



Capitol Skies

The Newsletter of the Madison Astronomical Society

Moon Over Monona Terrace! Friday, October 19th



A really great MAS event is again at hand. Moon Over Monona Terrace is our largest community outreach effort, bringing the public an evening of lunar observing and a fun time for young and old alike. This is a very important undertaking for MAS. It is extremely important that as many MAS members as possible participate on Friday, October 19th or on the evening of Saturday, October 20th as an alternative weather date. It is our largest public effort to perform one of our fundamental required roles - to make astronomy available to everyone and to encourage active participation. Activities such as this are essential to maintaining our all-important tax-free organizational status. Moon Over Monona Terrace presents a cordial invitation to people of all ages to join us on the Evjue Rooftop Gardens of the Monona Terrace Community and Convention Center to "peek into" the world of astronomy and to have a good time viewing the fascinating and detailed landscape of our Moon.

Turnout for past Moon Over Monona Terrace events has been wonderful.

Monona

Terrace

Community and

Convention Center is

very pleased to host this event and they look forward to Moon Over Monona Terrace each year. Monona Terrace promotes the event themselves, in their own brochures and in the newspapers. In addition, MAS posts announcements in the public libraries, schools, and on public bulletin boards. So, it is critical that many MAS members participate to make sure that the event will live up to everyone's expectations. All types of viewing apparatus - binoculars, refractors, Newtonians, Schmidts, Dobsonians, eyepiece or video - any device that might be used to view the moon will be useful to show people that real participation in astronomy can be at any level and in varying ways. Members not bringing equipment will be needed as well to answer questions, take care of hand-out material and generally assist. This will be a happy, enjoyable outing in one of Madison's most spectacular settings, talking with a curious and enthusiastic public about our passion - astronomy.

We can start setting up as early as 5:30 PM.



Members bringing equipment may use the loading dock located on the northeast end of the Convention Center. The drive-up entrance to the loading dock is at the traffic lights on John Nolan Drive just to the northeast of the Monona Terrace parking ramp tunnel. When turning off John Nolan Drive at the traffic light intersection make an immediate hard right turn. The dock will be in plain sight. Members may use the large cargo carts in the dock area to transport their equipment to the rooftop by way of the service elevator which is also located right in the dock area.

The event has been promoted to begin at 7:00 PM and members of the public usually begin to arrive right on time. A brief lecture about the Moon

will be available to the public at 7:30 PM in the Monona Terrace auditorium. The talk will be given by U.W. Space Place Director and MAS member Jim Lattis. The announced concluding time for Moon Over Monona Terrace is 9:30 PM. The last stragglers should be packed and gone by 10:00 PM. The concession stand will be open.

If Monona Terrace has no other traffic for the loading dock that evening (fairly likely) members bringing equipment will probably be allowed to park in the loading dock area in an orderly fashion. If not, equipment will have to be delivered and vehicles will have to be parked elsewhere until departure. Paid parking is available in the Monona

Terrace lot or on the streets or in the public ramp a block away.

If weather is inclement a mutual go/no-go decision will be made at 4:00 PM by MAS and Monona Terrace Community and Convention Center. The weather decision can be checked by calling the Monona Terrace events number 261-4042, Jeff Shokler at 301-0191, or Tim Ellestad at 233-3305. Should the event be canceled due to clouds or high winds (The Monona Terrace rooftop can get really, really windy). The following evening, Saturday October 20th, has been announced as the weather date. The same weather announcement procedure will be used.

Everyone come to Moon Over Monona Terrace! It's a really enjoyable event!

From the President's Desktop

By Jeff Shokler

October is our big month as MAS moves toward holding our annual Moon Over Monona Terrace event on Friday, October 19th (rain date Saturday, October 20th). The event itself is scheduled to run from about 7:30pm to 9:30 pm. If you bring equipment you can begin setting up around 6:00 pm – it looks like those bringing equipment can once again park at the Monona Terrace loading dock and use the carts to move your gear up to the roof.

I would like to ask all of you to consider joining us for the MOMT event this year, to set up your equipment, and to share your knowledge, experience, and passion about amateur astronomy with the public. Any and all equipment is welcome (binoculars, telescopes, etc.!) In the past I have seen over 30 instruments of all varieties, apertures, and capabilities arrayed at Monona Terrace. Wynn Wacker has graciously agreed to MC the event again this year

(...or did we railroad him? I can't quite recall...). Many of you probably remember that this event often draws hundreds of people to Monona Terrace's rooftop to experience, often for the first time, many astronomical wonders through the good efforts of our society's members.

Jim Lattis asked that I remind everyone that the Space Place will hold its annual binocular and telescope fair on October 23 (the Tuesday following Moon Over Monona Terrace). The event will run from about 6:30-7:00 pm to around 9:00 pm. MAS members are encouraged to join Jim for this event – consider bringing your equipment so that interested members of the public can learn about the variety of options available to begin enjoying amateur astronomy! Please let Jim know if you can attend.

John Rummel also asked that you mark your calendars on Wednesday, February 20th, for another opportunity

for MAS members to participate in a public event. That evening a full lunar eclipse will occur with a short totality lasting from 9:01 to 9:51 pm. The night of February 20th coincides with a public program at the Memorial High School Planetarium. John encourages MAS members to come out that evening to set up along the sidewalk at Gammon Road just west of Memorial. At least at this event, if the weather is bad we can all enjoy the show in the planetarium!! It is likely that the Space Place will also hold a public viewing event in conjunction with the eclipse that evening, so it would be terrific if MAS members could participate in the events at both locations.

All of these events represent wonderful opportunities for us to forward the educational mission of our society and to share our knowledge and passion about all things astronomical with other members of our community. Join us for the fun!

I also want to let you all know about an interesting museum exhibition that might be of interest. The Villa Terrace Decorative Arts Museum in Milwaukee

has an exhibition running September 12 – November 11, 2007 entitled “*Celestial Images: Antiquarian Astronomical Charts and Maps from the Mendillo*

Collection.” Three very interesting lectures are planned in conjunction with the exhibition. Details can be found at www.cavtmuseums.org.

“The Good, The Bad, and The Ugly;” there’s more to it than just spaghetti! The Hubble Wars, Eric J. Chaisson, 1994. Book Review (continued)

by Don Martin

The Hubble Wars is an in-depth account from a dual perspective of the projects physical and human components, but it is Chaisson’s detailed treatment of their juxtaposition on a day-by-day basis that marks the book’s major contribution, not only to the Hubble project, but equally relevant is its contribution as a microcosm of the contentious and litigious direction our national culture has been plummeting down the past 25 years.

And it is this contentiousness of the human component rather than the physical component that marks the crux of Hubble’s problems, like the main mirror’s spherical aberration, because it was the human side that gave birth to the spherical aberration as well as the multifarious problems HST faced those first four calamitous years; problems, seemingly, and seamy, in far too many instances that came from nothing conceivably based on intelligence or maturity, but instead, created out of some vacuous and/or unrealistic expectations and attitudes displayed by far too many Hubble players: Displays that bordered on – and at times tragically crossed the border of – acceptable norms of behavior under any circumstance (at least norms defined by and based upon sane, mature and reasoned thought); instead, through some of the most egregious and unacceptable examples of arrogant and egotistic attitudes and actions, of unfounded jealousy towards competitors, of unbelievable attitudes and actions of some players based on

paranoia that lead them to value their personal image or their agency’s status at the expense of, or even the success of the Hubble project.

These incidents were so common, approached the heights of absurdity while reached the pinnacle of unethical (even immoral) behavior, that they created “The Ugly” side of Hubble, and in the process, leaving reasoned individuals with a sense of disgust. In fact, these incidents were far too extreme to be smoothed over through Pollyanna excuses like, “They were just overzealous individuals who were fervently committed to their profession or the success of Hubble.” or “They were just too uptight and we should just look the other way.”

So if we look at the Hubble project from an holistic context, that is, the technical complexity and concomitant risk factors involved on the physical side, we must see it is intimately and inexorably mated to the human side, which was, from day one, the sole source of Hubble’s myriad problems, and don’t let myopia cloud the issue surrounding Hubble’s problems by insisting they were strictly physical issues, divorced from the human side, otherwise you are, in essence, seeing only the tip of the iceberg, and a mirage ice berg at that, because Hubble’s main mirror was delivered to NASA with its spherical aberration in place, it certainly didn’t metamorphose from the figure specified in the contract with the manufacturer during the high g-forces exerted on it during the launch of

STS-31. No! the aberration was due solely to *human incompetence*.

But it is, thankfully, the human side that possesses the ability to conceive what the physical side can never do: The creative insights and imaginative solutions to Hubble’s problems, and so the human side also gives us “The Good” side of HST.

The wealth of information and examples of the incidents surrounding HST that Chaisson provides concerning the juxtaposition between the physical and human components delineates the first class science that STI wrung out of the crippled telescope, details the interplay between the numerous problems HST faced and attempts by Hubble participants to correct or overcome them, and most importantly, it portrays the interactions between the enormous cast of players in the Hubble wars; positive actions for and negative actions against Hubble’s success.

Tragically, “The Good” is swamped by “The Bad” and “The Ugly” incidents. Thus the balance, from conception of HST to the repair mission in 1994, tilts *heavily* towards the negative side of the scale, and to such an extent it left this reader dismayed and shocked at the behavior of some, but also amazed at the ingenuity and efforts that made Hubble work as well as it did; I guess it was sort of a David vs. Goliath confrontation.

Ergo: “The Good, The Bad and The Ugly” scenario surrounding the Hubble Space Telescope.

After reading *The Hubble Wars* my sense of incredulity soon gave way and my emotions swiftly ran the full gamut of those possible in the human species and left me: discouraged, frustrated, angry, outraged; baffled, questioning the intelligence of some, the true motivations of others, the arrogance of a few; and exultation at the outstanding performances and

professionalism of others, especially the Space Shuttle crews, of the scientist who diagnosed the main mirrors spherical aberration, and doggedly pursued it through NASA’s labyrinth of bureaucracy designed to protect itself from any hint of wrong doing, or to those who went beyond any reasonable expectation of their obligations in designing the corrective optics for Hubble’s spherical aberration.

But how could the Hubble project be so out of control, especially since real science was being tweaked out of it? The best way is through some examples of the incidents and the individuals involved in them in terms of one or another of the various groups that made up the Hubble project.

But space limitations loom and those examples will have to wait for the next MAS Newsletter.

The Social Side of MAS

by Jane Breun

Did you know that in the By-Laws of the MAS, under the heading of Committees, there is a Program and Social Committee? This committee is charged with the task of arranging for speakers and other programs at meetings of the Society and arranging the location of Society gatherings such as the December holiday party, the spring banquet and the June picnic.

Last spring we had no banquet, because we were unable to find a restaurant that offered a reasonably priced banquet menu. We are looking at the possibility of having a catered banquet at Space Place this coming spring.

The holiday party seems to be losing its appeal, with declining attendance each year. We are

considering changing the December meeting to a regular meeting, with a speaker, if possible.

Both of these possible changes will be discussed at the October meeting. If you have an opinion about these social activities of the Society, please attend the October meeting and let everyone know what you think we should do.

Calendar of Events

Oct 12, 2007	MAS monthly meeting, 7:30 pm, Ellen Zweibel from the UW Astronomy Department will speak on “Magnetic Fields and Cosmic Rays: Invisible Mysteries.” Space Place, 2300 S. Park Street.
Oct 17, 2007	MMSD Planetarium Public Programs, 6:30 and 7:45 pm (programs are one hour): <u>Skywatching</u> , Explore the current night sky in the planetarium, learning how to identify constellations, planets, and interesting telescope and binocular targets so that you will be able to find them in the real sky. Tickets: \$2. No reservations. Tickets go on sale starting at 6:00 PM. Some shows do sell out. Memorial High School, corner of Gammon and Mineral Point.
Nov 9, 2007	MAS monthly meeting, 7:30 pm, Phil Jackson of Photonic Cleaning Technologies will speak about and demonstrate his telescope cleaning system. Space Place, 2300 S. Park Street.
Nov 21, 2007	MMSD Planetarium Public Programs, 6:30 and 7:45 (programs are one hour): <u>Thank Your Lucky Stars</u> , We have so much to be thankful for in the area of astronomy! Our understanding of the universe we live in has evolved throughout history, and exploded in the past few decades. Join us for this special program in which we celebrate and appreciate the contributions of ancient & modern astronomers, astronauts, technology advances, and more! We’ll explore this subject in the context of the current night sky so that you’ll also have some remarkable targets to go out and look for. Tickets: \$2. No reservations. Tickets go on sale starting at 6:00 PM. Some shows do sell out. Memorial High School, corner of Gammon and Mineral Point.

Sic Itur Ad Astra – A Class Visit to YRS

by Wynn Wacker

The sun just dipped below the horizon as I pulled into the parking lot at the Madison Astronomical Society's Yanna Research Station on a rare clear mid-April evening. As I walked up the hill I felt the evening chill setting in after a warm day and regretted only bringing a sweatshirt to ward it off. The occasion was an evening of astronomy for some students and parents from Wingra Middle School. I confess to a certain affection toward this school, since it occupies the building of the former Dudgeon school which I attended through the 6th grade. By purchasing the building from the city, Wingra prevented the building from being torn down replaced with more eyesore condominiums.

I was soon joined by Don Martin, and we discussed possible telescope targets while waiting for Tim and Mary Ellestad and the students to arrive. A thin crescent Moon provided an easy early target. Several early-birds showed up and started exploring the grounds. The kids seemed more intrigued by the "climbing tree" by the clubhouse than by any of the buildings or gear. After determining they were under close adult supervision, I let them burn off some excess energy on the lowest branches.

Soon the main contingent arrived simultaneously with Tim and Mary. I didn't count but it looked to be about 15 kids and 5 or 6 adults, a good ratio for supervision. While we turned the Doc G on the Moon and waited for night to descend, the kids climbed the tree and chased each other around the grounds. One mom brought along a small computerized scope and asked if I could help figure

out how to use it. Unfortunately, she hadn't brought the manual and I'm not a whiz with computer controls. I did explain how to physically set it up, align the finder, and calculate magnification, and eventually worked out the sequence to increase the slew rate (which appeared to be one thing they were struggling with). The finder wasn't aligned, so I aimed the scope for the Moon, explaining that the glare allows you to find a near miss. The twilight sky and strong Earthshine gave that beautiful 3D effect to the crescent Moon. The boy who owned the scope was very enthused, and soon his classmates were lined up to admire the view.

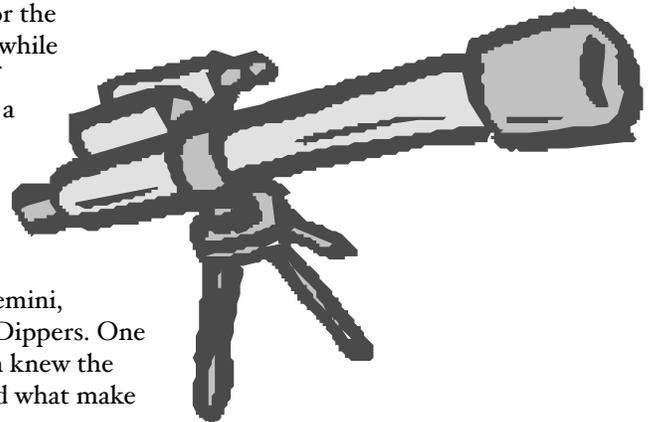
It was now time to start the show. I talked a little about types of telescopes and pointed out Venus and Saturn, explaining that Venus was much like Earth originally, but fell victim to a runaway greenhouse effect. Pointing out some of the first magnitude stars – Rigel, Betelgeuse, Regulus, Capella, I talked about star color and a little about stellar evolution. I started explaining the spectral classification system when I realized that my audience consisted of one impatient mother as everyone else lined up at the scopes. I thought my part was done for the evening, but after a while at the scopes one of the adults asked for a tour of the constellations. Soon, a group was gathered around as I pointed out Leo, Gemini, Casseopia, and the Dippers. One of the students even knew the answer when I asked what make

of car has the Pleiades for an emblem (Suburu). Then, it was time to leave. As our guests departed, with good-nights and thank-you's, one woman said that she wished we could come along on an upcoming camping trip to Devil's Lake for more star lore. With the feeling of satisfaction that comes from showing the glories of the sky to novices, I took one last look at setting Orion and recalled the verses from Tennyson's Locksley Hall:

*Many a night from yonder ivied
Casement 'ere I took my rest,
Did I look on great Orion sloping
Gently to the West.*

*Many night I saw the Pleads, rising
Thro' the mellow shade,
Glitter like a swarm of fire-flies
Tangled in a silver braid.*

P.S. – You don't have to wait for a school group to schedule a trip to YRS to share the wonders of the heavens with enthusiastic young people and adults. Bring your favorite optics, or even just yourself, to the Moon Over Monona Terrace on October 19.



The lunar eclipse of 8/28/07

by John Rummel

The August lunar eclipse provided me with an opportunity for what was my most planned astrophoto ever.

Since the eclipsed moon would set from Madison while the total phase was still in progress, I made it my goal several months ago to incorporate the Madison skyline into my shot. This meant calculating where I had to be to catch the moon setting in close proximity to the dome. Since I had shot previous moon rises and moon sets extensively, I had a lot of practice, and had only to look up the exact position of the moon on the morning of August 28, and to record the position in azimuth when the moon was about 1 degree in altitude (the approximate elevation of the dome. With this info in hand, courtesy of *Starry Night Pro*, I acquired a google map of the area, and put a protractor to use. After measuring some angles, I drew a line leading away from the capitol dome, eastward across the lake. Where that line intersected the shoreline of Lake Monona was my shooting location (an apartment complex with a nice lakeshore).

Once I had the location picked out, I decided that rather than going for a very tight shot of the moon and the dome, as I had often shot before, I wanted to do something a little more artistic. I had seen several mosaics like this before so I decided to try it myself. I calculated where the moon would be as the penumbral phase began (about 3 am local) and, after carefully calculating the moon's altitude at that time, and its azimuth at setting, chose my Tokina lens, which at about 20mm, should easily encompass both the moon and the skyline, and hopefully make for a pleasing composition without too much distortion.

I arrived on site at about 2:20 am, and had plenty of time to set up and take a few test shots. Set up mainly involved carefully leveling the tripod and composing the shot so that the moon was correctly located in the upper left and the capitol skyline in the lower right. I began my exposures precisely at 3:00 am. I had previously decided to do one exposure every 4 minutes. The only real challenge was deciding what shutter speeds to use, since the illumination levels of the full moon vs. the partially eclipsed moon vs. the totally eclipsed moon vary by many magnitudes. I had read a few web sites with recommendations on exposure, and, with



my own test shots during setup, had a pretty good idea how to proceed. I purposely overexposed the first shot to give a blooming anchor for the eye in the upper left hand of the photo. I then switched to $1/15$ th of a second until the moon was nearly in full eclipse, and lengthened the exposure to $1/5$ th, then 1, then eventually 4 seconds. I had to boost the ISO and bump it up to 6 seconds because the moon became almost impossible to see as it entered the hazy muck at lower altitudes. The later shots, as dawn grew closer, gave me the blue twilight sky. The encroaching dawn and thickening haze eventually spelled the premature end of my sequence, well before the moon reached the region of the capitol dome.

I packed it up and headed home for a 2 hour nap, then fired up photoshop to see what my efforts had produced.

I had over 45 images to work with. I selected one of the dawnish shots with a deep blue sky to use as my background, and then copied all of my moon exposures into the Photoshop PSD file in separate layers. I carefully cropped each image, leaving only the moon and a bit of surrounding sky, and then played with blending modes to create a seamless blend between the lunar disk and the blue background sky (most of the moon shots were when the sky

was darker so their cropped images had black backgrounds). Luckily, Photoshop's blending modes were perfectly suited to this task and I was able to integrate all the images with no unseemly (and time consuming) touchups.

Once the final was fully assembled, I could see that I had a nice shot on my hands. I was amazed at how easily and quickly it came together. My preparation and planning had paid off handsomely! The final image was put through the normal post production enhancements, curves, levels, NEAT, etc. and then cropped slightly to produce the composition seen at left. One thing I want to emphasize is that for all of my photoshop manipulation of multiple images, this composite retains full photographic integrity. It is a true time-lapse image, with nothing created that was not a real event that morning.

Alas, for all my going on and on, the image is imperfect. My biggest gripe is that I didn't experiment with shorter shutter speeds for the initial shots, which would have given me detail on the lunar disk, rather than a white circle. The lens distortion pulled the first few moon images into ovals. The hazy conditions prevented me from capturing the eclipsed moon all the way to the horizon. Plus a few more nits not worth picking here - I like the shot. No, I love the result and am very happy with its visual impact. I'm very happy with the result and am proud to place this among my favorite photographic accomplishments!

To see the image in all its full color glory, go to

<http://www.pbase.com/strangeghost/astronomy>

For Sale

Duplex Questar with Quartz Mirror, Star Diagonal Prism, with 3.5- inch sun filter, two lens 40x08 and 80x160x, Leather Carrying Case, legs. I have all manuals, invoice (bought in 1968). Asking \$2,000.

Contact Linda at 233-9284.



For Sale

Like new, excellent condition, Meade ETX-125, Maksutov-Cassegrain UHTC Telescope w/ Hardcase.. 8X25 Right-Angle Viewfinder, 45 degree Erect-image Roof Prism, 26mm-LP Super Plossl eyepiece. Motorized Dual Axis Drive, Deluxe Field Tripod w/ carrying case. Full Auto-tracking Mount, and Autostar Controller. Full documentation, set-up and instruction manuals. Asking \$900.00 or Best Offer.

Contact Harold at 608-523-4354 or hjpydor@gmail.com.



Notes From Your Treasurer

by Mary Ellestad

MAS would like to extend a big Thank You to members Martin Barrett and Bill Jollie through the Elizabeth Brinn Foundation for their recent donations to the Madison Astronomical Society. We truly appreciate your generosity and will be discussing how to best utilize these donations at an upcoming meeting. Thanks also to John Rummel for donating one of our two new picnic tables at YRS. Sitting down just won't be as exciting as it was on the old one!

You may have noticed that I was about two weeks later than usual in mailing your annual MAS dues and subscription renewal statements. This might have worked out OK because I did get a lot of payments at the September meeting and will probably have at least half in by the time you read this. As always, I really appreciate this because I need to prepare the MAS budget and send in the Astronomy and Sky & Tel subscriptions in October. Reminder - just ignore any renewal notices that you get from them - they know that all our renewals are sent in together. If you haven't paid yet, I'm asking that you please help me out and drop your renewal in the mail soon - especially if you have subscriptions.

