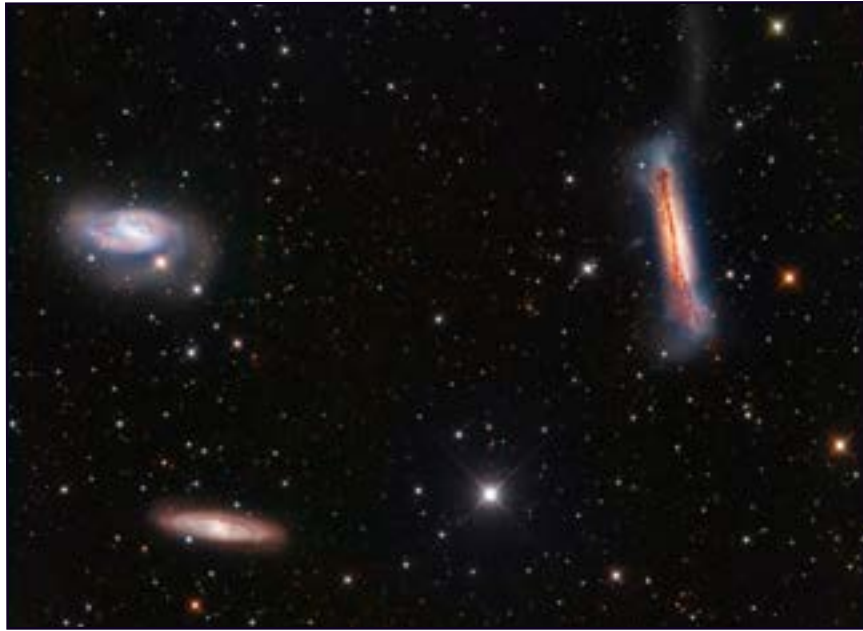


THE OBSERVER



The Leo Trio - APOD March 20, 2021
Image Credit & Copyright: Francis Bozon

From the Desk of the President *by Gordon Rosner*

Greetings from your President.

As always, I sure hope everyone is still doing well and keeping healthy. Especially with better times beginning to come more and more in focus.

A club milestone was met the evening of 26 April when the club's GRCO (Gilbert Rotary Centennial Observatory) opened to its first private viewing since the observatory closed a year ago due to the pandemic. The club's Leadership Team had previously held two meetings specifically aimed at determining how to ease-in to observatory

operations while still maintaining overall safety measures. After creating operational safety requirements and receiving agreements from the Town of Gilbert and the club's insurance company, the unanimous decision was made to open the observatory to private viewing sessions only. These sessions are scheduled Sunday through Thursday evenings from requests via the GRCO page on our EVAC's website and are limited to a maximum of six guests and lasts about ninety minutes. This gives small groups of astronomy enthusiasts the chance to have the observatory focused on their specific observation desires. This popular

UPCOMING EVENTS:

All meetings will be held online.

EVAC Meeting via Zoom - May 21st.

David Eicher - "Inside the Universe's Star Cities".

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From the Desk of the President

by Gordon Rosner

Continued from page 1

club amenity is a prime example of our club's focus on bringing astronomy to all enthusiasts. Our GRCO manager, Claude Haynes, schedules, manages and performs these events.

During normal pre-pandemic operations, GRCO was also open to the walk-in public on Friday and Saturday evenings. Many times, there were many people lined up outside the observatory waiting to get in for their turn to observe the object the telescope was trained on. As they waited, GRCO volunteers would explain the object and discuss other celestial gems. Of course this involved the waiting guests being close together and social distancing was of no concern at that time. So, the current private viewing plan eliminates current crowd exposure concerns. However, since inside GRCO is such a confined area, masks are required while inside. The club's GRCO operators are anxious to return to being fully open to public operations, but we do not yet know when that will be. The club's Leadership Team will monitor the private viewing operations and public safety concerns for future expansions to public operation decisions. But meanwhile, GRCO remains closed to Friday and Saturday evening public events. And everyone remember that all club public events still are on hold and we do not yet know when they will resume. All monthly meetings remain online.

Even though a 'supermoon' may not get all club members that excited, it always gets the public's attention via media hype. A nice thing since any astronomy publicity is welcomed. If you missed April's Pink Moon supermoon, don't fret. The next supermoon is again this month on 26 May. May's Flower Moon supermoon will actually be about 100 miles closer to earth than April's was. Certainly a very minuscule bit closer, but I'm sure some folks will be eager with anticipation of seeing such an even super supermoon! By the way, the term supermoon is not a formal name in astronomy and has no precise astronomical definition. The event is actually called the 'Full Moon around perigee' and is the Moon's closest approach to Earth during the Moon's elliptical orbit. Admittedly not very exciting sounding. So supermoon is much more fun to say. And hey, astronomy is fun right?

Remember our newsletter's member article feature is available. We are accepting a one page or so article on any astronomy related topic from our membership. Tell

us about your equipment, how you got started in astronomy, your road to astrophotography, outreach programs you have done, any observatories you have visited or any other astronomy related subject. Remember this is YOUR club. If it was interesting to you, it will be interesting to all of us. So, become a published astronomer and submit a member article to me via the 'Contact President' link on our website.

As I mention every month, everyone should remember that live member presentations are always a fun and valuable part of our monthly online Zoom meetings. These are about ten minutes or so long regarding any astronomy related subject you would like to share with the club. I encourage you to do one of these. Just let me know if you would like to do one by using the 'Contact President' link near the bottom of the main page of our EVAC website. I'll then get back with you and we can discuss. If needed, we can also do a dry run sometime before the actual meeting.

Our next online Monthly General Meeting will be on Friday, 21 May starting at 7:30PM. The main presentation will be by Dave Eicher, Astronomy Magazine's Chief Editor, titled "Inside the Universe's Star Cities". Don't miss this one as Dave is a very well known and respected astronomy contributor.

As always, a reminder that there are three ways to receive a notification link via an email to register for the next online monthly General Meeting. You only need to do one of the following and only once to continue to receive the email on how to register for the upcoming meetings:

1. Send a one-time email request to vp@evaonline.org.
2. Sign up for the evac-announce@freelists.org mailing list.
3. Sign up for the AZ-observing@groups.io mailing list.

Another way to get notifications of any special online events and how to register, is to join the [EVAC Facebook](#) page and occasionally check for special event announcements. These will also be announced during our monthly General Meetings.

I'll 'see you' at our 21 May meeting. "Keep your feet on the ground and keep reaching for the stars."

Your President,
Gordon Rosner

EVAC Zoom Meeting Notes for 2021 April 16th, at 07:30 P.M. AZ Time

by Wayne Thomas

Here are the Meeting minutes including details of the presentations. (The recorded video of the meeting can be viewed at: [April Zoom Meeting](#).)

President Gordon Rosner welcomed those in the “audience” to the virtual meeting at 7:32 p.m. His first slide presented the meeting agenda:

- Welcome
- Introductions
- Club News
- Member presentation: Bob Buchheim: “Society for Astronomical Sciences 2021 Symposium”.
- Main Presentation: Richard Hedrick, CEO of PlaneWave Instruments: “Brief History of PlaneWave, Telescope and Mount Making, and the Newest Product Member”.

Under club news, he reminded us that all club sponsored events with personal contact are still cancelled. However the board has been discussing how to gradually resume a more normal existence. To get started, they have decided to allow GRCO to proceed with private star parties for a few participants following guidelines for preventing the spread of the Corona Virus.

Member presentations are always welcome. Send Gordon a note if you are interested in making one. If you would like to write an article for the Observer, submit a draft to the president for his review. Our monthly meetings on Zoom are being recorded and each can be viewed via its link on the EVAC website, <https://www.evaonline.org/events-meetings>.

Our next regular club meeting will be virtual on Zoom at 7:30 p.m. Friday May 21. Dave Eicher, Chief Editor of Astronomy Magazine will speak on “Inside the Universe’s Star Cities.” Register for the meeting in the usual way by the link in the invitation email.

Gordon introduced Bob Buchheim, Board Member of SAS (Society for Astronomical Sciences) to share how amateurs and their equipment can make contributions to the science of astronomy. Bob contrasted three variables distinguishing the realm of the professional vs. the realm of amateurs – bright vs. faint, static brightness vs. time varying brightness, and small observatories vs. large observatories. It turns out that what amateurs can observe, either

professionals don’t have time to observe, or are physically incapable of observing. The Society for Astronomical Sciences Symposium in June provides a venue for collaborating with other amateurs who want to contribute to the science of astronomy. The symposium will be virtual on June 15, 19 and 22. The website to register is www.socas-trosci.org.

Tom Mozdzen then introduced the featured speaker, Richard Hedrick, CEO of Plane Wave Instruments.

Richard presented his talk in three sections – the history of the company, a tour around the factory, and their newest product.

For Richard it began with a class at El Camino College in Torrance California with an introduction to astrophotography. A group of students decided to make their own 6 inch telescopes by grinding and polishing their own mirrors. They then imagined constructing the largest amateur telescope, a 42 incher. Together with Dave Rowe, they designed an optical system which was the forerunner to the CDK design. (CDK is the acronym for Corrected Dall-Kirkham telescope design.) This telescope saw first light in 2009. Prior to this, they imagined the perfect telescope for amateurs. It would have point stars across a flat field. Richard gave a detailed history of how he progressed from working for Celestron to creating the PlaneWave Company together with his partners.

When it came to the mount, the perfect mount would be one with direct drive. A chance meeting with Russ Genet at RTMC 2007 introduced Richard to the Alt-Az Initiative. A couple of CDK telescopes were produced by Celestron in 2003 and 2005, but they did not fit well with Celestron’s business direction. PlaneWave was formed in 2006 with an agreement with Celestron to be able to use the CDK design for their telescopes.

Following this first part of his presentation, Richard fielded the following questions:

- What are the blue pieces on the telescopes? Clamps.
- How many of the various sizes have you shipped? Richard listed the approximate quantities of each size.
- Are the de-rotators standard? Only on the CDK 700 and the 1 meter. It is an option on the smaller telescopes.

EVAC Zoom Meeting Notes for 2021 April 16th, at 07:30 P.M. AZ Time

by Wayne Thomas

Continued from page 3

- Why did you leave California? The mechanical shop was already in Michigan, and expanding the business in California was not possible. He described selecting a location for the company in Michigan.
- Why does the CDK 24 change focus with temperature changes? The mirror is probably an early Pyrex mirror. Currently all mirrors are made of fused silica which is much more stable with changes in temperature.
- Why did you go with a single armed mount? Fork mounts are tricky and costly to properly align; where a properly designed single arm mount can meet all of our requirements
- Why are your mounts alt-az? Equatorial mounts become massive and expensive for larger telescopes. Today's de-rotators and software allow imaging with alt-az mounts to be quite acceptable.
- Does your mount come with software? Yes, but no computer. You must supply your own computer.
- Must you manually enter your location data? Yes.
- What maintenance schedule do you recommend? For the optics, once a year should be sufficient. For the mount, the bearings are sealed and should never need maintenance.
- What is next on the horizon? What is your ultimate dream? A 2-meter telescope is in the works with about half a dozen interested parties. A portable telescope would be nice.
- Is a pointing model built in? Yes
- Is there a cover for the mirror? Covers are an option for the smaller telescopes.

In the second part of Richard's presentation he first described the process of creating a telescope optical tube assembly. He then shared images of the PlaneWave factory in Michigan. It included the Custom Optics Machine, Optical Metrology, Primary Mirror Figuring, Primary Mirror Mount, Fixed Collimation, Assembled Optical Tubes, and Testing Facilities. He also described their focusing software and their use of 3-D printing. He then described their L Mounts and how they test them. He gave an example of how well their mounts track without guiding.

Following this portion of his talk, Richard fielded the following questions:

- How well do the L-mounts track? The direct drive motors are not like stepper motors. They will hold position to less than 0.1 arcsecond.
- Is guiding necessary? For 5 minute unguided images, 80% to 90% of the images will be OK.
- How does your testing and figuring compare to interferometer testing? Our proprietary process is like a Hartman test and much faster than an interferometer test which takes a long time to setup.
- Do you have to tell the computer where to figure the mirror? No, the software identifies where to work. However, it will continue iterating if we don't intervene. So we tell it when the figure is good enough.

Richard next covered their newest product – the Delta Rho 350 f/3 OTA (Optical Telescope Assembly). It is almost 14 inches in diameter, has a focal ratio of f/3, a focal length of 1050 mm and a 60 mm image circle which is at least 3 degrees. Both the Primary and Secondary mirrors are fixed.

Richard then answered more questions:

- What is the lead time on your telescopes? Three months is our target.
- What is the weight of the Delta Rho? About 40 pounds.
- Does the telescope come with a mount? No, you must order that separately. The telescope OTA is \$16K and the mount is \$10K.
- Have you considered Adaptive Optics? Yes, but there are problems. Specifically, AO requires a bright star and optimizes for on axis only. Astrophotography covers a large field of view, so optimizing for on-axis only doesn't cover the field.

Our next meeting will be on Friday, May 21, at 7:30 p.m. via Zoom.

Gordon adjourned the meeting at 9:08 p.m. Attendance maximum was 76.

Wayne Thomas
Secretary EVAC

Welcome to the May Skies

Because we are not looking through the main plane of the Milky Way this time of year, there are only two really bright constellations that catch our attention – Leo the Lion and the Big Dipper. Of course the latter is an asterism consisting of the seven brightest stars of Ursa Major, the Great Bear. It's an interesting challenge to track down the rest of the Bear so that you can claim you know the full extent of the third largest constellation (after Hydra and Virgo). The Dipper is crossing the meridian and upside down now, pouring its contents onto Polaris in hopes of extinguishing this permanent, unmoving beacon. Leo is also crossing the meridian, nearly overhead. The constellation is one of few that somewhat resembles what it's supposed to be. In Greek mythology, the creature was the Nemean Lion, whose tough skin was impervious to arrows. Hercules strangled it as the first of his Twelve Labors. The spring (and fall) skies, being clear of the Galactic plane ("Zone of avoidance"), give us a clear view of distant galaxies at the expense of open clusters and rich star fields. An especially interesting group of galaxies in Leo are M66/65 and NGC 3628. The "Leo Trio" is found just south of Theta Leonis in the Lion's hind quarters. An 8" telescope will reveal structure in the three galaxies, each taking on a noticeably different shape. Gamma Leonis in the Lion's chest is a beautiful double star. At 4.4" of separation, it will take 100x to split the two yellow suns.

There appears to be two large empty spaces west and east of Leo. In the west, with careful examination, one can

detect a nebulous glow (Tip: it's on a line from Pollux to Regulus). This is M44, the Beehive Cluster. It takes up a large chunk of space and is best seen in binoculars. The Beehive is 577 light years away and located at the center of Cancer, a small dim constellation challenging to identify even in a dark sky.

East of Leo and slightly up, lies another haze of light. This is the Coma Berenices star Cluster also known as MEL 111 (P.J. Melotte's star cluster catalog). This cluster is even bigger than M44. To see the full extent of it, you'll need a binocular with at least a 7 degree field. The cluster is huge because it's the third nearest star cluster to us (280 LY) after the Ursa Major Moving Cluster (80 LY) and the Hyades cluster in Taurus (120 LY). In antiquity, this haziness represented the tuff of hair at the end of Leo's tail.

If you're a galaxy person, this is the time to go crazy. There are dozens of galaxies sprinkled throughout Leo, Virgo, Coma Berenices, Canes Venatici, and Ursa Major. A selection of showcase galaxies might include M51, M81/82, M104, NGC 2903 and NGC 4565. Don't pass up M3, a fine globular cluster in Canes Venatici and the planetary nebula NGC 3242 in Hydra. For the double star aficionado, a few gems are Cor Caroli (C. Ven.), Mizar (U. MAJ.), and Iota Cancri and Zeta Cancri.

Good hunting!

LAST QUARTER MOON ON MAY 3 AT 12:50

NEW MOON ON MAY 11 AT 11:59

FIRST QUARTER MOON ON MAY 19 AT 12:12

FULL MOON ON MAY 26 AT 04:13

Find Out What's Happening – Join EVAC-Announce List

If you would like to receive email announcements about EVAC meetings and activities, please join the EVAC–Announce mailing list. Click on the link below to subscribe. Enter your full email address in the box titled User Options and press OK. You will receive a confirmation email. Your privacy is respected by EVAC and we will never sell your email address, or use it for non-club relevant solicitations. This mailing list is designed for communication from EVAC, and does not enable users to respond to the message. If you wish to contact club officers, please use the list in the Contact-Us area on the Home page of our EVAC website. To subscribe to the EVAC–Announce mail group click: <http://www.freelists.org/list/evac-announce>. To unsubscribe use the same link, enter your email address and select Unsubscribe from the “Choose An Action” list. Another list to consider is AZ-Observing@groups.io, simply click on this link <https://groups.io/g/AZ-Observing> and follow the instructions on the page. EVAC also has a Facebook Group where members may share ideas, photos, and Astronomy related information. To join: [EVAC Facebook Group](#).

The Gilbert Rotary Centennial Observatory (GRCO) also has a Facebook Group where members may share ideas, photos, and Astronomy related information. To visit, please click on [Gilbert Rotary Centennial Observatory - GRCO](#).

EVAC Outreach Events

by Gordon Rosner

Again, unfortunately another very short column this month. All outreach events remain cancelled due to supporting the public health concerns. For more information, see the President's column at the beginning of this newsletter or at the top of the EVAC website.

As always, still looking very forward to our outreach program getting back and to hearing all those “OH WOW's” we so love to hear.

Gordon Rosner
EVAC Outreach Events Coordinator



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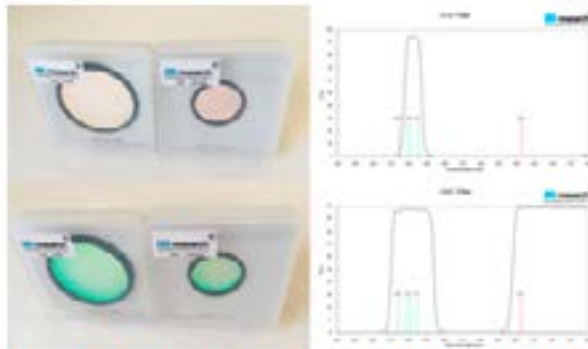
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Monthly Meetings will be presented live online using Zoom. See the EVAC Website for updates. All other events are on hold until health concerns are resolved.

The monthly general meeting is your chance to find out what other club members are up to, learn about upcoming club events and listen to presentations by professional and well-known amateur astronomers.

Our normal in-person monthly meetings have temporarily been cancelled, and are replaced with an online Zoom meeting.

Our meetings are held on the third Friday of each month at the Southeast Regional Library in Gilbert. The library is located at 775 N. Greenfield Road; on the southeast corner of Greenfield and Guadalupe Roads. Meetings begin at 7:30 pm.

Visitors are always welcome!



**Southeast Regional Library
775 N. Greenfield Road
Gilbert, Az. 85234**



MAY 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

May 21 - EVAC Monthly Meeting Live Online via Zoom.

The EVAC Monthly Meeting will be held live online via Zoom. All other meetings and events have been cancelled until further notice.

JUNE 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

June 18 - EVAC Monthly Meeting Live Online via Zoom.

The EVAC Monthly Meeting will be held live online via Zoom. All other meetings and events have been cancelled until further notice.

East Valley Astronomy Club – 2021 Membership Form.

IMPORTANT: All memberships expire on December 31 of each year

New Member Dues (select according to the month you are joining the club)

	Individual	Family	
January, February & March	\$30.00	\$35.00	
April, May & June	\$22.50	\$26.25	
July, August & September	\$15.00	\$17.50	
October, November & December	\$37.50	\$43.75	<i>(Includes following year)</i>

Renewal (current members only):

\$30.00 Individual **\$35.00 Family**

Astronomical League: \$7.50 Annually (per person)

Name Badges: Quantity: _____

\$10.00 Each

Name to imprint: _____

Total amount enclosed:

Please make check or money order payable to EVAC
Payment will be made using PayPal

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Address:

Email:

City
State
Zip

URL
For website

Would you be interested in our outreach program? Yes No

How did you discover East Valley Astronomy Club?

Liability Release Form

In consideration of attending any publicized Star Party hosted by the East Valley Astronomy Club (hereinafter referred to as "EVAC"), the receipt and sufficiency of which is hereby acknowledged, I hereby affirm that I and any related entities, predecessors, successors, affiliates, attorneys, guarantors, insurers, transferees, assigns, parents, spouses, children, subsidiaries, accountants, officers, directors, employees, agents, shareholders, members, and trustees, past and present, hereby forever release, acquit and discharge to hold EVAC and its related entities, predecessors, successors, affiliates, attorneys, guarantors, insurers, transferees, assigns, parents, spouses, subsidiaries, accountants, officers, directors, employees, agents, shareholders, members, and trustees, past and present, from any and all causes of action, claims, losses, damages, liabilities, expenses (including attorneys' fees) and demands of any nature whatsoever, known or unknown, that in any way relate to, arise out of, or concern EVAC and/or my presence on the premises of any EVAC Star Party and related areas, whether or not those causes of action, claims, damages, liabilities, and demands are part of the specific subject matter of EVAC or any EVAC Star Party. This release is intended to and does cover all injuries and damages, and the consequences thereof, whether known or unknown at the time of the execution of this release, which have occurred or may hereafter occur or which may hereafter be discovered, and which may have been caused or may be claimed to have been caused by the said incident, and specifically includes, but is not limited to, bodily injuries, mental and emotional injury, pain and suffering, medical treatments, and loss of earnings or income.

My signature upon this form also indicates agreement and acceptance on behalf of all minor children (under 18 years of age) under my care in attendance. EVAC only recognizes those who are members or invitees and who also have a signed Liability Release Form on file as participants at an EVAC Star Party.

Signature _____

Date _____

The Observer is the official publication of the East Valley Astronomy Club. It is published monthly and made available electronically as an Adobe PDF document the first week of the month. Please send your contributions, tips, suggestions and comments to the Editor at: news@evaonline.org. Contributions may be edited. The views and opinions expressed in this newsletter do not necessarily represent those of the East Valley Astronomy Club, the publisher or editor.

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www.evaonline.org

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