

NOVA



Official Newsletter of the Salt Lake Astronomical Society

Volume 47 Number 1 January - February 2017

CALL FOR SUBMISSIONS

As Editor of the NOVA, I am inviting all members to submit contributions of your own photographs and written pieces to be included in our bimonthly NOVA editions. We want to hear from all the members, something of interest to our fellow members. Thank you all! All the best, Shoshana Ebertz, Editor, (ebertz@comcast.net) and Jamie Bradley, Assistant Editor, jbradley@jamiebradley.com

This issue we have a featured article from member David Rankin, below. Each newsletter we will feature an article from our members!

Please Welcome The Newest SLAS Members!

Acumen, Daryl Clawson, Susan Johanson, William Hansen, Craig Nielsen, Lewis Prichard, Kathryn
Wyman, Aaron Hilton, Nick



For Educational Purposes Only: Image credit: X-ray: NASA/CXC/PSUL. Townsley et al; Optical: UKIRT; Infrared: NASA/JPL-CalTech

Although there are no seasons in space, this cosmic vista invokes thoughts of a frosty winter landscape. It is, in fact, a region called NGC 6357 where radiation from hot, young stars is energizing the cooler gas in the cloud that surrounds them.

This composite image contains X-ray data from NASA's Chandra X-ray Observatory and the ROSAT telescope (purple), infrared data from NASA's Spitzer Space Telescope (orange), and optical data from the SuperCosmos Sky Survey (blue) made by the United Kingdom Infrared Telescope.

Located in our galaxy about 5,500 light years from Earth, NGC 6357 is actually a "cluster of clusters," containing at least three clusters of young stars, including many hot, massive, luminous stars. The X-rays from Chandra and ROSAT reveal hundreds of point sources, which are the young stars in NGC 6357, as well as diffuse X-ray emission from hot gas. There are bubbles, or cavities, that have been created by radiation and material blowing away from the surfaces of massive stars, plus supernova explosions.

Astronomers call NGC 6357 and other objects like it "HII" (pronounced "H-two") regions. An HII region is created when the radiation from hot, young stars strips away the electrons from neutral hydrogen atoms in the surrounding gas to form clouds of ionized hydrogen, which is denoted scientifically as "HII".

Researchers use Chandra to study NGC 6357 and similar objects because young stars are bright in X-rays. Also, X-rays can penetrate the shrouds of gas and dust surrounding these infant stars, allowing astronomers to see details of star birth that would be otherwise missed.

A recent paper on Chandra observations of NGC 6357 by Leisa Townsley of Pennsylvania State University appeared in The Astrophysical Journal Supplement Series and is available [online](#). NASA's Marshall Space Flight Center in Huntsville, Alabama, manages the Chandra program for NASA's Science Mission Directorate in Washington. The Smithsonian Astrophysical Observatory in Cambridge, Massachusetts, controls Chandra's science and flight operations.

Image credit: X-ray: NASA/CXC/PSU/L. Townsley et al; Optical: UKIRT; Infrared: NASA/JPL-Caltech

[Read More from NASA's Chandra X-ray Observatory.](#)

For more Chandra images, multimedia and related materials, visit:

<http://www.nasa.gov/chandra>

Last Updated: Dec. 19, 2016

Editor: Lee Mohon

Accessed: December 19, 2016 at 4:26 pm MST at

https://www.nasa.gov/mission_pages/chandra/cosmic-winter-wonderland.html

NOVA Featured Member

Room for the Amateur

By David Rankin, Member SLAS

What a cool time to be a hobbyist. Affordable tech has put a lot of things within the reach of amateurs that has been typically reserved for professionals. In a few of the hobbies that I have pursued, I have discovered that there is an important place for amateurs. I honestly didn't think astronomy would end up being one of those hobbies.

I started doing astrophotography in 2007 and over the years refined my skills and knowledge to achieve better pictures. From time to time my curiosity would peak and I'd look into what place amateurs had when it came to making discoveries in this hobby. I was told over and over that most of the discoveries were being made by the professionals and there was not much room left for amateurs. However, I enjoy finding things so I continued on.

A little over a year ago I was looking at some images of Comet Lovejoy I had photographed. I remember thinking, "What a strange name for a comet!" It had never occurred to me how that name ended up on that comet. A quick internet search led me to Terry Lovejoy who, as an amateur astronomer, cleared 5 comets with an 8" SCT from the Australia.



Comet Lovejoy

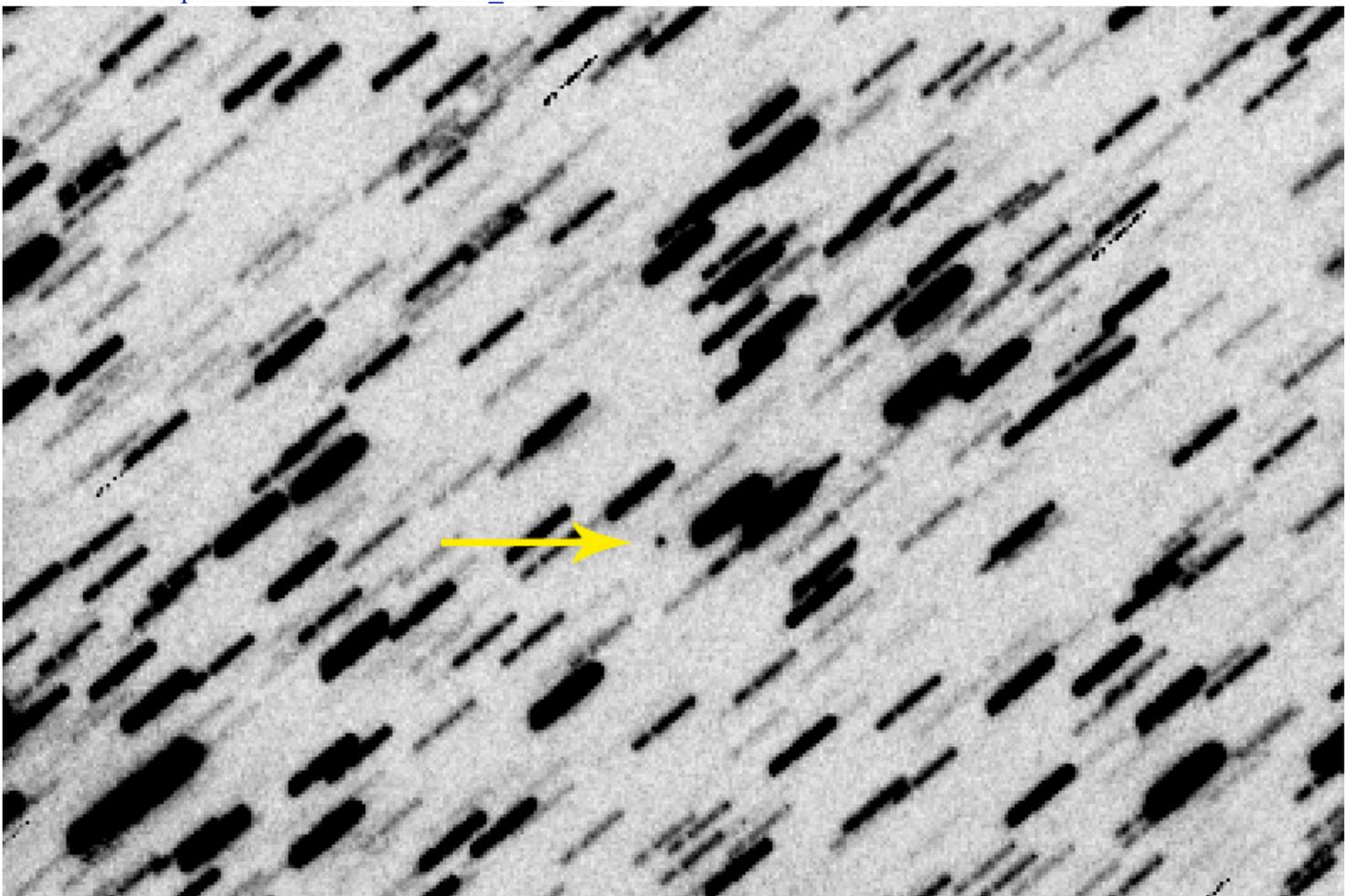
That was a bit mind boggling so I figured that I would start looking for some objects moving around in my images. I looked into the blink feature of IRIS (free astronomy processing software), and after a few minutes of searching through my images, I spotted the first asteroid zooming by! Having no idea where to start, I decided to do some

reading and learn how to identify these rocks. Not long after that, I hit my first unnumbered asteroid: 2015 VP152. This was very exciting due to the fact that it had been listed for a short time as a new asteroid. This asteroid, 2015 VP152, was later identified as a previously known, unnumbered main belt asteroid 2011 BJ137.

2015 VP152: http://rankinstudio.com/2015_VP152_2011_BJ137

After this surprising experience, I decided to stop taking 'pretty pictures' and get more serious about finding new objects. I'd be happy if I found one new one before I kicked off from this life! Keeping in mind what I had been told, that most of them were documented, I still searched. I helped recover a few "lost" asteroids including a 6km wide Jupiter Trojan that hadn't been seen since 2013. My two nights of observations on it were linked to some earlier observations that year, and then to the previously found object 2013 AV75. Not too long after AV75 I found my first asteroid discovery, 2016 NP21.

2016 NP21: http://rankinstudio.com/2016_NP21

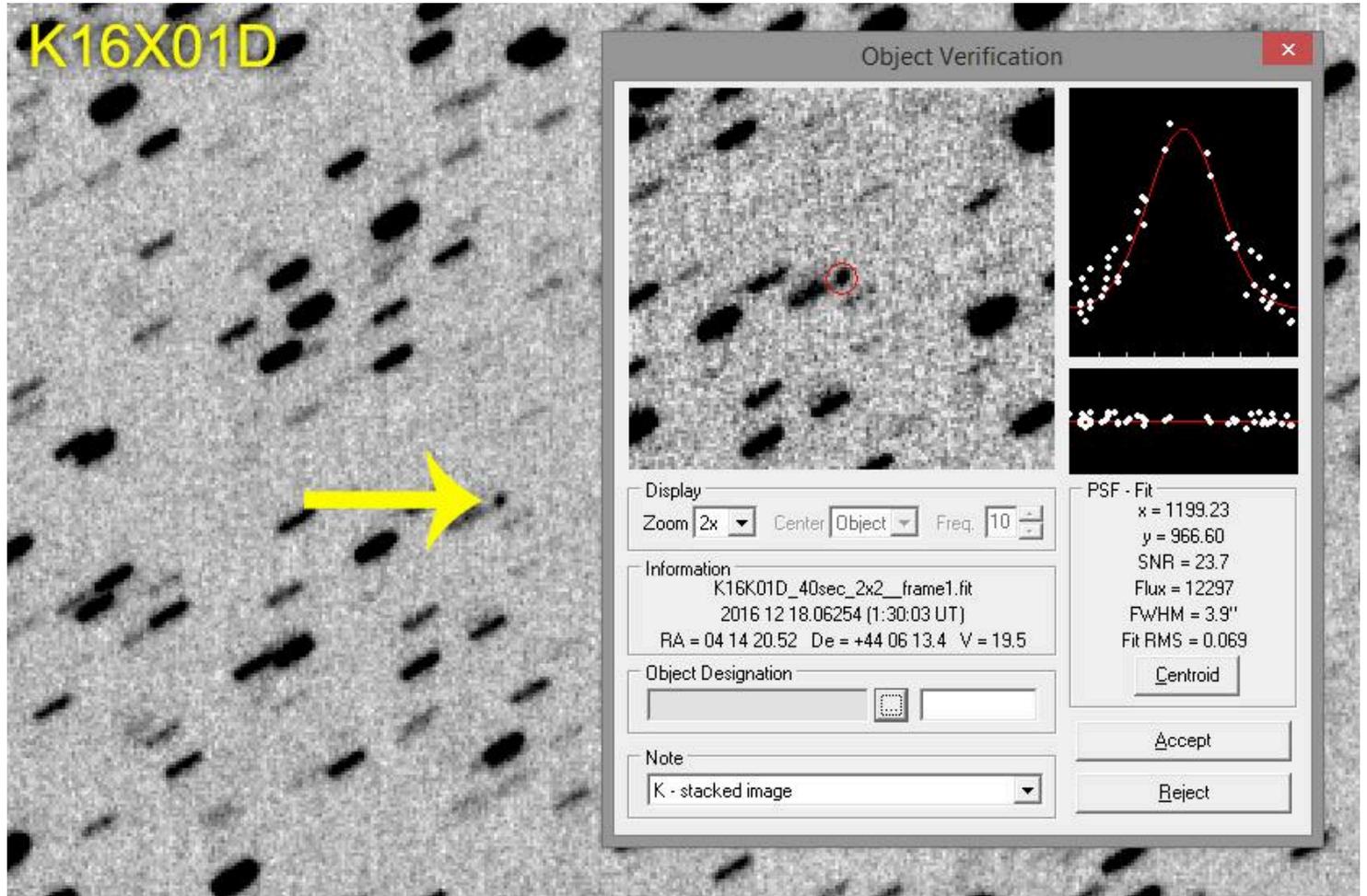


Over the last year I've sent over 1000 observations to the Minor Planet Center and received designations for 21 objects that may be new asteroids. Some previously single-night observations were linked up and they now span multiple oppositions. I look forward to naming one soon, after my wife, for putting up with me.

Recently, on December 3rd, I came across an object with initial observations showing a Near Earth Object (NEO) score of over 40. Objects with an NEO score over 65 end up on the Minor Planet Center's NEO conformation page where observatories all around the world contribute to finding these objects and get accurate measurements on them to rule out an impact on Earth. This was very exciting as NEOs are very difficult to find. I was able to cover

it for two nights and had a friend from France do follow up observations on a 3rd night. This object has since received the designation 2016 XD1 and is an Amor type near earth asteroid that is over 500 meters across.

2016 XD1: <http://rankinstudio.com/K16X01D>



I am really amazed that I've been able to contribute to the science of modern astronomy and even put a tad bit of coverage into helping find potentially hazardous objects. I really never imagined there were any left for amateurs to help in a meaningful way, given moderately sized telescopes from various cities are doing extremely important follow-up on already known near earth asteroids. There is plenty of room left for us amateurs.

If you'd like to get into astrometry I have tutorials on YouTube and am more than willing to share what I've learned.

Cheers,

David Rankin

www.rankinstudio.com

Below you will find meeting minutes and Advisory Committee meeting in Chronological Order:

MINUTES OF THE SALT LAKE ASTRONOMICAL SOCIETY BOARD MEETING
November 9, 2016

Board members in attendance: Joan Carman, Aleta Cox, and Rodger Fry

General members in attendance: Enid Norton, Jamie Bradley, Patrick Wiggins, Nate Goodman, Dave Bernson, Mike Wilson, Bianca Accentales, Siegfried Jachmann, and Charlie Green.

Meeting called to order: 7:00 PM

Financial Report

The financial report was reviewed as listed on the web site as November 01, 2016 Financial Statement

Board Member Reports:

Aleta Cox said that the special school star parties are finished for the year. A teacher at Clayton Middle school called and said that they have offered an astronomy class and was wondering if she could have the class visit the observatory. Aleta informed her that it is closed for the winter. It was mentioned that we offer solar viewing at the Utah Natural History Museum on clear weather Saturdays starting in December through March from noon to 3pm. Joan mentioned that on Halloween, a staff member from the Utah Natural History Museum stopped by where she had her telescope set up and acknowledged how much they appreciate our hosting solar parties at the museum.

Clements Telescope Update

Rodger Fry informed the board that the prospective donor still very interested and that Bob Moore was going to meet with him in the next two days to get a commitment. He also informed the board that the \$25K grant from Tooele County must be spent in 2016 so time is very important.

Sound System for SPOC

The need for installing a better sound system at SPOC was discussed and if we wanted to have one ready to install with the construction of the new building to house the Clements telescope. Rodger Fry indicated that if we got a new sound system that the speakers should be WiFi and therefore will not need to have wires. We deferred the decision until next spring.

SPOC Update

Rodger Fry indicated that the observatory is now closed for the winter and all combinations have been changed. All equipment sensitive to cold weather have been removed and stored at Patrick Wiggins or Rodger Fry's house. Rodger Fry indicated that we have a SPOC advisory committee meeting scheduled for this Saturday at 1:00PM at Denny's located at 250 West 500 South in Salt Lake City, Utah.

All current members of the advisory committee have indicated to Rodger Fry that they would like to continue to be on the committee. As observatory director, Rodger Fry requested that we appoint Ken Porras for an additional term in that his appointment lapses this year and that we add Jim Keane as a member of the committee. Aleta Cox made a motion that the board approve the reappointment of Ken Porras to the committee and add Jim Keane as a member. Joan Carman seconded the motion. The vote on the motion by the board members was unanimous.

Ryan Simpkins has indicated that he needs to find someone with experience in graphics design and layout but has had no one respond so far.

Clements Telescope Update

Rodger Fry presented the plans for purchasing a pre-fabricated steel building from Western Steel Buildings and hire a contractor to lay the concrete needed for the floor of the building and walkways and telescope viewing pads. He also presented the budget for construction and needed equipment to make the telescope usable at the observatory. Total cost to do this was budgeted at \$50K.

Rodger indicated that we have checks in hand for \$15K and a solid promise for a check for \$5K this Friday making our raised funds at \$20K. Rodger asked the board about using \$5K from the Adobe fund to Make the total \$25K which is the amount required for the matching funds from Tooele County. Joan Carman presented a motion to present to the general membership at the meeting on November 16th to transfer \$5K from the Adobe fund to the new telescope building fund making the total provided By SLAS at \$25K. Aleta Cox seconded the motion. The vote was unanimous.

Rodger Fry indicated that we must provide copies of the signed lease agreement between SLAS and Stansbury Park Special Services District and the contract between SLAS and Mike Clements to Tooele County to qualify for the matching funds. Joan Carman indicated that she would email these documents to Rodger Fry.

Old Business

Dave Bernson indicated that volunteers are needed for the star parties to be held at the ASTROCON in Casper, Wyoming in August 2017.

Enid Norton prepared a list of available copies of “The Stars” and “Night Watch” located at SPOC and in Salt Lake as follows:

	Salt Lake County	SPOC
The Stars	30	73
Night Watch	20	40

New Business

No new business

Pay Bills

A check in the amount of \$225.80 was written to Mike Wilson in reimbursement for door prizes to be given out at the Solstice Party.

Meeting Adjourned: 7:55pm

General Meeting Minutes

Date: November, 16 2016 7:30 PM

Location: Room 203 Calvin Rampton Technology Building at Salt Lake Community College

Attendance: 72 members and guests

SLAS President, Joan Carman welcomed all in attendance and introduced our 2016 SLAS board (Joan Carman, Aleta Cox and Rodger Fry were present) (president elect Dave Bernson, vice-president elect, Joe Bauman and board member elect Nate Goodman were also present).

Joan turned the time over to Sir Isaac Newton who via modern technology and time travel was available for video-conference. He talked about his life and works and contribution. He entertained the attendees by asking very interesting questions about his future world and answered many interesting questions about our present future world (most enjoyable evening).

1. Business meeting started at 8:45 as follows:

- a. Rodger Fry presented the plans for the Clements building at SPOC. He announced that we have raised \$20,000 dollars and if SLAS contributed the remaining \$5,000 from the Adobe grant we would have the money needed to qualify for the \$25,000 matching fund grant. Joan said that the board recommended that the members vote to transfer \$5,000 from the Adobe Fund to the Clements Building Fund. Dave Bernson presented the motion that this action be taken, and Joe Bauman seconded the motion. A question was asked by Marlene Eggers of what the Adobe Fund was. Joan Carman explained that it was an incentive offered by Adobe to get their employees to volunteer time and service to the non-profit organization of their choice. Two board members of SLAS, Ryan Simpkins and Don Knowlton are both employees of Adobe and as a result of their volunteer hours, Adobe contributed funds to SLAS of which \$5,619.19 remain in the account. A vote was taken on the motion to transfer \$5,000 from the Adobe Account to the Clements Building Fund Account and passed unanimously.
- b. Joan Carman adjourned for advanced training at 9:10 PM



Hubble Site: Public Domain

Two glowing nebulae in the Small Magellanic Cloud, a dwarf galaxy that is a satellite of our Milky Way galaxy, have been observed by NASA's Hubble Space Telescope. Young, brilliant stars at the center of each nebula are heating hydrogen, causing these clouds of gas and dust to glow red. The image is part of a study called Small Magellanic Cloud Investigation of Dust and Gas Evolution (SMIDGE). Astronomers are using Hubble to probe the Milky Way satellite to understand how dust is different in galaxies that have a far lower supply of heavy elements needed to create dust.

SPOC ADVISORY COMMITTEE MEETING

November 12, 2016

Attendees: Bill Kennedy, Rodger Fry, Alpine Stringham, Charlie Green, Jim Keane, Joan Carman, Larry Holmes, Ken Porras, Amelia Goodrich, Patrick Wiggins, Bob Moore, Nate Goodman and Bruce Grim

Meeting Called to Order at 1:05PM

- I. Committee Member Changes
 - a. Ken Porras term was extended through 2017
 - b. Jim Keane was added as a new member of the advisory committee as approved by the SLAS board
- II. Recap of 2016 Season
 - a. 16 scheduled star parties with three clouded or rained out in the spring
 - b. Generally good volunteer participation with telescope operation

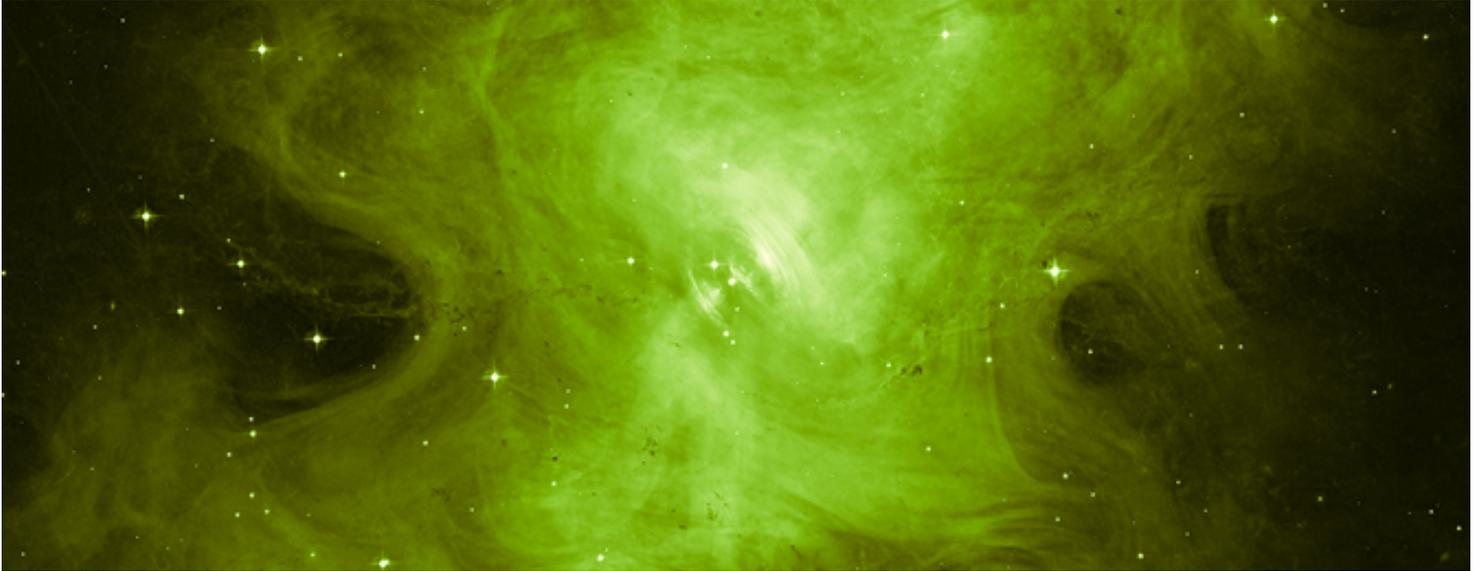
- b.i. Refractor hard to staff a few star parties
 - b.ii. C-14 not in use on some of the star parties
 - c. Telescope performance
 - c.i. Bogden Good performance no needed changes
 - c.ii. Ealing Good performance no needed changes Jim Keane looking into options to keep belts on Sky Walker from slipping
 - c.iii. Grim Need to replace cord on the hand paddle. Rodger Fry will do this
 - c.iv. C-14 Good performance as is
 - d. Training Performance
 - d.i. All training coordinators indicated that they had limited request by trainees. Recommend for next year to get more publicity to members to take advantage of this opportunity
- III. Needs for 2017 season (Purchases)
 - a. Refractor Brass stand-offs for the finder scope to move it out of the line of the main telescope. (Patrick Wiggins and Bill Kennedy will be working on this)
 - b. Ealing Purchase 2X1 ¼ adaptor and high-quality set of 1 ¼ eyepieces 10-25mm. Update check list
 - c. Grim Purchase 2X1 ¼ adaptor Update check list
- IV. Clements Telescope Plans
 - a. Overview of building design and construction
 - a.i. Building Pre-Fab Steel Building
 - a.ii. Cement Work
 - a.iii. Equipment to move telescope
 - a.iv. Auxiliary Equipment
 - b. Projected budget requirements

b.i.	Building	\$28K	
b.ii.	Concrete Work		\$13K
b.iii.	Auxiliary Equipment	\$7K	
b.iv.	Total	\$48K	
 - c. Status of Fund Raising Efforts

c.i.	Donated Cash	\$20K	
c.ii.	Redirection of SLAS Funds (Adobe Grant)	\$5K	
c.iii.	Tooele Matching Fund Grant	\$25K	
c.iv.	Total Funds	\$50K	
 - d. Construction Schedule

d.i.	Concrete Slab Work Schedule		Mid-March
d.ii.	Building Delivery and assembly		Late-March
d.iii.	First SPOC light schedule		End-April

Meeting Adjourned at 2:57PM



Hubble site: Public Domain

The "heart" is the crushed core of a long-dead star, called a neutron star, which exploded as a supernova and is now still beating with rhythmic precision. Evidence of its heartbeat are rapid-fire, lighthouse-like pulses of energy from the fast-spinning neutron star. The stellar relic is embedded in the center of the Crab Nebula, the expanding, tattered remains of the doomed star.

The nebula was first identified in 1731 and named in 1844. In 1928, Edwin Hubble linked the nebula to a supernova first witnessed in the spring of 1054 A.D. Now, the eerie glow of the burned-out star reveals itself in this new Hubble Space Telescope snapshot of the heart of the Crab Nebula. The green hue, representative of the broad color range of the camera filter used, gives the nebula a Halloween theme.

MINUTES OF THE SALT LAKE ASTRONOMICAL SOCIETY TRANSITION BOARD MEETING December 14, 2016

2016 Board members in attendance: Joan Carman, Aleta Cox, and Rodger Fry
2017 Board members in attendance: Dave Bernson, Joe Bauman, Aleta Cox, Nate Goodman and Rodger Fry
General members in attendance: Charlie Green, Patrick Wiggins and Cory Bauman

Meeting called to order: 7:00 PM

Financial Report

The financial report was reviewed as listed on the web site as December 01, 2016 Financial Statement

Board Member Reports:

Aleta Cox said that president elect Dave Bernson has asked that she continue as special star party coordinator in 2017. Aleta mentioned that this year we didn't have enough star party schedules to give each Harmon's grocery stores 500 each.

Ryan Simpkins and Don Knowlton were not present to make board member reports.

Joan Carman presented to the 2017 board the important contacts to coordinate with for 2017 activities as follows:

Tara Haynie	Harmons
Reagan Scharman	Wheeler Farm
Heather Baker	Uptown Embroidery
Seth Jarvis	Clark Planetarium
Amy Oliver	Clark Planetarium
Paige Berg	U of U College of Science
Paul Michael Maxfield	Natural History Museum
Jonathan Barnes	Salt Lake Community College
Bradley R. Waller	Saint Louis Astronomical Society

Joan also indicated that she mentioned to Dave Bernson that she would be glad to coordinate the loaner telescope program in 2017 and Dave Bernson accepted her offer. She said that as an Eagle Scout project, member Athan Ballamis raised enough money to purchase and modify two telescopes for this cause. We have additional money in the Adobe fund that could be used to purchase two more telescopes and the Salt Lake County Library is trying to budget money in 2017 to purchase some more telescopes but that amount won't be known until at least next month.

Joan also entertained a discussion to determine how many star party schedules should be printed for 2017 and it was determined that the 5,000 ordered in 2016 was insufficient and that in 2017 9,000 should be ordered.

Clements Building Update

Rodger Fry informed the board that the Stansbury Park Special Services Agency is meeting this evening and that a discussion with Glenn Oscarson indicated that they were trying to put in their 2017 budget \$7,000 to help fund the shortfall of the Clements Building to construct it with concrete walls. However, he indicated that SLAS must do what they can to help raise funds internally to help in this shortfall (good faith effort). Rodger Fry asked for backing of the 2016 and 2017 board to send out a SLAS blast to all members soliciting donations for the building and that for a \$100 donation the donor's name would be included on a plaque in the building and for a \$500 donation an individual plaque with the donor's name would be put in the building. Aleta put forth this in a motion and Joan Carman seconded the motion. The vote was unanimous by both boards.

2016 SLAS Dues Structure

It was determined that the 2016 dues structure was sufficient to meet the needs this year and should be continued in 2017 which is as follows:

General Fund	\$6.00 *
Entertainment	\$3.00
Astronomical League	\$5.00
Insurance	\$3.00
SPOC	\$3.00
Total	\$20.00

☐ The Dues payment made via PayPal will include \$5.26 for General Fund with \$0.74 being allocated to the PayPal fee.

2017 Star Party Schedule

New moon weekend	Private Star Parties both Friday and Saturday		
1 st Quarter Moon Weekend	Friday Harmons	Saturday	SPOC
Full Moon Weekend	Saturday 9:00AM-Noon	Winchester Park Solar Parties	
3 rd Quarter Moon	Friday Wheeler Farm	Saturday	SPOC

Dave Bernson indicated that the exact dates and at which Harmon's the star parties will be held will be determined by him in the near future and will be ready for review at the next board meeting.

2017 Meeting Schedule

A discussion was held as to the time and location for the 2017 meetings and the outcome was as follows:

Board Meeting	2 nd Wednesday of each month at Denny's 250 West 500 South at 7:00 PM
General Meeting	3 rd Wednesday of each month at the Salt Lake Community College at 7:30PM

Old Business

Joe Bauman expressed concern about the ZAP funds that we have on the books and the need to use these funds. Rodger Fry indicated that we should spend these funds but must insure that they are spent for the benefit of Salt Lake County held events. Joe indicated that he would be willing to create an application for an additional grant in the next year.

New Business

A signature card for our Bank of Utah account was signed by all 2017 board members and will be in the bank's hands this week and will be in effect on January 1, 2017

An Adobe grant check was received in the mail and was opened revealing that this grant was in the amount of \$220 which will bring the January 1, 2017 Adobe grant amount to \$839.19 which is enough to fund two loaner telescopes.

Pay Bills

A check in the amount of \$32.95 to Sky & Telescope was signed for a subscription for Raymond Linnear.

Meeting Adjourned: 8:10pm

SLAS Member Information

The SLAS Member Information file is available at <http://slas.us/slasbooks/NEWMEM.PDF>.

Loaner Telescopes For SLAS Members

SLAS has several scopes available for loan to current SLAS members. Check the SLAS website under "Membership Benefits" for details.

2017 SLAS Board of Directors

President	Dave Bernson	801.263.9264	bernsondave@gmail.com
Meetings			
Vice President	Joe Bauman....	.801.583.7935.	josephmbauman@yahoo.com
Publicity, PR and Web Content			
Secretary-Treasurer	Rodger Fry	801.288.0851	rcfry@comcast.net
Membership Dues & Renewals			
Board Member at Large	Nate Goodman	801.277.0193	ngoodman6053@gmail.com
SPOC Star Party Coordinator:			
Board Member at Large	Aleta Cox	801.966.2636	alc@fredccox.com
School & Special Star Parties			

Appointed Positions

Astronomical League Contact	Ryan Simpkins	801.602.8661	simpkins.ryan@gmail.com
Equipment Manager	Anderson, Mike	801.910.0997	fisherman285mike@gmail.com
Historian	Patrick Wiggins	435.882.1209	4099wiggins@gmail.com
NASA Night Sky Ambassador	Ann House	801.671.8447	ann@annhouse.org
Newsletter Editor	Shoshana Ebertz	801.884.7522	ebertz@comcast.net
Newsletter Asst. Editor	Jamie Bradley	801.916.9587	jbradley@jamiebradley.com
Observatory Director	Rodger Fry	801.288.0851	rcfry@comcast.net
Private Star Party Coordinator	Don Colton	801.571.9757	dcoltonsprint@earthlink.net
Solar Scope Manager	Ken Porras	801.210.8427	kennethprrs@gmail.com
Webmaster	Ken Warner		webmaster@slas.us
ZAP Grant Writer	Ann House	801.671.8447	ann@annhouse.org

Current SPOC Advisory Committee

Chair through DEC 2018	Rodger Fry	801.288.0851	rcfry@comcast.net
Member through JAN 2018	Rodger Fry	801.288.0851	rcfry@comcast.net
Member through JAN 2018	Stan Eriksen	801.446.1479	staneriksen@icloud.com
Member through JAN 2017	Larry Holmes	801.467.7855	larry@kijoda.com
Member through JAN 2018	Bill Kennedy	801.964.6199	truss_tube@hotmail.com
Member through JAN 2018	Nate Goodman	801.277.0193	ngoodman@lgcy.com
Member through JAN 2019	Ken Porras	801.210.8427	kennethprrs@gmail.com
Member through JAN 2017	Patrick Wiggins	435.882.1209	4099wiggins@gmail.com
Member while SLAS President	Joan Carman	801.943.4192	jcarman6@q.com
Member as Obser. Dir. Emeritus	Bruce Grim	435.882.5237	bmargrim@msn.com
Member while Harmons Rep.	Tara Haynie		

Current SPOC Telescope Instructors

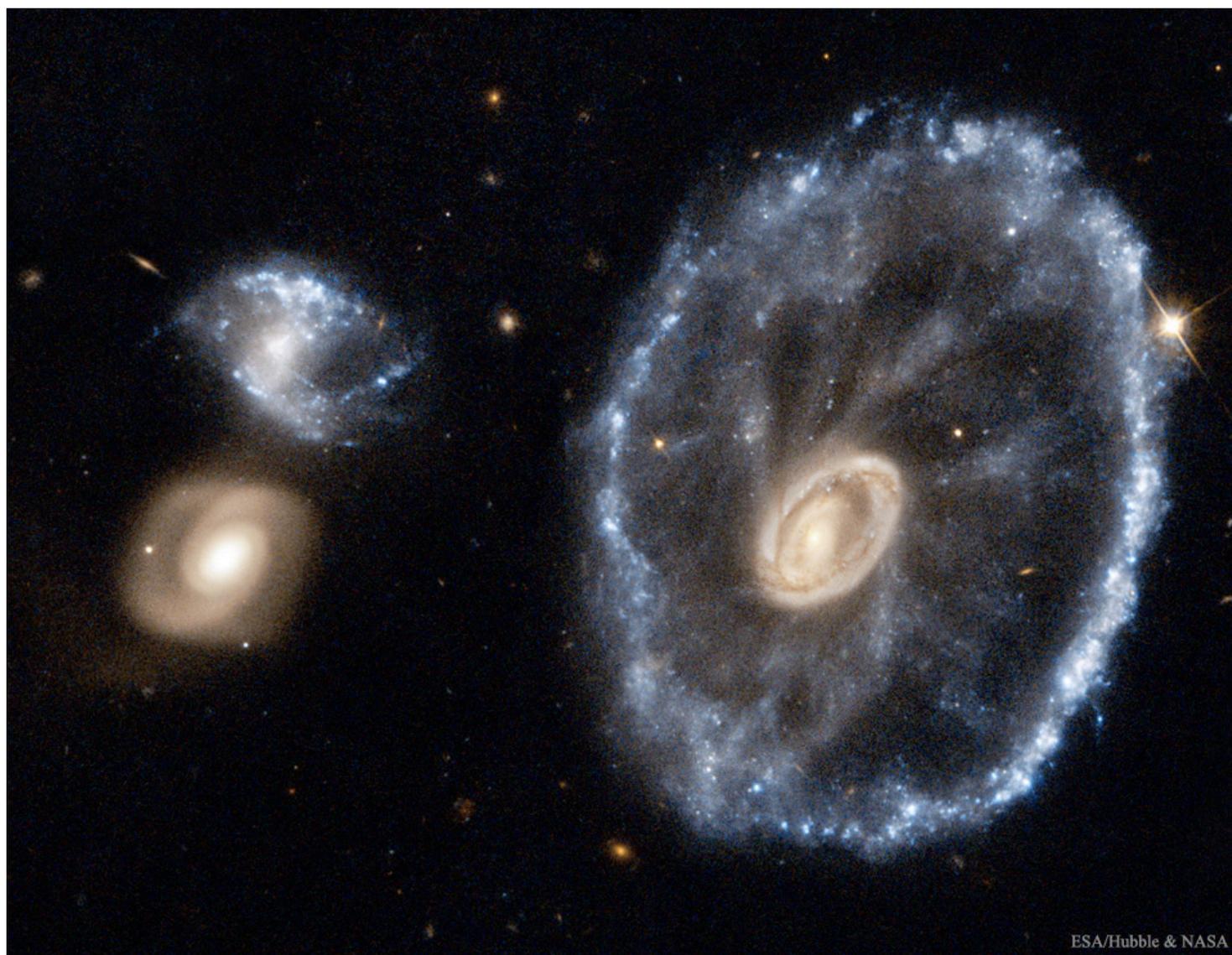
Mike Andersen	Ealing	801.910.0997	fisherman285mike@gmail.com
Dave Bernson	Refractor, Ealing, Grim	801.263.9264	dustynebula@gmail.com
Rodger Fry	Refractor, Ealing, Grim	801.288.0851	rcfry@comcast.net
Bill Kennedy	Refractor, Ealing	801.964.6199	truss_tube@hotmail.com
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Dale Wilson	Grim	801.518.7859	dalel2112@yahoo.com
Mike Wilson	Ealing	801.508.1050	astro_outwest@yahoo.com

NOVA is a publication of the [Salt Lake Astronomical Society](http://www.slas.us), a non-profit organization. Nova contains minutes of meetings, Board member names & contact info, activities, reports and special club events. The editor of NOVA is appointed by the Board. Members are encouraged to

contribute content. Current NOVA editor is Shoshana Ebertz 801.884.7522, Assistant Editor is Jamie Bradley 801.916.9587.

[Events Calendar](#)

View a list of all SLAS events online on the [Events Calendar](#)



ESA/Hubble & NASA

Image Credit: ESA/Hubble/NASA, Public Domain

To some, it looks like the wheel of a cart. In fact, because of its outward oval appearance, the presence of a central [galaxy](#), and their connection with what looks like the spokes of a wheel, the galaxy on the right is known as the [Cartwheel Galaxy](#). To others, however, it looks like a [complicated interaction between galaxies](#) awaiting explanation. Along with the two galaxies on the left, [the Cartwheel](#) is part of a [group of galaxies](#) about 400 million light years away in the [constellation Sculptor](#). The

large galaxy's rim spans over 100,000 [light years](#) and is composed of star forming regions filled with extremely bright and massive stars. [Pictured](#), the Cartwheel's ring-like shape is the result of gravitational disruption caused by a smaller galaxy passing through a large one, compressing the interstellar gas and dust and causing a [star formation](#) wave to move out like a [ripple](#) across the surface of a pond.

A message from the Editor:

Happy NEW YEAR!

NOVA is seeking original articles and photographs from the membership for the next, and forthcoming newsletters. If you have something you would like to contribute, would you please email me at: ebertz@comcast.net?

The article doesn't have to be academic in nature, it could be something you experienced, learned, or a project you are working on.

All contributions will be gratefully welcomed!

All the best,
Shoshana Ebertz, Editor
Jamie Bradley, Assistant Editor