Sonoma Skies

Newsletter of the Sonoma County Astronomical Society

A nonprofit scientific and educational organization

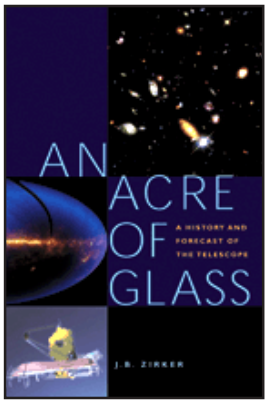
www.sonomaskies.org

February 2006 **Volume XXVIV No. 1**

An Acre of Glass, by J.B. Zirker

A Book Review by Ralph Mansfield

J. B. Zirker, former Director of the National Solar Observatory, presents eye-opening recent developments in astronomy and cosmology. With a brief review of early observational astronomy, Zirker summarizes Galileo's telescopic observations and early attempts to improve seeing by enlarging telescope objectives, with examples by Lord Rosse, Sir William Herschel and others. He describes the optical problems inherent in telescopes created from poorly-made glass, spherical and chromatic aberrations, mounting alignment problems, atmospheric disturbances, and the financial costs of maintaining and operating fruitful astronomical programs.



Following this era, Zirker discusses George Ellery Hale's talents for raising money and creating programs that resulted in the 40-inch Yerkes Telescope, the 100-inch Mt. Wilson and the 200-inch Palomar Reflectors. Equally impressive to the pioneering work with these telescopes is the roster of noted astronomers who worked with these telescopes, culminating with Hubble's study of the red-shift relation to distances of galaxies. There is also discussion about the problems of casting large glass blanks for the 100- and 200-inch scopes; thermal expansion of the glass; grinding and polishing these large surfaces; transporting them to their sites and the engineering problems of providing suitable vibration-free mountings.

Research programs with these large telescopes, and various smaller ones, opened new vistas in astronomy and cosmology. Questions remained: How and when were galaxies and stars created and how were they distributed? Where were the remnants of the Big Bang? Are there other solar systems with habitable planets? What causes the expansion of the universe? If there is dark matter in space, how can we detect it? What is the origin of pulsars, quasars, black holes? And each question seems to beget new questions and programs. But basically, better observing devices and conditions are needed. Larger telescopes at better sites on Earth might be a solution. And so we have the 10-meter Keck Telescope on Mauna Kea, the Mayall 5-meter solar

(continued back page)

Young Astronomers: See page 6

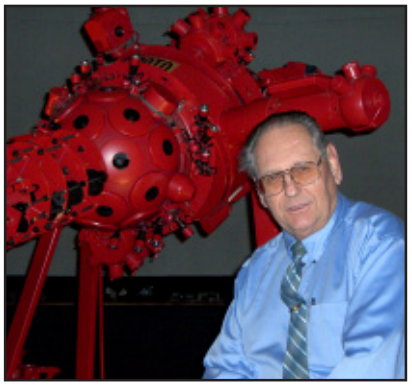
Space-Time, Atoms and our Universe

with Ed Megill

SCAS *February 8* Meeting, Proctor Terrace School

Join us as Ed takes us on a fascinating journey through space and time. He'll be defining our 4-dimensional universe, comparing the size and distance of atoms to those of solar system objects, as well as the stars, our Milky Way galaxy, and beyond to the cosmos. Along the way we'll stop off at points in history to discover how and when things became known, such as the distance from the Earth to the Sun, stars, and galaxies. We'll take imaginary trips on the space shuttle to nearby objects in space, then at the speed of light venture out to the galaxies to look back at our planet Earth.

Ed Megill is a longtime member and past president of SCAS, and currently has one of the best vocations an astronomy enthusiast could have—Director of the Santa Rosa Junior College Planetarium. Ed became actively interested in astronomy in the early 1980s around the return of comet Halley. Telling his wife, Cindy, that he was thinking of getting a telescope, she kindly but firmly said, "Not unless you learn more about it first." She claims her downfall came when she suggested they take an SRJC astronomy class together. Ed was hooked.



Ed Megill with the Goto Star Projector at the Santa Rosa Junior College Planetarium

Around that same period Ed read an article in the *Press Democrat* about the Sonoma County Astronomical Society. With it was a photo showing Bob Ferguson making one of the first Striking Sparks telescope mirrors. Ed called Bob to arrange a visit and possibly join SCAS. Well, long story short: Bob Ferguson virtually took Ed under his wing, as Bob had done for so many, and along with the additional support of Merlin Combs, George Loyer and others, the rest is astronomy, physics, math, and history. Ed retired from AT&T in 1989 and started working as adjunct at the SRJC Planetarium. In 2000 he was appointed full time Director of the Planetarium. Be sure to join us February 8 for a warm and interesting program. As always, the public is welcome.

—Lynn Anderson

Sonoma County Astronomical Society (SCAS)

Membership Information

Meetings: 7:30 PM on the second Wednesday of each month, in the Multipurpose Room of Proctor Terrace Elementary School, 1711 Bryden Lane at Fourth Street, Santa Rosa, unless otherwise announced in this publication. The public is invited.

Dues: $25, renewable June 1 of each year. New members joining between December 1 and May 31 may pay partial-year dues of $12.50.

Star Parties: See the Events section for dates and times.

Rental Telescopes: Members are eligible to borrow telescopes for a $10 per month donation, or ***FREE*** each month you participate in a SCAS-related Public Star Party. Five telescopes are available: 8" and 5" SCTs, 8" and 12.5" Newtonians on Dobsonian mounts; and an 80mm refractor. Contact John Roush at 792-1199, *jroush@spamlion.com.*

Egroup URL: Connect with other members about going observing, observing reports and chat about astronomy and news items from AANC and *Sky & Telescope*. Hosted by Robert Leyland at *r.leyland@verizon.net*. Any SCAS member is welcome to join. Visit *http://groups.yahoo.com/group/scas* and click the "Join" button, or send an email to *scas-subscribe@yahoogroups.com*

Discount Subscriptions: For ***Sky & Telescope***, new subscribers may send a check for $32.95 payable to "SCAS", with your complete mailing address, directly to: Larry McCune, 544 Thyme Place, San Rafael, CA 94903. For renewals, send him your check with the completed renewal card and return envelope. Discount subscriptions to ***Astronomy*** Magazine occur annually in October. Check ***Sonoma Skies*** for details.

Library: SCAS Librarian Joan Thornton hosts a library of astronomy books that may be checked out by members at SCAS meetings, to be returned at the next meeting. Videotaped lectures on astronomy may be rented for $3 per month.

Sonoma Skies is the monthly newsletter of the Sonoma County Astronomical Society (SCAS)**.** Subscription is included as part of membership. Articles and member announcements are welcome and are published on a first come, first served basis, space permitting, and may be edited. **The deadline for submissions is the last Wednesday of each month.** Mail to: Editor, SCAS, P.O. Box 183, Santa Rosa, CA 95402, or email *publications@sonomaskies.org*

SCAS Elected Board

President: John Whitehouse, 539-5549 *jmw@sonic.net*
Vice-President & Program Director: Lynn Anderson, 433-1154 *penumbra@sonic.net*
Treasurer: Larry McCune, (415)492-1426 *llmccune@comcast.net*
Secretary: Loren Cooper, 525-8737 *lorenco@sonic.net*
Membership Director: Walt Bodley 823-5268, *membership@sonomaskies.org*
Community Activities Director: Len Nelson 763-8007, *lennelsn@comcast.net*
Publications Director: Cecelia Yarnell 569-9663, *publications@sonomaskies.org*

SCAS Appointed Positions

Amateur Telescope Making: Steve Follett, 542-1561 *sfollett@sonic.net*
Young Astronomers Advisor: Gary Jordan, 829-5288 *SieraMolly@aol.com*
Striking Sparks Program Coordinator: Dickson Yeager, 539-2385 *sparks@sonomaskies.org*
Librarian: Joan Thornton, 762-0594 *phonyjoanie@earthlink.net*
Public Star Party Coordinator: Bruce Lotz 576-7833, *ablotz@sonic.net*

www.sonomaskies.org

President's Message

Welcome to SCAS, Edition 2006!

by John Whitehouse

I'm pleased to serve as your President for the coming year. I thoroughly enjoyed being Vice President in 2005, getting to know you all better and working with you. I know I speak for all of us in thanking Keith Payea for his hard work as President and for launching the club website, *sonomaskies.org*. Lynn Anderson is taking over as Vice President, and I'm sure he will he'll enjoy it as much as I did.

My goal for the coming year is to use my considerable executive powers to ensure that we'll have good weather for clear skies on the new moon nights so that we can get together with our 'scopes to enjoy the stars and each other's company. Perhaps even infecting some members of the public, young and not so young, with our enthusiasm for the science and beauty of the skies.

I would be interested in hearing your suggestions and ideas for doing some public outreach astronomy, *a la* Sidewalk Astronomy. And of course, we look forward to some interesting programs presented at our monthly meetings. Or any excuse for getting together for some star parties. Come get involved and join the fun!

On another note, you've probably heard of the recent launch of "New Horizons," a probe to explore Pluto. What I didn't realize until I read an article in the paper was that some of the ashes of Clyde Tombaugh, the discoverer of Pluto, were on board the spacecraft! Tombaugh died not long ago, in his 90's. Now a bit of him is on his way, still part of Pluto's discovery process. Maybe he can still help send back some new discoveries from those far reaches. Goodspeed Clyde, and *bon voyage*!

Happy Trails and Thank You!

At the November meeting Bob Schalck announced that he was moving away from the area. Bob gave us a great presentation last year on caring for our fine optics. He instigated Public Star Parties in Healdsburg last summer, too, setting up at North and Healdsburg Avenues. He and other volunteers served quite a few people due to the foot traffic near the town square.

Bob will be greatly missed, and we all wish him the best of luck in his new home.

Bob Schalck showing the quarter Moon

Striking Sparks: The Wait

by Dickson Yeager

We are checking the SCAS post office box frequently, looking for that first batch of essays. Then the real work begins getting ready for the big reading on February 25th where the ten winners will be chosen.

The new Sparks telescope from Orion

Sponsors: In the meantime we need at least two more sponsors. So don't be bashful, step forward with $200. Did you know the sponsorship of a telescope can be by more than one person? So get a couple of friends to step forward with you. More of you will experience the joy of sponsoring a telescope at a smaller cost per person.

Mentors: We are in need of three mentors at this time. The time required is minimal and the satisfaction great. The duties are as follows:

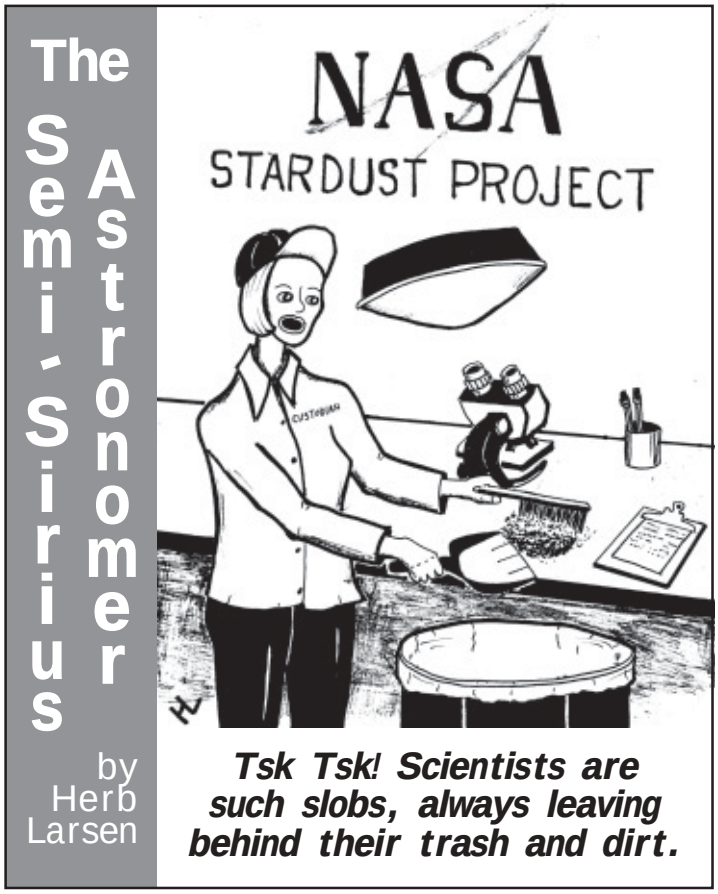
- Attend the Awards Potluck Dinner on March 18, 2006 and sit with the student you are mentoring.
- That evening, after the awards, go over the basic operation of the telescope.
- Attend the star party that night in the schoolyard (weather permitting).
- Stay in touch monthly by phone or email with the student over the next year to answer questions and encourage use of the telescope.
- Encourage their attendance at Young Astronomers meeting and the SCAS Star-B-Que.

From my experience as a previous sponsor it is exciting to work with the student and his or her parents. In some cases the parents do the mentoring and you are available as a resource. I'll be asking for volunteers at the next SCAS meeting, or you can email me at *sparks@sonomaskies.org* or phone 707-539-2385.

Raffle: Remember to donate to the Young Astronomer's raffle. Anything to do with astronomy is fine. Money is fine too. Just be sure money donations are received by March 1st so we have time to purchase items.

Volunteering at the event: Joan Thornton will need several folks to assist her putting up the decorations. Others will be needed to set up tables; receive and set out the food; check in people as they arrive and be sure the winners, sponsors, mentors, SCAS Board and others receive their name tags; and there is always cleanup.

March 18, 2006: Mark that date on your calendar and join the celebration.



SCOPE CITY
New Member Bonus!

Scope City at 350 Bay Street, San Francisco, is offering a **$25 merchandise discount to new members**.

Manager Sam Sweiss has supported SCAS and Striking Sparks and offers a huge selection of telescopes, accessories and more. Obtain a receipt from Walt Bodley, Membership Director, showing you have paid the $25 SCAS membership dues. To arrange for your merchandise discount, contact Sam at 415/421-8800 or at *sanfrancisco@scopecity.com*

Meade Day at Scope City

Len Nelson (left) joined the crowd for Meade Day at Scope City last month. Visitors brought their telescopes and optics for free inspections and cleaning.

Sam Sweiss (right) hosted the party, and we all know Sam loves a party!

Events

Robert H. Ferguson Observatory

Public Viewing Saturday, February 25
Solar Viewing: 11:00 AM - 3:00 PM
Night Viewing begins 7:00 PM

The Observatory: Three scopes are operating: The 14-inch SCT with CCD camera in the East wing, the 8-inch refractor under the dome and the 24-inch Dobsonian in the West wing. No admission fee for the solar viewing, but donations are appreciated. The Park charges $6 per vehicle for entry. A $2 donation is requested from adults 18 and over for admission to the observatory during night viewing sessions.

SCAS members may set up telescopes in the observatory parking lot to assist with public viewing. Auto access closes at dusk; late arrivals must carry equipment from the horse stable parking area.

Classes

Feb. 21	Night Sky Spring Series, 6:30 PM
Feb. 26	Observing Lab (Binaries-Winter), 6:30 PM (Raincheck Mar. 1)
Feb. 28	Night Sky Spring Series, 7:00 PM
Mar. 21	Night Sky Spring Series, 7:00 PM
Mar. 28	Night Sky Spring Series, 7:00 PM
Mar. 28	New Docent Training begins

Classes are held at the Observatory. Reservations recommended. (707) 833-6979, *http://www.rfo.org* or *nightsky@rfo.org*

The Planetary Society

May 4 through 7, 206: The 25th International Space Development Conference

The Planetary Society and The National Space Society invite you to Los Angeles May 4 through 7, 2006, to participate in the 25th annual International Space Development Conference — ISDC 2006. Mark your calendars and join us for this exciting gathering of the space community! Look for the latest ISDC 2006 updates at: *http://www.planetary.org/explore/topics/isdc2006/*

Not a Member? Join now and be a part of this great adventure. By becoming a member of the Planetary Society you can do more than just witness advances in planetary exploration and discovery, you can actually play a role in making them happen. Join together with our International membership and help shape the future of space exploration. Find out more about membership at: *http://planetary.org/join/why.html*

Social Amenities

Many thanks to David Cranford for providing refreshments at the January SCAS meeting. Volunteers are needed for future meetings, so if you'd like to help see Cecelia at the meeting or email her at *publications@sonomaskies.org*.

Sonoma State University Series "What Physicists Do"

Mondays at 4:00 PM
Schulz Hall Room 3001 (Coffee at 3:30 PM)

Feb. 6—Seeing the Invisibles: The Challenge to Particle Physics in the New Millennium
Dr. Hitoshi Murayama of the University of California at Berkeley will discuss the challenges in attempting to understand the 95% of the universe that is not made up of ordinary matter.

Feb. 13—Creating Mini Big Bangs in the Laboratory
Brooke Haag ('01) of the University of California, Davis will discuss how observing collisions between relativistic nuclei at the Relativistic Heavy Ion Collider has implications for understanding conditions at the earliest stages of the universe.

Feb. 27—Evidence for the Warming of the World's Oceans
Dr. Tim Barnett of the University of California, San Diego will describe recent evidence for human-induced warming of the world's oceans.

Mar. 6—Rotating Galaxies: Clues to Galaxy Formation
Dr. Anne Metevier of the University of California, Santa Cruz will describe her efforts to measure how fast distant disk-shaped galaxies rotate, and what this information can tell us about how galaxies formed.

Contact *http://phys-astro.sonoma.edu/wpd/*

SSU Observatory Public Viewing

Feb. 3, 7:00 PM: Orion Nebula, Mars, Saturn
Observatory located inside the stadium area at the SE corner of campus (E. Cotati Ave. and Petaluma Hill Rd., two miles east of US 101 at Cotati). Follow signs to campus. Parking Lot F is most convenient. Call 707/664-2267 before coming if it appears weather may force cancellation. *http://www.phys-astro.sonoma.edu/observatory/pvn.html*

Morrison Planetarium Dean Lecture Series

Feb. 6, 7:30 PM: "Solving the Mystery of Short Gamma Ray Bursts"—Dr. Neil Gehrels, Goddard Space Flight Center, Swift Principal Investigator

Gamma-ray bursts are among the most fascinating occurrences in the cosmos. Until this year, the origin of short gamma-ray bursts was a complete mystery. A new NASA satellite named Swift has now captured the first images of these events and found that they are caused by tremendous explosions in the distant universe.

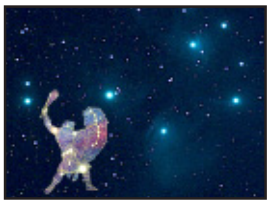
Location: Kanbar Hall, Jewish Community Center, 3200 California Street (at Presidio). Parking in the UCSF Laurel Heights campus parking lot is $1.25/night. Parking in the JCC garage is $1.25 per half-hour. Tickets $4 at the door or by email. Contact: 415/321-8000, *http://www.calacademy.org/planetarium/dean.cfm*

Events

SRJC Planetarium

"Stories from the Stars"—Through Feb. 26

The Greeks grouped the stars into a variety of patterns called constellations, naming them after heroes, monsters, and other characters of myths and legends. Today, stories from the stars are still being told by astronomers as they discover the true nature of these distant objects. Travel with us as we take you on a guided tour of the life cycle of a Sun-like star.



Shows are held at Santa Rosa Campus, Lark Hall, Room 2001, on Fridays and Saturdays at 7:00 PM and 8:30 PM, Sundays at 1:30 PM and 3:00 PM during the Fall and Spring semesters. Admission is $5 General; $3 Students and Seniors (60+). Tickets are sold at the door only, beginning 30 minutes before show time. A parking permit is required and is included in the Planetarium admission price. Pick it up at the planetarium when you pay admission. Please arrive early enough to place your permit on your vehicle's dashboard before the show starts.

Info: 527-4372, *http://www.santarosa.edu/planetarium/*

UC Berkeley Astrophysics Club

Institute for Particle Astrophysics Journal Club Seminars

Jan. 27—Robert Bea, "Looking Back and Forward: Failure of the New Orleans Flood Defense System"

Feb. 3—Phil Marshall (SLAC), "Surveying for Strong Gravitational Lenses"

Feb. 24—Sebastien Bongard (LBNL/INPA), "Type Ia Supernova Spectral Line Ratios as Luminosity Indicators"

Mar. 3—Valeri Korneev (LBNL/ESD), speaking on seismic precursors to earthquakes

Lectures: 12:00 Noon. Location: Bldg. 50, room 5026, Lawrence Berkeley National Laboratory, 1 Cyclotron Rd., Berkeley. Contact Vitaliy Fadeyev *VAFadeyev@lbl.gov*.

Information and abstracts of talks: *http://stokstad.lbl.gov/INPA/journalclub.html#aboutjclub*

San Francisco Amateur Astronomers

Feb. 16, 7:30 PM: "My Life As a Comet Hunter"
—Don Machholz

The talk will cover how he got into comet hunting, some of the things he learned about observing during his 30 continuous years of comet hunting, and some of the 10 comets that he has discovered. He will also discuss his latest find, C/2004 Q2, and its development over the past few months..

Meetings are held at the Randall Museum, 199 Museum Way, San Francisco. For more information go to: *http://www.sfaa-astronomy.org/sfaa/lectures/index.shtml*

SCAS School Star Parties

The school star party season is in full swing and the SCAS fully supports astronomy outreach to our local Sonoma county schools. Your help is needed. If you can volunteer in any capacity at these functions, please email me, Len Nelson, at *lennelsn@comcast.net*. I'll then add you to my volunteer roster and contact you about the details of upcoming events. Here's the schedule:

2006

Feb. 9 Guerneville Elementary, Thurs. at 6:45 PM

Feb. 23 Windsor Elementary "Science Night," Thurs. at 6:45 PM

Mar. 7 Miwok Elementary in Petaluma, Tue. at 6:45 PM

Mar. 24 Evergreen Elementary in Rohnert Park, Fri. at 6:45 PM (alternate Mar. 23)

Mar. 29 Grant Elementary in Petaluma, Wed. at 6:45 PM

Apr. 6 Bernard Eldridge Elementary in Petaluma

There is no obligation to commit yourself to all the events. Come and see what it's all about. You do not even have to have a telescope—you can assist those who do. Contact me with any questions. These are fun events and educational for everyone!

SCAS Public Star Parties

The SCAS Board recently decided to discontinue offering public astronomy at Youth Community Park. The location did not prove to attract many visitors. Discussions are ongoing with the park rangers at Lake Sonoma who are interested in hosting public events from time to time. We are also looking into providing public astronomy in downtown Santa Rosa once a good location is found.

Bruce Lotz at Day Under the Oaks

We want to express our appreciation to Bruce Lotz who has been coordinating the YCP star parties for several years. Merlin Combs, David Smith, Loren Cooper and Dickson Yeager have been his primary volunteers.

Watch *Sonoma Skies* for announcements of future public events and think about volunteering.

Shingletown Star Party

June 21-26

Registration is now open for the 2006 Shingletown Star Party. The dates are Wednesday, June 21 (gates open at noon) to Monday, June 26 (must depart by noon). The location is on Hwy 44, about 30 miles east of Redding at an abandon airstrip east of Shingletown. Good dark skies at about 4,000'. Cost is $40.00 for the full five nights. So far, SCAS members planning on going are Dickson Yeager, Len Nelson and John Whitehouse. See you there.

For details and registration, visit *www.shingletownstarparty.org*.

Young Astronomers

Sunspots!

YA *February 10* Meeting, 7:30 PM at Apple Blossom School

What are sunspots and why do they occur? What does their presence indicate about the surface of the sun? All these questions and more will be answered at the February 10 Young Astronomers meeting. Come and learn more about our brightest celestial neighbor!

As always, weather permitting, there will be telescope viewing after the meeting. Bring your scope! Friends are also welcome!

New Hurricane Game on SciJinks Website

Where do these monster storms we call hurricanes come from? Why do they always form near the equator and only during certain times of the year? How do they come to be so organized and so destructive?

You can find answers to these questions and play an exciting hurricane word game called "Whirlwind Disaster" at the SciJinks Weather Laboratory Web site. SciJinks is a joint effort of the National Aeronautics and Space Administration (NASA) and the National Oceanic and Atmospheric Administration (NOAA). The new "How does a hurricane form?" page and accompanying interactive game can be found in the How & Why menu on the SciJinks Weather Laboratory home page, *http://scijinks.gov*

YA Information

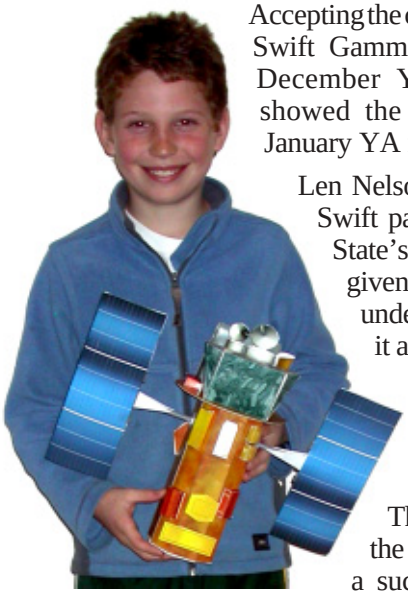
Meetings: 7:30 PM the second Friday of each month of the school year, at Apple Blossom School, 700 Water Trough Road, Sebastopol, in the Multipurpose Hall. Open to all Sonoma County students. **Telescope viewing** is held in the upper parking lot after the meeting. **Directions:** From Hwy. 116 in Sebastopol, turn west onto Bodega Ave. Continue on Bodega Ave. almost two miles to Water Trough Rd. Turn left and go about 1/3 mile to the school, on your right. From Hwy. 12, go straight through Sebastopol, past Main Street, and continue as above.

YA ELECTED OFFICERS

President: Melissa Downey 632-5661
VP/Program Director: Olivia Turnross *jtec@sonic.net*
Recorder: Marie-Pierre Frigon 773-3206
Newsletter Editor: Scott Grubb *fivegees@sonic.net*
Librarian: Rachel Loughman
stop_rachel_4_insanity@yahoo.com
Adult Adviser: Gary Jordan 829-5288

January YA Meeting Update

At the January 13 Young Astronomers meeting, President Melissa Downey gave an awesome presentation on "Saturn, Pluto, and Beyond". The meeting was especially enjoyable because of the large turnout. Many questions were asked and much was learned in the process. Also, Young Astronomer Marie-Pier Frigon was elected as the Recorder and Rachel Loughman took up her duties as Librarian.



Accepting the challenge to build a model of the Swift Gamma Ray Burst Satellite at the December YA meeting, Jacob Gaynor showed the result of his efforts at the January YA meeting.

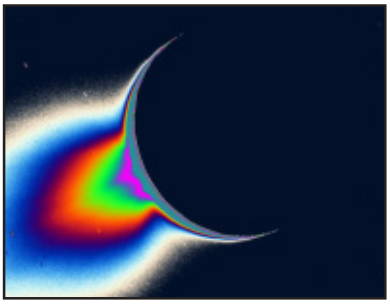
Len Nelson had received a few NASA Swift paper model kits from Sonoma State's NASA office. He has already given most of them to YA's with the understanding that they must build it and then bring it to the next YA meeting. Jacob was the first to accept the challenge and to produce results. Congratulations, Jacob!!

Thank you everyone for making the first YA meeting of 2006 such a success!

A Moon's Icy Spray

At Yellowstone National Park in Wyoming, geysers such as the famous Old Faithful regularly spout water hundreds of feet into the air. The jets are impressive, but they're nothing compared to geysers on one of Saturn's moons.

The tiny moon, called Enceladus, measures just 300 kilometers (186 miles) across. Recent pictures of areas near the moon's south pole show that icy geysers shoot up another 300 kilometers, as high as the moon is wide. The images came from the Cassini spacecraft, which has been on tour around Saturn and its many moons since July 2004.



In this colorized image, the colors reveal how far out from Enceladus the moon's fountains of icy particles extend. The plumes appear to be as large as the moon itself.

Last July, instruments on Cassini detected a large cloud of water vapor floating above the southern polar region of Enceladus. At the time, astronomers suspected that breaks in the moon's surface allowed ice to vaporize and fuel the cloud. The new images give a more specific idea of how that might happen. They also prove that the moon is geologically active.

Scientists are giddy with the discovery. "There is little that can compare to the sighting of activity on another solar system body," says Carolyn Porco. "This has been a heart-stopper." Porco is the Cassini imaging team leader at the Space Science Institute in Boulder, Colo.—*E. Sohn*

School Star Party Mysteries

by Len Nelson

Merlin and I arrived at the Meadow Elementary January 20 at 6:10 under a discouraging sky that was 95% overcast and soon 99% overcast. Tom Burrows arrived and the three of us joked about who would be so foolish as to set up a telescope under such dismal conditions. David Simons and June Ferguson arrived and some teachers and the public began to filter in. I figured all I could do was start passing out Robert Ferguson Observatory schedules and encourage people to come to the RFO Public Night January 28. We talked about how sad it was that we had two bright Iridium Flares at 7:02 and 7:04, but they would be behind the clouds. Perhaps with our green lasers, we joked, we could explain what folks were going to miss.

Then it happened! Clear Skies miraculously began to appear over Meadow Elementary at 6:55 PM. We amateur astronomers looked at each other in stunned disbelief. None of us had been 'foolish' enough to set up a scope! Without a word of agreement on what to do, we all knew what was necessary. We quickly unloaded our scopes and set them up with trained hands and eyes long accustomed to doing so in light-challenged conditions. In about 5-7 minutes, we had the scopes up. Lines had formed at each scope as they were being assembled.

My wrist alarm went off—my wake-up signal that the 7:02 Iridium Flare was about two minutes away. I called upon the crowd of about 100 to listen to me and quickly explained what they would see in about one minute in the SSE sky. The sky was now clear in that direction, and right on cue there came a -7 Iridium Flare followed by gasps of disbelief from the crowd. Two minutes later, here came the second one at -1 magnitude in the same area, seeming just as bright as the first.

What a wonderful way to begin a star party! I put my refractor on Saturn to the east and Merlin put his 8" SCT on the Orion Nebula until clouds covered it and he then moved on to Mars. Tom stayed on the Orion Nebula from the get-go with his refractor and David did the Pleiades with his large binoculars. We had not discussed what we'd each be looking at before the star party began. Why would we have, though? There were no stars and the prospects appeared to be zero. But it worked out well nevertheless. June Ferguson meanwhile went about talking to people, pointing out stars and constellations and telling stories about them. A dedicated star guide certainly adds to a star party.

By 8:05, the clouds returned in earnest, but our task was done. We estimated that about 125 had come to the event and thanks to the mysteries of weather had left pleased and starry eyed.

Measurements Astronomical

Jack Welch's December presentation, "Measuring Things," prompted member Ralph Mansfield to send us the following link: *http://www.astro.soton.ac.uk/~crk/PH227/node3.html*. It includes a summary of similar information and can be printed and kept on hand.

If you'd also like to share information with other members, please email Cecelia at *publications@sonomaskies.org*.

February Observing Notes

Feb. 1	Saturn .9° S of Beehive Cluster (M44)
Feb. 4	First Quarter Moon, Mars 2° S of Moon
Feb. 6	Moon 1° N of Pleiades (M45)
Feb. 12	Full Moon
Feb. 15	Zodiacal Light visible in W after evening twilight for next 2 weeks
Feb. 16	Mars 2° S of the center of the Pleiades (M45); Sun enters Aquarius
Feb. 21	Last Quarter Moon, Antares .2° N of Moon
Feb. 23	Mercury at greatest elongation E (18°)
Feb. 24	Delta Leonid meteors. Excellent year for this minor show.
Feb. 27	New Moon at perigee (closest to Earth); extra large tides

Observing Treats

Moon passes through the Pleiades late night Feb. 5/6 for western observers. Just a day past first quarter, it will occult dozens of stars in the cluster. Extensive predictions of the occultations can be found at *http://www.lunar-occultations.com/iota* or *http://www.lunar-occultations.com/iota/2006plnam/pleiadna.htm*. For more on the Pleiades, see Sue French's article in the February issue of *Sky & Telescope*.

Mercury is at greatest elongation (maximum angular separation) from the Sun on Feb. 23, its 7" wide disk half lit at mag. -0.6. It will be visible low in the WSW at evening twilight. This is the best evening viewing of the year for western observers.

Venus reaches greatest brilliancy (-4.6) on Feb. 17, appearing very low in the morning sky.

Jupiter rises just after midnight by mid February, still best viewed around morning twilight.

Saturn begins the month near M44, the Beehive Cluster, climbing higher and becoming brighter as the month continues.

Featured Links

Clear Sky Clock Search Page: At-a-glance weather conditions and clocks within 100 kilometers of Santa Rosa: *http://clearsky.com/cgi-bin/find_clock.py?type=llmap&olat=38.438333&olong=-122.676944*

M 42, the Orion Nebula, Here's a link to Hubble's most spectacular image of the nebula, just released last month. Download the big one and take a swim in it: *http://hubblesite.org/newscenter/newsdesk/archive/releases/2006/01/*

Hubble images—How they're taken and processed for color: *http://hubblesite.org/sci.d.tech/behind_the_pictures/*

The Union of Concerned Scientists has a **Satellite Database** of more than 800 satellites currently in orbit: *http://www.ucsusa.org/global_security/space_weapons/satellite_database.html*

An Acre of Glass *from Page 1*

telescope at Kitt Peak, and other 8-meter telescopes. Many extra large telescopes (ELT) were designed by Roger Angell at his spin casting facility in Tucson, Arizona.

Telescope fever spread rapidly with the advent of space satellites and better viewing above the earth's atmosphere. The Hubble Space Telescope, after its corrections, demonstrated what could be achieved with improved optics, spectroscopes and CCD photography. Improvements in infrared spectroscopy, in particular, enabled astronomers to view the universe from z=1 to z=10 and from a few microns to many. Fortunately, these investigations led to improvements in ground-based telescopes, utilizing Newtonian, Cassegrain, Gregorian, Coude, Nasmyth foci, Richey-Chretien optics and improved spectroscopes and photometers.

Many essential details are omitted in this review because Zirker has appended an informative set of notes to his book that describe and detail technical aspects of his discussions. Suffice it to say that these improvements led to startling observational results, for example, detailed views of several star disks which under usual viewing are points of light. Even more importantly, the design and construction of large telescopes has been improved in various ways. There are sectional mirror assemblies with precision actuators to adjust the sectional edges into a perfect observing array; molten glass spun at high temperatures to form large curved surfaces, readily polished to shape and cast to provide rigid non-deflectable surfaces backed by hollow ribs; and the Corning Glass casting method where the surface is slumped before final annealing to minimize surface polishing.

(To be concluded next issue)

Sonoma County Astronomical Society
P.O. Box 183
Santa Rosa, CA 95402

Sonoma Skies
February 2006

FEBRUARY 8
Ed Megill
Space-Time, Atoms and Our Universe

JOIN THE SCAS SETI@HOME TEAM

Many SCAS members run the SETI@home program on their computers, thus taking part in the world's largest distributed-computing effort. Hundreds of thousands of computers are crunching data for the SETI project in their spare time. Participation can be either as an individual or as part of a team.

SCAS now has a SETI team. Anyone can join—you don't have to be a member of SCAS. Family and friends are welcome to become team members, too. It's easy to join. Here's how:

If you're already have a SETI@home account, go here to join the SCAS team: *http://setiathome.berkeley.edu/team_join_form.php?id=122987*

If you're a newcomer to SETI@home, go here to create a new account as a member of the SCAS team: *http://setiathome.berkeley.edu/create_account_form.php?teamid=122987*

WELCOME, NEW MEMBERS!

The SCAS is happy to welcome new members Patrick McNicholas of San Rafael and Audrey V. Hall of Petaluma.