

The High Desert Observer

July 2021

This Month's Meeting - July 23, 2021

Meeting will be virtual via Zoom®
Friday, July 23rd at 7 p.m.

Speaker for the Month - Al Nagler **I Thank My Lucky Stars!**



Amateur astronomer since 1948, Al Nagler graduated from the Bronx High School of Science with the Shop Award for his 8-inch reflector build and then earned a BS in Physics at the City College of New York.

He learned optical design at Farrand Optical Co., where he worked from 1957 to

1973. It was there that he designed simulator optics for the Gemini and Lunar Module for the Apollo program. In this time-frame he also won awards at the Stellafane astronomy convention for telescopes he designed and built. Asteroid 10715 Nagler was named for him.

Many readers know Al Nagler as a giant in the field of telescopes — the developer of the revolutionary Nagler eyepieces, which offered amateur astronomers a much wider and sharper field of view of celestial scenes. As founder of Tele Vue Optics, he crafted many high-quality optical products that are well-known to observers.



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Coming Events

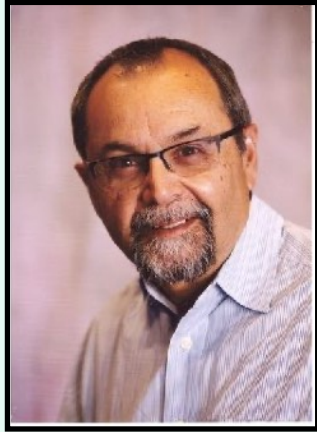
Monthly, on an evening close to the first-quarter moon, ASLC hosts a public "MoonGaze" observing session in Las Cruces. We also hold periodic special evening sessions at Tombaugh Observatory on the NMSU campus.

Also monthly, the ASLC welcomes public viewing at the Leasburg Dam State Park Observatory located just 20 miles north of Las Cruces. Our 16-inch Meade LX200 telescope at this site is used to observe under rather dark skies.

Keep updated on the dates, times, and locations through this [link](#) with additional information available at our website www.aslc-nm.org.

From the Desk of Ed Montes ASLC President

This activity, amateur astronomy, provides opportunities for experiences beyond the ordinary. On any clear night we can observe stunning examples of physics at work. From the optics in our telescopes, to the orbital mechanics of the planets, to energies released in cosmic cataclysms none of these phenomena are ordinary.



We observe, predict, capture, analyze and interpret. And we share. Oh, we share. We are amazed by what we see and we cannot help but try to amaze everyone around us; and by “around us” I mean anyone in the world we can possibly reach; from APOD to Astrobin, from Facebook to personal websites, from Sky & Telescope and Astronomy to the HDO, we fill all these pages, physical and virtual with images and images and images. We can’t help it. Whether the equipment is the most advanced CMOS chip, or our iPhone or charcoal and paper we can’t stop ourselves from sharing. I wouldn’t have it any other way.

The other kind of experience that is beyond the ordinary doesn’t have to do with physics, rather it’s about the personal. By doing what we do: traveling to observe, going to star parties, outreach, just engaging with other people, we place ourselves in positions to expand our opportunity to have personal experiences that are rewarding and enriching. I’m sure we all have stories about meeting people and having something interesting happen while we were involved in some astronomical activity. That’s just the nature of what we do.

So, here’s my most recent story:

As president of the club, I receive a variety of email messages. Actually, more than I anticipated. I received an email from a fellow, Francisco Sansivirini, from El Salvador telling me he was affiliated with an amateur astronomy club there, and that he was going to be in Las Cruces for an event and would like to meet with someone from the club, see our facilities, and perhaps do some observing or even some astrophotography. I responded to him that we weren’t having live meetings yet, but that if he wanted to get together, I would gladly meet with him and talk about our clubs and our experiences. I could give him some tips about some dark sites around the area. He responded that he didn’t have much free time, but suggested that we have dinner together when he arrived and I could fill him in on what we do and give him my suggestions.

So, he arrived on Friday, July 9, I picked him and we went out. He turned out to be a charming guy and very interested in astronomy and astrophotography as evidenced by all of the astrophotos that he had on his iPad that he couldn’t wait to show. Also, he wasn’t just “affiliated” with his local club, he was actually one of the founders. They do both optical and radio astronomy at the observatory site that they have built on a remote site in El Salvador. I asked how they could afford to do this. He responded that “they have some members who come from rich families, so they are well funded.” I thought, “must be nice”. Anyway, we had a great time and after dinner I took him over to Leasburg, but the gates were already down and we didn’t have time to hike from there to the actual site, so he didn’t see our setup. Maybe the next time he’s here, because he is coming back.

You see, I buried the lede, the most important part of the story. Francisco was here because he was an invited guest of Richard Branson to see the launch of the Virgin Galactic ship into “space”. He was invited because he is a fully-paid-up traveler for some future VG flight. Francisco is a VERY enthusiastic about all things space!
(continued next page)

He'll be coming back when it's his turn to go up on one of Branson's flights. Oh yeah, one other thing: he came up with the money for the flight by selling his house. Yes, very enthusiastic about space!

This is a great hobby because of all the fascinating things we get to observe and all the interesting people we wind up meeting.

Speaking of interesting people, our speaker this month is Al Nagler, the founder of Televue, maker of all those wonderful eyepieces that receive rave reviews from almost everyone who uses them. I'm very excited to have Al with us, please put this on your calendar!

That's it for now. Clear skies!



The Astronomical Society of Las Cruces (ASLC) is dedicated to expanding public awareness and understanding of the wonders of the universe. ASLC holds frequent observing sessions and star parties, providing opportunities to work on Society and public educational projects. Members receive electronic delivery of The High Desert Observer, our monthly newsletter, plus membership in the Astronomical League including their quarterly publication, Reflector, available in either paper or digital format. ASLC members are also entitled to a discount on a subscription to Sky and Telescope magazine. Annual Individual Dues are \$30; Family \$36; Student (Full Time) \$24. Dues are payable in January and partial year prorated for new members. Please contact our Treasurer, Patricia Conley, treasurer@aslc-nm.org for further information.

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Member Article:

Test Driving the New Celestron StarSense Technology:

The StarSense Explorer AZ 102

By David Doctor

Recently some neighborhood friends of ours purchased a Celestron StarSense Explorer AZ 102 and contacted me because they were having problems setting it up. Terrific! I welcomed the opportunity to try out new observing equipment which I don't get a chance to do that



often. Most of my time is spent typically as a digital observer with either cameras or spectrographs. Here was an opportunity to test a telescope for visual observing! Additionally, this telescope features Celestron's relatively new "StarSense" technology which includes a smartphone-based app that assists the beginning observer with accurately pointing the telescope to deep space objects. This was going to be very interesting. Let's get started!

Celestron's Starsense Explorer line of telescopes comes in four different configurations, two refractor and two reflector. The 80mm refractor sells for \$180 and the 102mm refractor is about \$400. I felt a 102mm refractor was a good choice as it provides a very versatile target range. Many deep sky objects are within reach as well as planets. So what is included? Obviously the telescope, but also an altazimuth mount and the StarSense feature. As previously mentioned, Celestron has incorporated smartphone technology into basic beginning telescope pointing and object finding! This is a way to provide a beginner with an experience where you can learn what is up in the sky and you have the means to locate it. Fantastic!

The Celestron StarSense AZ 102 refractor is a 4" achromatic refractor, meaning there is no extra low dispersion or ED glass to correct the chromatic aberration. This is expected in a beginner level scope certainly, but to be fair even for an experienced observer, it's not necessarily a show stopper at all, for good quality achromats can provide excellent views. Celestron provides their well-known "XLT coatings" on the optics and this telescope comes "fully coated" meaning all surfaces are coated. Optical coatings supposedly reduce internal light loss and glare and facilitate even light transmission, resulting in greater image sharpness and contrast although I am not an expert at all on the various types of coatings and how they accomplish what they intend to.

The focal length of the AZ102 is 660mm or f/6.5, so a decent compromise between long and short focal lengths. The mount is an aluminum manual alt-az mount with a slip clutch and slow motion hand controls. The telescope tube mounts on a

side-positioned Vixen style or CG-5 dovetail. The tripod legs can be extended up to just over 4 feet high. The entire assembled platform weighs under 15 pounds.

When I picked up the telescope from our good friends' house, it was already completely assembled. The instructions are well written and easy to follow, apparently easy enough for someone with no prior telescope experience to put together!

Examining the equipment outside I found the telescope tube to be a sturdy aluminum and the side mounting dovetail interface very secure with no toggle. Most of the weight is taken up by the mount head which is what you would hope. The mount is quite solid. However, the entire assembly is light enough to lift and reposition with one arm. Moving the telescope is very smooth, but not too easy, and it stays exactly where you place it. There are two flexible hand control knobs which move the scope in altitude and azimuth in small increments.

It works very much like a Vixen Portamount, if you've ever owned one of those, but if not you have to be somewhat firm with your turns of the knobs. The mechanism is very stable and secure and there is certainly no perceptible backlash of any kind. The tripod legs are a lightweight aluminum and there are 2 segments in each leg. With the legs fully extended it is plenty stable for the lightweight telescope OTA.

The scope comes with a red dot finder scope powered by a small battery. There is a knob on the side to turn the battery on and off and two adjustment knobs to tweak the finder position relative to the object you are pointing at.

The focuser is a standard rack and pinion and very stable. You do not have to lock it in position. The telescope comes with a diagonal to facilitate viewing and two eyepieces, a 25mm and a 10mm. The 25mm, the wider-angle eyepiece, is the one that will be used mostly.

The smartphone dock attaches to the inside of the mount head and there is a simple spring-loaded bracket that holds the phone in the dock. Two knobs underneath the dock allow you to move the phone's camera lens over a mirror which points up



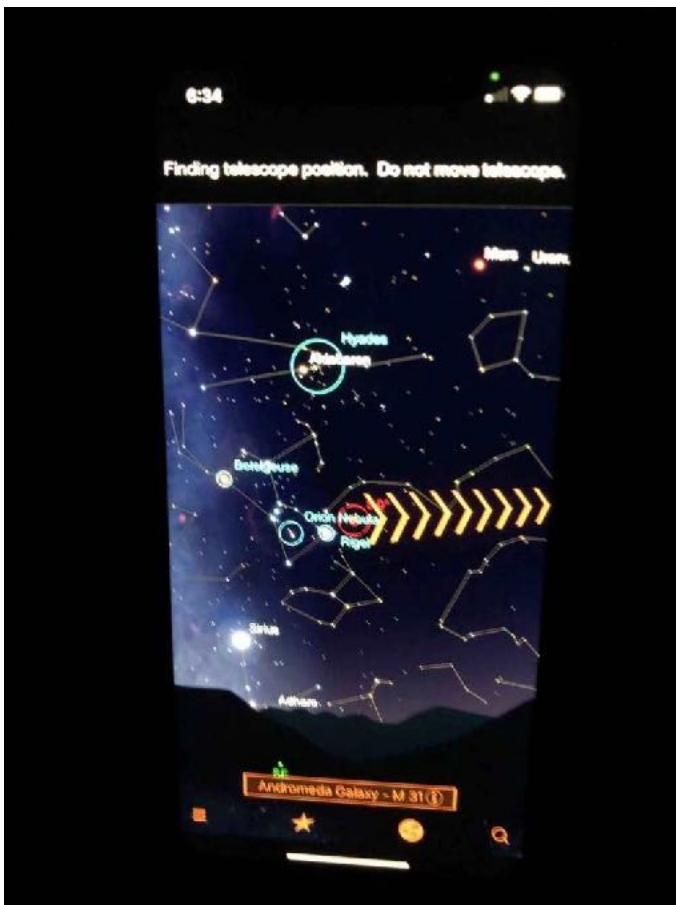
Red dot finder. The knob on the left facing front with the white dot is the on off. The one which sits underneath and the one on the right are for adjusting the finder position relative to the telescope.

at the sky. This is the interesting part. Apparently, the camera via the mirror pointing up to the sky is able to record starlight to enough of a degree that the telescope's position can be determined. For someone who spends most of his time imaging and knows about things like "plate solve failure", I found that kind of hard to believe. If you go on the Celestron site they insist this is not GPS mediated but some algorithm called LISA (Lost in Space Algorithm) which they say is "utilized by satellites that get lost in space". Ok great. Whatever. Let's see if it works!

First item of business was to align the finder with the tube optics. During the day I pointed to a structure on a mountain about 3 miles away using the red dot which is very bright. It was a little off of the target as viewed in the telescope so I adjusted

the finder position, fairly easy to do, until the red dot pointed to the object that was centered in the telescope field. I only used the 25mm eyepiece which I found to have a very small aperture.

Next I downloaded the StarSense app. There is a key code that you enter to enable full functionality of the app. Now I tend to over-analyze things and I tried reading the app directions online before actually using the app. This was a mistake because in the online directions it mentioned aligning the targeted image with the camera's bullseye which my iPhone does not have, but the app does once it takes control of the camera functions. Best approach was to open the app and follow the directions! It completely walks you through the set up.



StarSense app in action finding telescope position. Note the yellow ray of arrows pointing toward a potential target on the right. Turn the altitude and azimuth knobs to move the telescope in the direction of the arrows and it will show that happening in real time! When you arrive at the target, a green circle appears confirming successful pointing.



The Celestron AZ 102 shown side mounted on the Alt Az mount. The smartphone dock is to the right. The two slow motion hand control knobs are seen in the center, one for altitude adjustment and the other for horizontal or azimuth control.

The key step, once the finder is aligned with the telescope optically is to align your phone with the telescope. Almost all smartphones are compatible. There is a list of them on the Celestron site. However, the cameras are all going to be slightly different so as long as you adjust the camera position to get the largest field width you can, you should be good to go. Once you have the telescope pointed to a definite target and the app is open it will ask you to align the target to the central dot in the camera window. Once this is complete you are ready to observe. I thought it was an odd recommendation to leave your phone in the dock until it gets dark once it was aligned. Later I realized you could do the alignment at night just fine. It is not necessary to do it during the day.

The actual StarSense app contains a wealth of information about the objects you are looking at. There is enough there to keep anyone interested in a single object for most of the night! The graphics are great and all of the key bright most visible objects are right there on the screen. Everything you need to do to get it to work is pretty much spelled out in the app. Once you open it, it will ask if you need to align the phone to the telescope or not and once it is aligned it will start by locating the telescope position. I was observing under a fairly bright gibbous moon and right out of the gate it was able to locate the telescope position! Amazing!. Click on the star icon at the bottom and up pops a list of currently visible objects. Let's go to the Orion Nebula. When you select it, the app produces a ray of bright arrows pointing to the object and this tells you where to move the telescope (see image at the beginning of the article). I used the slow-motion hand knobs to manually slew the telescope to the target. As you

get close to the target a large circle bullseye appears, first red, then yellow as you get closer and finally green when you're there. Cool! So I look in the eyepiece and No nebula! Darn! However, I can see that the faint glow of the nebula is just visible along the edge of the field.



Smartphone placed in the dock with the StarSense app open.



Smartphone camera lens positioned over the mirror which is directed at the sky.

Ok so it looked like perhaps the phone alignment was slightly off. I re-aligned the phone using the same steps as before but since it was at night I could align to the moon which was easy. However, after that the StarSense app was unable to locate the telescope position regardless of where I pointed it. No matter what I did it the app would not seem to work. I uninstalled the app and then re-installed it and it did work once but not after that. The same thing happened when I used a different phone.

With the StarSense app functionality obviously not being consistent at all, I had to contact tech support. On the Celestron site, unfortunately like just about every website, support is very difficult to find. It's buried amidst FAQ sections and other product info. I did come across an FAQ section for StarSense which was helpful but didn't answer my specific questions. Finally, I found a support page where you could at least "submit a ticket" so someone could address my specific problem.

Three days later I received a reply. Over the next several days I worked on troubleshooting the problems with the app in communication with tech support. They suggested I first try a darker site, despite the fact they claim the app is fully functional even in light polluted areas. I brought the telescope up to my remote observatory where it is certainly dark enough and unfortunately it didn't seem to make a difference.

Bottom line is I finally solved the app problems on my own. Apparently, you have to remove any and all smartphone covers and also position the tripod only on a solid surface such as cement. There are too many vibrations on a wooden deck or even a soft grass surface. You have to be very accurate with the smartphone-telescope alignment step.

At any rate the test drive of this beginner's scope with the StarSense feature was great fun and very satisfying once I figured out how to get it to work!

What I liked about the StarSense AZ 102:

Excellent equipment quality for the price. Both the telescope OTA and mount are solid. Zero issues there with the telescope optics or mount mechanics. I forgot to mention the actual views of stars and nebulae were very crisp. The only time I knew it was an achromat was when looking at the moon there was some blue color fringing on one limb but not much at all. If you don't know anything about optics you wouldn't even notice enough to question what's happening.

The StarSense app content is really great. A wealth of information, excellent graphics and when it does work it's a great user experience.

Price: I think overall for the package it is good value. Even if someone has trouble with the app, the telescope itself is completely functional.



Above image shows the StarSense app opening screen displaying what is currently visible. If you click on the star icon at bottom, a page opens with a complete list of observable objects. Click on any one and the app will then locate that object in the sky and provide the pathway for pointing the telescope to it!

Red dot finder: a great feature and works very well.

What I didn't like:

Eyepieces are low end and kind of difficult for new users to adjust to with the small aperture and low eye relief. I think 25mm is a tough ask for this kind of pointing technology to be consistent. In fact I found that replacing the 25mm with a 32mm that was in "my collection" made a huge difference in pointing accuracy. A 40mm would be even better.

StarSense app inconsistent functionality: This was perhaps the most disappointing. While I was able to finally figure out how to get it to work consistently, I would be concerned for a complete beginner to sort through it if problems such as what I had occur.

Tech support. I was disappointed to find that Celestron tech support was very average in terms of accessibility. Now to be fair they were helpful once they did answer my query, but it did take several days for them to respond.

Final score for the Celestron StarSense Explorer AZ 102 refractor is 4/5 stars. Would I recommend it? Absolutely! I think it is a solid scope for a beginner, good value for the price and when the StarSense app works it adds a whole new "dimension" to stargazing. Keep the Celestron StarSense Explorer in mind if someone asks you what telescope to buy!

Thanks for reading!

Dave Doctor

Minutes of June 2021 Meeting

John McCullough - Secretary

Edward Montes, President, Astronomical Society of Las Cruces (ASLC, the Society), called the June 2021 meeting to order at 7:05 pm on 25 June 2021. He welcomed attendees to tonight's meeting via ZOOM. Twenty (20) attendees were signed in for the start of the meeting.

Ed welcomed the group and noted that minutes from the May 2021 meeting (thanks to John McCullough, Secretary) were published in the Society newsletter, the High Desert Observer (HDO), (thanks to Tim Kostelecky, HDO editor). Ed asked if there were any required additions, deletions, or corrections to the minutes as submitted. None being offered, a motion to accept the May 2021 minutes as published was offered by Rich Richins and seconded by Kim Morgan. There being no objections, the motion was passed.

Ed introduced tonight's speaker, Vic Maris, owner and founder of Stellarvue Telescopes. Ed met Vic about ten years ago and has a 50mm apochromatic Stellarvue that he uses for outreach events.

Presentation:

Vic Maris' presentation was "The Makings of a World-Class Refractor Telescope" as told by the Maker. Vic is President of Stellarvue Inc. and has had a lifelong interest in astronomy and astronomical telescopes since he made his first 6-inch reflector back in 1967. Vic spent 30 years working for California State Parks as a park ranger and superintendent. As he neared retirement, he began teaching astronomy in Sacramento and his students urged him to start a telescope company.

So, he did and founded Stellarvue, a high-end refractor telescope company, in 1998. As the company grew, Vic also began making optics for defense and space science purposes. The company expanded its shops and invested in state-of-the-art equipment. Stellarvue is now making some of the sharpest telescope optics on the planet. Vic's talk included a brief history of the telescope. He showed how refractors developed

over time and what makes a truly world class refractor. Following Vic's engaging presentation, he welcomed an open discussion and question-and-answer session.

Officer/Committee Reports:

Treasurer:

Trish Conley, Treasurer, reported on the status of the Society's accounts. The Society had income of \$24.15 in May, but multiple bills, i.e., insurance, were due in June. Because statements lag almost a month behind meetings, Trish said she would prefer reporting accounts status "to date" going forward.

Outreach:

Chuck Sterling, program coordinator, was not on tonight's ZOOM. Ed Montes reported that Chuck has decided to step away from the program coordination responsibilities and Stephen Wood has agreed to step into the position. Ed thanked both members for their efforts, noting that public outreach is a primary component of the Society's mission.

Stephen reported he had conducted the first postlock down Moon Gaze the previous weekend but had very low turnout at the Pan Am Plaza site. He is considering other potential sites including the Downtown Plaza. There will be an event at Leasburg Dam State Park (LDSP) on 03 July and another Moon Gaze 17 July. Location and time changes will be announced to members prior to the event(s) via email. The website and FaceBook calendars will also be updated. Stephen also noted that with the loss of both Jerry McMahan and Howard Brewington for Moon Gaze support, member participation needs a boost.

The Observatory at Leasburg Dam State Park (LDSP):

Dave Doctor established last week that an adequate internet connection can be obtained in the Observatory from the Park office using a bridge. Steve Barks continues looking at new laptops for the Observatory and is acquiring specifications and costs. He hopes to have a proposal order by the end of the month. Both Dave

and Steve are confident the Observatory can currently support events.

Old Business:

No additional old business was considered.

New Business:

Thanks to Rani Bush for her efforts on membership documents. The packet is available through the website.

Thanks to Rich Richins for his website maintenance.

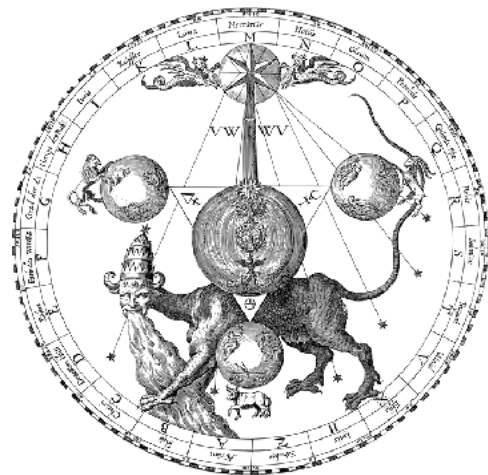
In connection with the 70th Anniversary of the Society, Ed Montes suggested recognizing ASLC founding member, Clyde Tombaugh by calling the ASLC monthly meeting lectures the "Clyde Tombaugh Lecture Series". Rich Richins suggested that additional founders could also be recognized in the future. After discussion by the members, it was agreed to move forward with Ed's suggestion.

Al Negler will provide the July 2021 presentation.

No additional new business was offered for consideration.

The June 2021 meeting was adjourned at 8:42 pm.

-Respectfully submitted:
John McCullough



Member Images

NGC 4565 “Needle Galaxy” - David Doctor



M101 “Pinwheel Galaxy” - Jeff Johnson - Las Cruces NM



Distance: 23 million light years
Telescope: Takahashi TOA-130F @ f/7.7
Mount: Takahashi EM200 Temma II

NGC 7000 “North America Nebula” - Kirby Benson - Rodeo NM

