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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 the *High Desert Observer*, our monthly newsletter, plus membership to the Astronomical League, which includes their quarterly publication, *Reflector*.

Individual Dues are \$30.00 per year

Family Dues are \$36.00 per year

Student (full-time) Dues are \$24.00

Dues include electronic delivery of the *HDO*. Prorated dues are available for new members. Dues are payable to ASLC with an application form or note to: Treasurer ASLC, PO Box 921, Las Cruces, NM 88004

ASLC members are entitled to a \$5.00 (per year) Sky and Telescope magazine discount.

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June Meeting

Our next meeting will be on Friday, May 23, 2014, at the DACC Main Campus, Room 141, Technical Studies Building, starting at 7:00 p.m.

Speakers for the June meeting will be ASLC members discussing their recent trip to the Texas Star Party (TSP)

ASLC Board of Directors, 2014

Board@aslc-nm.org

President: Rich Richins; President@aslc-nm.org

Vice President: Steve Shaffer; VP@aslc-nm.org

Treasurer: Patricia Conley; Treasurer@aslc-nm.org

Secretary: John McCullough; Secretary@aslc-nm.org

Director-at-Large: Tracy Stuart; Director1@aslc-nm.org

Director-at-Large: Jerry Gaber; Director2@aslc-nm.org

Immediate Past President: csterling@zianet.com

Director Emeritus: Walter Haas

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Grants: Sidney Webb; sidwebb@gmail.com

Librarian: Daniel Giron; astrofix@comcast.net

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Night Sky Network: *OPEN*

Observatory:

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Jerry Gaber; jerrygaber@gmail.com

Tombaugh: Steve Shaffer; VP@aslc-nm.org

Outreach: Chuck Sterling; csterling@zianet.com

Web-Site: Steve Barks; steve.barks@gmail.com

HDO Editor: Ron Kramer; ronjkramer@aol.com

New & Existing Member Package

Membership Chair, Judy Kile will be sending member packages to all current members before the June meeting. These will be sent via Yahoo!Groups email. If you do not receive your package, please let her know (jkile@elp.rr.com) and she will send you a regular email with the package.

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 constellations in the sky.

Events

ASLC hosts deep-sky viewing and imaging at our dark sky location in Upham. We also have public in-town observing sessions at both the International Delights Cafe (1245 El Paseo) 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" Meade telescope is used to observe under rather dark skies. Please see *Calendar of Events* for specific dates and times.

Annual Dues

Please note that annual dues are due in January. Contact our Treasurer, Patricia Conley (treasurer@aslc-nm.org) for further information. Dues can be paid at the next meeting or via mail, sent to Treasurer ASLC, PO Box 921, Las Cruces, NM 88004.

Recent Outreach Events

by Jerry McMahan and Steve Shaffer

Saturday, May 10; Astronomy Day

The club had two outreach programs for Astronomy Day. Steve Shaffer was at the Tombaugh Observatory for Sky Safari and others were at the Leasburg Dam Park.

Rich Richins came up with a number of activities that were carried out by club members. It was a family collaboration for Rich. His wife, daughter Stephanie, and mother-in-law participated with constellation cookies. Rich also brought his 16-inch homemade Dobsonian. Bob Armstrong gave people their weights on other planets. Ed Montes provided information on what instruments are available to get started with observing the sky. Dave Doctor and Chuck Sterling provided both H-Alpha and white light viewing of the Sun.

Dave also operated the 16-inch in the observatory and Chuck set up his 10-inch for evening observing. Frank Fiore had a 10-inch Meade on his LX80 mount. Tracy Stuart manned his 8-inch Meade. Jerry McMahan had the ETX125. Despite feeling bad, Sid Webb brought his 10-inch Dobsonian, operated by Bob Armstrong.

Daniel Giron did a great job of teaching. Daniel also helped one elderly gentleman who could not get up from a kneeling position while holding a telescope. I will remain....I mean the old guy will remain nameless since an ETX is not that heavy and I don't want to embarrass him.

This was the best turnout, both by the public and club participation, that we have ever had at the Leasburg Park. We had views of Jupiter, Mars, Saturn (Chuck claimed dibs) and various deep sky objects including galaxies M81, M82 and M51 (Rich claimed dibs), globulars M3 and M13 (dibs by Tracy) and the Moon and the Beehive open cluster (mine since everyone had dibs on everything else in the sky).

We had clear skies and the wind had died down. It was not very cold. It was a success in every way. It put us near 400 man hours with the public at outreach events for this year.

May 24; Leasburg Observatory

A music program preceded the observing session. Dave Doctor operated the 16-inch scope in the observatory. He was aided by his wife Kathy, Bob Armstrong and Ron Kramer. I (Jerry McMahan), brought the 8-inch SC on the LX80 mount. No other club member brought a scope and we had a large crowd and could really have used some more scopes. Jim Berry, a volunteer fireman, brought his ETX125 scope, which really helped with the crowd.

We did not have a Moon and had dark skies, but we did not observe deep space objects. Due to the limited number of telescopes, the crowd-pleasers Mars, Jupiter and Saturn were the targets.

The session did put us over the 400 hour mark for outreach. We are well above the pace from last year. We also were interviewed by *Las Cruces Magazine*. We were asked about future goals. I said that we wanted to reach more high school level students and to achieve world domination. I didn't really say that last part. At least I don't think I said it.

Saturday, June 7; Sky Safari at Tombaugh Observatory

Eleven people viewed the Moon, Mars and Saturn. Most people were ones I grabbed as they came or left the running track. One group of four were sent over from MoonGaze at International Delights Café by Chuck Sterling and Jerry McMahan.

Saturday, June 7; MoonGaze

Chuck Sterling and Jerry McMahan brought the 10-inch SC and the ETX125 to the International Delights Café. Chuck also brought his new van. The people who donated the 10-inch Dobsonian also dropped off a camera tripod as an additional donation.

We had a clear night with comfortable temperatures, but the seeing could have been better. The turnout was below average since the regular semester at the University has ended. Daniel Giron's advertising paid off since a couple of people said they knew we would be there from reading about it. The spectators that did show up were enthusiastic about seeing Mars, Saturn and the Moon. Jupiter was below the building so we have lost that planet for a few months.

Chuck Sterling provided the two images below of very happy, although unidentified, customers peeking at Saturn through his 10-inch telescope.



Steve Shaffer joined us after finishing at Sky Safari. We sent people to the open house at the Tombaugh Observatory and Steve sent spectators to Moongaze. Good cooperation between venues.

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Calendar of Events (Mountain Time - 24 hr. clock)

JUN	19	12:39	Last Quarter Moon
	21	04:52	Summer Solstice
	21	18:30	OUTREACH: Summer Solstice Music Under the Stars; Leasburg Dam State Park Observatory; entertainment by The Collaborators
	23	07:00	Venus - M45 Conjunction
	24	06:54	Moon - Venus Conjunction
	25	00:22	Moon - Aldeberan Conjunction
	27	02:08	New Moon
	27	19:00	ASLC MEETING; Room 141, DACC Main Campus, Technical Studies Bldg.
	28	Dusk	DSO at Upham
JUL	01	09:08	Venus - Aldeberan Conjunction
	05	05:59	First Quarter Moon
	05	19:21	Moon - Mars Conjunction
	05	Dusk	OUTREACH: MoonGaze at International Delights Café
	05	21:00	OUTREACH: Sky Safari at Tombaugh Observatory
	06	00:32	Moon - Spica Conjunction
	07	20:48	Moon - Saturn Conjunction
	12	05:25	Full Moon
	13	12:35	Moon - Spica Conjunction
	16	12:21	Mercury - Venus Conjunction
	18	20:08	Last Quarter Moon
	19	18:30	OUTREACH: Music & the Stars at Leasburg Dam State Park Observatory
	22	05:56	Moon - Aldeberan Conjunction
	24	12:16	Moon - Venus Conjunction

JUL 25	19:00	ASLC MEETING; Room 141, DACC Main Campus, Technical Studies Bldg.
26	16:42	New Moon
26	Dusk	DSO at Upham
28		Delta-Aquarids Meteor Shower

Be sure to visit our web site for the latest updates: www.aslc-nm.org

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May Meeting Minutes

by John McCullough

NOTE: A miscommunication with Doña Ana Community College (DACC) security personnel coupled with the Memorial Day holiday weekend and the transition from the Spring to Summer terms resulted in the building being locked upon arrival and a significant delay in access. This delay resulted in an abbreviated meeting and the associated minutes.

Show & Tell

A pre-business meeting Show & Tell session was not held.

Call to Order

Rich Richins, President, Astronomical Society of Las Cruces (ASLC, the Society), called the May business meeting to order at 7:50 p.m., 23 May 2014, Room 141, Doña Ana Community College (DACC), Las Cruces, New Mexico.

President's Comments

The President, Rich Richins, welcomed the group to tonight's meeting and apologized for the delay accessing the meeting room. Rich welcomed returning members Brenner Fody and Meredith Hildreth, new member John Gilkison, and guest Charles Turner, who lives north of Deming.

Secretary's Report

Rich Richins reported the minutes for the April meeting had been submitted by the Secretary, John McCullough, for publication in the May issue of the Society newsletter, the *High Desert Observer* (HDO). If there are no corrections or discussion, Rich asked that the minutes be accepted as submitted. Ron Kramer moved that the minutes be accepted as published, Bert Stevens seconded and the motion passed by acclamation. John asked that members register their attendance on the roster at the room entrance. There was not an additional Secretary's report.

Treasurer's Report

The Treasurer, Trish Conley, was not present at tonight's meeting. The Treasurer had provided a status of the Society's accounts to the Board of Directors via email. There was not a Treasurer's report.

Committee Reports

Membership

Judy Kile, Committee Chair, announced that she has the new membership packet available either electronically or as a hard copy. Please contact her if you would like a copy. She will also circulate a form requesting additional member information to better serve the membership.

Library

Brenner Fody, Society Librarian, announced that he is considering attending New Mexico Military Institute (NMMI) in Roswell, possibly as early as this summer, that will necessitate him stepping down as Librarian. Daniel Giron has offered to fill in as Librarian for the time being.

Outreach

Chuck Sterling, Outreach Coordinator, reported there may be a home school group star party after Texas Star Party (TSP) 2014.

Apparel

Ron Kramer, acting Chairman, reported he has the first run of the new dark green Society golf shirts available in various sizes. If you placed a request, please pick up your shirt tonight. Ron also has other staple items with the Society logo.

Loaner Telescopes Program

Ron Kramer, Program Coordinator, announced that he no longer has time to coordinate the program and would like to resign effective 01 June. Frank Fiore will assist with the program on an interim basis. Because of the number of telescopes and other equipment the Society owns, Chuck Sterling suggested the Society obtain a rental unit for storage purchases. After additional discussion, the issue of a storage unit was tabled.

Music & the Stars

Jerry Gaber reported there is an event on 24 May. As many of the usual supporting members will be preparing for TSP, he asked that other members volunteer to support the event.

Rich Richins entertained a motion to adjourn. Bob Armstrong moved to adjourn the business portion of tonight's meeting, Frank Fiore seconded. The business meeting concluded at 8:05 p.m..

Presentation

This month's presentation was by Nick Ule, astronomy PhD candidate at New Mexico State University (NMSU). His topic was "Alien Star Systems: How NASA detects and learns about new stars and planets". In the past 5 years nearly 1000 new worlds have been detected by NASA's Kepler mission. These planets range from super-Jupiter-sized down to Earth-sized. The big question for these worlds is if any of them possess the ability to support life that we would recognize. A planet's ability to support life is largely associated with its ability to support liquid water. This parameter is strongly affected by the star around which a planet orbits, in particular its magnetic field. Nick's talk explored how NASA detects exoplanets and how a star's activities can impact exoplanets.

Rich Richins noted the presentation for the June meeting will be the report from TSP 2014, including an underwater excursion to Balmorhea State Park.

The May meeting of the Astronomical Society of Las Cruces concluded at 8:54 p.m..

-Respectfully submitted by John McCullough, ASLC Secretary

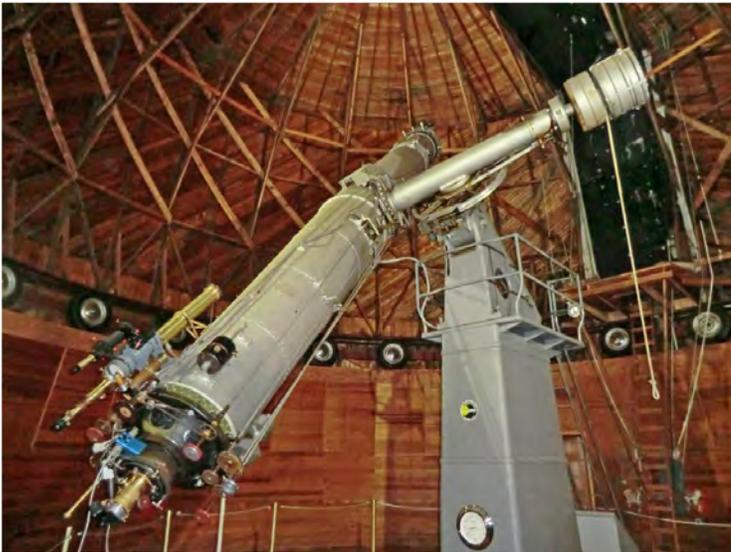
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Back at the Telescope

by Berton Stevens

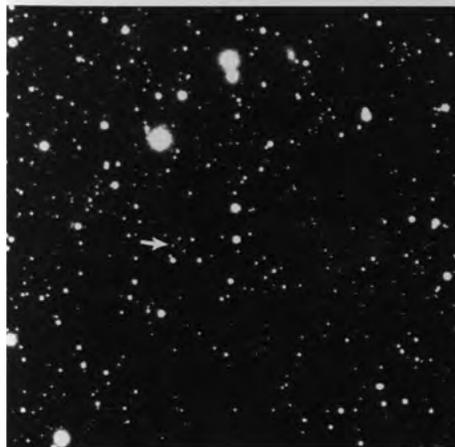
About 340 miles away from Las Cruces by air or almost five hundred miles by car, Flagstaff, Arizona, is home to Lowell Observatory. Lowell was founded in 1894 after Percival Lowell determined that Mars Hill just outside Flagstaff was the best place in the southwest to get consistently steady seeing in dark skies. Lowell wanted to observe Mars and set up a 24-inch Alvan Clark refractor in a wooden dome. He carefully noted the surface markings he perceived on Mars and published three books about his observations of the Red Planet.

Lowell Observatory has continued with its ground-breaking research. Percival started a program to search the sky for a ninth planet predicted by its perturbations of the orbits of Neptune and Uranus. He worked on this project until his death in 1916. To continue the work, Vesto Slipher, Lowell Observatory's Director, hired Clyde Tombaugh to shoot plates of the ecliptic band and blink them for "Planet X". On February 18, 1930, Tombaugh discovered an object that was later confirmed to be the much sought-after Planet X. Planet X was later named Pluto, after the god of the underworld and because the first two letters were Percival Lowell's initials. Clyde Tombaugh later moved to Las Cruces and worked out at White Sands Missile Range.

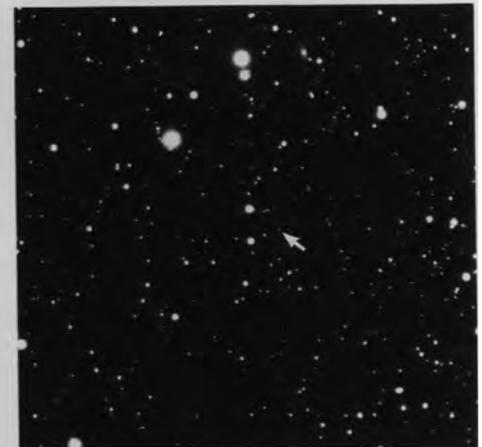


The 24-inch Alvan Clark refractor at Lowell Observatory. The dome around the telescope is made of local wood and supported by rubber tires to make the dome rotatable.

DISCOVERY OF THE PLANET PLUTO



January 23, 1930



January 29, 1930

These are the Pluto discovery plates taken by Clyde Tombaugh at Lowell Observatory. Additional plates confirmed Pluto's existence. Once the discovery was made, Pluto was found on plates taken previously and at other observatories as early as 1908.

But Lowell Observatory did not stop there. As Flagstaff grew and light pollution increased, they established a new site twelve miles southeast of Flagstaff at Anderson Mesa where they have four telescopes, including the 72-inch Perkins Telescope. More recently, they opened another site forty miles south-southeast of Flagstaff on Happy Jack Peak where they have constructed the 170-inch Discovery Channel Telescope, funded by Lowell and The Discovery Channel. This telescope has already started taking science observations and the telescope will have completed commissioning by the end of the year.

But even with all these telescopes, there is never enough telescope time to make all the observations that astronomers want. To give them more fire-power, Lowell Observatory has decided to enlist amateur astronomers to help make the scientific observations requested by astronomers. Called the Lowell Amateur Research Initiative (LARI), this project allows amateur astronomers to sign up to work on specific research projects that are in reach of their instruments. You can visit the LARI website at http://www.lowell.edu/LARI_welcome.php.

LARI is currently listing eight different projects that require vastly differing equipment and skill sets, some which require no equipment at all! While you can sign up for more than one of them, they all require large amounts of time on your telescope, computer, or just your knowledge of astronomical instruments.

If you can take deep images of galaxies, Project Code HDLT needs deep images of dwarf galaxies. These would be stacks of at least twelve hours total exposure time to search for stellar debris resulting from galaxy to galaxy interactions that have shaped these dwarf galaxies. This requires a high-quality CCD and plenty of observing time to build the images.

For those that can do photometry, Project Code SEEP is looking for photometric measurements of young and active low-mass stars such as M-class dwarfs. These datasets would be used to determine rotation rates, eclipsing M-class binaries, and even transits of giant planets across the disc of these stars. The data could be gathered in any optical band or even in H-alpha light.

Another photometry project is Code CKSL which is looking for photometric observations in multiple bands to create light curves for young stars that may go into outburst. The most interesting part of the light curve is just before the outburst starts. Since no one knows when an outburst will occur, continuous monitoring is required. With multiple observers working on this project, different observers may work on different bands, and by being spread out across different longitudes, observers can cover all parts of the light curve, even if one has bad weather.

Astrometric observers can work on improving the orbits of distant small bodies in Project Code WLOI. These objects are far from the Sun and so have long orbital periods. Observations over many years are needed to refine the orbits of these Centaurs and Kuiper Belt Objects. These objects are faint and a moderately wide-field is needed to get a large number of stars for a good astrometric plate solution.

If you do not have a good telescope setup, you can do research with your computer. Project Code MGED is analyzing already taken photometric data in six-by-six degree fields near the Milky Way to discover transient objects like variable stars, exoplanets and unknown transient objects. Another option is Project Code BGBF where you gather data from a number of online resources to determine the stellar bolometric flux. This is a measurement of the brightness of the object in all parts of the spectrum, from radio to gamma ray.

Finally, if you are familiar with historical astronomical instruments, Lowell has pictures of five hundred astronomical instruments in their archival collection and needs help identifying them. Project Code ALIP allows you to look at these images and if you can identify the instrument, send your description of the instrument to the Lowell Archivist to be added to the database.

So here are eight opportunities for you to contribute to the science of astronomy. Of course there are many others supported by AAVSO, ALPO, IOTA and AMS among others. I hope you will consider taking time to expand the science of astronomy through LARI or through another of these organizations.



The Discovery Channel Telescope seen here inside its dome on Happy Jack Peak. This 170-inch reflector is a world-class research grade telescope just coming online this year.



What are these optical assemblies? They seem to be related to spectroscopy. If you can identify them, then there is a project are LARI for you

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Image of the Month



The above image was taken in December 2013 by ASLC member Jeffrey Johnson in Las Cruces. It shows the star Sadr (Gamma Cygni) surrounded by the diffuse emission nebula IC 1318, which is approximately 3,000 light years from Earth (other sources place the nebula at 1,800 light years). Gamma Cygni lies in the center of the Cygnus cross and is about half the distance of the nebula.

Taken with a Takahashi FS-60C telescope at f/6.2 on a EM200 Temma II mount. The camera was a QSI 540wsg @ -15°C, using Astrodon Ha (3mm) and Tru-Balance I-Series LRGB Gen 2 filters with settings of 8x15m Ha; 2x5m RGB (all bin1x1); AstroArt5, CS4 (slightly cropped, 10xdarks/flats/fdarks/bias). An SX Lodestar guider was also utilized.

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