

Eugene Astronomical Society



Io

February, 2021



PO Box 591 Lowell, OR 97452

www.eugeneastro.org

The Seagull Nebula [1]

Andy Nowlen

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Board Members:

Oggie Golub - Randy Beiderwell - Ken Martin -
Jerry Olton**- Our PO Box has changed!****PO Box 591****Lowell, OR 97452**

Annual Club Dues \$25

EAS is a proud member of The
Astronomical League.

February Meeting - Thursday, Feb. 25 7pm

PLEASE NOTE THAT ALL MEETINGS ARE CURRENTLY VIRTUAL

TO BE ANNOUNCED.

We have had some terrific virtual meetings the last few months, thanks to all who have worked to make it happen!

January Meeting

Mark Wetzel gave a detailed introduction to astrophotography presentation this month. He went through his equipment, planning and procedures for generating the wonderful images he creates.

You can see the whole presentation on YouTube at:

https://youtu.be/XoT7_9OAYXg



M76 - The Little Dumbbell Nebula [2]

Mark Wetzel



Too Many Telescopes

BY JERRY OLTION

I have a friend who has too many cats. She doesn't think so, of course, but when you go into her house there are cats everywhere you look. They're the first thing you see when you go in, and they're the thing you remember most about your visit. Cats everywhere. It's gotten so bad that her friends (myself included) are ready to stage an intervention.

Then I got to looking at my own house. The first thing you see when you enter my house is a telescope. It's a solar scope, and I keep it by the front door because that makes it convenient to take outside for a quick look at prominences and sunspots.

I have an Astroscan on the kitchen counter. (Coincidentally enough, it's about the same size as the cat that hangs out on my friend's kitchen counter.) I keep it there because it's easy to grab and take out onto the back deck to look at the Moon or whatever else might be in the gap between trees out there.

If you enter my house through the garage, you're immediately greeted by...um...seven telescopes.

We used to have a guest room, but now we call it the "scary room" because it's full of — you guessed it — telescopes.

Too Many Telescopes (continued)

That realization leads to the obvious question: Is it possible to have too many telescopes? Of course not, I say, and thankfully Kathy agrees. That, she says, would be like saying it was possible to have too much yarn.

But when I count them up, I find that I have 15 ways of examining the cosmos, and that doesn't even count binoculars. I only get out observing a couple times a month, on average, so I only use each scope once or twice a year. And of course I prefer some scopes more than others, so for some scopes it's been years since photons flowed through them.

So yeah, I may have too many telescopes. I should probably get rid of some. But which ones?

Two thirds of the scopes are homemade. I'll simply ask you this: which of your children would you sell? And which one would you sell first?

The ones I've bought, I bought because I couldn't make ones like them. They do things that my homemade scopes can't do, or at least not do well. Every time I think of giving one up, I think of the things that it excels at, and how much I would miss it if I no longer had it.

This summer's fire scare put things into an interesting perspective. Faced with the potential loss of anything I left behind, I was forced to consider which scopes I would load into the car if Kathy and I had to evacuate. It came down to mirrors: I would save the 20" mirror that Mel made — arguably one of the best 20" mirrors in the world — and my original 10" trackball mirror (because it was my first one!), and the Astroscan (because it's small and they're getting really rare nowadays)...and I would let the rest burn up. That was an eye opener. *I would let the rest burn up.*

Wow. My chest constricts and I have a hard time breathing just writing that sentence even now, while the forest is dripping wet and the risk of fire is about as high as the risk of world peace. Apparently the decision of which scopes I would save and which ones I would sacrifice has almost nothing to do with which ones are my favorites. I probably don't even have genuine favorites. My favorite scope is whatever scope I'm looking through at the time, because they're each good for different things.

Where am I going with all this?

In the spirit of Arlo Guthrie and *Alice's Restaurant*, let me say I didn't really start this story to talk about my own scopes. I started this story so I could segue into talking about *your* scopes. Specifically, the club's lending library.

By my count, our club has 27 telescopes in active rotation and a couple more waiting for refurbishment. Is that too many scopes? Of course not! That's only one scope for every three club members, roughly. But given that most of us have our own scopes, a lot of these club scopes sit in storage, waiting for their turn under the stars. We used to have a storage unit, but nowadays we've farmed out the storage to individual members, so the boundary between use and storage has grown diffuse, which is probably the way it should be. If one of us is storing a scope and gets the urge to use it, that's far better for the scope, and for the person using it, than if the scope were gathering dust in a storage unit.

Too Many Telescopes (continued)

However, these scopes don't often change hands. That means people aren't trying out different models just for the fun of seeing how they differ. And that's a shame, because I can tell you from experience that using a different telescope makes the entire sky take on a different flavor. If you're growing tired of seeing the same old things night after night, one answer is to look at new things, but another equally good solution is to look at the same things through a different telescope.

It doesn't always have to be bigger than what you were using before, either. My latest project was a little 3" Maksutov that's been a real delight in recent nights looking at the Moon and double stars and the brighter nebulae and clusters. The Pleiades look completely different in a small scope than they do in a large one (you can see the whole cluster, for one thing), so it's like looking at an entirely new object. A long refractor will split double stars that you'd have a hard time splitting in a traditional Dobsonian. A go-to scope will find stuff you have a hard time finding on your own. And so on.

So even if you have a scope already, think about giving one of the club's scopes a try just for the fun of it. You might find yourself seeing the sky in a completely new way.

And who knows, you might start collecting more scopes of your own. Worse things could happen.

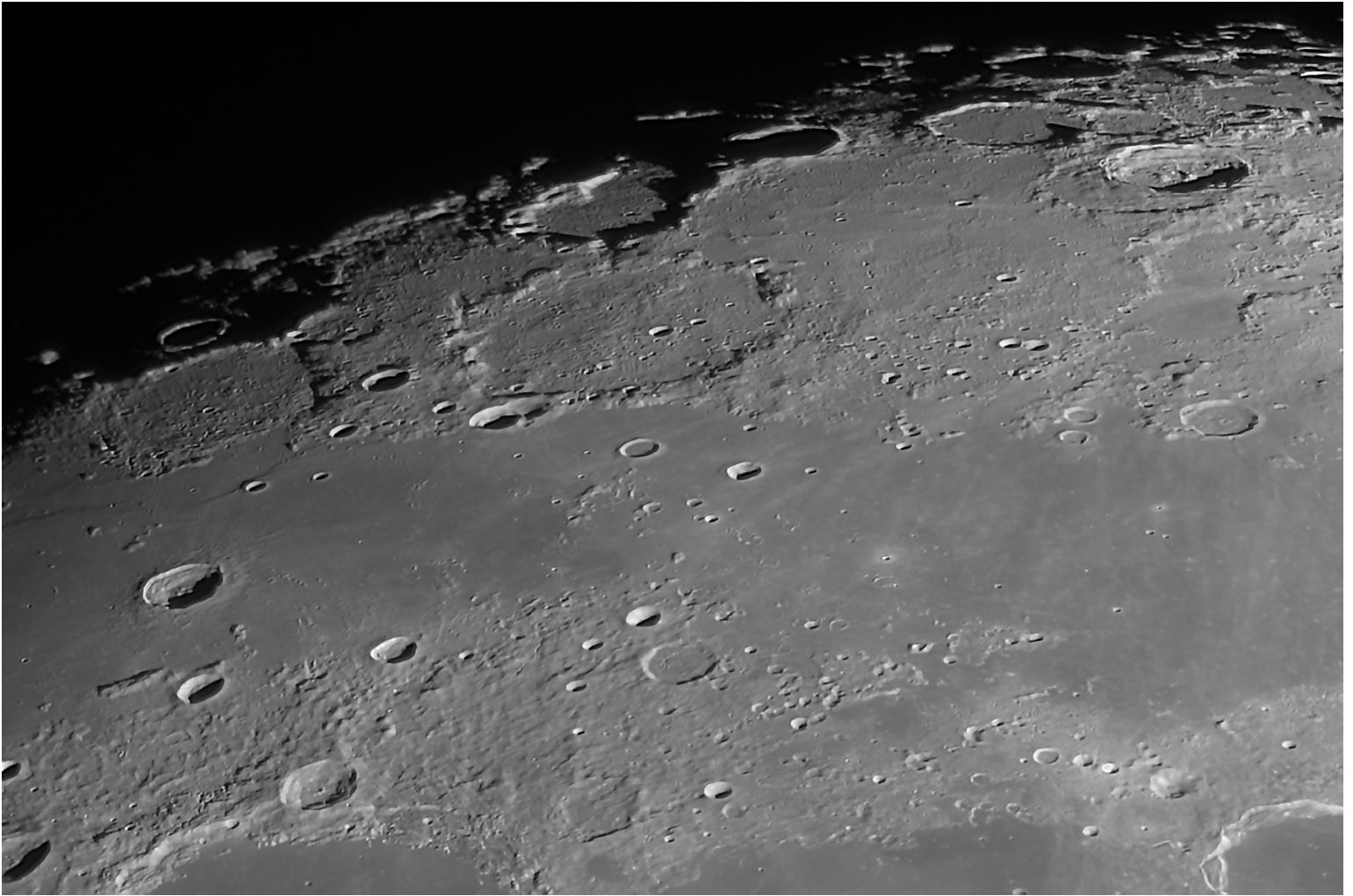
Check out the available scopes — which are just as much your telescopes as anyone's (if you're a paid-up club member) — on the EAS website at www.eugeneastro.org/telescope-lending-library/

Do you have something for the newsletter?

If you have an article, photo, meeting notes, stories, etc. that you would like to share with the members, please contact me, I'd be happy to add them to the newsletter. If you have photos you would like to submit, I'm trying to include more information about the process and equipment used.

Astrophotographers: I want to offer these pages as a way to not only show off your terrific photos, but to provide us with information on how they are taken and processed. Seeing the amount of work that goes into these amazing images is always fascinating, and makes us appreciate them even more!

Bruce Sackett - bruce@busymind.net



J. Herschel Crater [3]

Mark Wetzel

Member Astrophotography in this issue

[1] The Seagull Nebula by Andy Nowlen

The Seagull Nebula name commonly refers to the larger nebulosity that includes star clusters, dust clouds, and reflection and emission nebula. Cataloged features include IC 2177, NGC 2335, NGC 2343. This nebula lies between Monoceros and Canis Major.

One of my granddaughters thinks it is more like a dragon than a seagull. :>)

Image details:

January 20, 2021 - Eagles Rest road south of Dexter.

2-panel mosaic (my first)

Image Center (RA, Dec): (106.467, -10.945) from Astrometry.net

Image Size: 3.36 x 1.36 deg from Astrometry.net

(Diameter of the Full Moon is about 1/2 degree)

30 x 300-second sub-frames

Asi533MC Pro cooled astro-camera, -10 degrees

Optolong L-Enhance dual-band filter - 2 inch

Sharpstar 76mm triplet with flattener 334mm focal length

Darks, Dark Flats, Flats calibration frames applied

Stacked in Astropixel processor, finished in Pixinsight (baby steps), and Photoshop.

[2] M76, The Little Dumbbell Planetary Nebula in Perseus

Mesa, Arizona

November 15 – 20, 2020

I imaged Messier 76, the Little Dumbbell Nebula, in the constellation Perseus from light polluted skies in Mesa Arizona. This planetary nebula was captured with two narrowband filters, Hydrogen-alpha (Ha) and Oxygen-III (OIII). I also took a series of exposures with Red, Green and Blue filters to capture the natural color of the stars. This is a false color image that combines Ha in the red channel, and O-III in the green and blue channels (HOO). The star color image was then blended with the HOO false color image to produce the final result. This image presented challenges in bringing out sufficient details in the core while not creating a result that had too much contrast. I experimented with masking techniques in PixInsight to protect the stars and the background while sharpening the nebula with combinations of the Histogram Equalization and HDRMultiscaleTransform tools.

M76 is a small planetary nebula in the constellation Perseus with a visual magnitude of 10.1. Planetary nebula form when a star the size of the Sun nears the end of its life as a red giant. The nuclear furnace in the core of the star runs out of fuel, limited to iron, and gravity wins over the outward pressure from the heat and radiation of nuclear fusion. The star becomes unstable and the core collapses, with the resulting shock waves pushing the expanded gas and plasma of the red giant outward at high velocity. The remaining collapsed core becomes a white dwarf. The radiation from the white dwarf illuminates the expanding cloud. M76 has a maximum extent of approximately 2.6 light years and its structure is quite asymmetric. It is approximately 5600 light years from Earth, although the exact distance is not yet known (SkySafari Pro).

The term planetary nebula is a misnomer. Charles Messier discovered M76 in 1780 which was at the limit of what his telescopes could resolve. William Herschel invented the term “planetary nebula” since they looked like fuzzy planets with some color, similar to the newly discovered planet Uranus. While planetary nebulae are quite common in the Milky Way galaxy, most are very small. M76 is a popular but challenging target for amateur astronomers. In about 5 billion years, our Sun will experience the same fate.

Imaging details:

Celestron 9.25" Edge HD SCT in prime focus (FL = 2350mm, f/10)

Celestron off-axis guider with ZWO ASI174MM Mini guide camera

Celestron CGEM II mount

ZWO ASI 1600MM Pro cooled monochrome camera (-100C)

36mm ZWO Hydrogen-alpha, Oxygen-III, R, G, B filters

Software: Sequence Generator Pro, PHD2 guiding, Celestron CPWI mount control,

PixInsight and Photoshop 2021

Hydrogen-alpha 5 min x 87 subframes (435 min), Gain 139, Offset 21, 1x1 binning

Oxygen-III 5 min x 118 subframes (590 min), Gain 139, Offset 21, 1x1 binning

Red 60 sec x 133 subframes, Gain 139, Offset 21, 1x1 binning

Green 60 sec x 123 subframes, Gain 139, Offset 21, 1x1 binning

Blue 60 sec x 118 subframes, Gain 139, Offset 21, 1x1 binning

[3] Lunar Imaging 12/26/20

Gold Canyon, AZ

J. Herschel Crater (diameter 154 km)

J. Herschel is a large lunar impact crater of the variety termed a walled plain crater. The crater is named after British astronomer John Herschel. It is located in the northern part of the Moon's surface. The southeastern rim of J. Herschel forms part of the edge of the Mare Frigoris lunar mare. To the northwest is the crater Anaximander. Bordering the northern rim is a large, unnamed lunar plain. Just to the south is the small crater Horrebow (Wikipedia).

With a Televue 2x 2" Powermate and mating parts, my Celestron 9.25" SCT has a focal length of 4700mm. The Baader 2" SCT Clicklock and the Televue T-adapter make setup and camera rotation fast and sag-free. I imaged the moon with SharpCap Pro. About 600 to 900 frames were captured for each image with a frame rate between 6 and 30 frames per second, depending on the region of interest image size selected. The exposure time was adjusted to keep the histogram from saturating, especially in those few instances where there was no turbulence. With such a long focal length, seeing must be good to excellent and there can be no wind moving the telescope. Focusing is a challenge and I used SharpCap's focusing assistant Fourier detail and contrast/brightness algorithms to generate a focus curve. I have learned that my SCT focus is sensitive to the ambient temperature, especially with a large temperature drop after sunset in the dry desert, so I refocused when the temperature dropped by 2 degrees Centigrade.

To generate a single TIF image, the 600 to 900 frames were stacked using Autostakkert 3, keeping between 10 and 25% of the best frames, depending on the percentage of higher quality frames determined in Autostakkert's analysis step. Registax6 was used to sharpen the stacked image using the Wavelets method. It has taken some time for me to figure out how to get good results with Wavelet sharpening without overdoing it or creating too many artifacts and too much contrast. I use the starting wavelet number to adjust the extent of sharpening. Photoshop was then used to adjust brightness and contrast, to sharpen with the Shake Reduction filter and to scale the images. Once scaled, a Smart sharpen or Unsharp mask sharpen was done to enhance the details slightly. These images were captured in Gold Canyon, AZ on December 26, 2020. The moon was waxing gibbous with 86% illumination.

Imaging details:

Celestron 9.25" Edge HD SCT

Celestron CGEM II mount tracking in Lunar mode

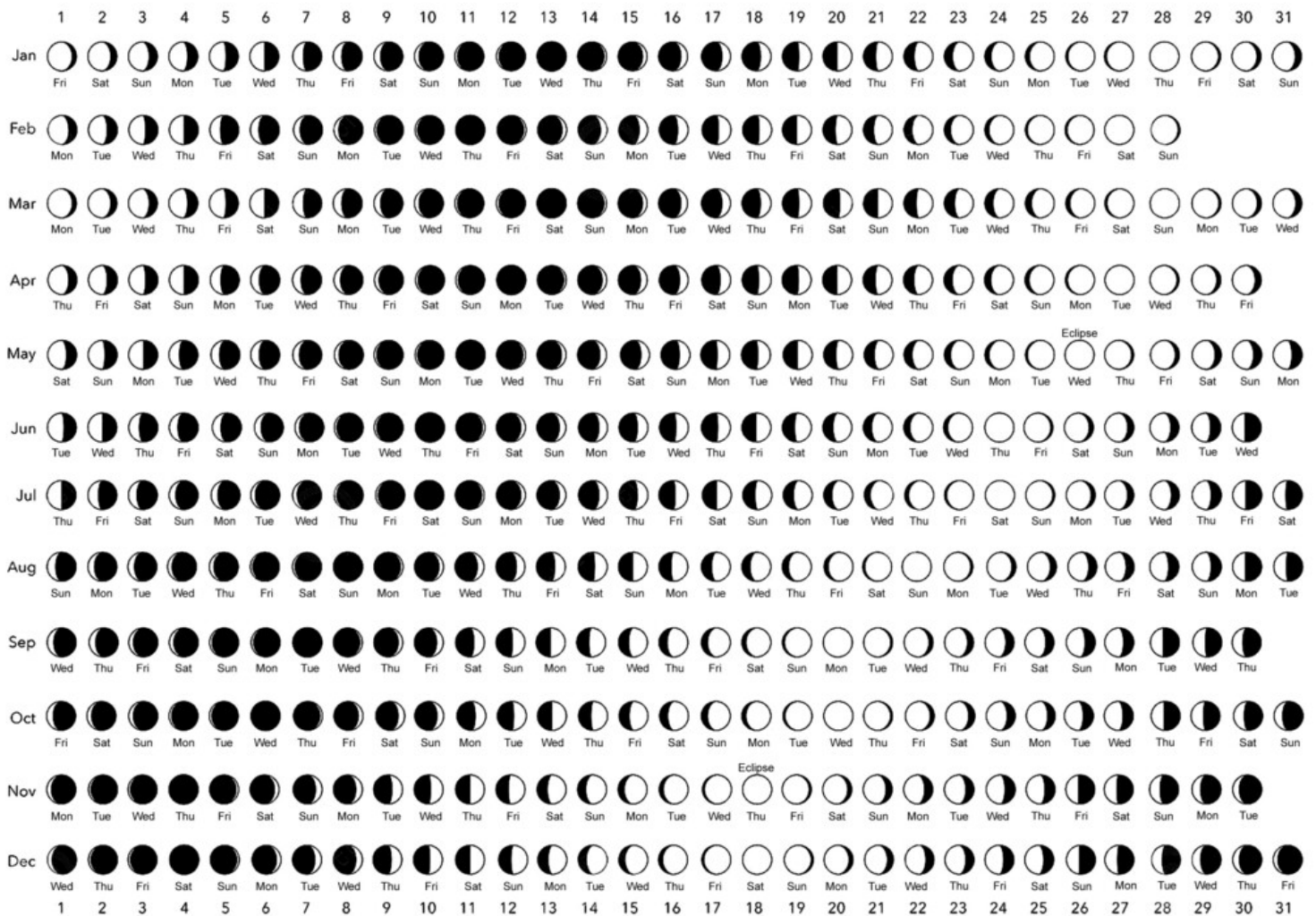
Televue 2x 2" Powermate with Baader 2" SCT Clicklock and Televue T-ring adapter

ZWO ASI 1600MM Pro cooled monochrome camera (-100C)

ZWO Electronic Filer Wheel with 36mm Red Filter.

Software: SharpCap Pro, Celestron CPWI mount control, Autostakkert 3, Registax6, Photoshop 2021

2021 Moon Phases



By Jerry Olton