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High-energy Spy

By Dr. Martin C. Weisskopf

The idea for the Chandra X-Ray Observatory was born only one year after Riccardo Giacconi discovered the first celestial X-ray source other than the Sun. In 1962, he used a sounding rocket to place the experiment above the atmosphere for a few minutes. The sounding rocket was necessary because the atmosphere blocks X-rays. If you want to look at X-ray emissions from objects like stars, galaxies, and clusters of galaxies, your instrument must get above the atmosphere.

Giacconi's idea was to launch a large diameter (about 1 meter) telescope to bring X-rays to a focus. He wanted to investigate the hazy glow of X-rays that could be seen from all directions throughout the sounding rocket flight. He wanted to find out whether this glow was, in fact, made up of many point-like objects. That is, was the glow actually from millions of X-ray sources in the Universe. Except for the brightest sources from nearby neighbors, the rocket instrument could not

distinguish objects within the glow.

Giacconi's vision and the promise and importance of X-ray astronomy was borne out by many sounding rocket flights and, later satellite experiments, all of which provided years-, as opposed to minutes-, worth of data.

By 1980, we knew that X-ray sources exist within all classes of astronomical objects. In many cases, this discovery was completely unexpected. For example, that first source turned out to be a very small star in a binary system with a more normal star. The vast amount of energy needed to produce the X-rays was provided by gravity, which, because of the small star's mass (about equal to the Sun's) and compactness (about 10 km in diameter) would accelerate particles transferred from the normal star to X-ray emitting energies. In 1962, who knew such compact stars (in this case a neutron star) even existed, much less this energy transfer mechanism?

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STAR STUFF

June 2013 - Vol. 23 No 6

STAR STUFF is published eleven times each year by:

FORD AMATEUR ASTRONOMY CLUB
P.O. Box 7527
Dearborn MI 48121-7527

PRESIDENT: Gordon Hansen
 VICE PRESIDENT: Jon Blum
 SECRETARY: Doug Bauer
 TREASURER: Chuck Jones
 WEBMASTER: Greg Ozimek
 NEWSLETTER EDITOR: Jennifer Zdanowski

Club Information:

The Ford Amateur Astronomy Club (FAAC) meets on the fourth Thursday each month, except for the combined November/December meeting on the first Thursday of December - at Henry Ford Community College Administration Services and Conference Center in Dearborn. Refer to our website for a map and directions (www.fordastronomyclub.com).

The FAAC observes at Spring Mill Pond within the Island Lake State Recreation Area near Brighton, Michigan. The club maintains an after-hours permit, and observes on Friday and Saturday nights, and nights before holidays, weather permitting. The FAAC also has use a private observing site near Gregory Michigan and lake Erie Metro Park. See the FAAC Yahoo Group* for more information.

Observing schedules and additional info are available on our website, or via the FAAC Yahoo Group.* Or call the FAAC Hotline, for info and leave a message, or ask questions: 313-757-2582. or send email inquiries to info@fordastronomyclub.com.

Membership in the FAAC is open to anyone with an interest in amateur astronomy. The FAAC is an affiliate of the Ford Employees Recreation Association (F.E.R.A.). Membership fees:

Annual - New Members: \$30 (\$15 after July 1)
 Annual - Renewal: \$25 (\$30 after January 31)

Membership includes the STAR STUFF newsletter, discounts on magazines, discounts at selected area equipment retailers, and after-hours access to the Island Lake observing site.

Astronomy or Sky & Telescope Magazine Discounts

Obtain the required form from the FAAC club treasurer for a \$10 discount. Send the completed form directly to the respective publisher with your subscriptions request and payment. Do not send any money directly to the FAAC for this.

Star Stuff Newsletter Submissions

Your submissions to STAR STUFF are welcome! Send your story and/or images to the editor at jenzdanowski@yahoo.com. Email text or MS Word is fine. STAR STUFF will usually go to press the weekend prior to each general meeting. Submissions received prior to the 15th can be included in that issue.

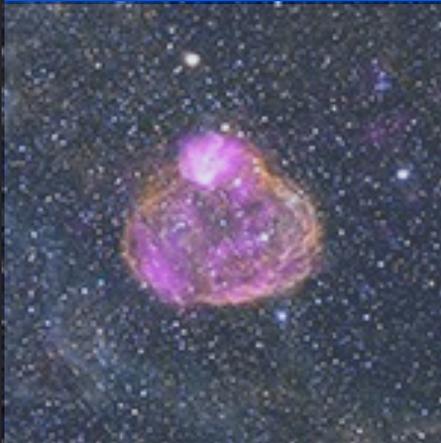
* FAAC Members are welcome to join our Ford Astronomy Club Yahoo!Group. Messages photos, files, online discussions, and more! URL: groups.yahoo.com/group/FordAstronomyClub.

This months background photos of the moon Page 1 courtesy of John Kirchhoff. See more of John's photos at:

<http://www.flickr.com/photos/33926475@N06/with/4311533997/>

FAAC Equipment List 6-13-13 provided by Dennis Salliotte

<u>Item</u>	<u>Currently Held By:</u>	<u>Date Last Verified</u>
<u>Telescopes</u>		
4" Dobsonian	George Korody	2/7/13
4 1/2 " Galileo Alt/Az Reflector	James French	6/11/13
8" Orion 8XTi Dobsonian	Matthew Kehoe	4/3/13
4" Donated Reflector in need of repair	George Korody	4/4/13
<u>Presentation Tools</u>		
Projector	Gordon Hansen	6/12/13
Projection Screen 8'	Bob MacFarland	5/2/13
Speaker System w/wireless mic	Bob MacFarland	3/12/13
Bullhorn	Gordon Hansen	4/10/13
DVD Player	Gordon Hansen	4/10/13
Projection Screen 6'	Gordon Hansen	5/2/13
<u>Demonstration Tools</u>		
Weight On Planets Scale	Bob MacFarland	6/11/13
Lunar Phase Kit	Bob MacFarland	3/12/13
100 ft Scale Model Solar System Kit	Bob MacFarland	3/12/13
<u>Display Items</u>		
Astronomy Event Sign (3' X 6')	Gordon Hansen	4/10/13
PVC Display Board - Folding	Bob MacFarland	4/4/13
Banner - Large (32" X 16")	Bob MacFarland	6/11/13
Banner - Medium (24" X 48")	Bob MacFarland	6/11/13
Banner - Small (24" X 32")	Bob MacFarland	6/11/13
Tri-Fold Presentation Boards	Don Klaser	3/13/13
Tri-Fold Poster Board (Early Club Photos)	George Korody	2/7/13
<u>Other</u>		
Sky Quality Meter	Syed Saifullah	6/11/13
Canopy (10' X 10')	Greg Ozimek	5/24/13
Equipment Etching Tool	Dennis Salliotte	6/12/13
Pop Cooler	Michael Dolsen	5/23/13



Composite image of DEM L50, a so-called superbubble found in the Large Magellanic Cloud. X-ray data from Chandra is pink, while optical data is red, green, and blue. Superbubbles are created by winds from massive stars and the shock waves produced when the stars explode as supernovas.

High-energy Spy

(continued from Page 1)

X-ray astronomy grew in importance to the fields of astronomy and astrophysics. The National Academy of Sciences, as part of its “Decadal Survey” released in 1981, recommended as its number one priority for large missions an X-ray observatory along the lines that Giacconi outlined in 1963. This observatory was eventually realized as the Chandra X-Ray Observatory, which launched in 1999.

The Chandra Project is built around a high-resolution X-ray telescope capable of sharply focusing X-rays onto two different X-ray-sensitive cameras. The focusing ability is of the caliber such that one could resolve an X-ray emitting dime at a distance of about 5 kilometers!

The building of this major scientific observatory has many stories.

Learn more about Chandra at www.science.nasa.gov/missions/chandra. Take kids on a “Trip to the Land of the Magic Windows” and see the universe in X-rays and other invisible wavelengths of light at spaceplace.nasa.gov/magic-windows.

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Dr. Weisskopf is project scientist for NASA's Chandra X-ray Observatory. This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Treasurer's Report

June 24, 2013

By Chuck Jones

Ford Amateur Astronomy Club
Balance Sheet
 As of June 24, 2013

	<u>Jun 24, 13</u>
ASSETS	
Current Assets	
Checking/Savings	
CD 200599272	1,057.39
CD 205196033	1,002.32
CD 89265268	1,103.67
Checking	1,966.61
FAAC Savings	
Equipment	1,391.08
Scholarship	<u>363.56</u>
Total FAAC Savings	1,754.64
Petty Cash Account	<u>181.49</u>
Total Checking/Savings	7,066.12
Other Current Assets	
GLAAC	<u>4,549.64</u>
Total Other Current Assets	<u>4,549.64</u>
Total Current Assets	<u>11,615.76</u>
TOTAL ASSETS	<u><u>11,615.76</u></u>
LIABILITIES & EQUITY	0.00

Club Wear

You can order online from LL Bean, using the instructions contained in a file that you can view on our club Yahoo Group website Club Wear file folder at

<http://tech.groups.yahoo.com/group/FordAstronomyClub/files/Club%20Ware/>

Meeting Agenda - June 27th

HFCC – Berry Auditorium -Admin. Services & Conference Center www.fordastronomyclub.com
 5:30

Opening/Introduction/Member Observing

Main Presentation:

Churchill H.S.-Astronomy Clubs Kevin Reina

Tech Talks:

Ask The Astronomer

Club Projects/Committees/Member Support

Club Business/Secretary/Treasurer/Equipment Reports

Astro Imaging SIG

Gordon Hansen

All are invited to join us in the Astro Imaging SIG meetings, to share and discuss images, experiences, and techniques.

We always have a good time, with lively discussion, and sharing of valuable information.

Next meeting is **July 11th**. The meeting room location - HFCC Admin. Services and Conference Center (same building), Berry Amphitheater Auditorium.

Topics invited. Pizza served.

FAAC Events 2013

Saturday July 13th - Beginner's Night at Island Lake

Background Photo from Lunt Solar Scope Image taken at the Hector J Robinson Observatory, June 28, 2010

One FAAC members blog

<http://hjrobservatory.blogspot.com/>

A few updates on the observatory, quick articles and photos. I'll try to improve my writing on this blog. Also, I try to keep daily updates on this blog. - Greg Knekleian, HJRO volunteer.

Member Photos



Above: Photo taken by Greg Knekleian through Ken Anderson's large Dob. No processing. 20mm Ethos eyepiece in lens discovery.

FAAC General Meeting Minutes

May 23rd, 2013

By Doug Bauer

Opening:

The meeting was called to order in the Berry Auditorium at 5:30 PM by Vice-President, Jon B. All attendees introduced themselves. Jon B. welcomed new members and guests. There were four guests. 39 people were in attendance.

Observing Experiences:

- Milton F. Observed in the Lewiston area for 3 nights in early May.
- Doug B. and 10 or so other FAAC members attended the Stars Over Lake Erie Metropark event on Saturday, May 18th and brought telescopes for the public event. There were 20 - 30 visitors at the event and they enjoyed looking through the various scopes.
- George K. reported that he and a couple of other folks set up solar scopes at the Kensington Metropark's Herron Days on Saturday and Sunday, May 18th and 19th.
- Bob M. reported that several FAAC members went to Cadillac for a Star Party May 7-12. It was clear the first two nights and cold, cloudy with some snow flurries the last 3 nights.

Whats Up in June?

John S. gave a presentation on objects for viewing in June. He also showed two videos: one of Space City in Russia where they were preparing to put various animal in zero gravity to study its long-term effect on them and a second of a time-lapsed movie of the Sun over 3 years taken by the Solar Dynamics Observatory.

Main Program:

Dr. Carrie Swift, professor at the University of Michigan Dearborn, gave a presentation on Galaxies and Dark Matter.

She covered:

- Types of Galaxies
- What Galaxies are made of
- Evolution of Galaxies
- Formation of Galaxies
- Dark Matter

She explained that the visible matter in a galaxy does not explain the orbits of stars in the galaxy. There must be something with a gravitational force that cannot be seen visually (Dark Matter) that would explain the orbital speed of stars at various distance from the center of the galaxy.

The Latest definition of a Galaxy is:

A large halo of Dark Matter with a collection of stars at its center.

She mentioned that U of M Dearborn has public observing events at their observatory two night per month, generally the 1st Tuesday and 3rd Friday. But check their website for specific dates. There will be a public event on Friday June 21st, starting at the HFCC Planetarium at 7:00PM moving to the Environment Interpretive Center at 8:00PM followed by observing at the U of M Dearborn observatory. She asked for volunteers to bring telescopes for that event.

Tech Talk:

Jim Frisbie gave a talk entitled: LX200 Experience.

He described buying a used LX200 Classic at the FAAC Swap Meet. When he tested it, he heard a loud "Bang" and smelled smoke. With considerable determination he tracked down the fault, a tantalum capacitor in DEC control which had burned up. He replaced it and everything worked fine.

Several people in the audience were aware of the problems with those capacitors in the LX200 and suggested that all of 5 or so 18 volt tantalum capacitors should be replaced with 35 volt tantalum capacitors, particularly the ones in the hand controller because if the ones in the hand controller burn up, they burn up a ribbon cable that is difficult to repair. Two people mentioned that the problem was in the Meade 120V to 18 volt power supply which can produce a large voltage spike when the telescope is turned on. They suggested that the power supply should be replaced with a better one.

Business Meeting:

- Secretary's Report in Star Stuff - Approved
- Treasurers Report in Star Stuff - Approved
- Equipment Report was presented by Dennis S.

Projects and Events:

- Friday, June 14th - 8:00 PM to Midnight - Summer Skies at Macomb Astronomy Event - they are looking for volunteers to bring telescopes for public observing. Details are available on their website:
- <http://www.macomb.edu/Announcements/Summer+Skies+at+Macomb.htm>
- June 15: Beginner's Night at Island Lake

The meeting was adjourned by Vice-President, Jon B. at 7:40 pm.

HJRO Update

by Greg Knekleian

New Equipment arrives

HJRO has had some new equipment arrive. Thanks to members of the club and Leo McMaster who supplied more tools for the observatory.

The observatory has an auto-guiding camera, some new software and will be getting new rings for the C14. This is largely due to work and donations from Tim Campbell, George Korody, Leo McMaster and Timothy Dey.

I haven't been able to open up the observatory as much as I would normally do because of family illness issues during the past two months.

I was able to visit during a test of the new autoguider and Backyard EOS software that was being performed by Timothy Campbell and Tim Dey. On another day I was able to visit for an hour while Tim Campbell was doing some updates and testing of software at HJRO. It's a different feeling to arrive as a visitor, chat with members and then leave letting others close up the observatory.

Wanting to squeeze in a little bit of observing whenever I get a chance, I took my telescopes to some other sites, around the downriver area to observe on a whim under clear skies, while eating dinner. I took out my telescope one night to observe the moon, Saturn and Venus at the Woodhaven Pizza Place. The owners of the Pizza Place and all the employees on staff that night were able to come outside and observe the moon. We usually talk about astronomy subjects when I arrive there for a sub sandwich, but rather than confine the discussion to an Ipad article, I was able to show them the moon live.

About six or eight customers in the area stopped by to look at the moon or Saturn as well during that quick one hour of observing.

I was able to observe the sun briefly one day during the last month with Harold Thomason and Dan Barriball. I wanted to open up the observatory to allow middle school children to come out and observe, but it was a last minute plan, due to family obligations. I was able to get Harold to come out and observe and volunteer. Unfortunately we arrived so late at the observatory, that most of the classes had ended and didn't give the science teachers enough warning that the observatory would be open. Harold and I chatted about a number of astronomy topics and he gave me back a custom eyepiece he built from a scrapped video projector I gave to him earlier. (Sometimes those gifts just keep coming back.) The eyepiece is a kind of zoom 2 inch eyepiece. . . with not a lot of zoom range, but it works like a kind of zoom none-the-less.

Harold also gave me a larger eyepiece case, which will make it easier for me to haul all my eyepieces to HJRO. He told me he found that case at a resale shop for a good price . . . to low to mention here.

It seems like the last year has been a year of giving to HJRO by many members of the club.

Not content to observe this month at one location, I found a different location to do a bit more sidewalk astronomy. Buddy's Pizza patio in Dearborn offered a good view of the 1st quarter moon. I was able to eat some pizza for dinner and setup the Vixen binoculars to view the moon and Saturn before the sun set. I've done this in the past and had a half dozen other customers come over to the table to take a look at the Sun when doing solar viewing. For some reason, none of the customers seemed curious enough to check out the moon, but two staff workers looked at the moon and Saturn. Then I was off to HJRO to try to observe Mercury and Venus as they were close together.

HJRO Update (continued)

Tim Dey and Tim Campbell announced that the observatory would be open and I arrived before Dan Barriball showed up as well. Mercury and Venus were up and close together. Tim Campbell opened up and was using a vacuum cleaner to clean the place up. I quickly booted up the Losmandy mount and aimed the scope toward Venus. Locating both Venus and Mercury within four degrees of each other I snapped a photo of the pair of them through the Meade refractor. I was only able to stay out for a short time and had to return to other duties.

The theme of quick observing away from the observatory continued as Brian Kutscher left a message about the summer solstice at the Henry Ford mansion.

Brian said, he was unable to view the event, but I might get a chance to view it from the site. I called Greg Ozimek and Tim Campbell as they are known to be interested in taking wide field and scenic photos in the Dearborn area. Tim was planning on giving a presentation on the Summer Solstice at the planetarium. He was going to use photos that displayed different structures built around a solstice event from around the world. Tim called U of M and insured we had permission to take a few FAAC members into the grounds after hours to capture the event at sunset.

Not knowing how many I could actually invite, I only called a few FAAC members. Tim Campbell, Tim Dey and I walking through the trails to the mansion after official hours. Tim Campbell used a new gradient neutral density filter that should offer excellent images of the sunset.

I took a few stills in different formats of the setting sun and got the best results from my Canon EOS and the Fujix 3d camera. In retrospect I should have taken more 3d photos.

From restaurants to local places of interest there are plenty of spots for impromptu viewing. With a relatively small rig you can often show people the moon or a planet from a well lit parking lot or patio. You can extend your dinner for thirty minutes to an hour and show up to a dozen people the joys of looking up.



Summer Solstice Sun sets in a far tree line at Henry Ford Mansion. Designed so it could be seen from the steps of the west patio.

Below: Mercury, Jet and Venus at HJRO





ASTRONOMICAL LEAGUE

A NONPROFIT FEDERATION OF 275+ ASTRONOMICAL SOCIETIES AND 15,000 MEMBERS

- To promote the science of astronomy
- By fostering astronomical education;
 - By providing incentives for astronomical observation and research; and
 - By assisting communication among amateur astronomical societies.

John Jardine Goss
Vice President, Astronomical League
932 Lee Lane
Fincastle, VA 24090
(540) 966-4606
goss.john@gmail.com

April 1, 2013

Re: 2013 League Elections

To ALCors, MALs, Patrons, and Lifetime members:

Enclosed in this envelope is your ballot for the election of League Officers and a short biography of each candidate.

The election ballot is for League Secretary, a two year term, and for League Executive Secretary, a three year term.

There are no proposed changes to the League Bylaws.

Return the ballot in an envelope addressed to:
Astronomical League
9201 Ward Parkway, Suite 100
Kansas City, MO 64114

Please mail by June 30, 2013. Do not insert anything else in the envelope, only send the ballot.

To help make your League function more smoothly, please remember to periodically update your records with Mitch Glaze at the League's National Office. Societies should send their rosters to rosters@astroleague.org, while all other information should be sent to leagueoffice@astroleague.org. This will ensure that all members continue receiving *The Reflector* and remain eligible for League observing awards.

Clear skies,

John Jardine Goss, Astronomical League Vice President

Candidate for Executive Secretary

Ronald S. Whitehead

It has been my privilege and honor to serve as your Executive Secretary. I have performed duties as a member of the governing Council, assisted the President and Officers to form strategies, policies and procedures to guide the League through these changing and challenging times. My duties also included supervising membership election ballots, welcoming our new clubs and societies, and assisting our clubs and societies as required. I led Council efforts in reviews of By-Laws provisions, and in the development of a long-range plan.

In order for the League to grow and continue to provide meaningful support, it must adapt to the reality of our times: In a tight economy, people want to ensure that they are receiving the best value for their money. The League must offer valued services and support to its members. In a high technology world with video games, the Internet, explosions of astronomical equipment, the reluctance of many to join groups, and the changing nature of youth, the League must adapt and improvise by offering benefits that meet the needs of its membership.

With your support, I will continue my service to the Astronomical League and amateur astronomy.

Candidate for Secretary

Ann House

My name is Ann House from the Salt Lake Astronomical Society (SLAS) and I would like to serve as League National Secretary. I am a certified financial counselor and educator and work at the University of Utah. I have had an interest in the skies since I was eight years old and witnessed the incredible night sky at Bryce Canyon while on a family vacation. Growing up in the East we couldn't see many stars or even the Milky Way.

I joined SLAS in 2003, the year of "the huge Mars" and have been a very active member. I have served four years as Board Member at Large and two years as Vice President. I was in charge of school star parties, publicity, and programs such as Astronomy Day, Solstice Festival, and assisted with ALCon's most successful event at Bryce Canyon. I connected SLAS with the NASA Night Sky Network where we receive educational tool-kits for public programs. This has enhanced our public outreach and our club remains active year-round with 60 scheduled star/solar parties. I have secured \$30,000 in county grants which has been a tremendous benefit to our club as we promote the science of astronomy.

I have good leadership qualities, I make and keep good relationships with individuals, and am organized. I would enjoy being a part of the Astronomical League on a leadership level as I understand how the League benefits all clubs by being a member on a national level.

Ford Amateur Astronomy Club
Star Stuff Newsletter
P.O. Box 7527
Dearborn MI 48121-7527

