

PRESIDENT'S CORNER

by Bruce Horrocks

My wife will often tell me that I have chosen a very frustrating hobby. You have to have the right weather, no full moon, and the stars aligned just right to have great night of observing anything, and then be able to sleep in the next day and not have to go to work. I would have to say that I think she is right much of the time.

This spring has been a bit cloudier than what I would say is normal—and so not much time to spend looking at the stars and more time to just clean the garage and the house. While I am very grateful for the rain and moisture, I would like to have a few more clear nights. Hopefully this month will bring us a few more of them.

We had our last formal club meeting last month. Until next September, we hope that we can see you at star parties and our summer social, to be held later on. The COVID pandemic has made it very difficult for many clubs like ours to function. Clubs are a social institution, and as such, require a bit of time actually where you can mingle with each other. Prior to COVID, we were seeing 30 to 40 members at our monthly meetings. For a year or so, our meetings were completely shut down, and then we tried going to an online Zoom meeting, which had mixed results. Now we are back in an in-person meeting mode, but lack a good, central meeting facility. The Logan Library is now a construction site, and so we hope that when we resume our formal meetings next fall that we are able to find a satisfactory meeting place. We also hope that many more of you will be able to join us then.

For those of you who missed our last meeting, we were delighted to have Paul Ricketts from the University



Shannon Horrocks

UPCOMING EVENTS

Star Party Season Has Begun!

THANK YOU for all your work on STEM events this past fall and winter!

Check your email in the near future for a list of upcoming star and solar parties!

Keep up to date by visiting our website:



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Cliparts Zone

President's Corner, cont'd from p. 1

of Utah Willard L. Eccles Observatory come and talk to us about the 32-inch telescope there, and how he is able to remotely operate it. As one of his closing comments, Paul explained the outreach work they do with clubs such as ours, allowing amateurs to try out imaging and processing on deep space objects. If you are interested in having a session with Paul to see what he can show us, please let me or one of the Executive Committee members know. We can schedule a time with him, and I think it would be quite interesting.

The weather is for sure warming up, and so star parties are going to start happening. Currently, we have a few on the calendar, and we will get a list sent out to each of you so that you will be aware of these. I personally work with the Mendon Library to take care of the telescope that we placed with them. They have requested a solar party for later in July. If any of you that work with the libraries have not checked, maybe you should see if they would like to have our club provide a star party for them. The Mendon library realizes that it does not get dark until later and opted for the solar party during the day. Please keep this in mind as an option if you do talk with any of the libraries, if they are interested.

We would also like to thank all of you that have assisted in any way with the STEM or other outreach activities. These schools and organizations really enjoy when we help out with star parties and other presentations. I believe that providing this service is a great way to help others enjoy an introduction to the

astronomy hobby without experiencing the cost. This gives them—and us—a positive experience, and hopefully they will build on that. So, thanks to all of you that have helped. I am sure that there are many other activities that take place that we do not hear of, and we thank you for that service as well.

We will be planning out our summer of star parties, and when we get this list generated, we will be sending it out to each of you. We hope that many of you will bring your telescopes out and join with us as we enjoy some warmer weather and some fun nights out with the stars.

Clear Skies,
Bruce Horrocks

Challenges from Our President

- Would you like to do some imaging and processing with images from the Willard L. Eccles Observatory? Please let a member of the Executive Committee know!
- If you work with a Cache Valley library as a caretaker of their telescope, please ask them if they'd like us to host a star party or solar party for them over the summer.
- Come and enjoy some fun nights with us, out under the stars!

**EXECUTIVE COMMITTEE**

- President: Bruce Horrocks; bruceh@gembuildings.com
- Vice President: James Somers; james.m.somers@aggiemail.edu.usu
- Secretary/Treasurer: Bonnie Schenk-Darrington; bschenkdarr@gmail.com
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- Webmaster/Librarian: Tom Westre; twestre45@aol.com

VENUS: THE MORNING STAR OF SPRING

by Dell Vance

Around 5:30 a.m. MDT on May 3, 2022, the morning star rises in the east. This is not a star at all. It is our neighboring planet, Venus. It is also the evening star when it appears on the other side of the sun and follows the sun toward the western horizon. Many people have marveled at this planet because it is so bright and is often the first star they see at night when it is the evening star.

What do we know about our closest neighboring planet? It has been over 25 years since NASA has sent any missions to Venus. NASA now has two upcoming missions on the books: the VERITAS orbiter in 2027 and the DAVINCI flyby in 2029. The European Space Agency is planning the EnVision orbiter in the 2030s. Why so much excitement now? The search for exoplanets has raised a lot of questions about the development of planets. We are still struggling to understand our nearest neighbor and hope that learning more

about Venus will help us gain more knowledge in this regard.

Venus has some special characteristics. Because it is between us and the sun, we can see phases of the planet like the phases of our moon. Venus rotates clockwise on its axis, while the Earth rotates counter-clockwise. Both planets orbit the sun in the same direction. This results in a day on Venus to be equivalent to 117 Earth days. The Venus atmosphere is extremely dense. The surface pressure is 92 times higher than the sea level surface pressure on Earth.

Venus will continue to be the morning star until the latter part of October. It will be harder to see as it appears closer to sunrise. In November, it will be trailing behind the sun at sundown and will be in the evening star position. For now, enjoy the opportunity to see our closest neighboring planet in the early morning, just before sunrise.



Venus (crescent)

5/7/2020 10:13 p.m. MDT

NexImage camera with blue filter

Celestron 11"

Distance: 35,000,000 miles

A VISIT TO LOWELL OBSERVATORY

by **Blaine Dickey**

While traveling on vacation to the southwestern United States, to I have been privileged to visit some of the major observatories located in Arizona and New Mexico.

My wife, daughter, and I were recently driving home from southern Arizona and decided to go to Lowell Observatory, the historic place where Clyde

Tombaugh discovered the minor planet Pluto.

The Lowell Observatory is located in Flagstaff (northern Arizona), next to the towering San Francisco Peaks. In the western foothills of the city, you will drive up a gentle, winding road until you arrive at the observatory, about a mile west of town.

We purchased some tickets and walked north to the Saturn building, which is shaped like the planet Saturn, with a ring at the base of a dome. It was there that we waited for a few minutes for our tour guide.

Our tour guide led us along a path toward the



The Saturn building.



Building housing the 13-inch astrograph.



The walkway to the observatory.

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Lowell Observatory, cont'd from p. 4

building that houses the 13-inch Lawrence Lowell Telescope. This path has a bust of the famous Clyde Tombaugh, who discovered Pluto on February 18, 1930. He was using a device called the blink comparator to view some photographic plates and noticed a small dot that shifted its place among the background stars. The small dot turned out to be none other than Pluto. This discovery made this telescope famous



Large concrete pier.

above many others.

As we neared the observatory housing the telescope, we saw a stone-walled circular building at the end of the walkway.

We were then led into a door on the side of the building, and inside we saw the large concrete pier that the 13-inch Lowell Telescope astrograph rests upon.

From there, we walked up a small stairway into the room where the telescope was located.



The 13-inch Lawrence Lowell Telescope.



While in that room, the guide allowed me to push the telescope back and forth a little. In addition, I was allowed to look up the tube to the lens of the telescope after he pulled off the photographic plate holder at the back of the telescope. It was a contemplative experience to realize that I was

looking at the exact lens that focused the tiny planet Pluto onto a photographic plate, and to realize that I was standing in the same room that Clyde Tombaugh was in when he took that photograph, which changed the world of astronomy forever afterward.

At the end of the tour, the observatory bookstore was a great place to pick up a book or some other astronomical item, and remains a favorite of mine.

Charon and Pluto

The NASA image above shows Pluto and its moon Charon, taken during a flyby by the New Horizon

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Lowell Observatory, cont'd from p. 5***Bust of Clyde Tombaugh.***

spacecraft. So if you happen to be in Flagstaff, Arizona, sometime, it is well worth stopping for a visit!

*Photos of the observatory courtesy of the author.
Image of Charon and Pluto courtesy of NASA.*

***Charon and Pluto.****Clipart Library*

Have you been on a fun astronomy-related trip? Please share it with us! Send your story and images to Bonnie at bschenkdarr@gmail.com.

*pngset*

Hey, Astronomy Hero! What's Your Origin Story?

CVAS members are astronomy superheroes who share their love of astronomy with the galaxy! (Or, at least with the people of Earth!)

What piqued your interest in astronomy? Please tell us! Send your article to Bonnie at bschenkdarr@gmail.com!

UNIQUE GALAXIES IN LEO

by Tom Westre

We are in the middle of galaxy season. There are dozens or more of interesting galaxies, galaxy pairs, galaxy trios, and galaxy clusters to be viewed and photographed between now and the end of May.

Besides imaging galaxy pairs, trios, and clusters, one of my goals is distance. How far away from earth can we image these galaxies? Distance makes it a challenge because the final image may just be a smudge. Details such as the spiral arms may or may not be visible.

But the collection of photons that have travelled for a hundred million or more light-years and finally been captured by our telescopes and mirrors is an amazing event.

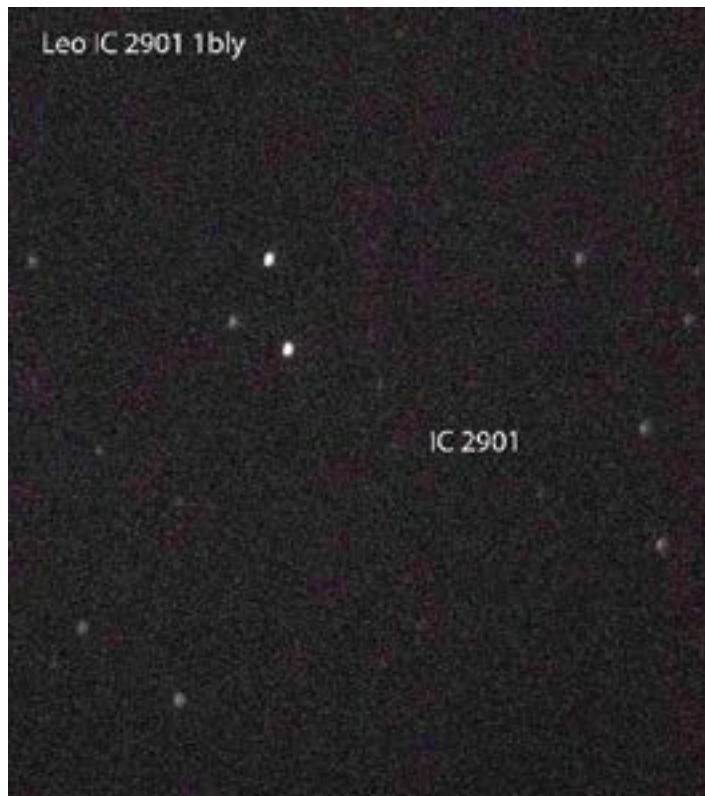
Over the past few months, I have created a list of galaxies that fit my goals.

Finally on April 20, 2022, I spent a few hours hunting down eleven galaxies. In this article, I have chosen to present three that I feel are outstanding examples of what awaits us out there.

We are all familiar with the Leo Triplet consisting of M65, M66, and NGC 3628. But there is another little-known group known as the Leo Triplet 2 or the Forgotten Leo Triplet. The group consists of NGC 2964, NGC 2968, and NGC 2970. They are located above the head of Leo. They constitute a gravitationally bound group that is located between 60 and 80



The Forgotten Leo Triplet.



IC 2901.

million light-years from Earth.

My second target of interest comes from a list of galaxies called “Chasing Billion Year Old Light” by Jimi Lowrey. Jimi wanted to push his telescope to the “visible limits”—in this case at a billion light-years or more away. There are 90 galaxies in his list. They can be found in at least 10 constellations. They are conveniently found in the NGC/IC catalogues. On this night, I chose three located in the constellation Leo: NGC 3908, IC 2844, and IC 2901. Unfortunately, only IC 2901 was imageable—and that very faintly—in my Celestron 8. Next time I will use a longer exposure. The three images in this article are only 55 seconds. For those of you who take longer images and stack them, you should have greater success in imaging these faint 1-billion-light-year galaxies.

The third image is a galaxy group known as the Leo Cluster, or Abell 1367. This cluster of at least 70 galaxies is located in Leo, at a distance of 330 million light-years. NGC 3842 is the brightest member of the group. This cluster is located just above the star Denebola, in Leo’s tail. The brighter galaxies shine between

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Leo, cont'd from p. 7

magnitude +12 and +13. Many more are fainter.

For most of these galaxies you will need dark skies. If you wish to try to see them visually without a camera, then high power and averted vision will help.

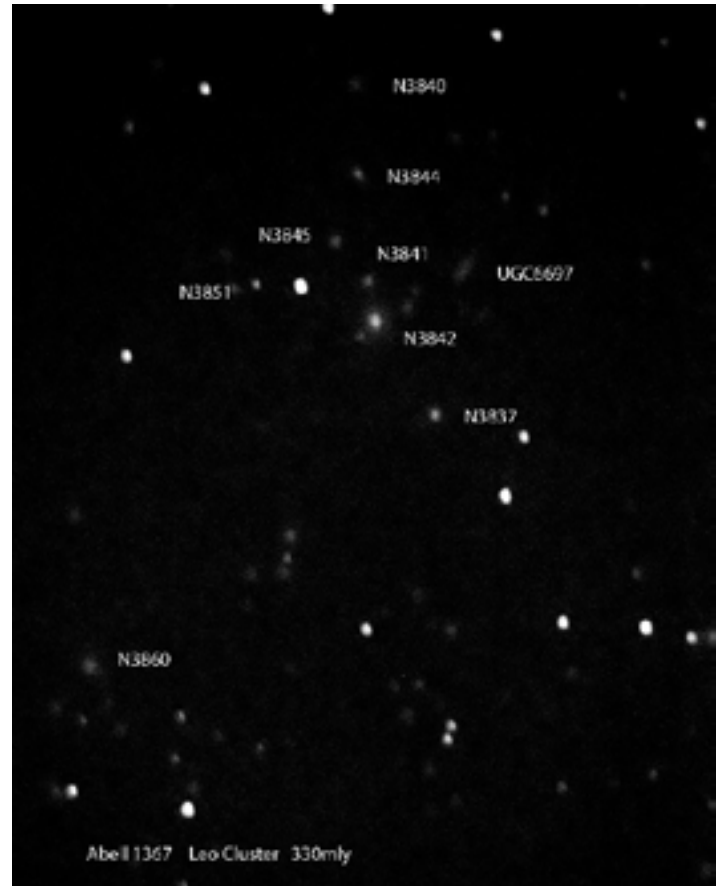
According to an article in Sky and Telescope, the Leo Cluster and the Coma Cluster (Abell 1656) form the Coma Supercluster, which is the nearest supercluster to our own Virgo Supercluster and the heart of the Great Wall, a long filament of galaxy clusters 750 million light-years long.

Later in May and early June, the clusters in Corona Borealis and Hercules will be available for viewing.

When viewing and imaging these faint galaxy clusters, it is important to use stars in our galaxy in the foreground to locate the members of the cluster.

Our challenge is to locate as many of the members of these clusters as we can.

Our universe is teeming with galaxies that contain billions of stars and planets. It's a joy to wonder, as we look at these distant objects, if there is life out there. Happy galaxy hunting!



All images in this article courtesy of the author.

Abell 1367.

Free Online Course: Introduction to Amateur Astronomy



Clipart Library

We advertised this course in our January issue and in our club e-mails. Kalamazoo (Michigan) Astronomical Society has been giving a free introductory astronomy class online. Students who attend all five sessions even receive a nifty certificate!

It's too late to formally join the class. But CVAS has been given special permission to post the YouTube videos of the lectures! So, if you'd like to brush up on your introductory astronomy, here are links to the lessons!

They have a gift shop full of cool stuff and offer many free online lectures, besides the introductory class. You can check out their main website at <https://www.kasonline.org>.

Introductory Astronomy Lessons

[Part 1: Our Place Among the Infinities](#)

[Part 2: Discovering the Night Sky](#)

[Part 3: Binocular Basics](#)

[Part 4: Telescope Tutorial](#)

[Part 5: The Art of Astrophotography](#)

ASTROPHOTOGRAPHY GALLERY

Recent Images by Club Members

The Sun Blaine Dickey

Here is a picture I took of the sun on March 30. I counted about 9 separate sunspots on the sun's surface.

There has been [a lot of solar activity](#) in the past month and a half.

This picture was taken with my 8 inch Celestron Evolution fitted with a mylar sun filter, using my NIKON D5100 DSLR.



Messier 51 (above) and Messier 109 (right) Bruce Horrocks

Both of these images were taken using an Esprit 150mm telescope and my ZWO 2600MC color camera. They are a stacked picture using 11 images of each object at a 120-second exposure. I used the Pixinsight software to process them.





Clipart.World and Cliparts Zone

Need a quick astronomy fix?
Tune in to CVAS's astronomy show on Utah Public Radio!

UTAH SKIES

Every Tuesday at 4:48 p.m.
91.5 KUSU-FM (west Cache Valley)
89.5 KUSR (east Cache Valley)

You can also download the UPR app or listen to the livestream [here](#).
Check out our past radio shows [here](#).



UPR USU



Amazon Kindle

Free Astronomy 101 Textbook Now Available!

In an effort to democratize knowledge, the [OpenStax](#) project produces free digital and inexpensive hard-copy college-level textbooks written by professionals in many fields. You do not have to be a college student to request a copy. You can read more about the new astronomy textbook [here](#). And you can download or order a copy [here](#).

UPCOMING ASTRONOMY EVENTS AND ANNIVERSARIES

by Bonnie Schenk-Darrington

- May 4: Star Wars Day. May the 4th be with you!
- May 5: Alan Shepard was launched in the Freedom 7 capsule. He became the first American man in space, and the second man in space ever, less than one month behind Yuri Gregarin of the Soviet Union.
- May 5–6: Peak of Eta Aquariids meteor shower.
- May 7: [International Astronomy Day](#).
- May 14: The first U.S. space station, Skylab, was launched in 1973.
- May 15: Williamina Fleming born in 1857. She catalogued thousands of stars and discovered the Horsehead Nebula.



- my and helped plan the Hubble Telescope, among many other accomplishments.
- May 17: Conjunction of Mars and Neptune.
- May 21: Conjunction of the moon and Saturn.
- May 24: Moon appulses both Mars and Jupiter.
- May 25: President John F. Kennedy announced his intention to put [a man on the moon](#) to Congress in 1961.
- May 28: Conjunction of Jupiter and Mars.
- May 30: The first spacecraft to orbit Mars, Mariner 9, was launched in 1971.



Wikimedia Commons



FAVPNG

- May 15: Total lunar eclipse. It will be visible in Cache Valley from about 9:30 p.m. to 10:55 p.m.
- May 15: Full moon.
- May 16: Nancy Grace Roman born in 1925. She was NASA's first Chief of Astrono-

A LITTLE ASTRONOMY HUMOR



Memebase

CACHE VALLEY ASTRONOMICAL SOCIETY MEMBERSHIP APPLICATION FORM

Member # _____

NAME: _____
 First Middle Initial Last

Address: _____
 Street City State Zip Code

Home Phone: _____ Cell Phone: _____

Work Phone : _____ Occupation : _____

Email Address: _____

How did you learn about CVAS?

_____ Website _____ Star Party _____ CVAS Member _____ Other _____

Membership: \$20 lifetime membership

Tell us about yourself: Do you have a special interest in astronomy? Do you have special skills? Are you willing to volunteer on CVAS projects or attend public outreach star parties? Astro equipment owned.

By signing this application, I acknowledge I have access to the CVAS website, cvas-utahskies.org, and the CVAS constitution. I agree to abide by the constitution.

Signature: _____ Date: _____

Bring this form to the meeting or contact **Bonnie Schenk-Darrington, Secretary/Treasurer** at bschenkdarr@gmail.com.