

The High Desert Observer July 2015



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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, including their quarterly publication, *Reflector*, in digital or paper format.

Individual Dues are \$30.00 per year

Family Dues are \$36.00 per year

Student (full-time) Dues are \$24.00

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, PO Box 921, Las Cruces, NM 88004. Contact our Treasurer, Patricia Conley (treasurer@aslc-nm.org) for further information.

ASLC members receive electronic delivery of the HDO and are entitled to a \$5.00 (per year) Sky and Telescope magazine discount.

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July Meeting --

Our next meeting will be on **Friday, July 24**, at the DACC Main Campus, Room 102, Technical Studies Building, starting at 7:00 p.m. Please note this meeting room is a NEW location for the club meetings..

The speaker will be Dr. Bill Stein.

Topic: Building and Operating a Robotic Observatory

ASLC Board of Directors, 2015

Board@aslc-nm.org

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Tombaugh: Steve Shaffer; sshaffer@zianet.com

Outreach: Chuck Sterling; csterlin@zianet.com

Web-Site: Steve Barkes; steve.barkes@gmail.com

HDO Editor: Charles Turner; turnerc@stellanova.com

New & Existing Member Package

Membership Chair, Judy Kile has sent member packages to all current members before the June meeting. These were sent via Yahoo!Groups email. If you did not receive your package, please let her know (jkile3916@gmail.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.

From the Prez

July 2015

Ask not...

In the last column, I wrote about the impending dissolution of the Silver City Astronomical Society and the concerns some members had about whether or not the ASLC would suffer the same fate. The answer to that, I wrote, rests with each member of our society.

Today, the ASLC stays strong and has gotten even stronger with a major event earlier this month. ALCON 2015 Las Cruces, which concluded July 11th, put the ASLC on the map. This was the result of a group of members who, over the past two years, put in their hearts and souls into the success of an event that will bring tremendous benefit to the society, the city and the state. Everyone volunteered their talents and, in some cases, were doing things for the first time.

The success was also made possible by the contribution of other members who made terrific presentations, submitted astounding images to the gallery and volunteered their time and telescopes to the star parties, even though the weather interfered with that most of the time.

Throughout the history of the ASLC members have put their hearts and souls into our organization. Many have been involved with long term projects, some have been admirably performing in the same role for years and some have been performing admirably in a variety of roles. All of them passionate about what they do and all of them passionate about the success and longevity of the ASLC, including many newcomers who jumped right in by participating in some of the club's activities.

There are many things that we do at the ASLC that are not directly related to doing astronomy and contribute to the club's success. For example, the Treasurer's and Secretary's positions; publicity; grant writing; publishing (HDO) and apparel, just to name a few. Members can contribute their creative talents by creating astronomical artwork that can be publicly displayed attracting people to astronomy and the ASLC or creating displays and other items that can be used by members doing public outreach to enhance their efforts.

So, there are many things that we do and can do that keeps us going strong and promises to give us a bright and prosperous future. It all boils down to what we want to contribute. In closing I'll paraphrase the late John F. Kennedy when promoting the Peace Corps... "Ask not what the ASLC can do for you but, what you can do for the ASLC".

Daniel Giron

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Outreach Events

by Jerry McMahan

Moongaze, Saturday June 27

The afternoon was cloudy, but it cleared in time to get in a couple of hours observing. I brought the ETX125 and Chuck Sterling set up his 100mm refractor. The objects observed included Venus, Jupiter, the Moon and Saturn. Clouds came back to end the session at about 9:30 PM.



Monday, July 6 and Wednesday July 8 at EMI Technology

As part of the ALCON week, we were scheduled for four days of star gazing at EMI. We were able to get in observing, with clouds, on Monday and Wednesday. The Tuesday event was canceled and cloud prevented viewing on Thursday, but a great program was put on by Fire Dancers, just after Sun down on that last day.

We did have a number of club participants from the club. They included Joe Alvarez, Steve Shaffer, Rob Westbrook, Sid Webb, Frank Fiore, Christina Lugo and Daniel Giron. I was set up away from most of the group, so I am probably leaving out some of the participants. Employees of EMI and some former club members were also there.

I had the 8 inch Monday, but the LX 80 mount failed in declination, so the ETX took its place on Wednesday. Frank's LX 80 mount has right Ascension problems. Steve brought his 3.5 inch Questar which is always a crowd pleaser for those who know what it is.

Rob brought a grill, buns and wieners on Wednesday and fed the crowd.

Leasberg Star-b-que, Friday, July 10

Several of us did set up telescopes at this event which was part of the ALCON event. Convention participants were brought in by bus and van. Clouds prevented any viewing, but Dave Doctor did open the observatory so that people could see the observatory and the 16 inch scope. Ed Montes did a good job of keeping the rain away until every one had a chance to eat. Judy Kile arranged for an invasion of three aliens from Roswell.

The entire week was a success thanks to the long, hard work and planning of the committee members that participated.

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

JUL 02	02:20	Full Moon
06	08:00	ALCON begins; Tours 1 & 2
06	19:00	ALCON Registration Opens 19:00-20:30
06	21:00	Star Party at EMI Technologies
06	16:00	Pluto at opposition
07	09:00	ALCON: Tour 4
07	10:00	ALCON Registration Open 10:00-14:00
07	21:00	Star Party at EMI Technologies
08	20:24	Last Quarter Moon
08	09:00	ALCON: AL Meeting 09:00 - 17:00
08	10:00	ALCON Registration Open 10:00-13:00 and 19:00-20:30
08	21:00	Star Party at EMI Technologies
09	09:00	ALCON: Welcome, Speakers 10:00-18:10
09	09:00	ALCON: Vendor Area Open 09:00-17:00
09	10:00	ALCON Registration Open 08:00-13:00 and 14:00-17:00
09	21:00	Star Party at EMI Technologies
10	09:00	ALCON: Speakers 10:00-17:10
10	09:00	ALCON: Vendor Area Open 09:00-17:00
10	17:30	Depart for Star-B-Que at Leesburg Dam State Park (via buses)
11	09:00	ALCON: Speakers 10:00-18:10
11	09:00	ALCON: Vendor Area Open 09:00-17:00
11	10:00	ALCON Registration Open 08:00-13:00



11	19:30	ALCON: Awards Banquet and Keynote Speaker, Pat Hynes
14	18:50	New Horizons closest approach to Pluto
16	01:24	New Moon
19	01:00	Venus-Moon Conjunction (0.4 degrees)
24	19:00	ASLC Monthly Meeting; DACC Main Campus, Room 102

NOTE: Meeting location has been moved to Room 102 main campus. Check the club website for directions/maps.

24	04:04	First Quarter Moon
25	20:42	OUTREACH; MoonGaze, International Delights Café
25	08:00	Ceres at opposition
31	10:43	Full Moon

AUG 02	13:00	Saturn stationary
06	20:03	Last Quarter Moon
14	08:54	New Moon
15	19:00	Dark Sky Observing at Leesburg Dam State Park
22	13:31	First Quarter Moon
22	19:49	OUTREACH; MoonGaze, International Delights Café
28	19:00	ASLC Monthly Meeting; DACC Main Campus, Room 102
29	12:34	Full Moon
31	21:21	Neptune at Opposition

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

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Meeting Minutes
by John McCullough

Minutes, June 2015 ASLC Meeting

Show & Tell:

A Show & Tell session was not held prior to tonight's meeting.

Call to Order:

Daniel Giron, President, Astronomical Society of Las Cruces (ASLC, the Society), called the June business meeting to order at 7:30pm, 19 June 2015, Room 141, Doña Ana Community College (DACC), Las Cruces, New Mexico. This month's meeting is being held one week early because of planned construction at DACC.

President's Comments:

The President, Daniel Giron, welcomed the group to tonight's meeting and apologized for the absence of a Show and Tell. Daniel asked that all members register their presence on the sign-in sheets available near the room entrance. Daniel asked if there were any new members or guests present. Howard Brewington, professional astronomer and former member, plans to renew his membership tonight. Gary Starkweather introduced his nephew Jacob, who is interested in science in general and astronomy particularly. Daniel asked if all members had received the latest edition of the Society newsletter, the High Desert Observer (HDO), had read it and had any comments or corrections to the contents. None were received.

New Business:

1. Meeting Room Change – Daniel Giron reported that the monthly meeting location will change to Room 102 on the DACC Main Campus effective with the July meeting on 24 July. Diagrams of the campus are available so members will be aware of the location. Limited parking is available near the entrance. Daniel also noted DACC intended to assess the Society a meeting room usage fee of \$50 per hour with a 2-hour minimum. An exemption to being charged the usage fee has been granted for the immediate future.
2. Moon Gaze – A Moon Gaze will be held on 27 June at the International Delights Cafe. More volunteers with telescopes are needed.
3. The Observatory at Leasburg Dam State Park (LDSP) – A third quarter moon “Music and Stars” event will be held on 18 July. Volunteers with telescopes, especially solar scopes, are needed.
4. ALCon 2015 – The deadline for volunteers with telescopes for star parties and astro images for display during the convention is today. 27 June is the deadline for on-line registration.
5. Meeting Presentations – One more speaker is needed this year for the September meeting. Let Daniel know if you have suggestions. Charles Turner suggested someone from the New Horizons/Pluto encounter be approached.
6. Friends of LDSP – Sidd Webb presented an update on park events. The 01 July meeting will include a lecture on the Rio Grande Rift by Karl Ray (Fliers available). The park rangers have a 12” Meade Dobsonian available for use. There is more to the park than just observing.
7. 2016 Budget Committee – Daniel Giron, Trish Conley, and at-large member Steve Shaffer will form the Budget Committee.

Announcements:

The speaker for the July meeting will be Bill Stein.

Items for Sale:

No items were offered for sale.

Recognitions/Awards:

No recognitions were announced.

The business portion of the meeting concluded at 7:55 pm on a motion by Daniel Giron, seconded by Ed Montes.

Presentation:

This month’s presentation was by Society member Bert Stevens on “Situation of Gravity”. He started with a history of night sky observing and the development of understanding of the solar system and how it “works”.

As the close of the presentation, Daniel conducted the drawing for door prizes. Steve Shaffer and Jerry McMahon were the lucky winners. The June meeting of the Astronomical Society of Las Cruces concluded at 9:00 pm.

-Respectfully submitted by John McCullough, ASLC Secretary

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Jupiter, including the volcano-ridden Io and the mysterious Europa. The discovery of an ocean on Europa has prompted the initiation of a new mission, the Europa Clipper to learn more about this moon and if it is home to extraterrestrial life.

Saturn has had its share of visitors. In current orbit is the Cassini spacecraft, a joint project of NASA, the ESA, and the Italian Space Agency. It dropped a lander that successfully returned images and data from Titan's surface in 2005. Cassini has been orbiting Saturn for eleven years, sending us images of the planet, its rings and its moons. It even sent us an image of Earth from Saturn. Pioneer 11 was the first spacecraft at Saturn after a successful flyby of Jupiter. Its twin, Pioneer 10, only flew past Jupiter. Both are now out in interstellar space.

Uranus and Neptune have only been visited by one spacecraft, Voyager 2 in 1986 and 1989 respectively. The Earth and the gas giant planets were in the correct positions in the late 1970s and early 1980s for one probe to visit Jupiter, Saturn, Uranus and Neptune. Called the Planetary Grand Tour, each planet provided a gravitational assist to Voyager 2 to get it to the next planet. Voyager 1 is in a slightly different orbit and only visited Jupiter and Saturn. Both of these spacecraft are now in interstellar space.

Uranus showed a corkscrew magnetotail caused by its axial tilt being almost ninety degrees from the ecliptic. The planet's atmosphere was mostly a uniform pale-blue color with few features. Its moons were varied and Miranda, the innermost of the five large moons, had huge canyons as deep as 12 miles. It may have been that Miranda is the results of a moon being shattered by a violent impact and then coming together again.

At Neptune, Voyager 2 imaged its moons and its great dark spot, which is similar to Jupiter's Great Red Spot. Cirrus clouds drift above Neptune's lower cloud tops. Many of Neptune's moons were imaged as well. Triton has a surface of frozen nitrogen with a water-ice crust. Geysers of liquid nitrogen are spewed into space from volcanoes on the moon's surface. Triton may be a Kuiper Belt object that Neptune captured in the distance past.

So now New Horizons has visited the former most-distant-planet in the Solar System. While it does mark the end of an era, New Horizons next target is another Kuiper Belt object, but the final decision on which one will happen in August. Meanwhile, I wait for the latest images winging their way through our Solar System to give us a close up view of Clyde's dwarf planet. It has been an exciting half-century

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Jupiter in Ultraviolet



Hubble Space Telescope
Wide Field Planetary Camera 2

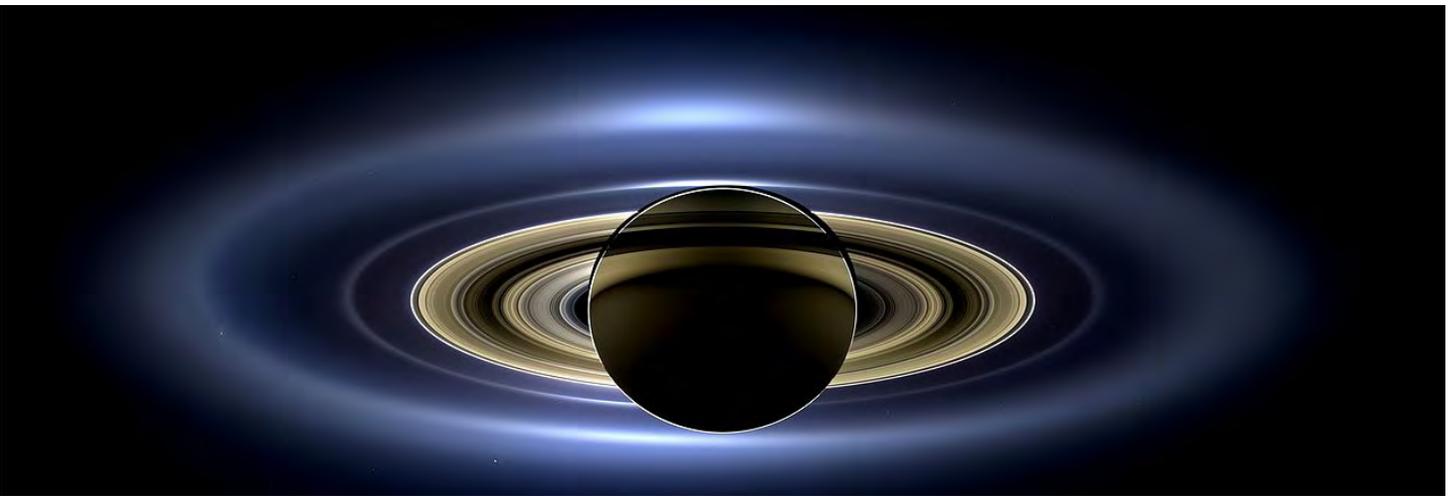
Comet Impact on Jupiter

The impact scars from Comet Shoemaker-Levy 9 litter the south-southern belt on Jupiter. Hubble imaged it in ultraviolet light, giving us a great view. Amateurs all over the world were able to see the scars even in small telescopes. (Credit: NASA)



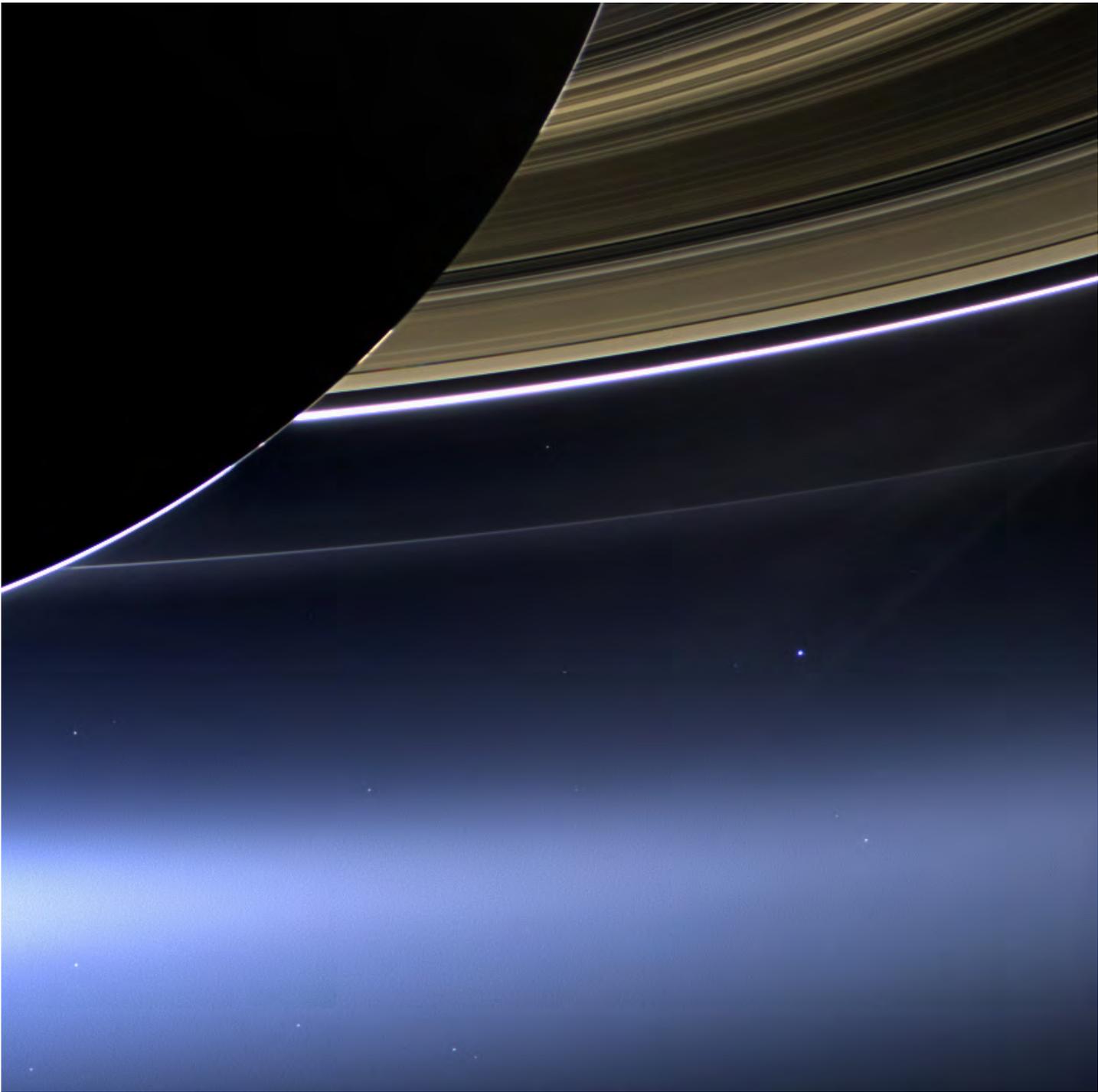
Surface of Mars

The Pathfinder mission to Mars tested many new technologies. Here the little rover Sojourner is taking an Alpha Proton X-ray Spectrometer measurement of the rock dubbed Yogi. Sojourner was the first successful rover on Mars



Saturn Covers the Sun

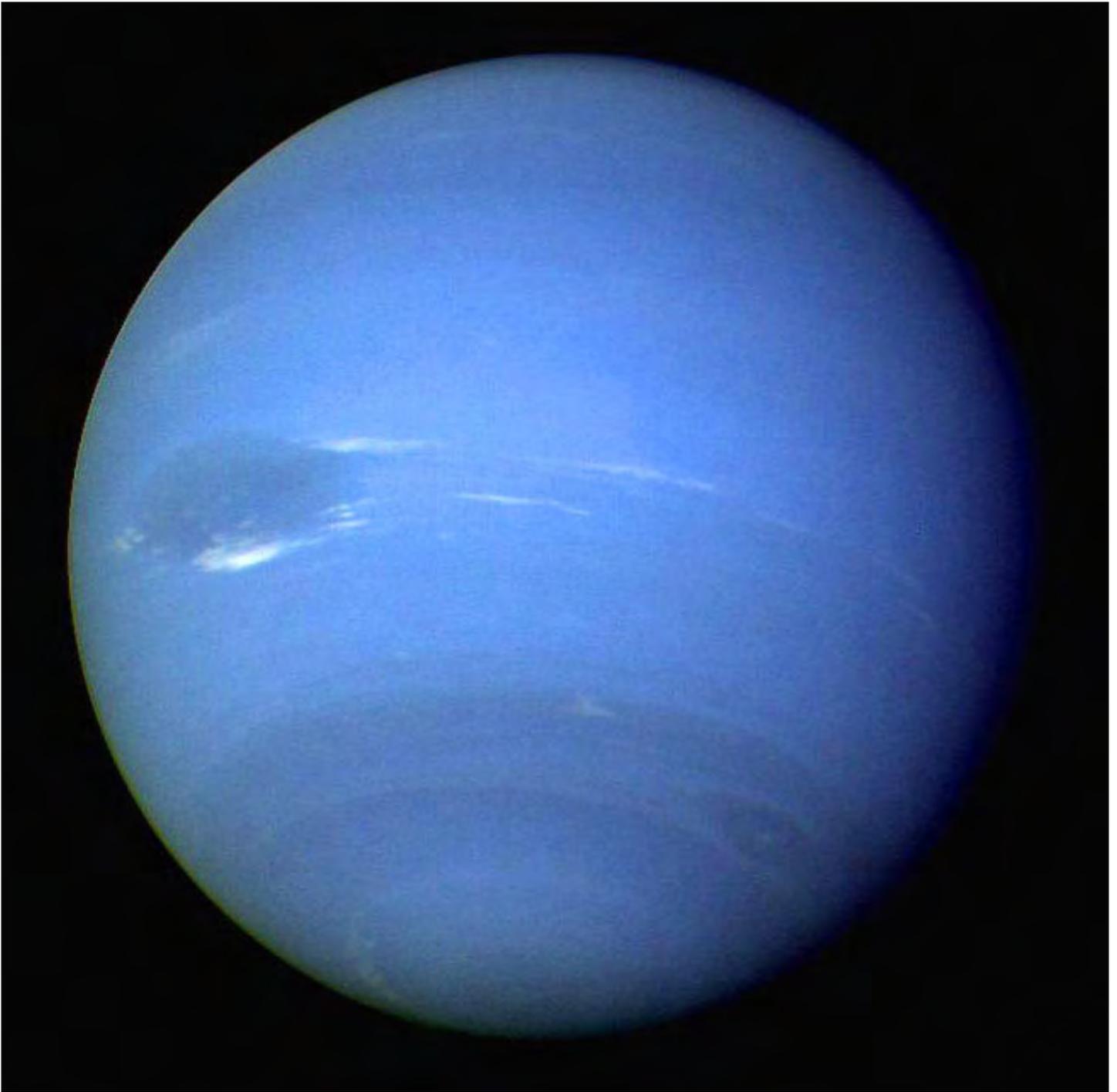
The Cassini took this image of Saturn. The Sun is behind the planet and sunlight is shining through the rings.



The Day the Earth Smiled

The narrow-angle camera shows a small area of the last image which includes the blue dot that is the Earth millions of miles away.





Neptune

On August 16 and 17, 1989, Voyager 2 photographed Neptune continuously to produce an almost complete set of full disc images. The dark spot is accompanied by cirrus clouds that swirl around the spot as the cirrus clouds pass it. Two of the four dark spots found on Neptune are imaged here. The large dark oval near the western limb (the left edge) rotates around Neptune every 18.3 hours. (Credit: NASA)

Photo of the Month



By Rich Richins from the Cosmic Campground near Alma, NM.

The Blue Horsehead Nebula (IC 4592 is a large, but dim nebula in Scorpius (not far from where Saturn is lurking these days). This was imaged using a 200mm Canon lens at f/3.5. Fifty-two 5-minute subs (ISO 800) were used in the image (4.3 hours). Stacked with Nebulosity and processed with Photoshop CS5.

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Guest Article:

Art and Astrophotography by Kirby Benson

SOME CONTEXT AND HISTORY

In a general sense, photography involves both artistic sensibility as well as scientific ability. Unless a photograph is purely mechanistic as in some research or scientific applications there is always an element of human manipulation in the triad of camera, person and subject.

Historically, the concept of photography has been around for a long time. In the renaissance, painters used a device called the camera obscura that allowed light to go through a hole in a box and create an image on a piece of paper. Even prior to this era, as far back as the 5th century BCE, there was experimentation with a type of device that could be considered a precursor to the camera obscura. Silver nitrate was discovered around 1200 AD and silver chloride during the 1500s. Chemical photography came into use in the early 19th century.

In 1882 Eadweard Muybridge of England discovered and proved that a running horse has all four feet off the ground by using a photographic device he created. Later, in 1884 he developed a system to take 12 pictures on a single photographic plate.



It was these breakthroughs that aroused the scientific community of the time to begin to explore the scientific possibilities of photography.

During the last century photography came into its own with acceptance as a fine art medium. In the United States Alfred Stieglitz, Ansel Adams and Edward Weston were a few of the people who worked with photography as a fine art in the early to mid 20th century. They sought artistic expression and adherence to fine art design principles in order to bring photography into the mainstream of modern art.



Edward Weston



Photo of Georgia O'Keeffe by Alfred Stieglitz 1918



Ansel Adams: Moonrise, Hernandez, New Mexico

Most university art departments in the US have photography as an area of study and it is possible to receive advanced degrees (MA, MFA) in photography and film making. From the artistic point of view it is closer to print making in that it requires a great deal of technique and equipment although a great deal of the equipment has now been superseded by the introduction of digital photography.

In astronomy circles photography was the breakthrough that brought outer space into the realm of the here and now. Through the use of long exposures it was now possible to study dim stars, nebulae and galaxies as well as a great number of other phenomena in the universe.



Earliest known photograph of the Moon. A daguerreotype taken in 1851 by John Adams Whipple

Serious work in this area began in the later part of the 19th century and of course continues right up to the present.

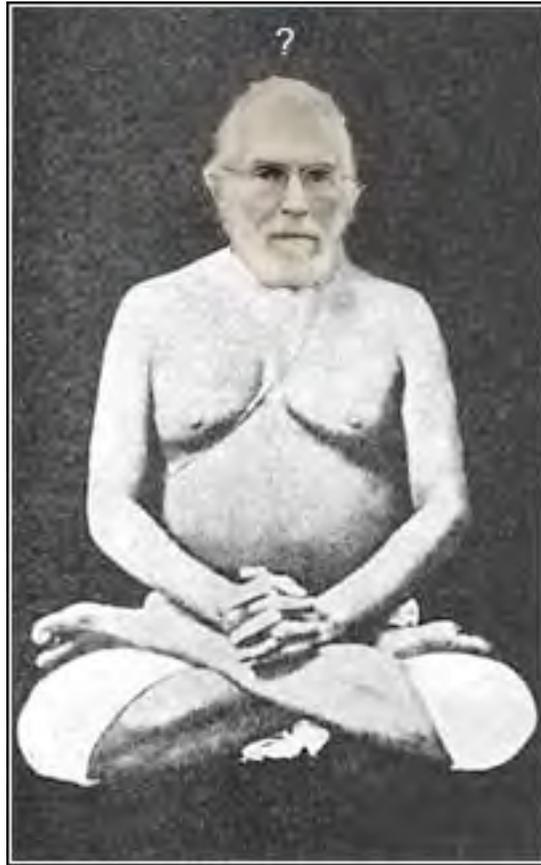
SUBGROUP

A subgroup of amateur astronomers began using astrophotography as more of an aesthetically pleasing medium to display the objects of space rather than for purely scientific research. First with film and then in the 1990s digital cameras began to come onto the market that overcame the drawbacks of film (color shifts due to long exposures, artifacts and the necessity to self guide the telescope mount). The Charge Coupled Device (CCD) camera quickly became the standard for astrophotography. Photons on this surface generate a charge that can be read by electronics and turned into a digital copy of the light patterns falling on the device. Also available to amateurs are webcams and DSLR cameras.



M 16 by Jerry Gabers. An example of the use of a CCD camera.

Even amateur astrophotographers have to contend with numerous technical and scientific challenges in order to acquire astro-images. In order to produce an image of the night sky there is a tremendously steep scientific learning curve to master.



DESIGN FUNDAMENTALS

What is left out of nearly all discussions and written materials available to the amateur astrophotographer are artistic questions and issues of design fundamentals. Instead criteria that is considered important are things like star shape, good mount tracking, and equipment issues such as coma, maintaining good focus and numerous technical variables that are inevitably introduced.

Some basic elements of design that we may want to consider during the acquisition and processing of astro-images are:

SPACE...LINE...BALANCE...COLOR...SHAPE...VALUE...UNITY

SPACE - We as astrophotographers work with two dimensional space. While we may experience the dimension of depth in concrete reality it is when we work with images we are limited to what is known as the picture plane or height and width. Contained within these two dimensions are the background, foreground and middle ground. In addition, the concept of negative (space around the subject matter) and positive space (the subject matter) need to be considered. By careful use of these three elements it is possible to create the illusion of spacial depth.



The Barko Moon by Steve Barkes is an example of how negative space is used to create a dramatic effect by the singular most important object and that is the sliver of the moon.

LINE - Element that refers to continuous movement of a point along a surface. In our case this would pertain to the edges of shapes and forms. We should keep this in mind when sharpening or emphasizing the edges of space objects.



NGC 2024 by Rich Richins. The sharp defining edge of the apparent dark inner core of the nebula can be considered as the line that creates definition and clarity thus producing a striking image that demands our attention.

BALANCE - Can be symmetrical or asymmetrical. The dominant focal points should not feel as though they pull us too far in a direction. Balance can be achieved by location, size and color of objects.



Chuck Sterling's NGC 7000 is an example of asymmetrical balance. The stark dark area in the upper right quadrant is offset by the much larger lighter area to achieve overall balance and composition.

COLOR - One of the most discussed elements among astrophotographers. However, this is generally in regard to accurate representation of emissions and reflections of deep space objects.

Complementary colors (opposite on the color wheel) create contrast. Primary colors and secondary colors are also present and to be considered in the overall design quality of our images.

While printer colors and computer screen colors as well as camera colors use different approaches to color and color theory the end result we see on a print or computer screen can be judged by the standard color wheel of red, yellow and blue of primary colors and all the possibilities in between.



M 81 by Dave Doctor. A good example of the use of color to achieve a feeling of depth. Warm colors come forward and cool colors recede. The use of strong color here also creates a lively image that engages our imagination.

SHAPE - An area that stands out from the space next to it or around it. It is important because as astrophotographers we often struggle to define a shape because of the technical limitations of our cameras and sky conditions.



NGC 2264 by Kirby Benson. By the use of narrowband filters it is possible to create a striking shape as distinct from faint regions surrounding it. The shape is simply what it is - the human mind is what projects a familiar object onto it such as a tree.

UNITY - The last element we should consider is the overall unity of the picture. Does everything belong and create a sense of wholeness or gestalt?



M 45 by Rich Richins. There are several 'parts' to the image but it is the overall composition that creates the unified whole.

The astrophotographer has the ability to work with these design elements during the processing stage and to some extent during the capturing phase. While it is impossible to improve on the perfection of nature it is possible to create a presentation that is dramatic, engaging and meaningful in ways that evoke the human experience emotionally, mentally and spiritually.

Kirby Benson has an Masters of Fine Arts in Ceramics from Washington State University and a Masters of Arts in Counseling from New Mexico State University. A member of ASLC since 2007.

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