus. She wasn't placed closer to the equator, since this location would have kept her nearly upright. Aratos described her as "She head foremost like a tumbler sits." For a woman accustomed to the fashions of the east, for her legs to be outstretched also must have added to her discomfort. (Allen's Star Names)

CONSTELLATION QUIZ (CONT.)

2. The Arabs didn't recognize the stars around the pole as the little bear. Peter Apian (1495-1552), an early German renaissance celestial cartographer, was one of the few star mappers before Johann Bayer, who wrote the famous *Uranometria* of 1603. Apian's Arabic interests were revealed in his 1533 chart in which he included some Arabic constellations that were never really recognized by Europeans. He includes the big bear, but our little bear at the pole is missing, replaced by a group of three women in front of a fourth sitting on a couch or sofa. To their left is a shepherd with a dog and a flock of sheep. Directly below the women are four mother camels with a baby camel in their midst. To understand these groups one must read some of Apian's books, in which in some areas he was totally independent of any of the western traditions. He takes much of his information from the works of the Arab astronomer Al-Sufi (Azophi, in his *Book on the Constellations*, published around A.D. 964). Ursa Major has been called the bier (wagon), with the handle being the daughters of the bier. Ursa Minor has been described as the lesser bier, so Al-Sufi also draws the handle as three daughters. The bowl became the couch, with a fourth woman sitting on it. The four large mother camels are near β, ν, γ, and ξ Draconis. However, Apian's interpretations of Al-Sufi's work seem to be problematical, since he seems to pick and choose only the stars which fit into his schemes, while ignoring others. Auriga has no goat herder, only a goat. Lyra is a precursor of the violin. Medusa's head lacks a Perseus to carry it. It is possible that Apian's Arabic translator of Al- Sufi was not reliable. (Some taken from *Peter Apian and 'Azophi,' Arabic Constellations in Renaissance Astronomy*, Paul Kunitzsch, Journal of the History of Astronomy, 1987)

3. Frederick's Honors (or Honores Frederica, Gloria Frederici, or Gloria Frederica) was created around 1788 by the German astronomer Bode, in honor of Frederick II of Prussia (Frederick the Great), who died in 1786. This obsolete constellation can be found between Lacerta, Cassiopeia, and Andromeda, today composed of the region around the stars κ, λ, ο, and ψ Andromeda. It represents Frederick's honors, or Regalia: a royal scepter, sword, crown and quill pen, surrounded by a laurel wreath. The sword, pen, and crown symbolize him as a hero, sage, and peacemaker. Its inventor had to move Andromeda's right hand in order to make room for them, little caring that her hand had "stretched out there for three thousand years." (*The Box of Stars: A Practical Guide to the Night Sky and it's Myths and Legends,* Catherine Tennant, 1993)

4. In 1801, Bode celebrated recent discoveries and inventions. According to the great French astronomer Lalande, he and Bode agreed in 1798 to create two new constellations which would commemorate two great inventions of France and Germany. Lalande added the hot air balloon (from a previous issue). Bode commemorated the 350th anniversary of what may be the greatest single advance in civilization, the invention of movable type by Johannes Gutenberg. This was Bode's grouping Officina Typographica, or the Printing Shop. It lay underneath Monoceros the unicorn and to the east of Canis Major, now entirely within the borders of Monoceros. Current views of it show the drawer used to contain the lead pieces which formed the reversed letters, the pads used to apply ink to the letters, and the press used to imprint them on the page. The development of movable type was certainly revolutionary, but its importance didn't earn it a permanent place in the sky. It appeared in only one other atlas, and as late as 1878 on Father Sechi's planisphere, before disappearing into obscurity, possibly because the motives for their invention were too overtly nationalistic.

Notes & News

Talks and Presentations

Cyrus C. Taylor, Dean of the College of Arts and Sciences & Albert A. Michelson Professor in Physics at Case Western Reserve University, spoke at our October membership meeting. He discussed his work with the FELIX and TOTEM collaborations at the Large Hadron Collider near Geneva, Switzerland. His talk provided an inside look at the past and present work at the LHC.

Our November membership meeting was held at the Cleveland Museum of Natural History. Wayne Kriynovich demonstrated the capabilities of the museum's Shafran Planetarium. After the program, CVAS members received a tour of the museum conducted by Clyde Simpson.

The 2013 CVAS Christmas Party was held at Observatory Park. The event was very well attended, and it was good to see some long-time members again. As part of the evening's festivities, Chris Mentrek and Wayne Kriynovich conducted a planetarium show at the Robert McCullough Science Center.

Winter Skies

- Jupiter at opposition, January 5 (21 UT).
- Moon 0.3 degrees SSE of Saturn, February 21 (22 UT).
- Moon 0.2 degrees N of Venus, February 26 (5 UT).
- Asteroid 163 Erigone is predicted to occult Regulus for approximately 14 seconds. The 40 mile wide path extends from New York City northwest into Canada, March 20 (6:06 to 6:10 UT).
- Vernal Equinox, March 20 (16:57 UT).

General Information

The CVAS web site has information about upcoming astronomy events and activities in our area. There is a host of astronomy related information, and links to interesting and useful sites. Send comments and suggestions to the webmaster, Russ Swaney

The Valley Skywatcher has a long tradition as the official publication of the Chagrin Valley Astronomical Society. All material in this issue has been written and provided by individuals within our membership community. CVAS welcomes astronomy related contributions from all members and friends, and this journal provides a unique opportunity to share interests. Published quarterly, the next issue will be available near the end of March.
If you would like to contribute material to the publication please contact the editor, Ron Baker

Recent issues of *The Valley Skywatcher* are available on web site here.

Reflections

In general, we look for a new law by the following process: First we guess it; then we compute the consequences of the guess to see what would be implied if this law that we guessed is right; then we compare the result of the computation to nature, with experiment or experience, compare it directly with observation, to see if it works. If it disagrees with experiment, it's wrong. In that simple statement is the key to science. It doesn't make any difference how beautiful your guess is, it doesn't make any difference how smart you are, who made the guess, or what his name is — if it disagrees with experiment, it's wrong. That's all there is to it.

Richard Feynman (1964)