



Capitol Skies

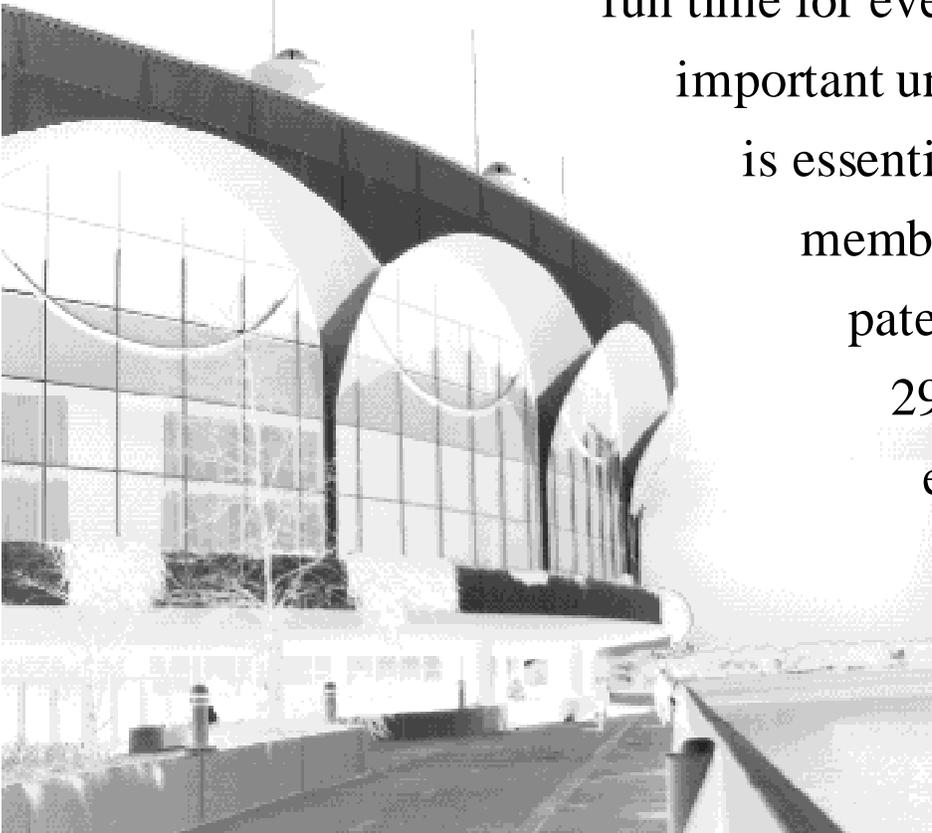
The Newsletter of the Madison Astronomical Society September/October 2006

Moon over Monona Terrace: September 29 (30) ***MAS' favorite public event set for this month***

by Tim Ellestad

A

really great MAS event is again at hand. Moon Over Monona Terrace has become our premier community outreach effort, offering the public an evening of lunar observing and a truly fun time for everyone. This is a very important undertaking for MAS. It is essential that as many MAS members as possible participate on Friday, September 29th and reserve the evening of Saturday, September 30th as a weather alternative.



Continued on page 2

From the President's Desktop

by Jeff Shokler

Fifty hours of driving for just five hours of observing time gives one a remarkable opportunity for reflection. My trip to New Mexico Skies with John Rummel (MAS member) and two other intrepid adventurers provided me with just such an opportunity. I used it, in some ways, to reinforce my interest in and dedication to amateur astronomy. I had the chance to think about why I enjoy astronomy, what about it speaks to me, and about how my deep curiosity about the universe and how it works is fed by exploring the

skies. You have to be dedicated to, not to mention at least a little passionate about, something to consider driving 50 hours and rolling the dice on the weather for the chance to observe under clear, dark skies at 7,600 feet elevation don't you?

I bring up these thoughts about reflection, passion, dedication, and commitment to amateur astronomy with an ulterior motive. I want to take this opportunity to acknowledge and to thank the immediate, past President of our society, Neil Robinson, for his three years of dedication to and leadership of



our organization as well as for his inspiring passion for amateur astronomy.

Continued on page 3

Moon over Monona Terrace, cont.

Moon over Monona is our main opportunity to fulfill one of our fundamental declared purposes - to make astronomy available to the public and to encourage them to take an active involvement. Functions such as this are crucial to sustaining the critical tax-free status that MAS enjoys. Moon Over Monona Terrace is an open invitation to folks of all ages to join us on the Evjue Rooftop Gardens of the Monona Terrace Community and Convention Center to indulge their curiosity and to have an enjoyable time discovering the details of the Moon.

Public response to previous Monona Terrace events has been terrific. Like us, Monona Terrace Community and Convention Center appreciates the public response to the event as well and looks forward to Moon Over Monona Terrace each year. Monona Terrace promotes the event extensively themselves, both directly and through their press releases. In addition, MAS posts announcements in the public libraries, schools, and on public bulletin boards. So, it is absolutely essential that many MAS members participate to make sure that the event will live up to everyone's expectations. All variety of instruments - binoculars, refractors, Newtonians, Schmidts, Dobsonians - any optical device that might be used to view the moon will be needed to show people that real participa-

tion in astronomy can be at any level. Members not bringing equipment will be needed as well to answer questions, take care of hand-out material and generally assist. In the past, Moon Over Monona Terrace has been a happy, enjoyable outing in one of Madison's most spectacular settings. This year should be the same.

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 via 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. If this is the case, the MAS has authorized a \$2 dollar parking stipend be given to each member bringing equipment. 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 go/no-go decision will be made at 4:00 PM by MAS President Jeff Shokler. 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 September 30th, 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 wonderful time!

I remember a number of Moon Over Monona Terrace events where Neil and I were set up next to each other. His patience, his knowledge, and his passion for astronomy always shone through as he spoke with the public and as he represented our society with the utmost integrity. Thank you Neil, for working hard on behalf of MAS, and thanks, too, for staying on and continuing to serve the society as an At-Large Board Member. I'm not even going to try to fill your shoes, so I'll just buy a new pair and hope to tread a respectable path in your footsteps.

With the summer ending and fall approaching conditions for observing out at YRS will be getting better and better by the day. We have brought back the tradition of having monthly star parties out at YRS. Keep an eye out for e-mails announcing the dates (and weather dates) each month. We hope to see many of you out there! The new roof is on the clubhouse, the lawn is getting mowed through the good industry of our newest member, Carson Yanna, the C11 housing is nearly complete (with the mounting of the C11 on its pier soon to follow), and we are again looking forward to Moon Over Monona Terrace this year on September 29 (Sept. 30 is the weather date). With all of this great activity, I look forward to seeing you at upcoming meetings, at YRS star parties, and at our wonderful Moon Over Monona Terrace event! Clear skies!

Notes From Your Treasurer

by Mary Ellestad

MAS has a number of new members who joined between June and now. We're happy to welcome Phillip & Susan Krejci, Kevin Huddleston, Kevin Much, Alex Ippolito, Carson Yanna and returning member Matt Mills. Notes of interest - Kevin Much just did a fine job putting the new roof on the YRS clubhouse and Carson Yanna (LeRoy's

Book Review: *Walking Zero: Discovering Cosmic Space and Time along the Prime Meridian* by Chet Raymo

by John Rummel

Raymo is the author of about a dozen books, many of which are favorites of mine and have a permanent place on my shelves. When I saw the title of his latest (reviewed here) I knew I had to get it.

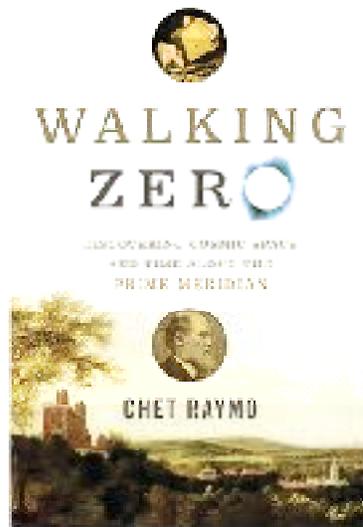
Raymo is mostly an essayist, and as with any good essayist, he can find a compelling story among the most innocuous of topics. This book is an excellent series of essays on the history of science (not just astronomy), the history and culture of England, geography, geology, anthropology, and cosmology.

The unifying theme of the book is Raymo's walking journey along the line of 0 degrees longitude as it passes through England. The line passes conveniently close to Piltdown (and an excuse to write of early man, scientific integrity), Downe (Charles Darwin, evolution), Cambridge (Isaac Newton), and of course, the Royal Observatory at Green-

wich. He gives extensive treatment to the definition of the prime meridian and the historical problem of determining longitude. His treatment of this rich chapter of the history of science is a pleasure to read for both novice and seasoned expert in the area.

An excerpt, from page 19:

For my walk, I have equipped myself with maps of the British Ordnance Survey, the national mapping agency, folded sheets from the Explorer series designed for walkers, equestrians, and cyclists. Each sheet covers an area of about ten by twenty miles. I have acquired a dozen maps to guide me across southeastern England; they cover the countryside on both sides of the meridian. To celebrate the millennium in the year 2000, the Ordnance Survey issued maps that show the prime meridian as a thick green line, and this will be my



Continued on page 6

grandson) will be doing the mowing for the rest of this year and hopefully next year too. If you are an observing member and have not received YRS orientation, please call Tim Ellestad at 233-3305 and he will set that up with you.

You recently received your annual MAS dues and subscription renewal statements. You were all so quick returning them last year that I can only hope that this year will be the same. I

really appreciate this because it helps me pull everything together for preparing the MAS budget and getting all the subscriptions sent in by the end of October. As always, if you've been getting Astronomy and Sky & Tel renewal notices, just ignore them. They must like to waste postage because they know that all of our club renewals are sent in at the same time.

same celestial latitude, or in the vernacular of Puluwatan navigators, "Travel the same road" and so can be used to steer a course, substituting for Star Compass stars when unavailable.

Two additional points are important in understanding Puluwat celestial navigation. First, sailing directions predominantly lie on an east-west axis, and second, except for Polaris, all stars and constellations do double duty, acting as bearing points along the arc of the horizon during both their rising and setting, in fact, the Southern Cross is employed at five points. So on a clear night the sky becomes a towering compass and various headings can be picked out by familiar stars as they rise and set along the horizon.

Around the Star Compass

Altair

Altair, the most important bearing star for navigation, rises and sets 7 degrees north of the equator, but this is not an issue since from Puluwat (6 degrees N) Altair always bears in a true east to west line.

For Puluwat navigators the arc of navigational stars begins due east with the rising of Altair and ends almost 360 degrees later with Gamma Aquilae, but it will be easiest relate the rest of the Star Compass by working clockwise around the horizon starting starting with true north.

The North Star

Polaris lies roughly 7 degrees above the horizon making it extremely useful for obtaining bearings because it never sets. The only issue is the obscuring effects of cumulus clouds often ringing the tropical horizon at night, making Polaris unavailable for observation.

The Little Dipper

The Little Dipper rises and sets equal amounts east and west of the North Star, swinging in a tight circle around it, presenting two problems. First, it doesn't stay directly over its point of rising for as long a period of time as stars closer to the celestial equator, and second, as a

constellation of dim stars, precise bearings are not as accurate as a single bright star, though Kochab is bright enough to catch the navigators eye.

The Big Dipper-Cassiopeia

Next around the arc of sky these large constellations, as defined by Puluwat navigators, do not include precisely the same stars as we know them, and while both cover an extensive portion of the night sky and in the Puluwat system they overlap each other. So an obvious question emerges, "How can they provide the Puluwat navigator with well established bearings distinct from each other?"

What Gladwin found is that, much to his surprise, they do not. "Goodenough (1953) ...discovered numerous inconsistencies between the sources for islands with respect to which star in each of these two constellations was used as the star to pinpoint the bearing" (p. 150). The way Goodenough resolved the dilemma was to arbitrarily select the northernmost star in the Big Dipper (Alpha Ursae Majoris) and the southernmost in Cassiopeia (Alpha Cassiopeiae), and by concentrating solely on them the overlap was eliminated. This also allowed Goodenough to show bearings fairly evenly spaced around the circle of the horizon in this area of the sky.

However, when Gladwin asked Hipour and Ikuliman if these were the correct bearing stars both said no, nor could they agree between themselves on which stars should be used for sighting a course, and Gladwin felt that both men were groping with an unfamiliar question for them. In fact, Hipour felt he needed to consult his old teacher before giving an answer.

Vega to Antares

South from Cassiopeia is a wide swath of sky lacking navigational stars until a series of nine stars and small constellations, lying close together in the east when rising (and similarly in the west when setting); thus this group of nine star positions starting at Vega in the north and ending with Antares in the south accounts for eighteen of the thirty-two intervals into which the Star Compass is divided (9 at rising and 9 at

setting), but the arc between these stars accounts for only 66 degrees on the east and 66 degrees on the west, or only about one third of the 360-degree circle of the sky.

While this might seem to cast doubts on the validity of Puluwat navigation, remember that this grouping of star positions, plus the precision provided by single bright stars or compact constellations like the Pleiades, is nothing more than the demand for greater accuracy in the longer east-west passages required of this navigation system. If long north-south voyages were required this system would not be functional and some other system would have been devised.

Southern Cross and Centaurus

In its upright position the Southern Cross, a nearly symmetrical cross with an unambiguous center, is used to locate true south, but at this time of night it is a bit too high for accurate bearings. The Southern Cross also marks four additional bearings, two on the east side of south and two on the west side, that is, it is lying on its side as it rises and sets furthest from due south and leaning at approximately 45 degrees when it is closer to due south. So it is easy to see the disadvantages involved in this arrangement of a single constellation defining five different star positions since at least four are vacant at any specific time (it can't be in two places at once), and for about half of the time the Southern Cross is entirely below the horizon. However, this is not as critical as it first seems because the east-west axis this system is not as dependent on the celestial pole regions for bearings.

Companion Stars

When Altair is not available for navigation there are two bright companion stars, Procyon and Bellatrix, nearly identical in latitude but on the other side of the celestial sphere; so when one is down another is up, and between the three of them provide rising or setting bearings at almost any season or time of night.

But Altair is not the only navigation star with alternate companion stars at the

Continued on page 6

East is a Big Bird, cont.

same latitude with rising and setting positions for the same bearing directions, while the rest of the Star Compass stars have at least one substitute. Also, for almost any bearing (direction of travel between islands) there are other recognized stars which rise and set close enough to the positions of the Star Compass stars to provide at least an approximate bearing when the Star Compass stars are below the horizon or too high in the dome of the sky to be useful. For the Southern Cross, except for its outside rising and setting positions where Centaurus is at the same apparent latitude, there are no other companion stars or constellations to provide equivalent bearings when the Southern Cross is not available.

Next issue "Accuracy vs. Utility in Celestial Navigation"

Walking Zero Review, cont.

approximate route. Of course, it is impossible to walk exactly along the meridian - there is no path or right-of-way - but England has an astonishingly (to an American) dense network of public footpaths, all so designated on the maps. It will be possible to make my way from south to north, from the English Channel to the North Sea, without straying more than a few miles from the thick green line.

Raymo's choice to walk the meridian in England (about 200 miles) permits him to write at length about the wondrous geography and geology of England, and he takes the opportunity to expound on the age and shape of the Earth (this latter following his observation that at no time can he see France as he gazes out across the English Channel from Peacehaven ("the continent of Europe is hidden out there behind the curve of the Earth").

Raymo's writing style is casual and conversational but he brings a rigorous mastery of science to all his topics (he is a retired professor of physics and astronomy). But he also manages to

See "Raymo" next page

Podcasting and astronomy news

by John Rummel

Without question, the Internet has perpetuated a revolution in our access to information. There's hardly any topic or source of information that's more than a few mouse-clicks away. In the past two or three years, the information revolution has expanded into the territory formerly dominated by radio - the audio newscast. Following on the heels of the spectacular success of Apple's iPod and other MP3 music players, the explosion of content called "podcasting" has erupted into prominence. I am a firm believer in this medium and will tell you why in this article, as well as provide a review of some of the better astronomy related podcasts.

First a few general comments.

You do not need an iPod - or any other portable MP3 player - to listen to podcasts (don't let the cool picture throw you off). You can listen to them directly on your computer or you could even burn them to a CD to take with you in the car or to work.

A podcast is simply an audio file that contains programming or some type of information content. What makes podcasting unique is an internet capability that works like a subscription service. Once you "subscribe" to a podcast, the computer program you use to manage podcasts will automatically know when a new episode is available and download it for you. I use Apple's iTunes software (available free from apple.com/itunes/). With it, I manage about 10 to 12 podcasts (out of more than 15,000 available). My own tastes run from blues music programs to hard science shows such as NPR's *Science Friday*. Podcasting makes it possible for me to listen to these

programs whenever I want to - commuting to work in the car, while mowing the lawn, riding my bike, taking a walk, or whenever. The convenience is unmatched and the richness of the content available makes it a very compelling medium. It beats talk radio

hands down because you can choose from a huge selection of programming.

As mentioned, some professional news organizations have chosen to make their content available via podcast - *Science Friday* is an example. But by far, most podcasts are done by regular folks who have no background in broadcasting. They're just folks who have a desire to share. Predictably in a situation like this, the quality of podcasts will vary greatly, but it's well worth finding the gems.

Here, then, is a selection of the astronomy and astronomy related podcasts you can currently choose from:

- Slacker Astronomy - A 5-10 minute weekly podcast hosted by an astronomer from the Harvard Science Center and a science geek from the AAVSO. Every week, they select a current event in the world of astronomy and present it in a humorous and slightly irreverent manner. Make no mistake though, this is hard science and the issues they discuss are frequently cutting edge - stuff that's about to appear in the major journals.
- Universe Today - Weekly, 10-15 minutes. Another review of recent news and current events. Occasional interviews with astronomers, astronauts, etc.
- Stardate - The syndicated radio program out of the University of Texas' McDonald Observatory. Each episode is only about 3 minutes long but always interesting and informative.
- Jack Horkheimer's Star Gazer -



Podcasting, cont.

Horkheimer has been seen on public TV and heard on public radio for decades.

Now you can hear him too, every week.

- Astronomy 162 - The entire semester of lectures from the Ohio State University undergrad class, Astronomy 162, delivered by astronomer Richard Pogge. This is just one example of a growing trend in podcasting in the academic community. More and more colleges are experimenting with making lectures available in this format. Incredible.

Not strictly astronomy, but here are a few more science podcasts that are well worth checking out:

- Science Friday - mentioned above. Hosted weekly by NPR's Ira Flatow. He interviews top scientists and policy makers weekly about hot topics.
- Science Talk - A weekly podcast by Scientific American magazine. Top flight stuff.
- The Skeptics Guide to the Universe - by the New England Skeptical Society. Each weekly episode reviews recent news and contains an interview with a scientist. Very well done.

The list goes on; NOVA's Science Now, New York Times Science Times, NASA Feature Stories, NPR Health and Science, CSICOP's Point of Inquiry, National Geographic, Science Magazine, Nature Magazine. The sheer volume of the content out there is mind boggling and I've barely scratched the surface.

Podcasting is a great way to keep up with what's going on in areas that interest you. Most podcasts are also archived so long after a program was created, you can still search the archives for specific topics, guests, or discussions.

We are swimming in a sea of information. It just got deeper and richer. Join the podcast revolution.

Raymo, cont.

capture and communicate the wonder of his subject. This is perhaps what I like most about his writing: while he never loses touch with the scientific and factual basis of his topics, he always manages to evoke awe and a deep respect for nature.

Scholarship Scopes Update

by Ian Jarvis

It's amazing what something comparatively so small can see so far away. I first received a pleasant surprise when trying out the 8-inch Dobsonian. I could see Jupiter and four of its moons plus Saturn and its rings, from my very own driveway in Madison. Many a night I could be seen lugging the scope around the neighborhood in search of a spot to see my next target of wonder. The most memorable nights were spent at YRS. I'll never forget my amazement at seeing the soft glow of the Milky Way being streaked across the sky. I can remember having difficulty in locating major stars because there were so many more collectively outshining them. Then there was the curiosity of admiring the collection of telescopes around me, wishing that someday I would be able to have one just like them. When an astronomy club was getting started at West High, my hopes soared as another possibility came my way. This past year sure has gone faster

than I would have liked, and I am very grateful for the chance I been given. Being acquainted with a telescope has furthered my interest in astronomy and the night sky in general. Thanks to all who made this opportunity possible through much persistence and dedication.



As of early June, Ian turned in the 8 inch dob and has taken possession of MAS' "advanced" scholarship scope, an 8 inch Meade SCT, which he will keep for the coming school year, his senior year at West. Ian is a frequent attendee at MAS meetings and star parties. When you see him, ask him what he's been observing. -- Ed.

Calendar of Events

- September 8 MAS monthly meeting at Space Place (2300 S. Park St., in the Villager Mall). Business meeting 7:00 pm, main meeting 7:30; Guest speaker TBA (but it's gonna be good, so be there!)
- September 29 Moon over Monona Terrace - rain/cloud date is September 30th. Observing scheduled to start at 7:00 pm. Members can start set up by around 5:30pm. See Tim's article on page one for details.
- October 13 MAS monthly meeting at Space Place (2300 S. Park St., in the Villager Mall). Business meeting 7:00 pm, main meeting 7:30; Guest speaker TBA (this program will be even better than September - don't miss it!)
- October 18 MMSD Planetarium Monthly Program: *Skywatching*: Come explore visible constellations and planets and see what's visible in the fall sky. Programs at 6:30 and 7:45. Admission \$2.00 per ticket. Memorial High School, 201 S. Gammon.



Capitol Skies
2810 Mason Street
Madison, WI 53705

First Class

MAS would like to thank:

IDC

for hosting our web presence

Officers

PRESIDENT

Jeff Shokler
301-0191

jshokler@wisc.edu

VICE PRESIDENT

Wynn Wacker
274-1829

wkw@mailbag.com

TREASURER

Mary Ellestad
233-3305

ellestad@mailbag.com

SECRETARY

Dave Odell
608-795-4298

dcodell@centurytel.net

OBSERVATORY DIRECTOR

Tim Ellestad
233-3305

ellestad@mailbag.com

AT-LARGE BOARD MEMBERS

Neil Robinson
238-4429

neilandtanya@mailbag.com

Mark Hanson
833-8988

markh@tds.net

Madison Astronomical Society members are active in sharing the pleasures of astronomy with the public, acting as a resource for students and teachers, and exchanging information at Society meetings which occur monthly. The Society continues to pursue its original goal to "promote the science of astronomy and to educate the public in the wonders of the universe."

For more information about the Society, please contact one of the officers listed at left or visit us on the web at:

www.madisonastro.org

MAS Membership Form

Name _____

Street _____

City/State/Zip _____

Phone/email _____

Please circle membership type:

Student (\$5.00)

Regular (\$30.00)

Observing (\$70.00)

Enclose check and make payable to the Madison Astronomical Society.

Mail to MAS Attention Mary Ellestad,
2810 Mason St., Madison, WI 53705