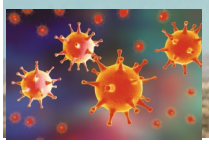
The High Desert Observer



March 2020

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 and provides 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,* in either paper or digital format. ASLC members are also entitled to a $5 (per year) discount on *Sky and Telescope* magazine.

Annual Individual Dues are $30
Annual Family Dues are $36
Annual Student (Full Time) Dues are $24

Annual Dues are payable in January. Prorated Dues are available for new members. Dues are payable to ASLC with an application form or note to: Treasurer ASLC, P.O. Box 921, Las Cruces, NM 88004. Contact our Treasurer, Patricia Conley (treasurer@aslc-nm.org) for further information.

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Astronomical Society of Las Cruces

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Member Info Changes

All members need to keep the Society informed of changes to their basic information, such as name, address, phone number, or email address. Please contact Treasurer@aslc-nm.org with any updates .

March Meeting

Our next meeting TBD later, as circumstances permit. The ASLC will not be holding meetings, gatherings or public outreach events until it is deemed safe to do so. Wash your hands!

Events

ASLC hosts deep-sky viewing and imaging at our dark sky location in Upham. We also have public in-town observing sessions at the Pan Am Plaza (on University Ave.) and at Tombaugh Observatory (on the NMSU campus) All sessions begin at dusk.
At our Leasburg Dam State Park Observatory, we hold monthly star parties. Located just 20 miles North of Las Cruces, our 16" telescope at this site is used to observe under rather dark skies.

Masthead Image: Moon rising over the Organ Mtns. Las Cruces, in Penumbral Eclipse, February 10, 2017.

From the Desk of the ASLC President

Tracy Stewart

SIDEKICKS ARE IMPORTANT ALSO

Throughout astronomical history there are certain people who really stand out. Galileo, Newton, Kepler, Eddington and many more. Of course we can't forget our hometown hero Clyde Tombaugh who gathered the data that proved the existence of what would come to be called Pluto. Percival Lowell first theorized the existence of the ninth planet. Lowell died before his successor Tombaugh finally spotted the elusive body but both men relied on the mathematical calculations of Elizabeth Williams.

In the days before calculators and laptops the very complex the very complex calculations that were necessary to make the fantastic discoveries, we take for granted today were done by hand. This work was often done by *Human Computers*. Because the work was so unglamorous it was often done by women. Enter Elizabeth Williams who did the complex calculations that told Tombaugh where to look.

Williams wasn't there to see the discovery. In 1922 she had married and Lowell's widow had fired here because she felt it was inappropriate to employ a married woman. She and her husband took jobs at a Harvard observatory in Jamaica. In 1935 Williams was widowed herself and moved to New Hampshire where she died in poverty.

Chloroquine

Chloroquine is a medication used to prevent and to treat malaria in areas where malaria is known to be sensitive to its effects.[1] Certain types of malaria, resistant strains, and complicated cases typically require different or additional medication.[1] Occasionally it is used for amebiasis that is occurring outside the intestines, rheumatoid arthritis, and lupus erythematosus.[1] It is taken by mouth.[1] It is also being used experimentally in COVID-19 as of 2020.[2]

Common side effects include muscle problems, loss of appetite, diarrhea, and skin rash.[1] Serious side effects include problems with vision, muscle damage, seizures, and low blood cell levels.[1] It appears to be safe for use during pregnancy.[1][3] Chloroquine is a member of the drug class 4-aminoquinoline.[1] It works against the asexual form of malaria inside the red blood cell.[1]

Chloroquine was discovered in 1934 by Hans Andersag.[4][5] It is on the World Health Organization's List of Essential Medicines, the safest and most effective medicines needed in a health system.[6] It is available as a generic medication.[1] The wholesale cost in the developing world is about US$0.04.[7] In the United States, it costs about US$5.30 per dose.[1]

Wikipedia.

Outreach Events, by Jerry McMahan

Desert Hills Elementary, Thursday, February 13

The parking lot was full. There was no place to park, so obviously we were going to have a big crowd. I had the ETX 125, Howard Brewington brought his Dob, Tracy Stuart set up his 8 inch. Steve Wood was there with another 8 inch. Four telescopes were more than we had people show up to look though them. I only had 3 observers come to my scope. It seems that no one inside told any one that we were outside

Leasburg Open House, Saturday, February 15

David "Have Scalpel, Will Travel" Doctor operated the 16 inches with me inside the observatory watching. Steve Wood set up the 11 inch Celestron. Howard Brewington attended. Ed Montes used his green laser to point out airplanes, I mean constellations.

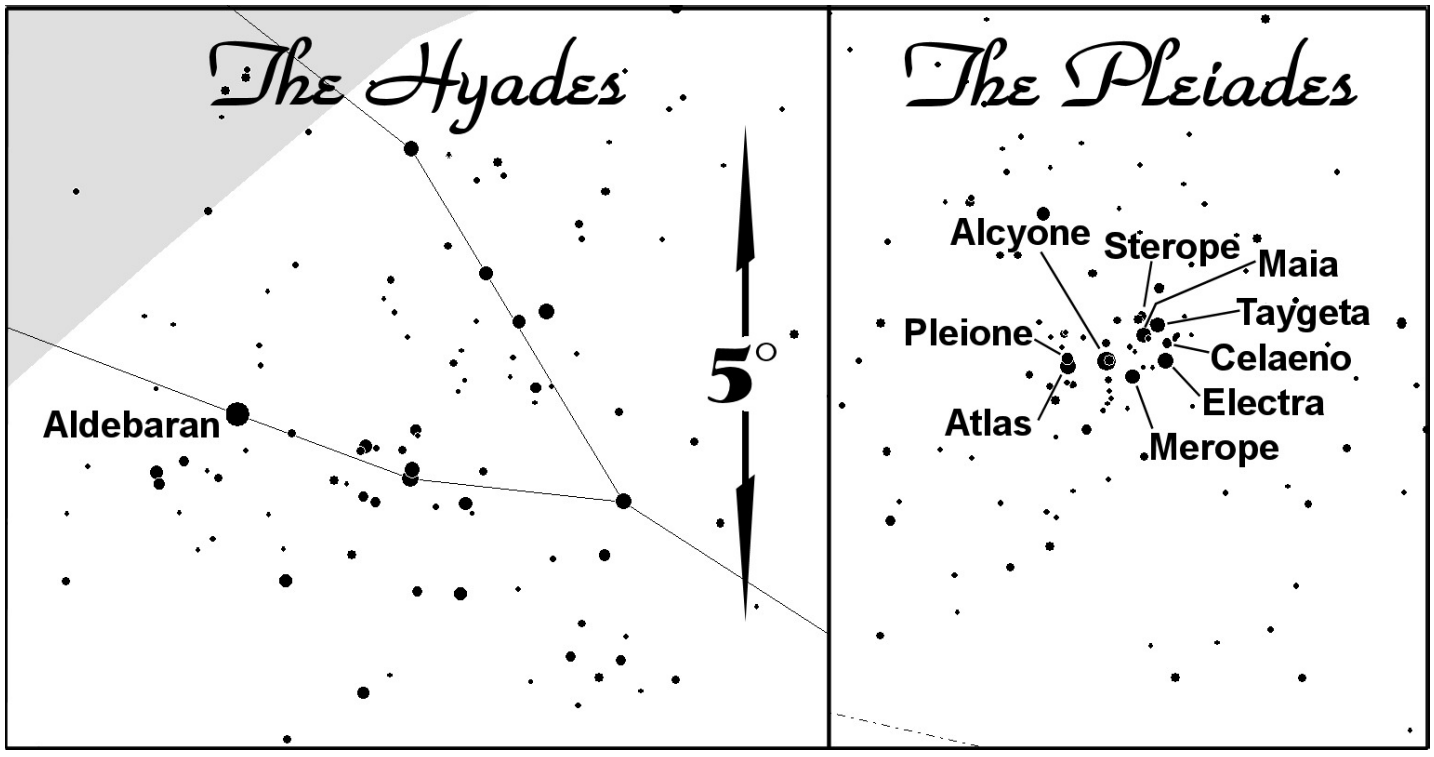
It was a clear night, but a little windy, but a success in any case.

Tombaugh Observatory, February 28

Clouds. That was easy. The Astronomy Department did a slide show about past, present and future space missions, so outreach was accomplished even if no telescopes were used. Steve Shaffer and Jerry McMahan at least made an attempt by being there.

Moongaze, Saturday, February 29

Leap Day also marked the second Moongaze of the month. Chuck Sterling attended. Steve Wood brought his 8 inch. Jim Idoux set up his new 100mm Sky Watcher refractor. I had the usual ETX 125. It was partly cloudy, but the Moon, Venus and the Orion Nebula were targets, as was the clock tower. I set up in a position such the the Moon went behind the clock tower. We probably had a below turnout of people stopping by to look though the scopes.



The Uranograph - March 2020.

By Bert Stevens

Constellation of the Month: Taurus, The Bull (Part II).

This month we will take a second look at the constellation Taurus. Instead of looking at the whole constellation, we will look at its two major open clusters, the Pleiades and the Hyades.

Mythologically, the Pleiades were the daughters of the Titan Atlas and the sea-nymph Pleione. Atlas had led the Titans in a war against Zeus and the other Olympians. The Titans lost, and Zeus forced Atlas to hold up the sky for evermore. One day when Pleione and her daughters were playing in a field, the hunter Orion came upon them and was taken by their beauty. He began pursuing them endlessly. Zeus eventually noticed the Pleiades' plight and changed them (and their mother) into doves to escape Orion's advances. Zeus then turned them into a small group of stars near the horns of Taurus. Atlas was doubly punished, not only having to hold up the sky, but losing his wife and daughters to the sky as well.

While there are seven Pleiades (Maia, Electra, Alcyone, Taygete, Asterope, Celaeno and Merope), there are only six stars readily visible to the naked eye. There are two stories about the missing Peiad. One is that while the other Pleiades had taken lovers from among the gods, Merope had consorted with a mortal, Sisyphus, the King of Corinth. To hide her shame, she fled from her sisters. A different story has Electra being an ancestress of the royal house of Troy. After the Greeks destroyed Troy, Electra was so saddened by the loss that she abandoned her sisters, becoming a comet. Thereafter, comets were known to portend doom whenever one became visible.

The Hyades are another group of daughters of Atlas and Pleione. These daughters also had a brother, Hyas. When Hyas was out hunting, a wild boar attacked him and killed him. The Hyades, (Phaola, Ambrosia, Eudora, Coronis, and Polyxo) were so grief stricken that they died of sadness. Zeus then placed them in the sky. There, they foreshadowed the rainy season, with their tears of sorrow falling softly on the Earth as rain. Later, Thione and Prodice were added to the Hyades. They are daughters of Hyas and Aethra (one of the Oceanides) who were also saddened by the loss of their father.

Open clusters are the kindergartens of our galaxy. Giant nebulas of dust and gas (mostly hydrogen) reside in the galaxy's spiral arms. When a nearby star goes supernova, the shock waves expand outward from it and can strike one these gas cloud nebulas, compressing the cloud and beginning the process of star formation.

As the cloud collapses, individual regions of higher density randomly form and their stronger gravity pulls in increasing amounts of dust and gas, forming huge gas balls. Eventually, the increasing weight of the accumulating gas compresses the gas below it. The compression heats the gas balls (protostars) until the hydrogen in its core is so hot that it starts to fuse, converting the hydrogen into helium. When all the individual gas balls have started to fuse hydrogen, a cluster of stars have been born.

Once the stars in the cluster have turned on, their stellar wind starts to clear the gas and dust from the immediate vicinity of each star. The combined stellar winds of all the stars in the cluster push away the gas and dust that they were formed from. This leaves the open cluster in the clear. In a sense, forming an open cluster marks the death-knell of the nebula.

Since all these stars came from the same nebula, they all have the same motion as the original cloud and move together through space. This grouping is called an open cluster. Eventually, slight differences in their speed and direction along with the gravity of stars the cluster passes cause the individual stars to spread out, and finally they lose their group identity to join the background of stars in the galaxy.

The discovery of clusters depends on examining each section of the sky and looking for an enhanced star population. Many diffuse clusters have been located this way. Once an area has been determined to have more stars than surrounding areas, the spectrums of individual stars are taken and their distance is determined. If they are mostly the same distance, it is most likely a cluster. If the proper motion, the direction and speed of the star's movement in our sky, can be determined for these stars, a cluster would be verified if they all had similar proper motions.

While the stars of a cluster are all occupy the same area, they may not be the only stars in that patch of the sky. There may be stars that are between us and the cluster (foreground stars) and behind it (background stars). These stars are not part of the cluster and will have significantly different distances and proper motions that those of the cluster.

Since open clusters dissipate over time, the more condensed a cluster is, the more likely that it is a younger cluster. A younger cluster will have younger stars, including very massive stars that are very bright because they are fusing hydrogen into helium at a ferocious rate. These stars have short lifetimes on the order of the tens of millions of years before they become red giants and die.

The Pleiades (M45) open cluster in Taurus consists of over 500 stars in an area two degrees across, but the brightest stars fit into the central one degree. The Pleiades cluster is about 440 light-years away, just down the block in astronomical terms. The cluster has a low density, and the gravity of the surrounding stars will tear it apart in the next 250 million years. Pictures of the Pleiades often show the star cluster shining through a dust cloud that was originally thought to be the remains of the cloud that formed it. The Pleiades is too old (115 million years) to not have cleared all the primordial dust away, so this must just be a dust cloud that the cluster is currently passing through.

The brightest stars are blue-white spectral class B6 or B7 stars that are some six times the mass of the Sun. They are still on the main sequence (where most stable stars are), but they are near the end of their main-sequence lifetime. Any more massive stars that were formed as part of the Pleiades have already completed their run on the main sequence, become red giants, and faded into the white dwarf phase. By knowing the age of the intrinsically brightest stars in a cluster, we have an approximation of the age of the cluster.

The other major open cluster in Taurus is spread across five-and-a-half degrees in our sky. The Hyades are only 153 light-years away and some 625 million years old. The hallmark star of Taurus, its red eye, Aldebaran appears to be in the Hyades, but it is actually two and a half times closer and not part of the Hyades cluster. The Hyades are moving toward a point just east of Betelgeuse in Orion and it likely shares a common origin with the Beehive cluster (M44) in Cancer since they have similar motion and a similar age.

While the Pleiades' brightest stars are B6-class stars, the Hyades' brightest stars are closer to class A5. All the B-class stars have already gone through their red giant stage and are now represented by the eight white dwarfs that have been found in the core of this cluster.

Uranograph cont…

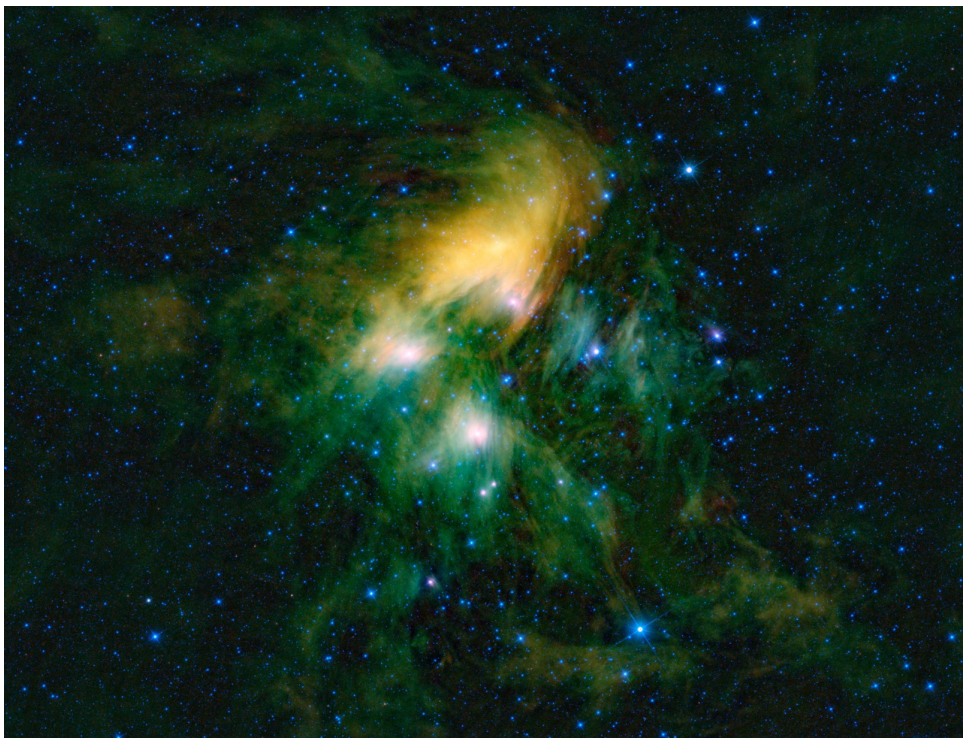
While there are many other open clusters scattered throughout the sky, most of them are along the plane of the Milky Way, since they form out of the dust and gas in our galaxy's disc. The Pleiades and the Hyades are two of the best open clusters, both easily visible to the naked eye. While it may seem surprising that they are both in the same constellation, this quadrant of the sky has many bright stars that formed from the massive Orion molecular cloud centered on nearby Orion. This cloud gives us the glittering diamond-bright stars of the winter sky, including these two clusters.

Pleiades.jpg

The Pleiades open star cluster in Taurus, the Bull, shines through a dust cloud that star cluster is passing through. The brightest stars are all bluish B-type stars, giving the dust a bluish tint. Image credit: NASA, ESA, AURA, Caltech, Palomar Observatory

Pleiades-IR.jpg

The WISE (Wide-field Infrared Survey Explorer) spacecraft took this infrared image of the Pleiades. WISE had four different infrared color sensors, all of which were used to make this image. The colors were coded with blue and cyan representing infrared light at wavelengths of 3.4 and 4.6 microns, which is dominated by light from stars in the cluster. Warm dust is represented by green (12 micron) and red (22 micron) infrared light. This image covers an area of 3.05 by 2.33 degrees. Most of the cluster's stars are within this 20-light-year-wide region.



Uranograph cont…

Hyades

Mtanous 1998.jpg

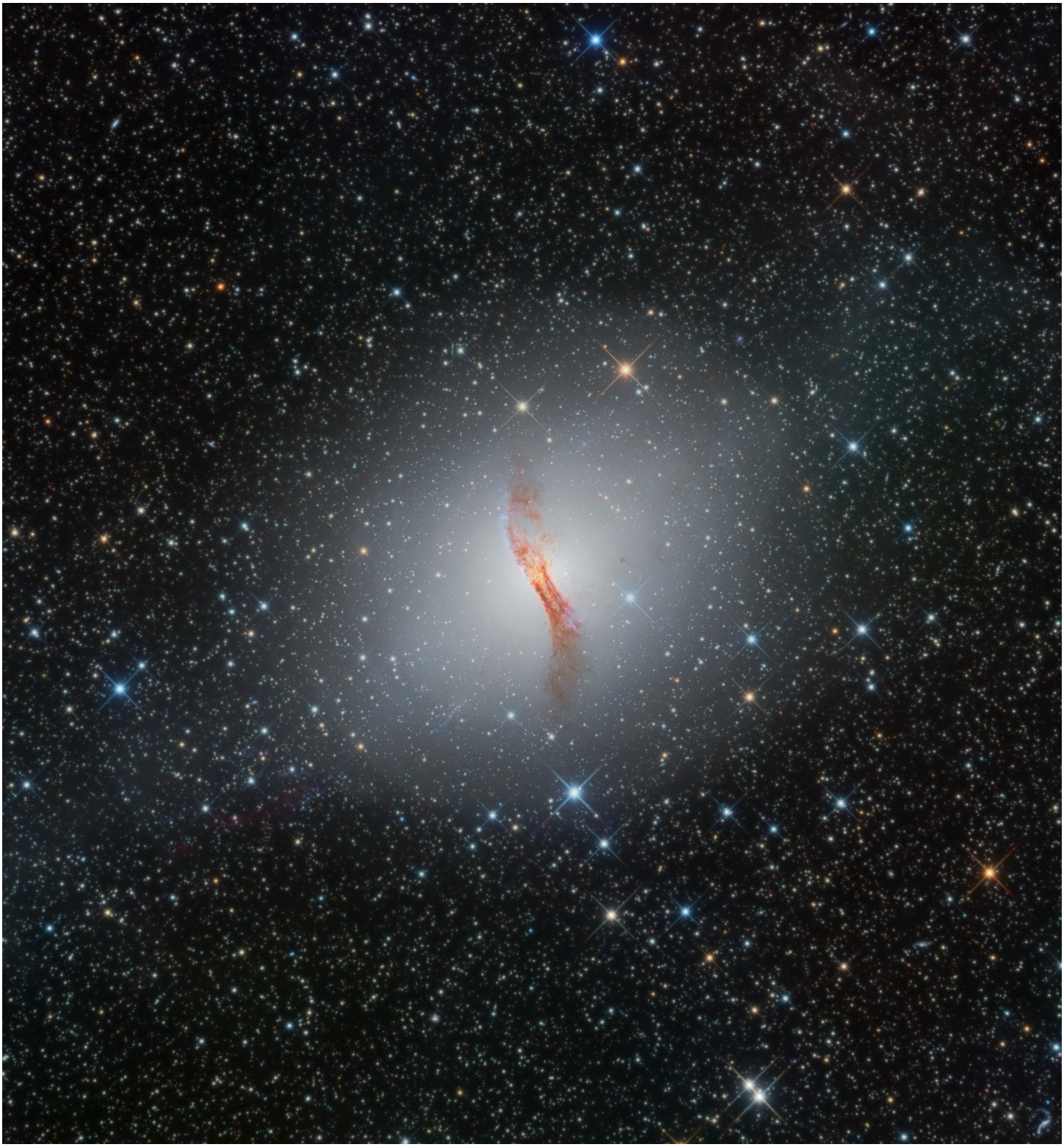
A deep image of the Hyades open star cluster by astrophotographer Jose Mtanous shows the stars of the cluster along with a number of unrelated nebulas. The brightest star is the first magnitude red giant star Aldebaran, which is only sixty-five light-years away. It is not part of the Hyades which is twice the distance at150 light-years away. The central Hyades stars are spread out over about 15 light-years.

HyadesLodriguss.jpg

A traditional image of the Hyades by Jerry Lodriguss shows the more traditional “V” shape of the Hyades. The small cluster on the left-hand side is NGC 1647, which is more than two thousand light-years away. North is toward the upper left in this image. Stars down to magnitude twelve are visible here.

NGC 5128

By: Dave Doctor



NGC 5128 in the constellation of Centaurus is the closest known “radio” galaxy at a distance of about 12

NGC 5128 cont…

million light years. The result of a merger between an elliptical galaxy and a spiral galaxy, it displays a wide variety of kinematic features. The remnant of the original spiral galaxy is represented by its central dust lane. The galaxy is commonly referred to as "Centaurus A" being the first radio source discovered in a particular constellation.

This image was captured from the amateur hosting site in Ovalle, Chile (Chilescope.com). LRGB: 12,7,7,9 respectively. Equipment consists of a 20" f3.3 newtonian, FLI 16803 camera. Pixinsight processing.

Although not immediately apparent, the AGN activity (Active galactic nucleus) in Centaurus A is represented optically by a long filamentary jet, a portion of which can be seen here, in the full resolution view, pointing toward the lower left corner of the image. The jet arises from an outflow of gas that has built up in the accretion disk surrounding a supermassive black hole and its narrow appearance is the product of interacting magnetic fields associated with the black hole. This is one of the few examples where we can actually see this in the optical portion of the spectrum! This jet appears as an impressive bipolar outflow in x-ray and radio images. When you get a chance you should look at the Chandra Xray images on the NASA website. They are quite impressive!

NGC 7023 Iris

A reflection nebula and open cluster in Cepheus. Image taken from my remote observatory in Mayhill.

Officina Stellare RiDK400

Paramount MEII

Sbig 16803

LRGB 6,6,7,8 hours

-Dave Doctor

Illness Hits Close To Home

By Rob Westbrook

As an adult, have you ever had friends as close as the ones you made when you were young, or those from your college years or maybe from shared war time experiences?

I haven't. I have had good and even close friends since, but that bond, knowing what the other is thinking or how they feel without words needing to be said. Knowing when they were madly in love or were having their heart crushed, what their fears, hopes and dreams were. They had your back and you had theirs. That kind of friendship seems to be lost to us once we become adults. The friends we make now never can seem to broach the expectations we set upon them because of memories of those giants, our youthful friends.

There are many good reasons for this, I'm sure between us we could think of 40 or 50 without too much effort. But isn't that a sad statement of our human condition…

"Casual" friends seem to be the norm for adulthood. Friends you have who are not friends from your youth. With "casual" friends it's not uncommon to go days, weeks or months at a time without a gathering. Certainly, waves and shouts of greeting are thrown across the pavement as we see each other, but there isn't that urgency to run over for a gab at every occasion. So it's not unusual to not see them outside for days or even a week or two. Especially so in the colder months and rainy days.

A few mornings ago, while in my front yard, M, (No names here, letters will suffice.) a "casual" friend and the wife of A, one of my "casual" neighbor friends, caught my attention so I met her half way across our cul-du-sac to speak with her. Her face held a serious expression so I braced myself before she began to speak. The couple care for his (A's) elderly mother who suffers Alzheimer's so I was expecting to hear the worst about her.

M came right out with it and said, " S is dead." S, S is the other "casual" friend that I frequently associate with from across the street. The four of us have had quite a few good laughs over meals, beers, games of pool and some nights out with the telescopes.

"Yeah," she continued, "he hung himself in their house on the weekend." Needless to say, I'm stunned. I asked if he left a note or said anything to anyone. Why? Why did he do it? "No, nothing." was her reply. How had I missed the ambulance, the police investigating?

Being a "casual" friend, I didn't know all about S. I knew what beer and booze he liked, the music he was in to, what he did for a living now, a smidge about his family and where the house was where he grew up, that he attended NMSU at the same time that I did, and that he flew CH-47 Chinook helicopters for the Army in the late 80's and early 90's for about seven years. S was common lawed with C, but C is more of a homebody and didn't associate much with us riff-raff. I knew they had on-going problems, but not much beyond that.

What I didn't know was that S suffered from PTSD and was also classified as bi-polar. He was always quick to laugh, but there were the occasional barbs out of nowhere, never anything too fractious. But no signs to us "casual" friends of the inner turmoil he must have been suffering and the thoughts consuming him.

While we face the unknown dangers of the Wuhan Virus please keep in mind, that there are other, unseen illnesses people suffer with daily. So, while we can't freely associate now, maybe, take a bit of time out and call to see if someone you know needs help getting through this extra stressful time. And once we can freely move around, maybe, take some time to ask questions, and listen and care and make the effort to try to be more than just a "casual" friend.

On The Lighter Side

If you've been glued to social media and info outlets for the last two months or so, as I have, you've no doubt seen a fair share of frightening videos and heard mountains of doomsday predictions or people who don't take the threat seriously, amid the actual facts of what is going on. Thankfully, there have also been some humorous memes as well and I'd like to share a few with you here.

They had me at, “Fiesta Strength.”

Minutes, February 2020 ASLC Meeting

Show and Tell:

ASLC member Stephen Wood had DVDs and CDs from the Great Courses series available to anyone interested.

ASLC member Glen Brookshears showed an armillary sphere he obtained on eBay. He says it's good to have around in the event the Spanish Inquisition pays a visit.

Call to Order:

Tracy Stuart, ASLC President, called the February 2020 Monthly Meeting of the Astronomical Society of Las Cruces (ASLC, the Society) to order at 7:13 pm, 24 January 2020, in the Creative Arts Room, Good Samaritan Society Las Cruces Village, 3011 Buena Vista Circle, Las Cruces, New Mexico.

President's Comments:

Tracy Stuart, ASLC President, welcomed the group to tonight's meeting. He noted that the Minutes for the January 2020 meeting were published in the February 2020 issue of the Society's newsletter, the *High Desert Observer* (HDO). If there are no corrections, additions, or amendments, Tracy asked that the January Minutes be accepted as published. Tim Kostelecky and Steve Barkes so moved and the January minutes were accepted by acclamation. Bernie Jezercah has relocated to Las Cruces from Dallas and plans to join the Society tonight. He has a telescope but needs help getting it set up.

Treasurer's Report:

Trish Conley, Treasurer, gave a brief report on the Society's accounts. The Society maintained a positive $174 balance for the fiscal year so far, primarily from membership dues (Society membership dues for 2020 were receivable as of 01 January 2020). Some members reported problems receiving the Astronomical League (AL) quarterly newsletter, the *Reflector*, either digitally or via US Mail. Members should let Trish know if they are having issues or if they want to receive a paper copy of the *Reflector*.

Outreach:

Chuck Sterling, Outreach coordinator, announced upcoming events. There will be a Moon Gaze at Milagro Coffee y Espresso in Pan Am Plaza on 29 February. There will be a school star party at Sunrise Elementary on 05 March (volunteers still needed). There will be an open house at The Observatory at Leasburg Dam State Park (LDSP) on 21 March.

February Minutes cont…

Loaner Telescope Program:

Tim Kostelecky has volunteered to be the new program coordinator.

New Business:

There was no new business offered for consideration.

Old Business:

Classroom Presentation(s) – A local teacher had contacted the Society regarding classroom presentations to precede star parties. Rich Richins, Chuck Sterling, and Tracy Stuart are working on this. No additional updates.

High Desert Observer (*HDO*) – Articles and images are always welcomed/needed for publication.

ASLC Star Party, Rusty's RV Campground – Society members will gather at Rusty's, located in the Bootheel region of New Mexico, for a star party 19□26 March. The campground is near Rodeo, NM, has dark skies, and caters to astronomers. Cost is $30 – $35 per night.

Business meeting was adjourned at 7:26 pm.

Presentation:

This month's presentation was by ASLC member Dr. Bill Stein on "The 02 July 2019 Total Solar Eclipse: An Experience from Chile". Bill has observed solar eclipses of various types in many locations, some quite exotic, i.e., Kenya. Why are solar eclipses interesting? Mostly because they are the only time the solar atmosphere can be studied non-artificially. Bill explained the solar system geometry that produces both solar and lunar eclipses and described the various types of eclipses. His trip to Chile last year included a side trip to the Galapagos Islands (a topic for another presentation), but the eclipse viewing was from the edge of the Atacama Desert in Chile. Bill presented several images from the viewing site and a video made during the eclipse. He also displayed an image of totality showing the solar atmosphere produced by the subject matter expert on the trip.

The February 2020 meeting of the Astronomical Society of Las Cruces concluded at 8:12 pm. A social time followed at Pecan Grill.

-Respectfully submitted by John McCullough, ASLC Secretary