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.*

ASLC Board of Directors, 2015

Board@aslc-nm.org

President: Daniel Giron; President@aslc-nm.org

Vice President: Steve Barkes; 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: Ron J. Kramer; Director2@aslc-nm.org

Immediate Past President: rrichins73@comcast.net

Director Emeritus: Walter Haas

Committee Chairs

ALCor: Patricia Conley; tconley00@hotmail.com
Apparel: Ron Kramer; ronjkramer@aol.com
Calendar: Chuck Sterling; csterlin@zianet.com
Education: Rich Richins; Education@aslc-nm.org
Grants: Sidney Webb; sidwebb@gmail.com
Librarian: ***OPEN***
Loaner Telescope: Frank Fiore; ffchilehead@gmail.com
Membership: Judy Kile; judykile3916@gmail.com
Night Sky Network: ***OPEN***
Observatory:
Leasburg Dam: Rich Richins; rrichins73@comcast.net
Tombaugh: Steve Shaffer, sshaffer@zianet.com
Outreach: Chuck Sterling; csterlin@zianet.com
Web-Site: Steve Barkes; steve.barkes@gmail.com
HDO Editor: Ron Kramer; ronjkramer@aol.com

Table of Contents

April Meeting --

Our next meeting will be on ***Friday, April 24***, at the DACC Main Campus, Room 141, Technical Studies Building, starting at 7:00 p.m.

At this meeting, various speakers will discuss their relationship with Walter Haas, one of our founding members, who died recently. Please attend and pay your respects to a great man.

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 (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.

From the Prez

All Good Things

Every once in a while we learn of someone or personally know someone who made significant contributions to our understanding of the universe we are a part of. Such a person is Walter Haas, one of the founders of the Astronomical Society of Las Cruces and founder of the Association of Lunar and Planetary Observers.

I never had the privilege of personally knowing Walter Haas but, from accounts written about him, I feel that I would have very much enjoyed learning from him. He seemed to have an insatiable desire to explore and learn more about the objects of our solar system, especially the Moon, and show that amateur astronomers can make important contributions to the science of astronomy. And it also seems he had a tremendous joy in sharing the knowledge with others. That is the reason for our Society's existence, to share the Universe with our families, our friends, our neighbors and our community.

It is said that all good things come to an end. Walter left this life on April 6th, but his legacy continues on in the form of the two organizations he founded. The Astronomical Society of Las Cruces will continue his legacy and build upon it. We will continue to reach out to more and more people and share with them the joy of exploring the Universe and inspire them.

During the April general meeting we will have a memorial to Walter Haas and have members who knew him and Walters daughter Mary tell us their stories so that all of us will get a chance to know Walter Haas and be inspired by his life. *Ed. Note: Please see Walter's obituary on Page 10.*

Daniel Giron

* * *

Recent Outreach Events

by Jerry McMahan & Steve Shaffer

Saturday, March 14; Leasburg Dam State Park Observatory

A cloudy afternoon turned into a clear night. Several club members attended for a relatively small turnout of observers. Carol and Stan Chiocchio came to observe. Daniel Giron and Ron Kramer assisted. Dave Doctor ran the observatory. Chuck Sterling brought his 10-inch and Jerry McMahan operated the 8-inch Schmidt Cassegrain. Sid Webb was using a 12-inch Meade Lightbridge Dobsonian that belongs to the park. There was a rumor that Rich Richins was there. Sid claims to have seen him. Sid said something about Starizona, so Rich may have been imaging. Ed Montes was not a rumor. I saw him myself. Ed also assisted with the public.

Early on, both Callisto and Europa were passing in front of Jupiter. It did not take long for Europa to become visible. Dave Doctor said that Callisto was visible in the 16-inch, while it was in front of Jupiter. Both Daniel and Ed both said that they could see more detail in the Orion Nebula than they had ever seen before. Ed was observing though the 16-inch while Daniel made the same statement while looking through the 8-inch. Carol also commented on detail in the Nebula.

Thursday, March 19; Highland Elementary

We had a star party, meaning a star party with one star, the Sun. The Math and Science Night was scheduled from 5 to 7 P.M., so with Daylight Saving Time, it meant that it would not get dark until after the scheduled time.

Chuck was not feeling well so didn't make this one. Tracy Stuart brought his 90mm Maksutov with a white light filter. Sid Webb had the 60mm hydrogen alpha double stack. I brought the ETX with a white light filter. We had trouble getting the Sun because of clouds. It finally cleared enough to get the Sun at about the time that the crowd came out to view through the scopes. I was not able to get the Sun, and worried that I might have a pin-hole in the filter. That is why I prefer a glass filter, but didn't have one with me. Instead, I pointed at "A" Mountain. Even at a magnification of only 24, people were very impressed at seeing the observatory and tower. I think the reason was they could see the objects with the unaided eye, so they could more easily relate to what they were seeing through the scope. A couple of kids, not familiar with the concept of magnification, were amazed asking, "How can this thing make something look so close?"

There was not much activity on the Sun. Tracy said that he could not see any sunspots. Sid was able to point out some prominences through the H-Alpha scope. After the Sun set there were still several people waiting to look through the scopes. Tracy and I pointed at Jupiter with a low power view since the scope was not tracking.

Sid said that his 10-inch scope is gaining weight. I have noticed the same pattern with the mount and tripod that I take to Leasburg. I have also noticed that it is harder for me to get up from a kneeling position. I know that you probably think that is because we are getting older, but I think that it is the result of some kind of gravitational anomaly.

Monday March 23; Tombaugh Observatory, NMSU Campus

It was a breezy day. I opened both doors and the shutter, rotated it into the wind, then swept out the building. I then found out I did not have all of what was needed to replace the AC power cord to the shutter hand controller. I went back on March 25 and encountered a prematurely locked gate. The running track will be closed to the public at the end of the semester. We will need a key to be able to access the observatory.

Friday, March 27; NMSU Open House, Tombaugh Observatory

Jerry McMahan was opening up by the time I arrived. We viewed the Moon using a new 2" 37mm wide view eye-piece that Jerry had brought to tryout. It had much better eye relief than the one he brought last month. I think it will the one we use as long as atmospheric conditions allow. Normally we use a 2" 75mm eyepiece, which does not quite show half the Moon. We spent most the evening viewing the Moon, later we switched to Jupiter and then went back to the Moon. We had 108 viewers which may be a recent high turnout. Looking at the logbook we had 108 viewers March 7, 2014.

Saturday, March 28; Moongaze at International Delights Café

Chuck was still not feeling well, so I brought the 8-inch rather than the ETX-125, to get a larger scope on Jupiter. Christina Lugo brought her new Newtonian that she made. President Giron also came to explain things to the public and gave them cards with our Website on them. He also gave them his multiple choice Moon quiz.

Jupiter was showing all four Galilean satellites, but Europa passed in front of the planet later in the evening. The planet was as high, almost at the zenith, as I can ever remember seeing it. Christina explained why she missed the last Leasburg event. She was in Alaska and saw the Northern lights. She also saw part of the famous dog sled race (one of the many things that I can't spell). Johnny Horton sang, "When it's spring time in Alaska it's 40 below." Christina said it was only 20 below. That was quite a trip. I think it is great she got to experience the trip.

* * *

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

APR	21-22	Lyrids Meteor Shower
	21 10:35	Moon-Aldeberan Conjunction
	21 12:09	Moon-Venus Conjunction
	23 20:00	OUTREACH; Oñate High School
	24 19:00	ASLC Monthly Meeting, DACC Main Campus, Room 141 (Technical Svcs. Bldg.)
	24 21:00	OUTREACH; Tombaugh Observatory, NMSU Campus
	25 17:55	First Quarter Moon
	25 dusk	OUTREACH; MoonGaze, International Delights Café
	30 19:29	Mercury-M45 Conjunction
MAY	01	Venus 42.1° Eastern Elongation
	03 21:42	Full Moon
	05	Eta Aquarids Meteor Shower
	05 10:18	Moon-Saturn Conjunction
	08 21;00	OUTREACH; Tombaugh Observatory
	09 18:30	OUTREACH; Music & the Stars, Leasburg Dam State Park Observatory; entertainment by Robyn Rivas
	10-17	Texas Star Party
	11 04:36	Last Quarter Moon
	17 11:19	New Moon
	22 18:53	Saturn at Opposition
	23 dusk	OUTREACH; MoonGaze, International Delights Café
	25 16:12	First Quarter Moon
	29 11:30	Venus-Pollux Conjunction
	29 19:00	ASLC Monthly Meeting, DACC Main Campus, Room 141 (Technical Svcs. Bldg.) NOTE: Meeting is one week later than usual due to DACC schedule conflict

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

* * *

March Meeting Minutes

by John McCullough

Due to a problem in opening the submitted file, the March meeting minutes are not included in this copy of the *HDO*.

* * *

Additional Committee Reports

Apparel Report (Summary), April 2015 (by Ron Kramer)

Inventory $709.20

We are stocked with Hoodies, shirts and caps, in both men's and ladies.

Loaner Telescope Report, April 2015 (by Frank Fiore)

The status of the four telescopes made available to me to loan out through the Loaner Program is as follows:

- 12" Orion Intelliscope Dobsonian with 40 mm Celestron Plossl eyepiece; Meade 25mm eyepiece and Meade 9mm eyepiece is on loan to one of our new members, Emily Fuchs. This telescope is quite difficult to rotate in azimuth owing to the worn condition of the base.
- 10" Coulter Odyssey Dobsonian, with Orion case with 6 eyepieces, 6 filters and 2X Barlow lens and a Telrad spotter is on loan to another of our new members, David Wells. This telescope is in fair condition, but would certainly benefit from new coating on the primary mirror.

- Meade 90 mm ETX with hard case, tripod and Meade 20 mm eyepiece is in storage at my house at 6635 Rio Dorado Drive, La Mesa, NM. The telescope is unable to track and the tripod legs have a tendency to slip.
- Meade 90 mm ETX with hard case (ASLC asset # 02-A), with 4 eyepieces: Meade 20mm Super Plossl eyepiece; Scopetronix 22mm to 11mm zoom eyepiece; Orion 10 mm Sirius Plossl eyepiece and Meade "OR 4mm" eyepiece and a tripod with a mounting head that tends to slip out of alignment. This telescope is also unable to track and is thus also stored at my house. Would make a dandy scope for bird-watchers in its current condition.

My opinion: None of these scopes are really suitable for use as loaners "as-is." Rather than ask members to do these repairs to the telescopes, perhaps ASLC should consider using its own funds to repair them or else sell them off and invest in a few entry-level new scopes to loan out.

Outreach Report, April 2015 (by Chuck Sterling)
Outreach events coming up:
4/11 - Leasburg Dam State Park
4/23 - Onate High School Star Party
4/24 - Tombaugh Observatory
4/25 - Moon Gaze
5/9 - Leasburg Dam State Park
5/10 - 5/17 - Texas Star Party
5/23 - Moon Gaze (Saturn opposition 5/22)

Back at the Telescope

by Berton Stevens

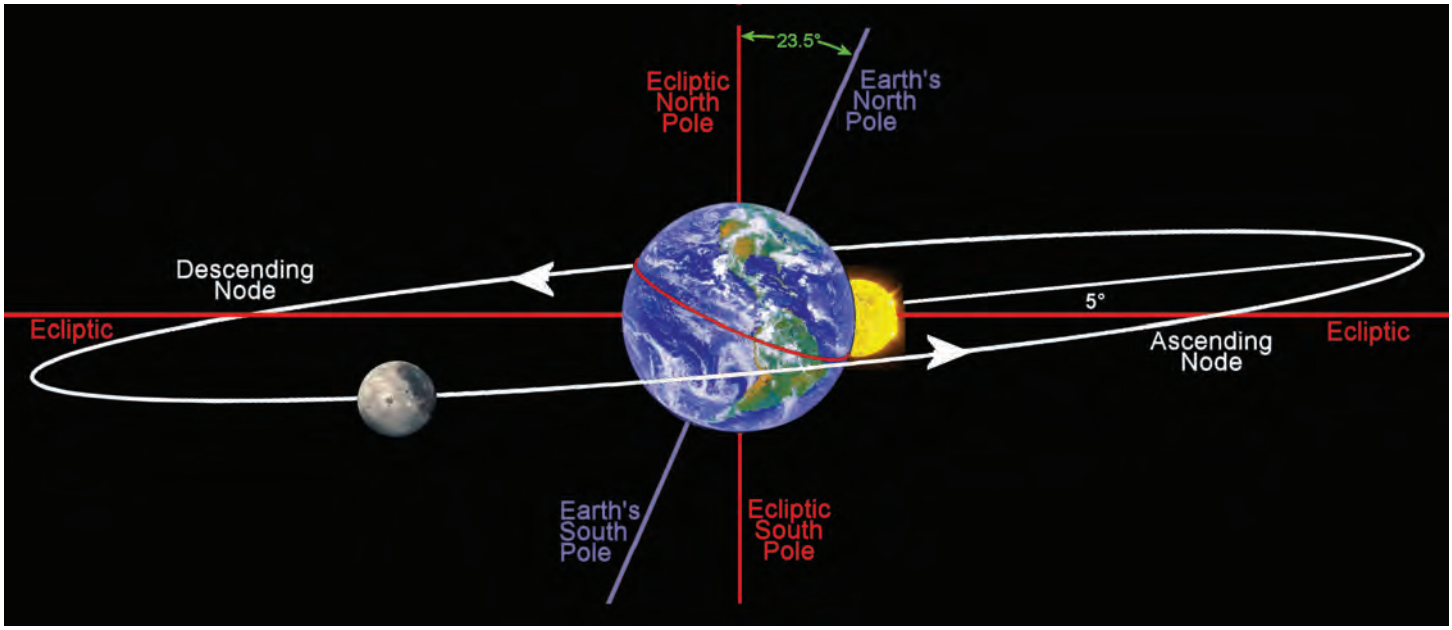
This month we were able to view the third lunar eclipse in the current tetrad. A tetrad is a series of four total lunar eclipses occurring at six month intervals. The first eclipse of the tetrad was in April 2014, the weather was clear and we got a good view of this event. The second in September 2014 was clouded out. This one was mostly clear, but there was some haze and a few thicker cirrus clouds in the area. The last one in the tetrad will be on September 27, 2015 when the penumbrally eclipsed Moon will rise over the Organ Mountains in the early evening. The final partial phase of the eclipse will be over by 10:30 p.m. This will be a great opportunity for the ASLC to hold a public star party.

There are eight tetrads in the twenty-first century, the most a century can have. Why do these tetrads occur? Let's start with why lunar eclipses occur. To get a lunar eclipse, the Moon, Earth and Sun must line up. The Sun and Earth occupy a plane whose projection in our sky is the ecliptic. We can always find the Sun somewhere on the ecliptic. The Moon's orbit, however, is tilted about five degrees to the ecliptic. Only when the Moon crosses the ecliptic at full moon can a lunar eclipse occur.

The point where the Moon's orbit crosses the ecliptic is called a node. There are two nodes, 180 degrees apart. The ascending node is where the Moon travels from south to north across the ecliptic. The descending node has the Moon traveling from north to south. While the Moon passes through both these nodes every lunar orbit, only when full moon occurs very near one of these nodes can there be a lunar eclipse.

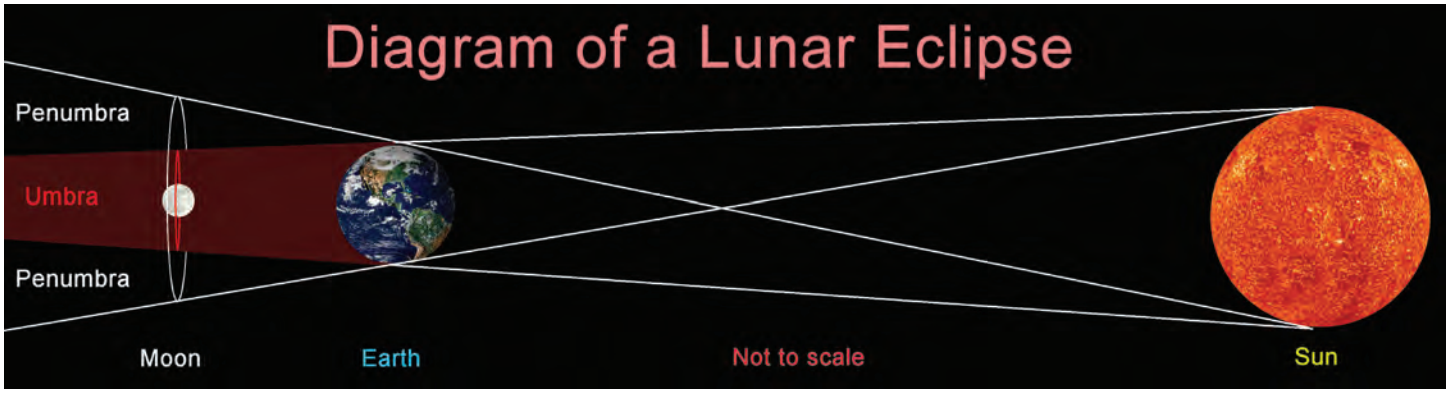
Right now, the ascending node full moons are occurring in April and the descending node full moons are happening in September. These are six months apart since the nodes are 180 degrees apart and it takes six months for the Earth to revolve around the Sun so the opposite node lines up with the Earth and the Sun. These are frequently called eclipse seasons.

Even if the full moon occurs near the node crossing, it may not be near enough for the Moon to enter the Earth's umbral shadow. At the Moon's distance, the Earth's penumbral shadow, where the sunlight is only partially blocked from the Moon, is about 2.5 degrees in diameter. The umbral shadow, where no direct sunlight can reach the Moon, is about 1.3 degrees in diameter. These numbers are different for each eclipse, depending on the Earth's distance from the Sun and the Moon's distance from the Earth during the eclipse.



The only times where a lunar eclipse can occur are when a full moon occurs around the time that the Moon is passing through a node. The motion of the Moon around the Earth brings the Moon through the ascending node (moving south to north) and the descending node (moving north to south) once each 27.21222 days (on average).

If the Moon passes only through the penumbra, we have a penumbral lunar eclipse. If only part of the Moon passes through the umbra, we have a partial lunar eclipse. If the entire Moon enters the umbra, then we have a total lunar eclipse. Normally, there is only one lunar eclipse per eclipse season. But if there is a partial or penumbral eclipse near the beginning of the eclipse season, there could be a second lunar eclipse (penumbral or partial) on the other side of Earth's shadow near the end of the eclipse season.



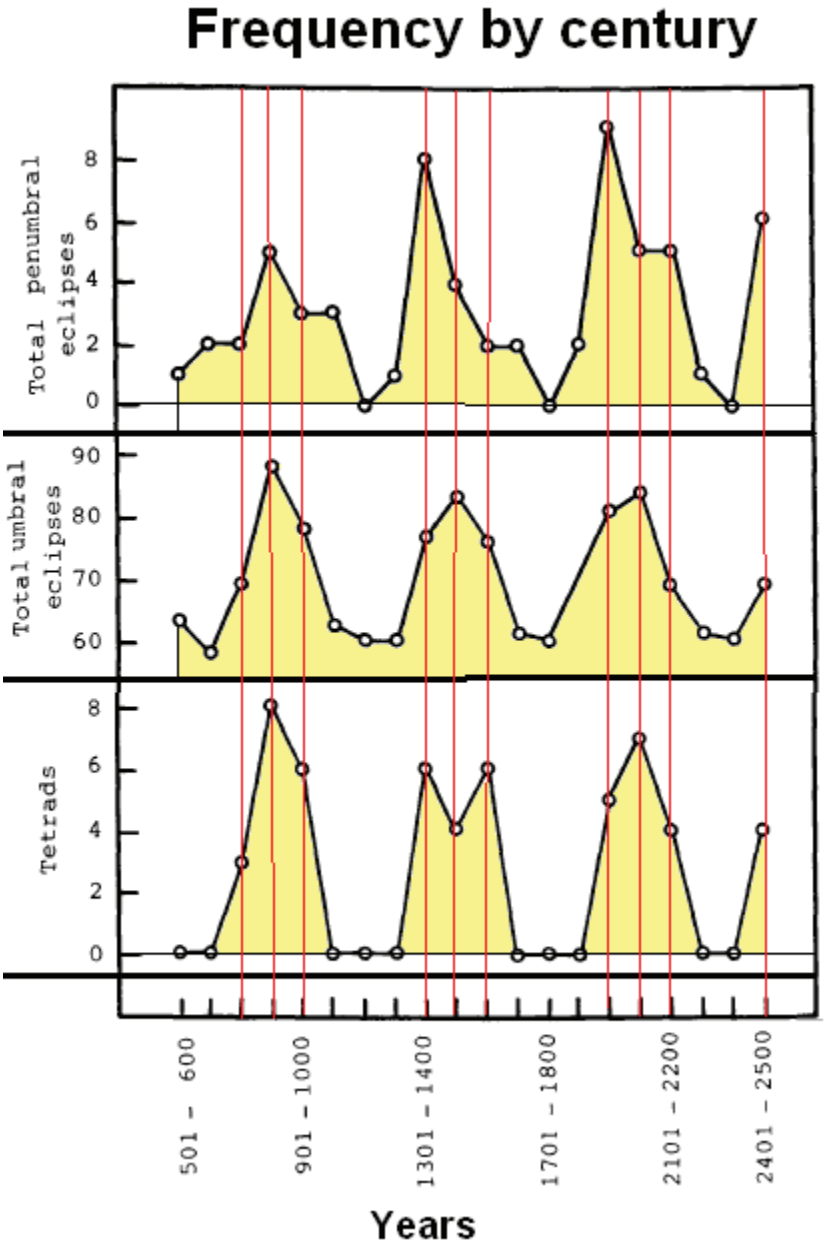
A lunar eclipse occurs when the Moon travels into the Earth's shadow. The Penumbral shadow is where only part of the Sun's light is cutoff by the Earth. From the Moon, an astronaut would see the Earth blocking part of the Sun. The deeper into the penumbral shadow the Moon travels, the more apparent the eclipse will be. In the umbral shadow, the Sun is completely blocked from the lunar surface, but the sunrises and sunsets all around the world will still illuminate the Moon with a reddish glow. The reddish light decreases toward the center of the shadow, leaving the Moon looking a dark gray.

Now things get tricky. The Moon's orbit is not fixed in space, but is slowly rotates with the nodes moving around the ecliptic. It takes 18.6 years for the Moon's orbit to precess around the Earth. The means that the nodes move about 19 degrees during the year, causing eclipse seasons to occur about 20 days earlier each year, depending on whether it is a leap year or not. But the eclipses themselves are controlled by the date of the full moon. Full moons occur 29.53 days apart on average, depending on where is in its orbit. When we are nearer the Sun, the Earth is moving a little faster than average, making the time between full moons a little longer. Conversely, when we are a little farther from the Sun, the Earth moves a little slower, allowing the time between full moons to be a little shorter.

Using the average, the eclipses are six full moons apart, or about 177 days. As the eclipse seasons move earlier, sometimes the fifth full moon is just inside the eclipse season and we get an eclipse 148 days after the previous

one and then a second eclipse in the same eclipse season 29.5 days later. As you can see, the eclipse prediction business depends on the interaction of various periods of the Sun, the Moon, and the Earth.

The wealth of tetrads that we are enjoying this century and enjoyed last century will decline over the next two centuries. Then there will be no tetrads. After a few more centuries, the tetrads will return and be back up to the maximum of eight per century. This cycle takes about 565 years, but is variable depending on secular changes in the eccentricity of the Earth's orbit.



This plot of number of eclipses from 501 A.D. to 2500 A.D. shows how the number of lunar eclipses declines during centuries that do not have tetrads. The top graph shows total penumbral eclipses, where the Moon is completely in the penumbra but does not enter the umbra. The middle graph shows the number of total lunar eclipses during the century. The bottom graph plots the number of tetrads during the century.

The tetrads this century all start in March, April, or May. The first one began May 16, 2003 and the last one will begin on March 15, 2090. Just because a tetrad is occurring, we may not be able to see all of them from Las Cruces. The first two eclipses of the 2003-2004 tetrad were visible from here, as was the last one. The third eclipse of the tetrad was only visible in Europe, Africa and western Asia.

So we are lucky to be able to see all four eclipses in this tetrad, at least we would have been if eclipse number two had not been clouded out last October. At least we can hope for clear skies in September for the last act of this tetrad. After that, we will not see another total lunar eclipse until January 31, 2018 when the Moon will set just after totality ends.

The Lunar eclipse of January 21, 2000. This image was taken during an ASLC public observing session in front of the Museum of Natural History at the Mesilla Valley Mall.
The Moon was in the eastern sky so this was a good location for the event. The Museum contributed their telescope for observing the event and ASLC members brought their telescopes as well.

Photo of the Month

Frequent contributor and ASLC member Jeff Johnson submitted this image of M106 and NGC2458 (in lower left). Taken on November 26, 2014 from Las Cruces, NM.

Please consider offering a submission (article, image, blurb, etc.) to future issues of *High Desert Observer*. The aim is to have the best Society newsletter in the United States, and it can only be accomplished with contributions by our members. Thank you for your consideration.

If you have any comments or contributions to this monthly newsletter, please let me know. Every question will be answered.

Ron Kramer, Editor
ronjkramer@aol.com

The Last Page

ASLC members Phil & Patty Simpson are selling their property near Cloudcroft, NM. This wooded 22.6 acre property adjoins the Lincoln National Forest and includes a house (about 3500 sq. ft.), a 500 sq. ft. workshop, a tool shed and an enclosed backup generator. It also includes an observatory with a 10' dome, a selected 14" Celestron SCT on a Software Bisque mount on a concrete base weighing over 5,000 lbs. It is an exceptionally dark location and has been shown to have sub-arcsec seeing. Contact Phil at 575-491-0454 or *phil73simpson@tularosa,net* for further information. Additional property information can be found at:

http://www.trulia.com/property/3156997463-73-Raspberry-Hill-Rd-Cloudcroft-NM-88317

Walter H. Haas, July 3, 1917 to April 6, 2015

Walter H. Haas went to Heaven with Christ on Monday morning, April 6, 2015. He was embraced at his bedside by his daughter, Mary. He is preceded in death by his parents, Charles Atlee Haas and Pearl Scoville Haas, wife Beryl "Peggy" E. Haas. He is survived by daughter Mary Charlene Alba (David), grandson Matthew Christopher Alba (Dana) great-grandsons Christian and Cameron of Las Vegas NV, granddaughter Veronica Dae Alba of Guthrie OK, as well as cousins Betty Ziska, Ravenna, OH, Ron Huprick (Tina) Columbus, OH, Lowell Huprick (Winifred) Berlin, OH, Pricilla Huprick Mason (Allen), League City, TX, Rosemary Huprick Jenkins (Don), Baltic, OH and Joanne Saunders Scoville Cope (Kevin), New Waterford, OH.

Walter was born on July 3, 1917 in New Waterford, OH. He traces his wonder of the celestial world back to an astronomy book his mother used in school. After graduating from high school he was given a choice of a year's college tuition or three months studying astronomy in Jamaica; the then 17 year old farm boy chose the Caribbean island. This was where he first met his future wife, Beryl as she was Professor Pickering's secretary, whom he was studying astronomy with. He left Jamaica coming back to Ohio. He attended Methodist Mount Union College at Oliane, OH majoring in math and working on minors in German, physics, and chemistry. After earning a Bachelor of Science from Case Western Reserve University, a Masters from Ohio State and finished with a Ph.D. at the University of Pennsylvania. He was hired by the Navy to teach classical navigation. He taught math at UNM from 1946-1950, then moving to Las Cruces to accept a position at White Sands where he worked until 1954. In 1947 he organized the Association of Lunar and Planetary Observers (ALPO), Founder & Director Emeritus. The then six-page mimeographed newsletter has become a sophisticated, small type, more than 90 page quarterly journal - "The Strolling Astronomer".

After rekindling their acquaintance in London, England at the coronation of Queen Elizabeth II in June 1953 he proposed to Beryl. In November 1953 he married Beryl "Peggy" Godfrey in Mandeville, Jamaica. Walter and his bride moved back to Las Cruces. In 1957 they were blessed with their one and only daughter. He taught astronomy for a short time at South Texas Pan American College in Edinburgh, TX. Walter and his family moved back to Las Cruces in the early 1960's where he was employed as a mathematician / computer programmer with Physical Science Laboratory at NMSU until he retired from there in 1983.

He was a devoted husband and father, loving grandfather and great-grandfather, he was brilliant, a scholar and always a gentleman and at all times humble. Walter loved his Lord and Savior.

Visitation will be on Monday, April 13 from 6:00 PM - 8:00 PM La-Paz Grahams Funeral Home, 555 W. Amador.
Funeral services will be at 10:00 AM on Tuesday, April 14 at First Presbyterian Church, 200 E. Boutz, officiated by Reverend John Himes. Betty Wolle will sing 'Nearer My God to Thee'
Pallbearers are David Alba, Matthew Alba, Jordan Wolle, Ron Kramer, Billy Gammill, Berton Stevens, Greg Sherman, Paul Bridgers; Honorary Pallbearer Ralph Miller and Mel Parish
Graveside service will be at Hillcrest Memorial Garden Cemetery, 5140 W. Picacho Avenue
In lieu of flowers please make donations to Mesilla Valley Hospice (La Posada), 299 Montana Avenue, Las Cruces, NM 88005 or your local Hospice and / or the ALPO - Attention Matthew Will, PO Box 13456, Springfield, IL 62791