

# SLAS PAST:

## A HISTORY OF THE SALT LAKE ASTRONOMICAL SOCIETY

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## **Original Author's Note**

I joined the club fairly recently and was delighted to meet so many talented and knowledgeable people who go out of their way to share astronomy with others. I was also impressed with how many dedicated so much of their time to star parties that reach out to the general public.

All this piqued my interest in SLAS: how it got to where it is now, how the group first formed, etc. so I innocently mentioned to Patrick Wiggins that I couldn't find a history of SLAS on their web site. He gleefully replied, "Ah ha, so you noticed that. Why don't you write one?"

Thanks to:..Patrick who put me on this journey and provided so many carefully preserved documents; all those members, present and past, who let me interview them, or answered my questions when I cornered them mid bite of pancake at "Advanced Training" or during a lull in a star party; and for various tidbits I gleaned from the Utah Astronomy e-mail group's discussions. Writing this history is a bit like viewing the play "Rashomon." The versions of history depend upon who tells about an event, so I've tried to balance the various tales of how things happened.

--Ann Blanchard (Ann retired & Patrick took over as historian on 13 JAN 2016)

## **Current SLAS Information**

The Salt Lake Astronomical Society (SLAS) was formed on 29 July 1971 and is a nonprofit 501 (c) (3) corporation with over 215 members who share an enthusiasm for astronomy.

SLAS encourages public education and interest in astronomy and coordinates activities with professional research. It has a constitution and is governed by a yearly-elected Board of Directors consisting of a President, Vice President, Secretary/Treasurer and two Board Members at large. Several other positions are appointed. General meetings are held monthly, and are open to the public. They are usually held on the third Tuesday of each month except December in the University of Utah's Engineering/Mining Building Room 105. Each meeting features a speaker or other activity.

The annual Solstice Festival replaces the meeting in December.

The Board usually meets at 7:00 p.m. on the 2nd Wednesday of each month in the Denny's restaurant located at 250 W 500 S in Salt Lake City. All are welcome.

SLAS has a website packed with helpful information ([www.slas.us](http://www.slas.us)) on public, private and special star parties, observing tips, a calendar of events, a picture gallery, the newsletter, astronomy links and a "members only" section accessible only by current members.

SLAS members can check out several portable telescopes and other club equipment and can be trained to operate the several permanent scopes at the club's Stansbury Park Observatory Complex (SPOC).

Regular SLAS activities include public star and Sun parties, private star parties, a solstice party and so called "Advanced Training Sessions" (social time and dinner) which follow all of the general meetings and most other club events.

Nova is the club's bimonthly newsletter and contains meeting minutes and other information for club members.

SLAS is a member society of the Astronomical League.

## Ongoing/Recurring Themes

How to meet the needs and interests of members, some who have vast amounts of experience and others who are novices, in both events and meeting topics?..What kind of balance should there be at meetings between professional speakers and presentations by club members? Should there be more "show and tell" meetings, where members display equipment, especially home-built equipment, (for example, Loren Bjerke's 6-inch "rocket launcher" Newtonian that once won an award at a Riverside Telescope Makers' Conference)?

What is the main focus of an astronomy club? Is it a social club, a club for promoting the science of astronomy, or a club that offers numerous opportunities for public outreach and education?

How much time can club members give to public outreach and still do enough "private" club activities that are just for having fun?

One view: The club's primary purpose is to serve its members, not the public at large. The primary purpose of SLAS is to foster interaction and enjoyment of the hobby with like-minded individuals. Public outreach is a lofty goal, but not the main point.

Another comment: Educating the public does not exclusively mean just showing them wow factor objects.

How to keep members? The Club is pretty good at attracting new members, but many quit after the first year. A number of those leaving may leave just because they find astronomy isn't what they wanted to do, but there may be other reasons.

A group of devoted members have stayed active for years, and many of them provide the main source for the officers who run the club. How do you balance getting new leadership with repeatedly using those who are willing to keep doing all the work it takes to keep the club going?

Also, a number of earlier, long-time members gradually have drifted away as the club became larger (and is less a group of friends than an organization). Is there a way to make the club attractive to them again?

Where to hold star parties?..How to find a dark sky site conveniently located for as many people as possible?

And, where are all the women?

## Pre-club History

Lowell Lyon tells that in the early 1970's, before the club was called SLAS, it was known as the STAR Association. Others said it was called the Utah Star Club. Meetings were in a classroom in the basement of the now closed Hansen Planetarium.

Chuck Hards also says that a planetarium-centered club (young men's and boy's club, sometimes called the Liberty Park Club) existed before 1971. There may also have been a Salt-Lake based astronomy club that predated the one at the planetarium by at least 15 years.

Charles Galway said that SLAS was preceded by the "Alpha Centauri Astronomical Club", which also may have been called "Ad Astra" at one time. He remembers Ed Jahne, Will Galway, Bill Waters, Dan Acree, Heidi Fain and Gwen Frank as being part of that club.

Charles was in Jr. High at this time. They had star parties at Little Mountain, a small library and a budget. Charles believes the Alpha Centauri Club folded sometime in 1971.

Bob Brundige (who joined the club in 1972) said that in 1968 the Hansen Planetarium asked if there were folks interested in forming an Astronomical Society. He said the first meeting drew 80 people, the second just 8.

Mark Littmann, first director of the Hansen Planetarium, used to hold star parties at the State Capital. Patrick Wiggins and Chuck Hards remember an observing site south of Grantsville used in the 1970s, before SPOC, that they used to call "Little Stonehenge."

Lowell Lyon said he and Pat Wiggins (Patrick went by "Pat" back them) were officially "co-chairs" of the public star parties at Little Mountain. For many years, you could always find Bob Brundige and his 12.5" Cave Newtonian reflector up at Little Mountain every Friday night showing the wonders of the universe to whoever came by. Sometimes Dr. Littmann, would speak to the audience before it became fully dark.

### **Club History Timeline**

According to Jerry Montgomery, Dr. Littmann asked John Mosley, staff astronomer at the planetarium, to form an Astronomical Society.

29 July 1971: First SLAS meeting: John Mosley describes this as a "rap" session about forming an astronomical society. They debated membership requirements, a constitution, bylaws and general policies.

In August, the Planetarium facilities were made available to the new organization.

One early idea of the club was to teach classes. Another was to have a display of the sky for the coming month using the planetarium's star projector at the conclusion of each monthly meeting.

In a newsletter dated 01 December 1971 David Downing proudly said that in two months of operation the Society had done the following: Actively participated in three star parties, completed four rap sessions, arranged for three well-qualified speakers for meetings, showed films at meetings and furnished five local Utah papers with a monthly astronomical column. There have been various study groups on topics such as astrophotography and using telescope accessories.

Along with club member speakers and guest speakers, the early meetings often showed films at meetings (such as: Violent Universe, NASA films on Apollo 15, Mariners 6 and 7, Skylab).

The club had letterhead and membership cards. They also developed a phone tree by dividing the city geographically and published the names and number members by area so they could call to let each other know of changes in meeting or star party plans or unusual sky events. For a while they tried to have a permanent committee on variable star observing.

According to Patrick Wiggins, current members who initially joined in the 1970s ("Quorum of the 70s") are: Bruce Grim, Sep 1971; Chuck Hards, Mar 1974; Patrick Wiggins, January 1975; Gary Vardon, Apr 1978; Siegfried Jachmann, September 1978, Nate Goodman, Jun 1979; Charles Green, October 1979. Other senior members include Lowell Lyon, Fred Olsen, Dave Chamberlin, Brent Watson, Jerry Montgomery and Bob Brundige.

13 August 1971 First SLAS star party (with Hansen Planetarium at Little Mountain) and first printed material regarding SLAS was distributed.

20 September 1971: First SLAS constitution and officers elected. David Downing was the first president.

27 September 1971: Society formally accepted for membership in the Astronomical League.

04 October 1971: First public meeting.

November 1971: Issue of Sky & Telescope (page 286) mentions SLAS.

April 1972: Because a Board member left during his term and there was nothing in the SLAS constitution on replacing a member in that situation, the club created two bylaws:

- 1) When there is a board vacancy, the remaining board members will chose a replacement from the membership to serve until the next annual election.
- 2) With a 2/3 vote of the membership at a regular meeting, any member of the board may be removed from office.

Judy Rider was selected as the replacement board member for Fred Olsen.

April 1972: John Mosley suggested that the society publish a monthly list of astronomy-related want ads for members.

May 1972: John Mosley's board meeting minutes report that there was "a rather heated and almost violent discussion of priorities and club goals, centered around a proposal by John Mosley that the Society and Planetarium jointly sponsor weekly star parties every Friday on Little Mountain. A point of contention was the point to which the society should actively encourage the public to become interested in astronomy."

John went on to say he would resign from the Board of Directors and from the society at the end of the summer because of conflicts of interest between the Society and Planetarium. The June general meeting continued the discussion, expressing dissatisfaction in the way the Society has been run and re-examined general goals, attitudes and Mosley's reasons for resigning.

By the end of the meeting they had approved a motion by Margaret Farnsworth that the Society should cooperate with the Planetarium because the Society has much to benefit from that association. Also, in response to Jerry Montgomery and Amy Own questioning the Board of Directors policy of making all decisions for the Society without consulting the general membership, a unanimous resolution was passed asking the board to come up with ways for members to participate in planning and executing Society activities.

Jerry Montgomery suggested that there be time at each general meeting for members to get to know each other informally and that the Society should have some purely social activities for that same reason (the first Solstice/Christmas party came from Jerry's suggestion).

Judy Rider volunteered to coordinate appointing various members to provide refreshments at each meeting (along with \$4 from the budget per meeting) so that during a refreshment break in the middle of each meeting members could socialize. Also, in the first fifteen minutes of the general meeting, they decided to have business discussion to improve the communication between the Board and the members.

John Mosley went further and said he felt the Board was not acting in the spirit that would benefit the general membership or help the Society grow, and that it was not responsive to the interests of a typical member without an extensive background in astronomy. He called for an election of a new Board.

The members were willing to do so, but there was confusion if the required 2/3 membership vote meant 2/3 of those at the meeting or 2/3 of all the members. They decided to elect a temporary board until the October elections (John Mosley was one of those elected, so he did not resign).

A bylaw was passed that the Board cannot spend more than \$15 per month without getting an approval vote from the membership.

Jerry Montgomery remembers that there was a sort of running feud between John Mosley and the President (meeting minutes seem to indicate the president at the time was James Woods but other sources say Leroy Johnson) about always having star parties with the Planetarium and that basically John threatened to pull out or leave SLAS if he didn't get his way. Jerry said there were a bunch of motions, a vote was held and John won. Jerry added that SLAS became a lot smaller and nobody wanted to run for office after that, and Planetarium staff were helping because there were not enough SLAS members who were interested in running the club.

June 1972: Letter and packet created for new club members (LeRoy Johnson). John Mosley suggested the Society create a folder of topics of interest to members that would be kept on file at the Planetarium.

Loren Locher volunteered to contact science clubs at local high schools and colleges about the Society.

16 October 1972: Sir Fred Hoyle, British cosmologist, lectured at the University of Utah.

October 1972: Club decided to pay outside speakers \$10.

October 1972: New officers elected, John Mosley chosen as chair.

November 1972: Agreed to have regular star parties at Grantsville on the first Friday on or after the first new moon of the month.

December 1972: Jerry Montgomery said he would produce a yearly journal that would be a review of club activities. The first would be for 1971-72 with photos and short articles on the Society's activities. It would be printed and distributed to all members. In the end he did not have time to do it.

January 1973: John Mosley resigns as chair in favor of Judy Rider (who was chair until March 1979). John continued in other capacities until moving to Los Angeles where he became the program supervisor at the Griffith Observatory in 1977.

January 1973: Society joins AAVSO, the American Association of Variable Star Observers. A group membership is \$7.50 a year.

February 1973: New policy of acknowledging member's birthday for the month.

May 1973: Society has 43 members.

June 1973: Judy Rider reports that all expenses since the club was founded totaled \$832.11.

July 1973: A club member was asked to appear on the TV show "Dialing for Dollars". Judy Rider prepared list showing where members live in relation to downtown Salt Lake to enable people to form car pools and shares rides to meetings, star parties, and other events.

March 1974: John Baldwin offers Society members use of his mirror grinding machine.

23 August 1974: Meeting with Dr. Mark Littmann, director of the Hansen Planetarium, to present him with an honorary membership to SLAS.

August 1974: Chuck Hards offers to design and build a mount for the club's "Richest Field Telescope." Rick Olsen offered to finance a 16" F6 Newtonian scope if the club helps with designing and building the mirror (never done and not to be confused with the original SPOC mirror).

07 November 1974: Meeting at KUTV-TV with meteorologist Mark Eubank.

03 February 1975: Carl Sagan at Westminster College.

March 1975: John Baldwin donates 2 Bausch & Lomb telephoto lenses (40" & 24") to build 2 astro-cameras for Society use.

29 August 1975: With the help of the Utah Society of Science Fiction, Judy Rider, Wesley Rider and Ruth Rider filed Articles of Incorporation with the Secretary of State's Office for non-profit status for SLAS. This was signed by Clyde Miller, Secretary of State of Utah, on September 4, 1975.

November 1976: SLAS granted Federal Income Tax exemption [501 (c) (3)] status, which means donations to SLAS can be tax deductible.

May 1993: SLAS is granted Utah State sales tax exemption.

November 1975: In the election for 1976 officers, the president and treasurer position were combined into one.

March 1976: Club has about 80 members.

1975: Started "Member of the Year". Recipients included John Baldwin and Terry Ashton. In 1978 it changed to member of the month, and included junior member Sean Kelly (16) and Wesley Rider, Judy Rider's father.

March 1976: Comet West. Many say this was the best comet they have ever observed. West had a magnitude of -1 and was bright enough to see in daylight.

March 1977: SPOC's Montgomery Observatory officially opens.

Summer 1977: SLAS held no summer meetings and they decided that was a mistake. Hansen Planetarium was remodeling so they used room in Americlub for next year's meetings Tower, 63 S. Main. That must have ended in December 1977 when meetings were held at the Senior Citizen Center, multi-purpose room, 237 S. 10<sup>th</sup> E.

June 1979: Jerry Montgomery and Bruce Grim resign from the Board of Directors. Jerry said he felt that it didn't matter what he or Bruce said or did as things were done the way the Ryders wanted, so staying on the Board seemed a waste of time.

17 September 1979: "The Coup".

If there is anything many of the long-time members were eager to talk about it is the (in)famous "coup" of 1979 to remove Judy Rider as president, a position she held from 1973 to 1979...Others remember her as a friend, even if she seemed to have control issues. At the September 1979 general meeting, Siegfried Jachmann asked "Madam Chairman, may I make a motion?" which must have been his motion to dissolve the current board with a 2/3 vote of those present. At that time the SLAS constitution allowed members to join and vote at the same meeting, and a number had been recruited for that night (or was that for the election night?) (that loophole does not exist in the current constitution). Ken Meyer has recording of that meeting, but has either destroyed it or does not want to make it public.

Even after the coup, Judy Rider had to be sued to release names, addresses, phones, etc. of members—she refused to make that information public to other members.

Dave Chamberlin said the club needed the names of the members before the next election so they could contact them and tell them to attend the meeting to vote and not to send in proxy ballots, so they had to take her to court.

In previous elections where Judy won, Nate Goodman says that because she did not disclose the names of members, it wasn't clear how many there were and when the ballots were counted, and they were not signed as they are now, there was always an overwhelming number voting her back in office. Nate told of one ballot she showed that her dog's paw print as voting for her.

When the judge was hearing the case to release the names and information on club members, Judy asked "Your Honor, may I say something?" but he was so disgusted with the suit, he just said "No you may not!"

Meeting with elections, November 1979 new members joined and voted (6?) to oust Judy Rider and other board members...An example of an irregularity was in her combined role as treasurer and president, she was adding items to her Elvis collection with club funds (later repaid).

First Part of Letter to Members from Acting Board of Directors:

"On Monday, September 17, 1979, after careful consideration and a thorough discussion, action was taken to remove Judy Anne Rider, Wesley G. Rider, Robert Wolverton and Terry Stewart Ashton from the Board of Directors of the Salt Lake Astronomical Society for cause and various irregularities. This was done according to Article II of the Bylaws of the Salt Lake Astronomical Society. Therefore, by action of the Acting Board of Directors, voting proxies assigned to former members of the Board before September 17, 1979, will no longer be considered as valid. The action taken was painful for all involved."

As a result of this action, David Chamberlin, the only remaining board member, reorganized the Board of Directors as outlined in Article I of the Society's Bylaws, to serve until the October general election. Those appointed were David Chamberlin, acting Chairman of the Board; Larry Anderson, Secretary and Newsletter Editor; Brent Watson, Treasurer; Robert Harbrecht and Nowell Morris, Board Members at Large.

Judy Rider later formed another club called Utah Celestial Observers Association (UCOA).

15 October 1979: Election held at Senior Citizen Center, SLC; later meetings at library in Hansen Planetarium.

Decisions of new board:



December 1979: NOVA to go from monthly to 6 times a year, with calendar ads, club news, articles by club members (such as astrophotography).

Dropped membership in the Astronomical League and in American Association of Variable Star Observers (AAVSO).

A budget was established that included observatory maintenance, contingency funds, new equipment, newsletter and subscription for members to Sky & Telescope. Dues were \$17.

November 1980: New members received constitution, fact sheet, membership card, old NOVAS, complete membership list available by request.

1981 NOVA: published an annual membership directory to encourage and facilitate contacts among members.

May 1980: Section in NOVA called "Your Board Decides." There are discount subscriptions to Astronomy Magazine available. Should we teach basic astronomy course to public and charge? Mileage charge agreed.

13 June 1980: Siegfried Jachmann used 9" Clark Refractor he restored with help that once belonged to the University of Utah, then went to the College of Eastern Utah (Price) where Siegfried Jachmann saved it from the scrap pile when he found out that was where it was headed.

16 June 1980: Second/New constitution ratified--68 for 1 opposed out of 105 members.

September/October 1980: SLAS and Hansen Planetarium staff member Patrick Wiggins created free brochures advertising star parties. Parties held regularly at SPOC and Little Mountain.

1980: Brent Watson suggested club discuss the possibility of a permanent observing site at Bald Mountain or West Mountain.

1981: Siegfried Jachmann and Brent Watson start setting up scopes at Harmons parking lot and conduction non-SLAS star parties. This eventually led to official SLAS star parties at Harmons and the building of the Harmons Observatory at Stansbury Park.

June 1981: Club has 92 members.

January 1982: World Space Foundation requests photographic support for astronomers doing asteroid research, "Asteroid Project."

February 1982: Newsletter mentions welcoming a new club, headed by Steve Hill, "Astronomical Society of Utah" who met at South Salt Lake Library. When several SLAS members attended a meeting they learned the club was formed because SLAS was "too gung-ho". The club did not last very long.

Summer 1982: Dropped idea of having membership cards.

March 1982: Siegfried Jachmann and Brent Watson initiate hugely successful "End of the World" star party at Harmons. This event cements the relationship between Harmons and SLAS (see Public Star Parties list).

June 1983: Discussion about building a club solar scope. The group was in favor if there were no cost from club dues.

August 1983: Discussion of SLAS and the University of Utah working together on astronomy related projects. One is photoelectric photometry, using the U's recently

refurbished (by Bruce Grim) 40 cm Ealing reflector (later loaned to SLAS for installation at SPOC) and a newly acquired solid state photometer.

January 1984: SLAS & Planetarium's relationship loose, waiting to see what new director Von Del Chamberlain says. Meetings still held in the lecture hall of Planetarium.

June 1984: Debate on junior membership status with lower dues, idea by Nate Goodman, defeated.

August 1984: Siegfried Jachmann and Bruce Grim resigned from Board. Patrick Wiggins writes the following in NOVA to quell controversy surrounding recent Board decisions:

Concerns:

1) Planetarium may have done something improper by paying to have the primary mirror at the club observatory re-aluminized. Response: It had been cleared with the planetarium director and Salt Lake County Purchasing and the planetarium was just repaying the club for times it had used the club facilities for planetarium astronomy events.

2) The Board's poor handling of finding a new NOVA editor.

3) The planetarium receives all the credit for joint activities leaving the Club with no identity of its own. Response: All publicity materials list both the club and the planetarium, but the media often only mentions the planetarium.

4) The planetarium takes advantage of the club by lending out its name to events but then relies on SLAS to supply the support to make them work. Response: At least one planetarium staff member comes to events (usually Patrick Wiggins), the planetarium lets SLAS have free meeting space (others pay \$50), the planetarium also prints the club newsletter at one third the costs, it gives club members discounts at its bookstore, it provides the star party brochures for free, there is a sign in the planetarium advertising SLAS, they issues joint news releases, Patrick Wiggins on his KSL Friday afternoon spots often mentions SLAS, and they have a phone at the planetarium for answering questions about SLAS.

In a letter to the editor section in NOVA Brent Watson expresses great displeasure in recent politics in SLAS. He said that people join clubs for fun, not to fight and notes, "a hobby should not be wrapped in the chains of political dissension."

Lowell Lyon commented that he never felt it mattered if the planetarium or SLAS was given credit by the media for events, what was important was that the public became interested and engaged by the various star parties.

March 1985: Sue Hemingway (previously Butcher, later Chamberlin) suggested mini classes that would increase public awareness of astronomy, raise funds, develop individual skills provide teaching experience and foster friendships. She said many have signed up to teach, and ideas include how to use a telescope, mirror grinding, optical collimation and leaning and learning the skies.

Summer 1985: Mini classes were held. They were "It's About Time" and on building an observatory, lunar observing, observing sites in Utah, comets, computer astronomy. In fall 1985 topics included: beginning astrophotography, sky lore and mythology, mirror grinding and fall skies.

Club members can use University of Utah Physics Department telescope (reserved through Lowell Lyon).

January 1987: First mention of after meeting gathering at Village Inn on 9th East & 4th South, in March referred to as "Advanced Training." They were also held at Der Ratskeller, Godfather's Pizza and Denny's in Salt Lake and at truck stops and restaurants in Tooele.

The term "Advance Training Sessions" comes from Patrick Wiggins' old skydiving club in Columbus, Ohio. Following regular training sessions the students and instructors would oft times retire to a nearby bar for what they called "Advanced Training." When Patrick moved west he brought the term with him.

1988: Enough requests for star parties that club decided it needed an official coordinator to refer calls regarding star parties. Dave Bernson was listed as the first contact and Lowell Lyon as the second.

13 May 1989: First official SLAS star party at a Harmons grocery store (Midvale).

20 April 1989: Sign-up sheet for an aurora telephone network.

March 1989: Kim Hyatt creates a phone tree for Aurora Borealis events.

November 1989: Astrophotography seminar conducted by Jerry Foote, Tom Ritland & Joan Carman.

1989: Brent Watson holds mirror making class at his home. Class members worked on seven 13.1" mirrors and two 8" mirrors. They met for several months, every Wednesday.

Annual Mickey Mouse Telescope Award & Improvement Project. Dave Bernson was in a Harmons grocery store on his way to a SLAS Solstice Party at Richard and Cindy Sorensen's (in 1984, 85 or 86) when he spotted a Mickey Mouse Telescope for \$10. He bought it to be a funny part of the party door prizes and Patrick Wiggins won it. To his consternation, Patrick won the scope again the next year (he later learned the second drawing was rigged).

About the 4th or 5th time Mickey reappeared as a Solstice door prize, it was decided to require that the unlucky winner would need improve the scope in some way and bring it back the next year for yet another winner and another enhancement.

Scott Crosby put real optics in the scope one year. There is a card with the scope which lists a complete history of the scope's winners and "improvements" but it cannot currently be located.

April 1990: John Dobson comes for a three-day visit and in a mirror grinding course, he ground and polished and figured a 13" mirror in one day. He also predicted the demise of the big bang theory.

1991-1992: Public star parties moved from SPOC to Seabase near Grantsville because of light pollution issues. The site was eventually abandoned for being too far for most public to drive to.

February 1991: SLAS members on Channel 7 fund drive (program about astronomers).

July 1991: Reports of an impressive aurora display.

July 1991: Record meeting attendance of 107.

November 1991: Instead of "Advanced Training", club members toured Vaughn Parson's optical shop.

June 1992: Professor Lynn Higgs, University of Utah Physics, asks for SLAS help with the U's Observatory.

January 1992: Erik Hansen suggests that the club build a dedicated solar scope for the club's H-alpha filter.

January 1992: SLAS joins the International Dark Sky Association.

March 1991: Purchase of \$1,500 T-Scanner Hydrogen Alpha Sun Filter for club.

March 1992: Ideas for a new member class that would give them a working knowledge of astronomy & equipment, fit in and feel welcome, and help them stay active in the club. Also, names and phone numbers of "SLAS Brains" (members with areas of expertise who are willing to answer questions for others) are included in NOVA. The "Brains" volunteers' project ended in 2001.

July 1992: SLAS buys a new research grade H-Alpha solar filter and inverter with trade in of the old one for about \$1,200.

January 1993: January meeting becomes the yearly business meeting.

July 1993: Stephen Hawking sponsored by Hansen Planetarium at Symphony Hall; Again in June 1995 at U. of U. Huntsman Center.

July 1994: Impact on Jupiter of remnants of comet Shoemaker/Levy 9.

October 1996: SLAS votes to rejoin Astronomical League.

August 1997: SLAS votes to buy non-Astronomical League insurance.

October 1997: Sue Chamberlin creates a SLAS women's support group. "Ladies in the Night Party" meet until 1999(?).

November 1997: Dark Sky Committee; May/June 1998 Dark Sky fundraising, selling items, drinks and food at public parties and meetings. Sept/October 2001 Dark Sky discussion on how to evaluate a site and what funds might be necessary to acquire a dark site.

October 2001: Board meeting reports no interest at this time in doing anything in the direction of a dark sky site. Reasons included that it is a huge project and at a remote site, it would require even more work than the SPOC facility along with security issues. Also, it is hard to get donations for a private observatory. Future school party donations should go to general fund and current Dark sky funds remain separate.

July/August 2003 NOVA: In late 1995 SLAS club members agreed to start saving and planning for a dark site; it was estimated a minimum of \$10,000 was needed. An interest bearing savings fund was opened where money from donations could accrue. A committee, chaired by Dave Chamberlin, was organized from more than a dozen SLAS members who supported the idea. Money was acquired from club member donations, collected in jars at club functions and there were school star party donations. They also raised funds from the sale of items as planispheres and light wands at star parties and other projects.

The dark sky project investigated several possible locations including a sod farm near Tooele, property near Skull Valley, and a Park City location. All were declined due to possible future light pollution. Other locations were also looked at, but nothing encouraging was found.

After four years a decision was made to stop donations from school star parties from going into the dark sky fund. Realizing the minimum goal of \$10,000 would be very difficult to acquire, many dark sky site supporters became very discouraged.

With the club focusing on SPOC II and ALCON 2002, planning the dark sky site was unintentionally put aside. At the end of 2002 a proposal was advanced that, "If an acceptable plan of action for a dark sky site was not put forward by the end of March 2003, then the existing dark sky fund would be transferred to the SLAS general account."

With Scott Crosby and Nate Goodman as co-chairs, a new committee was formed from SLAS members interested in dark skies. A new mission statement was written and they report a rumor that University of Utah is looking for a dark site.

March 1998: Siegfried Jachmann raised the concern of charging public schools for star parties (in November the club had agreed to charge \$100 for each star party). Brent Watson made a motion that SLAS neither solicit donations nor charge for public school parties. Passed.

March 1999: NOVA refers to a panel in February 1998 that explored the relationship between SLAS and the Planetarium. This was at a February 1999 meeting. It was noted that the relationship has gone from mutual goals and participation in SLAS activities to the status of "friendly enemies". There is often irritation when Planetarium gets credit for SLAS efforts.

They reported they had a positive discussion with Richard Cox, Planetarium administrator. In a follow-up article in March/April 2000 NOVA it was suggested that to get separate recognition from Hansen Planetarium SLAS should publish its own star party schedule and news releases. SLAS should develop a PR campaign. The Planetarium is poorly represented at public star parties, with the exception of Patrick Wiggins and yet their literature bills these as joint ventures. They should either provide better representation or no longer co-sponsor these events. (The last joint star party was 26 October 2002.)

1999: SLAS enter the computer age with its first web site <http://www.utah.edu/Planetarium/SLAS>, maintained by Dave Chamberlin. That URL was used until July 2001.

2001: Consolidate web sites maintained by Patrick Wiggins and Dave Chamberlin, to a site on University of Utah Physics department.

May 2002: Ken Warner has assumed webmaster role. SLAS site moved to Ken's servers.

September 2000: Largest sunspot in nine years.

Starting in 1999, the ALCON planning Committee headed by Lowell Lyon and Joan Carman (Joan replaced by Karla van Hemert in February 2002) met monthly until the 2002 event.

31 March 2001: Impressive aurora with reds & greens that many club members saw.

01 March 2001: Ground breaking for Harmons Observatory at SPOC.

27 July 2001: Announcement is made that Kathleen McCarthy (later Warner) reports SLAS's official web site now has two new, shorter and hopefully easier to remember URLs. Replacing <http://www.utah.edu/Planetarium/SLAS> which had been in use since the club's first got on the web in 1999 are <http://www.slasonline.net> and <http://www.slas.ws>. [Http://www.slasonline.net](http://www.slasonline.net) was seldom if ever used. [Http://www.slas.ws](http://www.slas.ws) lasted until July 2005.

29 July 2001: 30th anniversary of SLAS.

August 2001: Star-B-Q on night of Perseids meteor shower.

25 August 2001: Last SLAS public star party at Little Mountain.

27 October 2001: Last public star party at SPOC's Montgomery Observatory.

November 2001: Leonid Meteor Storm predicted. A storm is when it exceeds an hourly rate of 1,000 meteors. While rates were high, no one in SLAS is known to have seen numbers approaching storm rates.

2002: Planning begins for Donna Pease Wiggins Refractor House.

March 2002: New location for meetings, 10<sup>th</sup> East 237 South, Salt Lake County Senior Center.

04 May 2002: First public star party at Harmons Observatory.

30 July - 03 August 2002: SLAS hosted the 55<sup>th</sup> annual Astronomical League Convention (ALCON) at the University of Utah campus. Lowell Lyon suggested that SLAS host this even in 1999. There were over 150 participants. Among the twenty-three vendors were major hardware manufacturers such as Meade and Apogee, software publishers Carina Software, Software Bisque, and Main Sequence Software, Sky and Telescope Magazine and Astronomy Magazine and various astronomical organizations. The Subaru Telescope had a very popular display. There were a range of concurrent lectures and workshops and an awards banquet.

Summer 2003: Celestron donates a Nexstar 11" GPS scope to SLAS.

October 2003: Need to find a new meeting site because the Senior Center's and State government policy state that the majority of attendees at activities at the Center must be 60 or older.

March 2004: SLAS accepted into the NASA Night Sky Network. Over 600 clubs belong and with its emphasis on education outreach at star parties, SLAS must run five outreach programs a year to remain active.

2004: Solar parties held at Winchester Park (6670 South 1200 West in Murray).

24 March 2005: Utah Governor Huntsman signs an Astronomy Week / Astronomy Day declaration written by Ann House.

16 April 2005: Dedication and Opening of Harmons Observatory.

22 October 2005: First public star party at Donna Pease Wiggins Refractor House.

January 2005: New meeting location at Zion Evangelical Lutheran Church on Foothill Blvd.

2005: SLAS receives honorable mention from Sky and Telescope for Astronomy Day.

11 July 2005: SLAS's web address changes from <http://slas.ws> to <http://slas.us>.

05 August 2006: Dedication and Opening of Donna Pease Wiggins Refractor House.

January 2006: New meeting location, Salt Lake Community College on Main Street.

06 May 2006 to September 2006: New meeting location at Salt Lake County Chambers, 2001 South & State.

2006: To help members get to know each other better, SLAS started to have name tags to wear at meetings. Bill Kennedy developed public presentations at the SPOC public star parties to enhance everyone's learning experience. Karla van Hemert offered to create a new member book to provide useful information to new SLAS members.

September 2006: The new member book (later renamed "Member Information" is made available on-line.

March 2006: Lynn Higgs, University of Utah Physics, announced that the University of Utah will soon be offering a BS degree in Astronomy. He also said the U is looking to install a large robotic telescope in a dark sky site in southern Utah. The scope would be available to SLAS members both remotely and in person.

June 2006: Harmons donates an additional \$1,000 to SLAS (facilitated by Kevin Bushnell).

May 2006: SLAS creates new position called "New Member Development Coordinator." Bob Moore is the first appointee.

15 June 2006: Optician John Gregory (inventor of the Gregory-Maksutov optical design) visits SPOC.

June 2006: Pete Wilson suggested distinctive attire for telescope operators at SPOC.

August 2007: the Board approved helping the telescope operators stand out at SPOC star parties by wearing vests.

14 January 2008: Thanks to the efforts of webmaster Ken Warner, SLAS is now able to accept payments via the club's website. The move proved so popular that within just a few weeks most dues and other payments coming into SLAS came in via the web.

April 2008: First orders taken for special tan vests with SLAS logo and member's name for scope personnel.

October 2006: Lowell Lyon reports that SLAS won a NASA Night Sky prize for its work at Capitol Reef star parties. The prizes were a lunar globe and a children's book, "Max Goes to the Moon." On the other hand, a heated disagreement between a SLAS member and the park superintendent resulted in SLAS being asked not to do any more public star parties at the park. Since then SLAS gatherings at Capitol Reef have been private and not supported by the park.

July 2006: Board Decisions:..Public star parties and those arranged privately by SLAS members will remain free (donations to SLAS will continue to be accepted). Star parties at public schools: free with a minimum suggested donation of \$100. SPOC star parties: \$100 for the first of the 3 permanently installed scopes (Ealing, Grim, Bogdan) with a charge of \$50 for each additional scope. Any needed portable scopes will be \$25 each. Funds collected for SPOC star parties will go to SPOC maintenance. Star parties held at sponsor's location: \$25 per telescope. All money for special star parties will be paid to the Salt Lake Astronomical Society.

A legal opinion from a local attorney about the honorary SLAS lifetime memberships which have been granted a few people over the years (Mark Eubank, Dr. McNamara, Dr. Mark Littmann in 1974) stated that since the memberships were honorary and non-voting they did not violate the SLAS constitution. The board then voted to recognize the non-voting "memberships" with the proviso they be called honorary lifetime

memberships. The vote also enabled those granted honorary lifetime memberships to log on to the SLAS-Only parts of the SLAS web site and participate in all SLAS functions and programs provided they pay the same fees and prices (like SPOC fees and Sky & Telescope magazine) any actual SLAS member would pay but not the yearly dues.

August 2006: Mike Morrison donates a double stack filter for the club's Coronado PST (Personal Solar Telescope).

August 2006: Staff from This is the Place Heritage Park ask for help with a project to re-create the astronomical observatory built by Orson Pratt in the 19th century. They plan a pioneer science observatory with replica of the transit observatory that used to be at Temple Square.

Patrick Wiggins creates a document with names of almost everyone who has served on SLAS Boards, as newsletter editor and a few other positions since since the club's founding (reported in Sept/October 2006 NOVA). It is currently located at: <http://slas.us/slasbooks/SLASBOD.PDF>

August 2006: Honorable Mention certificates from Sky & Telescope magazine for the club's 2006 Astronomy Day activities. Individual certificates were awarded to Lowell Lyon, Ann House and Laura Carnes.

October 2006: New meeting location: University of Utah, Engineering & Mines Classroom Building (EMCB) room 105. There is no charge to SLAS for this venue.

October 2006: Following up on a suggestion by Lowell Lyon that it would help the club to have a color brochure about SLAS, Tom Sevcik passes out mock-ups of an advertising brochure for SLAS that he has been working on to everyone at the meeting and asks for suggestions and proofing. Photos show scopes at SPOC. Tom also volunteers to video tape future general speakers' presentations and have the tapes available to all members, as per a suggestion from Nancy Stephanz.

November 2006: SLAS Board meeting with Jess Clifford of Clifford Studios (they designed the current SLAS Logo) to follow up on the extensive work Tom Sevcik did on the SLAS brochure. The purpose of the brochures would be to increase awareness of club and recruit new members.

January 2007: Board meeting moved to the Thursday preceding the general meeting, rather than just prior to the general meeting, to allow more time to discuss issues. Board meetings are open to all club members; a few members felt they would be less likely to attend a meeting on a separate date.

February 2007: Bob Moore writes a history of the telescope that is posted on the club website.

February 2007: Bob Moore reported on meeting with representatives from This is the Place Heritage Park, the University of Utah, BYU and the Clarke Planetarium on a joint venture to build a public observatory at This is the Place. The exterior of the building would match the period theme of the Park and the interior would include a lecture hall, modern observatory, a period observatory with instruments from the original observatory on Temple Square and a replica transit scope and the first scope brought to Utah by Orson Pratt in 1847. Planned completion is 2009.

June 2007: Siegfried Jachmann present Bob Moore with a t-shirt "Astronomy (not Astrology)", tweaking him on a previous slip of the tongue.

July 2007: Dave Kieda from the University of Utah Physics tells the club that with a grant from the Willard Eccles Foundation, the University of Utah has ordered a 32"



automated telescope from DFM Engineering. They are looking for a dark site for this scope. A leading site contender is Mount Dutton.

Part of the grant requires community outreach, so the facilities will include a bunk house and exterior observing platforms that will be available to SLAS members and other amateurs. The scope will also occasionally be available to amateurs, both on site and via the internet.

The scope should arrive in August 2009. SLAS could install a telescope at the Southern Utah observatory, once it is finished. It could either be a permanently installed scope or a portable scope that could be stored in a secure room at the site.

March 2008: Scott Crosby offered to donate a 16" f/4.7 scope to the University of Utah's S. Utah observatory. Bill Kennedy offered to donate a 12" f/5.8 scope for SLAS members to use at the site.

July 2007: Membership is at its highest in several years at 198.

September 2007: New position created for an "Inreach Director." This idea was Bill's Kennedy's, designed to help provide educational opportunities for SLAS members who want to learn more about the sky and how to use the instruments they use, as well as having other members teach. Bill was appointed to the new position.

September 2007: Call for the long dormant SLAS Dark Sky Observing Committee to participate in planning with the University of Utah in their new observatory in Southern Utah. SLAS has the opportunity to have a telescope of its own along with the University of Utah scope. Committee needs to decide what equipment SLAS should obtain and keep at this site, coordinate equipment installation with the U, obtain funding and work out details of sharing the University of Utah scope with SLAS members.

October 2007: Thanks mostly to the efforts of Ann House & Erik Hansen, a \$2,400 ZAP (Zoo Arts & Parks) grant awarded to SLAS. Grant funds could be used for outreach, replacement equipment, marketing, etc in Salt Lake County. The ZAP logo is put on the SLAS website.

October 2007: Rodger Fry and Siegfried Jachmann meet with Sharlene Gygi and Bob Harmon from Harmons. Harmons will publicize many SLAS activities and astronomical information in their advertising newspaper insert which they say reaches about 240,000 people. Patrick Wiggins will compile data for the astronomy blurb that will appear in the inserts.

February 2008: Club's Daystar hydrogen alpha solar filter is found to have a hole burned in it along with age darkening; Board approves \$750 to repair plus a 10 year warranty, \$250 to update controls and housing (\$250 from ZAP grant for upgrade).

Two portable sound systems are purchased, one to remain at SPOC and one to travel.

March 2008: Bruce Grim mounts green laser on Grim scope and it works so well for showing the public where the scope is pointed he would like similar laser mounted on other scopes.

12 April 2008: First Official Public Star Party at This is the Place Heritage Park (other than previous special star parties during Astronomy Day).

2008: SPOC Clear Sky Clock link put on SLAS website.

Spring 2008: Ken Warner sets up SLAS PayPal account so that many SLAS financial transactions can be done on-line. Use of the club's snail mail post office box plummets almost immediately.

April 2008: Patrick Wiggins reports that the use of the on-line payment system is far beyond expectations (over \$700 in dues and fees in less than a month).

August 2008: Rodger C. Fry's story about the 2008 Bryce Canyon National Park Astronomical Festival is published in The Reflector. (See September/October NOVA.)

August 2008: New club laptop and large solar rejection filter for the Bogdan refractor purchased.

October 2008: Wheeler Farm selected as a new public star party site in the Salt Lake Valley for 2009.

January 2009: SLAS Webmaster Ken Warner created a free online gallery where members can display images they have made.

January 2009: SLAS members Joe Bauman begins an astronomy blog in the Deseret News, called "Nightly News." Sheena McFarland began an astronomy blog in the Salt Lake Tribune in December (called "The Final Frontier"). Both Joe and Sheena encourage SLAS members to send them items for their blogs.

January 2009: Dave Bernson announces plans to add a short program to each SLAS meeting providing information and pictures on the current night sky.

February 2009: Club approves fund to purchase new accessories for the loaner scopes.

May 2009: Willie Craig, who has connections to the Mt. Wilson observatory, offered the club a chance for one member to receive lodging, a tour and a full night of observing on the 60" scope at Mt. Wilson. The drawing was at the September meeting ended up with the winner as Ray Drurian.

16 June 2009: Salt Lake City Weekly editor Jerre Wroble presented the paper's "Best Astrogeek" award to Patrick Wiggins at a club meeting.

September 2009: Lowell Lyon presents a request to host the ALCON 2011 event in conjunction with the Bryce Canyon Astronomy festival. This will be the first time the league has held a convention in a national park. They are considering holding ALCONs at Bryce every third year.

17 September 2009: 30<sup>th</sup> anniversary of SLAS's reorganization.

October 2009: ZAP grant for 2,900 awarded to SLAS. Bought a 12" Sky Quest Dobsonian and a Coronado PST 40 mm solar scope and mount. ZAP funds also used to buy planispheres, telescopes and binoculars to give to public at start parties.

January 2010: Club files with State Commerce commission for a solicitation exemption.

February 2010: \$600 Donation to SLAS from Harmons food stores, to be spent only at Harmons star parties.

July 2010: A minor planet (#221150) was named for long time SLAS member Jerry Foote. The honor was for Jerry's many valuable contributions to the Society for Astronomical Sciences.

October 2010: ZAP grant for \$6,000 awarded to SLAS.

November 2010: Mark Shelton presented four framed rare and out-of-print Lunar Quadrant Charts. They will hang in the SPOC Refractor House during each observing season.

January 2011: SLAS meeting guest speakers to be given a SLAS hat. Also \$50 honorarium if they travel from outside Salt Lake and Davis counties to give their talk at SLAS.

April 2011: Club receives \$600 grant from Harmons. Rodger Fry presents display stand for use at public SLAS events.

New Utah Museum of Natural History is proposed by Paul Michael Maxfield as a possible location for SLAS meetings, sun parties and perhaps some star parties. Board members tour site in September.

May 2011: Approved first on-line voted for club elections via the secure section of the club website. In the October 18 elections, more voted than in any recent election (60).

The location of private star parties is added to the members only portion of the club's on-line event calendar.

September 2011: ZAP Grant of \$5,678 awarded. Will be used to buy telescopes, books, binoculars and planispheres to be given away at star parties and to help bring in guest speakers for SLAS meetings.

Meeting venue changed to University of Utah Behavioral Science Auditorium.

October 2011: Members at the 18 October general meeting voted to close SLAS P O Box.

November 2011: Lowell Lyon presents a check from the Astronomical League for SLAS's share of the profits from the ALCON event at Bryce for \$4,527. \$200 will be given to the Ogden Astronomical Society for their help.

January 2012: Meeting venue back to University of Utah Engineering/Mines classroom 105. Also the club and board meetings are changed to Wednesdays.

January 2012: Anonymous member donates \$2,000 to club to buy a 6" f/8 refractor to be added to the sub's collection of loaner scopes.

March 2012: Rob Taylor announces a SLAS photography contest ("Astro Photo Challenge") running through October with the winners announced in November. There are several categories to encompass all skill levels and types of equipment.

SLAS has a YouTube channel. <http://www.youtube.com.user/SLASchannel/videos>

April 2012: \$600 donation to SLAS from Harmons.

20 May 2012: Annual Solar Eclipse, "Ring of Fire." Members enjoyed the event from Kanarraville, Bryce and many other sites around the State

May 2012: C-8 club donated to club.

23 July 2012: Rob Taylor introduces new SLAS Mentor Program; a volunteer program to match seasons members with newer or less experience members.

September 2012: Ann House brings in another ZAP grant for SLAS for \$5,248.

January 2013: \$600 donation to SLAS from Harmons for Astronomy Day.

30 January 2013: Several SLAS members tour the Marriott Library's rare books section and were allowed to see and hold rare first editions of Newton's Principia and Galileo's Dialogo.

February 2013: An advertising banner for use at Sun parties is purchased.

17 April 2013: Purchase of a second double stack filter for the club's PSTs is approved.

15 May 2013: Rob Taylor announces the 2013 SLAS photography contest ("Astro Photo Challenge") running through October with the winners announced in November. There are several categories to encompass all skill levels and types of equipment.

July 2013: Ann House accepts the volunteer position of Secretary in the Astronomical League.

14 August 2013: An open A-frame sign for advertising SPOC star parties is unveiled.

18 September 2013: It is announced that Ann House has landed a \$4,633.00 ZAP grant for SLAS bringing her total of ZAP grants to SLAS to #30,332.41. Ann's application earned a score of 9.86 out of a possible 10.0.

October 2013: Long-time Harmons representative to SLAS, Keith Anderson, leaves Harmons. He is replaced by Tara Haynie.

February 2014: Kristen Mitchell advertises SLAS via Instagram, Tumbler, Twitter and Facebook.

21 June 2014: The Club's Mickey Mouse Scope, that was "awarded" to various winners at the annual Solstice Parties from 1989 to 2008 was retired and is in a display case in SPOC.

April 2014: Kristen Mitchell suggests the creation of a SLAS internship program and it is approved. May of 2014 there were three applicants.

May 2014: Lowell Lyon presented a request for SLAS involvement with the Astronomical League's AstroCon 2017 in Casper, Wyoming. It has been scheduled to coincide with the 2017 total eclipse of the sun. SLAS members voted not to have the club be the lead sponsor, but individual club members are welcome to be a part of the event.

July 2014: SLAS starts distributing buttons at SLAS events.

August 2014: Mixed reviews of an experiment conducted this year where kids fill out cards checking off certain observed objects at star parties before they enter the drawing.

14 August 2014: Patrick Wiggins received NASA's highest civilian award, the Distinguished Public Service Medal at NASA headquarters in Washington, D.C.

20 August 2014: Charlie Green made a motion to amend the Club's constitution to eliminate term limits for officers. His motion was never acted on.

September 2014: The University of Utah changes its parking policy such that SLAS members will have to pay \$2.00 to park when they attend SLAS meetings. This led to a discussion of possibly changing the meeting location to the Natural History Museum of Utah or to the Clark Planetarium. The choice of the Planetarium would necessitate moving the meeting time from 7:00 to 8:00 p.m. Discussion will continue at a later date. The Club will continue to meet at the University's Warnock Building through the end of the year.

24 September 2014: SLAS co-sponsored a University of Utah Frontiers of Science lecture, "Two Years on Mars: The Good, The Bad and the Ugly" by Dr. Kimberly Lichtenberg, NASA. Dr. Lichtenberg's talk was preceded by an announcement by Patrick Wiggins that he had named one of the minor planets he has found for the University of Utah. The name approved by the Minor Planet Center of the International Astronomical Union was Univofutah. After first displaying the name in all black text another version popped up with the second "u" changed to a large, red, block letter U.

20 May 2015: Following problems with parking at the University of Utah SLAS general membership meetings are moved to the Rampton Technology building on the Salt Lake Community College's Redwood Road campus.

17 September 2015 SLAS cosponsors with the U of a Frontiers of Science Lecture about NASA's New Horizons mission featuring Dr. John D. Spencer from Southwest Research Institute.

27 September 2015 SLAS hosts a public eclipse watch at the Bangarter Crossing Harmons in Draper for a total eclipse of the Moon.

31 December 2015 SLAS ends the year with 302 members. First time to be that high at the end of the year.

### **Little Mountain History**

Brent Watson was employed at Hansen Planetarium, where he hosted public star parties in 1969 and 1970 and selected the site for observing at Little Mountain...He said he was trying to get a second site for the society for observing at Little Mountain where the Hansen Planetarium observing location is and possibly house a 9" Alvan Clark refractor there.

13 August 1971: First official star party at Little Mountain.

1972: The club scheduled all Friday nights as star parties at Little Mountain from June through September.

1973: The Club tried to have one person at every Little Mountain star party who would be in charge of talking to all visitors, passing out Society literature and selling star chars.

Dave Chamberlin remembers that they had ethereal space music for star parties that they used to play throughout the evening to enhance the stargazing mood. Lowell Lyon said this was a two-hour collection put together by Ken Meyer and that Ken would broadcast it from the speakers in his RV.

Erik Hansen wrote, "SLAS had and still has permission to use the upper parking at Little Mountain if we pushed the issue." He said the Water Shed Manager got a little "testy" about individual club members asking for the key. Erik added that the club got away from doing Little Mountain Public Star Parties for more reasons than that, but occasionally the lock got changed and we could not get to the upper parking lot. He believes Salt Lake County had some liability issues with the locked gate, particularly if the gate did not get locked after a SLAS event. It was also a possible liability for SLAS.

Nate Goodman explained that Little Mountain had two levels, the lower was used for parking. The lower level parking was taken over by a natural gas pump and the top had a cell phone block building put in the middle.

Nate said they tried to continue to hold Friday star parties there, but if they stayed too late, they frequently encountered inebriated celebrators.

Jerry Montgomery writes (November/December 1980 Nova) that he has been a member since first year and was part of the "chain gang" that tried to improve the road to Little Mountain. In June 1972 the club took three loads of gravel to fill holes in the road to Little Mountain, but still needed 15 tons more. John Mosley wrote to then Salt Lake City Mayor Jake Garn asking to have the city help repair the road.

January/February 1981 Nova: SLAS wrote a letter of appreciation to Chevron Pipeline Co for persuading Utah Power to run electricity to the observatory site at Little Mountain with no cost to the Society.

April 1981: Lowell Lyon asked for Society help to repair the road to Little Mountain. Board members voted that the Society did not have the money or the personnel to help.

July 1987: New signs for Little Mountain observatory site to direct traffic.

March 1988: Nova If you need key to gate at Little Mountain, contact Bob Brundige.

May 1988: Dave Bernson gave the club President five keys to Little Mountain to share with SLAS and the Hansen Planetarium. The state water folks suggested we not over use the area. A sign is placed noting that the gate is locked after star parties.

June 1994: Public can no longer park at the top of Little Mountain.

April 2001: Ken Warner reports to board that there is lots of construction at Little Mountain so star parties may need to be moved to the lower lot.

09 September 2000: Final official SLAS star party at Little Mountain.

September/October 2000 Nova: In Siegfried Jachmann's campaign statement he proposed abandoning the Little Mountain site for Harmons and SPOC II. Nate Goodman urges members to voice their views on Little Mountain.

December 2002: Bob Brundige offers to have a scope at Little Mountain every Friday during summer.

## **SPOC**

The Stansbury Park Observatory Complex (at Stansbury Park, Utah) consists of the Harmons Observatory and the Donna Pease Wiggins Refractors House. The complex is usually referred to by its initials, SPOC, which has a nice Star Trek sound as well.

The Harmons Observatory has a 40 cm (16") Ealing Classical Cassegrain telescope with CCD imaging capabilities and an 81 cm (32") computer controlled reflector telescope (named for Bruce Grim).

The Donna Pease Wiggins Refractor House (named by the primary benefactor for his late mother) contains a 200 mm (7.9") Brandt refractor which has been named for late SLAS member Andy Bogdan and a garage/storage area.

SPOC is owned and operated by SLAS and is located in the Ken Sager Memorial Park on land provided by the Stansbury Park Service Agency through a land-use agreement.

Many donations made this complex possible, including the Harmons Grocery Stores chain, SLAS member Patrick Wiggins, Roen Hale (Simpson Steel), the Leucadia Corporation, Laing Homes, the Stansbury Park Service Agency, Tooele County and many others. Volunteers donated hours of time and labor—including Chuck Hards, Bruce Grim, Patrick Wiggins, Jerry Montgomery, David Chamberlin, Ken Harris, Andy Bogdan, Ron Ford, Boyd McNeil, Siegfried Jachmann, Roger Butz, Roy Lacy, Colton Parks, Wayne Clarke, Robert St. Marie, Mike Wilson, John Moreton, Scott Crosby, Steve Bonnette, Erick Christley, Gary Christley, Mont Nielson, Richard Brady, Hank Williams, Bob Grant, Patricia McWhorter, Dave Stewart, Kim Hyatt, Rob Robinson, Steve Fisher, Larry Frisk, Ron Ford, Peter Ruplinger, Daniel Turner, Ann House, Quintin Foster, Dave Bennett, Dave Bailey,

Jerry Clegg, Colter Park, Bill Kennedy, Guy Malmborg, Mark Bloomenthal, Steve Dodds, and Dale Wilson.

## **SPOC Images**

Hundreds of images documenting SPOC throughout the years can be found on the SLAS website.

## **SPOC History**

### **Montgomery Observatory**

At a rap session at the home of Bruce Grim, Stansbury Park on 20 October 1975, a group discussed building an astronomical observatory for the Salt Lake area. Bruce Grim and Jerry Montgomery were building a 40" telescope (never completed). There is a note in first person (Judy Rider) saying, "Bruce, Jerry and myself are organizing a group separate from the society to have ownership of the scope because the society isn't strong enough at this point to accept the great responsibility of a large scope" and that the scope will be used by the public, universities and colleges and the society.

The group was called the Wasatch Scientific Group. WSG was eventually disbanded when SLAS decided to build an observatory.

In the late 60's Bruce Grim constructed a 16" F/5.7 Newtonian reflector which was located in Bountiful, UT on his father-in-laws property. Due to a job relocation to Dugway Proving Ground in 1973 Bruce relocated to Stansbury Park in Tooele County but the telescope remained in Bountiful. Discussions with SLAS member Jerry Montgomery led to the idea of donating the telescope to SLAS and relocating it.

At a SLAS meeting held at Jerry's home in Granger (now West Valley) the members approved taking on the project with the agreement that Jerry would donate a building to house the scope and Bruce would donate the telescope, since club funds were not available for the project at the time. It is reported in the SLAS newsletter that a vote was taken on 03 May 1976 to authorize the observatory. Judy Rider was the Chairman of the SLAS board at that time.

A search for a site ensued with several locations within easy driving distance of Salt Lake City being investigated. Since the intent for this observatory right from the beginning was to hold public star parties as well as provide club members with a relatively large scope (keep in mind that this and the U of U's 16" Ealing were second only to the BYU 24" Tinsley as the largest telescopes in Utah and the University scopes were only occasionally open to the public).

Contact was made with the major TV stations located on the Oquirrh mountains as possible sites. Sites in Rush Valley were also investigated.

While these sites were being considered, Jim Ward of Terracor Corp., the original developer of Stansbury Park, heard that SLAS was interested in a site and contacted Bruce and Jerry and offered a lease agreement to have the club locate just north of the Mill Pond on Terracor property. Jim was living in Bountiful at the time and had looked through the 16" scope a few years prior to this and also had an interest in astronomy.

Ultimately Jim was also instrumental in working out a land swap for the second SPOC site when it became necessary to move the original SPOC.

The club was turned down by the TV stations, for which all of us that worked on the project were very thankful when we realized how difficult and expensive it would have been to build on top of a mountain. Public access would have been next to impossible as these are private dirt roads 4000' above Salt Lake Valley.

Jerry located a 16 ft diameter war surplus steel dome off a US Liberty ship in a scrap yard in the Ogden area which had 4 ft extended sides, a small door, and no other openings. A team of dedicated SLAS members set it up in a remote part of Stansbury Park while they modified it to suit the needs of an astronomical observatory. A large slit was cut in it with hand jig saws and many metal cutting blades!

Jerry had tracks for the shutter and base rings rolled at Mark Steel, but because the dome was 16 ft in diameter we elected to roll the base rings in semi-circles and weld them together on site. This proved to be a constant source of irritation as they were never perfectly round and resulted in tight spots and occasional derailments while the dome rotated on wheels supported by pillow blocks.

A young Chuck Hards did much of the welding on the shutter support brackets high on the dome as he clung to a ladder with one hand.

Preparations at the observing site were undertaken with the help of a Stansbury backhoe to dig a trench to form the base of the north and south piers.

Jerry Montgomery remembers that great pains were taken to insure that this trench was on a true north heading using surveying equipment and confirmatory sightings on Polaris crossing the meridian at night. Jerry says they did this three times using three different methods to be certain they got it right.

Stakes were pounded in the ground to define the North South line, and the north and south pier forms constructed by Chuck Hards were set in place the next day for the concrete pour. All went well with the pour except the concrete truck was a bit short of concrete as the north pier was being poured. (We can't blame this on Siegfried - he always over estimates concrete).

According to Chuck we mixed rocks, cans, and gravel into the last few inches to bring it up to level before setting the attachment bolts in the concrete for the steel mount.

At this point the dome parts were moved to the site and the track rings attached to their anchors. Once the dome was in place the telescope was moved to the site from Bountiful on a flatbed truck borrowed from Stansbury. This was quite an undertaking as the 1200 lb. English Yoke had to be moved by lots of hands across a small bridge about 50 feet to the truck bed. Chuck Hards remembers driving the truck to Stansbury at a slow pace followed closely by Bruce to make sure no problems occurred.

At the site a make shift boom was attached to the flatbed truck body to hoist the yoke into the dome through the slit and set it in place on the piers. The crane had steel cables attached to the truck bed with cable clamps and as the yoke was lowered to within a few inches of its intended resting place on the piers one of the clamps slipped and the yoke dropped onto the piers. Miraculously it fell right into position and luckily no one had their fingers in the way!

Some time later after the 'First Light' ceremony we realized that the scope was drifting in declination. We checked the polar alignment and found the pier alignment with the pole was off by several inches! Bruce jacked up the south end of the yoke



and added a compensating plate to correct the alignment. The only thing we could figure is that someone moved the south alignment stake the night before the concrete pour, but this will forever remain a mystery.

Jerry Montgomery remembers that he and Bruce Grim explored the possibility of using a multiple mirror telescope rather than purchasing a 40" mirror blank. The concept was to glue six 12.5" pyrex mirror blanks in a circular pattern on a 40" diameter granite slab and then grind and polish them like a single blank.

This is a common procedure in optical shops when making small lenses which have been 'blocked with pitch' on a larger disk to grind and polish more than one lens at a time. As an experiment, seven 3" pyrex disks were attached to a large disk of granite with epoxy and then ground and polished by Bruce, however the epoxy created strains between the granite and pyrex because of the difference in expansion coefficients, resulting in visible strains in the diffraction pattern.

Silicon adhesive may have cured the problem, however at this point a 30" diameter by 2" thick pyrex blank was ordered to use in the scope until funds could be raised for a 40" blank for which the mount was designed. Ultimately this 30" blank was loaned to Vaughn Parsons to make a flat test mirror for his optical shop and was never put to use in a telescope.

The massive 40" English Yoke mount sat in Bruce Grim's garage for many years and was eventually hauled to a salvage yard by Vaughn Parsons. By this time the Wasatch Scientific Group had disbanded and the dream of building a large scope had been abandoned for the time being.

Bruce lists a few "Lessons Learned" from the original SPOC:

1. Slide off roofs are far superior to domes for pointing out objects in the sky.
2. Two normal size doors are absolutely essential for good throughput of people.
3. A rectangular building is better suited to handle crowds of people than a round one.

Bruce adds that an oversize dome on a rectangular building can overcome some of these objections, but the added cost is very difficult to justify for a club. He notes that the dome and scope served the club for nearly 23 years in their original locations and Lo and Behold the slide off dome has found its niche on the roof of the Donna Pease Wiggins Observatory as a Tooele County icon.

Adding more about the mirror, Jerry adds there was one other direction we tried and that was to make the mirror out of stone. Jerry looked into marble which is metamorphic limestone or very hard CaCO<sub>3</sub>. The problem was it was too soft and very sensitive to acid in the air and with the air pollution from Kennecott we figured it would not work. Jerry said we also looked at granite which would be hard enough if it didn't have mica. However the two primary minerals feldspars and quartz had a slightly different hardness and thus would not polish evenly across grain boundaries. Since we couldn't locate a good piece of quartzite with no faults as large as we would need the whole idea of using mineral or rock was abandoned.

August 1976 issue of the newsletter announced the new Observatory at Stansbury: 16" Newtonian reflector in 15' dome plus several flat concrete pads with electric outlets for members to set up on.

There is a lease with Terracor, the original owner of Stansbury Park.

The newsletter also made note of the contribution of Paul Woodruff's 6" reflector telescope.

19 March 1977: SPOC's Montgomery Observatory officially opens. It was named after Jerry Montgomery who donated much of the steel used in the project as well as the dome, which he spotted in its original incarnation as a naval gun turret cover in a salvage yard near near Brigham City.

20 January 1977: Salt Lake Tribune article announcing the observatory.

First star party brochure was used between 1977 and 1980, with pictures of telescopes on the front and information on the back. It mentions 16" reflector scope and that the observatory site was donated by Terracor.

1977: There are joint star parties by Hansen Planetarium and SLAS at Stansbury Park. Members could have keys to Stansbury observatory but had to phone Patrick Wiggins at Hansen Planetarium to reserve it. Star parties continued at Little Mountain.

January/February 1981 Nova: Permanent piers for personal telescopes at Stansbury installed.

June 1982: Concern that there is too easy access to SPOC observatory. If a member wants to be certified on the scopes, he or she has to be sponsored by three already certified members. Also, began an annual SPOC fee to help defray the cost of observatory improvements and maintenance.

October 1983: Cooke Electric Company and Jerry Foote complete wiring of SPOC's "SPOC Walk". The SPOC walk was a sidewalk near the dome which had several electrical power outlets.

January 1985: Smog from Kennecott smelter was thought to have damaged the coatings on the SPOC telescope mirror.

March 1985: Board discusses plans to build a storage unit at SPOC. Sue Hemingway (later Chamberlin) pointed out we don't have a lease so before we build we should find out our privileges.

1985: Snack bar at star parties to raise money for SLAS experimented with but did not work out.

March 1985: There are new rules for keys to SPOC. A member needs to be trained and checked off by a current specialist (only need one instead of three to approve a new person). \$10 SPOC fee.

September 1991: Concern about light pollution at SPOC, talk of moving.

December 1991: Public star parties at Bonneville Seabase near Grantsville, UT instead of SPOC to avoid light pollution.

Seabase had warming rooms, snack bars, restrooms. This went through 1992 season. Site eventually abandoned when the site when it was found the public would not travel that far.

June 1991: Nate Goodman jokingly proposed a mascot for SPOC and presents the club with a large inflatable mosquito.

March 1992: Patrick Wiggins reports that opposition from Stansbury Park residents lead to the shelving of plan to build a large apartment complex next door to SPOC.

November 1992: Members of SLAS meet with representatives of the Homeowners Association at Stansbury Park regarding light pollution at SPOC. They agree to using shielding to block lights.

June 1993: "Thank you Stansbury Park Day" (for their support of the observatory).

August 1993: Club donates a 18" Dobsonian to the Ogden Astronomy Club. The scope had been used and stored at Seabase and was in poor condition.

November 1997: Rumors spread of the possibility of a Catholic Church to be built on SPOC land. It never happened.

### **Harmons Observatory**

The observatory had to be moved when Stansbury decided to develop the area next to it.

Kim Hyatt makes a motion to confirm the developers' interest in moving the observatory dome and telescope to a site at the south west corner of Stansbury Park, at no cost to SLAS. It should be confirmed that this site will be permanent and not subject to the same development pressure. If the developer agrees, SLAS will provide a site plan.

May/June 1999 NOVA: The University of Utah has offered to permanently loan its 16" scope for the new observatory at SPOC. Lowell Lyon, Bill Kelly, Bruce Grim and Patrick Wiggins were thanked for suggesting and negotiating this disposition of the scope.

Harmons Observatory planning (early on known as SPOC II) occurred fall of 1999 through 03 March 2001, the date of the official groundbreaking with SLAS President Siegfried Jachmann.

Andy Bogdan, a retired general contractor, served as the acting work supervisor. Work continued at least until September 2006.

In July 2000: Siegfried Jachmann announced that the Harmons grocery chain would match dollar for dollar the amount raised to build the new observatory up to \$25,000 and that they would give \$25,000 regardless of what funds were raised.

The estimated budget for SPOC II was \$38,400. The January 2001 SLAS meeting included a heated discussion over the SPOC budget and costs. Discussion ranged from if the \$38,400 was a realistic estimate, to complaints about members not having input and never having voted to approve the project. After pointing out that the club already has received donated funds for the observatory project, Kim Hyatt had the membership vote. They approved the observatory project along with a motion not to go over budget.

Joan Carman objected to locating in a "light polluted area".

27 October 2001: Last public star party at SPOC's Montgomery Observatory.

Bruce Grim, with others, built the "Grim Scope at SPOC". He told how Vaughn Parsons offered the Club a 37" mirror so Chuck Hards made a beautiful 40" composite tube. Unfortunately the tube was never used since the 37" mirror never materialized and the club eventually went with smaller optics. The tube concept was eventually replaced with a much lighter truss tube design. As of this writing the tube is being used as a play house at Nova Optical.

20 March 2002: The Ealing was first used at SPOC.

May 2002: First public star party at Harmons Observatory using the Ealing reflector (the Big Scope was not yet operational).

Work on the 1960s vintage Ealing telescope went from July 2000 to September 2002 including a huge amount of work by Chuck Hards who restored the scope's appearance to nearly new condition.

Vaughn Parsons of Intermountain Optics reported he was confident that the 37" optics and cells could be ready to be installed at the Harmons Observatory sometime during the early to mid-observing season of 2003.

July 2002: Experimented with showing the public near live video of objects they could see that night at SPOC on a darkened monitor screen.

November 2002: Contract with Vaughn Parsons for 10-year ownership of the 37" optics for the Big Scope was drafted (but never finalized or signed).

22 July 2003 Board Meeting: Siegfried Jachmann announces the SPOC Committee had decided at a meeting three days before to drop Vaughn Parsons as the supplier of optics for the Big Scope. He added that Steve Dodds of NOVA Optical Systems was given the go-ahead to produce a 32" f/12 set of optics (primary and secondary) of the Dall-Kirkham Cassegrain design (a prolate ellipsoidal primary mirror and a spherical secondary). He said the optics should be installed by the beginning of 2004 observing season.

July/August 2003 NOVA: Reports a very generous donation by local internet provider Trilobyte (later Beehive Wireless), who had the observatory wired for wireless internet services. In addition to the equipment and installation, Trilobyte also agreed to donate internet service.

September 2003: Patrick Wiggins to create Pluto walk at SPOC (never happened).

11 December 2004: The 3 mirrors for the Big Scope were delivered to SLAS at the club's annual Solstice Festival. In addition to the primary and secondary which were purchased from Nova Optical Systems the tertiary was donated by Chuck Hards.

02 February 2005: The Big Scope (later renamed the Grim Reflector) first used.

16 April 2005: Dedication and official opening of Harmons Observatory. Held in conjunction with Astronomy Day. Siegfried Jachmann, was the SLAS President at the time. Special guests included Randy & Bob Harmon, Astronaut Don Lind, Senator/general/astronaut Jake Garn and Tooele Mayor Charlie Roberts.

Bruce Grim was thanked for his work in designing and building the Big Scope and it was announced that the scope would now be called the Grim Scope.

Shirts with the SLAS dedication logo/Grim Scope, were created, thanks to help of Martin & Karla van Hemert.

The event had food, light-wands, planispheres, and a star party, with over 400 attending.

Many other names of contributors to the Harmons Observatory project were to be listed on 3 "walls of fame" in the Observatory.

November 2006: Roger Ockey built a computer for the Grim Scope. The computer was installed by Bill Kennedy.

2012: The focuser on the Grim replaced with a much fancier one. New computer and monitor installed for the Grim. Mark Shelton built and donated a custom built housing for the Grim computer monitor featuring an easily removable red filter.

10 March 2014: Security system installed.

### **Donna Pease Wiggins Refractor House**

Patrick Wiggins offered his 200mm f/16.8 Brandt refractor to the club if they would provide a building for it. When funding could not be found Patrick donated \$7,500 which covered most of the building costs (which is why the building bears his late mother's name).

In the building, the old SPOC dome was used in keeping with the wishes of the Tooele County Commission and the surrounding community. However, it does not rotate and the shutter was welded shut. To expose the telescope, the dome rolls off to the north. Yes, it really is a roll off dome.

When closed, the inside of the dome can double as a projection screen for a planetarium star projector. The pier, which was donated by Siegfried Jachmann, dates back to 1915 and was originally used with the University of Utah's Alvan Clark & Sons refractor (Siegfried has the Clark refractor).

2002: Planning began.

02 September 2003: Board approved up to \$3,500 for construction.

23 March 2004: Kim Hyatt draws plans for the building and the Leucadia Financial Corporation donates \$12,500 for grounds maintenance.

27 April 2004: Patrick Wiggins donates \$7,500, the largest donation ever made to SLAS by a SLAS member. By coincidence the donation was made on Patrick's 55th birthday.

18 June 2004: Ground breaking.

October 2005: Refractor first used.

05 August 2006: Dedication and official opening where Patrick Wiggins dedicated and named the facility for his late mother, Donna Pease Wiggins.

The refractor was then named for late SLAS member Andy Bogdan.

Andy was not nearly as interested in astronomy as in building things. He worked on both the Harmons Observatory and the Refractor House. When he was loading up his truck for yet another day of labor on the Refractor House he suffered a fatal heart attack.

At the ceremony for naming the scope, the door to the observatory was taped shut with duct tape which Patrick Wiggins opened with a construction worker's utility knife. Andy Bogdan's memorial plaque was covered with a roulette wheel table covering, inspired by Andy's love of gambling. Andy's wife removed the cover and dedicated the scope in Andy's name.

March 2009: 2009 Two concrete pads poured, one to connect the sidewalks and one for the ADA scope.

September 2011: Kelly Ricks donates an engraved brass plaque for SPOC's Refractor House. It is a stylized rendition of Van Gogh's "Starry Night" with the addition of a person looking through a telescope.

November 2011: Electric slow motion controls for the refractor are ready to be installed in spring 2012

2012: Bill Kennedy starts working on installing slow motion controls on the refractor.

June 2012: Extensive repair of leaky refractor dome followed by a fresh paint job.

22 September 2012: Antique Lunar Quadrant Charts donated by Patrick Wiggins that SLAS member Mark Shelton framed along and the engraved brass art piece "Another Starry Night" which was created and donated by SLAS member Kelly Ricks are hung in the Refractor House.

10 March 2014: Security system installed.

11 April 2015: Chuck Hards donated a full-aperture Baader white-light solar filter for use on the Bogdan refractor.

#### **SPOC Advisory Committee**

The first SPOC Advisory Committee meeting was held in February 2002. Committee members were Chair Kim Hyatt, 1-year term; Harmons representative Mark Meadows; Dave Bernson, 1-year term; Patrick Wiggins, 2-year term, Ron Ford, 2-year term; Roger Butz, 3-year term and Bruce Grim 3-year term.

One committee seat is filled by the SLAS President and one by a representative of Harmons. Two committee seats will become vacant each year, to be appointed by the incoming SLAS board. New appointments will be for a term of three years. The committee will elect its own chair.

The Board handles SPOC issues and policies such as crowd control, access, insurance, training, fees, use of facilities, security, etc.

Star parties at SPOC will be hosted by the Salt Lake Astronomical Society. The committee stated that unless and until the planetarium chooses to play a more active role in SLAS and the new observatory, the planetarium will not be billed as a co-host of the public star parties. (October 2002 was the last SLAS/Hansen Planetarium star party at SPOC).

February 2004 Board meeting: Issued a statement that the purpose of the Advisory Committee is to assist the SLAS Board in the administration of SPOC. The Committee makes policy and administrative recommendations to the SLAS Board.

Priorities of SPOC include SLAS star parties, SLAS special events and training classes. The SLAS Board appoints a caretaker of SPOC for an indefinite period, who oversees facilities, maintenance, repairs, season opening and closing, combination locks and serves as a liaison with Stansbury Park. Bruce Grim holds the caretaker position.

In 2005 Kevin Bushnell became the Harmons representative on the Advisory Board upon the death of Mark Meadows.

Presently, some members are not clear about what the SPOC Board does, referring to it as a separate "shadow" board that runs the SPOC Observatory and has a budget and believe that one can only be appointed if you donate money to SPOC. Some think board members should be elected not appointed. Several folks have wished money would be spent on better eyepieces for the scopes at SPOC.

December 2007 Board meeting: Agreed on the club providing only adequate eyepieces for SPOC. Those wanting premium eyepieces should provide their own.

2007: There are some lawn watering timing problems causing sprinklers to come on during SPOC events. When this happened, fast moving SLAS members grabbed orange road cones that were nearby and capped the water spray. One car was parked right on top of a sprinkler.

March 2008: Bruce Grim works with new park manager to fix the problem with the SPOC sprinklers.

June 2008: Mark Bloomenthal presents changes in SPOC policies and procedures. The major changes include age restrictions that one must be at least 14 years old to take training and must be 18 or older to reserve and use a scope alone. Once all other qualifications are met a member must pay their own SPOC key fee and have their own SLAS membership. Also, all minors must be accompanied by a parent or legal guardian when taking training or operating a telescope.

June 2011: Bruce Grim retires as the SPOC observatory director, a position he has held since 1975. Bruce is given the title of Observatory Director Emeritus and in July, Siegfried Jachmann is appointed the new observatory director but resigns shortly thereafter and Rodger Fry takes over.

Current: To become a SPOC key-holder you must complete a telescope operator class and exam to the satisfaction of an instructor, pay the annual SPOC user fee and have been a member of SLAS for at least six months.

March 2014: Installed alarm system at observatory buildings & approved purchasing a laser collimator for use at star parties.

## **Newsletters**

Currently NOVA is a bimonthly newsletter containing minutes of Board and general meetings, with names and contact information for Board members and lists the names of members who have just joined the club...It provides information on special events, calendars, activities, reports, speakers, field trips and conventions. NOVA may contain advertising of equipment for sale by members and members are encouraged to submit articles.

The early club newsletter, started in the early 70s was called "The Scope Jockies' Journal," before becoming the NOVA in 1979.

Prior to these publications, Patrick Wiggins has a collection of minutes, beginning in 1971, mainly written by John Mosley; beginning in February 1973 they are mostly written by Judy Rider.

Chuck Hards joined the club as a teenager. He drew the Scope Jockies' Journal cover (inspired from the movie "Dr. Strangelove" where the Slim Pickens character rides a

bomb while waving his hat) and was also the editor for a while. The cover includes a sports car (Chuck says John Mosley, staff astronomer at the Hansen Planetarium at the time, had an MG Midget that found its way onto the cover) along with a man looking through a scope, a man calling and pointing by scope at a man riding a scope and waving cowboy hat.

The Journal sometimes had ads for STAR, Star Trek Association for Revival, in Magna, Utah.

November 1975: Mark Littmann and John Mosley of Hansen Planetarium made their printing facility available to the club for the journal.

March 1976: Terry Ashton is editor. No journal summer 1977 because arrangement for printing with Hansen Planetarium ended when John Mosley went to new job at Griffith Observatory.

Revised Scope Jockies' journal was monthly, different art work each issue.

In 1978: Member Leonard Wojcik did offset printing for Scope Jockies'.

After the 1979 coup, Brent Watson printed one temporary newsletter and called it NOVA.

1979/1980: Nate Goodman became editor and asked to keep the name and used black and white astronomical photos on the cover. Nate typed it on a typewriter and a club member, Leonard Wojcik, had a small mimeograph printing press and if the club provided the paper, he printed the monthly newsletter.

1981: Patrick Wiggins took over the editor position.

Summer 1982: Printer can no longer print for free, now \$10 for 125 issues of 6 pieces of paper and 1 B & W photo.

March 1985: Joan Carman becomes the new editor, and wants to encourage member articles.

January 1988: Patrick Wiggins printed History of Society in bound journals of society – NOVAS and the Scope Jockies' Journals. There are currently three volumes, 1: November 1974 to August 1979; 2: September 1979 to December 1989; 3: January 1990 to December 2000. He has January 2001 through the present in a folder and plans to have them and issues up through 2010 bound in January 2011. He also has loose copies of typed minutes from 1971 to October 1975 (with a gap from August 1973 to March 1974).

1988: Joan Carman is still the editor but Patrick Wiggins typesets and sends to the printer.

Summer 1988: Member Dawn Hendry to print NOVA with laser printer through the University of Utah.

1990: Joan ends her five years as editor and Patrick Wiggins picks up the reigns again.

January 1994: Michael Stringfellow becomes editor. Says he is changing format to news items on front page and shorter minutes. He moved out of state, so July/August 1994 was his last NOVA.

1994: Joan Carman picks up editorship again.

February 1995: Dave & Sue Chamberlin become NOVA editors.



1999: Tom Sevcik takes over the editor position until 2006.

2004: NOVA goes on-line on club website with issues retro to 2000.

June 2005: Board decides to allow private ads in NOVA for a fee (\$25 half page) but the idea never caught on.

2006: Patrick Wiggins once again takes on the editorship.

December 2011: Wanting to "go green" and noting that few members still wanted paper copies the board votes to have no more paper newsletters. It will be emailed to members and continue to be made available on the club website.

Note: See addendum for examples of various articles for the newsletter.

## **Logos**

Who designed the club's original logo of the Earth & Moon overlapping?

October 1972: Judy Rider had club patches made.

1982: Bill Cowles proposed a Society logo, of a circle with the whirlpool galaxy in the center and society name around the outer edge, separated by Saturn and the big dipper. Patch and logo beehive shaped sky with SLAS spelled out across top and a spiral galaxy in the center.

November 1983: Nate Goodman designed a possible SLAS patch.

March 1984: Scott Crosby designed a logo showing a telescope looking out of a beehive set on an outline of the State of Utah. Five pointed star at location of SLC, words SLAS beneath.

Summer 1986: Club patches and tee shirts sold (SLAS around a beehive).

June 1984: Becky Arnim (later Edmunds) & crew quilt a club banner of Scott Crosby's design (Hangs at SPOC, half in the Harmons building and half in the Refractor House).

Current logo again has sky in beehive shape with Saturn like ring around it, inside stars, city outline & silhouette of telescope and viewers pointing up at sky, "SLAS" below and "Salt Lake Astronomical Society" below that.

November 2006: Jess Clifford of Clifford Studios designed this SLAS logo and logos for the SPOC grand opening, t-shirts and 2002 Astronomical League Convention. Lowell Lyon was also heavily involved in this project.

## **Club Events**

1972: Richard Wade sets up a tour of a mine in Park City used to investigate cosmic rays.

May 1972: Telescope Fair. The club decided it would be fun to see everyone else's telescopes and compare and discuss their performance. The first "telescope fair" was in the Planetarium Pendulum room, 06 May 1972 instead of the May meeting. There were

refreshments and door prizes. The 1973 fair was publicized by local TV hostess Jackie Nokes (KSL) and KCPX contributed a door prize.

1972: Utah State Fair Judy Rider arranged for a booth in an exhibition building with other non-profit groups and the club also had a telescope set up outside. She reported that they collected names of 60 interested people in the first five days.

1974: Chuck Hards helped polish an 8" mirror with John Baldwin's mirror grinding machine to attract crowds. Said Chuck "The only drawback is that, when it's (the fair) is over, you'll never want to even look at another Pronto Pup or Turkey burger ever again, and the smell of manure will be forever impressed on your brain."

Participation in the fair was stopped in 1975 because it was too hard to find enough club members to spend the long hours and over the time period of the fair. A member suggested astronomical themed tree at festival of trees instead but that was never done.

September 1972: The 16" scope at the University of Utah (now at SPOC) was reserved for the second week of each month for SLAS members.

### **Solstice Parties**

December 1972: Jerry Montgomery proposed a purely social activity for the club during the holidays such as pot luck or pizza at someone's home. The first Christmas/Solstice party was held that year at Judy Rider's home where they made, baked and ate pizzas.

1973: Summer solstice party. Two nights at Guardsman Pass.

1973: Annual summer solstice party. Two nights at Guardsman Pass, contacts were Lowell Lyon & Jerry Montgomery. In 1974, Steve Jacobs was the organizer.

04 December 1974: Winter Solstice Party, at Jerry Montgomery's.

08 December 1979: Annual Christmas party at Jerry Montgomery's home with pizza.

19 December 1980: Pizza party at Jerry Montgomery's home.

18 December 1981: Held at Joan Carman's home.

Awards: Best use of a sewer pipe awarded to Siegfried Jachmann (his choice of telescope tube material); Eric Edmunds received, Best Planned Star Party That Nobody Went To (frozen out at Canyonlands star party); Patrick Wiggins, Trek miles just to collimate; Brent Watson, solar observing emergency kit (fire in his 22" Dob while looking at the Sun).

Ken Meyer played a tape of "Night on Bald Mountain" in which he, David Chamberlin and Nate Goodman took a comedic look at the society's forays to Bald Mountain.

18 December 1982: Solstice party at Susan Bucher's (previously Hemingway, later Chamberlin) home. Computer games. Dave Chamberlin, Nate Goodman & Ken Meyer do "A SLASmas Carol" with the ghosts of star parties past, present & future.

10 December 1983: Solstice Party at Patrick Wiggins' new home. Computer games, tours of Patrick's observatory, movie "The Day the Earth Stood Still". 50 attended, the "largest number yet". Ken Meyer & Co. recorded "Twas the Night Before Christmas" which poked fun at aspects of amateur astronomy...In the story, the ghost of SLAS future predicted the demise of various club members, such as Siegfried Jachmann, shot

by his wife when he brought home another scope; Patrick Wiggins and unknown female found in an observatory at Tooele killed by a nerve gas leak; and Bob Brundige died when he refused to leave Little Mountain, even though it had become a nuclear waste dump, and was buried in the tube of his scope.

15 December 1984: Solstice Party at Richard Sorensen's home. Pinball, First club photography contest. Winners were: Best astro photo, Bob Brundige of solar eclipse in New Orleans, Dave Bernson, construction of Dobsonian mounted refractor, Deep Sky Dave Bailey, M42.

14 December 1985: Solstice Party, Richard Sorensen's home. BYOB , 55 attended...Ken Meyer gave valuable service certificates to members. Audio tape SLAS Magazine and altered video of Prime Time Access coverage with over dubbing that seem to suggest that the best way to select a telescope was by the color. Astronomy contest winners were announced.

13 December 1986: Solstice Party, Richard Sorensen's home. 52 attended, Ken Meyer tapes & videos, "The Dream" (dream where the telescopes come alive and go out on their own). Astronomy contest.

12 December 1987: Solstice Party Jerry Foots' home. Astronomy contest and outstanding achievement award to Bruce Grim. Nate Goodman and Bruce Grim play humorous video. "The Message" spoof where spaceship lands.

09 December 1988: Solstice Party at Jerry Foote's home. 63 attended, door prizes, Ken Meyer on guitar, Bruce Smith banjo, a guest on a synthesizer...Astronomy contest winners.

15 December 1989: Solstice Party at Patrick Wiggins' home. The Mickey Mouse cope was awarded for the first time and was won by the evening's co-host, Patrick Wiggins.

15 December 1990: Solstice Party at Stansbury Park Club House. Played astronomical version of Jeopardy. Patrick Wiggins won the Mickey Mouse telescope for the send year in a row (it was later divulged that without the winner's knowledge the drawing had been rigged).

14 December 1991: Solstice Party at home of Jerry Foote, Astronomy version of concentration game, spoof video of SLAS trek to La Paz (Ken, Nate, Dave) followed at midnight at a restaurant discussing the history of Star Trek's Enterprise. Amy Witkowsky won the Mickey Mouse telescope.

12 December 1992: Solstice Party at Stansbury Park Clubhouse, Galaxy of Fortune game, spin wheel & get quizzed on a subject from astronomy, star trek, SLAS History to member trivia. Lowell Lyon won the Mickey Mouse telescope.

11 December 1993: Stansbury Park Clubhouse, swap meet, show & tell, cosmic crossword puzzle, the "Great Anchovy Pizza" affair (Patrick Wiggins mistakenly ordered pizzas with anchovies instead of the intended artichokes and few people would eat them). Bruce Grim won the Mickey Mouse telescope and later added a pipe fitting mount.

02 December 1994: Mt. Vernon Cove Club House (4700 S 7E). Bill Kelly won the Mickey Mouse telescope and later added one of his "BKD" (Bill Kelly Device).

09 December 1995: Solstice Party at home of Patrick Wiggins, SLASMas Carols by Robert Cavanaugh, game with tag on back & ask others yes or no questions about what astronomical thing is on their tag. Video "how to make a mirror on a budget" spoof on mirror making. Some members hid unopened cans of anchovies around Patrick's place in "honor" of the "Great Anchovy Pizza Affair" (see the 1993 party description above).

06 December 1996: Solstice Party at Stansbury Park Club house. SLAS Pictionary and SLASmascarols. Melissa Jolley won the Mickey Mouse telescope.

05 December 1997: Solstice Party, First Unitarian Church in SLC. Charlie Green won the Mickey Mouse telescope and later added a Telrad.

04 December 1998: Solstice Party, First Unitarian Church, "Spuds in Space, with space-themed costumes.

11 December 1999: Solstice Party, First Unitarian Church, "30 Years since 1<sup>st</sup> Lunar Landing", costumes with lunar theme, astronomy gallery, Jeopardy with an astronomical theme.

09 December 2000: Solstice Party, Stansbury Park Clubhouse, Santa and Prancer sing-a-long. Note: That Christmas day was a partial solar eclipse.

01 December 2001: Solstice Party, Stansbury Park Clubhouse, bingo, skits, Irish Dancing. Steven Anderson won the Mickey Mouse telescope and later added a solar filter.

03 December 2002: Solstice Party, 10th East Senior Center, "What am I?" sticker on back and "Who Wants to be an Astronomer?" games. Ron Spiers won the Mickey Mouse telescope.

13 December 2003: Solstice Party, Zion Evangelical Lutheran Church (1070 Foothill) Celtic theme, quizzes on meaning of Solstice and Astronomy, make a wish and hang a star or moon on a tree. Josephine Grahn won the Mickey Mouse telescope and later added a "minus everything" filter (a piece of aluminum).

11 December 2004: Solstice Party, Zion Evangelical Lutheran Church. Program: Unusual SLAS events, auction NASA Atlas for funds for the refractor building, official presentation of the 32" mirror. Daniel Turner won the Mickey Mouse telescope and later added a bino viewer made of plumbing fixtures and duct tape.

10 December 2005: Solstice Party, Zion Evangelical Lutheran Church. SLASmascarols led by Mark Swain. Lowell Lyon played a video of past SLAS events and had Cindy Dodds, David Bernson & Tom Sevcik add slapstick lines to the "silent movie." Steve Dodds won the Mickey Mouse telescope and later added a custom carrying case.

09 December 2006: Solstice Party, Zion Evangelical Lutheran Church. Who am I game, door prizes, and a Christmas Cactus with growing instructions (Ann House) for everyone. Creed Haymond won the Mickey Mouse telescope and later added digital imaging capabilities.

08 December 2007: Solstice Festival, Zion Evangelical Lutheran Church. "Big Bango" game, (bingo) with Messier and NGC numbers, sun theme decorations. Al Rowe won the Mickey Mouse telescope and later added solar panels.

06 December 2008: Solstice Festival, Golden Corral in Midvale. First time the festival was held at a restaurant. Huge buffet and traditional raffle. This may have been the largest turnout in SLAS history with 120 attending. Rodger Fry won the Mickey Mouse telescope (at the following week's SLAS board meeting Patrick Wiggins noted that the Mickey Mouse scope had been awarded 20 times and that it was starting to look pretty sad and folks are running out of ideas for modifications. He suggest the scope be retired. Ann House came up with the idea of displaying it at SPOC in an attractive glass case complete with a plaque listing all of the winners. This suggestion was approved and the scope was retired).

12 December 2009: Solstice Festival, Golden Corral in Midvale. Buffet dinner and raffle. About 70 members and their families attended.

11 December 2010: Solstice Festival, Golden Corral in Midvale. Buffet dinner and raffle. Joe Bauman given special award for his persistence and humor in astrophotography through many adversities. Dave Bernson, as outgoing President, was presented with a tee shirt "Daveipedia" playing on his Wikipedia/encyclopedia-like knowledge on all things astronomical.

10 December 2011: Solstice Festival, Golden Corral in Midvale. Buffet dinner and raffle.

01 December 2012: Solstice Festival, Golden Corral in Midvale. Buffet dinner and raffle.

07 December 2013: Solstice Festival, Golden Corral in Midvale. Buffet dinner and raffle.

06 December 2014: Solstice Festival, Golden Corral in Midvale. Buffet dinner and raffle.

05 December 2015: Solstice Festival, Golden Corral in Midvale. Buffet dinner and raffle.

### **Rap Sessions**

1971: In addition to the monthly club meetings, members would gather at other's homes to talk about a specific topic of special interest to the attendees. Lowell Lyon said that that in the 1970's rap session were held every month at someone's home or apartment with refreshments. Topics might range from a debate on cosmology: steady state vs. big bang or a discussion of favorite planetary nebula. Examples:..October 1971 In John Mosley's home, on various topics, also in 1971, Judy Rider on "Mars"; Lowell Lyon on "Telescope Accessories", May 1972 Richard Wade on occultation of Antares; October 1972, Judy Rider, "Observing Planets"; April 1973, Judy Rider on Messier Objects; June 1993, Nate Goodman hosts; February 2006, Don Colton holds one at his home on the themes "Getting the Most out of Personal Observing". September 2006, Scott Crosby's home on telescope making. 2007 Session on observing programs and finding objects at home of Mike Davis includes a tour a neighbor's (David Derrick?) personal planetarium and space "museum."

### **Other SLAS Events**

November 1976: Club meeting was a trip to KUTV 2 to watch Mark Eubank give his weather show.

Summer 1977: Society to teach a special "Observational Astronomy" class through the University of Utah.

20 July 1979: SLC is chosen by NASA as one of two states in US for US Space Week, July 16-24. Local space week events also held over the years.

Riverside Telescope Makers Conference is a telescope making conference held each year near Big Bear, California over the Memorial Day Weekend. It started in 1968. This is not an official club activity, but it is a tradition for many club members.

Activities include seminars, workshops, all night star parties, swap meet, commercial astronomy vendors and award ceremonies. Telescope making contests are open to all participants and talented scope builders bring their latest creations.

There are dorms, camp sites or motels. New and used equipment and accessories are sold and door prizes are distributed...Attendance varies from 800 to over 2,000.

This event is mentioned annually in the SLAS newsletters, and was first referred to in club minutes in 1972.

September 1982: Club excursion to Lick Observatory in CA, 36" refractor.

September 1983: Kitt Peak Observatory trip.

1984: SLAS annual competition.

This contest continued until 2006. Winners announced and prizes given at annual Solstice Party. Examples of contest categories: Observing Program, Telescope Making, Telescope Accessories, Deep Sky Photography, Solar System Photography, Special Event Photography (i.e. comet, meteors, etc.), Crater Clavius photography, Astronomy Arts, Comets and piggy back photography. At times, prizes were donated from various astronomical companies.

March 1984: Astrophotography workshop.

July 1985: Space Week, ZCMI Mall.

May 1985: Texas Star party.

July 1986: Space Week, Crossroads Mall.

July 1986: For members of a year or less, began Intensive Course night (did not last).

May 1987: Day long tour of Fly's Eye Facility on the Dugway Proving Grounds.

July 1988: On, Swap meet, often with a barbeque, called "Star-B-Q" and followed by a star party; Sometimes this event is combined with a swap meet, such as in February 2000 when one was held in Bountiful with the Odgen Astronomical Society, SLAS and the Utah Valley club, called The Northern Utah Astronomical Swap Meet. 2008 Star-B-Q included golf at the Stansbury course.

July 1989: Space Week, ZCMI Mall.

February 1990: SIGS (Special Interest Groups) formed. For example Sig Astro (photography) Sig tel, Sig cc (occultation timings.). Another good idea that didn't pan out.

11 July 1991: 3 different groups from SLAS go to Mexico for the Solar Eclipse (by train, plane and car).

July 1994: Space week was 25<sup>th</sup> anniversary of first Moon landing.

March 1995: David Chamberlin conducts astrophotography workshop at Hansen Planetarium.

Messier Marathons are all-night star parties usually held in March on or near the new Moon. All through the night members try to observe as many objects as they can from the Messier Catalogue.

May 1995: Joan Carman hosts "get to know you meetings" at her home for newer members.

In 2002 to ? there was a monthly astrophotography contest on a specified object (different each month), with \$5 and later \$10 prize awarded at the following meeting.

24 October 1995: Some SLAS members go to Aruba for solar eclipse.

1996 (dates uncertain): Brent Watson taught a series of mirror grinding classes in his airplane hanger at the Bountiful Skypark airport.

March 1996: New member meeting hosed by Lowell Lyon, followed by second meeting in June at Joan Carman's home.

August 1995: Deloy Pierce suggested idea of a buddy system where newer members would be called to remind them of upcoming events.

March/April 1999: Idea to give "observing bucks" at star parties to the public for observing certain objects. "Tough bucks" awarded for seeing obscure objects. The observing bucks will be signed put in a drawing for astronomical binoculars, with winner drawn at the August, September & October general meetings.

November 2000: Brent Watson hosts mirror making class.

May 2001: Tour of Steven Dodds' NOVA optical facility.

July 2001: Trip to Lowell Observatory with Ogden Club, trip described in Sept/October 2001 NOVA.

23-31 August 2003: Trip to Lowell when Mars was 25 arc seconds in diameter and closer than any time in 60,000 years.

September 2003: At SLAS meeting Kim Hyatt talks about idea of dropping a bowling ball from a plane onto the Salt Flats to simulate a meteor impact. On 13 February 2004 Patrick Wiggins flew a rented Cessna 152 over the privately run Bonneville Seabase at 250 meters. Ann House, the missions' bombardier, dropped a bowling ball out the window.

The ball penetrated the ground almost half its diameter, and ejecta spread about 35 meters down range from the impact site. All of the ejected material shot in one direction, indicating it had some horizontal velocity when it struck.

This experiment made local, national and international news and Ann has received questions from students over the years about just what was dropped from a plane.

October 2005: Association of Space Explorers 19<sup>th</sup> Planetary Congress held in Salt Lake, Salt Palace.

2006: Members were encouraged to select an Astronomical League Observing Program and work towards completion. Certificates would be given at the Solstice party.

19 May 2007: International Sidewalk Astronomy Night, not a SLAS event but members were encouraged to participate.

19 September 2007: Lights Out Utah Experiment. State urges all nonessential lighting to be turned off from 9:00 to 10:00 p.m.

March 2008: Sir Arnold W. Wolfendale, former United Kingdom Astronomer Royal (1991-1995) public talk, "Time: From Harrison's Clock to New Physics" and high tea that SLAS members were invited to attend.

United Nations declares 2009 the International Year of Astronomy (IYA), to celebrate the 400<sup>th</sup> anniversary of Galileo looking through his telescope.

5 August 2012: SLAS participates in the University of Utah's Mars landing event.

### **Star Parties, Public**

Spring 1971: Star parties open to interested members of the public. SLAS and the Hansen Planetarium would jointly sponsor a public star party each Friday during the summer on Little Mountain.

17 March 1972: At State Capitol, star party highlighting Mercury.

07 June 1972: Little Mountain star party featuring celestial scavenger hunt.

1977: Star Parties were at Little Mountain and Stansbury and some in the city at parks or schools for maximum public access. Parties at city parks were on full moon nights. Schedule was 1<sup>st</sup>, 3<sup>rd</sup>, and 5<sup>th</sup> Fridays at Little Mountain; and 2<sup>nd</sup> & 4<sup>th</sup> Fridays at Stansbury. The Hansen Planetarium would send an Astrovan and a lecturer. Also on Fridays at the Planetarium they would hold a "briefing" in their star theatre of the stars and constellations that the public could see that night, charged 50 cents, later \$1.

July 1980: Telescope fair & star party co-sponsored with the Planetarium at Sugar House Park. Several thousand attended (mainly for the fireworks). 25 scopes at Highland High.

March 1981: Brent Watson and Siegfried Jachmann regularly host private star parties at the Harmons in Midvale. Siegfried said he and Brent were looking for an alternative way to bring astronomy to the public besides Little Mountain and picked the Harmons at 9<sup>th</sup> and Ft. Union. Brent set up his 8" Brandt, Siegfried the 9" Clark and alarmed employees at Harmons called the police. Brent and Siegfried explained what they were doing and showed the police Saturn and Jupiter through their telescope. They then starting talking with Harmons to get their approval. As they kept bringing their telescopes to Harmons they found that hundreds attended and they urged other club members hold similar gatherings.

March 1982: Siegfried Jachmann and his Clark Refractor make the Salt Lake Tribune in an "End of World" star party. Over 2,000 attended and the event was covered by all local new media and one national. A book by John Briggan and Stephan Plagemann called, "The Jupiter Effect" purported that alignment of planets would raise havoc on earth.

SLAS teamed with the Hansen Planetarium with the intent to show that bad effects predicted in the "The Jupiter Effect" from the planetary alignments would not happen. Instead this alignment enabled the public to observe all the planets. Siegfried said this was the first official SLAS star party at Harmons at Harmons' 7200 South location (since closed and moved) and that its success cemented the relationship with Harmons.

05 July 1982: Lunar eclipse party started at Der Ratskeller Pizza and finished at SPOC.

1985: Sue Hemingway (later Butcher and then Chamberlin) suggested not having telescope fair at Sugarhouse Park but move to SPOC instead.



June 1992: Lunar Eclipse party at Harmons, many held at SPOC & Harmons over the years.

Sun parties have been held at Hogle Zoo, Sugarhouse Park, Harmons, Hansen Planetarium, Sam's Club in Murray, Liberty Park, The Gallivan Center and Winchester Park on the Jordan River Parkway.

National/International Astronomy Day is usually in late April or early May, on a Saturday just on or close to the first quarter Moon. There are daytime and evening events for the public. Activities have been held at Little Mountain, Harmons, Hansen Planetarium, SPOC, This is the Place Park and various shopping malls. For example, at SPOC in 2004 there was solar viewing, a lecture on choosing and using a scope, children's games, door prizes, observatory tours and a star party with over 400 attending.

In 2006 some events were held at the downtown Salt Lake Library square with talks by astronauts Garn and Lind, various SLAS members, and Lynn Higgs, U. of U. Physics, gave demonstrations.

May 2008: Four scopes were given away, one at each star party location along with copies of a large coffee table book called "The Universe", binoculars and other items. Harmons donated two telescopes to give away at the events at their venues, the Planetarium provided one and SLAS gave one. Tom Sevcik designed a color brochure to advertise the events.

1984: Public star parties changed from every Friday, to two Fridays a month and none at Little Mountain. New moon weekend open for private club star parties. Becky Arnim's (later Edmunds) motion to have in town star parties at different locations passed.

27-28 July 1984: Joint star party with the Denver Astronomical Society at Dinosaur National Monument. Repeated in 1985 and called Mt. Astronomy Rendezvous.

February 1985: Star Party schedule, May - August: First Friday town public star parties, 2<sup>nd</sup> Friday, public parties at SPOC, 3<sup>rd</sup> Friday private club parties, location selected by members, 4<sup>th</sup> Friday, public parties at Little Mountain.

There have been many public star parties at schools, camps, Red Butte Gardens, Solitude, Snowbird in conjunction with their outdoor summer concerts, etc. They have been held at parks where the public may join such as Great Basin National Park, Capitol Reef, Bryce, and Natural Bridges.

Spring of 1986: Comet Halley Parties-- Dead Horse Point, sponsored by University of Utah, Little Mountain (with an estimate of 5,000 people) and SPOC.

August 1988: Bob Brundige, Mars viewing party at Little Mountain with KCPX attending.

22 September 1988: "War of Worlds" star party for observing Mars on the night of Mars' close approach to Earth, held at Harmons. Audio tape played of the "War of the Worlds".

June 1992 & 1993: Public solstice party at Sun Tunnels...(This art by Nancy Holt, completed in 1976, consists of four large concrete tubes, laid out in the desert in an open X configuration. The nine foot diameter, 18 foot long "tunnels" are pierced by holes, some stars and moon shapes, of varying size, that correspond with the pattern of selected celestial constellations. There is a tunnel for Draco, Perseus, Columbia and Capricorn. Location: NW Utah, 40 miles north of Wendover, five miles south of Lucin).

Club members Karen & Deloy Pierce hosted star parties at the Grand Canyon for a number of years (1993? to 2004?).

May 1995: Antelope Island star party with Ogden club.

Mercury/Sun Transit Parties at Harmons, November 1999 and November 2006.

10 March 2000: Planetary conjunction star party at Harmons. Moon, Mars, Jupiter and Saturn are all within a few degrees. Radio Station U92 has a drawing for a telescope, passes to "Mission to Mars" movie, ATV and tee shirts.

June 2001: SLAS members invited to be part of annual Bryce Canyon Astronomy Festival—a public, four-night star party hosted and publicized by Bryce Canyon Park Service. Short training required, but park fees waived and free camping for SLAS members setting up scopes for the public.

June 2002: Partial Solar Eclipse Party (55%) at SPOC, 300+ attend.

08 February 2003: Bruce Grim and Patrick Wiggins organized Harmons "Saturn Watch" Party, 30-40 scopes, 300+ attendees.

August 2003: Several Mars Parties at SPOC for Mar's closest approach in 60,000 years. Between 23rd and 27th about 4,000 showed up. There were live broadcasts from channels 2, 4, 5 & 13.

March/April 2007: NOVA notes that in 2006 the club had 41 public events, not including school presentations.

2008: Held public star parties at This is the Place Heritage Park, along with SPOC and Harmons star parties as part of regular schedule. "This is the Place" location was discontinued after the 2008 season.

16 August 2008: Stansbury Park appreciation star party held along with the Stansbury Days annual celebration and fireworks.

29 & 30 August 2008: Park Service at Natural Bridges National Monument asked SLAS members to participate in a park-sponsored public star party, on a small scale, as is done at Bryce. (There were about 8 scopes and 50 visitors.)

April 2009: Begin public star party season including the Wheeler Farm location, along with SPOC and Harmons.

14 September 2010: SLAS Board of Directors agrees to add one public star party per year at Jordanelle State Park to the schedule.

June 29 to July 2, 2011: Annual Astronomical League Convention (ALCON) coinciding with Bryce Canyons' annual Astronomy Festival. Events included children's workshops on rocket building and launches, a discussion by filmmaker Ian Cheny about his movie "The City Dark", a keynote lecture by Carolyn Shoemaker and a variety of daytime lectures covering filters to observing techniques. John Dobson created a re-recorded question and answer session for ALCON. Lowell Lyon received the G. R. Wright Award for outstanding service to astronomy and the League.

May 2012: Wheeler Farm administrators announced that no cars will be allowed on their lawns for star gazing, so the club will need to find a new in-town site for 3<sup>rd</sup> quarter star parties for next year. When none was found, it was decided to have three SPOC star parties and one Harmons star party per month.

05 June 2012: transit of Venus, Utah Museum of Natural History & at Brickyard Harmons. Steve Fisher headed the events with the packed crowds (almost 2,000) at the Museum. Clouds in the Salt Lake Valley hid the transit for most of the time.

27 June 2012: Begins sun parties in afternoons at the University of Utah Museum of Natural History. After this one, starting in November they are scheduled twice a month during the winter from 12 to 4 p.m., weather permitting.

21 December 2012: "End of the World Party" at 7<sup>th</sup> Street Harmons. Prizes, snacks & costumes encouraged.

October 2013: Wheeler Farm offers a new site for 3rd quarter Moon public star parties. Venue tested with a star party on 20 October. It was a success so there will be star parties there for the 2013-14 season.

### **Star Parties, Private**

One of the earliest overnight star parties was organized by Lowell Lyon at Grantsville in 1972.

Private Star parties for various events such as July 1980, Jupiter occulted by moon. Annual Perseid Meteor shower watches (those watching on 12 August 2000 were treated to an aurora about 4:30 am.), Leonids Meteor shower watches, various comets including Swift-Tuttle.

Sites for private star parties have included: Canyonlands, Simpson Springs, Antelope Springs, Bald Mountain, Kodachrome Basin, Skyline Drive, Rush Valley, Monte Cristo, Skull Valley, Island in the Sky, Arches, Panorama Point; Rockport Hill, Cedar Breaks National Park, Uintahs, Wheeler Peak, Mirror Lake, Big Mountain, Skyline Drive, Capitol Reef, Wedge Overlook, Dead Horse Point, Elizabeth Mountain/Ridge, Cedar Mountain, and Natural Bridges.

May 1983: Craters of the Moon trip.

September 1988: Las Vegas Astronomical Society invited club to join them at Cathedral Gorge State Park, north of Las Vegas.

1989: Lunar eclipse and comet Brorsen-Metcalf.

July 1991: Patrick Wiggins arranged for the charter of a Boeing 737 to fly club members and public to see a total solar eclipse from Baja Mexico.

22 March 1992: Siegfried Jachmann uses 9" Alvan Clark refractor to show syzygy (alignment of 3 celestial bodies) between sun and Galilean satellites Europa and Ganymede.

2000: Star party, meteorite search on Salt Flats (no meteorites found).

June 2002: Archaeoastronomical field trip and star party to Parowan Gap arranged by Deloy and Karen Pierce. Field trip guide was Nal (Nowell) Morris, who has studied the petroglyph panels at Parowan for years.

08 June 2002: Binocular-astronomy star party at Lakeside. Chuck Hards organized it, called "Binopalooza".

April 2002: Private star parties for SLAS "newbies" where SLAS veterans will guide them.

August 2003: Star party at the home of Jerry Foote in Kanab, UT.

03 July 2005: "Wallop Watch" at SPOC organized by Patrick Wiggins to watch as NASA's Deep Impact probe slams into Comet Tempel. Included a minute-by-minute account from NASA TV. Some telescope users thought they saw a slight brightening of the comet at the time of impact.

19 May 2006: Ogden Astronomical Society Night at SPOC.

May 2009: Plans for club trip to Hawaii including tours of observatories. Trip dubbed "Tropic Telescopic Tour." The group met SLAS member Rob Ratkowski along with JD Armstrong from the University of Hawaii who had arranged a personal tour of several of the big telescopes and the sun scopes. That night they did viewing from the beautiful, but cold, Haleakala Astronomy club's site.

18-19 August, 2009: SPOC viewing of several events of Jupiter's satellites. Ganymede occulted Europa, followed by casting its shadow on Europa and eclipsing 99% of Europa. Also, Io transited Jupiter.

09 October 2009: 20 or more SLAS members met at SPOC for the LCROSS lunar impact watch looking for the plume of dust and ice NASA said would erupt from the moon when a rocket stage slammed into it. The goal of the Lunar Crater Observation and Sensing Spacecraft was to check for ice that may be hidden in craters where the Sun's rays can't reach. The group had a good time, but did not see any plume.

15 January 2010: 26 SLAS members met in a downtown Salt Lake office provided by Bob Moore where they had access to the internet and a projection monitor. They logged into the Faulkes 2-meter telescope on Haleakela, Maui, Hawaii where they had remote use of the scope for one and a half hours. During that time they took numerous exposures and made a spectacular image of the M-1, Crab Nebula (processed by Tyler Allred).

20 May 2012: Annular solar eclipse with the centerline passing over I-15 at Kanarraville and Highway 89 south of Glendale. Several SLAS members (and thousands of others) traveled to see the eclipse.

SLAstrofest new member weekend. This event is designed to help new club members get started in the society. It is usually held every few years at a remote location with dark skies. It includes group camp out with seminars/classes, workshops, a group dinner and observing sessions to practice what has been learned during the day. (Also Lowell's famous card game, "Spaced Out.")

The first "fest" was held at Fremont Indian State Park in 1997 and was the brainchild of Lowell Lyon. In 1998 it was held at Mt. Nebo Loop Blackhawk campground. More recently it has been held at Wolf Creek.

## **Club Members Remember**

July/August 1988; New "Quarks" section in NOVA -story by Cindy (Raetz) Dodds. Cindy and a friend were pleased to find a wonderful observing site -the school lawn across the street from her parent's home. It was winter and they were bundled up from the cold in blankets as they set up a 13" Odyssey scope (which is 6' tall and has to be

moved on a handcart). The scope's eyepiece was low, so they alternated bending down to peer through it at the night sky.

They were interrupted by two police officers, with guns drawn and pointed at them inquiring "what is that thing?" After first looking around to see what terrible event was happening that brought the police, she realized that they meant them. Cindy quickly explained they were star gazing and invited the police to look through the scope.

Cindy asked why they had come to check on them. The police explained that they had received several phone complaints from nearby residents about two individuals bowing and conducting ritualistic worship of gods on school property.

In a letter in the May/June 2002 NOVA Chuck Hards remembers the early club: In 1974 he was fifteen and a junior board member (a position that no longer exists). As the junior board member, he tried to come up with activities that would interest kids. Chuck says he was also "boy-Friday" to President Judy Rider, carrying in refreshments from her father's car, etc.

He helped Judy with the Scope Jockies' Journal, typing and running a ditto machine in the basement of the Planetarium. He was there for the "great coup" and was so traumatized by having his friends and mentors fighting that he left the club for a while.

At the Hansen Planetarium he met Joe Starr, a master machinist who made several telescope parts from Chuck's drawings. He also learned from the next machinist, Mr. Campbell.

John Mosley was the staff astronomer at the Planetarium. John Mosley was "hip", not long out of school with long hair and drove a MG Midget and had a Celestron 8" scope. He wrote software reviews for Sky and Telescope for about 20 years and then moved to the Griffith Observatory and Planetarium. Chuck says John founded the first incarnation of SLAS, which consisted of John and perhaps six young men and boys.

Chuck tells that David Baxter ran a club, "Ad Astra" ("to the stars") that appealed more to NASA fans than the practical astronomy types, but David sometimes dropped in on SLAS meetings, bringing the latest news of manned space flight.

Chuck fondly remembers old Christmas parties at Jerry Montgomery's home where they played chess, told jokes, shared photos and slides, and stuffed themselves with pizza.

Loren Bjerke ("the Lurker") said he heard Jake Garn speak to SLAS and later he heard in another talk about how "space sick" they all got. Garn did not mention how ill he was, but it evidently was very memorable because later the measure for space sickness was called the Garn scale.

Patrick Wiggins and the Great Anchovy Debacle: Sometime in the 1980s, one of the Solstice Parties was held at the Stansbury Park Club House and Patrick was in charge of ordering the pizzas for the group. Being a vegetarian he decided to order vegetarian pizzas and listed a number of veggie toppings. His traitorous tongue tripped over the word "artichokes" and came out with "anchovies" instead. When the pizzas arrived, steaming with eau de hot anchovies, the guests were not eager to eat them and let Patrick know how they felt, amid much laughter.

A year later, Patrick hosted the Solstice Party at his home. Someone (Dave Bennett?) got in touch with folks ahead of the party and urged them to buy as many tins of anchovies as they could. During the course the evening, they surreptitiously hid the tins throughout Patrick's house.

For weeks afterward, Patrick was finding them in bizarre places, bedroom to bathroom, and just when he thought it was safe, another would turn up.

Brent Watson was presented with a solar observing emergency kit at the 1981 Solstice party in honor of his "fire adventure" with his 22" Dobsonian at Bald Mountain that year. Depending who tells the story, Brent had either been looking for Venus during a solar party and left his scope for a while, which accidentally ended up pointed directly at the sun. Others claim he was trying to catch a Frisbee with his scope, resulting in the errant aiming at the sun. Either way, the tube of his Dob. began to smolder.

One morning on the same weekend members noticed two people sitting on an overlook some distance away. Eventually several telescope were trained on the pair, a man and a woman. After some time the man pulled something out of his pocket and gave it to the lady. The lady opened it. Judging from her jumping up and down and the hugs and kisses it was assumed they had just become engaged.

We then started hollering our approval, no doubt to the surprise of the distant couple who were then seen to stop what they were doing and the guy picked up binoculars and looked in our direction. We were busted but the couple appeared to take it in good humor.

Brent Watson's take on the preceding paragraph (added December 2012):

About the smoke from my 22 inch dob. It was caused by the image of the sun, but it was almost intentional. We were killing time at Bald Mountain one day and decided to look at the sun via projection. I roughly aligned the scope using its shadow, but while doing so folks started yelling that it was catching fire! The focus on that scope is close to the tube, and the slight misalignment placed an almost completely focused, 1.25 inch diameter image of the sun on the black paint on the inside of the tube causing it to nearly erupt in flame. There was smoke pouring out the front of the tube. Needless to say, I quickly pointed it in a different direction and we discontinued that effort. I never did see any damage to the scope from where the image was focused.

Watching the folks at the overlook from Bald Mountain was always interesting. It occurred to me that we may be able to use the scopes as parabolic microphones and actually listen to them talk as well. I removed the eyepiece from the 22" and placed my ear near the focus. Yep - I could hear them alright. I could make out about 70% of what they were saying.

Frisbees being caught by the 22" Yes - again while killing time during the day. I did manage to catch the frisbee a couple of times with the scope.

Dave Bernson remembers a private star party, camping at Island in the Sky in 1988. In the early hours of the morning, a beautiful aurora display began flickering across the sky. It lasted so long and was so gorgeous, that folks abandoned their scopes and sat in lawn chairs to watch. Dave said they took turns making coffee and just sat and sipped their warm drinks and enjoyed the "show."

Joe Bauman, a Deseret News reporter, was looking for comments from local astronomers about the upcoming December 2000 partial solar eclipse. Chuck Hards helpfully sent him this quote: "Don't look at it, you'll go mad. Your future children will be born half animal and half human. It is evil. Stay indoors. Cover your windows."

Ken Meyer and others have put together a number of clever skits, spoofs, etc. both on video and audiotape, that have been played over the years at Solstice parties. He promises to put them on CDs and make them available.

One video was a spoof on how to make a mirror, and David ? stood next to the mirror, holding up a key and saying "wrong key", which referred to a test for the measurement of a mirror, the "ronchi" pronounced "ronki."

Another time the news did a spot on SLAS members with scopes and Meyer, et. al. re-dubbed the dialogue, making part of the newscast appear that the most important criteria for selecting a scope is its color.

Dave Chamberlin remembers the first night he was at SPOC when Bruce Grim ran the 16" scope, Dave was so "blown away" by the images of M 81 and M 82 that he couldn't stop looking and he said Bruce should have showed him how to close up the observatory if he wanted to go to bed, because Dave was so excited, he kept them both up all night.

Dave Bennett in November/Dec 2002 Nova says: "And after 18 years with the club the stories I could tell!...go ahead and ask...one or two of them are even true! The Pterodactyls of Rush Valley, the 'installation' of the original Bill Kelley Device, the Sasquatch of Stockton, hypothermia in late June, falling asleep on top of Mesa Arch watching Scorpius rise, the not-so-silent toilet paper silencer and the Immortal Light at Big Mountain, the Polar-Aligned Sofa" . Dave tells one tale about an observing site called Big Mountain, which was even darker than Little Mountain, until a spot light was installed to "protect" a microwave relay. Dave and Jeff Halverson were not happy about this ruining their viewing site and one convinced the other that rolls of toilet paper or paper towels slipped over a .30-30 rifle barrel would work as a silencer. Darkness was achieved, but the noise was loud, and both men fled the scene, or so the myth goes...

"Carman Events":..Whether it was due to bad Carman or Karma, Joan Carman said she had series of mishaps while doing astronomy that caused club member to coin the term "Carman Event" when anything went wrong while stargazing. Joan says there are more stories than she cares to retell, but both at Little Mountain and Skyline Drive, her long scope blew over in the wind (she later creatively weighed it with bean bags filled with BBs).

Another time while getting ready to leave the Wedge, her Mercury Sable developed some kind of short in the car seats and started overheating and smoking. Les Case (?) used a fire extinguisher and Jerry Foote finally had to disconnect wires. The fire was stopped, but with the electrical system disconnected, the power windows would not roll up so Joan had to drive all the way down in the choking dust.

Carman also remembers seeing the Pleiades come up at Little Mountain and she shouted out "Pleiades Rising". Without missing a beat, one of the other club members (Dave Bernson?) replied "Quick, harvest the crops" referring to the ancient Mayan harvest cycle.

Mike Wilson was stargazing in his front yard with his Schmidt Cassegrain in the early morning hours. The paperboy passed in front of him, just as the scope was slewing. Startled by the noise, the kid turned and in the crepuscular light saw the short wide tube pointing his way with a man standing "aiming it." He fell down on his knees, pleading "oh no, oh no, oh no" to an equally startled Mike who was trying to figure out why the paperboy was afraid of his telescope.

Comet Hyakutake. Dave Bernson and Roger Butz had great views of Comet Hyakutake in 1996. The Comet had perhaps a 100 degree tail but at its maximum it could only be seen for a couple of nights, under dark skies, between 2 and 5 a.m. and it was winter, so not many tried. Dave and Roger drove out to the Tree of Utah (I 80, 95 miles west of SLC, on Bonneville Salt Flats) in February. The moon didn't set until after midnight and there was snow. It was so cold, Dave describes them as "dancing" around

the Tree to Utah to ward off hypothermia...But, they saw it and described the comet as extending from the northwest horizon to Bootes, with a greenish cast.

Patrick Wiggins remembers a night back in the mid-1980's when a couple of SLAS members had their scopes set up in a park looking for comet Halley. A police officer came up to them and asked when they were doing. When they said they were looking for Halley, the cop said firmly, "You're not going to find him here" and made them leave.

## **Club Romances**

Dave & Sue Chamberlin said they met at the Hansen Planetarium.

December 1992 NOVA: Cindy Warner and Alain Bergeron engaged.

February 1996 NOVA: Announced engagement of SLAS members Cindy Raetz and Steve Dodds. The wedding was on 22 June, in the star chamber of the Hansen Planetarium. A voice said "Make it so" and then guests were flown through a black hole with galaxies, stars, and a computerized cathedral with star music. After the ceremony the trip is reversed and ended with a glorious sunrise. (David Chamberlin created the program).

17 August 1995: Dr. Holly Phaneuf and Patrick Wiggins met at a SLAS meeting at the Hansen Planetarium and were married at the Planetarium two years later on 17 August 1997. According to Patrick, he "proposed to Holly under Comet Hyakutake in 1996 and even though she said yes, he proposed again (this time on bended knee) under Comet Hale-Bopp in 1997 just to make sure it took." Unfortunately the marriage ended a few years later, but Patrick reports he is still proud to have been married to his "Doctor Holly."

March/April 2002 NOVA: Webmasters Kathleen McCarthy and Ken Warner met at a Harmons star party 01 June 2001 (after being introduced by a mutual friend, viewing each other's web site, and talking by ICQ and agreeing to meet at the star party that night). Ken took Kathleen to the Florida Keys on 30 December. At about 4:00 a.m. they were trying to take pictures of a lunar eclipse. Ken told Kathleen that he had a filter he needed in his camera bag in a white box and asked if she would get it out for him. She opened the bag and found a gray velvet box. Ken asked her to open the box for him as well, and there was a ring. Kathleen said "The first thing that came to my mind was . . . this isn't a filter!" They married a year after the Harmons star party, 01 June 2002.

January 2010: SLAS member and SPOC telescope operator Julie Chorley tied the knot with fellow astronomy enthusiast Bill Clyde.

## **Addendum**

### **Many of the Talks Given at Meetings**

November 1971: Bruce Grim & Ralph Seiler talk about their photo electric photometer.

December 1971: Dr. McNamara, "Mysteries of the Crab Nebula" and his research at Mt. Wilson on pulsars.

?: Dr. Dennis Chesters' informal talk on Cosmology.

January 1972: Brent Watson (Planetarium technician), "Southern Stars."



February 1972: James Wood, slides and talk on lunar eclipses.

April 1972: Informal discussion of Messier objects.

September 1972: John Mosley, Possibility of life on Jupiter.

October 1972: Loren Locher, Predictions of a 10<sup>th</sup> planet in our solar system.

December 1972 or February 1973: Jim Applegate on space stamps and Loren Locher on Pioneer 10.

May 1973: Skylab; George Sears' astronomical slides.

April 1973: Professor Lynn Higgs, University of Utah, "The Solar System and Kepler's Theory of the Music of the Spheres."

August 1973: Dr. Stanley Ward, "Apollo 17 Radar Sounds."

September 1973: Aerial Photography.

October 1973: Dr. Mead Jensen, "ERTS & Skylab Earth Photography."

November 1973: Robert Brundige, "ERTS & Skylab Photography" & Jerry Montgomery "Earth Structure."

December 1973 or 1972: Richard Price, University of Utah Physics.

January 1974 or 1973: Don Groom, University of Utah Physics.

April 1974: Chuck Hards, Astrophotography with slides of difference galaxies. Report on Mariner Craft flyby of Venus and Mercury.

May 1974: John Barainca and students from Brighton High school about their tests on Skylab.

September 1974: Dr. Frank Steinon, Astrophotography-slides & rap session.

October 1974: Dr. Kimball Hansen, BYU. Offered to arrange a July field trip to use BYU's 24" scope.

November 1974: Dr. Frank Salisbury, Utah State. Spoke about his book on UFOs in Utah.

December 1974: Spectroscopy, Jerry Montgomery & Chuck Hards.

February 1975: Dr. Don Groom, rap session on spectroscopy.

February 1973: Special Meeting with Dr. Frank Salisbury, "Lonely No More", from his book "The Utah UFO Display" in conjunction with Planetarium show, "The Loneliness Factor" on the possibilities of extraterrestrial life in our galaxy.

March 1975: Chuck Hards on designing and building telescopes.

April 1975: Dr. Harold J. McNamara, BYU, "Dwarf Cepheid Variable Stars."

June 1975: Mark Eubank spoke to club on topic of meteorology, Dennis Mears, "Weather Predicting."

February 1978: Dr. J Allen Hyneks' UFO display (Started the Center for UFO Studies, coined the phrase "Close encounters").

February 1980: George Cassidy (University of Utah Physics), Fly's Eye Project on cosmic ray detection at Dugway.

17 March 1980: Patrick Wiggins talk and slide show of February solar eclipse he witnessed in Africa.

September 1981: Joan Carman on star clusters.

October 1981: Patrick Wiggins, Problicom (PROjection BLInk COMparator) "flashers" try to discover novae & comets with a blink comparator.

1981: Siegfried Jachmann, two-part lecture on use of amateur telescopes.

November 1981: Gary Flandro University of Utah Mechanical Engineering, he originated idea of Voyager solar sail concept.

March 1982: Clayton Phelan, Astronomy of Ancient Times.

September 1982: Bruce Grim, Basics of Astrophotography (note in newsletter: with so many experienced members away at the club trip to the Lick Observatory, Bruce was able to gear his talk to less experienced members; there are sometimes complaints that talks are too advanced).

July 1983: Patrick Wiggins on his June trip to Indonesia, for the solar eclipse.

March 1983: First "Show & Tell" Night; March 1986, April 1987.

September 1983: Frank DeCortan, Geology Dept., University of Utah.

January 1984: Jerry Foote "Knife-Edge" method of focusing telescopes.

March 1984: Brent Watson, "Telescope Construction."

April 1984: NASA JPL Astronomer Donald Yeoman on Comet Haley & Clio awards.

May 1984: George Cassiday, Fly's Eye Project.

June 1984: Larry Adam of Martin Marietta on navigation systems used on the Mariner Series Spacecraft.

July 1984: Planetarium Director Von del Chamberlain on astronomical knowledge of ancient Pawnee Indians.

August 1984: Cindy Raetz (later Dodds), "Ancient Astronomical Instruments."

October 1984: Former Planetarium Director Mark Littmann, "Life in Outer Space."

October 1984: Charlie Green with photos from Club members' observations, with members describing photos.

February 1985: Nal Morris, "Archeoastronomy."

November 1984: John Barainca, NASA's Utah Teacher in Space candidate and science teacher at Brighton High School. He worked with NASA with a research project on the February 1984 Space Shuttle flight.

March 1985: Dave Bernson showed slides on Messier marathon.

April 1985: Larry Hemingway, advisor to Civil Air Patrol about the Young Astronaut program.

May 1985: Bill Cowles sides of trips—petroglyphs, Lowell observatory, Kitt Peak, Meteor Crater, etc.

July 1985: Space Projects Manager at Thiokol on how to build a solid rocket booster for the space shuttle.

April 1986: Richard Price, University of Utah, Physics "Black Holes."

June 1985: Dave Bernson talk on basics needed for spring & summer astronomy viewing (slides).

July 1985: Patrick Wiggins slides & discussion of this Australia Halley Comet trip and Nate Goodman' slides & talk about his Hawaiian Halley trip.

May 1986: Panel discussion on what are good and bad photos-- film, equipment and techniques --Doug McCombs, Jerry Foote, and Joe Firmage.

November 1986: Brent Watson, "Telescopes."

March 1987: George Cassiday, Fly's Eye.

April 1987: Astronomy applications on home computers.

May 1987: Joan Carman "Moon, Bane or Treasure Chest?"

August 1987: Boyd Cone, Video camera astro-photography.

October 1987: Patrick Wiggins, slides of comet Bradfield, & panel on types of objects available to amateur astronomers - Bill Cowles, Doug McCombs, Dave Bernson, Siegfried Jachmann.

June 1987: Glen Allred, Utah State University, described his experiences as an amateur astronomer and showed slides of the Aurora Borealis.

February 1988: Richard Ingebretsen, Physics, University of Utah, "Physics of Photography."

March 1988: Photometry (measurement of the flux or intensity of an astronomical object's electromagnetic radiation) Bruce Grim; Charlie Green, computer controlled scope for photometry, Jerry Foote and Charles Green, trip to Arizona, Fairborune Symposium and Jerry's own spectrometer, Patrick Wiggins.

April 1988: Dave Smith, REI, dressing for cold weather observing.

June 1988: Gus Schultz, Physics & Astronomy at the U; "Black Holes."

August 1988: Joan Carman on History and Observation of Mars, also Jerry Foote & Dave Bernson did a simulated broadcast of the "War of the Worlds".

April 1989: Von del Chamberlain of Hansen Planetarium; again March 1991 "Archaeoastronomy."

October 1989: Scott Morgan of BYU Astronomical Society, "Journey of NASA's Voyager 2 spacecraft".

April 1990: John Barainca, one of two of Utah's Teachers in Space Finalists, described Starlab space flight simulator experience.

May 1990: Richard Price, University of Utah Physics, "Cosmology and the Future of the Universe."

April 1991: Steve Corbato, University of Utah, "The Solar Neutrinos Problem."

September 1991: Richard Barnes and guest from Australia talk of early life on earth and implications for Martian life studies.

April 1992: Dave Bernson, "Famous Dead Astronomers" with slides & biographies (seems to have been an "infamous" event); October 94, Dead Astronomers, Part II.

February 1992: Erik Hansen talked about his construction of Al Suhail (Star of the Sail 20" F4 Dobsonian reflector) built in 8 weeks.

March 1992: George Cassiday, University of Utah, Gamma Ray Astronomy.

May 1992: Dale Ostlie, Weber State, "Stellar Evolution."

August 1992 Brad Carol, Weber State on black holes (note says "ever see a college professor jump onto and off a table several times during a lecture?")

Sept 1992: Astronaut Don Lind on the 1985 Space Mission (including personal hygiene in space).

October 1992: Brent Watson and Wayne Summer "Astronomy Education Around Utah" used volunteers to demonstrate effective and humorous ways to teach astronomy to kids and instructors. Brent's program is sponsored by his employer I-Omega Corp and they have sponsored hundreds of presentations and given 115 Dobsonian scopes to rural Utah schools.

March 1993: David Chamberlin on CCD imaging.

May 1993: Alain Bergerson, Cindy & Ken Warner show slides of Salt Lake's light pollution, noting especially inefficient lighting at the University of Utah.

July 1993: Dr. John Sohl, Director of Weber State Ott Planetarium, on "Laboratory Astrophysics."

August 1993: Dave Bernson, Pros and cons of many types of diagonals and eyepieces, magnification and exit pupil size.

September 1993: Joan Carman, video clips of astronomical-type errors in two movies and on how past generations were more familiar with the night sky.

October 1993: Erik Hansen on Eclipses.

November 1993: Video on the Secret Life of Cold Fusion.

January 1994: Mike Stringfellow, Physics of Planetary Lighting.

February 1994: Gil Moore, space scientist & pioneer in low earth orbit space satellites, on hot air balloons, project with captured German V2 rockets, video on fluid behavior in a weightless environment.

March 1994: Optical fabricator Vaughn Parsons, telescope mirror making.

April 1994: Jake Garn, Utah's senator turned astronaut, focus on his flight on the space shuttle Discovery in 1982.

May 1994: Von del Chamberlain, Hansen Planetarium director, on rock art, accompanied by a flute.

July 1994: Apollo Project Manager, Captain William T. O'Bryant.

August 1994: Irwin Horowitz, BYU on the cosmic distance scale.

September 1994: Sue & Dave Chamberlin talk & slides of their tour of Kitt Peak Observatory.

November 1994: Bruce Grim, telescope making and the history of SPOC.

June 1995: Howard Ritzma, geologist, "Meteoric Impacts in Utah and the Surrounding Area".

February 1995: Michael Jones, BYU, Observatory Photo Multiplier Technology & CCD Observing.

March 1995: Jim McCormick, Ogden Astronomical Society, Daytime Observing.

April 1995: George Cassiday, University of Utah Physics, "Super-Novae."

August 1995: John Petrakis, University of Utah, "Quasars."

October 1995: Bob Summerfield from "Astronomy to Go" meteorite pieces.

March 1996: Joan Carman on comets.

April 1996: John Sohl, Weber State, astronomy topics.

July 1996 & July 1998: Bob Cavanaugh & Ken Warner, discuss various astronomy software.

August 1996: Ken Warner, Observing Techniques.

October 1996: Dr. Dale Ostlie, Physics, Weber, "What is New in Astrophysics."

November 1996: Dr. John Raitt, Utah State Physics Chair, on tethered satellite experiment on the space shuttle.

January 1997: Roger Butz spoke on life of recently deceased Carl Sagan (December 1996).

February 1997: Phil Martineu on solid propellant rocket motor technology.

June 1997: David Chamberlin, Slides & highlights of his past 20 years in SLAS.

July 1997: Ellis Miner of JPL about the Cassini Project.

August 1997: Dr. Holly Phaneuf, "Biochemicals and the Universe."

September 1997: Charlie Jui, University of Utah Physics on Fly's Eye Experiment.

October 1997: Several members conducted workshops on collimation, null testing, cleaning optics and home planetarium roofs.

November 1997: Joan Carman "Astronomy 101 Lecture."

April 1998: Dr. Holly Phaneuf and Patrick Wiggins, slides & talk on Caribbean solar eclipse trip, other Messier topics.

May 1998: Doctor Dingus, Gamma Ray Bursts.

August 1998: Richard Andressen, comets; slides & stories.

September 1998: Richard Andressen, slides, video presentation of his southern hemisphere trip.

October 1998: Dan Allen, Radio astronomy.

April 1999: Brent Watson, Visual Astronomy; Jerry Foote and Patrick Wiggins, overview of PCs in conjunction with astronomy.

May 1999: Sue and Dave Chamberlin, tips and techniques for presenting astronomy to the public.

August 1999: Dr. Holly Phaneuf, Meteorites.

September 1999: Ben Bromley, U. of U. Physics.

October 1999: Ken Croswell, astronomer & author (Alchemy of the Heavens, Magnificent Universe, Planet Quest), talk at U. of U. with reserved section for SLAS members.

November 1999: Patrick Wiggins describes his and Holly's asteroid discoveries & Ralph Jacobson, "Man-Made Satellites."

March 2000: Lowell Lyon, Cold Weather Observing.

April 2000: Jessie Warner, rock art enthusiast, on archaeoastronomy.

May 2000: Chuck Hards shows and describes his innovative custom-built telescopes and accessories.

August 2000: Charlie Green, Photoelectric photometry.

September 2000: Phillip Martineau, Open core light weight telescopes, mirrors & methods of manufacturing.

March 2001: Lynn Higgs & Wane Springer, University of Utah Physics, describe six new observing stations on the roof of the Physics building as part of lab-based courses in astronomy. Kim Hyatt shows slides of trip to 9-mile Canyon.

May 2001: George M. Pantalos "Hearts in Space" on the effects of gravitational acceleration; & Nal Morris, Utah Rock Art Research Associate w slides in invitation to April star party and field trip to Parowan Gap.

June 2001: Jean Mueller talk, 15 comets bear her name and worked on 2<sup>nd</sup> sky survey at the Palomar Observatory.

August 2001: Richard Price, University of Utah Physics, on gravity, black holes, LIGO (Laser Interferometer Gravitational-Wave Observatory) Project.

September 2001: Dave Bernson on observing the night sky.

November 2001: Joan Carman, Archaeoastronomy.

March 2002: Kim Hyatt, "Low-Tech Astronomy or How I Learned to Stop Worrying and Love the Camera."

February 2002: Don Colton, "Big Bang or Hot Air?"

July 2002: Gordon M. Haight, II, Utah Department of Transportation, Light pollution and street lighting.

September 2002: Roger Ockey, works for Alliant Tech systems who build optical benches and reflectors for the space industry, for the Hubble, they built the Goddard High Resolution Spectrograph.

February 2003: Columbia Shuttle Tragedy: Joe Bauman (journalist/writer for Desert News) showed slides he had taken with a digital camera and Patrick Wiggins also had photos and graphics.

March 2003: John P. Pratt, ancient astronomical calendars, archaeoastronomy and religious aspects of astronomy found in the Bible.

April 2003: Brent Watson, demo on how to clean a telescope mirror.

May 2003: Gary Vardon, "Consequences of a large meteor impact on Earth."

June 2003: James Cobb gave presentation Mars opposition with Starry Night program.

August 2003: Stacy Palen, Director of Planetarium at Weber State, "Looking over the Galactic Fence, What our nearest Neighbors tell us about the Death of the Sun."

October 2003: David Kieda, University of Utah Physics, "High Energy Gamma Rays: The New Astronomy."

February 2004: Ken Croswell, University of Utah Fine Arts Auditorium (co-sponsored by College of Science & SLAS) "Magnificent Mars."

April 2004: Ben Bromley, University of Utah Physics, "Signature of Terrestrial Planet Formation."

June 2004: At Salt Lake City Library, David H. Levy "Joining Science and Literature: Shakespeare, Eclipses, and Changing Ideas of the Cosmos."

July 2004: Brian Sullivan, free-lance space artist also worked with Carl Sagan on the 2<sup>nd</sup> Cosmos series, DVD Ring World-Cassini Saturn Mission.

September 2004: John Armstrong, Weber State, works with NASA Astrobiology Institute, "Water on Mars? Latest Findings from the Mars Rovers."

November 2004: Duke Johnson & Robert Bigelow, Beginnings of the Hansen Planetarium and the Earth/Moon Connection.

February 2005: National Park Service rangers Chad Moor and Kevin Poe on dark sky preservation "Dark Wars, Beauty worth Fighting For" set to Star Wars music.

March 2005: Roger Ockey, Network administrator for ATK Space Systems.

May 2005: Karl Haisch, Jr., astronomer from Utah Valley State College, "Star Formation: Disks, Jets & Planets."

June 2005: Lowell Lyon distributed a survey asking "How do you keep track of what you've seen?". Members divided into groups and discussed the questions, and a representative from each group reported to all the ideas and various equipment recommendations.

July 2005: Ann House with disc and power point presentation from the Night Sky Network for public outreach and education and a kit on "How to Survive a Black Hole". Robert Taylor earns Astronomy League's Messier Award.

August 2005: Paolo Gondolo, Univ. of Utah Physics, "Most of the Universe is Not Like Us"

November 2005: Either Rob Taylor or Rob Oliver (Nova says each name at different times) gave a presentation on the Night Sky Network "Planet Quest" program.

October 2005 & November 2005: Dave Bernson, talked and showed slides on globular clusters and many other night sky objects, advice on filters, etc.

January 2006: Seth Jarvis, "Partnering to Promote Astronomy."

February 2006: Stacy Palen, Weber State, "Dark Energy, the Accelerating Universe and the Cosmological Constant."

March 2006: Meeting at University of Utah Physics Department for Ziggy Peacock's "Physics Family Fun Night" (200+ attended).

April 2006: Jerry Foote, President of Scope Craft, Inc. on his work on exoplanet transits at his Vermillion Cliffs Observatory complex in Kanab.

June 2006: Brent Sorensen, Southern Utah University, "Spectroscopy, Diffraction Grating and Prisms."

July, 2006: Joan Carman, "Constellation Mythology, Star Lore and Meaning."

August 2006: Nowell Morris, Utah Valley State College, "Archeoastronomy, Parowan Gap.

September 2006: Richard Erwin, College of Eastern Utah, "Photography & CCD Imaging."

October 2006: Dale Ostlie, Weber.

November 2006: Clark Christensen, BYU "Possibilities of Life in the Universe."

20 February 2007: Shane Larson, Weber, Physics "Whispers from the Cosmos: The Dawn of Gravitational Wave Astronomy."

20 March 2007: Mike Murray, "The Moon and the Future of NASA", including current debate on sending humans to Mars.

17 April 2007: Steplane Le Bohec, University of Utah Physics "Very High Energy Gamma Ray Astronomy."



15 May 2007: Stacy Palen, Weber, "Black Holes and Recent Developments at Ott Planetarium" (she received a standing ovation-possibly the only one in SLAS history).

19 June 2007: John Cannizzo, contractor at NASA's Goddard Space Flight Center "Gamma Ray Bursts: The Biggest Explosions in the Universe."

17 July 2007: Dave Kieda, University of Utah, Physics "The Southern Utah Observatory".

21 August 2007: Joan Carman, exoplanet talk she called "Planet Quest."

18 September 2007: Carla Bitter, Education and Public Outreach Manager for NASA's Phoenix Mars Scout Mission talked about the Phoenix Mars Scout Mission: "Uncovering the Mysteries of the Martian Arctic."

16 October 2007: Michelle, Larson, Utah State, "Probing the Stellar Graveyard: Neutron Stars and Other Compact Remnants."

20 November 2007: Ben Bromley, University of Utah Physics, "The Life and Discoveries of Albert Einstein."

15 January 2008: Bryce Canyon National Park's Ranger Kevin Poe then took a few minutes to go over plans for this year's 8th Annual Bryce Canyon Astronomy Festival.

19 February 2008: Louis Cannizzo for ATK, new Orion/Aries launch system.

18 March 2008: Rodger Fry arranged a musical performance of humorous songs\*/skits & some audience participation, with an astronomical theme, intended for kids. (\*one was the Insignificance Song). The performers were Spencer and Sterling Cottam, Geanene Smith, Daniel Jones and Mark Silcox. They also performed at the 2008 Astronomy Day events.

12 April 2008: First "Inreach" event, idea of Bill Kennedy. Don Colton gave an in-depth presentation on telescope collimation and Lowell Lyon covered the use of astronomical filters. June follow-up under a dark sky at the gravel quarry to provide a chance for participants to practice what they learned.

20 May 2008: Mike Murray, Observing Messier objects.

17 June 2008: Michael DeCaria "Galileo: The Struggle for Science", presented on the eve of the 400<sup>th</sup> anniversary of Galileo's pioneering observations.

15 July 2008: Joan Carman, "Lore of the Summer and Fall Constellations."

19 August 2008: David Kieda, University of Utah, "Update on Dark Sky Telescope and Gamma Scopes"

16 September 2008: Rodger Fry, "Planetary Geology"

21 October 2008: David Bernson "Two of his Favorite Topics" (winter observing wear and sky objects).

18 November 2008: The scheduled speaker was unable to attend so a video entitled "The Universe, Alien Galaxies" was shown.

At various times, there was not one formal speaker, but club members spoke on topics or held a "show and tell". Examples:

Members give reports and show slides on various trips for eclipses, Riverside Telescope conference, discuss their favorite viewing objects, computer programs, spring constellations, trips to sun tunnels, astrophotography, binocular astronomy, tips for staying warm, correct pronunciations, backyard observatories, double stars, binocular mounts, etc..At one show and tell meeting where various members reported what they saw as they observed the Leonid meteor showers, Jerry Foote told how in Southern Utah the coyotes would howl after particularly long-bright meteor trails.

20 January 2009: Dave Bernson and Don Colton presented an update on this year's SLAS participation at the Bryce Canyon Astronomy Festival.

17 February 2009: Tyler Allred, probably the best known astroimager in Utah showed several of his stunning images and demonstrated how he makes them.

17 March 2009: Troy Stratton spoke about the NASA Night Sky Network and the educational kits they have given to SLAS for use by the membership. Kevin and David Hays presented a talk on spring observing and went over some of the Astronomical League observing programs.

21 April 2009: Dr. John Belz, from the University of Utah department of Physics spoke about particle astrophysics.

19 May 2009: Bill Kennedy spoke about his home observatory followed by a screening of the classic SLAS comedy video from 1995 about making a telescope mirror.

16 June 2009: Bob Moore showed pictures of the club's recent trek to Hawaii.

21 July 2009: Willie Craig, who used to work at Mt. Wilson, spoke about the history of Mt. Wilson observatory.

18 August 2009: Dave Berson spoke about the trip he and other members made to the University of Utah's telescope array near Delta for the Perseids meteor shower.

15 September 2009: Ted Cunningham presented "A Vicarious Vacation to the Space Station" which included video and pictures of a recent shuttle flight.

20 October 2009: Lowell Lyon spoke about the club's association with the Astronomical League and Gary Vardon spoke about his recent visit to the American Institute of Aeronautics and Astronautics's conference on "Rocket Science" which was held in Denver.

17 November 2009: Wayne Springer from the University of Utah's department of Physics and Astronomy spoke about the U's new observatory on Frisco Peak in Southern Utah.

19 January 2010: Rodger Fry showed pictures of the Faulkes 2 meter telescope he took while visiting Hawaii last year and Jay Eads spoke on New Member Outreach.

16 February 2010: Rodger Fry displayed and discussed a stunning image of the Crab Nebula which several members recently made via the internet using a 2 meter telescope on Maui.

16 March 2010: Dr. Marjorie Chan from the University of Utah's Geology & Geophysics Department spoke about Mars-Earth analogs.

20 April 2010: Dr. Stephan LeBohec from the University of Utah's Department of Physics and Astronomy spoke about stellar imaging and the U's Optical Interferometry work, including that being conducted at their site near Grantsville, Utah.

18 May 2010: Dr. Kyle Dawson with the University of Utah's Department of Physics and Astronomy spoke about the Sloan Digital Sky Survey and the U's association with it.

15 June 2010: Dale Hooper presented "Tuning into the Cosmos: Radio Astronomy From Your Own Backyard".

20 July 2010: Lowell Lyon who spoke about this year's Astronomical League convention in Tucson, Arizona and next year's convention at Bryce Canyon.

17 August 2010: Jonathan Adams, Mihir Godbole, Uday Tadiparty and Larry Doxford who spoke about their very successful efforts to place instrumented balloons into the stratosphere.

21 September 2010: Dave Berson presented a talk entitled "How Far Can You See?" featuring a PowerPoint presentation by Robyn Anderson.

19 October 2010: Mike Wilson showed pictures he's taken of various astronomical conjunctions. Steve Fisher showed a music video he put together showing highlights from SLAS star parties. William Craig and Ray Druian talked about their recent trip to Mt. Wilson observatory.

16 November 2010: Dr. Michael Joner from BYU's West Mountain Observatory, "Professional/Amateur Collaboration". He showed photos from their gallery and explained how combining their 1 meter scope on West Mountain with a Fingerlakes-Fairchild chip CCD enables student to take science quality measurements for requests around the country.

11 January 2011: Dr. Shane Larsen, Utah State University, "Galaxies: Island Universes in the Cosmos.

15 February 2011: Karen Mingo with the National Parks Conservation Association spoke about an open pit strip coal mine being considered for a site near Bryce Canyon and its potential impact on the park and its skies. Dr. John Belz and Isaac Myers, University of Utah, Physics & Astronomy, presented a program on cosmic rays, "A Radar Detector for the Universe's Most Energetic Particles."

15 March 2011: John Armstrong, Weber State University, talked about "Extra Solar Planets and the Search for Earth."

19 April 2011: Adjunct Prof. at Weber State University (and SLAS member) Wayne Summer, described star formation-how this process starts, what phases it goes through and why stars of different sizes are formed.

17 May 2011: Barrett and Roxanne Flowers spoke about meteorite hunting and passed around examples of the various types of meteorites.

21 June 2011: Paul Nunez, University of Utah, Physics and Astronomy, "Resolving Stars with Intensity Interferometry."

09 July 2011: John Elwell, NASA WISE program Manager, Space Dynamics Laboratory, Utah State University.

16 August 2011: Jason Budinoff, an engineer at the NASA Goddard Space Flight Center, who spoke about the James Web Space Telescope.

20 September 2011: SLAS member Dave Bernson presented "Ophiuchus and the Argonauts, Celestial Highlights of the Summer Sky." Dave had given this presentation at ALCON.

18 October 2011: Dr. Adam Bolton, University of Utah, Physics and Astronomy, "Measuring Galaxy Masses from Galaxy Mirages."

15 November 2011: Dr. Ben Bromley, University of Utah, Physics and Astronomy, talked about "Making Planets."

18 January 2012: Michael Jacobs, Managing Director of the Liberty Space Transport system, ATK & Paul Karner, ATK, described the new Space Launch System, followed by an extensive Q&A session.

15 February 2012: Dr. Stephan LeBohec, Physics & Astronomy, U. of Utah, "VERITAS: Big Bad Telescopes and Amazing Photons."

21 March 2012: Rob Taylor described the new SLAS photography contest that will run through October. Dave Bernson presented tips on springtime observing "Anchor on Orion."

18 April 2012: Bryce Canyon National Park ranger Kevin Poe spoke about plans for the Bryce Canyon Astronomy Festival. Rob Taylor again covered the photography contest and tips for photographing the upcoming annual eclipse. Dave Bernson gave an observing talk entitled "From the Starry Ring of Winter to the Great Diamond of Spring."

16 May 2012: Joe Bauman, SLAS member, presented a program on his many solar eclipse experiences called "In the Shadow of the Moon."

20 June 2012: Rob Taylor reviewed the photo contest information. Several SLAS members showed and narrated their images of the recent eclipses and Venus transit along with other astro. images.

18 July 2012: Mat Hutching spoke about amateur telescope making.

15 August 2012: Dr. Pearl Sandick, Physics & Astronomy, U. of Utah, "Peculiar Particles: Neutrinos, Dark Matter, and a Higgs-like Boson."

19 September, 2012: Dr. Shane Larson, Dept. of Physics, Utah State U., "Astronomy Frontiers: A Historical Introspective of Astronomy from 25 Years Past to 25 Years in the Future."

17 October, 2012: Professor Jonathan Barnes, Physics & Astronomy, SLCC, "Is This Town Big Enough for the Both of Us?--Small Telescopes in a Big Telescope World."

21 November, 2012: Rob Taylor showed all the entries for the SLAS photography contest and announced the winners.

16 January 2013: Dr. Anil Seth, U. of U. Physics & Astronomy, "Spying on our Neighbors with the Hubble Space Telescope."

20 February 2013: Dr. Fritz Hasler, NASA Goddard Space Flight Center, Scientist Emeritus, "Visions of our Planet's Atmosphere, Land & Oceans."

20 March 2013: Dr. Andres Munoz-Jaramillo, U. of U., "The Solar Cycle."

17 April 2013: Dr. Zheng Zheng, U. of U. Physics & Astronomy, gave a talk about dark matter and dark energy called "the Dark Side of the Universe."

15 May 2013: Dr. Stacy Palin, Weber State University, "The Life and Death of Stars."

19 June 2013: Tom Field spoke about spectroscopy which was a first time of having a speaker appear via internet webcast. His talk was titled "You Can Also Touch the Stars."

17 July 2013: Michael D. Joner, BYU, "Search for Things that are Hard to See."

21 August 2013: Wayne Sumner spoke about the death of stars.

18 September 2013: Mike Murray, Clark Planetarium, described the future of space exploration.

16 October 2013: Jonathan Barnes, Salt Lake Community College, spoke about distance in astronomy.

20 November 2013: Tyler Allred talked about astrophotography, demonstrated his technique and displayed some of his fabulous space images.

14 January 2014: SLASA member Dave Bernson described planetary nebulae in "Ghost Hunting in the Milky Way."

19 February 2014: Astronomical League President Carroll Iorg, presented "A Cosmic Journey with the Astronomical League."

19 March 2014: Noted comet discoverer Don Machholz talked about "A Visual Comet Hunting Program" and his personal history of finding comets.

16 April 2014: Nowell Morris described and showed pictures about archeoastronomy, "A Solar Calendar Device at Parowan Gap"

21 May 2014: Professor Adam Bolton, Physics & Astronomy, University of Utah, presented "From Cosmology to Galaxies and Back Again with the Sloan Digital Sky Survey."

18 June 2014: Mike Murray with the Clarke Planetarium went over various observing techniques including naked eye, binoculars and telescopes and the art of seeing fine details.

16 July 2014: Dr. John Armstrong, Astronomy & Physics at Weber State University, discussed the Virtual Planetary Laboratory's efforts to determine if any of the exoplanets are habitable.

20 August 2014: SLAS member Laura Burchell spoke on "Youth in Astronomy" and gave tips on attracting more young people to astronomy and to SLAS.

17 September 2014: Professor Jani Radebaugh, BYU, Physics & Astronomy showed pictures and described her meteor hunting trip in Antarctica.

15 October 2014: University of Wisconsin-Madison PhD candidate Breana Hashman presented "A Journey Through Time: It will Leave You Breathless".

19 November 2014: U of U's Dr. Gordon Thompson presented Ultra High Energy Cosmic Rays.

21 January 2015: Former Hansen Planetarium director and noted archaeoastronomy researcher Von del Chamberlain presented "Stellar Icons from Native America". Mr. Chamberlain spoke from Kanab, Utah via PowerPoint slides and a phone bridge.

18 February 2015: U of U's Dr. Anil Seth presented "Tiny Galaxies and Big Black Holes".

18 March 2015: SLAS member Lowell Lyon who presented "Creating your own observing program".

15 April 2015: U of U's Department of Physics and Astronomy demonstrator Adam Beehler. Adam demonstrated, with help from some of the younger members of the audience, several physics experiments in a program called "Physics Family Fun Night".

20 May 2015: Salt Lake Community College students Adrian Vicchilli, Joshua Marchant, Sebastian Atwood and Matthew Potts made brief presentations. Adrian presented "RR Lyrae Variable Stars and Iron Composition by Period", Joshua presented "Engineering Technology: A High School Initiative", Sebastian presented "Reproduction of Stellar Effective Temperatures from SEGUE Spectra and Matthew presented "A Closer Look at the KOI-22 Light Curve".

17 June 2015: Bill Clayton who presented "Does the Sun Want to Kill You?"

15 July 2015: Dr. Heather Knutson from Caltech. Dr. Knutson's talk was entitled "The Grand Tour: Exploring the Diversity of Planets Outside the Solar System".

19 August 2015: Mike Clements, aka "1.8 Meter Mike". Mike spoke about his building of a 1.8 meter telescope, thought to be the largest, transportable amateur telescope on the planet. His talk was appropriately entitled "How to Build a Really Big Telescope".

16 September 2015: "Show and Tell, Just the Way You Remember It". Several members presented mini talks featuring various pieces of amateur astronomy equipment, pictures and experiences:

Joan Carman - Books - the New Solar System.

Dave Bernson - Binocular tripods

Scott Crosby - His first telescope - reconstructed over time. About the only "original" parts are the mirror and secondary.

Nate Goodman - Cartoons in a booklet form of his astronomical drawings

Marley Stark - Her picture of the Milky Way and a famous natural bridge in Moab.

Siegfried Jachmann - A self-built grating for splitting close double stars.

David Kennedy - Videos of planets taken through his scope.

Lowell Lyon - Recording/documenting/planning observing sessions. His first notebook.

21 October 2015: SLAS member Dave Bernson presented "In Search of Ancient Astronomers".

18 November 2015: U of U Associate Professor Dr. Kyle Dawson who presented "Surveying the Universe, 1000 Objects at a Time". Dr. Dawson's presentation was based on his work with the Sloan Digital Sky Survey.

20 January 2016: BYU's Dr. Michael Joner presented "Astrophysics at West Mountain Observatory: Extrasolar Planets to Black Holes and Extragalactic Voids."

17 February 2016: U of U's Dr. Ben Bromley presented "The search for planets: hot Jupiters, water worlds, and Planet X?"

16 March 2016: Salt Lake Community College's Jonathan Barnes presented "The Era of Big Data in Astronomy or How to Be an Astronomer from your Living Room Couch."

20 April 2016: Dr. Sydney Chamberlin (daughter of Sue and Dave Chamberlin) presented "Listening to the Universe with Dead Stars and Lasers."

18 May 2016: SLAS member Chuck Hards presented a program on Project Moonwatch.

15 June 2016: NASA/JPL's Dr. Timothy Parker spoke about Mars exploration.

20 July 2016: Club member Show & Tell

17 August 2016: NASA/JPL's Bill Dunford spoke about the Cassini Mission.

21 September 2016: Wayne Springer spoke about the High Altitude Water Cherenkov Observatory.

19 October 2016: Member Astrophotography Panel featuring Tony Sarra and Clarence Spencer.

16 November 2016: Actor Dean Howarth portraying Isaac Newton appeared via video link.

18 January 2017: Dave Bernson spoke about the wintertime constellations.

15 February 2017: Dave Bernson, Roger Fry, Joseph Bauman, Shauna South, and Patrick Wiggins presented Astronomical bodies & mass extinctions in the fossil record Part 1.

15 March 2017: SIZZLE!!!KAZAM!! Astronomical Bodies, energetic events, and mass extinctions in the fossil record, Part 2.

19 April 2017: Group discussion: Did America fake the moon landings? Also: Spring constellations, I.A.U. official star names.

17 May 2017: Patrick Wiggins' discovery of supernova 2017eaw, Rodger Fry presented an update on SPOC's newest building and announced the building is to be called Kolob Observatory (name chosen by the building's primary donor). Dave Bernson spoke about springtime constellations.

21 June 2017: Various members spoke about the upcoming solar eclipse.

19 July 2017: Dave Bernson showed the 1950s film "Our Mister Sun". The U of U's Paul Ricketts spoke about possible use by SLC members of the U's telescope on Frisco Peak.

16 August 2017: BYU's Dr. Mike Joner spoke about the discovery of exoplanets.

20 September 2017: Member's stories of last month's Great American Eclipse.

18 October 2017: SLCC's Jonathan Barnes presented "The Colors of the Stars: Understanding the Hertzsprung-Russell diagram".

15 November 2017: Dave Bernson presented "Across The Water to the Princess in Chains: Celestial Highlights of the Autumn Sky".

17 January 2018: Joan Carman, Nate Goodman, Craig George, John Johansen, Mike Wilson and Larry Holmes spoke about their experiences with last year's total solar eclipse.

21 February 2018: BYU's Dr. Jani Radebaugh presented: "Saturn and Titan: Looking back at the End of Cassini and ahead to the possibility of Dragonfly"

21 March 2018: Don Colton presented "CCD Imaging".

18 April 2018: Dave Bernson presented "What Power is Your Telescope?".

16 May 2018: Rodger Fry presented "Planetary Geology of Mars".

20 June 2018: Noted astroimager Robert Reeves spoke on lunar photography and geology.

18 July 2018: Don Colton spoke on astroimaging.

15 August 2018: Pranvera Hyseni from Kosovo spoke about her astronomy outreach efforts in Kosovo.

19 September 2018: Joan Carman presented "The Other Side of the Fence", about what Earth might look like from an alien viewpoint.

### **Sampling of Articles in Scope Jockies' Journal (>1979) & NOVA (1979 to Present)**

A couple of the more unusual early articles included a Terry Ashton editorial, September 1977 where he speculated that behind every man there are 30 ghosts, so if there have been 100 billion humans, the same as stars in Milky Way, every ghost should have a sun and own earth...Then he asked why haven't we met them? Also August 1978 there was a Wesley Rider article about the Bible, Joshua and the sun going backward and standing still 23 hours and 20 minutes. He then pointed out that scientists had just computed what was in the Bible all along.

Brent Watson, later employed at Evans & Sutherland, wrote an article and spoke to SLAS about a new planetarium program he played a large role in developing at E & S. Unlike the old style projection system, the new one allows "time travel" to show what the stars would have looked 15,000 years ago. This is called DIGISTAR..Note: Star Trek II (1982) credits Brent Watson and his Digistar special effects.

1979: Bob Harbrecht wrote an article on the computer revolution, and mentions a Sky & Telescope article on computers running telescopes.

Winter 1983: Tim Parry, "Winter Astronomers' Syndrome or What to do when It's too Cold-Binoculars."

1985: Doug McCombs, Cleaning Telescope Optics.

1987: Began a section on Membership "Quarks" – overheard funny comments.

January 1989: Essay in NOVA, Carman's Corner.

Spring 1989: 1990 Cosmic News section by David Bernson.

1989: Planetarium Corner, Patrick Wiggins.

1988: Quote by Bruce Madsen, "What makes a club great? It is the willingness of club members to teach and tutor those who are inexperienced yet eager to participate in the wonders of the heavens." He also had a great line when citing his experience in running for a SLAS office that he "has been the official scapegoat for many organizations."

1990: Astrophotography, Jerry Foote, Article on Light Pollution.

April 1993: Brent Watson reports members at all time high, but average staying time of members at all time low – 1 year. Again in fall 1994 he refers to a study showing a 90% dropout of members within a few years.

January 1994: Astronomical Halloween. Karen & Deloy Pierce told how they showed trick or treater's Saturn and Albireo on Halloween and gave out Milky Way bars. Similarly, Joan Carman had scopes set up for viewing the moon and Saturn. Her



decorations included stars, astronomical posters, a wizard and fortune telling ball, and to get their treat, viewers had to identify what they saw.

November/December 1994: Article on nature of the Christmas star.

September/October 1995: "John Dobson: A Personal Perspective" by Brent Watson.

January/February 1996: Article on Charles Messier by Karen Pierce.

Member Profiles: May-June 2002 Nate Goodman, March/April 2000, Art Esceberg; September/October 2000, Erik Hansen, March/April 2002, Kathleen McCarthy, SLAS Webmaster.

May-June 2002: Bino Review by Chuck Hards (Sportman's Guide 10x50's; "Scotty" (Scott Crosby) on Scopes "Late Spring's Other Globular Clusters".

Various book reviews: July/August 1993, David Powell reviewed "The Life of Isaac Newton" by Richard Westfall; March/April 2004 Nancy Stephanz reviewed "Starry Night" by David Levy and in November/December 2004 she reviewed "Kepler's Witch" by James A. Conner.

November/December 2005: Tom Sevcik reviewed handbook and CD "The Universe is Free" by Richard Harshaw and a book by Bob Ward on "The Life of Wernher von Braun.

January/February 1999: Story of how Patrick Wiggins and Holly Phaneuf discovered an asteroid using CCD imaging and then shortly thereafter Patrick found a second asteroid. Patrick attempted to name the find they made for Holly but it turns out asteroids cannot be named for their discoverers so that name was rejected and he went with his adopted hometown of Elko. For his solo asteroid find Patrick gave the naming rights to Holly (who had by then remarried) and she named it for her new husband.

March/April 2000: Kim Hyatt article about post office box issue. A board decision to save money and close the SLAS PO box and instead have mail go to the Hansen Planetarium touched off a vocal discussion at the February meeting that caused ill feelings and possibly offended new members and visitors. From this event, the meeting format was changed to have the welcome and introductions first, followed by the lecturer or program and then a break. After the break, those who wished to stay on for the business portion of the meeting could do so.

November/December 2000: Article on the human eye.

July/August 2001: "Protecting your night vision", physiological techniques and observing tricks.

September/October 2001: Scotty on Scopes (Scott Crosby's regular "column" for a while) At one time Scott said he owned 19 working scopes.

November/December 2001: Description of light pollution lecture and slides given at Southern Utah University.

March/April 2003: Article on Columbia Shuttle crew.

November/December 2003: Article on Mobile Observing Workstations (MOWS).

March/April 2003: Chuck Hards gives an equipment review of William Optics 2" star diagonal, May/June 2004 he reviewed a helical fine focus adaptor made by Orion.

May/June 2004: Article by Ann House on Sky Viewing at Bryce Canyon.

2004: NASA's Space Place section for articles from NASA.

September/October 2004: Starry Night Pro 4.5 review by Robert Taylor.

January/February 2005: Solar Cycle Revisited, Tom Henchy.

March/April 2005: Deseret News Article by Joe Bauman "Utah's Largest Telescope Complete."

September/October 2005: Report on Capitol Reef; memorial to Andrew Bogdan by Ken Harris.

November/December 2005: Provo artist McRay Magleby has his constellation-themed postage stamps picked by the US Postal Service to kick off national stamp collecting month in October 2005. His beautiful art illustrates the constellations of Leo, Orion, Lyra and Pegasus.

September/October 2007: Article on two new planets (Extra Solar Planets) co-discovered by Jerry and Cindy Foote (an exoplanet is a planet that orbits around a star other than our sun, outside of our solar system). They are part of the world-wide extended team of the XO Project. Their Vermillion Cliffs observatory is east of Kanab.

January/February 2008: "SLAS Member Discovers Another Asteroid." On November 5, 2007, Patrick Wiggins found a new asteroid, 330 to 590 meters in diameter. It is temporarily known as 2007 VN8 until it can be named after it has made a couple of orbits around the sun (which may take 7 or 8 years). Patrick donated his naming rights to the local PBS radio station KCPW and they auctioned them off to the highest bidder during one of their fund drives.

July/August 2008: Report on SLAS at the Riverside Telescope Makers Conference by Joe Bauman, retired reporter/writer for Deseret News, now "NOVA Intragalactic Correspondent" and "A SLAS In-Reach Night at the Gravel Quarry" by Bob Taylor.

July/August 2010:

Fanning the Spark Into a Flame  
by Steve Fisher

It should come as no surprise to those who know me where my love for astronomy has led. Like most men my age I grew up fascinated by the race to put men into space. It was hard during the 1960's not to get swept up in the excitement to explore space and put a man on the moon. From my family's home we had pristine skies and sleeping out in the back yard was a very common occurrence. I remember at one time owning the dreaded 60 millimeter store bought refractor but unlike many of my friends, while I loved the night sky I was never really a budding amateur astronomer.

In 2000 my love of the night sky finally met up with my discretionary income. I bought my first 8" Dobson mounted Newtonian scope. Quickly I found the need for bigger and better. I purchased and sold equipment like a madman. Up, and up the aperture went. Some computerized some not. Then back to star hopping and smaller higher quality scopes. Then it happened, the post on the club's website. "Needed telescopes and operators for a school star party. We expect 600 children will attend". You have got to be kidding me! I am a 50+ year old man who has no children at home. Why in the world would I volunteer for something like this insanity? Well, I couldn't tell you for sure why but I packed up my scope and went. Maybe it was fate?

Now all these years later my equipment suits me well for my type of private observing but more than that it delivers a lot of bang for the buck with the public. They seem to love long white optical tubes pointing skyward. Yes, for several years now I have enjoyed hearing "Oh Wow" from youngsters looking through a telescope for the first time. I enjoy hearing from fifty, sixty and seventy year olds "holy cow, I'm 70 years old and this is the first time I have actually seen Saturn".

On the night of May 22, 2010 at 5:00 PM a message from the club's observatory, the Stansbury Park Observing Complex said, "Come on out the clouds are not a problem and we are expecting clear skies and fair seeing for our scheduled public star party". I gathered up a substantial amount of equipment and headed west to SPOC, our clubs observing site in Tooele County, Utah. When I arrived at 6:30 the cloud cover was near 100%. There was snow on the nearby mountain caps and it was chilly. I decided right then and there I would not be setting up my equipment for the night and thought I would soon be on my way to "advanced training". That is a coffee gathering with friends for those who don't know.

Our observatory director had our sign in his hand that says "No star party tonight due to inclement weather". As we were preparing to leave the first group of public star party attendees started down the walk. As they got closer we saw the clouds start to clear. The more people who showed up the clearer it got. Soon roofs began to roll off the observatories and club members started entertaining the public.

That is when my night really began. I saw a young boy (8) standing with his mother off to the side of one of the observatories. I struck up a conversation with them. It only took seconds to find out that the boy who I will call Albert (because that was his name) had been to the planetarium with his family looking at telescopes. The planetarium to their credit had suggested a public star party as an excellent starting point. Most of us who are into public astronomy look forward to igniting that first spark but this boy had already been introduced to space and the basic concepts of astronomy. This was his first night of observing and he had just seen Saturn for the first time in a telescope. It seemed his parents were very supportive of his new venture. Albert looked into one of the store rooms at the observatory and saw an 8" Orion XT scope that our club is going to give away at our next meeting. He told me this is what they had been looking at and what they came to see and compare to other scopes.

I got permission from a few of the directors of the observatory and in minutes we had the scope set up on the apron in front of one of the observatories. I got the finder working and then aligned the finder with the scope. I showed Albert where to grab the scope to move it and how to use the finder and then check the eyepiece and then I stood back.

Ladies and gentlemen, boys and girls, this is what public outreach astronomy is all about. For the next two hours Albert worked that scope. He showed others how to use the scope. He entertained old guys like me and their wives as well as kids nearer his age. In no time at all he was swinging the scope around from one target to another like a seasoned pro. I told him about Mizar / Alcor and told him it was the center star in the Big Dipper's handle & he had bagged his first double star within minutes.

I saw a spark in some kindling in an eight year old boy, by spending some time with him and his family I was able to fan that spark in to a flame. Not just a little flame but a raging fire. I was sure he would have his parents join the club which it turns out they did. This is one time where I think my efforts may have touched the life of a young man in a positive way. I may never know for sure.

Driving home from the nights events I was so happy. I was actually light hearted for the first time in a long time. I kept thinking about Albert and his family. I was

almost home before I realized what had happened to me this night. Yes, I have been doing public star parties since that first group of 600 kids but my excitement level had diminished. My very own fire within had nearly extinguished itself. I did not have much more than a spark left. A very sharp eight year old boy who came to see us with his family fanned the embers that I had left. He might as well have been using a bellows as he recreated a blazing fire in me. I can't wait to get back out to my next event where the public can attend. Thanks to Albert there will be thousands more people look through my telescopes that might not have had the chance if things had remained on the path they were on.

If you are reading this and have ever wondered why people do public astronomy I hope you will remember my story of this night.

Albert touched my life.

### **History of SLAS Leadership**

A detailed spread sheet of all the past SLAS officers was compiled by Patrick Wiggins and is posted at <http://slas.us/slasbooks/SLASBOD.PDF>

### **SLAS Members Media Articles**

26 December 2006 Utahns discover and name asteroids - Sheena McFarland, The Salt Lake Tribune

Few people get the chance to name a heavenly body, so when such an opportunity comes along, their selections say a lot about what they hold dear. Two Utahns - Patrick Wiggins and his former wife Holly Phaneuf - recently named two asteroids they discovered as amateur astronomers back in 1999. Wiggins selected his hometown of Elko, Nev., as the name for his asteroid. Phaneuf named the other after her new husband.

The two became the first Utahns in Brian Marsden's recent memory to name asteroids. Marsden, the secretary for the International Astronomical Union's committee for small body nomenclature, has voted on asteroid names since 1978. So far, 13,479 of the 145,705 discovered asteroids have been named, he said. Anyone who discovers a new asteroid can name it, but it often takes several years for the IAU to ensure an asteroid had not been previously discovered and forgotten over time. The IAU likes to monitor the asteroid for more than one orbit. Wiggins' asteroid, Elko, orbited once every 41 months.

Wiggins and Phaneuf initially didn't give much thought to naming the asteroids they discovered because the naming process takes so long. But they jokingly discussed following the lead of a fellow amateur astronomer who named an asteroid for his cat, Spock, by naming an asteroid for one of Phaneuf's cats, Comet. When the actual time came to name the first asteroid, which was given the provisional designation J99V00S, Wiggins submitted Phaneuf's name. But the IAU declined the name, saying asteroids couldn't be named after discoverers. He then chose Elko.

"It's kind of neat," said Wiggins. "I always tell people finding an asteroid isn't some amazing feat as there are more than 300,000 or even more than that still out there, but it is neat being able to point at something through a telescope and say, 'I discovered that.' "

Wiggins discovered the second asteroid by himself, a few days after discovering Elko, but gave Phaneuf the naming rights because he had already named one. That one was originally numbered 75,072. Phaneuf named it TimErskine after her new husband,

according to the IAU's Marsden. She could name it after a person because he was not involved in the discovery, Marsden said.

The official naming process took nearly seven years for Elko, which is between 1 and 3 kilometers in diameter, Wiggins said. Elko's orbit keeps it well outside of Mars, so it will never come close to posing a danger to Earth, a question some have posed to Wiggins, who downplays the discovery but is still giddy about it. "It's so much fun," said Wiggins. "It's not a really serious thing - it happens all the time - but it's a treat."

Update added 03 January 2011: Patrick later discovered minor planets 2007 VN8 in 2007 and 2008 RV77 & 2008 XR2 in 2008. 2008 XR2 was assigned the number 237277 in March 2010.

On 31 March 2010, after receiving permission from his former mother-in-law, Patrick petitioned the Minor Planet Center to name 237277 Nevaruthdaniel in honor of his former grandmother-in-law, Neva Ruth Daniel. MPC shortened that to Nevaruth and notified Patrick on 27 July 2010 that the name was official.

04 June 2007 Kanab woman uses photometry to help discover two new planets - Sheena McFarland, The Salt Lake Tribune

Most backyard astronomers are thrilled when they discover a new asteroid. So imagine Cindy Foote's reaction when she helped discover two new planets.

"It's just so exciting," the Kanab woman said of the discovery, which was announced last week in Honolulu at the American Astronomical Society's annual meeting.

Foote, an amateur astronomer, never expected to be part of a 16-person team of professional and amateur astronomers searching for new planets in an effort called the XO Project.

She and her husband, Jerry, own a telescope-building company called ScopeCraft Inc. and have attended astronomy meetings for decades. He studied physics and has worked in astronomy for 20 years, but she only became interested after attending a meeting in 2004 where she learned about exoplanets - planets that orbit stars other than the Sun.

"I just sat there and was stunned. It was the most surprising thing I'd ever heard," said Foote, who is formally trained in marketing. "I knew that's the area of science I wanted to pursue."

So, she refined her skill at photometry - the science of precisely measuring changes in starlight - and began studying the photometry of a previously discovered exoplanet.

In 2006, she met the discoverer of that planet and submitted her data, ultimately grabbing the attention of Peter McCullough, who leads the XO Project. He was impressed by her work, and asked her to join.

The team has two cameras at the Haleakala observatory in Hawaii to monitor fluctuations in starlight. The professionals on the team pore over that data, then send amateurs on the team a list of specific stars to monitor.

The team uses a fairly unusual technique to discover exoplanets. Typically, astronomers track the wobble in surrounding stars' gravitational fields to determine if a planet is orbiting.

However, 13 of the known 242 exoplanets were discovered using the transit method, which tracks the dimming of starlight that occurs when a planet passes in front of it, Foote said.

That method led to countless nights spent peering through her 16-inch, research-grade telescope located at the Vermillion Cliffs Observatory outside Kanab, documenting the timing of dim periods of certain stars to make sure there is a regularly orbiting planet.

Patrick Wiggins, NASA's solar system ambassador for Utah, is happy to see amateurs such as Foote get involved with the emerging science of finding planets.

"People with her equipment, which by professional standards is modest, would have been laughed at by the pros 10 years ago. But now, the pros are realizing amateurs have some pretty good stuff. They're dedicated and they have the time, which is something the pros don't have on the few big telescopes," he said.

Although Foote works on a 16-inch telescope instead of a 10-meter one, she was able to help prove the existence of two planets: XO-2b and XO-3b. XO-2b is the size of Jupiter and XO-3b is 12 times the size of Jupiter. Both orbit near their star, making them too hot for life.

"To find a planet is incredible, but to find one that has life is what everyone is looking for," Wiggins said. "Finding a planet with water is the Holy Grail of planet searching."

That's what keeps Foote up at nights, volunteering her time squinting through a telescope.

"The ultimate goal is to find a planet that is earthlike that harbors life," she said. "If we can find that planet, and if I can be instrumental to finding it, that's amazing."

26 November 2007 KCPW donor sought - Joe Bauman, Deseret Morning News

Attention, generous donor who won the right to name Patrick Wiggins' next asteroid: This is your chance! The donor, who wished to remain anonymous, made a substantial donation to public radio station KCPW seven years ago, and in return Wiggins promised that the person would be allowed to name the next asteroid he found. The donor "paid the station quite a bit of money," Wiggins said. Earlier this month, Wiggins -- a Tooele County amateur astronomer and NASA solar system ambassador to Utah -- found a new asteroid. The problem is, the donor's e-mail address has changed, and neither Wiggins nor the radio station has been able to locate the person.

Wiggins was involved in discovering two earlier asteroids. In 1999, he and his then-wife, Holly Phaneuf, recorded one that she later named. Shortly afterward, he found a second asteroid, which he, as discoverer, had the right to name. He dubbed it Elko, in honor of his hometown in Nevada.

Asteroid-discovery seemed easy at that time. "I was thinking, 'Hey, this is going to be a fairly routine thing,'" Wiggins said in a telephone interview. So when KCPW held a fund drive early in 2000, he auctioned off naming rights to his next find, donating that honor so the station could bring in some cash. The donor "paid the station quite a bit of money" and Wiggins searched for new asteroids. And searched. And searched. Seven years passed without another asteroid to his credit.

He would observe tiny dots, representing space debris, that moved between the time he took one astronomical photo and the next exposure, but when he sent data to the International Astronomical Union's Minor Planet Center, the message always would come back that the object had been discovered earlier.

Meanwhile, the chance that an amateur could find a new asteroid was vanishing. Automated surveys carried out by big observatories were dragging in hundreds of images of orbiting rocks that had not been seen before, and they were duly recorded, reducing the available field.

Early this month, Wiggins was taking photographs of a large, known asteroid, when he found another dot moving between photos. He e-mailed observations to the Minor Planet Center with details about the location of this distant object. The center responded that no known asteroid seemed to be at that point.

But one night's observation does not a discovery make. The dot might have been a flaw in his computer processing or a bit of dust in his camera. "The camera can make errors which look very suspiciously like asteroids," he said. The next night he again aimed his telescope and camera at the location -- which is in the asteroid belt between Mars and Jupiter -- and the dot was there, although naturally it had moved. After the second night observing, Wiggins again contacted the center. "There's about a third of a million known asteroids right now," he said. The center's computers searched through their database and tried to match this dot with a known asteroid. "It takes a while to go through the process," he said.

But word came back from the center that his observatory is now credited with the discovery of a third asteroid. "After a certain period of time, which typically works out to a number of years, then you are given the option" to name the asteroid. Years are required to wait for the object to glide through an orbit or two, just to make certain it really is new and not simply the rediscovery of an asteroid that was found earlier. "It's unlikely, but it is possible" an object was sighted earlier, Wiggins said.

Assuming that the unlikely doesn't happen, the donor will have the right to name the object. But the old e-mail address left by the donor is no longer valid. Wiggins says he knows the donor's name, so it will be easy to verify the person's identity once contact is made. "We're hoping that some reader of the Deseret (Morning) News will recognize themselves" and get in touch, he said.

NASA honors Utahn for bringing the heavens to Earth  
Nation's busiest solar system ambassador is shining star in the volunteer universe.  
By Sheena McFarland The Salt Lake Tribune

First Published Jul 21 2014

The tiny Utah town of Kanarrville was about to be overrun with astronomy tourists. The problem? No one in the area knew it. But a call from Patrick Wiggins months before the 2012 annular solar eclipse allowed the Cedar City-Brian Head Tourism Bureau to set up facilities, vendor booths and activities to help deal with the 20,000-strong horde drawn to a place that 350 folks call home.

"If not for his heads up, we would have been ill-prepared, but we were able to plan for and even advertise the event," said the bureau's Bonnie Char Hallman. "We managed the crowd safely and effectively because of Patrick and his notification and support through the whole planning process."

That phone call was one of only hundreds of times Wiggins has reached out to help Utahns better understand and enjoy the cosmos.

His work has not gone unnoticed.

Next month, Wiggins, 65, will become the first NASA/JPL Solar System Ambassador to receive the [Distinguished Public Service Medal](#), the space agency's highest civilian honor. Past recipients have included notables such as astronomer Carl Sagan, astrophysicist Neil deGrasse Tyson, "Star Trek" creator Gene Roddenberry and scientists who have worked on NASA projects.

"Patrick really took to heart what we ask of our volunteers – that's to tell the NASA story and to personalize the U.S. space program for your community," said Kay Ferrari, Solar System Ambassadors coordinator. "He's done that as far back as I can remember, and he's done that very effectively. What has impressed me the most about Patrick is his selfless dedication and enjoyment of what he's doing."

Solar System Ambassadors – who are strictly volunteer – are asked to hold four events a year. Wiggins averages 88. In fact, when he flies out to receive his award Aug. 14, he's taking an early-morning flight and leaving that same day. When Ferrari questioned why he was cutting it so close, Wiggins told her it was because he had events scheduled for Aug. 13 and 15, and he didn't want to miss them.

"Not even for his own honor will he miss one of the events he set up in Utah," Ferrari said, adding that Wiggins is the first ambassador to hold more than 1,000 events while with the program. The next closest is an ambassador in Michigan who joined a few years ago and has staged 57.

Ferrari said when Wiggins called her after he received notification of the award, there was silence on his end of the phone.

"It was the first time I've ever heard Patrick speechless," she said.

Wiggins – who served in the U.S. Air Force for 26 years, including time in Vietnam, and retired as a master sergeant – was unfamiliar with the NASA award. But after researching it, he said he was "stunned" to receive it.

"Considering previous recipients have included the likes of Carl Sagan, [science-fiction legend] Robert Heinlein and Gene Roddenberry, I'm still wondering if they rang the wrong guy," Wiggins said. "But, seriously, this is a very humbling experience."

The Stansbury Park resident's dedication became evident in regular reports sent back to NASA headquarters. The report about him hitting the 1,000 mark was one of many that caught the eye of James Green, director of planetary science at NASA headquarters. In his nomination, Green describes the passion for NASA Wiggins has demonstrated.

"More than once, Wiggins has been heard commenting that being a Solar System Ambassador has given purpose to his retirement," Green wrote. "We often speak of [Solar System Ambassadors] as 'serving their local communities.' Patrick's story certainly is a wonderful example of a volunteer who does just that."

The citation awarded with the medal reads, "For superior individual dedication to community and scientific engagement as NASA's most prolific Solar System Ambassador."

Wiggins joined the ambassadors program Jan. 1, 2002, just as he was ending a 26-year career – from 1975 to 2002 – at the Hansen (now Clark) Planetarium.

Von Del Chamberlain, director of the planetarium from 1984 to 1996, said Wiggins hosted star shows for thousands of schoolchildren. He joined the outreach program, where he traveled to small towns with a telescope to show residents the wonders of the heavens. He recalls Wiggins' infectious enthusiasm.



"I don't know where he acquired the disease, but he is especially effervescent with that ailment," Chamberlain said. "It's a pretty nice kind of disease to have, to be passionate about your work, whatever that might be."

Chamberlain noted that the medal likely will serve as a highlight in Wiggins' life, and that he's proud Wiggins has continued to take the outreach mission on the road through the ambassadors program.

Wiggins has spent countless hours and driven thousands of miles to reach every corner of Utah. When driving several hours to a location to host a talk or star party, he often will listen to the recordings of training sessions provided to Solar System Ambassadors. NASA's Ferrari says of the 585 ambassadors in the program, Wiggins appears to be the only one who has listened to or attended all of the more than 300 training sessions.

In addition to furthering NASA's public outreach, Wiggins works with the "Phun With Physics" program housed at the University of Utah's Department of Physics and Astronomy. Through it, he gives science demonstrations to third- and sixth-graders in Tooele and Salt Lake counties.

He also is a devoted amateur astronomer. He has been an active member of the Salt Lake Astronomical Society for 39 years and has held each of the positions on its board through the years. In January, Wiggins made the discovery of a lifetime when he found a supernova. His life largely revolves around the night sky, keeping a schedule that has him wake in the early afternoon so he can stay up through the early morning to observe the stars.

At star parties, Wiggins excitedly chats with visitors about the composition of the rings of Saturn, how binary stars such as Albireo (nicknamed the Cub Scout Star because one is blue and the other yellow) work or how stars form in places such as the Orion Nebula.

Ann House, vice president of the Salt Lake Astronomical Society, calls Wiggins a "true educator" and lauds his ability to reach diverse audiences, from young children to adults, and help them understand complex scientific principles without patronizing anyone.

"What is so infectious and contagious about Patrick is his enthusiasm," House said. "You need to be around him for only a moment before his passion for astronomy becomes your passion."

That outreach and ability to make astronomy accessible and exciting to everyday folks is largely the reason he was selected as one of this year's 11 winners, which include people such as "Star Trek" actor William Shatner and Edward C. Stone, former director of NASA's Jet Propulsion Laboratory and physics professor at the California Institute of Technology.

Colleen Canary, lead human resources specialist for NASA's Employee Recognition and Award Program, said the Distinguished Public Service Medal is designed to show a deep appreciation to civilians who have given their time and energy to furthering the space program.

"The hope is that ... we can inspire the family and friends and next generation of scientists and technologists to tell their stories," Canary said. "We want to let them know we appreciate their contribution and time. A lot of people have dedicated their lives to NASA work, and we want to tell families thank you for letting us have their people and that we admire the work they've done."

smcfarland@sltrib.com

## SLAS Member Accomplishments, Publications, Discoveries

Joe Bauman, in his capacity as a science writer with the Deseret News (September 1971 to April 2008) wrote hundreds of stories about astronomical events and SLAS related articles. Here is an example of one of the blogs he has written after retiring. It's a good indication of why so few people get seriously into astroimaging:

A Strike Out in Astrophotography  
Joe Bauman

Deseret News blog writer | Aug. 16, 2010 at 1:23 a.m.

New moon is the best time for astronomy because then the lunar glare does not wash out the dim nebulas and galaxies that preside over deep space. I was desperate to take advantage of the new moon period this month, as warm dark nights are available only a few times a year. The weather looked unpromising for places I wanted to visit, up to and including the new moon, which was on Aug. 9. The next day's weather was fine for astronomy but I was committed to attend an evening meeting of the Salt Lake Astronomical Society Board of Directors in a local Denny's Restaurant.

Consequently, from Wednesday afternoon through Saturday morning I drove three times from Salt Lake City to Utah's western desert and back. Twice I camped at the Knolls Sand Dunes, an off-road vehicle recreation area halfway from the capital to the Nevada state line; between those excursions I went to Lakeside, a dusty valley 20 miles closer to the city. The sites are in Tooele County.

\*\*\* Strike One, night of Aug. 11-12, Wednesday to Thursday

I set up on a hard and relatively flat desert just outside the Knolls ORV reserve, so close to the I-80 freeway that I heard all the semis as they snarled past and saw their headlights. But the lights really weren't a problem and this was a surprisingly dark site. The problem was the incessant wind. Unless it stopped bumping the telescope around astrophotography would be impossible.

The wind whipped my pant legs and rustled plastic bags that held some of my gear. My hat flew off a couple of times, and a rubber mat that I use to cushion the tripod on the back seat, blew onto the desert. The hard soil was littered with bits of broken porcelain, glass shards and other debris.

The scope made terrible noises while attempting its first major slew, and then the hand-held control box, called the handbox, flashed a notification that a motor failure had occurred. This seemed a catastrophe. But I found that the little steel knob that adjusts declination was bent, chaffing on the support and finally jamming against it. I bent the knob back nearly into position, and shifts in declination began working better.

The wind would not die down. It hooted and whined, the sounds sometimes mingling peculiarly with the generator's chugging. As it shook the telescope, star images in the eyepiece became white streaks.

Still, in the momentary pauses I immensely enjoyed examining the Cat's Eye Nebula, which was as bright as a star but spread out; the open star cluster M55, nicknamed the Scorpion Cluster; the great galaxy in Andromeda; the Ring Nebula; the fascinating spiral galaxy NGC7331; the fuzz enveloping some of the Pleiades cluster; the wonderful Whirlpool Galaxy, and several prominent stars. The Milky Way was glorious. An advance

agent from the Perseid Meteor Shower flamed across the black sky leaving a clumpy smoke trail that I could see for eight or ten seconds after it passed.

Close to the location is a railroad track. Passenger trains gave long honks and swept by. When the first approached its compartments were lit up. Much later the next came into view heading the opposite direction and the lighting was dim in most of its compartments. A cargo train took long minutes to roll past and its silhouette looked like a knobby landscape pulling by.

\*\*\* Strike two, night of Aug. 12-13, Thursday to Friday

It was a lovely night at Lakeside. When I arrived I found that Steven Fisher, also of the Salt Lake Astronomical Society, was already set up with his large refractor scope. Later another fellow, Dan, showed up with his two dogs. Dan wanted to watch the Perseid Meteor Shower from a dark site. He was eager to learn more about astronomy and indicated he might join the Society.

The Perseids were supposed to peak between midnight and 3 a.m. We saw only a few shooting stars but some were bright blazers. At least the night was calm and clear.

I tried to work further on the declination problem but when I tried to force the stainless steel knob upright, it broke off. With the telescope on the tripod I disassembled the cover over the declination mechanism and discovered the bent knob had jiggled loose a teeny hex screw. The screw kept a gear pushed against its axle. When it was loose the axle would spin without fully engaging the gear.

I used a correspondingly small hexagonal wrench to tighten the screw, which restored the mechanism to good working order. The knob wasn't vital and I decided not to bother replacing it. The telescope now swung obediently without hanging up or hesitating.

I centered the spiral galaxy NGC 6946 in the main camera and got it tightly focused. In trial exposures, the galaxy's sprawling long arms stretched dramatically across my laptop's screen. I was excited about getting a much better photo of NGC6946 than I'd made back in 2006. But when I plugged the wrong cable into a socket, the scope went haywire, forcing a time-consuming restart, from aligning the telescope to finding the galaxy.

I had downloaded an improved version of the PHD autoguiding program to keep the telescope locked onto its target, but I had not studied it. I struggled all night to get it working with a cruddy guide camera. With dawn coming, I changed autoguiding cameras, putting on a Meade Deep Space Imager I had toted for years without using. It connected nicely and delivered crisp images, but I could not get it to move the telescope.

Finally I clicked on a button that connects to the mount, and it worked fabulously. I took a test image: the view was steady, locked in, but dawn had washed out the galaxy.

\*\*\* Strike Three, night of Aug. 13-14, Friday to Saturday

Lakeside was half a mile out of range of my cell phone and Cory didn't like that. So I was back at Knolls. A train that went past threw a ferocious light on power poles and dirt hills, and motorcycles growled around. I had thought I'd be away from them because I wasn't in the sand dunes per se, but they used the roads at night. I could see shadowy figures standing upright in the ORVs that whipped past.

The telescope was easy to set up and I got started faster than usual. The only difficulty was that I was off of true north just enough that I had to move the tripod and re-level it. But that didn't take long. I found my target for the night, NGC 7331,

right off the bat by syncing on a nearby star, Matar, a corner point in Pegasus. I centered the galaxy and locked the guide camera onto a target.

I was about to finish focusing the main camera when a hurricane of wind hit. It kept worsening.

It was impossible to focus when the stars were jiggling blobs. I took several views of 320 seconds each, just to see if the guider worked. They showed smears of light in the identical places, meaning the guider somehow managed to keep locked on.

The Milky Way stretched across nearly the entire sky, showing dark dust lanes. I picked out constellations and waited for the wind to stop.

I called Patrick Wiggins, NASA solar system ambassador to Utah, who was driving home from a public star party, and asked him to check a weather page on the Internet. He said the air was still where he was, near the Great Salt Lake. I was dozing in the Jeep when he called back and told me that at Knolls a wind of 8-10 mph apparently was supposed to last all night. I felt certain it was far wilder than that, maybe 30 mph. The Jeep rocked and shook.

In the morning there was an ORV accident in the BLM reserve beyond my camp, and several emergency vehicles went up the road toward it. An hour or so later, while I was loading my equipment into the Jeep, an ambulance and fire-fighting vehicle returned. A white pickup truck with BLM decals stopped and a ranger walked over to chat with me. She said a fellow had tried a jump on his motorcycle, was thrown and broke his hip. He was airlifted out, though I had not seen the helicopter.

She had been to a SLAS star party and I advised her to join the society.

The following night turned out clear and peaceful. But it would not do to take off for a fourth night, and I was exhausted.

Now August's new moon period is over. The half-illuminated disk hangs above, shining malevolently. The next new moon will be on Sept. 8, with summer's balmy weather going fast or gone.

Earth Picture of the Day

30 June 2015: [Conjunction of Venus, Jupiter and the Crescent Moon](http://epod.usra.edu/blog/2015/06/conjunction-of-venus-jupiter-and-the-crescent-moon.html)

<http://epod.usra.edu/blog/2015/06/conjunction-of-venus-jupiter-and-the-crescent-moon.html>

**Don Colton**, From late 1974 to mid-1975 I, Don J. Colton, was Deputy Program Manager for the amplifier portion of the MJS77 (Mars - Jupiter - Saturn 1977 mission) which was later renamed Voyager. The launch window in 1977 was fairly critical in order to take advantage of a favorable alignment of the planets.

It had originally been planned as a grand tour of the outer planets but was cut back due to funding. However, the mission was a resounding success and Voyager 2 was able to visit Jupiter, Saturn, Uranus and Neptune the whole Grand Tour except for Pluto.

Voyager 1 is currently the farthest human made object at 120 A.U. Voyager 2 was launched first.

My main duties were to insure that the project progressed as planned. We had a large flow chart on the wall and every few days I would check on each item and get a status report. We also had to subject the amplifiers (not the ones for the mission but duplicates) to all kinds of tests including vibration, radiation etc. JPL also required that many of the components were "potted" in a plastic type compound to hold them immobile.

JPL, who was the lead for NASA, had a permanent employee on site for the duration of the project. He was the "nitpicker of all nitpickers" and kept thinking of some new kind of worst case scenario. Our project (the amplifiers), which was cost plus, was originally budgeted for \$3,000,000 but ended up costing \$8,000,000 not because of any padding but because of all the additional testing JPL demanded. They considered the amplifiers as one of the critical components. Also, I would go around almost daily and question charges made by those working on the project. My boss, the Program Manager, was a very honest man and did not want anyone charging for time they did not actually spend on the mission.

In the early days of NASA the extreme care put into each program resulted in many successes. In the case of the Voyagers, the amplifiers are still working many years after the planned program life. But, after the retirement of some of these "nitpickers", things got a little sloppy for a while due to new people and budget constraints. Hence, the Hubble Problem and one of the Mar's projects failure caused when the computer programmer had mixed up metric and English units. JPL in the 1970's would have checked the Hubble mirror's figure 10 different ways and not relied on one flawed test. That I can guarantee, having worked with those people.

I also have my name on a microchip on Mars since I worked on the Viking Lander Mission as a negotiator for a change order. Watkins-Johnson also built the amplifiers for the Viking Lander. I can't remember whether they had a microchip with the participants' names on the Voyagers. If they did, they probably would have asked for signatures after I left the program.

Earth Picture of the Day

23 April 2011: Window Glass Frost Crystals

<http://epod.usra.edu/blog/2011/04/window-glass-frost-crystals.html>

Earth Picture of the Day

19 May 2012: Reflection of Antelope Island in Great Salt Lake

<http://epod.usra.edu/blog/2012/05/reflection-of-antelope-island-in-great-salt-lake.html>

**Dion Davidson**, Earth Picture of the Day

21 December 2014: Winter Solstice, Summer Solstice

<http://epod.usra.edu/blog/2014/12/winter-solstice-summer-solstice.html>

**Kurt Fisher**, Photo of Gallivan Center Sundial at the Solstice. Earth Picture of the Day, 10 July 2006.

Reference chart used in Lunar Picture of the Day, 25 September 2006.

Photo of Equinox Line. Earth Picture of the Day, 21 October 2006.

"The Third Dimension: Crater Depths from the Apollo Era to the Present" Selenology Today, April 2007.

"Kurt's LPOD Index" Index to 1,648 feature entries across about 869 LPODs, including about 20 APODs and EPODs.

Created website for Kazuo Matsubayashi's "Asteroid Landed Softly" sundial sculpture.

Earth Picture of the Day

09 August 2015: CNo City Breaks Off So Naturally

<http://epod.usra.edu/blog/2015/08/no-city-breaks-off-so-naturally.html>

**Cindy Foote**

Author of "An Amateur Astronomer's Growth Into Science." Symposium on Telescope Science, 2006 May 23.

Co-author of:

"A Transiting Jupiter-sized Planet with A Four Day Period." The Astrophysical Journal, 2008 May.

"XO-4b: A Transiting Extrasolar Planet." The Astrophysical Journal, 2008 May.

"The Challenging Road to Exoplanet Observing." Symposium on Telescope Science, 2008 May 20.

"The Transit Light Curve Project. IX. Evidence for a Smaller Radius of the Exoplanet XO-3b." The Astrophysical Journal, 2008 August 20.

"XO-3b: A Massive Planet in an Eccentric Orbit Transiting an F5V Star." The Astrophysical Journal, 2007 December 27.

"XO-2b: Transiting Hot Jupiter in a Metal-rich Common Proper Motion Binary." The Astrophysical Journal, 2007 December 20.

"Lightcurves analysis for Hungaria asteroids 3854 George, 4440 Tchantches and 4674 Pauling." The Minor Planet Bulletin, 33 (2): 34-35.

Lightcurve of exoplanet XO-4 published in April 2011 Journal of the British Astronomical Association page 89.

### **Jerry Foote**

Author of:

"The Big Cottonwood Observatory" Automatic Photo-electric Telescopes. Arizona: Fairborn Press, 1986.

"Big Cottonwood Observatory-The First Year." New Generation Small Telescopes. Arizona: Fairborn Press, 1987.

"A High Resolution Stepper Motor Controller for Telescopes." A paper presented at the 1990 Fairborn Observatory meeting on Robotic Observatories, February, 1990.

Co-author of:

"Superhumps in Cataclysmic Binaries. XXIII. V442 Ophiuchi and RX J1643.7+3402." Publications of the Astronomical Society of the Pacific, December 2002.

"The 2001 Superoutburst of WZ Sagittae." Publications of the Astronomical Society of the Pacific, July 2002.

"Superhumps in Cataclysmic Binaries. XXIV. Twenty More Dwarf Novae." Publications of the Astronomical Society of the Pacific, November 2003.

"CCD Photometry of the first observed superoutburst of KP Cassiopeiae in 2008 October." Journal of the British Astronomical Association, February 2010.

"CSS090530:144044+494734: a new SU Uma-type dwarf nova in Bootes" Journal of the British Astronomical Association, August 2010.

Jerry also holds several patents including:

Inflation and Pressure Relief Valve, Patent #3,985,141 - October 12, 1976

Locking Syringe Patent #5,047,015 – September 1991

Locking Syringe Patent #5,057,078 – October 1991

System and Method for Monitoring, Displaying and Recording Balloon Catheter Inflation Data, Patent #5,135,488 – August 4, 1992

System and Method for Recording Balloon Catheter Inflation Data, Patent #5,300,027 – April 5, 1994

Digitally Controlled, Disposable Syringe Inflation System, and Method for Monitoring, Displaying Balloon Catheter Inflation Data, Patent #5,385,549 – January 31, 1995

Catheter Apparatus with Means for Subcutaneous Delivery of Anesthetic Agent Or Other Fluid Medicament, Patent #5,405,334 – April 11, 1995

System and Method for Monitoring, Displaying and Recording Balloon Catheter Condition Interval Data, Patent #5,458,571 – October 17, 1995

Catheter Apparatus with means for Subcutaneous Delivery of Anesthetic Agent Or Other fluid Medicament, Patent #5,647,859 – July 15, 1997

Anesthetizing Sheath Apparatus with means for Subcutaneous Delivery of Anesthetic Agent or Other Fluid Medicament, Patent #5,647,860 – July 15, 1997

Catheter Apparatus with Means for Subcutaneous Delivery of Anesthetic Agent Or Other Fluid Medicament, Patent #5,665,076 – September 9, 1997

Catheter Apparatus with Means for Subcutaneous Delivery of Anesthetic Agent Or Other Fluid Medicament, Patent #5,797,886 – August 25, 1998

System for Electronically Monitoring the Delivery of Contrast Media, Patent #5,807,321 – September 15, 1998

Guidewire Connection Guide and Method of Use, Patent #5,830,157 – November 3, 1998

Flexible Catheter Guidewire, Patent #5,957,865 – September 28, 1999

Wound Irrigation System with Flexible Shield, Patent #6,050,981 – April 18, 2000

Monitoring and Displaying Pressurization Data, Patent #6,533,757 – March 18, 2003

#### **Charles Green**

May 2007. "An Amateur Astronomer's Initial Asteroid Lightcurves" In Symposium on Telescope Science. Proceedings for the 26th Annual Conference of the Society for Astronomical Sciences. 22-24 May 2007. Northwoods Resort, Big Bear Lake, CA. pp 131-133.

#### **Jinyan Guo**

International Journal of Plant Sciences September 2015. "Comparative Micromorphology and Anatomy of Crested Sepals in Iris (Iridaceae)"

#### **Chuck Hards**

Sky & Telescope March 1999 p 120. "Woodshop Telescopes"

Sky & Telescope February 2000 p 125. "Woodshop Eyepieces"

Sky & Telescope October 2000 p 138. "A Weightless Woodshop Refractor"

Sky & Telescope October 2002 p 14. Letter, "Better Ways to Cool It"

Sky & Telescope April 2014 p 68. "A 70 inch Amateur Telescope"

Chuck said that the first article was unsolicited and the second piece was done on request of the editor, Gary Seronik, as a companion piece to the homemade Barlow article by the late Ernie Pfannenschmit. He explains that the main thrust of his articles was using common woodworking tools on non-ferrous metals, plastics, and man-made wood products. Only the eyepieces used genuine hardwood; the telescopes don't have any wood visible to the eye. Chuck demonstrated that someone with average skills could produce a telescope that looked like it came from a factory, elegantly designed, instead of being a few boards and hardware-store trinkets nailed together in a purely utilitarian fashion.

Chuck noted that before his articles were published, all Dobsonians were merely plywood boxes and that his designs are what started the Dobsonian manufacturing industry producing more sleekly designed telescopes...Chuck was contacted by two manufacturers who were interested in selling his designs, but it was soon apparent that their price points could not be met without sacrificing a lot of craftsmanship. He says didn't "sell out", but the industry began to emulate the lines of his work, without incorporating the high-quality, in order to keep prices down.

The article "A Weightless Woodshop Refractor" describes a novel concept for using Dobsonian principles for refractors and other telescopes requiring a tall tripod. It's a genuine minor paradigm shift in the evolution of Dobsonian kinematics that eliminates useless mass in the mount. It uses the mass of the telescope itself to act as its own counterweight and maintain 3-point groundboard contact.

To this day, Chuck still gets occasional emails from people who have used his designs to build telescopes and eyepieces, which he finds very gratifying. Chuck also tells that "The late Sir Arthur C. Clarke was a Sky & Telescope subscriber, and he sent me a note commenting favorably on my first article, along with one of his personal book-plates, autographed and personalized to me. That will always be a highlight of my life."

Chuck's first submission to Sky & Telescope was in 1990, about his all-fiberglass telescope design. The editor of the department back then was Roger W. Sinnott, and while he expressed interest in the design, he felt Chuck's particular methods, which involved making master patterns, was beyond the average reader's ability. Chuck never wrote that article but manufactured and sold a limited production run of about 10 telescopes, all 10" aperture, f/5.6 fiberglass Dobsonians.

Chuck's 2014 article was solicited by the magazine after one of the editors emailed one of S&T's editors about the scope.

**Julie Hards** suggestion in "More Reader Tele-Tips", Sky & Telescope March 2000 p 132 Suggestion on using "body pillow" pillowcases as breathable telescope dust-covers.

**Bruce Hugo**

Astronomy Picture of the Day

09 April 2004: NGC 4565: Galaxy on the Edge



<http://apod.nasa.gov/apod/ap040409.html>

**Bill Kelley**

Sky & Telescope July 1990 p 93 "Free Floating Dobsonians"

Sky & Telescope June 1992 "Three Innovations in a Dobsonian"

Sky & Telescope November 2000 "Flexing Spheres Into High Quality Telescope Mirrors (Adler and Kelley)"

Bill Kelley is also the inventor of the "Bill Kelley Device". These are small engineered devices to overcome friction in typical Dobsonian telescopes, usually involving a spring to remove weight from a Teflon bearing.

**Rob Ratkowski**

Photo of the Panoramic Survey Telescope and Rapid Response System (Pan-STARRS), April 2011 issues of the Journal of the British Astronomical Association, page 88.

**Kelly Ricks**

Earth Picture of the Day

21 March 2012: Lake Michigan Ice

<http://epod.usra.edu/blog/2012/03/lake-michigan-ice.html>

**Brent Watson**

Written five very popular finder chart books, published by Sky-Spot.

Finder Charts of Bright Telescopic Objects

Finder Charts of the Messier Objects – Vol. 1, M1 through M55

Finder Charts of the Messier Objects – Vol. 2, M56 through M110

Finder Charts of Overlooked Objects

Finder Charts for Select Double Stars

**Patrick Wiggins**

Star field photograph. Ensign, June 1982.

Several photographs of constellations. 1991 First edition The Audubon Society Field Guide to the Night Sky

Photograph of a solar eclipse. 1985, Space Shots by Timothy Ferris.

Co-discovered with wife Dr. Holly Phaneuf:

Minor planet J99V00S / 1999 VS (80180) (Elko), 03 NOV 1999

Discovered:

Minor planet J99V19U / 1999 VU19 (75072) (Timerskine), 14 NOV 1999

Discovered:

Minor planet K07V08N / 2007 VN8 (361690) (Laurelanmaurer), 06 NOV 2007

Co-author of:

"New determination of the size and bulk density of the binary Asteroid 22 Kalliope from observations of mutual eclipses", Icarus, August 2008.

Discovered:

Minor planet K08R77V / 2008 RV77 (391795) (Univofutah), 08 SEP 2008

Discovered:

Minor planet K08X02R / 2008 XR2 (237277) (Nevaruth), 06 DEC 2008

Co-author of:

"A giant crater on 90 Antiope?", Icarus, September 2009

Co-author of:

"Collaborative Lightcurve Photometry of Near-Earth Asteroid (159402) 1999 AP10", Minor Planet Bulletin, 2010 July-September

Co-author of:

"Triplexity and Physical Characteristics of Asteroid (216) Kleopatra", Icarus, November 2010.

Photograph of solar eclipse. 2012, Cover of Django Django's Hail Bop LP.

Earth Picture of the Day

06 March 2010: Near-Earth Object 2010 AL30

<http://epod.usra.edu/blog/2010/03/nearearth-object-2010-al30.html>

Earth Picture of the Day

12 OCT 2010: Flyby of Minor Planet 2010 TD54

<http://epod.usra.edu/library/flyby.html>

Earth Picture of the Day

22 October 2010: Full Moon Over Antelope Island in Utah's Great Salt Lake

<http://epod.usra.edu/blog/2010/10/full-moon-over-antelope-island-in-utahs-great-salt-lake.html>

Earth Picture of the Day

03 February 2012: Ice on Utah Lake

<http://epod.usra.edu/blog/2012/02/ice-on-utah-lake.html>

Earth Picture of the Day

20 March 2012: Center Pivot Irrigation Near Utah Lake

<http://epod.usra.edu/blog/2012/03/center-pivot-irrigation-near-utah-lake.html>

Earth Picture of the Day

11 July 2012: Full Moon Over the Bonneville Salt Flats

<http://epod.usra.edu/blog/2012/07/full-moon-over-the-bonneville-salt-flats.html>

Earth Picture of the Day

06 August 2012: Evaporation Ponds Near Great Salt Lake

<http://epod.usra.edu/blog/2012/08/evaporation-ponds-near-great-salt-lake.html>

Earth Picture of the Day

08 December 2012: Pahvant Butte

<http://epod.usra.edu/blog/2012/12/pahvant-butte.html>

Earth Picture of the Day

06 March 2013: Snow Capped Dunes in the Desert

<http://epod.usra.edu/blog/2013/03/snow-capped-dunes-in-the-desert.html>

Earth Picture of the Day

10 October 2013: Stansbury Island in Great Salt Lake

<http://epod.usra.edu/blog/2013/10/stansbury-island-in-great-salt-lake.html>

Earth Picture of the Day

06 January 2014: Little Sahara Recreation Area

<http://epod.usra.edu/blog/2014/01/little-sahara-recreation-area.html>

14 January 2014: Discovered:Supernova 2014G

Earth Picture of the Day

10 February 2014: Supernova 2014G

<http://epod.usra.edu/blog/2014/02/newly-discovered-supernovas-in-ngc-3448-and-m82.html>

Earth Picture of the Day

07 March 2014: Causeway Caused Colors on Great Salt Lake

<http://epod.usra.edu/blog/2014/03/causeway-caused-colors-on-great-salt-lake.html>

Earth Picture of the Day

01 April 2014: Low Maintenance Trees (April Fools Day joke)

<http://epod.usra.edu/blog/2014/04/low-maintenance-trees.html>

24 August 2014: Awarded NASA's highest civilian award, the NASA Distinguished Public Service Medal, by NASA Administrator Charles Bolden at NASA HQ in Washington DC.

24 September 2014 Announced he had named a minor planet he discovered in 2008 (391795) for the University of Utah. The name is Univofutah.

Earth Picture of the Day

10 February 2015 Concrete Arrows and the U.S. Mail

<http://epod.usra.edu/blog/2015/02/concrete-arrows-and-the-us-mail.html>

Earth Picture of the Day

26 May 2015 Above Utah's Salt Flats

<http://epod.usra.edu/blog/2015/05/above-utahs-salt-flats.html>

17 June 2015 Discovered supernova 2015Q.

Earth Picture of the Day

17 July 2015 Delta in Great Salt Lake Observed from Aloft

<http://epod.usra.edu/blog/2015/07/delta-in-great-salt-lake-observed-from-aloft.html>

Earth Picture of the Day

04 August 2016 Mining Tailings Viewed from Aloft

<http://epod.usra.edu/blog/2016/08/mining-tailings-viewed-from-aloft.html>

14 May 2017 Discovered supernova SN 2017aew

Earth Picture of the Day

22 May 2017 Supernova SN 2017aew

<http://epod.usra.edu/blog/2017/05/supernova-sn-2017.html>

30 November 2017 Discovered supernova SN 2017iro

14 January 2018 Discovered Supernova SN 2018gj

Earth Picture of the Day

19 January 2018 Supernova SN 2018gj

<http://epod.usra.edu/blog/2018/01/supernova-sn-2018gj.html>

28 September 2018 Discovered supernova SN 2018gwo

Earth Picture of the Day  
10 October 2018 Shoreline Patterns of the Great Salt Lake  
<http://epod.usra.edu/blog/2018/10/shoreline-patterns-of-the-great-salt-lake.html>

**Mike Wilson**

Astronomy Picture of the Day  
13 September 2005: A Quadruple Sky Over Great Salt Lake  
<http://apod.nasa.gov/apod/ap050913.html>

**SLAS Membership Numbers**

SLAS membership numbers over the years (as of 01 January of each year):

1981	80
1982	83
1983	95
1984	92
1985	83
1986	119
1987	138
1988	136
1989	121
1990	126
1991	133
1992	165
1993	177
1994	227
1995	187
1996	178
1997	195
1998	170
1999	155
2000	162
2001	191
2002	206
2003	193
2004	199
2005	178
2006	169
2007	183
2008	184
2009	201
2010	204
2011	198
2012	225
2013	268
2014	273
2015	257
2016	302
2017	248
2018	297