



The Skyscraper

Vol. 36 No. 5

Map 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
See www.theSkyscrapers.org for updates.

Membership Dues were due in April

There is a renewal form on the back page of the April newsletter.

May 2009

	1 First Quarter Moon
2	Venus at greatest illumination
	9 Full Moon
13	Mercury at greatest Western elongation
	17 Last Quarter Moon
18	Mercury at inferior conjunction
	24 New Moon
25	Jupiter 0.4° S of Neptune

May Meeting with Dr. Mark J. Reid Friday, May 1 at Seagrave Memorial Observatory

Dr. Mark J. Reid, Senior Radio Astronomer at the Harvard-Smithsonian Center for Astrophysics, has been involved in research that has recently determined that the Milky Way is actually much bigger than previously thought.

From the President



Election results are in and we are honored to have Bob Horton as our new president. At the end of the May meeting the gavel, as well as, all of the responsibilities of president will be transferred to Bob. As I look back on the previous two years I hope that I have brought some good changes to Skyscrapers. My one and only hope is that I have maintained and upheld the great tradition that has followed Skyscrapers through the many years. Any changes, accomplishments, or improvements that have occurred have only happened because of those many volunteers that surround me.

In particular I would like to thank Steve Hubbard for the incredible list of outstanding guest speakers that he obtained for all of us. Obtaining speakers is a long involved process with many e-mails and phone calls to get that reservation confirmed. I am always truly amazed at the quality of our guest speakers.

AstroAssembly, thanks to Kathy Siok for two very successful AstroAssemblies. Whenever someone carries around a 4" three ring notebook stuffed with phone calls and details to accomplish by a certain date, you know that they are spending many hours and days for the good of the organization. I know of no way to have made the AstroAssemblies any better. They were great not only the programs and details but also the chance to visit with old and new friends.

Thanks to Jim Crawford for keeping our finances in an up to date and organized fashion. Jim's involvement was not just limited to paying the bills. Jim handled all of the insurance issues, magazine subscription renewals,

IRS forms, Corporation documents, as well as maintaining the Skyscraper database. Jim spent many hours on all of the details that keeps Skyscrapers on track as a legal enterprise.

Someone has to be there to remind us as to who said what at each of the meetings. Nicole Mechnig was there to keep our minutes and records clear for everyone at the meetings and those that were not able to attend. Thanks for being there.

Thanks also to Dave Huestis, Joe Sarandrea, Tom Barbish, Roger Forsythe, and the Trustees. Their contributions in the many varied tasks added to the completeness of our organization. Their contributions made us all look good and well organized.

No thank you list would be complete with out a very special thank you to Jim Hendrickson for the outstanding web site that he has established for Skyscrapers. Not only do we have the best web site but thanks to Jim we also have the best newsletter of any Astronomy group.

Last but not least I want to thank Bob Forgiel for his many countless hours of organizing star parties, classroom visits, science fairs, Boy Scout merit badge programs, Cub Scout belt loop programs, Girl Scout badge programs, and keeping all of the many star party volunteers informed. Our public outreach has expanded ten fold with his efforts. What a feather in our Skyscraper hat!

To the many volunteers not mentioned above and to all of the membership I want to say thank you for your support. I consider it a privilege and honor to have been your President for the past two years. I hope that I have carried on the outstanding Skyscraper tradition.

May Eta Aquarids Meteor Shower

Dave Huestis

Are you an early morning person? I mean a really early morning person? If you want to catch a glimpse of a few meteors blazing across the sky, then set your clock alarm for 3:00 am on Wednesday, May 6. A couple of hours before dawn on that morning is the scheduled peak of the annual Eta Aquarid meteor shower. Hopefully it will be a mild morning of observing you can enjoy while listening to a chorus of springtime peepers.

Normally I would suggest you wake a little earlier to lengthen your duration of viewing, but unfortunately a waxing gibbous Moon won't set until about 3:30 am. Prior to that time it will overshadow many of the dimmer shooting stars.

One helpful fact is that the constellation Aquarius, from where the meteors will appear to radiate, only rises low in the east-southeast around 2:30 am. Therefore, it is completely opposite the Moon in the sky. As the morning progresses, Aquarius will continue to rise higher, and with it, the number of meteors should increase as well. If you are not sure where Aquarius is located, bright Jupiter, which also rises around 2:30 am, is in nearby Capricornus. Concentrate your gaze in that general direction.

This stream of particles was shed by Comet Halley and left in orbit about the Sun. Every year the Earth passes through this meteor stream. As I mentioned last year, astronomers believe we may see a dramatic increase in the number of meteors during the peak time for this year and next. However, the bright Moon will

certainly diminish the numbers that can be seen.

Despite astronomers' forecast of a potential for more meteors, here in New England we most likely will see closer to the normal rate of about 15-20 meteors per hour at peak time around 4:00 am. Why? Aquarius will not be very high in the sky, and this shower is best seen from the Southern Hemisphere. In fact, it is that hemisphere's best shower of the year.

Dawn comes early in May, so your observing window is going to be very short. But if the weather cooperates consider spending a beautiful mid-spring morning watching for a few shooting stars to fall from the sky at 41 miles per second. These swift and yellow meteors often leave long persisting dust trains behind them as they disintegrate in the Earth's upper atmosphere. Good luck and good observing.

I'd like provide a quick update on the planet Saturn. During nights of great seeing in late March and early April, visitors to Seagrave Observatory in North Scituate and Ladd Observatory in Providence were treated to some exquisite views of this beautiful planet. On a recent Tuesday night (March 31) at Ladd, Saturn looked like a picture through the 12-inch Brashear refractor telescope. The rings were only about three degrees from the horizontal or edge-on, but you could still see them perfectly. And the disk of Saturn itself glowed with a wonderful hue of yellow, while banding in his cloud tops was most apparent. The seeing was so steady that we "cranked up" the magni-



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.

President

Glenn Jackson skyscraper Glenn@aol.com

1st Vice President

Steve Hubbard cstahs@yahoo.com

2nd Vice President

Kathy Siok kathys5@cox.net

Secretary

Nichole Mechnig jrmnk1@cox.net

Treasurer

Jim Crawford jcrawford@cox.net

Members at Large

Joe Sarandrea jboss2@cox.net

Roger Forsythe galaxy-77@cox.net

Trustees

Tracey Haley mtk99h@cox.net

Steve Siok

Jim Brenek jbrenek@cox.net

Star Party Coordinator

Bob Forgiel bforgiel@cox.net

Librarian

Tom Barbish lbtjb@verizon.net

Historian

Dave Huestis dhuestis@aol.com

Editor

Jim Hendrickson jim@distantgalaxy.com

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 May 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.

ASSNE Astronomy Day

Saturday, May 2 on the Barrington Green

Skyscrapers have been invited to participate in the ASSNE Astronomy Day on the Barrington Green May 2nd. The plan is as follows: 1:00 PM - Dusk solar filtered telescopes, radio telescopes, Sol, Luna and Venus. 7:30 - 10:00 PM Regular telescopes on Luna, Saturn and Mercury. In the past they have had well over 1000 visitors. Scopes and moral support are welcomed. This is a great opportunity to make connections and visit with old friends. If you can help out contact Pete Peterson pete@petersonengineering.com. Hope to see you there.

fication to about 392 power. Despite the rings' low inclination, we could still see "space" between the sphere of Saturn and the rings on both sides of the planet. It was picture perfect.

Generally speaking seeing conditions don't often allow us to use very high magnification, so that Tuesday night was very special. And about a week before that, the 8 -inch Alvan Clark refractor at Seagrave Observatory also showed a steady view of this magnificently ringed world. It is quite amazing one can still see the rings at all when they are only tilted so slightly.

Imagine a hill that only had a slope of three degrees. Would you even notice it? I think not!

In May the rings open up a little to just over four degrees. Then afterwards, until Saturn is lost in the Sun's glare during August, the rings will begin to close up. We'll be observing Saturn every opportunity we get. You will have until then to see if you can experience a perfect view of Saturn yourself. And unfortunately we will not be able to view Saturn at the moment his rings appear edge-on on September 4.

Please accept an invitation to visit Seagrave Observatory (<http://www.theskyscrapers.org>) in North Scituate or Ladd Observatory (<http://www.brown.edu/Departments/Physics/Ladd/>) in Providence to observe beautiful Saturn through the wonderful antique telescopes at each facility. Check out their websites for the public night schedules.

I hope you pick an evening when Saturn and his rings can be seen in all their beauty.

Keep your eyes to the skies.



Messier Marathon Results

March 20-21, 2009
Ninigret Park, Charlestown

Observer	Count	Scope	Notes
John Kocur	81	8" f/6	Last man standing, stayed until Moonrise at 5:00.
Jim Hendrickson	77	Tele Vue Pronto	Laser-guided, hand-pointed, using 37x at 2.7° fov
Glenn Jackson	58	8" SCT	
Jack Szelks		Homemade 12" f/5 Docbsonian	First Light! Memorable views of M46, M104 & Saturn
Lloyd & Bruce Merrill	50	Meade AR-5	Only 2.5 hours, best hourly rate, using Meade goto.
Feliks Reikhrud	25	Celestron C-102 refractor on William Optics tripod.	

Executive Committee Meeting: Saturday, May 9
4:00pm at Seagrave Observatory
All Members Welcome

A Better Galaxy Guide: Part 2, Late Spring

Craig Cortis

Those of you who enjoyed my first installment on this subject (in last month's issue) will, I hope, find this second part to be even better. Three constellations are covered on the accompanying list of recommended objects and two—Virgo and Coma Berenices—feature the grandest, richest assortment of galaxies bright enough to be seen in small-to-medium aperture instruments of all constellations in the sky, period. This “Virgo-Coma” cluster of galaxies is so crowded with objects that trying to “zero-in” on only the best among them can be a daunting challenge, but I've made it much simpler by listing (with very few exceptions) only the brightest and easiest to work with for your deep-sky hunting.

I observed and/or researched catalog data on nearly 35 galaxies in Virgo, 20 in Coma Berenices, and 15 in Canes Venatici in order to develop notes from which a much-reduced final number—suitable for this issue—could be culled. We don't have the space here to print my entire notebook listing, so be advised that what you see represents about the best of the best. Only four Messier galaxies are omitted: M58, M59, and M89 in Virgo, plus M98 in Coma Berenices. (Three of these are referenced in my “notes” section, so you won't miss them entirely.)

Regarding the notes that follow my list of 31 objects (most of them being galaxies): I chose to omit notes for the 8 objects in Canes Venatici, both to save space and because all of them are basically easy to find in a sky region much simpler to navigate around. Also, you'll see a column in the table showing page numbers in *Burnham's Celestial Handbook*. I hope many of you either already own this classic 3-volume set, or can obtain it somehow. Although some of the information in *Burnham's* is over 30 years out of date, the entries I've flagged in the Burnham's column will give you a wealth of information on things of greatest interest—if possible, reference this material. By the way, pairs of galaxies that lie close together on the sky are indicated by asterisks. You'll be able to observe a few such pairs using low power, wide

field eyepieces.

Many of my choices here can be seen in a 4-inch telescope and some are doable in 50mm or larger binoculars, but in general, I'd suggest using telescopes of 6-to-8 inch aperture, at least for the galaxies. If you don't own a scope of that size range, just pick-out

the brighter objects listed and use what you've got. In closing, you might find it advisable to take another look at my article in last month's issue. The introductory section explains why I chose to come up with these observing lists and also how they are planned. I hope you'll find my notes useful for star-

Object	Type	R.A.	Dec.	Mag.	Size	Burnham's
Virgo						
M61	Sp Gx	12h 21.9m	+04° 28'	9.7	6.0x5.6'	v3, p. 2089-91
*M84	El Gx	12h 25.1m	+12° 53'	9.2	5.1x4.3'	v3, p. 2091-92
*M86	El Gx	12h 26.2m	+12° 57'	9.1	9.7x6.5'	v3, p. 2091-92
M49	El Gx	12h 29.8m	+08° 00'	8.4	8.5x7.3'	v3, p. 2086
M87	El Gx	12h 30.8m	+12° 24'	8.6	7.2x6.9'	v3, p. 2092-96
M90	Sp Gx	12h 36.8m	+13° 10'	9.5	10.0x4.6'	v3, p. 2097
M104	Sp Gx	12h 40.0m	-11° 37'	8.2	8.0x4.2'	v3, p. 2097-2100
M60	El Gx	12h 43.7m	+11° 33'	8.8	7.2x6.1'	v3, p. 2088-89
NGC 4697	El Gx	12h 48.6m	-05° 48'	9.2	5.6x3.7'	
NGC 4699	Sp Gx	12h 49.0m	-08° 40'	9.5	4.1x3.0'	
*NGC 4754	Sp Gx	12h 52.3m	+11° 19'	10.6	4.6x2.6'	
*NGC 4762	Sp Gx	12h 52.9m	+11° 14'	10.3	8.9x1.9'	
Coma Berenices						
M99	Sp Gx	12h 18.8m	+14° 25'	9.8	5.0x4.5'	v2, p. 685
M100	Sp Gx	12h 22.9m	+15° 49'	9.4	6.5x5.8'	v2, p. 685-86
Mel 111	OC	12h 25.0m	+26° 00'		4.7°	v2, p. 668-73
M85	Ln Gx	12h 25.4m	+18° 11'	9.2	7.3x5.5'	v2, p. 678-80
NGC 4494	El Gx	12h 31.4m	+25° 47'	9.8	4.6x4.1'	
M88	Sp Gx	12h 32.0m	+14° 25'	9.5	6.6x3.5'	v2, p. 680-81
M91	Sp Gx	12h 35.4m	+14° 30'	10.2	5.2x4.3'	
NGC 4565	Sp Gx	12h 36.3m	+25° 59'	9.6	15.5x2.3'	v2, p. 688
NGC 4725	Sp Gx	12h 50.4m	+25° 30'	9.4	11.0x8.1'	
M64	Sp Gx	12h 56.7m	+21° 41'	8.5	9.2x5.1'	v2, p. 677-78
M53	GC	13h 12.9m	+18° 10'	7.6	12.5'	v2, p. 673-77
Canes Venatici						
M106	Sp Gx	12h 19.0m	+47° 18'	8.3	19.0x8.2'	
Y CVn	var red star	12h 45.1m	+45° 26'	5.0-6.5		v1, p. 361-63
M94	Sp Gx	12h 50.9m	+41° 07'	8.1	12.0x10.0'	v1, p. 377
α CVn	DS	12h 56.0m	+38° 19'	2.9,5.5	sep. 20"	v1, p. 359-60
M63	Sp Gx	13h 15.8m	+42° 02'	8.6	12.7x7.8'	v1, p. 373-77
*M51	Sp Gx	13h 29.9m	+47° 12'	8.4	10.0x7.2'	v1, p. 369-73
*NGC 5195	Ln Gx	13h 30.0m	+47° 16'	9.6	6.0x4.7'	v1, p. 371-73
M3	GC	13h 42.2m	+28° 23'	6.2	16'	v1, p. 363-67

Types: Sp Gx = Spiral Galaxy, El Gx = Elliptical Galaxy, Ln Gx = Lenticular Galaxy, OC = Open Cluster, GC = Globular Cluster, DS = Double Star, Var = Variable Star

hopping, too. (Double star enthusiasts will find some good information in the notes.)

Much has been written on the “Virgo-Coma” galaxy cluster and, to save space here, I’d recommend seeking out more information on this highly important “Realm of the Nebulae.” (Yes, Robert Burnham devotes a wonderful section to this galaxy group in his chapter on Virgo.) Are you ready to look 60 million light-years away?

Notes:

M61: Mid-way between the double star 17 Vir (mags 6.6, 9.4, sep 20”) and mag 5 16 Vir. 16 is halfway between Beta and Delta Vir, both about mag 3.5; M61 is 0.8° SSW of 17 Vir.

M84 & M86: Fine pair oriented W-E, separated by 1/4° and visible together in a low power, wide field view. Locate halfway between mag 2.1 Beta Leo (Denebola) and mag 2.8 Epsilon Vir (Vindemiatrix). M84 is W of M86.

M49: Second-brightest galaxy in Virgo. Located roughly slightly W of the middle of a triangle marked by mag 4.1 Omicron Vir (at W tip), Epsilon Vir (at E tip), and mag 3.4 Delta Vir (at SE tip).

M87: Famous giant elliptical galaxy having one to a few thousand globular clusters bound to it and a powerful jet of energy and matter blasting outward from its core beyond the halo; length of jet may be thousands of light years. M87 is found about 1.3° ESE of M84 & M86, and is also known as “Virgo A”.

M90: Located about 2.7° E of M84 & M86. Galaxy M89 (mag 9.8 but not listed here) lies about 0.6° to the SSW.

M104: This is Virgo’s brightest galaxy but it won’t seem so. It lies almost exactly on the border with Corvus and your star-hop should initially involve noting the prominent triangle marked by mag 3.0 Delta Corvi, Algorab, at the SW tip—this is an attractive double star with a mag 8.5 companion at 25” separation. Star Alpha Vir, Spica, mag 1.0, marks the E tip. The famous double star Gamma Vir, Porrima, mag 3.5, marks the N tip. (Porrima is a pair of mag 3.5 components currently separated by only about 0.75” and is therefore rather difficult to resolve for most amateur astronomers, even at very high powers.) M104

is well-known as the Sombrero Galaxy, so named for its remarkable appearance on images taken by very large telescopes—a conspicuous dust lane neatly bisects this galaxy in a striking manner. Finalize your star-hop by using the RA and Dec coordinates on a star atlas, but be sure to take note of the nice multiple star Struve 1664 (looks like a small arrow having 3 of its brightest members in a short, straight row) positioned only about 0.4° W of the galaxy. This “arrow” points E to M104 and a wide field view can show both.

M60: Located about 1.3° NNE of a wide pair of stars involving mag 6.2 27 Vir (at N end of pair) and mag 4.9 30 (Rho) Vir, which is the southern star of the pair. These stars are about ¼° apart. Galaxy M59 (mag 9.7 but not listed here) lies about 0.4° to the WNW; a dim NGC galaxy is paired closely with M60, just 3’ NW.

NGC 4697: Located just under 5° SSE of Gamma Vir, Porrima.

NGC 4699: Located slightly N of an imaginary line running from mag 4.7 Chi Vir ESE down to mag 4.8 Psi Vir. The galaxy lies a bit closer to Psi than Chi.

NGC 4754 & NGC 4762: A close pair of markedly different-shaped spirals separated by under ¼°, NGC 4754 lies WNW of NGC 4762. Find this pair about 2.3° WNW of Epsilon Vir, Vindemiatrix.

M99: Find mag 5.1 6 Com on star atlas; M99 lies about 0.8° to the SE. Galaxy M98 (mag 10.1 but not listed here) is even closer to 6 Com at just 0.5° due W of the star.

M100: Marks E “crook” of a coathanger-shaped triangle involving 6 Com at SW end and mag 4.7 11 Com at N end.

Mel 111: (Melotte Catalog listing) The so-called “Coma Star Cluster” is the third-closest such object to our own Sun and recent sources cite a distance of 288 light-years. (The center of the Hyades group in Taurus is figured to be 151 light-years from us.) On dark, clear nights you can spot this large, straggling group with naked eyes at a point mid-way between Beta Leo (Denebola) and Alpha CVn (Cor Caroli, a famous and easy double star). The large angular size of nearly 5° makes this a low-power binocular object only, and the lower the power the better. A very

wide field of view is critical for seeing this cluster in its entirety. The very wide double star 17 Com marks the E vertex of a roughly V-shaped arrangement which forms the main outline of the Coma Cluster; 17 Com is a pair of mag 5.2 & 6.6 stars separated by 146” and oriented E-W. You can use 17 Com to star-hop E to galaxy NGC 4494, just 0.5° away. The worthwhile double star 12 Com is also a member of this group and lies about 1.4° due W of 17, along the S side of the “V”. 12 Com is a pair of mag 4.8 & 8.6 stars separated by a generous 65”.

M85: Check star atlas and first find 11 Com, then go E by 3.5° to the fine double star 24 Com, a mag 5.1 & 6.6 pair separated by 20”. Note position of M85 just N of a line joining these two stars, 11 and 24 Com. A dimmer galaxy, NGC 4394, is paired rather closely with M85; it lies just 9’ to the E.

NGC 4494: See references to double star 17 Com in notes for Mel 111, the Coma Star Cluster.

M88 & M91: Check star atlas; plan star-hop initially by spotting Beta Leo and Epsilon Vir—these galaxies are NE of the mid-way point between the two stars.

NGC 4565: One of the most superb and classic “edge-on” galaxies, it is justly famous for its appearance on photos or CCD images. In fact, NGC 4565 may qualify as the first or second-best among such objects. Star-hop using an atlas—it lies about 1.7° due E of 17 Com.

NGC 4725: Star-hop from an atlas—it lies several degrees E of Mel 111, the Coma Cluster.

M64: The brightest galaxy in Coma Berenices is known as the “Black Eye” Galaxy and is easily found 0.9° NE of the mag 5.0 triple star 35 Com, which involves a very tight pair at 1.2” plus a third mag 9.5 member at 27” sep.

M53: I’d rank this as among the top dozen or so globular star clusters in (perhaps?) the entire sky, northern and southern hemispheres. However you rate M53, it’s a great object found very easily—just go 1° NE of mag 4.5 Alpha Com, an extremely tight binary pair which rapidly changes in separation. (Only you experienced double star observers stand the slightest chance!)

The Swiss Army Knife of Weather Satellites

Spotting volcanic eruptions, monitoring the health of crops, pinpointing distress signals for search and rescue teams.

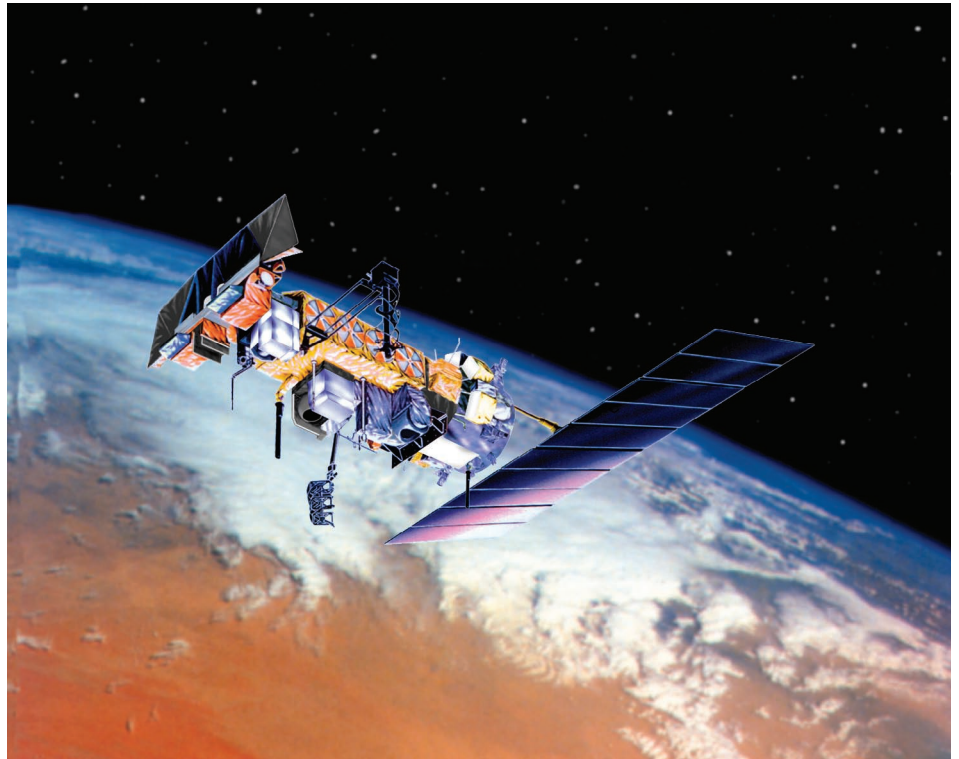
It's not what you might expect from a weather satellite. But these are just a few of the abilities of NOAA's newest polar-orbiting weather satellite, launched by NASA on February 6 and turned over to NOAA for full-time operations on February 26.

Formerly called NOAA-N Prime and now renamed NOAA-19, it is the last in its line of weather satellites that stretches back almost 50 years to the dawn of the Space Age. Over the decades, the abilities of these Television Infrared Observation Satellites (TIROS) have gradually improved and expanded, starting from the grainy, black-and-white images of Earth's cloud cover taken by TIROS-1 and culminating in NOAA-19's amazing array of capabilities.

"This TIROS series has become quite the Swiss army knife of weather satellites, and NOAA-19 is the most capable one yet," says Tom Wrublewski, NOAA-19 Satellite Acquisition Manager at NASA's Goddard Space Flight Center in Greenbelt, Maryland.

The evolution of TIROS began in 1998 with NOAA-K. The satellites have carried microwave sensors that can measure temperature variations as small as 1 degree Celsius between Earth's surface and an altitude of 40 kilometers—even through clouds. Other missions have added the ability to track large icebergs for cargo ships, monitor sea surface temperatures to aid climate change research, measure the amount of ozone in Earth's protective ozone layer, and even detect hazardous particles from solar flares that can affect communications and endanger satellites, astronauts in orbit, and city power grids.

NOAA-19 marks the end of the TIROS line, and for the next four years it will bridge the gap to a new series of satellites called the National Polar-orbiting Operational Environmental Satellite System. NPOESS will merge



The new NOAA-19 is the last and most capable in the long line of Television Infrared Observation Satellites (TIROS).

civilian and military weather satellites into a single system. Like NOAA-19, NPOESS satellites will orbit Earth from pole to pole, circling the planet roughly every 100 minutes and observing every location at least twice each day.

NPOESS will have yet more capabilities drawn from its military heritage. Dim-light sensors will improve observations of the Earth at night, and the satellites will better monitor winds over the ocean — important information for ships at sea and for weather and climate models.

"A lot more capability is going to come out of NPOESS, improving upon the 161 various environmental data products we already produce today," Wrublewski says.

Not even a Swiss army knife can do that many things, he points out.

For more on the NPOESS, check out <http://www.npoess.noaa.gov>. Kids can find out about another NOAA satellite capability — tracking endangered migrating species — and play a fun memory game at [http://spaceplace.](http://spaceplace.nasa.gov/en/kids/poes_tracking)

spaceplace.nasa.gov/en/kids/poes_tracking.

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

I would like to thank longtime member Gerry Dyck for his donation of Astronomy and Sky and Telescope magazines at the April meeting, plus a few other odds and ends..

Once I have them cataloged they will be offered for sale to the membership. Some of the issues go back to the 1980's, so if you are missing a few from your collection this would be the time to fill in those gaps.

Prices have yet to be determined, but will be nominal. Any monies derived from the sale of these magazines (as in the past) will be earmarked for the Archive Preservation Fund.

David A. Huestis, Historian

April Meeting Notes

Friday, April 3, 2009; Seagrave Observatory
 Nichole Mechnig

Meeting called to order by Glenn Jackson at 7:29pm

Steve Hubbard introduced the guest speaker, **Sara Seager from MIT**. Topic: Exoplanets and the Search for the Habitable Worlds • As of 2009 there are 350 of these known planets • Sara gave an overview of how we find these planets and determine their properties.



Telescope" • Skyscraper year in review on sale now available online

Star Party Bob Forgiel not present at this time • Tuesday April 4th Kuss Middle School Science Fair 6-8 pm Fall River • Friday April 17th @ Seagrave 8pm Scouts • Friday April 24th @ Seagrave 8pm scouts

Trustees: Tracey Haley: April 11th training on the Meade and Patton 7-8 pm • Work Session @ the end of the month • 16" Meade up and running • Budget for the 2009-2010 based on the 75% membership • Passed with 27 in favor of the budget • 5 not in favor of the budget

New Business: None

Good of the Organization:

Saturday April 4 100hrs of Astronomy Genius-Galileo 7:30pm • April 18th McAuliffe-Shepard Discovery Center • Concord NH (postponed) • Wednesday April 29th E-board Meeting cancelled • Saturday May 2nd Astronomy day w/ASSNE • Saturday June 6th Star-Conn Middletown CT • Saturday June 20 Skyscrapers @ Stellafane • Alan Bean Dinner to Support Stellafane TBA \$150.00 • Next Saturday April 11th the govern for the Clarke will be installed 12:00 noon • Imaging sign up for May and June • Messier Marathon 2009, East Beach, Charlestown RI, John Kocur with 85 objects Congratulations

Presidential Information: Dave Huestis and Lloyd Merrill are auditing the Skyscrapers financial books with Jim Crawford • Thank You to Dolores



Guest Speaker: Katherine Haley:

Different Apertures of Different Telescopes Affect the Magnitude of the Object Observed



Guest speaker: Mark Hartman:

Kids Capture their Universe web site is <http://epo.mit.edu>

Business Meeting called to order at 9:10pm

Secretary's Report for the Month of March accepted by the membership

Financial Report for the Month of March accepted by the membership

1st V.P. Steve Hubbard same as last month

2nd V.P. Kathy Siok nothing

Historian Dave Huestis 1 copy left of the 2nd printing of the 75th yearbook • Sold 125 total

Librarian Tom Barbish its open new edition to the library "400 Years of the

Election Results

65 ballots were cast

President

Bob Horton	40
Dolores Rinaldi	25

1st Vice President

Bob Napier	55
Jim Hendrickson	2
Bob Horton	1
Dan Lorraine	1
Kathy Siok	1

2nd Vice President

Steve Hubbard	62
Ted Ferneza	2

Secretary

Jim Crawford	64
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Treasurer

Lloyd Merrill	63
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Members at Large

Roger Forsythe	54
Thomas Thibault	58
Dave Huestis	1

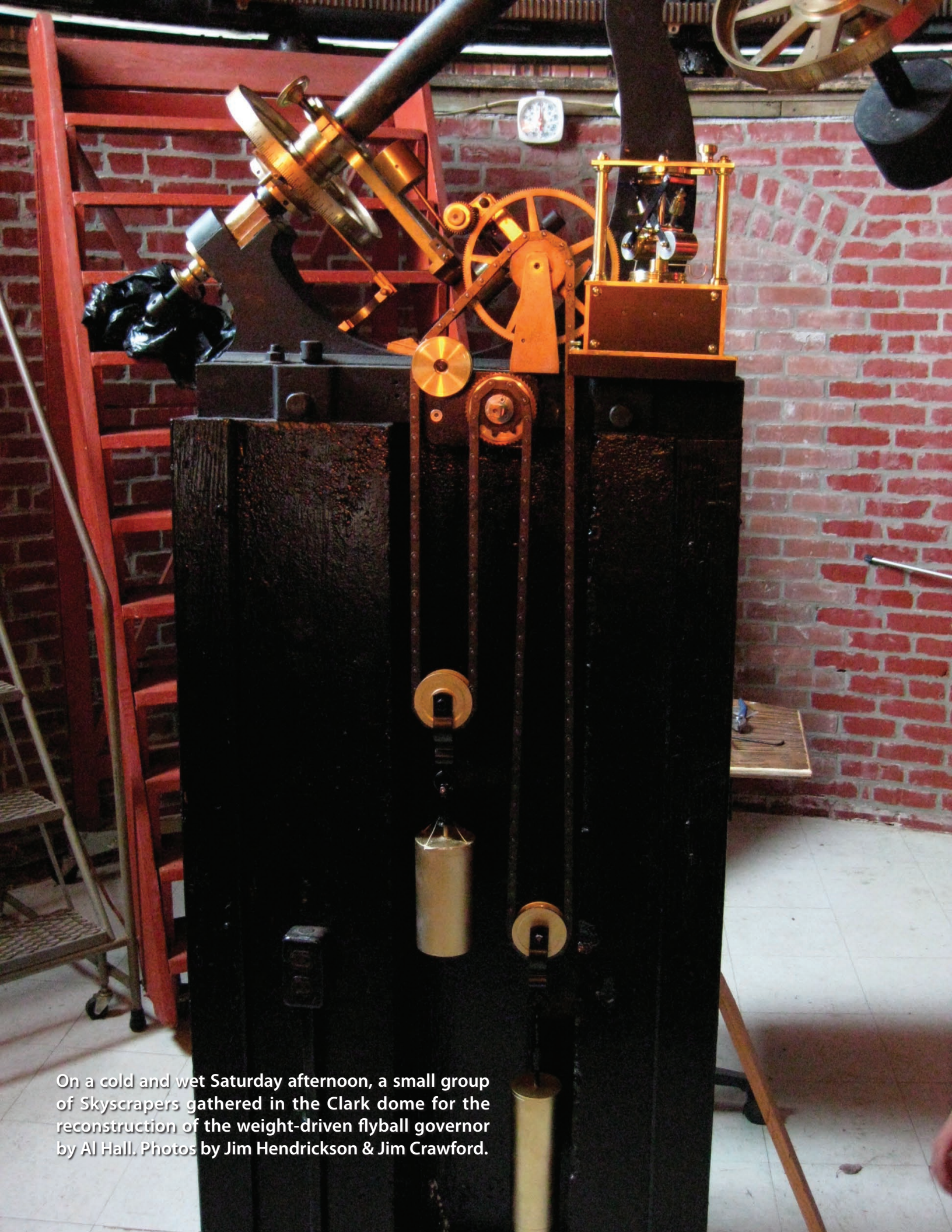
Trustee

Tom Barbish	60
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Rinaldi, Joe Sarandrea, Tony Tripodi and Jack Szelka and Jim Hendrickson for coming over the Skyscrapers meeting hall and cleaning in up before our return • Will need help with the clean up for these evening coffee pots, garbage bringing in the sign



Messier Marathon participants John Kocur, Feliks Reikhrud, Jim Hendrickson, Jack Szelka, Lloyd Merrill, Bruce Merrill.



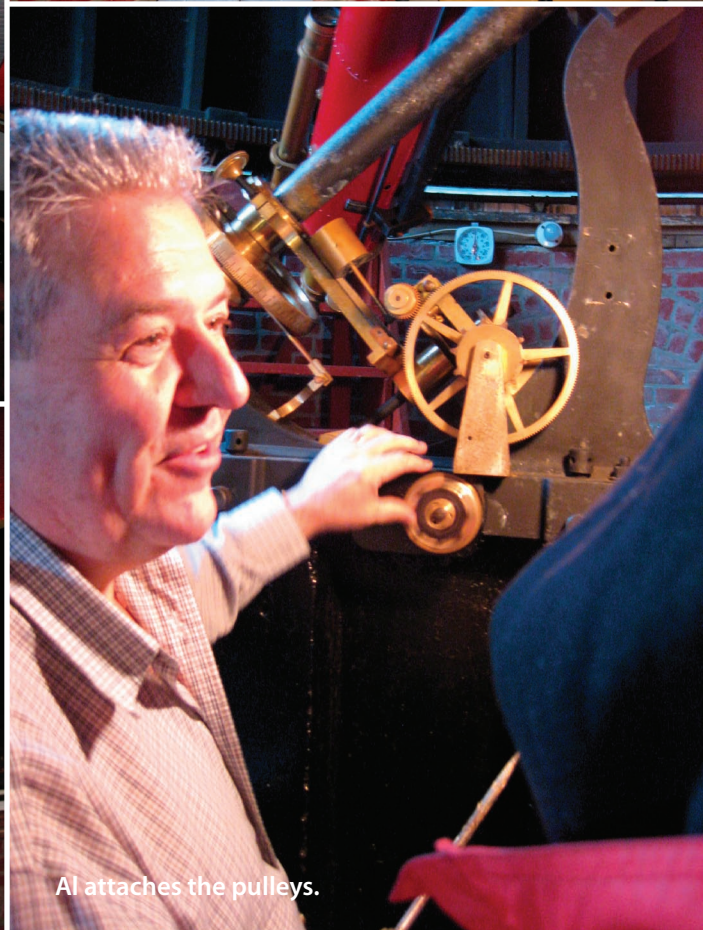
On a cold and wet Saturday afternoon, a small group of Skyscrapers gathered in the Clark dome for the reconstruction of the weight-driven flyball governor by Al Hall. Photos by Jim Hendrickson & Jim Crawford.



In attendance were (above) Al Hall, Jim Brenek, Bob Horton, Steve Siok, Jim Hendrickson, Dick Parker, (below), Ed Turco, Dave Huestis, and (right) Jim Crawford.



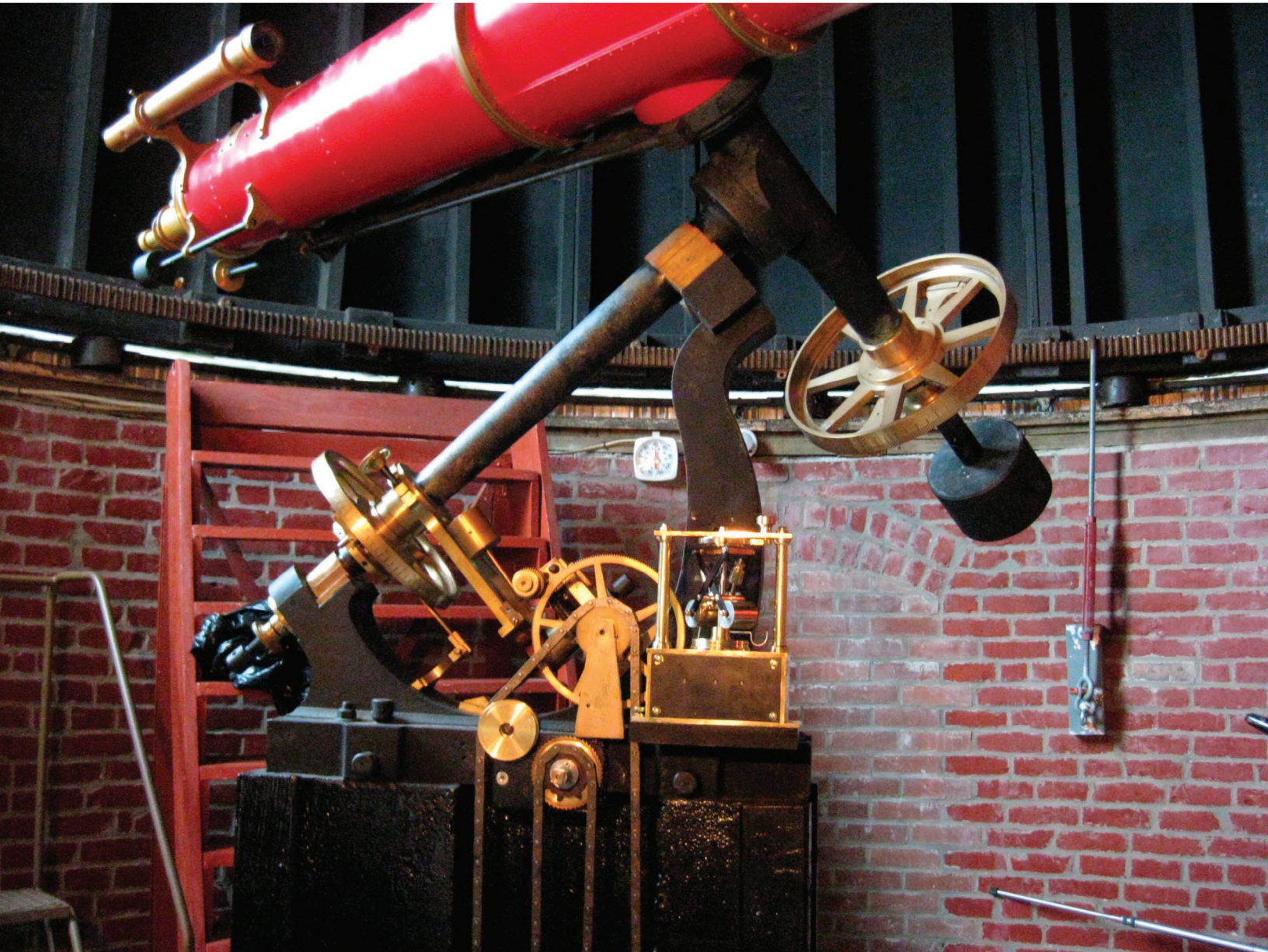
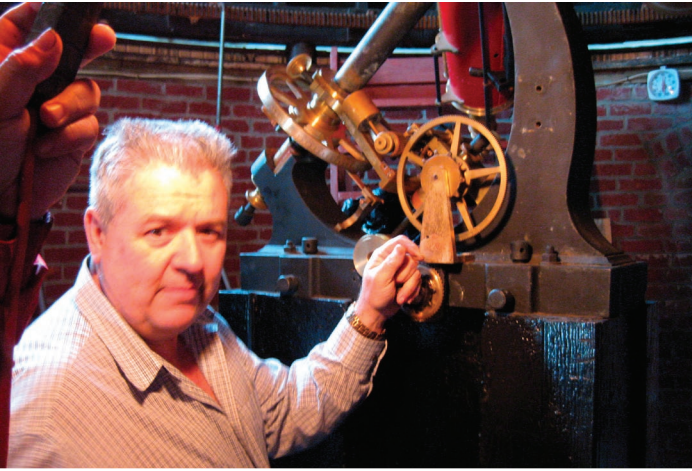
Jim Crawford records the event for posterity.



Al attaches the pulleys.



Al began by lubricating the right ascension shaft.





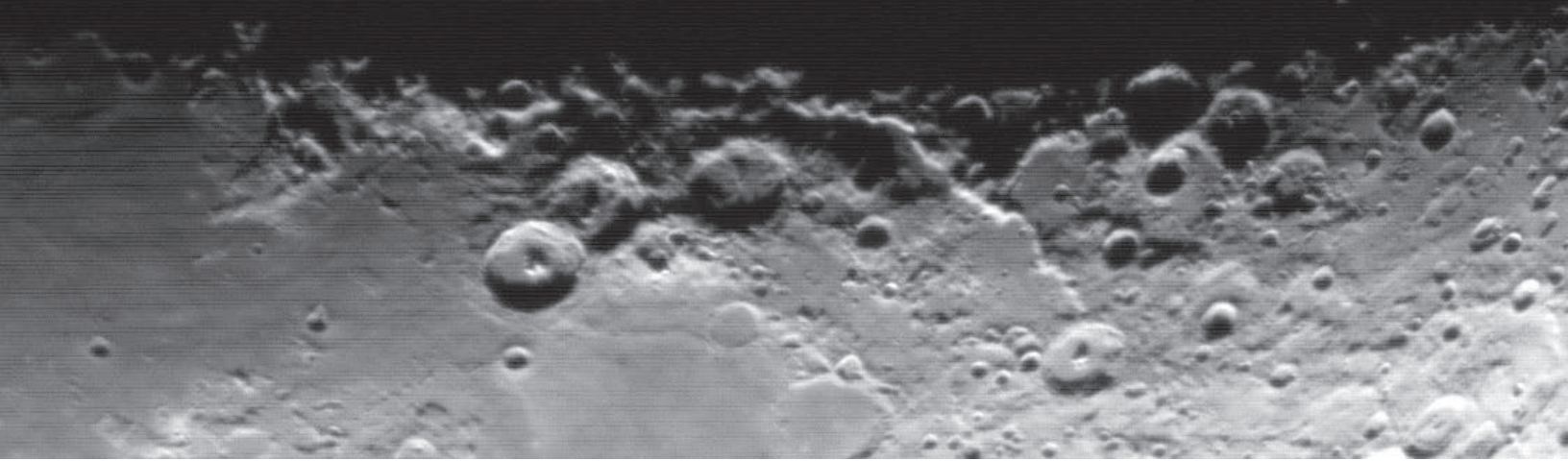
Ed examines the new flyball governor before Al installs it on the pier.



With the approval of the Trustees, Al appointed Ed as Steward of the Clark and presented him with one of the original pulleys.



Here's an image taken of the moon March 31 from Ladd Observatory using a 3.5" Questar. This is just a raw image, but it looks pretty darn nice.



Caldwell 58 / NGC3242 / Ghost of Jupiter March 31, 2009. Very short 2 second exposures so not to blow out any detail in this small target. Atmospheric conditions were not so favorable so the best 40 of 300 frames taken were stacked. Image taken with the 8" LX200 at f10. Camera was the DSI II color camera so all color channels are shot simultaneously. The Meade capture software calculates a synthetic luminescence layer from the RGB data. The Standard Meade software was used for the post process stacking and enlarged with the Drizzle function. The Fits Liberator plug-in was used to import the fits files into Photoshop CS4 for final processing of the LRGB layers. Photo by Bob Forgiel.



Airbus over the First Quarter Moon.
Dan Lorraine took this photo in early April.



From the Archives

For many years Skyscrapers members Don and Connie Reed were close companions to Professor and Mrs Smiley on many eclipse and atmospheric refraction expeditions, as well as trips to Central America to explore Mayan ruins.

In 1937 Don Reed was in charge of the fine optical work on the four-inch f/1 Schmidt camera that was fabricated by Skyscrapers members and used to image the zodiacal light at the June 8, 1937, total solar eclipse at Callan Pass in the Peruvian Andes.

Here Don Reed prepares to observe the transit of Mercury on May 9, 1970 using eyepiece projection.

At this time I have no information about when Don or his wife Connie passed away. Their contributions to science and their commitment to Skyscrapers was untiring.

Sky Object of the Month: May 2009 Mizar, the First Double Star

Glenn Chaple

It was my high school friend Ray Gerbi who introduced me to backyard astronomy. On a late summer evening in 1963 (yes, I am that old!), he plunked a Gilbert reflecting telescope on an open area in his back yard and proceeded to show me Saturn and a pair of fuzzy blobs of light (M13 and M31). But the highlight of the evening, an event that would give direction to my pursuits in amateur astronomy, came when Ray showed me the double star Mizar. I was totally mesmerized by the sight of two sparkling white stars shining side-by-side. For years afterward, double stars would be my favorite deep-sky objects.

The middle star in the handle of the Big Dipper, Mizar is the easiest double star for the novice to locate. It boasts historical importance as the first double star discovered. Until a few decades ago, credit for the discovery went to the Jesuit astronomer Jean Baptiste Riccioli, who reported the star's duplicity around 1650. But a recent investigation of Galileo's notebook reveals that a former student of his, Benedetto Castelli, saw Mizar several decades earlier.

If you study Mizar carefully with the unaided eye, you'll see a fainter star close by. This is Alcor, Mizar's 4th magnitude optical companion. The two appear at opposite sides of a low-power telescopic field. Look closely at Mizar. This 2nd magnitude star is attended by another 4th magnitude companion just 14 arc-seconds away. The pair lies about 80 light-years from Earth.

May brings us Astronomy Day and the opportunity to introduce backyard astronomy to the general public. If you decide to become involved in a public star party, be a Ray Gerbi and introduce your guests to Mizar. You might just inspire a future double star aficionado.

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



Mizar (right) and Alcor. North is up in this 1/4° field. Observation made with a 2-inch Gilbert reflecting telescope at 80x. An 8th magnitude field star at the bottom has an unusual name. Do you know what it is? (Answer next month)

Treasurer's Report

4/1/2008 through 4/20/2009

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-raffle	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	728.00
TOTAL Bookincome	1,178.00
Cookoutinc	405.00
Donation	590.60
Dues	
Contributing	135.00
Family	1,300.00
Junior	20.00
Regular	3,060.00
Senior	490.00
TOTAL Dues	5,005.00
Interest Inc	334.21
Magincome	
Astronomymaginc	442.00
Skytelmagincome	593.10
TOTAL Magincome	1,035.10
Magsales (Library)	10.80
Preservation Fund	10.00
Starparty	1,035.00
TOTAL INFLOWS	13,808.32

OUTFLOWS	
75th Yr T-Shirt Exp	572.56
Astroexp	
Astro food Fri-Sat	39.46
Astrocaters	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
Cash	0.00
Charity	25.00
Clarkproject	513.50
Collation	446.88
Cookoutexp	677.08
Corporationfee	20.00
Insurance	2,410.00
Membersubscriptions	
Astronomymagexp	510.00
Skytelexp	593.10
TOTAL membersubscriptions	1,103.10
Postage and Delivery	194.75
Presidents Fund	160.16
Printing and Reproduction	802.50
Trusteexp	1,844.19
Utilities: Electric	140.82
TOTAL OUTFLOWS	11,144.39

OVERALL TOTAL 2,663.93

Checking Acct Bal: 4,976.20
Capital One Bal: 16,180.88

Star Party Report

Bob Forgiel



Friday March 20th, 2009 @ 8:00 Girl Scouts Visit to Seagrave

The clouds persisted all day but did completely clear within 1/2 hour of their arrival. I arrived earlier to setup the binocular table, Night Sky Network table and setup with the CCD. We only had around 9 Girl Scouts and 4 adults show up but everything went well. The temperature was in the mid 20's, so everyone was done by around 9:30 and by 9:45 we started packing it up.



Saturday, March 21st @ 7:00 PM Cub Scout Presentation / Viewing @ 8:15 / Seagrave

I arrived early to setup and get the meeting hall ready but found Bob H and Bob N needed a hand lifting the 16" Meade back onto it mount. Bob N. tested it out later that evening so it should be back in operation for the next event and public nights.

The presentation started at 7:15 and seemed to be a fairly full house with probably just over 40 seats taken. Afterwards I discovered that several of them were people that had arrived early for public night and just joined in with the group. This was my first presentation but it went well

and several parents even commented on it. At around 8:15 we took it outside where I demonstrated how easy it was to setup and use the ETX80, pointed out how to find the North Star and let them try out the binoculars at the binocular table. Everyone then went into groups and rotated through the scopes. The temp was around 28 but they stuck it out until around 9:30.

Also on Saturday March 21st / Messier Marathon Ninigret Park



Wednesday, March 25th @ 8:00 Boy Scouts visit to Seagrave

The group was smaller than anticipated and was comprised of more parents and siblings than boy scouts. They stayed until after 9:30 and were well dispersed since we had so many viewing stations open. We again had the binocular table setup along with the M42 flyby video. John Kocur and Jim Hendrickson both had their scopes setup and Larry Isom had his but since we had as many scopes as people, he was better utilized for moral support at the different viewing stations. Nicole has also attended for moral support. I did a demonstration of the ETX80 and let everyone view Orion then let them compare it to the live CCD image. We used this to lead into why it doesn't look like the photos in the eyepiece.

We have held 4 successful outreach events during the month of April. As we go into May we have two joint Skyscraper & ASSNE events on the schedule. May 2nd is the ASSNE Astronomy Day in front of the Barrington Town Hall. On May 29th ASSNE and Skyscrapers are sponsoring an IYA 2009 outreach event for the Elmhurst Elementary School in Portsmouth. As far as this past month, here's a recap:

Tuesday, April 14th Kuss Middle School / Fall River MA. Family Science Night / 6:30-8:00, Inside event / night sky network toolkit "glass & mirrors"

The day was cloudy so it was an inside event. Since it would be just people passing through, our normal presentation programs would be too long and probably wouldn't fit well into this type of event. I selected several items from the Night Sky Network tool kits that I could use as quick demonstrations as people passed by. A basic refractor from the glass and mirrors kit and a few items from the shadows and silhouettes kit worked well as quick demos. One of the kits had a video of some NASA missions so we had it playing on a 42" plasma TV as an attention getter. It seemed to work as people gathered in chairs along the wall. I had brought a flatbed cart to help haul everything but stairs were everywhere so it was as helpful as a ball and chain. Glenn and myself hauled everything by hand, including the TV. After all that we only had around 20 students and maybe 10 teachers attend their science night. It was difficult to get a good count since I kept seeing the same people coming through. Even though we had more material than needed, all in all everything went well.



Friday, April 17th scouts and parents visiting Seagrave for the Cub Scout program

They had been trying since Sept 12th 2008 / had 3 rainy nights and then into winter conditions at Seagrave. The night started at 7:15 with the scout presentation that ran until around 8:15. There were some dark clouds that came in but had dissipated before dark. Between scouts, parents and siblings, we had around 40 people visit. Dave had come down with a cold and regrettably couldn't attend so Bob H. took the Clark. For each person on the list of volunteers, I had set out new name badges that identify them as an active outreach member. The intent is for us to look more profes-

sional and to be better identified as society members at the various events.

**Friday, April 24th / sunset at 7:37
Scouts Pack 39 from Coventry visiting Seagrave
Scout Program / presentation 7:15 – 8:15 /
viewing from 8:15 on**

We had a total of around 15 scouts accompanied by around a dozen adults that visited Seagrave for the Cub Scout program. The night was clear with temps in the low 50's. We only had the Clark open and Jim H. setup his scope out back. I covered some of the Night Sky Network material such as the glass and mirrors tool kit.

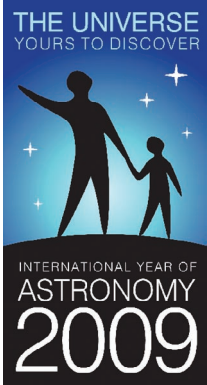
Saturday, April 25th / Metcalf students visiting Seagrave / Donna Gaumond's class

We had all our scopes open along with a number of additional scopes. We also had several additional members show up to help out. Assuming I didn't miss anyone, I think we actually had a total of 16 members in attendance. There was some wind and gusting wind before sunset but it settled down. We had a total of around 50 people attend and then the clouds did start to move in around 9:30. On a side note, the light pollution toward the SSE sky seems a little stronger during the past several events.





47 Peeptoad Road
North Scituate, RI 02857



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.