

# ★ ABOVE THE FOG

• BULLETIN OF THE SAN FRANCISCO AMATEUR ASTRONOMERS •

Vol. 60, No. 5 - May 2012

**Wednesday, June 20, 2012 – General Meeting**

Randall Museum . 199 Museum Way . San Francisco

7:00 pm Doors Open . 7:30 pm Announcements . 8:00 pm Speaker

SFAA's General Meetings occur on the 3<sup>rd</sup> Wednesday of each month (except January)

**ADAM MILLER, Graduate Student, UC Berkeley**

## **THE VERY BRIGHTEST SUPERNOVAE: NATURE'S NEW MYSTERIOUS EXPLOSIONS DEFY CONVENTIONAL EXPLANATION**



Join Adam Miller for a presentation addressing various sub-types of supernovae, dominant energy sources powering them, methods used to discover new supernovae and recent surveys leading to discovery of thousands of new supernovae. These surveys have uncovered a new class of super-luminous supernovae that are as much as 100 times brighter than the conventional explosion at the end of the life of a massive star. New theories are being developed to understand these mysterious explosions, and future surveys should provide dozens of new examples to better study them.

**Adam Miller** is a graduate student in the UC Berkeley Department of Astronomy and a member of the Palomar Transient Factory (PTF). He received a bachelors in physics and theater at MIT and a master's

in physics from the University of Cambridge. He is currently working toward a doctorate at UC Berkeley. His research interests include anything that "goes bump in the night": all astronomical objects that vary in brightness over long or short durations of time. As a member of the PTF, he has contributed to their discovery of more than one thousand supernovae in the past three years, including the very bright supernova 2011fe in the spiral galaxy M101, which was featured on PBS NewsHour.

## President's Message



I hope you all enjoyed the Annular Eclipse last month. We had a fantastic turn-out at the event we co-hosted with the Exploratorium. A great time was had by all at the Ring of Fire Roadtrip, and a great mix of people joined the club's trek north including national and international visitors.

The Transit of Venus early this June was another opportunity to break out those solar viewing glasses and witness Venus crossing the Sun's orb...for the last time in our lifetimes!

Our next club road trip is for Yosemite this coming July 20<sup>th</sup> and 21<sup>st</sup>. If you haven't done so already, please visit our website for information and e-mail Dave

Frey at [fiestascope@yahoo.com](mailto:fiestascope@yahoo.com) with the subject line "Yosemite Sign Up" if you'd like to go on the camping wait list.

Our July speaker is John Dillon, who will share with us "Galileo Reconsidered" at the Randall Museum on the 18<sup>th</sup>. See you there!

**Sue-Ellen Speight**

President, 2011-2012

San Francisco Amateur Astronomers

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## **San Francisco Amateur Astronomers**

### **2012 Lecture Series**

#### **Upcoming Lectures**

**Randall Museum Theater . Randall Museum  
199 Museum Way, San Francisco**

**7:30 p.m. . Free & Open to the Public**

**July 18      JOHN DILLON, Curator (Retired), Randall Museum  
Past President, San Francisco Amateur Astronomers**

#### **GALILEO RECONSIDERED**

Three years ago, the world celebrated the 400<sup>th</sup> anniversary of Galileo's telescope and the revolutionary observations he made with it. John Dillon will weave the most recent research into a review of the intricate relationship between Galileo, telescopes, the Church and the emergence of "modern" science.

**August 15      JAMES McBRIDE, UC Berkeley, Graduate Student**

#### **MEGAMASTERS, MAGNETIC FIELDS AND DENSE GAS IN STARBURST GALAXIES**

Megamasers provide a fascinating probe of the conditions at the centers of galaxies that are in the midst of a burst of star formation.

*The speaker uses radio telescopes, including Arecibo, the largest dish telescope in the world, for his research.*

**September 19      ANNE METEVIER, PhD, Physics and Astrophysics, UC Santa Cruz  
Lectures at UC Santa Cruz, Hartnell College, Sonoma State University**

#### **MILKY WAY GALAXIES ACROSS THE UNIVERSE**

**October 17      RITA WECHSLER, Department of Physics, Stanford University**

#### **CONNECTING GALAXIES, HALOES, AND STAR FORMATION ACROSS COSMIC TIME**

## **A MESSAGE FROM ANDREW FRAKNOI**

### **BAY AREA ASTRONOMY ENTHUSIAST**

I wanted to share information on interesting upcoming astronomy-related events:

June 19th Stephen Hawking and Kip Thorne at the Flint Center in Cupertino

June 22-24 SETIcon II with a galaxy of speakers.

May I encourage you to share this information with others who might be interested.

Thanks,  
Andrew Fraknoi

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A private entrepreneur is bringing **STEPHEN HAWKING** and Caltech's black hole pioneer Kip Thorne to the Flint Theater at DeAnza College in Cupertino on Tuesday **June 19th at 8 pm**. Tickets are quite expensive, but if you use TicketMaster, they have a secret code "galaxy" which can, they claim, get you a discount. You can also buy tickets at the Flint Center box office.

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The non-profit SETI Institute is holding its second **SETIcon June 22 - 24 in Santa Clara** with a remarkable group of speakers and panelists. Bill Nye, the Science Guy (now the director of the Planetary Society) has just been added to the list, which includes David Morrison on 2012, Alex Filippenko on black holes and cosmology, two astronauts, planet hunters Geoff Marcy and Debra Fischer, Jill Tarter and Seth Shostak, science fiction writers, best-selling author Mary Roach, a panel of Mars experts, and many others.

At Sunday's lunch, I will be in conversation with Frank Drake about his career, his hopes for the future of SETI, and his current take on the Drake equation. The early-bird discount for tickets expires on June 4th, but tickets will continue to be available all the way through the convention.

More information at:  
<http://www.seticon.org/>

# REPORT FROM MT. SHASTA: RING OF FIRE ANNULAR ECLIPSE

Paul Salazar



Jessica Santascoy and I led an SFAA-sponsored Road Trip to Mt. Shasta for viewing of last month's Ring of Fire Annular Eclipse. The event was well attended and we had a nice array of telescopes and a lot of very enthusiastic participants taking in this special event, each in their own way.

I observed the January 1992 annular eclipse from San Diego, CA, and had a very different experience, finding the eclipse at that time to be interesting but not inspiring. However, Sunday at Mt. Shasta, the Ring of Fire was very inspiring. I enjoyed the view through a number of telescopes, including some Hydrogen-Alpha, and the usual white light filters. I enjoyed the collective shout of excitement as the eclipse reached annularity. And I was pleased to simply have clear skies, with some light high cloud but nothing that disrupted the view of the magical display in the sky.

Although this event was open to the public, the SFAA was the organizer of the event and was well represented with many members bringing their equipment to share the views of the Sun with the public. We had some speakers as well, including our own John Dillon, and a guest astronomer from Ireland, John Flannery. In all, over 150 people signed up and there were at least that many at the Mt. Shasta Resort, plus many others from a group that was taking part in their own event at the resort at the same time.

[My own video showing the scene at the Mt. Shasta Resort.](#)

[Video of the actual solar disk from Anju Saksena.](#) **Note the sounds of the crowd from 7:00 to 7:30.**

[More photos from Anju Saksena on her Facebook page.](#)  
[The SFAA Facebook page.](#)

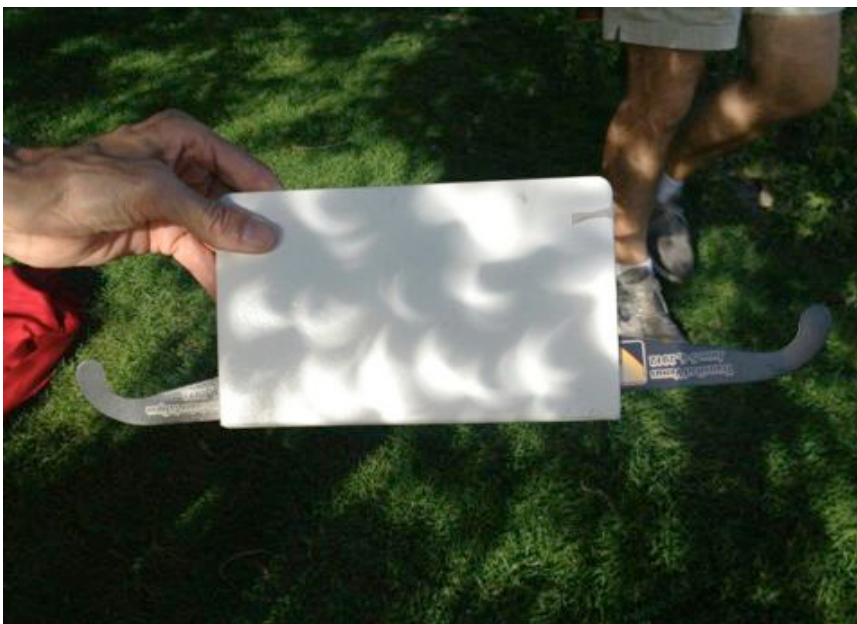
[View of the Moon's shadow on Earth from space.](#)

**More coming soon!**



Adrian, SFAA member, shows some fabulous views of the solar eclipse. Photo: Jessica Santascoy – at Mt. Shasta Resort.

John Dillon,, San Francisco Amateur Astronomers Past-President, gave a talk on the Sun and the Babylonians. Photo: Jessica Santancoy



Dean Gustafson, SFAA member, shows the eclipse as viewed on a white notebook! Photo: Jessica Santascoy



Larissa, SFAA member, shared scopes and did some other solar imaging. Will Bendick, also an SFAA member (on left), is doing some safe solar gazing. Photo: Jessica Santascoy - with Will Bendick at



Lots of people turned up for the event, including this guy wearing a welder's mask to do some safe solar viewing. Photo: Joe Cieplinski - at Mt. Shasta

## Welcome to the SFAA – 2012 Yosemite Star Party at Glacier Point – July 20-21



**GO to the SFAA website and view the Yosemite page to sign up.  
Be sure to put “Yosemite Sign Up” in the subject line to reserve your campsite.  
Sign up soon - It's filling up fast!**

The trip is available to MEMBERS ONLY. Since this is a Public Viewing Event that the SFAA attends as guests of the National Parks, all campers are expected to bring a telescope and be willing to host public viewing. The club aims to bring one telescope for every two SFAA members attending.

### About the Trip:

The SFAA is provided with FREE admission to Yosemite National Park as well as FREE reserved, shared campgrounds at Bridalveil Group Campground.

The campsite is 8.5 miles away from Glacier Point.

We will host two public star parties at Glacier Point, on Friday and Saturday night. We have the public (about 200 – 300 people) from twilight for a few hours, and then the rest of the night (and all day) to ourselves; this is a mighty good deal, considering how some folks come 12,000 miles to see these rocks. The National Park Service limits astronomy clubs to a maximum of 30 SFAA campers. Please do not ask if your friends can come ...unless they are SFAA members and have telescopes.

### Observing site at Glacier Point-

The observing area is mostly open, with incredible views from about NNW to the east, around to due south. The horizon from south around to the west is partly blocked by tall trees.

Still, there is a lot of open sky, and typically, the seeing and transparency are excellent. It has warm temperatures of 70 to 90 during the day, and cool to chilly 40's at night, due to the elevation of 7200 feet.

### Star Party-

One of the rangers does a sunset talk, and then delivers the

crowd to us. Following that, a member of the club will give an evening talk, (want to volunteer?) The public will have white flashlights, and we need to be tolerant of that. We will have 3 club members with red brake light tape to politely cover the offending flashlights. Expect many questions from the public.

### The Reward-

By around 9:30 or so, we will have the place to ourselves, and can stay until dawn if you so choose. Scopes must be removed when we quit, then set up again on Saturday. Some of us may set up sun scopes during the afternoon, show Half Dome festooned with rock climbers, and invite people to come back again after sunset.

### Gastronomic Astronomic-

Early Saturday eve is the traditional potluck meal and is always tons of fun. Please provide enough food for ~ say 3 or 4 people. Salads, main courses, pu pu's and desserts are all welcome. The question is: Who will have the best astronomical gastronomic theme of incredible edibles this year? Remember the Brown Dwarfs? Prizes will be awarded!

Please remember this repast takes time. It's better to start our own gastronomic party early so that there's no need to rush for set up Saturday evening on Glacier Point.

Check the [National Weather Service](#) for up-to-date weather info on Yosemite Park current weather and conditions.

See you at the campsite.

Ken & Dave





**MT. TAMALPAIS STATE PARK**  
**MT TAMALPAIS INTERPRETIVE ASSOCIATION**

**2012 ASTRONOMY PROGRAMS --  
OUR 24TH SEASON ON THE MOUNTAIN**

June 23  
8:30pm

**Dr. Michael Kuhlen, UC Berkeley Theoretical Astrophysics Center**  
**"The Milky Way as a Dark Matter Laboratory"**

Over the next decade, a combination of astronomical observations and particle physics experiments hold great promise to finally shed light on the nature of dark matter.

July 21  
8:30pm

**Dr. David J. Des Marais, NASA-Ames Research Center**  
**"Astrobiology Investigates Life in the Context of Space"**

How does life begin and evolve? Does life exist beyond Earth? What is our future, here and beyond? Research and space exploration effectively pursue these questions in inspiring ways.

August 18  
8:30pm

**Ransom W. Stephens, Ph.D.**  
**"The Reality Interface"**

Every emotion, memory, concept-however abstract or concrete, everything you know is derived from your five senses. Learn how the brain processes sensory data and affects your perceptions of reality.

Sept 22  
7:30pm

**Dr. Seth Shostak, Senior Astronomer SETI Institute**  
**"What Happens if We Find ET?"**

Searches for signals from intelligent extraterrestrials are getting better as technology improves. So a signal might be discovered in your lifetime. But then what? Would you be told, and would it be dangerous?

Oct 20  
7:00pm

**Dr. Chris McKay NASA-Ames Research Center**  
**"MSL and the search for organics on Mars"**

NASA's Mars Science Laboratory will arrive on the red planet in August. How can the mission's rover, Curiosity, with unprecedented research tools to study the early environmental history of Mars, contribute to the search for evidence of life on Mars

Immediately following each month's lecture, the audience is invited to remain in the Mountain Theater for a brief Night Sky Tour by the Urban Astronomer, highlighting the prominent constellations, stars and planets visible in the night time sky, before enjoying the observing session (star party) conducted by the San Francisco Amateur Astronomers in the Rock Springs parking lot.

NIGHT SKY NETWORK  
**JUNE 2012 - THE EVENING SKY**

May Sky Map: <http://skymaps.com/skymaps/tesmn1206.pdf>  
 May Sky Calendar: <http://skymaps.com/articles/n1206.html>

## BAY AREA ASTRONOMY EVENTS

Kenneth Lum

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

<p><b>Wednesday, June 13</b> 7:00 PM</p> <p><b>SETI Institute Colloquium Series</b> 189 Bernardo Ave Mountain View, CA 94043</p>	<p><b>THE SUTTER'S MILL METEORITE FALL IN CALIFORNIA'S GOLD COUNTRY ON 22 APRIL 2012</b> PETER JENNISKENS, SETI Institute</p> <p>On April 22, 2012, a 1/4 Hiroshima bomb detonation was heard in a wide area around Lake Tahoe. A small few meter sized asteroid crashed in our atmosphere, broke in fragments, pieces of which were seen falling down over the Colama/Lotus region by Doppler weather radar. This is right above Sutter's Mill, where the first gold was discovered by James Marshall on January 24, 1848. This led to the California Gold Rush that shaped our state as it is today. The recent fall of the meteorites has created a second rush in the area, not unlike the gold rush days of lore, now many are trying to recover the precious space rocks. Those turn out to be of a primitive carbonaceous chondrite type, the very meteorites that scientists love to study to learn about prebiotic compounds for the origin of life. SETI Institute meteor astronomer Dr. Peter Jenniskens, who runs a night-time video surveillance network in that area to map meteor showers and who found the second recovered meteorite from this fall, will talk about the efforts made by NASA Ames Research Center and the SETI Institute to coordinate the recovery and learn as much as possible about the asteroid that shook people's imagination.</p>
<p><b>Friday, June 15</b> 7:30 PM</p> <p><b>Lick Observatory</b> 7299 Mt. Hamilton Road Mt. Hamilton CA</p> <p><b>Cost: \$7.50 plus Service Fee</b></p>	<p><b>GLOBULAR CLUSTERS: FOSSILS IN THE SKY</b> GRAEME SMITH, UC Santa Cruz</p> <p>Lick Observatory Summer Visitors Program Lick Observatory hosts a Summer Visitors Program (SVP), inviting the public to observe through both the 36-inch Great Lick Refractor and Nickel 40-inch Reflecting Telescope. Each evening also features two speakers, who present programs even if clouds or fog prohibit viewing.</p> <p>Lick astronomers present multimedia lectures on their research or topics of current interest. A "History of Lick Observatory" talk is also presented. Local amateur astronomers outside the buildings provide additional telescopes and informal astronomy discussions.</p> <p>Program begins with the first talk at sunset. Observing begins when it gets dark and continues until everyone has had the opportunity to view through both telescopes. Due to safety concerns, children under the age of 10 will not be admitted.</p> <p>Tickets at: <a href="http://www.ucolick.org/public/sumvispro.html">http://www.ucolick.org/public/sumvispro.html</a></p>
<p><b>Friday, June 15</b> 7:00 PM</p> <p><b>The Telescope Makers' Workshop</b></p> <p><b>Chabot Space and Science Center</b> 10000 Skyline Boulevard Oakland, CA 94619-2450</p>	<p><b>THE TELESCOPE MAKERS' WORKSHOP</b> is held every Friday night from 7pm - 10pm, excluding major holidays (e.g. Christmas Day and New Year's Day) that fall on Fridays. The Workshop is always closed on Memorial Day Weekend. Attendance every Friday night is not mandatory, and members work at their own pace. The Workshop meets at Chabot Space &amp; Science Center, 10000 Skyline Blvd., Oakland. Contact us for more specific details:</p> <p>Contact: E-mail Richard Ozer (<a href="mailto:rozer@pacbell.net">rozer@pacbell.net</a>) or (510) 406-1914</p>
<p><b>Friday, June 15</b> <b>Saturday, June 16</b></p> <p><b>Chabot Space and Science Center</b> 10000 Skyline Boulevard Oakland, CA 94619-2450 (510) 336-7300</p>	<p><b>EXPLORE THE NIGHT SKIES AT THE CHABOT OBSERVATORIES</b> For more information: <a href="http://www.chabotspace.org/">http://www.chabotspace.org/</a></p> <p><b>Free Telescope Viewing</b> Regular hours are every Friday &amp; Saturday evening, weather permitting: 7:30pm - 10:30pm Come for spectacular night sky viewing the best kept secret in the Bay Area and see the magnificence of our telescopes in action!</p> <p><b>Daytime Telescope Viewing</b> On Saturday and Sunday afternoons come view the sun, moon, or Venus through</p>

	Chabot's telescopes. Free with General Admission. (weather permitting) 12pm - 5pm: Observatories Open
<b>Friday, June 15</b> <b>9:00 PM</b>  <b>Foothill Observatory</b> <b>Foothill Community College</b> <b>12345 Moody Rd.</b> <b>Los Altos Hills</b>	<p>Foothill Observatory is open for public viewing every clear Friday evening from 9:00 p.m. until 11:00 p.m. Visitors can view the wonders of the universe through the observatory's computer-controlled 16- inch Schmidt-Cassegrain telescope. Views of objects in our solar system may include craters and mountains on the moon, the moons and cloud-bands of Jupiter, the rings of Saturn, etc. Deep space objects including star clusters, nebulae, and distant galaxies also provide dramatic demonstrations of the vastness of the cosmos. The choice of targets for any evening's viewing depends on the season and what objects are currently in the sky.</p> <p>The public viewing programs at Foothill are free of charge and are open to guests of all ages. Please note that the observatory is closed when the weather is cloudy. Also note that visitor parking permits are available from the machines in the parking lots for \$3.00.</p> <p>Come to Foothill Observatory and join us in the exploration of our Universe!</p> <p>Foothill Observatory is located on the campus of Foothill College in Los Altos Hills, CA. Take Highway 280 to the El Monte Rd exit. The observatory is next to parking lot 4. Parking at the college requires visitor parking permits that are available from the machines in the parking lots for \$3.00.</p>
<b>Saturday, June 16</b> <b>10:00 AM – 12PM</b> <b>IF IT IS CLEAR</b>  <b>Foothill College</b> <b>Observatory</b> <b>Foothill Community College</b> <b>12345 Moody Rd.</b> <b>Los Altos Hills, CA</b>	<p>Solar observing with a Hydrogen alpha solar telescope every clear Saturday morning. This allows spectacular views of solar prominences and unusual surface features on the Sun not otherwise visible with regular white light telescopes. Admission is free.</p> <p>Foothill Observatory is located on the campus of Foothill College in Los Altos Hills, CA. Take Highway 280 to the El Monte Rd. exit. The observatory is next to parking lot 4. Parking at the college requires visitor parking permits that are available from the machines in the parking lots for \$ 3.00.</p>
<b>Saturday, June 16</b> <b>7:30 PM</b>  <b>Lick Observatory</b> <b>7299 Mt. Hamilton Road</b> <b>Mt. Hamilton CA</b>  <b>Cost: \$40 - \$150</b>	<p><b>MUSIC OF THE SPHERES - VIRGINIA KRON, SINGING STRINGS</b>  Lick Observatory hosts its 32nd season of Music of the Spheres summer concerts in 2012. Concerts feature a wide variety of music. Programs include the concert, a talk by a University of California astronomer about current research, and (weather permitting) viewing through the historic Great Lick Refractor and the Nickel 40-inch telescope. Knowledgeable local amateur astronomers outside the buildings provide additional telescopes and informal astronomy discussions.</p> <p>Children under 10 not admitted.</p> <p><b>RICHARD KRON, University of Chicago</b>  <b>THE PLURALITY OF INHABITED WORLDS:</b>  <b>ASTRONOMY AND POPULAR IMAGINATION, 1800 – 1917</b></p> <p>Tickets on sale at: <a href="http://www.ucolick.org/public/sumvispro.html">http://www.ucolick.org/public/sumvispro.html</a></p>
<b>Tuesday, June 19</b> <b>8:00 PM</b>  <b>Flint Center</b> <b>DeAnza College</b> <b>Cupertino, California</b>	<p><b>DR. STEPHEN HAWKING AND FRIENDS</b>  <b>"OUT OF A BLACK HOLE"</b></p> <p>Dr. Hawking will explain that black holes aren't as black as they are painted. Things can get out of a black hole to the outside and, possibly, on to another universe.</p> <p>Hawking has contributed to popularizing science with his successful book A Brief History of Time, which sold 10 million copies and focuses on black holes and the big bang theory. With a lifetime spent studying cosmology and black holes, Hawking's scientific prowess has also been captured by Hollywood in "Star Trek," "Futurama," "The Simpsons" and most recently – in the television series The Big Bang Theory.</p> <p>Tickets can be purchased at: <a href="http://www.isepp.org/Pages/Hawking/Hawking-2012.html">http://www.isepp.org/Pages/Hawking/Hawking-2012.html</a></p>

## NASA SCIENCE CAST

The Science@NASA team is pleased to announce a new product: the ScienceCast. Every week, we produce a short video highlighting a topic in NASA science news. A complete list of ScienceCast episodes may be found on Science@NASA's Youtube channel: <http://www.youtube.com/user/ScienceAtNASA> . Enjoy!

<http://science.nasa.gov/science-news/>

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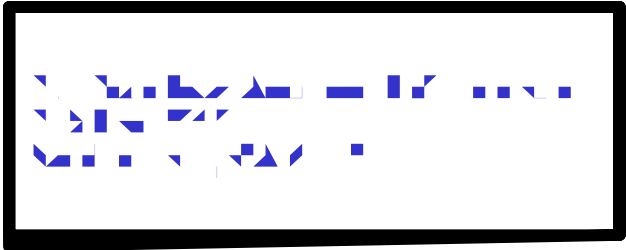
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Information Hotline: (415 ) 289-66 36

WebPage: [www.sfaa-astronomy.org](http://www.sfaa-astronomy.org)

*Sharing the Wonders of the Universe*

**Has your membership expired?** Your mailing label includes the month and year the amount for your membership is paid. If it's past, your membership has expired and this may be your last issue.