ORAS Observatory, PA - August, 2021

I decided to head up to the ORAS Observatory over the New Moon weekend, and possibly stay thru the Perseid Meteor shower, weather permitting. Spent several days there, with Thursday 8/5/2021 being the best & only really clear evening from clouds or smoke haze. Most of the time, if we weren't outright clouded-out; the sky was very hazy with the Milky-Way barely visible from poor transparency from all the smoke due to the western wildfires.

Thursday 08/05/2021:

Having loaded the camper and car the previous evening, all I had to do was hookup. But I waited till 9:30am for the Pittsburgh rush hour to subside before hitting the road. The drive up was uneventful and I arrived at the ORAS Facility shortly after 12:30pm. Spent the next several hours setting up camp and telescope and baking in the Sun. Should have put on my floppy hat and sunscreen as I managed to get a nice sunburn on the back of my neck.

After dinner, I balanced the telescope, setup the allsky cam and guttercam, and hung up the blackout curtains from the back of the camper and small canopy.
The 'allsky' cam is a ZWO ASI224MC & fisheye lens in a DIY dome, and the 'guttercam' is a Samsung SDC435 analog security camera & widefield lens in a drain-gutter enclosure that I use to monitor the overhead sky and main telescope as it slews.
My main telescope is an 8" Celestron SCT optical tube @ f6.3 with a ZWO ASI294MC Pro camera on an Atlas EQ GEM mount, along with a Canon CCTV 25-100mm zoom lens and ASI290MC camera, and a 60mm Antares refractor guidescope with an ASI120MC camera, both piggybacked on top of the 8" SCT.

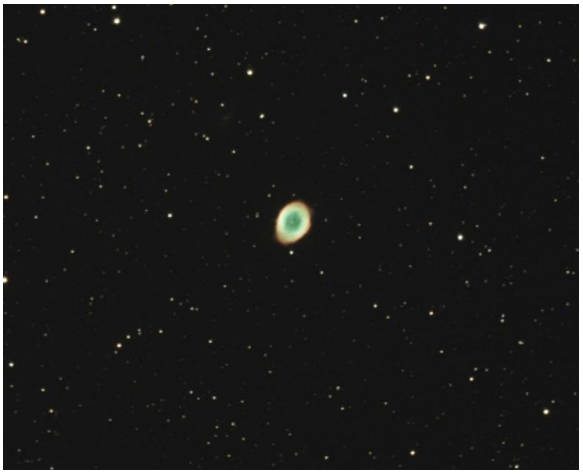
At dusk, with Polaris visible, I used the mounts Polemaster camera and polar aligned and the mount and then aligned the mount's GOTO. Had to work thru a number of equipment glitches, but by 11pm I was video-observing. The sky conditions were really good and the Milky-Way glowed prominently throughout the evening. The dew did become heavy after midnight, so I cranked the dew heaters to high to keep the optical glass clear.

Here’s an example snapshot of the sky that evening from the allsky cam:

(the bright blue-white glow to the upper right is IR backscatter from a security camera installed on the observatory)

And here’s a link to a dusk to dawn time-lapse: https://youtu.be/a9a7G2C-RTg
Made using my allsky cam with auto gain and exposure up to 30 seconds using Sharpcap.

My observing plan for tonight was to spend some time visiting a number of ‘astro-tourist’ objects such as my old friends the Ring in Lyra and Dumbbell in Vulpecula, along with the Veil in Cygnus, a globular or too, and a few dark nebula. Later, I would switch over to working on my Sharpless HII emission nebula project.
Here’s a few pics of my observations:



M57

M27

(8” SCT f6.3 & L-eNhance narrowband filter @ 60 second exposure for 5 minutes)

The Western Veil ‘Witches Broom’ NGC6960

The Eastern Veil ‘NGC6992

Both: (8” SCT f6.3 & L-eNhance narrowband filter @ 60 second exposure for 7 minutes)

M22

B86

(M22: 8” SCT f6.3 & L-Pro wideband filter @ 30 second exposure for 5 minutes)
(B86: 8” SCT f6.3 & L-Pro wideband filter @ 60 second exposure for 10 minutes)

After getting a good image of B86 – “The Ink Spot” dark nebula in Sagittarius, I attempted to capture the “Snake Nebula”, B72 in Ophiuchus, but the combination of the low altitude of the object now sinking into the Southwest, light pollution in that direction, and a little sky haze that had developed, made for a washed-out view, so I deferred that object to another night and slewed the telescope back higher-up in Sagittarius for dark nebulas B92 and B93, near the M24 starcloud:

B92

B93

(8” SCT f6.3 & L-Pro wideband filter @ 60 second exposure for 10 minutes)

I then flipped back over the meridian to the Winged Horse Pegasus, now riding high in the Eastern sky to go galaxy hunting. My goal was to video-capture the Pegasus-1 galaxy cluster with its bright elliptical core galaxies of NGC7619 & 7626. (see the Sky & Tel August 2021 issue, page 57, for a great observing article and finder chart)

NGC7611, 7612, 7615, 7617, 7619, 7621, 7623, 7626, 7631, MCG-1-59-53, 1-59-54, 1-59-58, 1-59-61, UGC-12510 and 12535
(8″ SCT f6.3 & L-Pro wideband filter @ 60 second exposure for 15 minutes)

With the time rolling past 3am and the long day tiring me out, I made my last object for the night a pair of Sharpless objects, SH2-99 and SH2-100 (NGC6857) high up in Cygnus. The image also includes a small knot of emission nebula called K3-50.

(8″ SCT f6.3 & L-eNhance narrowband filter @ 60 second exposure for 10 minutes)

Once I had saved the image, I shutdown the telescope, cameras, and laptop and headed into the camper for bed. Had I known how bad the rest of the weekend was going to be from the wildfire smoke, I'd have popped a few caffeine pills and gone till dawn. ☹

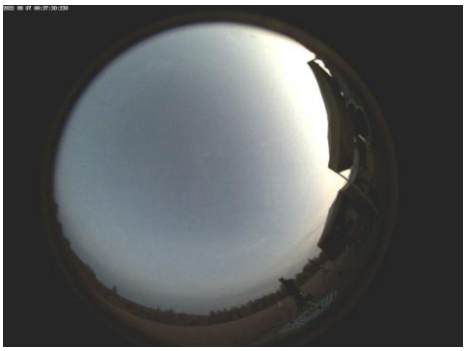
I did see quite a few meteors on Thursday evening. About 50% Perseids like this one:

Here's a short video of the best meteors captured: https://youtu.be/teWv8zmgDZM

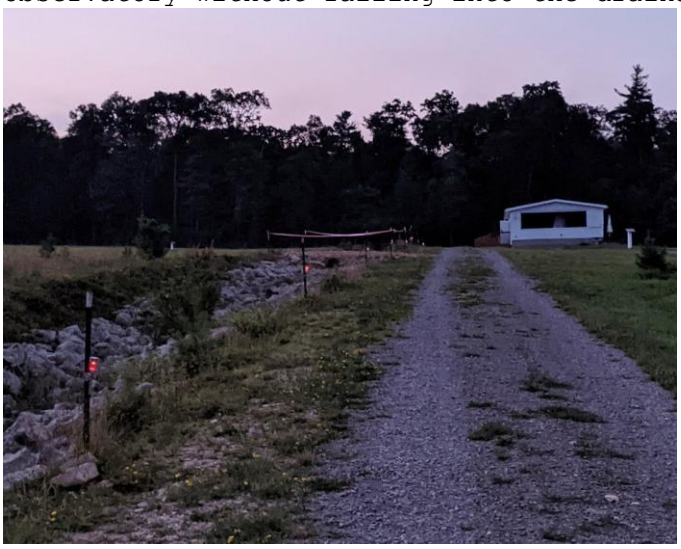
Friday 08/06/2021:

Slept in till nearly 9am. Woke to a warm camper. The forecast for the day was clear and Hot, Hot!! Had a late 'brunch' and spent time reading and staying in the shade.
In mid-afternoon, Dan H showed up to mow the observing field, but didn't plan on staying.
Also, new ORAS member, and Cherry Springs buddy Eric L arrived and setup camp. Gave him the nickel tour of the observatory, telescopes, and the activities building.
Eric was quite impressed with what the club has built.

Throughout the afternoon and early evening, the clear sky developed an odd haze. It was heavy upper-air smoke from the western wildfires moving overhead!


Prior to heading for home, Dan installed a series of dim solar powered lights on the stakes along the road to help folks see the way between the activities building and observatory without falling into the drainage gully. They work really well.




At sunset it was obvious that there would be no imaging tonight, so Eric and I opened up the observatory and used the Meade 14" LX200GPS to observe the planets Saturn and Jupiter. The smoky haze acted as a natural sky filter damping the normally too brilliant light from both planets. Here's Eric taking a view thru the 14" SCT:

We also uncovered the 30” Dob, and Eric having its 25” smaller cousin with the exact same setup trained me on how to use Argo Navis and the telescopes GOTO system. (I’ll type up my training notes to share). Eric was very happy with how accurate the GOTO system worked. The smoky sky really hindered observing faint objects, but taking advantage of less smoky sucker-holes, we pulled-in great views of brighter objects such as M57, M27, and M51, though its spiral arms were almost nonexistent. We also split a few double-stars such as Albireo. With the fog rolling in, we called it a night at 1am and shutdown the telescopes and closed the observatory.

Saturday 08/07/2021:

Up by 8am to an already harm, hazy morning. After a quick breakfast, I proceeded to weed-whack around the observatory building, picnic table, and the power pedestals out in the field, and along the road heading towards the activity building. After lunch, Eric and I swept out both the restroom and shower-room. We later hung-out inside the observatory “Warm” room, as it was actually almost 15 degrees cooler inside it than outdoors. Used that time to process the video-capture images from the night before, which manly consist of a little cropping and resizing them for the web.

Denny H arrived mid-afternoon and setup camp and telescope to the south of my location. He had just finished when a heavy thunderstorm with torrential downpour hit the observing field. Eric and I rode out the storm inside the observatory, with the noise from the rain hitting the metal roof deafening!

At sunset, the sky began to clear, but soon fog was seen rolling down the hill towards the observatory.

We decided to spend the early evening with the observatory telescopes and Eric repeated his training on how to use the 30” for Denny and I. But between the cloudy skies and smoke we could barely see the brighter stars and Jupiter! Within a couple hours, a line of approaching thunderstorms had us closing up the observatory and heading to our camps for the night. Stayed up awhile longer reading.

Sunday 08/08/2021:

Up early, and spent the morning weed-whacking down by the activities building and the main gate and road sign. Denny spent the morning working on finishing setting up his telescope. Eric got his Daystar Quark filter out and we had good views of several Ha limb prominences on the Sun. Later in the afternoon, the three of us worked inside the observatory on the power cord/gutter holder system and got the cord to roll-up nicely within the gutter.

The day had started off sunny, with mid-afternoon clouds and scattered showers. By sunset, the clouds had cleared to an eggshell bluish-white from all the high altitude smoke. The sky was clear, but transparency was going to be very bad. We all uncovered our telescopes and turned on the dew-heaters as the evening air already felt moist. I wasn't yet sure what my evening video-observing plans were going to be with such terrible transparency, but I did plan to spend a little time inside the ORAS Observatory doing a little visual work with the 14" SCT and 30" Dob. Before too long, fog began to form along the tree-line along the northern edge of the observing field. Soon it was moving downhill and engulfed our campsites. With it clear overhead, Eric and I headed up to the observatory and used the 30" to visually observe the brighter deep-sky objects that could cut thru the haze, M11 open cluster in Aquila, M13 globular cluster overhead in Hercules, M57 in Lyra, and others. We also tried for a few galaxies including M51, M31, and NGC7331, but mostly all you could see was their cores. We also used the 14" Meade SCT for viewing Saturn and Jupiter, though Saturn nearly disappeared from sight.

Around 11pm, I headed back to my campsite to do a little video-observing. Denny was actually having some success imaging Sharpless objects with his telescope. I decided to 'warm-up' with an observation of bright globular cluster M15 in Pegasus.

(8" SCT f6.3 & L-Pro wideband filter @ 30 second exposure for 2 minutes)

Was only on the object for a few minutes when clouds coming off of Lake Erie wiped-out the sky! After reviewing the satellite and radar images, we decided there was no hope and closed up the observatory and shutdown and covered up our telescopes and headed in.

Monday 08/09/2021:

Woke early to a foggy, damp morning. Spent some time visiting with Denny and Eric, then finished weed-whacking around the picnic table and firepit down by the activities building. Eric decided to head home and began to break down his telescope and campsite. Dean S dropped by and visited with us for a few hours before both he and Eric hit the road. In the afternoon, Denny and I took down the old broken garage door opener, took the remains down to the activities building garage, and brought up the replacement unit donated by Bob K. We also hardwired a power outlet up in the rafters for the opener and LED white lights.

As the outdoor temp & humidity was oppressive, we limited our work and spent time inside the cooler observatory 'Warm' room. After dinner, we sat for awhile under Denny's camper awning enjoying cooler weather and watching storm clouds off in the distance. We also watched a flock of turkeys on their daily walk around the observing field.

No sign of bears this trip!

Soon, based on the rain in the overnight weather forecast, we decided that there wouldn't be any imaging that evening, and it would be better to pack-up our telescopes and camping equipment while it was still dry. So for the next hour until it got too dark to see, we tore-down our cameras and telescopes, along with our canopies and other camping gear. We then headed up to the observatory and practiced using the 30" Dob and even found a few sucker-holes to pull in a few bright star clusters such as M103 in Cassiopeia, and even had a brief glimpse of M31, the Andromeda galaxy. But by 11pm, the clouds had closed up what few clear windows that we had, so we closed up the observatory and called it a night.

Tuesday 08/10/2021:

Woke early to a dreary looking day. A few light showers had gone over during the night. Finished packing a few remaining camping items.
Then Denny and I successfully installed a 'powered' garage door opener (donated by Bob K), on the observatory garage door. Here are a few pics of the install:

The door opener is fully functional and replaces the manual 'stick' method of opening the garage door. Additionally, as the garage door lock is no longer needed, we've disabled its use by putting a bolt thru the lock handle so no-one can accidentally lock it. (the opener will now hold the door closed in-place). To open the garage door, you still need to first point the 30" telescope horizontal, and unlock the roof bolt and remove the fulcrum lever. You no longer need to unlock (or lock) the garage door or push it up to open (or pull down to close). Now, all you need to do is to walk over to the location of the roof bolt (see picture below), and push the large white button on the wired garage door controller. One button push will open the garage door all the way. a second button push will close the door all the way. (you cannot stop the door part-way open or closed).

Here's a 'demo' video that I made with my phone: https://youtu.be/j16CPIeAOXw

Just want to say, with the last major piece (garage door opener) being accomplished, and with all the effort put into the roof opener mechanism, tweaking the telescopes, and installing power to the field over the last year, we have a fully functional observatory and a really nice astronomical facility!

We finished cleaning up the observatory from the install work and locked it up.
Then we both hooked-up our campers and headed out for home.

So this concludes my August 2021 trip report to the ORAS Observatory.
I hope to be back later this year.

Larry McHenry
Astronomical Webportal: http://www.stellar-journeys.org/