

The High Desert Observer

August 2019

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



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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

August Meeting

Our next meeting will be on **Friday, August 23**, at the Good Samaritan Society Activities Meeting Room at 7pm. The scheduled speaker is Marcus Cohen who will be sharing his thoughts on Relativity and Unified Field Theory.

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. Please see **Calendar of Events** for specific dates and times.

From the President's Desk

August, 2019

How Old Are We?

Only 35,000 light years from Earth astronomers have found a red giant star (SMSS J16050.18-144323.1) that was born just a couple of million years after the big Bang. The recent discovery by Dr. Thomas Nordlander found a record-low amount of iron in the star located at the edge of the Milky Way halo. The red giant has an iron content of just one part per 50 billion or 1.5 million times less than the sun. This star appears to truly be a Population II star. Astronomers believe that it was formed from the material left when one of the first stars in our universe went supernova. It appears to have been formed just a couple of million years after the Big Bang.

There is one star, HD 140283, which appears to be even older than SMSS J16054.18. In fact, it appears to be older than the universe itself. 14.5 billion years vs 13.8 billion. Again, the age is measured based on the very low metal content. Of course, the age may be imprecise. It could be off + or – 800 million years. That still is a number greater than the age of the universe. What's going on?

One possible explanation might be that Sir Fred Hoyle was right after all. The Steady State Model, the universe has no beginning or end.

Rich, many thanks for the time and effort in creating the space tourism page.

SPEAKER—

Our speaker this month is Marcus Cohen who will be sharing his thoughts on Relativity and Unified Field Theory.

Preview of coming attractions: Sept—Dr Nancy Chanover

Oct—Fred Pilcher

Nov—Steve Barkes

THE ANSWER IS 42!

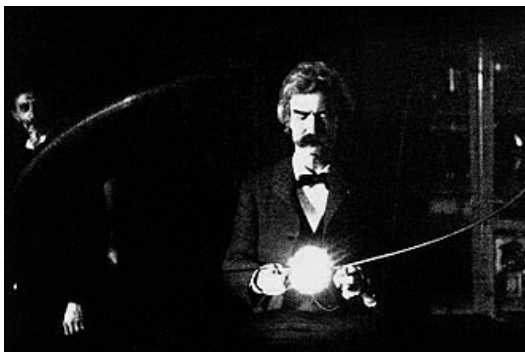
Tracy Stuart, ASLC President

August 2019



“General space — that sea of ether which has no shores, and stretches on, and on, and arrives nowhere; which is a waste of black gloom and thick darkness through which you may rush forever at thought-speed, encountering at weary long intervals spirit-cheering archipelagoes of suns which rise sparkling far in front of you, and swiftly grow and swell, and burst into blinding glories of light, apparently measureless in extent, but you plunge through and in a moment they are far behind, a twinkling archipelago again, and in another moment they are blotted out in darkness; constellations, these? yes; and the earliest of them the property of your own solar system; the rest of that unending flight is through solar systems not known to men.”

– Mark Twain,
The Mysterious Stranger



Minutes, July 2019 ASLC Meeting

Show and Tell:

There were no items or topics offered at tonight's Show & Tell session.

Call to Order:

Tracy Stuart, President, called the July meeting of the Astronomical Society of Las Cruces (ASLC, the Society), to order at 7:17 pm on 26 July 2019, in the Creative Arts Room, Good Samaritan Society □ Las Cruces Village, 3011 Buena Vida Circle, Las Cruces, New Mexico.

President's Comments:

Tracy welcomed the group to tonight's meeting. The minutes for the June meeting were published in the July *High Desert Observer* (HDO), the Society's newsletter. Tracy asked if there were any changes or corrections required. Fred Pilcher moved that the June meeting minutes be accepted as published in the HDO, Steve Barkes seconded. The minutes were accepted by acclamation.

Treasurer's Report:

Trish Conley, Treasurer, reported on the status of the Society's accounts. The Society had a net income of \$45 for the last month.

Outreach:

Chuck Sterling, Program Coordinator, announced upcoming events. There will be a 3rd quarter Moon event at Leasburg Dam State Park (LDSP) on 24 August. There will be a Moon Gaze at El Milagro Coffee y Espresso in Pan Am Plaza on 10 August. The 3rd quarter Moon event at LDSP planned for 27 July has been rescheduled because of other plans of the LDSP staff.

Budget:

The committee has completed a proposed Society budget for 2019-2020. Copies of the proposed budget are available from the Treasurer. The committee consisted of the Society President (Tracy Stuart), Treasurer (Trish Conley), and Rani "Mo" Bush, the non □ Board member-at-large. If members have questions, they may contact a member of the committee.

Apparel:

Howard Brewington has apparel items available tonight after the meeting.

Old Business:

The American Association of Variable Star Observers (AAVSO) meeting will be held in Las Cruces in October. The Society has been asked to help support this event.
Okie □ Tex Star Party registration is open.

(Secretary July 2019 Minutes cont.)

New Business:

HDO Editor – Charles Turner must resign this responsibility because of health concerns. Robert Westbrook has volunteered to take on the position, at least for the time being.

New members/Visitors – People occasionally contact the Board of Directors with questions regarding equipment and viewing opportunities/locations. They are encouraged to attend the next available meeting of the Society, but that sometimes doesn't fit their schedule. Do members have suggestions on how to respond? Perhaps an "advice" link could be added to the web page. Also, inquiries could be broadcast to the general mail group.

Lighting – Robert Westbrook noted what he believes is a municipal lighting issue, i.e., street lighting in his neighborhood has been replaced with what appear to be pinkish-yellow fixtures. He wonders if this is the current plan to replace city street lighting. He asked what the status of conversations between the City of Las Cruces and the Society regarding outdoor lighting and the City's dark sky initiative is. Vince Dovydaitis noted that he argued against poor lighting plans when he was on the Planning and Zoning Commission (including a period as chairman). Vince suggests that the Society form or actively participate in a citizens' group that continues to monitor this issue with the City.

Announcements:

Stephen Wood has additional educational DVDs/CDs available for anyone interested.

Presentation:

This month's presentation was by Drew Chojnowski, NMSU astronomy Ph.D. candidate, on "Spectroscopy of Chemically Peculiar Stars w/SDSS/APOGEE". Drew, a plate design coordinator for the Sloan Digital Sky Survey (SDSS) at Apache Point Observatory (APO), has used spectrographic data collected by the Apache Point Observatory Galactic Observatory Experiment (APOGEE) on the SDSS telescope to discover multiple highly magnetic and somewhat unexplainable stars. By combing through data collected by APOGEE, Drew was able to find stars in the Milky Way galaxy with masses 4 or 5 times the Sun's with magnetic fields much greater than the norm (the Sun: 1 Gauss nominal, 3,000 Gauss peak; new stars: 7,000 Gauss average, 34,000 Gauss peak). The reason(s) for these high levels of magnetism remain a mystery and don't appear to be associated with convection zones like low mass stars like the Sun.

The July meeting of the Astronomical Society of Las Cruces concluded at 8:51 pm. A social time followed at Pecan Grill.

-Respectfully submitted by John McCullough, ASLC Secretary

"There is in the universe neither center nor circumference."

— Giordano Bruno,

On the Infinite Universe and Worlds, 1584.

Outreach

Outreach is a very important part of ASLC. We are always looking for more volunteers to help us educate the public. Even if you do not have a portable telescope to bring to the events, please consider attending our public outreach programs to help answer questions, share knowledge and point out objects in the sky.

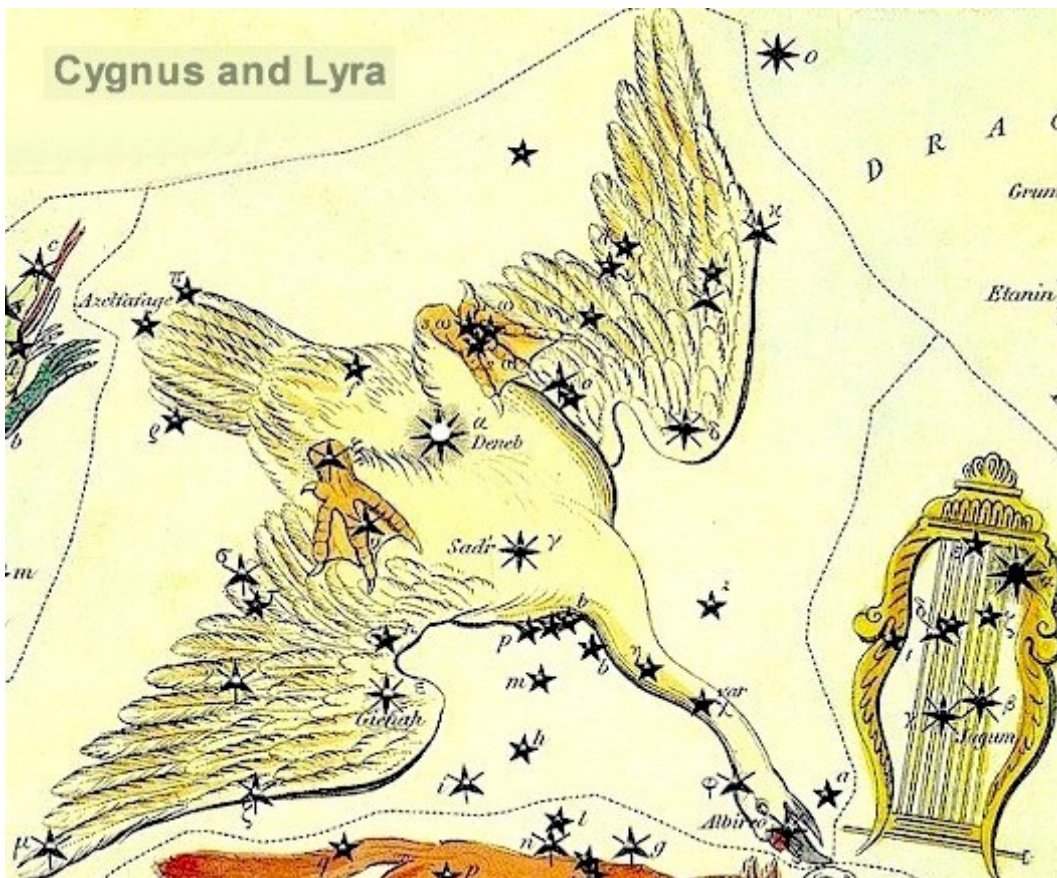
Outreach Events, by Jerry McMahan

Moongaze. Saturday, July 8

Since the International Delights closed down, everyone was at the Pan Am Plaza. Everyone included Steve Wood, Howard Brewington, Chuck Sterling, Jerry McMahan and the Snyder family. I will learn their names when we see them again.

It was cloudy so we could only see a very haze Moon behind the clouds. Not much observing was done. Most the time was spent with Steve and Howard showing the Snyders how to use their Celestron telescope. That part was a success!

There was a daytime solar event on Saturday, July 20th, at Lynn Middle School, as part of the Over The Moon Science Fair in celebration of the 50th Anniversary of the first manned mission on the moon. I was not there, but Chuck Sterling, Tracy Stuart and Rob Westbrook brought white light scopes. Chuck said they did not have a hydrogen Alpha scope, which would have been nice since no sun spots were visible. Maybe some prominences could have been seen with an HA scope, but might not have been visible with this Solar minimum that we seem to be in during this cycle.



The Uranograph - August 2019.

By Bert Stevens

Constellation of the Month: Cygnus, the Swan

Cygnus, the Swan, is also known as the Northern Cross due to the cross-shape of its brightest stars/ It is almost straight overhead in the early August evenings. This constellation is in the middle of the Milky Way and this gives the southward-flying Cygnus a glowing background with a wealth of faint stars. Since Cygnus is nearly a fall constellation, it is appropriate that Cygnus is flying south for the winter.

Exactly which myth this constellation is named after is uncertain. The Greeks called it "Ornis" (the Bird). The name Cygnus comes down to us from the Romans, who named constellations using various Greek myths. One possibility was that Cygnus was named after Cyncus. He was the son of Poseidon (god of the seas, and a brother of our old friend Zeus).

Cyncus had been left on the seashore at birth to die, but a swan took pity on him and took care of him. Eventually Cyncus became the king of Coloniae, a city north of Troy. He was a rather poor king, and when he found out that his wife had fallen in love with Tenes, one of his sons, Cyncus set all of his children adrift at sea. When he asked his wife about the relationship, she lied to him and so he killed her.

Cyncus fought against the Greeks when they attacked Troy. During the battle, Cyncus was caught up in personal combat with Achilles. Achilles was much stronger than Cyncus, and Achilles was able to choke Cyncus to death. Grieved at the death of his son, Poseidon turned Cyncus into a swan and dispatched him into the sky.

There are a number of other versions of the story, including one where Cygnus is Orpheus, who was also killed by Achilles in the battle of Troy. His position in the sky is near his beloved harp, Lyra. Just south of Cygnus and Lyra is the constellation Aquila. Each of these three constellations contains a first magnitude star. When you look up at this portion of the sky, you will see these three stars form a right triangle, which amateur astronomers call the "Summer Triangle". This is not an official constellation, but an asterism, an informal grouping of stars.

The bright star that Cygnus contributes to the Summer Triangle is Deneb, Arabic for "tail". It is at the north end of the upright of the Northern Cross, which is also the tail of the southward flying swan. Deneb is a giant star, about 1,600 light-years away from us. It glows 60,000 times brighter than our sun, explaining why even at this distance, Deneb is still a first magnitude star.

At the south end of the upright, twenty-two degrees from Deneb, is Albireo. This is the second brightest star in Cygnus, but point even a small telescope at it and you will find that it is not one, but two stars. The two stars are not actually orbiting around each other, but just happen to line-up in our sky. Even though they are not in physical proximity, we still call Albireo a double star: a visual double and not a binary system.

Article continues on page 7...

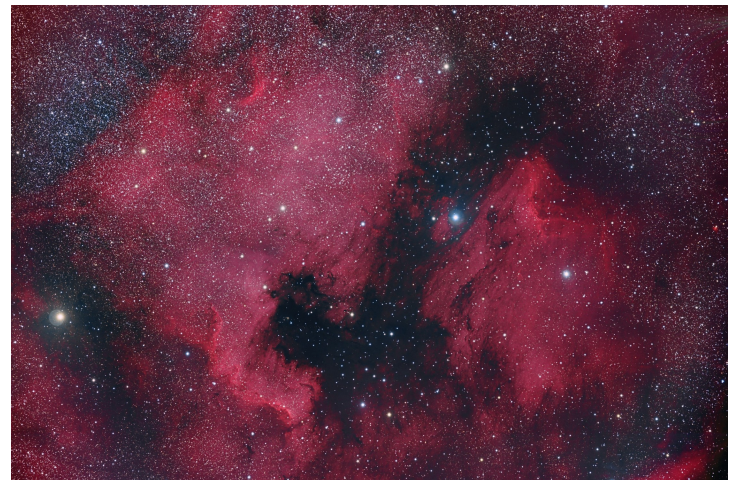
The attraction of this double is the spectacular color difference between the two stars. The brighter star has a blue-white color, while the slightly fainter star is a golden yellow color. The color of a star is directly related to the temperature of the star's surface. The blue-white star is hotter than the yellow star, so more of its electromagnetic energy is put into the shorter wavelength blue end of the visible spectrum providing the blue color.

Northeast of Deneb is giant cloud of glowing gas around fifty light-years across that is illuminated by a nearby star. This cloud is about fifteen-hundred light-years away. Ultraviolet light from the nearby star strikes atoms of hydrogen in the cloud. The ultraviolet energy causes the sole electron in the hydrogen atom to jump from a low energy state to a higher energy state. Eventually, the electron emits a red photon as it jumps down to an intermediate lower energy state. This effectively converts the ultraviolet light to red light.

This red light emitted by the hydrogen atoms gives the gas cloud its red color. Human eyes are not very sensitive to the red end of the spectrum. The color cones in the retina of the eye is not sensitive to low-level light, while the more sensitive rods only give a black-and white view. While the human eye does not detect the red effectively, CCD cameras are more sensitive to the red end of the spectrum, making these nebulae stand out on CCD images.

As we look at this gas cloud in Cygnus, there is another gas cloud of dust that is not illuminated between us and the glowing red cloud. This second dust cloud cuts the glowing cloud in half and gives the northeast portion the shape of North America. The southwest portion looks like a pelican. Not surprisingly, these are called the North American Nebula (NGC 7000) and the Pelican Nebula (IC 5070). The existence of this cloud is confirmed by the lack of stars in this dark area because their light is blocked by the dark nebula's gas and dust.

The Pacific coast of the Baja peninsula of the North American nebula is also known as the Cygnus Wall. This is an area of intense star formation where the dust and gas of the nebula are compressing to form new stars. These stars then illuminate the surrounding gas to highlight this area of the nebula. The stars themselves are not visible, being still shrouded in the thick dust and gas in this part of the nebula. Someday these new stars will break out, giving us a chain of bright stars along the "coast".



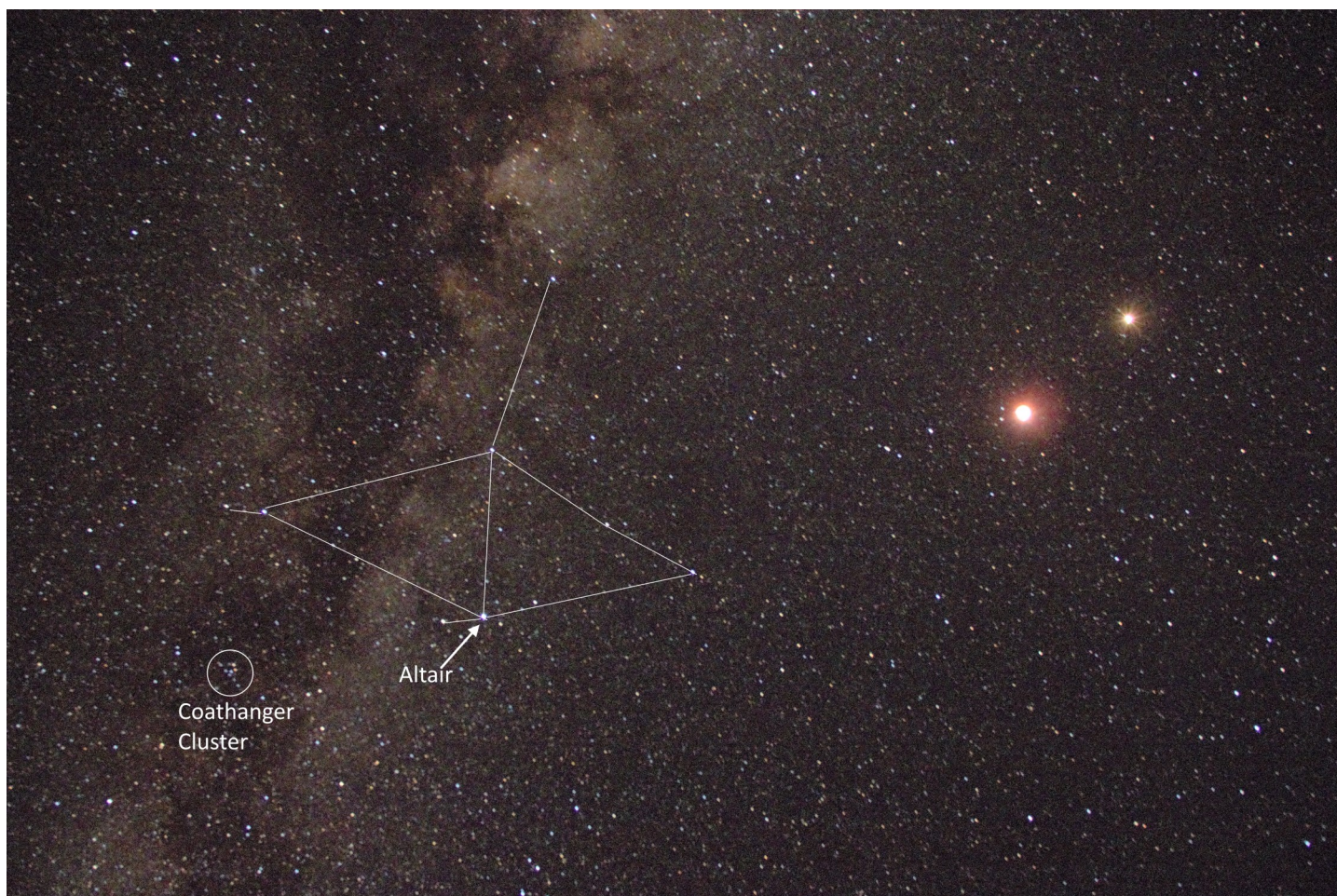
LEFT: Cygnus Wall

ABOVE: NGC7000-FCC

Both pics expanded on page 8



Astronomy Pics of the Month



This first is from Ed Montes. Ed writes, " Attached is an image I took last year while I was in Namibia. It's a widefield shot of the total eclipse of the moon on July 27, 2018. To the upper right of it is Mars, coincidentally in opposition at the same time. Also, to the left, what is rarely seen during the full moon, the Milky Way stretching across the sky. To give you context about where in the sky this is located, I've outlined Aquila. Just for fun I circled the Coat hanger asterism. Image details: Taken with a Canon 60Da with an 18-135 mm Canon lens, at 18mm f/5, 30 second exposure (no tracking), ISO 3200 -- Ed Montes".

The next pic is from Jeffry Johnson. Jeff writes, " Galaxy NGC 4725 (+others - imaged from my backyard in Las Cruces)

Distance: 40 million light years

TOA-130F, EM200, QSI690wsg

20x5min L (bin1x1); 6x5min ea RGB (bin2x2); 10xdarks/flats/fdarks/bias

More details: http://jeffjastro.com/dso/NGC4725_3May19.htm

Jeffrey O. Johnson"

(Jeff's pic follows on page 10...)



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Editor's Note

It is a daunting task to assemble a newsletter without a template to use but to try to maintain the look and feel of the previous efforts of past editors. I hope I have accomplished this and have made you a newsletter worthy of the ASLC. Many thanks to those who gave advice and to those who submitted material for this issue. This newsletter belongs to all of us and without constant story and picture contributions there would be nothing much to print! So get digging in those dusty archives and send in your articles and amazing pics!

— Rob Westbrook

Of course, if one ignores contradictory observations, one can claim to have an "elegant" or "robust" theory. But it isn't science.

Halton Arp