



Vol. 64, No. 11 – November 2016

IN THIS ISSUE

01. NOV. 15 LECTURE: R. JAY GABANY, ASTROPHOTOGRAPHER
02. UPCOMING SFAA LECTURES 2016 & 2017
03. SFAA PRESIDENT'S NOTE
04. SFAA BOARD OF DIRECTORS ELECTION FOR 2017
05. PROPOSED UPDATES TO SFAA BYLAWS
06. THE 2016 LICK OBSERVATORY TOUR
07. BAY AREA ASTRONOMY EVENTS
08. 2017 TOTAL SOLAR ECLIPSE TRIP
09. IN MEMORIAM - SFAA FRIEND GEORGE CARVALHO
10. NASA JPL SCIENCE NEWS
11. MEMBERSHIP RENEWAL FORM

CALL FOR VOLUNTEERS

SFAA is looking for volunteers to help at Star Parties – both on Mt. Tam and for City Star Parties. Please send an email to Michael Patrick at president@sfaa-astronomy.org if you're interested.

01.

NOVEMBER 15TH LECTURE | R. JAY GABANY, ASTROPHOTOGRAPHER

THE PRESIDIO . OBSERVATION POST . BUILDING 211

211 Lincoln Boulevard, San Francisco

7:00 pm Doors Open | 7:30 pm Light Refreshments | 7:45 pm Announcements | 8:00 pm

Speaker

SFAA'S GENERAL MEETINGS OCCUR ON THE 3RD TUESDAY OF EACH MONTH (EXCEPT JANUARY)

“GALACTIC ARCHEOLOGY: GOOD SCIENCE WITH MODEST INSTRUMENTS”

R. JAY GABANY, ASTROPHOTOGRAPHER



An ongoing collaboration between the speaker and an international team of professional astronomers has demonstrated the scientific potential of using modest aperture, commercially produced, semi-robotic telescopes situated under steady dark skies and affordable off-the-shelf astronomical cameras to reveal extremely dim, diffuse structures on the outskirts of distant galaxies that shed light on galactic evolution. This presentation will share techniques, experiences and highlights of the investigations thus far.

By profession, R. Jay GaBany is an eCommerce product manager working in California's Silicon Valley and the recipient of five patents for innovations in his field. Over the last decade he has earned a reputation as an amateur astronomer and astrophotographer whose work has been recognized internationally. He is also known for his work with an international team of astrophysicists led by Dr. David Martinez-Delgado (University of Heidelberg).

GaBany helped pioneer the use of modest size telescopes and off the shelf CCD-cameras to produce long exposure images that revealed ancient galactic merger remnants in the form of star streams surrounding nearby galaxies that were previously undetected or suspected. GaBany has coauthored over 14 peer-reviewed scientific papers on the subject. For his contributions at the professional level he was given the 2010 Chambliss Award by the American Astronomical Society.

Among his many other accomplishments GaBany's image of NGC 3521 was selected as the backdrop for the official crew portrait of Expedition 30 to the International Space Station. In 2012 and again in 2013, he was selected by the editors of Time magazine as one of "The 25 Most Influential People in Space."

Jay has also written numerous articles, blogs, and reviews for a variety of popular astronomy magazines such as Sky & Telescope, Universe Today, and Astronomy Now. His first book, Breakthrough! 100 Astronomical Images that Changed the World was just published in November 2015. Co-authored with noted astrophotographer Dr. Robert Gendler, the book explores the history of astrophotography through the lens of 100 groundbreaking images that altered humanity's perception of its place in the universe. View Jay's image projects at www.cosmotography.com

02.

UPCOMING SFAA LECTURES 2016 & 2017

DECEMBER 20TH | LEO BLITZ, UC BERKELEY DEPARTMENT OF ASTRONOMY



"ARE ANCIENT GALAXIES REALLY RED AND DEAD?"

Galaxies are generally observed as spiral and elliptical shapes. The early type elliptical galaxies, with their old stars, are seen as reddish and often referred to as 'red and dead.' We will learn that some of these galaxies hold surprising new areas or research.

Photo credit: Hubble Ultra Deep Field 2014
Image Credit: NASA, ESA, H.Teplitz and M.Rafelski (IPAC/Caltech), A. Koekemoer (STScI), R. Windhorst (ASU), Z. Levay (STScI)

***** NOTE: NEW SFAA MEETING LOCATION FOR 2017 *****

We are happy to announce that, starting in January, we will be meeting at the San Francisco Presidio Officers' Club, 50 Moraga Avenue, San Francisco, CA 94129.

(As you may or may not know, the building where we have been meeting is scheduled to be demolished)

SAVE THE DATE: January 21, 2017 for the Annual SFAA Membership Dinner.

There will be no Lecture in January because we will have our annual SFAA Membership and Awards Dinner (Stay tuned for more details), where, for over 50 years the SFAA has enjoyed dinner and drinks in a lively atmosphere with all those who enjoy the night sky. Members are encouraged to participate and nominate people for such awards as:

- Service Award
- Observer of the Year, and
- Herman Fast Award (this is the most important award we give, named for one of SFAA's most dedicated and accomplished members, and one of the Founders.)

FEBRUARY 21ST | BRIAN KRUSE, ASTRONOMICAL SOCIETY OF THE PACIFIC (ASP) & BOARD MEMBER, SAN FRANCISCO AMATEUR ASTRONOMERS



"MARS AND THE HUMAN IMAGINATION"

Mars has long been an object of intense interest in ancient and modern myths. Its ruddy glow inspiring visions of conflict and war, and its surface markings creating a whole genre of popular (mis)representations of Mars as the abode of life in a variety of forms. In this presentation, discover how popular culture has represented, and misrepresented Mars while sparking a special interest most all have in what is actually taking place on the planet most similar to earth in our solar system. NASA missions have returned a plethora of images and information about what Mars is really like. Find out the latest about what is known about the red planet, and what still remains for investigation and discovery on future missions.

03.

SFAA PRESIDENT'S NOTE | POTENTIAL VOYAGE TO PROXIMA CENTAURI B & 2017 OFFICER ELECTIONS

I recently read an article in “Sky & Telescope” on the planet that has been detected orbiting Proxima Centauri and that current calculations show that it: 1) Is within the habitable zone of its M class red dwarf star; and, 2) The size of this planet is approximately, at a lower limit, 1.3 times the size of Earth. Does our nearest star system have a planet that contains life? With this discovery the tantalizing thought of sending a spacecraft to our nearest star system to investigate Proxima Centauri B has begun to take hold. Proposals are being drafted to send a probe that might travel 20% of the speed of light. This started me mentally calculating how fast this might be (at the time I was reading the article I was in a doctor’s office waiting area without the aid of calculator). I stopped at attempting to multiply 20% of the speed of light (approximately 37,200) against 3, 600 seconds (# of seconds in an hour) to come up with a mph figure to which I could (somewhat) relate. No need for such mental gymnastics as, while driving home, I looked at it from the other end: since the Alpha Centauri system is 4 light years away, 20% of the speed of light means the spacecraft would be travelling 5 times as slow which translates into 20 light years. The data gathered could be sent back to Earth at the speed of light, which is another 4 years hence the round trip of data gathering is a minimum of 24 years. Not only is this pushing the limits of current cutting-edge technology, this is long-term thinking. We are working to gather data that our descendents will interpret, and to them it will be working with antiquated (minimum 24 years old) technology.

Reading “Sky & Telescope” is beginning to feel like reading a Joe Haldeman novel.

And just what does this have to do with the 2017 SFAA Officer elections you might ask? Well, not much except for the fact that the elections encompass a much shorter time frame, which is this December. And since we are on the subject of elections (was this a pivot?) the SFAA will have several openings on the Board and possibly two for Officers. The SFAA needs a full complement on Board and Officers to be able to keep events going and expanding into new areas. If you have ever thought about wanting to pitch in and help the SFAA grow into something even more interesting, educational and community oriented, please contact me or any of the Officers or Board member you may know via our website. Our email addresses are listed below.

Dark, clear and stable skies,

Michael Patrick
President, SFAA

SFAA Board Officers and Directors:

President	Michael Patrick	president@sfaa-astronomy.org
Vice President	Matthew Jones	vice-president@sfaa-astronomy.org
Treasurer	Katie Gallinger	treasurer@sfaa-astronomy.org
Secretary	Anthony Barreiro	secretary@sfaa-astronomy.org
Directors:	PJ Cabrera, Anil Chopra, Brian Kruse, Scott Miller, Agnes Pynchla, Douglas Smith, Liz Triggs, Paul Salazar	

04.

SFAA BOARD OF DIRECTORS ELECTION | ANTHONY BARREIRO

SFAA elects our Directors and Officers every December for the upcoming calendar year. The Officers and Directors constitute the Board of Directors, which is SFAA's governing body. The Board maintains our membership roster, manages the club's funds, organizes and publicizes our activities, coordinates member volunteers, and communicates on the club's behalf with the larger community. Fortunately the club has a stable cash flow and adequate reserves. Members' dues fund all of our activities, so (unlike many non-profit organizations) Board members don't have to do any fundraising.

The board meets once a month. Our first meeting of the year is a day retreat to plan for the year ahead. The remaining meetings are on weekday evenings, usually two online meetings and an in-person meeting each quarter.

Any current member of SFAA is eligible to run for the Board. Some of our current board members will not be able to serve another term, so we need new people to run to fill the available seats. We're looking for fresh ideas and perspectives to enhance the events and communications SFAA offers to members and the broader public. If you have been participating in club activities and you have time and energy to commit to helping direct the club's affairs, please consider running for the Board.

The responsibilities of the SFAA Officers and Directors are described in more detail in a proposed revision to the Bylaws: <http://www.sfaa-astronomy.org/proposed-updates-to-sfaa-bylaws/>

If you are willing to run for the Board, if you have questions, or if you would like to nominate another member, please contact Anthony Barreiro at secretary@sfaa-astronomy.org.

AN AMATEUR'S REFLECTION ON AN OPPORTUNITY TO MEET THE UNKNOWN | ANIL CHOPRA

I came to San Francisco, from Chicago, 6 years ago and was very fortunate to have met Ken Frank, who was then an SFAA Board member and introduced me to this wonderful club. Since joining SFAA, I have had the great pleasure of making wonderful friends, exploring Mt. Tam in ways I would have never suspected, and following in Ken's shoes, helping folks join our club and expand their access to the night sky (to name a few).

Every human before 1900 lived with the great dark sky as his or her companion. Only the last 5 generations of humans have lost consistent touch with the depth of night sky, since the electrification of the city. Contemplation of the night sky might have been what sparked the evolutionary change, some 160 thousand years ago, which made us human... It is such an important aspect of what we are, to remember infinity is just outside our window... and it is our club that enables young people a perception of what is beyond our little island in this vast ocean of space... it is our club that can help remind us of the world beyond the well-lit dome of our present moment, filled with electronic visions of work and distraction. It is our club that enables one to bring a blanket and spread it out in the middle of Rock Springs Parking lot and find enough stillness and quiet... to hear shooting stars.

We all are very busy, but we also make time for what we find important. Being a Board member for this club, serving not only the members of SFAA, but also the community at large, is an opportunity to expand your understanding of the night sky, of how such organizations work and an exercise for your creativity. Finding time to spend up at Mt Tam, to tune-up that scope, and help support and grow this club's work, is time reinvigorating your ability to grapple with the great unknown... it is what keeps us growing... and it allows so many others access to this wonderful, natural, vast playground called space. Join the board of SF Amateur Astronomers and take this opportunity to use your talents (or learn how to use your talents) in helping all of us, Meet the Unknown.

05.

PROPOSED UPDATES TO SFAA BYLAWS | VOTE AT NOVEMBER 15 GENERAL MEETING / LECTURE

The SFAA Board has recently reviewed the organization's bylaws and is proposing a number of updates for clarification and consistency. **A vote of the SFAA membership, present at the meeting, to accept or reject these proposed changes will be held at the General Meeting / Lecture at the SF Presidio Observation Post on November 15, 2016.**

Summary of proposed updates, by section:

- Preamble
 - Clarifies references to majority voting percentages in bylaws
- Article One
 - Includes reference to SFAA status as a nonprofit organization, as defined by the IRS under Section 501(c)(3)
- Article Two
 - No changes
- Article Three
 - Updates to voting process for members to elect Board members
 - Updates to duties of Secretary and Treasurer
 - Clarifies majority of Board votes required for expenditures
 - Replaces term “constitution” with more accurate usage of the term “articles of incorporation”
 - Updates title of Shop Foreman to Shop Coordinator
 - Adds description of duties for Speaker and Equipment Loan Coordinators
 - Clarifies that appointed roles shall serve until relieved of duties by majority vote of the Board and removes some redundant text
- Article Four
 - Clarifies terminology in membership classifications
 - Provides minor edits for consistency
- Article Five
 - Adds reference to SFAA 501(c)(3) status and tax-deductibility of membership dues as allowed by law
- Article Six
 - Minor edits
- Article Seven
 - No changes
- Article Eight
 - No changes
- Article Nine
 - Changes requirement for revised bylaws to be read at a membership meeting to instead be made available.
- Article Ten
 - Provides minor edits for consistency
- Article Eleven
 - No changes

Members may review the full document, with deletions in strike-through text and additions in underlined text, at the following link:

[SFAA-Bylaws-2016-09-27.pdf](#)

06.

THE 2016 LICK OBSERVATORY TOUR | JESSICA MILLER

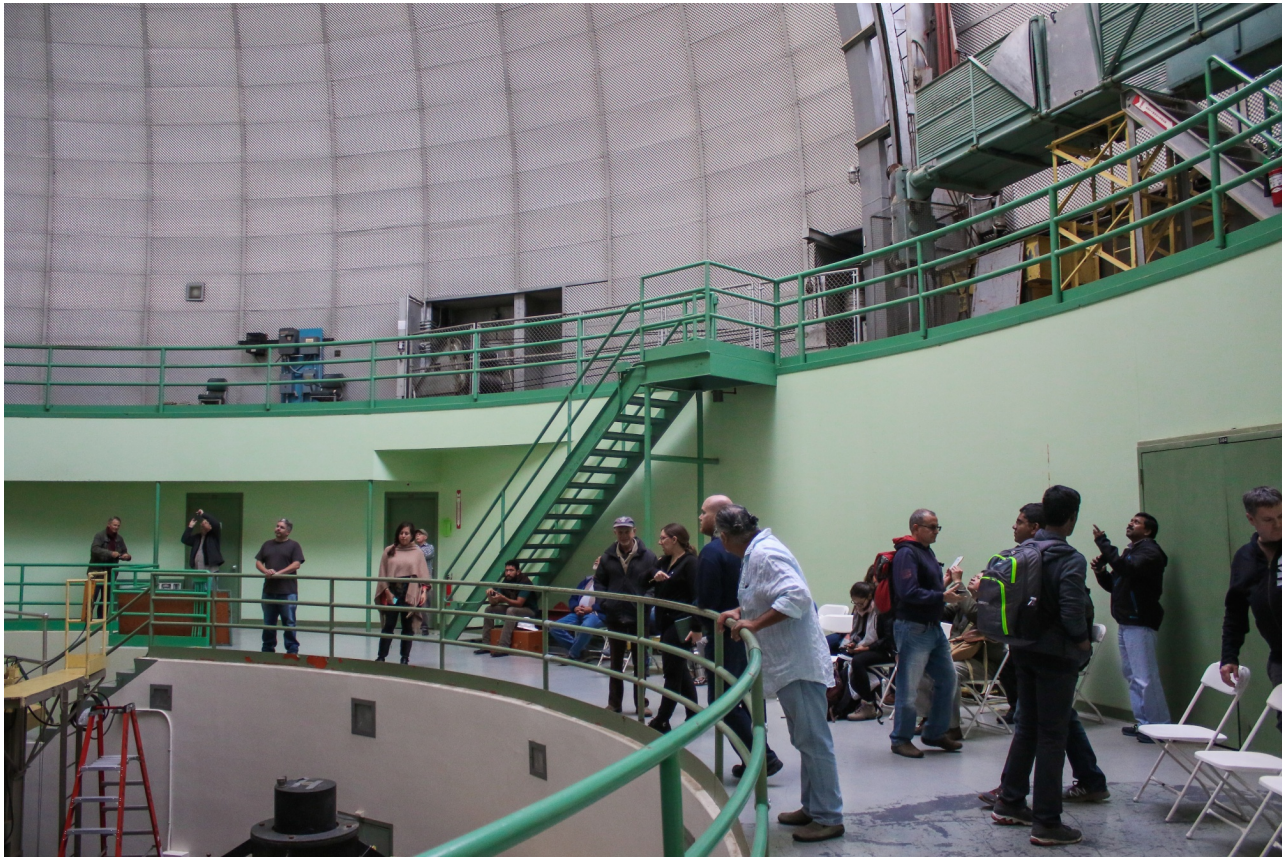
The many SFAA members who made the trip up all 365 curves of the road to the top of Mt Hamilton enjoyed this year's Lick Observatory tour. The tour started with a short walk over to the 3-m Shane Refractor, which was being calibrated by the South Koreans before their viewing that night. It was fascinating to watch the Shane move and reposition, relatively quietly considering the size of the equipment. Once again, we were treated to seeing blue hour from the catwalk outside the Shane dome.



After a quick break enjoying an entire bay area sunset, we went inside to hear the history of Mr. James Lick and how the observatory came to be the world's first permanently occupied mountain top observatory. Mr. Lick's story is full of drama and revenge. Mr. Lick also had a part in giving Mr. Ghirardelli the idea for making & selling chocolate. Thankfully Mr. Lick's love of science prevailed and in his will he gifted \$700,000 to Lick Observatory (the largest single philanthropic gift in the history of science). In the early days of the Observatory, it took a 6-hour horse & carriage ride up from San Jose. They still managed about 6,500 annual visitors. Today many more visitors make the trek up.

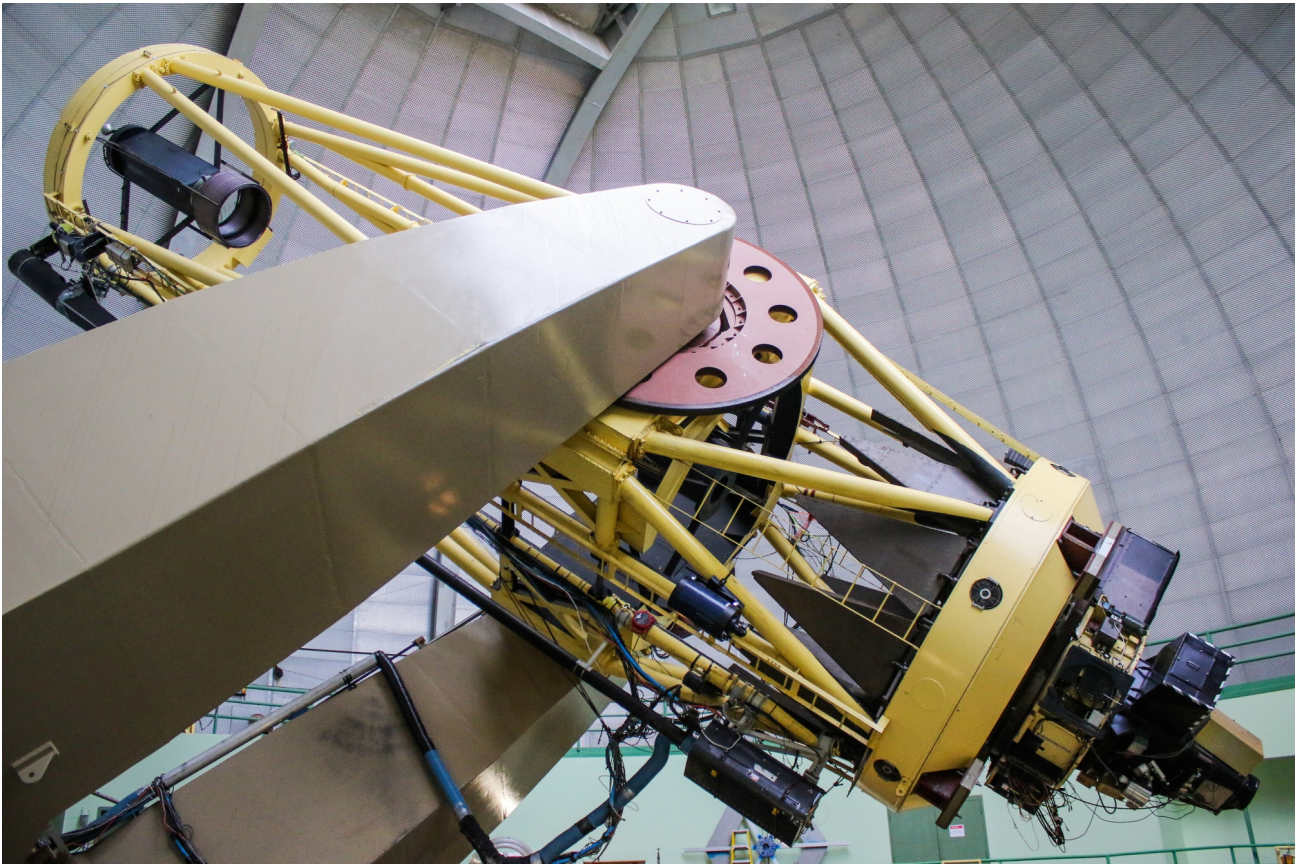
We were lucky enough that there were some clear night sky patches between the high-scattered clouds. Under the red glow in the Great Lick 36 inch telescope's dome, members were able to view distant stars and other sites. The night was thankfully much warmer than the first night they tried to look through the telescope in 1888. While trying to capture first light on January 3, 1888 the dome was frozen so they couldn't rotate it and had to wait until something drifted into the opening.

Left: Group shot of SFAA members at Lick Observatory



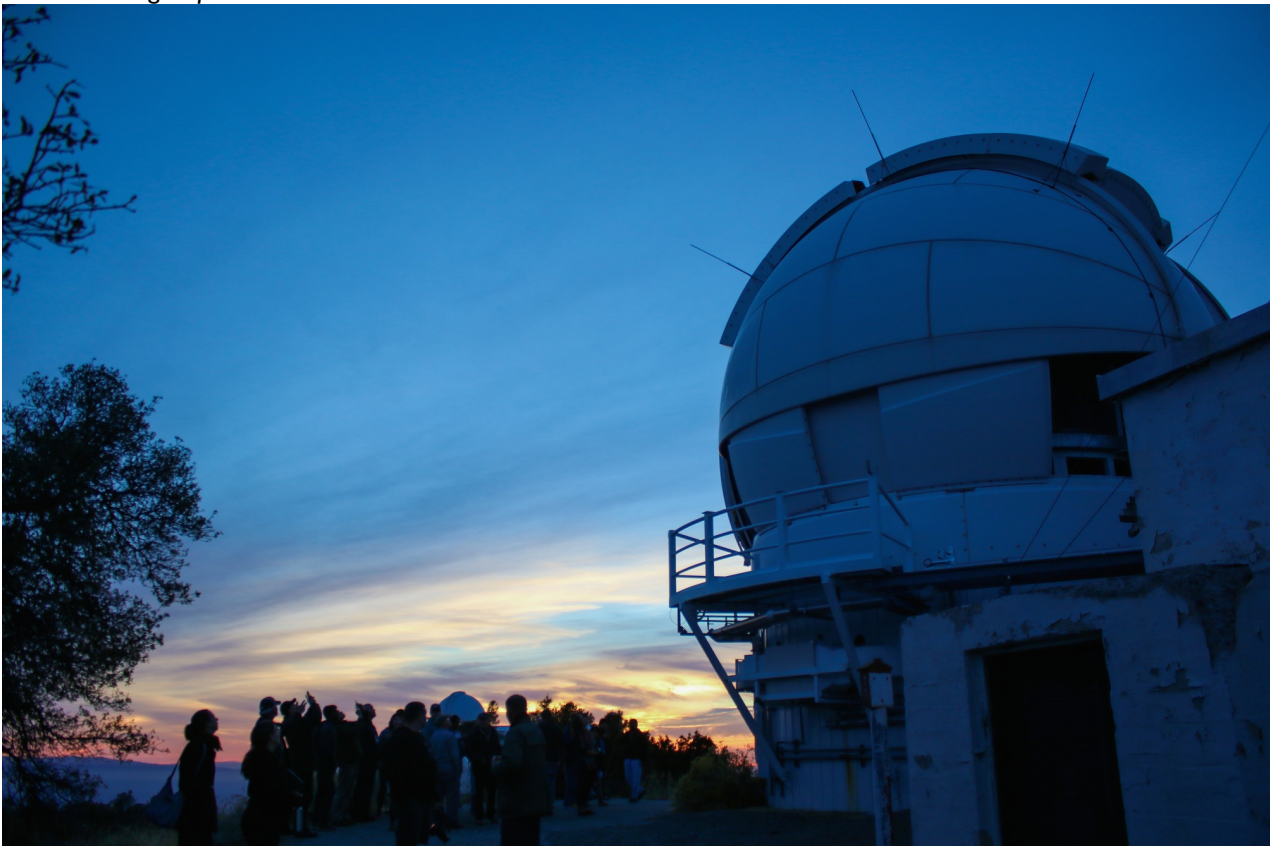
Top: Inside the Shane refractor dome, watching an employee at liquid nitrogen to keep it cool.
Bottom: Anil Chopra looking at the Shane 3-meter telescope.





Top: The C. Donald Shane 3-meter telescope.

Bottom: The group outside the Automated Planet Finder.





Top: The Great Lick 36-inch refractor.

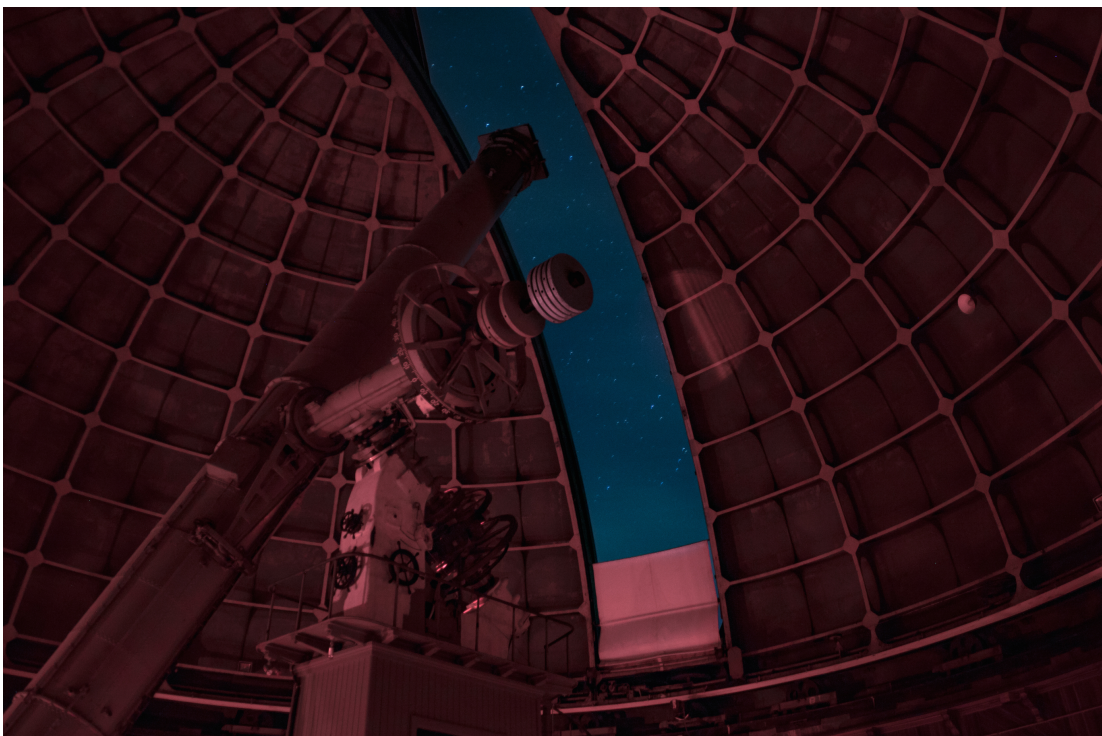
Bottom: Members hearing how the Great Lick is now operated and what is needed to move it into position.





Top: Members were very good and waited for their turn (10 people allowed on the floor at a time) to look through the Great Lick telescope.

Bottom: Looking into space.



07.

ASTRONOMY EVENTS

SAN FRANCISCO AMATEUR ASTRONOMERS EVENTS NOVEMBER 1, 2016 – DECEMBER 31, 2016

Saturday November 5, 6:30 pm
City Star Party, Embarcadero at Pier 17

Tuesday November 15, 7:45 pm
Meeting and Lecture, Presidio Observation Post

Saturday November 26, 5:00 pm
Mt. Tam Members Night

Saturday December 3, 5:30 pm
City Star Party, Presidio Parade Grounds

Tuesday December 20, 7:00 pm – 7:45 pm
Observing Basics and Astronomical Christmas (see Section 9)
Presidio Observation Post

Tuesday December 20, 7:45 pm
Meeting and Lecture, Presidio Observation Post

Saturday, December 31, 4:30 pm
Mt. Tam Members-only Observing Night

Details: <http://www.sfaa-astronomy.org>



BAY AREA ASTRONOMY EVENTS

Each month, long-time SFAA member Kenneth Lum assembles and sends out a list of Bay Area Astronomy events. As each month unfolds, check the following link for information regarding additional events:

<http://tech.groups.yahoo.com/group/bayastro/?v=1&t=directory&ch=web&pub=groups&sec=dir&slk=94>

SFAA CITY STAR PARTIES FOR 2017

Saturday 14 January
City Star party, Land's End

Saturday 11 February
City Star party, Presidio Parade Grounds

Saturday 11 March
City Star party, Land's End

Sunday 30 April
City Star party, Exploratorium, Pier 17

Saturday 13 May
City Star party, Presidio Parade Grounds

Thursday 15 June
City Star party, Presidio Parade Grounds

Sunday 30 July
City Star party, Exploratorium, Pier 17

Saturday 12 August
City Star party, Land's End

Thursday 28 September
City Star party, Presidio Parade Grounds

Sunday 29 October
City Star party, Exploratorium, Pier 17

Saturday 11 November
City Star party, Presidio Parade Grounds

Saturday 9 December
City Star party, Land's End

08.

SFAA EXPEDITION 2017

TOTAL SOLAR ECLIPSE

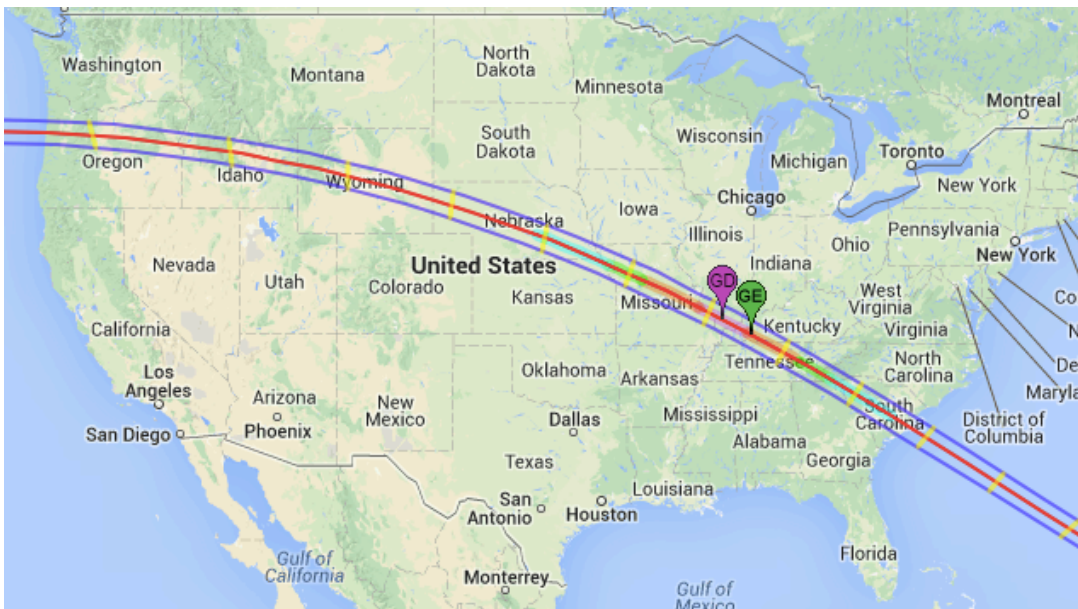
August 21, 2017

Jackson Hole, Wyoming (Teton Mountains)

The San Francisco Amateur Astronomers is organizing an expedition to witness the August 21, 2017 Total Solar Eclipse. The eclipse will be visible across a broad swath of the USA, and club members will gather near Jackson Hole, Wyoming, to witness this spectacle high in the Teton Mountains. The trip is an opportunity for club members to gather in one place along the path of totality and journey together up the mountains for viewing of this spectacular astronomical phenomenon.

Over the past year as we have promoted this event, hotel space in all of the Jackson Hole region has sold out. So at this point in time, we welcome SFAA members to join us for the weekend of August 19th and 20th at our location in Teton Village, and for totality on Monday August 21st. However, you will have to find hotel or camping accommodations elsewhere and drive in. If you wish to join us or just to get updates, send an email to 2017eclipse@sfaa-astronomy.org to receive periodic updates.

If you have any other questions, send to 2017eclipse@sfaa-astronomy.org.



IN MEMORIUM - SFAA FRIEND GEORGE CARVALHO



George Carvalho, Senior, was a man who instilled into his three sons, an understanding that the material of his life's work was worth the effort to find people who would continue to care about this material. In September, George and Shirley Carvalho generously donated two carloads of assorted and sundry astronomical equipment to the San Francisco Amateur Astronomers. George owned and operated a telescope and photography shop named Optica b/c in Oakland, California and worked there for 30 years until retiring in 1993.

On December 20th, during the Meet & Greet prior to our meeting and speaker, we will have an Astronomical Christmas. We will display and share the Carvalho family's donation to SFAA and its support of the joy of viewing the night sky.

Anil Chopra

George Carvalho, Sr.

December 1928 - June 2016

Published in The San Francisco Chronicle on July 3, 2016

George Carvalho passed away in his sleep the same day Muhammed Ali left us. With his wife Shirley, who he was married to for over fifty years prior to her death last year, George raised three boys, a gaggle of ducks, and doted on five grandchildren from his home in Alameda. George was a sports fan, a collector, a tinkerer.

He was too young for WWII, but after attending Fremont High School in Oakland and playing football and running track at City College of San Francisco (CCSF), he served in the Navy Reserve for almost a decade shooting aerial photography of much of California. His love of photography became a lifelong passion. Something he studied at CCSF and later developed into a career by co-founding a small telescope, photography, and astronomy shop in Oakland – Optica b/c -- and also teaching both photography and astronomy at Merritt College in Oakland.

After retiring from Optica b/c he spent almost twenty years volunteering at the Oakland Museum's White Elephant sale – organizing and helping run the photography and astronomy sections. But he also spent a lot of focus doting on his five grandchildren. Asking them questions, making sand boxes and various contraptions, and trying to convert them to lifelong lovers of linguica.

An Alameda Resident for almost 60 years he is survived by his three sons George of Alameda, Kenneth and his wife Connie of Alameda, Chris of San Rafael, and grandfather to Matt, Josh, Charles, Julia & Joey Carvalho. Predeceased were his wife Shirley, his parents Jose and Julia Carvalho, and his brother William.

10.

NASA JPL SCIENCE NEWS | October 27, 2016

ART TURNS PUBLIC EYES (AND EARS) TOWARD SPACE

You might not realize it, but there's a silent symphony overhead at any given time: NASA's satellites talking to Earth. They track our planet's weather, the height of its oceans, and even the changing mass of its ice. Those science measurements are then beamed down to ground stations, where they're processed for scientists studying our changing world.

Starting this weekend, the public is invited to an educational experience where they can hear that space chatter for themselves. The Orbit Pavilion is a sound installation opening Saturday, Oct. 29, at The Huntington Library, Art Collections & Botanical Gardens in San Marino, California. The installation lets listeners "hear" 19 of NASA's Earth science satellites pass over them, providing a fun and engaging way to learn about space. It originally debuted in 2015 as part of New York's World Science Festival.

From the outside, the installation looks like a giant, futuristic seashell; enter, and you can hear as satellites approach the horizon and sail overhead. Each satellite causes speakers to generate a simulated sound, ranging from desert winds to a crashing wave or rustling leaves. A digital screen identifies the individual satellites, providing an opportunity to learn how they contribute to NASA's science missions.

Orbit is the brainchild of The Studio at JPL, an art and design workshop that develops creative ways to educate the public on space exploration. Since 2003, the team has developed everything from exoplanet travel posters to digital light sculptures, all with the aim of increasing public awareness of space science.



Looking over the Orbit Pavilion, a sound installation designed to teach the public about NASA's earth science satellites. The installation was designed at JPL and opens to the public at The Huntington Library, Art Collections & Botanical Gardens on Oct. 29, 2016. Image Credit: NASA/JPL-Caltech

The team collaborated with Jason Klimoski and Lesley Chang of Brooklyn-based architectural firm STUDIOKCA, who conceived of and designed Orbit's seashell structure. They also collaborated with Shane Myrbeck, who composed Orbit's soundscape and engineered the audio system.

"What we're really interested in doing is making an experience where people can walk out and understand that these satellites move above them," said David Delgado, a visual strategist at JPL. "We want them to feel the presence of those satellites and know exactly where they are in the sky -- to be able to hear them and point their finger at where they are."

JPL visual strategist Dan Goods said Orbit's concept can be traced back to around 2005 when he and Delgado visited one of the global antenna arrays that form NASA's Deep Space Network. The dishes range from 112 to 230 feet (34 to 70 meters) wide, towering over the desert in Goldstone, California, an hour north of Barstow.

But what visitors to the Goldstone complex can't see, Goods and Delgado realized, were the satellites talking to those antennas.

"Imagine being able to listen to those satellite locations," Goods remembers thinking. He could visualize a space where that was possible, but it would require a 360-degree sound system. Goods later met Myrbeck, a composer and sound artist who created exactly those kinds of systems for his company, Arup. Their technology is often used to simulate the acoustics of concert halls prior to construction.

Myrbeck composed sounds for each of the 19 satellites. When one of the satellites passes overhead, Orbit generates both naturalistic sounds and electronic, synthesized ones. The combined effect gives each satellite a distinctive soundscape that moves along the satellite's trajectory.



Visitors inside the Orbit Pavilion, a sound installation designed to teach the public about NASA's earth science satellites. The installation was designed at JPL and opens to the public at The Huntington Library, Art Collections & Botanical Gardens on Oct. 29, 2016. Image Credit: NASA/JPL-Caltech

"Our senses let us perceive everything we do," Delgado said. "A lot of times, people talk about satellites, and we want to see them, but can't. Could we allow people to use a different sense to understand where these satellites are? We liked the visceral experience of hearing things overhead."

"A big hope for us is that people would leave the Orbit understanding that NASA studies the Earth," Goods said. "If they get that, that's great. But it's also a starting point for their curiosity - a doorway to other questions."



The exterior of the Orbit Pavilion, a sound installation designed to teach the public about NASA's earth science satellites. The installation was designed at JPL and opens to the public at The Huntington Library, Art Collections & Botanical Gardens on Oct. 29, 2016. Image Credit: NASA/JPL-Caltech

News Media Contact

Andrew Good
Jet Propulsion Laboratory, Pasadena, Calif.
818-393-2433
andrew.c.good@jpl.nasa.gov



San Francisco Amateur Astronomers Application for New or Renewing Membership

1. Memberships, with dues payment, are for one year running from standard renewal dates of 1 July to 30 June and 1 January to 31 December.
2. Submitting appropriate dues in April, May, June, July, August, September, membership will run to 30 June of the next year.
3. Submitting appropriate dues in October, November, December, membership will run to 31 December of the next year; submitting appropriate dues in January, February or March, membership will run to 31 December of the same year.
4. Renewals are maintained at the original membership date unless the renewal is made later than the original cutoff date (e.g. September or March as described in 3). In such cases the membership date is shifted to the next renewal date 30 June or 31 December.
5. New or renewal memberships sent in via USPS mail will have membership start date based on postmark date.

This application is for:

- New
- Renewing

Name: _____

Address: _____

Email: _____

Home Telephone (optional): _____

Cell Phone (optional): _____

Membership Type*: Individual \$25.00 / Family \$30.00 / Student \$10.00 / Supporting \$75.00

*SFAA is a 501(c)(3) nonprofit organization. Membership dues are tax-deductible as allowed by law.

Please mail to me a Mt. Tamalpais Parking Permit

To complete the membership process:

- A. Print and fill out this form
- B. Make check or money order payable to San Francisco Amateur Astronomers
- C. Mail this form and payment to:

Treasurer, SFAA
PO Box 15097
San Francisco, CA 94115

New members will be entered onto the SFAA roster on the Night Sky Network (NSN) and will receive a verifying email from the NSN with username and password for the NSN. Renewing members will have their information updated but will not receive an email from the NSN. Both new and renewing members will receive a verifying email from the SFAA Treasurer upon completion of the membership process.