



The Skyscraper

Vol. 36 No. 3

March 2009

Amateur Astronomical Society Of Rhode Island · 47 PeepToad Road North Scituate, RI 02857 · www.theSkyscrapers.org



Seagrave Memorial Observatory is open to the public weather permitting



Saturdays 8pm - 10pm

Please note that the observatory may be inaccessible for several weeks following a winter storm.

See www.theSkyscrapers.org for updates.

North Scituate Community Center

All of our winter meetings (Dec-Mar) are held at the Community Center. From Seagrave Observatory, the Community Center is the first building on the right side going south on Rt. 116 after the intersection of Rt. 6 Bypass (also Rt. 101) and Rt. 116. Parking is across the street.

March Meeting with Jim Zebrowski

Friday, March 6 at North Scituate Community Center





Meteorites : Thunderstones from Space!

How Space Rocks Help Unravel the Mysteries of Our Solar System...

I am the President of my local Astronomy Club, Aldrich Astronomical Society, Inc. and participate in many public outreach events in conjunction with my fellow club members through the Aldrich Community Outreach Program (ACOP). My participation in our outreach programs includes volunteering at several organizations like the Arunah Hill Natural Science Center in Cummington, Massachusetts, the EcoTarium in Worcester, the IGNITE Organization and organizing educational enrichment programs for groups like the Boy Scouts and Girl Scouts, the Big Brothers and Big Sisters and for the local Boys and Girls Clubs. I also routinely sponsor teacher workshops to bring materials and resources into after school activities that can engage students to become interested in Science, Technology,

Engineering and Mathematics (STEM). In the past, I have made some arrangements with local school teachers to bring programs into schools and to work with science and Astronomy clubs during after school events. We have actively done events with multimedia including slide show presentations, videos from NASA/JPL and the NASA select channel and when the weather permits, we have given many night sky viewing sessions with the support of Aldrich Astronomical Society, Inc. member telescopes. Our Society also has its own selection of PowerPoint slide Programs for use in after school programs that cover topics from constellations, to star hopping, to comets, to Returning to the Moon and Women in Astronomy.

March 2009

-  **4** First Quarter Moon
- 8** Saturn at opposition
-  **10** Full Moon
-  **18** Last Quarter Moon
- 20** Vernal Equinox
-  **26** New Moon
- 27** Venus at inferior conjunction
- 31** Mercury at superior conjunction

From the president



March madness is here once again. I don't mean the sweet 16 as in college basketball. With March approaching we "Skyscrapers" need to analyze our past year and make decisions on where we are going in the next year. At the March meeting I will propose a new budget for the coming year based on input from key members of Skyscrapers. Every member will have an opportunity to add to or delete items in the budget at the meeting. If you have an opinion this will be the time to make it known. Voting on the budget will occur at the April meeting.

Also at the March meeting the nominating committee will introduce their slate of officers for the coming year. The slate of officers proposed is just the start of the ballot. Any member can nominate any other member

for any position on the ballot. Voting on the ballot will occur at the April meeting. You will receive a ballot via e-mail or snail mail in the newsletter and ballots will be available at the April meeting. Before the end of the business meeting we will know who our newly elected officers are for the coming year. The newly elected officers will assume their position at the end of the May meeting.

March is also that rare opportunity to participate in the annual Messier Marathon. The Messier Marathon is based on a list of 110 objects "discovered" or compiled by Charles Messier in the 1700's. While Messier worked hard to discover comets, he compiled this list so that he could avoid mistaking the objects for new comets. Today, the Messier Objects form an introduction to deep-sky observing for countless amateur astronomers.

Due to a fluke in the distribution of the

Messier Objects across the sky, it is possible to view all objects on the list in a single night during early spring (usually March or April). Amateur astronomers challenge their abilities, or build their observing skills, by trying to locate all the objects on the list. The 2009 Messier Marathon will perhaps be one of the last occasions to combine a nine-planet marathon with the Messier event, but Neptune will be extremely difficult if at all possible, Uranus also difficult in the morning. Some 14 comets brighter than about mag 14.0 may also be visible

Whether you are chasing all 110 Messier objects, the nine planets, the 14 comets, or just interested in a night of observing come join us at Ninigret Park in Charlestown. Knowing the weather in Rhode Island we will first attempt the marathon on Saturday March 21st, with a rain date of Saturday March 28th. Dust off those telescopes and come join us. Hope to see you there.

Glenn Jackson
President



Venus, February 9 at 18:20, taken with a C11-SCT and a 2x Barlow with an Orion Starshoot Solar System Camera. This is a stack of 6-1 second exposures and was processed with Maxim DL and Adobe Photoshop. Photo by Tom Thibault.



Saturn with nearly edge-on rings. Photo by John Kocur.



From the Archives: Eclipse site in Natarn, Sweden, for the June 30, 1954 total solar eclipse. They were once again clouded out. From left to right: Margaret Smiley, Don Reed, Connie Reed. From the



The Skyscraper is published monthly by Skyscrapers, Inc. Meetings are usually held on the first Friday of the month. Public observing is usually held every Saturday night at Seagrave Memorial Observatory, weather permitting.

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Directions

Directions to Seagrave Memorial Observatory are located on the back page of this newsletter.

Submissions

Submissions to *The Skyscraper* are always welcome. Please submit items for the newsletter by March 15 to Jim Hendrickson, 1 Sunflower Circle, North Providence, RI 02911 or email to jim@distantgalaxy.com.

Email subscriptions

To receive *The Skyscraper* by email, send email with your name and address to jim@distantgalaxy.com. Note that you will no longer receive the newsletter by postal mail.

The Moon

It's Just a Phase it's Going Through

Dave Huestis

As I mentioned in my January column, the United Nations General Assembly has designated 2009 as the International Year of Astronomy (IYA2009). You will hear of many worldwide initiatives, as well as local ones, designed to focus attention on astronomy – 400 hundred years after Galileo first trained his telescope on the heavens.

Even the most casual sky observer will notice the changing phases of the Moon. However, the reason for the Moon's phases during a 29-day period seems to be almost all but forgotten. When I've asked Boy and Girl Scout groups, adults of all ages, including college students, I've gotten some real imaginative answers. So let me get back to some basic astronomy principles and illuminate you about lunar phases.

The Sun's path through the sky is called the ecliptic, and it also represents the plane of our solar system. You'll find that the planets very closely follow this imaginary path as well. The Moon, however, moves above, below and across the ecliptic in its orbit about the Earth. The Moon crosses the ecliptic twice each lunar month. Occasionally when the Sun, Earth and Moon line up when the Moon crosses the ecliptic we observe lunar and solar eclipses.

One of the answers I often get to my lunar phase question is that the phase is caused by the shadow of the Earth. Not an exceptionally bad answer. At least they are thinking! For indeed during a lunar eclipse the Moon does slide through the Earth's shadow and we do see that shadow sweep across the lunar surface. However, the Moon's monthly cycle of phases occurs because the angle between the Earth, Sun, and Moon is constantly changing, which in turn changes our viewing perspective. Oh, and one important fact to remember is that one-half of the Moon is always bathed in sunlight.

I can direct you to two websites that demonstrate the Moon's phases. One is a great diagram (<http://www.astro.virginia.edu/class/oconnell/astr121/im/moon-phases-NS.gif>) whereas the

other is an animation (http://www.noao.edu/education/phases/phases_demo.html#ani). I think they will help you to visualize the lunar phase cycle.

We'll start with the New Moon. When the Moon is between the Earth and the Sun, but passes above or below the solar disk, it cannot be seen. The side facing the earth is not lit, but the back-side or far-side of the Moon is therefore fully illuminated. (You may know that our desolate neighbor has become locked into an orbit whereas we always see only one side of it. The Moon's rotational period is equal to its period of revolution. And you may at one time have heard the side we do not see referred to as the "dark side" of the Moon. Unfortunately that is a poor term to use. The "dark side" is the far side of the Moon that we never see from the Earth. However, it does receive as much sunlight as the near side.)

Only as the Moon moves away from the vicinity of the Sun and appears in the western sky after sunset will you see a slender lunar crescent. The Sun, Earth, and Moon (SEM) angle is small, and so is the illuminated area we see. (Again, keep in mind that one-half of the Moon is fully illuminated, but due to our viewing perspective/angle we only see a portion of the lit area.) At this phase, called a Waxing (increasing) Crescent, you'll see the complete outline of the Moon in addition to the illuminated crescent. This view is often referred to as the "old Moon in the new Moon's arms."

The un-illuminated surface will even show some minor detail. It's an effect called "Earthshine." You're seeing sunlight reflected onto the Moon from the Earth. Why is there so much reflected light? If you could observe the Earth from the lunar surface at this time you'd see an almost Full Earth! And that's another point to remember. Whatever the phase the Moon is in when viewed from the Earth, the Earth as viewed from the Moon would be the opposite or complimentary phase. In addition, the horns or cusps of the



C/2007 N3 Lulin encounters a satellite on the morning of February 16. The images are a series of 30 second exposures taken with aDSI Pro II on an AT66 @ 400mm piggy backed on an 8" Meade XL200GPS that was guiding on a star within the field of view. Photos by Bob Forgiel.

crescent Moon point away from the sunset or sunrise point.

As the month progresses the Moon moves towards the eastern sky and the SEM angle increases. So does our view of the sunlit portion of the lunar surface. (Be sure to check out the website animation.) The crescent grows larger and larger until after seven days the Moon reaches First Quarter (the Moon is one-quarter of the way around the Earth; or 90 degrees from the Sun). The First Quarter Moon will be at its highest point in the sky at sunset. At that time we see one half of the lunar surface facing the Earth illuminated on the right hand side. In effect we are seeing one quarter of the entire lunar surface lit because of our perspective. One half of the Moon is still illuminated...the other quarter is around and beyond the right hand edge/limb of the Moon. Watch the progression of the terminator (the dividing line between the lit and unlit portion of the lunar surface - between New Moon and Full Moon it is the sunrise point).

The lunar month continues as the Moon moves further to the east. As the SEM angle grows larger the lit portion of the Moon grows as well. Between First Quarter and Full Moon, which takes another seven days, the phase is Waxing Gibbous. At Full Moon the moon is opposite the Sun (180 degrees) in the sky with the Earth in the middle of this celestial configuration. The surface of the Moon facing the Earth is fully illuminated. The far side of the Moon would be in total darkness. The Sun is setting when the Full Moon rises.

(Though the Earth is between the Moon and the Sun, the Moon's path passes above or below the Earth's shadow most months. Otherwise we'd experience a lunar eclipse monthly.) At this time the Moon is halfway around our sky in its orbit.

After Full Moon the SEM angle begins to get smaller again as the Moon swings around the Earth and gets closer to the Sun in our sky once again. The sunlit portion of the lunar surface starts to grow smaller. From Full to Last or Third Quarter, which takes another seven days, the Moon is said to be in Waning (decreasing) Gibbous phase. Every night you can watch the terminator move from the right edge of the Moon towards the left. Last Quarter has been attained when the left hand side of the lunar surface is half illuminated. At that time the Moon is three-quarters of the way around the sky and is now once again 90 degrees from the Sun. It resembles a mirrored image of the First Quarter phase. The Moon will rise around midnight, and at sunrise it will be at its highest point in the sky.

As the Moon progresses in its orbit about the Earth the SEM angle continues to decrease and the terminator (which became the sunset point on the sunset point on the lunar surface just after Full Moon) advances across the lunar surface. This phase between Last Quarter and New Moon is called Waning Crescent. You'll soon see a slender crescent in the early morning sky just before sunrise. Earthshine will again be very noticeable. A day or

so later the Moon passes between the Earth and the Sun and we once again experience a New Moon and the cycle starts all over.

Should you wish to follow the phases of the Moon during the next month you can start with the First Quarter phase on March 4th. Hopefully you will be able to follow the cycle without too many cloudy nights interfering.

Enjoy watching our Moon as its appearance changes from night to night. It's just a phase it's been going through for billions of years!

Keep your eyes to the skies.

Messier Marathon

Saturday, March 21
7:30pm - dawn

Ninigret Park, Charlestown

Can you find all 110 objects in the Messier Catalog in a single night?



Sky Object of the Month: March 2009

NGC 2362: Open Cluster in Canis Major

Glenn Chaple

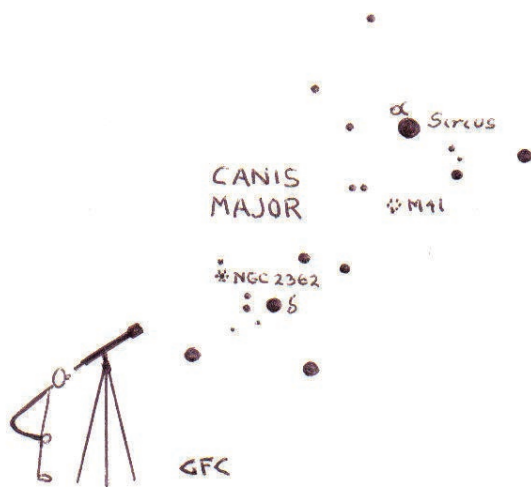
A remarkable, yet little-known open cluster is NGC 2362 which surrounds and includes the star tau Canis Majoris. This neat little stellar gathering is located three degrees east and slightly north of delta Canis Majoris. Observing guides describe NGC 2362 as a 4th magnitude object, but this figure is misleading. Much of the cluster's brightness is taken up by tau. The rest of the 40-odd member stars are magnitude 7 to 13, and are concentrated in an area about 6 arc-minutes across. A 5000 light year distance translates to an actual diameter of 9 light years. From this distance our sun would appear as a magnitude 15.5 speck!

What makes NGC 2362 such a visual delight

is its appearance in small-aperture scopes. When I look directly at tau with my 3-inch f/10 reflector, I see a handful of tiny stars around it. When I turn my gaze to the side (averted vision) the field fairly explodes with stars. It's an amazing transformation!

Considering the fact that William Herschel was enchanted by the beauty of NGC 2362 and that Sir Patrick Moore recently included it in his Caldwell Catalog as one of the finest non-Messier objects, this cluster deserves your attention. Before Canis Major fades into the sunset, give NGC 2362 a look-see!

Your comments on this column are welcome. E-mail me at gchapple@hotmail.com.



Where did all these gadgets come from?!

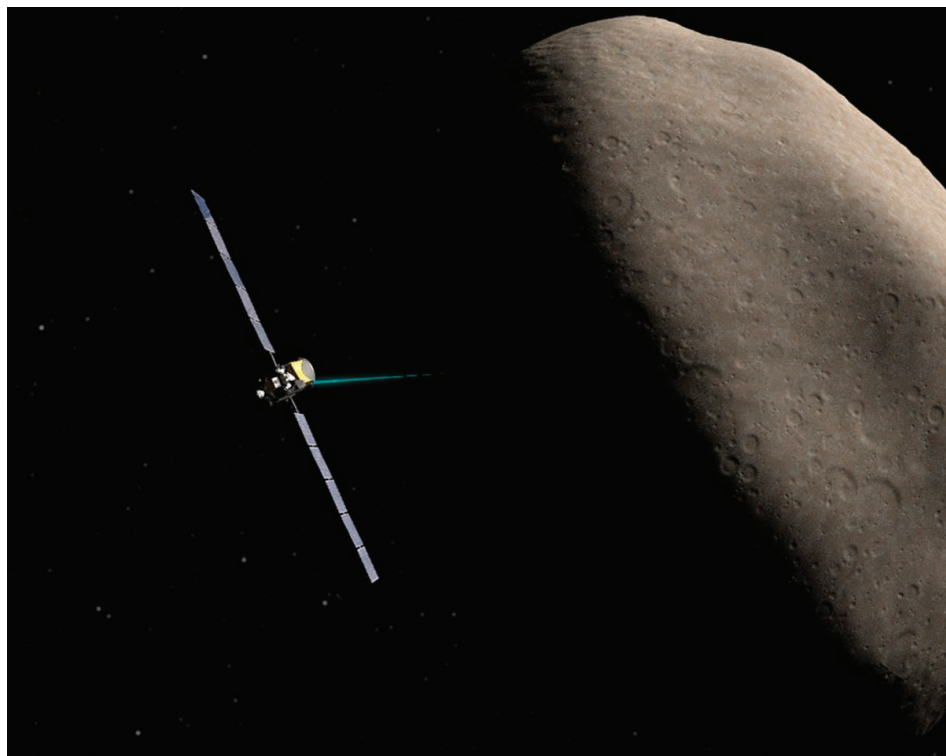
Ion propulsion. Artificial intelligence. Hyper-spectral imagers. It sounds like science fiction, but all these technologies are now flying around the solar system on real-life NASA missions.

How did they get there? Answer: the New Millennium Program (NMP). NMP is a special NASA program that flight tests wild and far-out technologies. And if they pass the test, they can be used on real space missions.

The list of probes that have benefited from technologies incubated by NMP reads like the Who's Who of cutting-edge space exploration: Spirit and Opportunity (the phenomenally successful rovers exploring Mars), the Spitzer Space Telescope, the New Horizons mission to Pluto, the Dawn asteroid-exploration mission, the comet-smashing probe Deep Impact, and others. Some missions were merely enhanced by NMP technologies; others would have been impossible without them.

"In order to assess the impact of NMP technologies, NASA has developed a scorecard to keep track of all the places our technologies are being used," says New Millennium Program manager Christopher Stevens of the Jet Propulsion Laboratory.

For example, ion propulsion technology flight-tested on the NMP mission Deep Space 1, launched in October 1998, is now flying aboard the Dawn mission. Dawn will be the first probe to orbit an asteroid (Vesta) and then travel to and orbit a dwarf planet (Ceres). The highly efficient ion engine is vital to the success of the 3 billion mile, 8 year journey. The mission could not have been flown using conventional chemical propulsion; launching the enormous amount of fuel required would have broken the project's budget. "Ion propulsion was the only practical way,"



Dawn will be the first spacecraft to establish orbits around two separate target bodies during its mission—thanks to ion propulsion validated by Deep Space 1.

says Stevens.

In total, 10 technologies tested by Deep Space 1 have been adopted by more than 20 robotic probes. One, the Small Deep Space Transponder, has become the standard system for Earth communications for all deep-space missions.

And Deep Space 1 is just one of NMP's missions. About a half-dozen others have flown or will fly, and their advanced technologies are only beginning to be adopted. That's because it takes years to design probes that use these technologies, but Stevens says experience shows that "if you validate experimental technologies in space, and reduce the risk of using them, missions will pick them up."

Stevens knew many of these technologies when they were just a glimmer

in an engineer's eye. Now they're "all grown up" and flying around the solar system. It's enough to make a program manager proud!

The results of all NMP's technology validations are online and the list is impressive: nmp.nasa.gov/TECHNOLOGY/scorecard/scorecard_results.cfm. For kids, the rhyming storybook, "Professor Starr's Dream Trip: Or, How a Little Technology Goes a Long Way" at spaceplace.nasa.gov/en/kids/nmp/starr gives a scientist's perspective on the technology that makes possible the Dawn mission.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

February Meeting Notes

Friday, February 6, 2009; North Scituate Community Center

Nichole Mechnig

Glenn Jackson welcome all members at 7:31pm then turned over the presentation to Steve Hubbard • Steve Hubbard introduced our guest speaker for the evening **Padma Venkatraman** • Tonight's talk was about Caroline Herschel and her important legacy to science • Because Caroline



was a female she was always following in her brothers footsteps • Caroline was the obedient daughter and sister anything that her brothers or parents ask her to do she was there. Caroline was her Brother Williams's assistant for is star observing and even though she did not have any formal training with Math she was able to help put star charts together for William. She herself would never have become an astronomer if not for her brother but her contributions were immense. She is a well respected individual in her field. She was the first women to ever be paid for her work by King George III. Caroline's work is an extraordinary piece of history and needs to show others what one woman can do with a little bit of encouragement.

Secretary's Report from January Accepted by the membership

Treasurer's Report from January Accepted by the membership

1st V.P. Steve Hubbard: March 6th Jim Zebrowski "NASA Ambassador" • April 3rd Dr. Sara Seager "Exoplanets Atmosphere" • May 1st Dr. Mark Reid, Senior Radio Astronomer at CFA/Harvard • July 11th Dr. Kristine Larsen • Working on June guest speaker

2nd V.P. Kathy Siok not present

Historian Dave Huestis: Sold 1 anniversary book, 2 books left • December quiz: The good ole days pictures of Dave Huestis, Rick Lynch and Fred Whipple

Librarian Tom Barbish: Nothing as of right now • Books that were listed as missing are still not being returned

Star Party Coordinator Bob Forgiel: February 9th Boy Scouts Merit badge @ community center 7pm • February 10th Girl Scouts merit badge @ Paine Elementary School Foster 3pm • February 27th Portsmouth Middle School 100+ students 8pm • Boy Scouts: Next clear Monday

February 16th, 23rd or March 2nd at Seagrave or Woods Recreation facility in Foster; 25 scouts need 5 volunteers • Girl Scouts: Next clear Tuesday February 17th, 24th or March 3rd at Seagrave or at Woods Recreation facility in Foster; 10 scouts 3 or 4 volunteers

Trustees: Public night sign ups • 16" Meade under repair: 2 Motors for repair have been ordered 1-26-09, Motors to be delivered February 18th • If you want to be a key holder please see the trustees and they will help with your training on the scopes

Nominations Committee: All positions are open if you have an interest please contact: Jack Szelka, Joel Cohen or Jim Hendrickson • Ballot March meeting, Vote April Meeting new officers end of May meeting

New Business: New Members: **Bill Tillson, Brian Medeiros, Larry Isom**

Old Business: **Kenneth Botelho and family** accepted into membership • **Peggy Satti** accepted into membership

Good of Organization: Last week of May planning a trip to Arizona it will be a Saturday-Saturday please let Dolores Rinaldi or Jim Hendrickson know if interested • Ladd Awards for Citizenship for Public Outreach was given to Bob Horton, Dave Huestis, and Craig Cortis. Congratulations to these members • International Year of Astronomy 2009 the Night Sky Network awards were given due to their help with public outreach: Dave Huestis, Glenn Jackson, Bob Forgiel and Dolores Rinaldi. Congratulations to these members

Presidential Info: Cancellations check your e-mails, radio stations WJAR and TV 10 • E-board meeting Wednesday February 25th at 7pm Community Center • Help with the clean up, Trash, Audio equipment back to Seagrave, Coffee pots cleaned and back to Seagrave, LCD projector back to Seagrave, do not move tables and chairs

Meeting adjourned: at 9:31pm 55 members

E-Board Meeting December 17, 2008

Membership List: There are several members that have not paid dues in over 2 yrs. And the E-board is thinking of deleting their names off this list. • Unanimous decision to remove names from the list as voted by the E-board

Skyscraper Calendar at a glance: Friday Jan. 2nd Monthly Meeting • Monday Jan. 5th Scouts @ Seagrave 30+ • Tuesday Jan. 6th Scouts @ Seagrave 15+ • Wednesday Jan. 5th Rain Date for Jan. 5th • Thursday Jan. 8th Rain date for Jan. 6th • Week of Jan. 12-15 Scouts TBA • Friday Jan. 23rd Women's Wilderness Weekend Alton Jones Campus • Wednesday Jan. 28th E-board Meeting @ Community Center • Tuesday Feb. 3rd Scouts @ Seagrave 40+ • Friday Feb. 6th Monthly Meeting @ Community Center • Monday Feb. 9th Scouts @ Community Center Merit Badge presentation

Movie Night @ Seagrave: Concerns: If the grounds are bad at Seagrave then nothing goes on • Steve Siok asks that this motion be tabled • Glenn Jackson wants to turn this over to the general membership • Trustees have final say as to what goes on at Seagrave • No events will happen @ Seagrave only published events Until Jan. meeting

AstroAssembly Speaker Fees: Very expensive for guest speaker Steve Hubbard is looking into offsetting the cost by buying books from the guest Speaker more info to follow

Insurance to the 4 buildings @ Seagrave due

Meeting adjourned @ 9:15 pm • E-board members in attendance: Glenn Jackson, Steve Hubbard, James Crawford and Nichole Mechnig



Treasurer's Report

4/1/2008 through 2/24/2009

Jim Crawford

INFLOWS

75th Yr T-Shirt Sales	345.00
Astroincome	
Astro-banquet	1,139.00
Astro-grille	552.50
Astro-misc	18.00
Astro-affle	730.00
Astro-registration	1,420.00
TOTAL Astroincome	3,859.50
Bookincome	
75th Anniversary Book 1st Print	450.00
75th Anniversary Book 2nd Print	660.00
TOTAL Bookincome	1,110.00
Cookoutinc	405.00
Donation	456.50
Dues	
Contributing	135.00
Family	800.00
Junior	10.00
Regular	2,180.00
Senior	340.00
TOTAL Dues	3,465.00
Interest Inc	296.72
Magincome	
Astronomymaginc	306.00
Skytelmaginc	296.55
TOTAL Magincome	602.55
Magsales (Library)	10.80
Preservation Fund	10.00
Starparty	766.00
TOTAL INFLOWS	11,327.07

OUTFLOWS

75th Yr T-Shirt Exp	572.56
Astroexp	
Astro food Fri-Sat	39.46
Astrocat	980.00
Astrogrille	212.40
Astromisc	86.72
Astrorestroom	175.00
Astrowine-cheese	125.15
Tentrental	585.00
TOTAL Astroexp	2,203.73
Astronomy Day	30.12
Charity	25.00
Clarkproject	513.50
Collation	470.53
Cookoutexp	677.08
Corporationfee	20.00
Insurance	2,410.00
Membersubscriptions	
Astronomymagexp	306.00
Skytelexp	296.55
TOTAL membersubscriptions	602.55
Postage and Delivery	194.75
Presidents Fund	160.16
Printing and Reproduction	802.50
Trusteeexp	1,759.19
Utilities: Electric	134.51
TOTAL OUTFLOWS	10,576.18

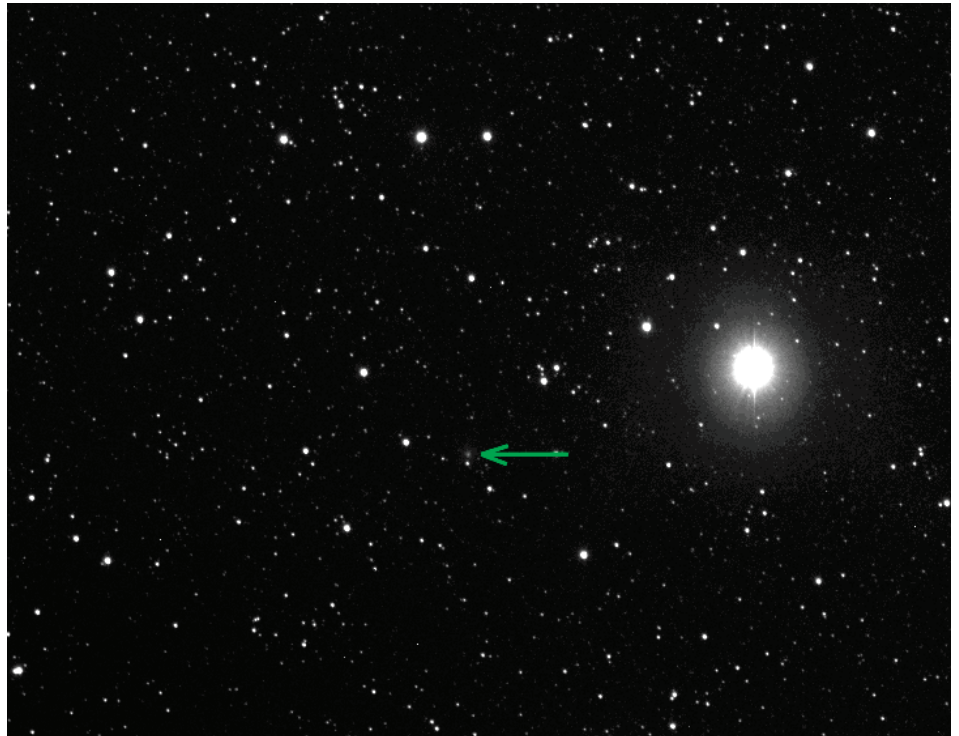
OVERALL TOTAL 750.89

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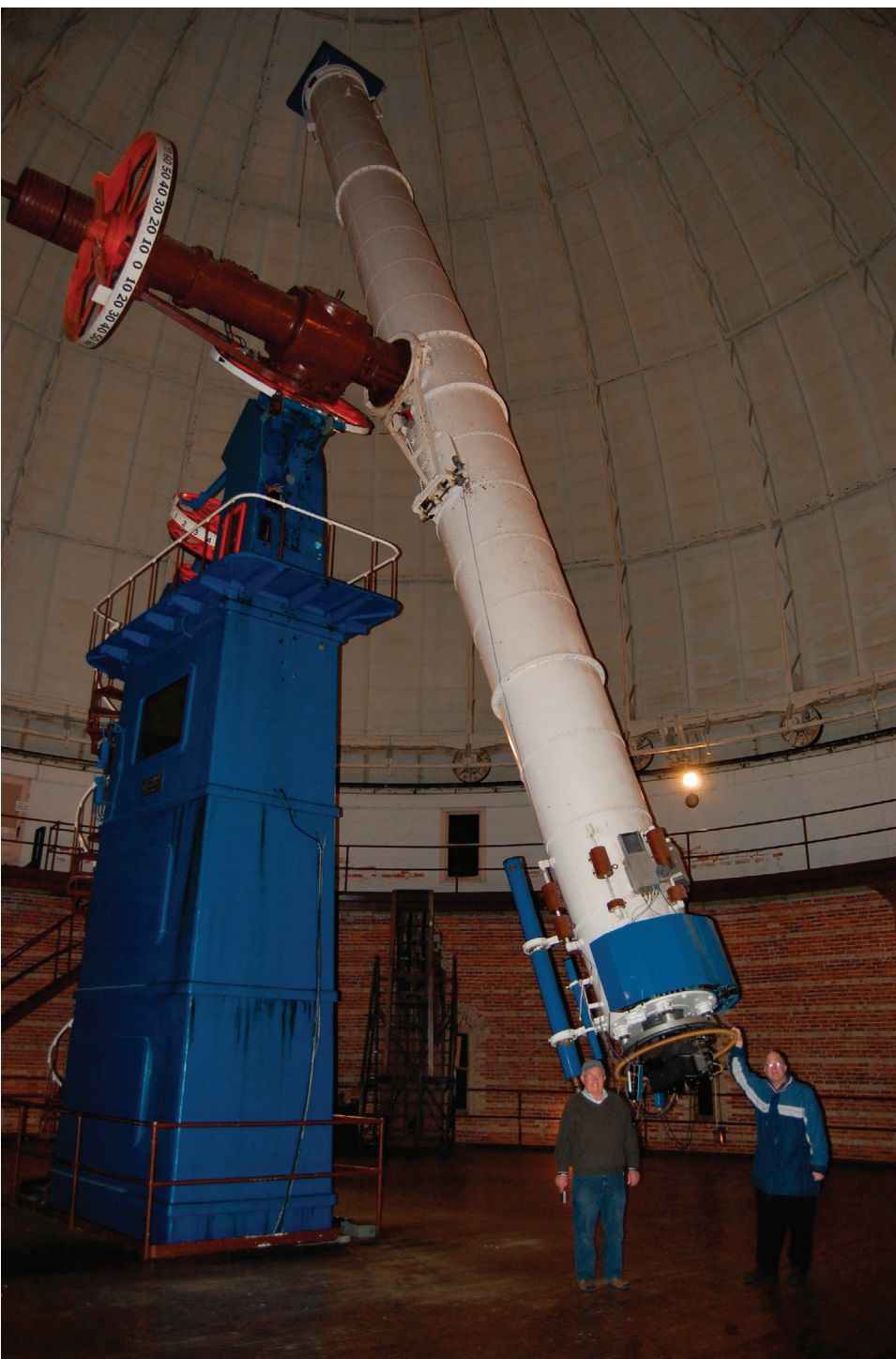
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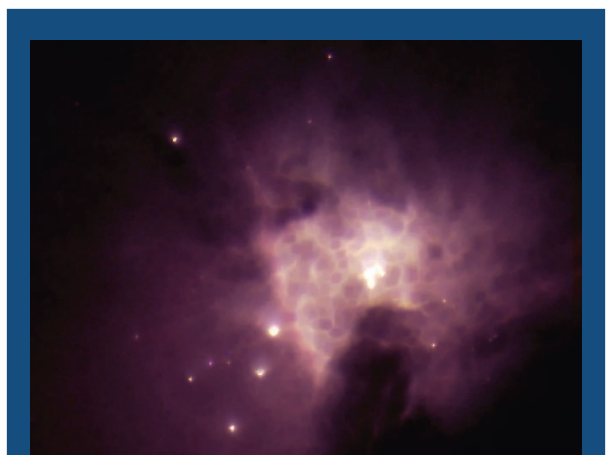
C/2007 N3 Lulin at 6th magnitude passing Alpha 1 Librae, Zubenelgenubi, and companion, also known as the Southern Claw (of Scorpius) on 02/06/09 @ 0352hrs EST. Rehoboth, Mass., Sony DSC F717, Afocal, 40mmEP, 30 second exposure. Photo by Bill Guca.



Bottom: C/2006 OF2 Broughton, single frame from an animated GIF of comet C/2006 OF2 Broughton that illustrated the movement over a 90 minute period. The field of view is around 30 arc minutes. It appears as a small 2.5' faint 10.5 magnitude speck with little movement from our vantage point. It's currently just over 3 AU from Earth. I did a couple of others, like 29P, another faint small speck that's 7 AU's out and showed even less movement. I'll eventually find the time to process the images from the others. Photo by Bill Guca.



Glenn Jackson and Dan Lorraine visited Yerkes Observatory in Williams Bay, Wisconsin. Left: Glenn and telescope operator Richard Dreiser at the focuser end of the giant 40-inch. Above: Glenn at the telescope control panel. Photos by Dan Lorraine.



Tom Thibault sent this photo of one of his favorite Deep Space objects in the winter sky, it's actually the 1st deep space object he observed. This photo is (4) 30 second stacked images from a C11-SCT utilizing a Meade DSI Deep Sky Imager Color CCD and Maxin DL to capture. It was stacked and edited utilizing Adobe Photoshop.

CONSTITUTION

ARTICLE I: NAME

The name of this Society shall be "Skyscrapers, Inc. (Amateur Astronomical Society of Rhode Island)."

ARTICLE II: OBJECT

The object of this Society shall be to educate the general public and membership on matters pertaining to astronomy. It shall be an educational, nonprofit organization.

ARTICLE III: LEGAL STATUS

This Society is incorporated as a non-business corporation under the laws of the State of Rhode Island.

ARTICLE IV: MEMBERSHIP

§1 Membership in this Society shall be of five classes: Junior, Senior, Contributing, Senior Citizen and Honorary.

§2 An applicant for junior, senior, contributing or senior citizen membership shall submit the standard form of application together with dues as specified in Article I, Section 2, of the By-Laws, shall be proposed by an existing member, and shall become a member upon receiving a favorable majority vote at a regular meeting of the Society.

§3 Junior members shall be between 13 and 17 years of age both inclusive, and upon reaching 18 years of age shall automatically become senior members without payment of additional dues for the dues year in which this occurs. Junior members shall be entitled to all the privileges of senior members except those of voting and holding office.

§4 Senior members and senior citizen members shall have the privilege of voting and holding office. Senior members must be 18 years of age or older; senior citizen members must be 65 years of age or older.

§5 Contributing members shall be senior members who pay the additional dues prescribed by the By-Laws. They shall be entitled to all the privileges of senior members.

§6 Honorary membership may be conferred upon any person for unusual and outstanding accomplishment in science. It may be conferred upon a non-member for outstanding contribution to the Society. Honorary membership is conferred by unanimous vote of those present at any Annual Meeting, the name having been proposed at a previous regular meeting of the Society. An honorary member shall have all the privileges of a

senior member except those of voting and holding office. This membership shall be for life and no dues shall be required.

ARTICLE V: OFFICERS

§1 The officers shall consist of a President, First Vice-President, Second Vice-President, Secretary and Treasurer. Their duties shall be such as are implied by their respective titles, and as prescribed by the By-Laws.

§2 The officers shall be elected by ballot at the Annual Meeting for a term of one year or until their successors are elected and take office. A majority vote shall be required to elect.

§3 No member shall hold the same office for more than two consecutive terms.

§4 Vacancies occurring in office may be filled by appointment of the President until successors are elected and take office.

ARTICLE VI: MEETINGS

§1 The Annual Meeting shall be held in April of each year at the call of the President. The membership shall be notified 10 days in advance thereof.

§2 Regular meetings shall be held monthly at the call of the President

§3 Special meetings may be called by the President or on a petition directed to the Executive committee and signed by any 10 members. The call shall state the pending business and no other business shall be transacted. The call shall be mailed to the membership at least 5 days in advance of the special meeting.

ARTICLE VII: EXECUTIVE COMMITTEE

There shall be an Executive Committee, whose membership and powers shall be as prescribed by the By-Laws.

ARTICLE VIII: BOARD OF TRUSTEES

There shall be a Board of Trustees, whose membership and powers shall be as prescribed by the By-Laws.

ARTICLE IX: AMENDMENTS

The Constitution and By-Laws may be amended at any regular meeting by two-thirds (2/3) vote of all senior and contributing members present, provided said amendment has been presented in writing and read at the previous regular meeting, a notice incorporating said amendment has been mailed to the membership

ARTICLE X: BUDGETS AND EXPENDITURES

§1 The President and Executive Committee shall present a proposed yearly operating budget for membership approval at the annual meeting.

§2 The Executive Committee shall have the authority to approve non-recurring expenditures only if these expenditures have been given prior approval by the society, either by approval of the yearly operating budget, or by passage of a motion at any monthly meeting.

§3 The Executive Committee shall have the authority to approve any expenditure deemed necessary to protect the assets of the Society during emergency situations. When an emergency situation occurs, the Executive Committee is required to inform the Society of the nature of the emergency, the steps taken to protect the property of the Society, and the amount of money that was spent, at the next monthly meeting.

ARTICLE XI: CODE OF CONDUCT

Any individual that violates Local, State, or Federal Law, or conducts themselves in any behavior that compromises the reputation of the Society, will be referred to a disciplinary board consisting of the Executive Committee and the Board of Trustees.

BYLAWS

ARTICLE I: FISCAL YEAR & DUES

§1 The fiscal year shall be from April 1 through the following March 31. The dues year shall be the same as fiscal year.

§2 Dues are payable in April for the dues year then beginning. The annual dues shall be: \$10.00 for Junior Members; \$40.00 for Members; \$50.00 for Family Members; and \$10.00 for Senior Citizen Members. Persons applying for membership during the months of April through December pay the above stated annual dues for the current fiscal year (April - March). Persons applying for membership during the months of January through March pay the above stated annual dues, but their membership extends through the next fiscal year. Persons making donations over and above the foregoing amounts shall be called Contributing Members. Four distinguished categories of Contributing Members shall be designated: Sponsors (\$60); Supporters (\$100); Patrons (\$250); and Benefactors (\$500).

§3 The Secretary may, with the approval of the Executive Committee, drop from membership any member who is three months or more in arrears.

ARTICLE II: OFFICERS

§1 The regular term of all Officers, Members-at-Large and Junior Trustee shall commence at the adjournment of the May meeting.

§2 The President may at any time appoint such additional officers, chairmen and committees as may be required. The terms of all of these (except, as appropriate, special committees) shall expire with the term of the appointing President. The President shall be, ex officio, a member of all committees.

§3 In the absence of the President the First Vice-President shall assume his duties. In the absence of both, second Vice-President shall assume the duties of the President.

§4 The President shall:

- 1 Preside over all regular monthly meetings and Executive Committee meetings.
- 2 Establish an operating budget, with the assistance of the Executive Committee, for approval by the members of the Society, per Article X of the Constitution.
- 3 Oversee the business and legal responsibilities of the Society.
- 4 Be the official spokesperson for the Society.

§5 The 1st Vice President shall:

- 1 Provide programs for monthly meetings.
- 2 Assist the President in communicating to the general public the activities of the Society.

§6 The 2nd Vice President shall:

- 1 Act as the Chairperson of the AstroAssembly Committee.
- 2 Submit a proposed operating budget for AstroAssembly to the Executive Committee prior to the Annual Meeting.

§3 Have the authority to direct the Treasurer to pay any expenses associated with the operation of AstroAssembly, providing said expenses have been given prior approval by the Society, per the approved operating budget, as defined by Article X of the Constitution, or by motions approved by the members of the Society at any regular monthly meeting.

§4 Submit a report of all expenses and income from AstroAssembly at the December monthly meeting.

§7 The Secretary shall:

- 1 Take the minutes of all meetings, regular, special, Annual and Executive.
- 2 Maintain an accurate, classified list of the membership of the Society.

3 Notify applicants for membership of their election or rejection, unless they were present at the meeting where this occurred.

4 If required by the President, notify all additional officers, chairmen and committees of their appointment.

5 Send all required notices to the membership.

6 In general, conduct the correspondence of the Society.

7 Have custody of the records of the Society.

§8 The Treasurer shall:

1: Pay on his/her authority any routine bills for periodic, recurring expenses as defined by the operational budget, per Article X of the Constitution.

2: Pay any other non-recurring bills that have been approved.

3: Keep an itemized account of all receipts and disbursements and submit a written report to be published in the Skyscraper newsletter, and presented at each regular monthly meeting.

4: Submit an annual report of all receipts and disbursements for the past fiscal year at the Annual Meeting. Auditors appointed by the President shall audit this report, and the report of the auditors shall be submitted at the next regular monthly meeting.

ARTICLE III: EXECUTIVE COMMITTEE

§1 The Executive Committee shall consist of the President, First Vice-President, Second Vice-President, Secretary, Treasurer and two Members-at-Large.

§2 The Members-at-Large shall be elected at the Annual Meeting, and their terms shall be the same as those of the officers.

§3 The powers of the Executive Committee shall be:
1 To advise the President and assist in carrying out the duties of the office.
2 To take any action that might be taken by the Society, unless such action is reserved to the Society at Large in the Constitution or By-Laws.

§4 The Executive Committee shall meet at the call of the President or on application of any two members. The President shall be, ex officio, chairman.

§5 Any Officer, Committee Member and/or appointed Board Member upon the termination of their duties or vacancy of position shall immediately turn over all Society records, property, files, documents, policies, etc. to the presiding President for transmittal to the appropriate party.

ARTICLE IV: BOARD OF TRUSTEES

§1 The Board of Trustees shall consist of three Trustees, the term of each to be three years. No Trustee shall serve two consecutive terms. One Trustee shall be elected each year at the Annual Meeting. The Trustee with the longest continuous service shall be the Senior Trustee and serve as the Chairperson of the Observatory Committee. Vacancies occurring in office shall be filled by special election to be called by the President with at least 10 days notice to the membership.

§2 The Board of Trustees shall have custody of the grounds, structures and equipment belonging to the Society. They may at any time establish or amend rules for use of said grounds, structures and equipment, and establish policies for members comprising the Observatory Committee. They may at any time grant or withdraw permission to individuals to use the grounds, structures and all equipment belonging to the Society.

§3 The Board of Trustees shall be responsible to the Society. Decisions of the Board of Trustees may also be overruled by five members of the Executive Committee, all voting in the affirmative.

The Board of Trustees shall conduct an annual inventory of equipment and property belonging to the Society, and submit said inventory list to the Executive Committee prior to the Annual Meeting.

ARTICLE V: QUORUM

Twelve (12) senior and contributing members shall constitute a quorum for the transaction of business at any meeting as defined in Article VI of The Constitution. At no time shall the lack of a quorum prevent those present from proceeding with the program of the day or evening.

ARTICLE VI RULES OF ORDER

The rules contained in 'Robert's Rules Of Order, Revised' shall govern the Society in all cases to which they are applicable and in which they are not inconsistent with the Constitution and By-Laws.

ARTICLE VII: DISSOLUTION

Upon dissolution of the corporation, the Board of Trustees shall after paying or making provisions for the payment of all liabilities of the corporation, dispose of all of the assets of the corporation in such a manner as to comply with, or to such organization or organizations organized and operated exclusively under, Section 501(C)(3) of the Internal Revenue Code of 1954.



Major new light pollution source in Providence

The recently opened IWay/195 bridge was opened and illuminated in December 2008. The lighting consists of several packs of brilliant, upward pointing lights along the centerline and outer edges of the bridge. Rather than providing roadway lighting, this light appears to have been installed to be purely “ornamental” in nature. As is grossly demonstrated in this photo taken by Bob Horton from the roof of the Barus & Holley building at Brown University (a distance of over ¾ mile), the lights produce a prominent beam pointing straight upwards that is also easily visible from Ladd Observatory. From Ladd, 1.65 miles to the north, the column of light is clearly visible at more than 45° into the already bright city sky.

The IWay/195 bridge is now the brightest source of light pollution in Providence, and perhaps the brightest in the entire state of Rhode Island.

Given the current state of the economy, state budget deficits, increasing energy costs, and increasing public awareness of greenhouse gas emissions from energy use, this new light beacon seems rather excessive and unnecessary.

Below are two global programs to increase awareness of light pollution and energy use we can all participate in during the month of March.

Get Out and Observe the Night Sky!
March 16-28, 2009

Engage students worldwide in observing the nighttime sky
 Encourage citizen and family science with a hands-on learning activity outside of the classroom
 Gather light pollution data from an international perspective

www.globe.gov/globeatnight

Participation is open to anyone who lives or works in one of the 110 GLOBE countries

Logos for participating organizations: NASA, NSF, U.S. Department of Education, ESRI, CADIAS, International Dark-Sky Association, NOAA, and WWF.

60
EARTH HOUR

8.30pm Saturday March 28, 2009
 See your world in a whole new light

WWF logo and **www.earthhour.org**

Directions to Seagrave Memorial Observatory

From the Providence area:

Take Rt. 6 West to Interstate 295 in Johnston and proceed west on Rt. 6 to Scituate. In Scituate bear right off Rt. 6 onto Rt. 101. Turn right onto Rt. 116 North. Peeptoad Road is the first left off Rt. 116.

From Coventry/West Warwick area:

Take Rt. 116 North. Peeptoad Road is the first left after crossing Rt. 101.

From Southern Rhode Island:

Take Interstate 95 North. Exit onto Interstate 295 North in Warwick (left exit.) Exit to Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.

From Northern Rhode Island:

Take Rt. 116 South. Follow Rt. 116 thru Greenville. Turn left at Knight's Farm intersection (Rt. 116 turns left) and follow Rt. 116. Watch for Peeptoad Road on the right.

From Connecticut:

- Take Rt. 44 East to Greenville and turn right on Rt. 116 South. Turn left at Knight's Farm intersection (Rt. 116 turn left) and follow Rt. 116. Watch for Peeptoad Road on the right.
- Take Rt. 6 East toward Rhode Island; bear left on Rt. 101 East and continue to intersection with Rt. 116. Turn left; Peeptoad Road is the first left off Rt. 116.

From Massachusetts:

Take Interstate 295 South (off Interstate 95 in Attleboro.) Exit onto Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.



47 Peeptoad Road
North Scituate, RI 02857

