



Capitol Skies

The newsletter of the Madison Astronomical Society

May/June 2004

Coming up...

May 14—Regular Meeting

The speaker for the May 14 meeting will be Andrew Fox, a UW astronomy graduate student. He will be speaking on “The Interstellar Medium.”

MAS monthly meeting, 7:00 pm board meeting, 7:30 main presentation. Space Place, 1605 S. Park St., Madison.

June 12—Annual Picnic

The MAS annual meeting and picnic will be on Saturday, June 12th at Yanna Research Station.

This replaces the regular June Friday evening meeting at Space Place. You are welcome to show up anytime mid-afternoon - there will be a short meeting and election of officers at 4:00 followed by the picnic at 5:00. Please bring a dish to share & your own drinks - MAS provides brats, burgers, hot dogs, plates, utensils, and the grill pyrotechnic display.

If you've never been to YRS, this is a great opportunity to see what MAS has out there and also enjoy the company and tales of other members. You can call the Ellestad's at 608-233-3305 or any other officer if you need directions to YRS. If the weather cooperates (we've usually been pretty lucky), there will also be people staying and opening the buildings and telescopes for some informal astronomy after dark. This is always a fun event for everyone and we hope to see you there.

From the President

by Neil Robinson

Greetings Fellow MASers! Since our last newsletter we have several new members. On behalf of the society, I'd like to welcome Ronald Woodland, Jeff Zebrowski, Jeff Applegate, Jim Bryla, William Baebler, Ian Jarvis, Mark Weller, and Joel Norder into our midst.

At the April meeting we had an enthusiastic roundtable discussion on recent viewing experiences. It was very informative and inspiring to hear about what various members have been up to. It's good to be reminded of the many opportunities that exist for viewing. Speaking of which, don't forget to mark your calendar for the upcoming Transit of Venus, at sunrise on June 8th. If we are lucky enough to have clear skies (put your order in now) it will be an experience not-to-be-missed! Of course, always remember not to look at the sun except with a proper filter.

Congratulations to this year's recipient of the MAS Astronomy Education Outreach Award: our own John Rummel. John has energetically and enthusiastically introduced many members of the public, especially youth, to the joys and wonders of the universe through his activities with Madison Schools, various youth groups, and other activities. Well done, John, and well deserved.

There has been an excellent response to the survey which was sent to all members. Results are being tallied and should provide a good basis for making crucial decisions about future directions for the club. Many thanks to those of you who have responded.

Observing Prospects for The Transit of Venus: North America

By Eric W. Thiede

My wife and I had originally planned to travel to Italy to see this rare event in its entirety. Sadly, overpriced Euros and the prospect of hauling equipment around on airplanes in a post 9-11 world were not very attractive to us. Fortunately, I already had a fallback plan, which would permit us to enjoy(?) the ease and convenience of throwing a bunch of equipment into a car, without the hassles of weight limits, airline schedules, and security checks (other than those at the U.S.-Canadian border).

For those of you who read John Rummel's excellent piece on the prospects for the transit from Wisconsin, it should be apparent that there are advantages in traveling east (and to a lesser extent, north), which will bring about an earlier sunrise and therefore better visibility. Examination of a map reveals that in the United States, Maine is the best location. If one is willing to travel a little further, the best location reachable by car alone is Cape Breton Island, Nova Scotia. The longitude of Milwaukee is about 88

degrees west, the easternmost part of Maine is 67 degrees west, and Cape Breton Island is 60 degrees west. Taking into account only longitude, the sun rises at least 1 hour 24 minutes earlier in eastern Maine, and at least 1 hour 52 minutes earlier on Cape Breton Island than it does in Milwaukee. Since these places are also somewhat further north than Milwaukee, the actual advantage is greater.

Sounds good so far, doesn't it? Sadly,
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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 above.

MAS thanks

Internet Dynamics Corporation
for hosting our web presence.

Visit MAS on the web at:

www.madisonastro.org

The use of Digital Cameras at YRS and the Work of Mark Hanson

by Doc Greiner

I am taking the liberty of telling MAS members about the excellent imaging work that Mark Hanson is doing at YRS. He is very modest about this work, but I can assure everyone that he has a national reputation for his high quality imaging among digital camera users.

Additionally, Mark has done some excellent work from the *New Mexico Skies* site which is in the central mountains of New Mexico and has very superior dark skies. We have included an insert with a couple of examples of his work.

At YRS, Mark uses the Doc G telescope and observatory for most of his imaging. He has mounted his Takahashi FSQ106 telescope on the LX200 there for doing wide field imaging. The Takahashi is a very fine telescope for this work and the LX200 platform has worked very well for carrying it and providing the guiding necessary. The camera Mark is using is the Canon 10D digital camera. While this is an ordinary digital SLR camera, it is especially good for doing astrophotography. It has low noise, a large chip by astrophotography standards and has, of course, a full color chip. This camera has in the past year become the "darling" of digital camera astro-photographers.

There is a large group of users of this camera and some similar and related cameras. The group is *digital astro* on the yahoo group site. It has about 5000 members at this time. These members use a variety of digital point and shoot cameras in afocal mode and also the SLR type digital cameras at prime focus. Astronomical images taken with these cameras are posted regularly on the *digital astro* group and on private web sites of members. Those interested may find Mark's work at his web site: [\[btlguce.digitalastro.net/default.htm\]\(http://btlguce.digitalastro.net/default.htm\)](http://</p>
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I am very enthusiastic about this work because it is so good. It is also an example of what I consider the wave of the future in astro imaging using digital cameras. The learning curve for digital astrophotography had been very steep. It requires not only a very significant expenditure for a CCD camera and associated equipment, but also an understanding of three color photography and the elaborate processing techniques required to turn the captured CCD frames into a quality image. This has been an overwhelming task for many amateur astronomers. Now, with the capability of digital cameras, which are of course full color cameras, a number of the hurdles have been lowered or removed. The aspiring imager can now simply attach a digital camera to a telescope and fire away. Results with simple setups are quite amazing.

Both afocal imaging, pointing the point and shoot into an eyepiece, and prime focus imaging, using a DSLR, setups are quite successful. Mark is a master of both techniques though the latter have given him the some spectacular results. The *digital astro* group runs monthly contests for the best images of specific objects. He is regularly in the top three with his images and has a ton of "gold" as well. He is I am sure among the top handful of digital camera imagers in the country. Both his imaging skills and his abilities with PhotoShop manipulation are outstanding.

I strongly suggest that anyone interested in astrophotography take a look at his web page to see what can be done by a dedicated imager right from our facilities at YRS. I am also happy to acknowledge that similar work is being done by several other members of the MAS.

The Transit of Venus: North America, cont.

another factor enters, the floating crap game that we observers love to hate: the weather. It is indeed unfortunate that in the United States the best weather prospects are in the southwest, which is entirely outside the zone of visibility for this event. The weather prospects for Maine and Nova Scotia are marginally worse than for good old Wisconsin, which is not renowned for its great weather, as we know all too well. So it would appear that the key to any hope of success will depend upon good weather predictions (i.e. those handy-dandy Clear Sky Clocks), and mobility.

Our plan is to approach Maine via Massachusetts, probably arriving there about 3 days before the transit, and with luck find a way to access the Clear Sky clocks with a laptop computer. It is entirely possible that the whole Northeast

could end up clouded out, but I hope that we will be able to locate and travel to clear skies someplace between Boston and Cape Breton Island. If that isn't possible, so be it. I don't think I'd be willing to negotiate the Boston-to-Baltimore megalopolis in search of good weather.

I was in Maine once before, about 40 years ago. It is a very scenic place, like the Upper Peninsula of Michigan only better. Anyone interested in a transit expedition to the East Coast? If so, please feel free to e-mail me at erixm9507@aol.com.

Since I first started composing this piece, there have been developments. I have been in contact with Bill Nigg of the Kalamazoo (Michigan) Astronomical Society, who hopes to do something similar to what we are planning. He also wrote of plans of some of his colleagues

to try to observe from the western shore of Lake Huron (like Lake Michigan but further east and therefore better). Best of all, I have received an offer to observe from Starfield Observatory, the club facility of the Astronomical Society of Northern New England at Kennebunk, Maine. That place might be interesting to see if only for one of its instruments, an 8-inch f/15 Zeiss-Jena refractor.

I've got a little work ahead of me getting my equipment in shape in time. We're planning at this point to take two telescopes: an excellent 60-mm refractor and an ETX90, both equipped with good full-aperture solar filters. The ETX should make both photography and visual observing possible due to its handy flip mirror. I can only hope the weather gods (or demons) will be kind to us all on that fateful morning.

Book Review:

The Transits of Venus by William Sheehan and John Westfall; 400 pages; Publisher: Prometheus Books; (March 2004)

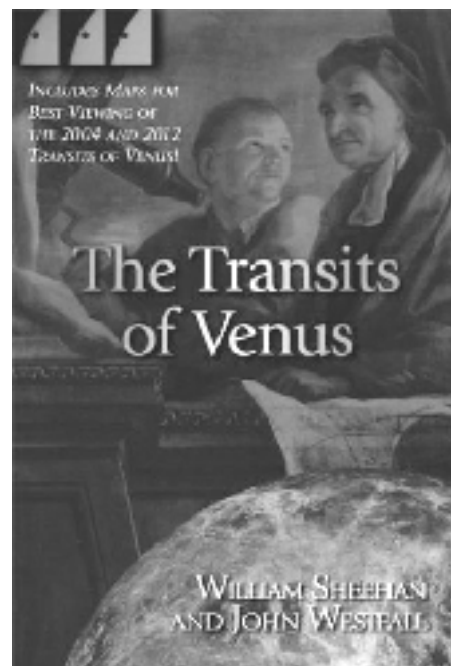
by John Rummel

William Sheehan is one of very few authors whose books I purchase as soon as they're published. Though not an historian of astronomy by profession, he is among the elite few who have contributed significantly to popular writings in that genre in the last 15 years or so. In taking on the topic of the transits of Venus, Sheehan, joined in this endeavor by John Westfall, has produced a magnificent volume that any amateur historian of astronomy will surely want to read.

As with all Sheehan efforts, *Transits* is meticulously researched and detailed, yet written in a lively and conversational tone that is a pleasure to read. Here will be found excellent scientific background: the nature of transits, the importance of transit observations in unlocking the value of the astronomical unit, etc. More

importantly, to me, is the rich history of transit observations. From Kepler's Rudolphine tables, where the first transits of Venus were accurately predicted, to the life and times of Jeremiah Horrocks, the short-lived English astronomer who first successfully observed one in 1639, to the massive international efforts of the 18th and 19th centuries, this work is filled with detail, photos, diagrams, and immensely satisfying story-telling. Here's an example of the detail and rich prose:

The long wait for a transit of Venus finally ended at 3:06:22.3 PM Honolulu mean time, December 8 1874, when George Tupman became the first person in 105 years to see a transit of Venus. He had two advantages that gave him a head start: the Hawaiian stations were the closest in the world to the Delisle point of



earliest ingress: and he was observing with a spectroscope that allowed him to spot Venus against the sun's inner atmosphere, the chromosphere, a full 39 seconds before it touched the visible solar limb.

Continued on page 5

For Sale: Celestron Ultima 8" SCT

I purchased this telescope used with a dead controller board. **This board is no longer available from Celestron. In order for the scope to track an AC cord is hardwired to the drive motor. DC battery operation no longer functions.**

The Ultima 8 is a heavy duty version of the fork mounted Celestron 8. The OTA comes with Starbright coatings on the primary and secondary. The drive incorporated in this model is a very accurate Byers 359 tooth worm gear system with a single synchronous AC motor. The wedge has the deluxe latitude adjuster installed. The tripod is the extra heavy duty armored model.

This Scope Has Superb Optics!



\$700 firm, delivered

E-mail Matt Mills at: mills@charter.net

Optional Tripod Dollie available at an additional cost:
<http://www.cloudynights.com/howtos2/tripod%20dolly.htm>

Included with the Ultima 8:

Celestron 7mm orthoscopic 1.25" eyepiece
Celestron 30mm plossl 1.25" eyepiece
University Optics 18mm orthoscopic 1.25" eyepiece

Celestron visual back 1.25"

Celestron star diagonal 1.25"

8x50mm Right angle/Straight through

Illuminated Polaris Finder with bracket
Lens cap

Bob's knobs

1.25" Orion variable polarizing filter

Finder scope software

Celestron Polaris Guiding Plate

Homemade Dew Shield

Instruction Manual

SkyAtlas 2000.0 second edition (black on white) with carrying case

S&T Moon Map

Editor's note: Capitol Skies is happy to help you sell your used astronomical equipment. Include photo, description, and conditions and submit to darksky25@charter.net.



Above, Mark Hanson, left, presents a gift to MAS (accepted by president Neil Robinson) of a photo of the Orion region. This is one of the photos reproduced in the color insert to this newsletter. Mark reports total imaging time of 6.5 hours, and countless hours at the computer stitching, calibrating, processing, aligning, and sweating to produce this marvelous print.

Mark's image will be mounted and displayed at the clubhouse at Yanna Research Station. Thanks to AJ Carver for snapping the above photo of the presentation, made at the banquet in March.

Illinois Dark Skies Star Party 2004, September 16th - 19th

Hosted by the Sangamon
Astronomical Society and
the St. Louis
Astronomical Society

The Third Annual Illinois Dark Skies Star Party will be held September 16th - 19th, 2004 at the Jim Edgar Panther Creek State Fish and Wildlife Area (JEPC), 25 miles northwest of Springfield, Illinois in eastern Cass County. The park is easily accessible from IL. Routes 78, 95 and 125.

This area boasts some of Illinois' darkest skies. Naked eye views of 5 and 6 magnitude objects

are not uncommon. Plans for star party events include guest speakers, presentations, ATM and astrophotography contests.

Attendance will be limited to 1,000.

Registration is required and there is a fee for attendance.

See their web site for all details:

www.sas-sky.org

The park has lots of daytime activities including hiking, biking, fishing, horseback riding and hunting. JEPC is just 30 minutes from historic Lincoln sites such as: Lincoln's Tomb at Oak Ridge Cemetery, Springfield; Lincoln's Home and Law Office, Springfield; Lincoln Homestead at New Salem State Park, Petersburg.

Observatory News

by Tim Ellestad

Spring has arrived at the Yanna Research Station. The barricade prohibiting vehicular traffic on the observatory lawn has been moved aside. As was done last year, the Observatory Director will be calling Observing Member volunteers to provide lawn mowing and trimming for this year on an as-needed basis (weather conditions will determine when this is necessary).

We experienced an electrical problem recently in the clubhouse—white lights and red lights both failed. Jon Yanna, our neighbor immediately to the west and an electrician by trade, came to the rescue with a quick repair. Apparently there is some history of these circuits being problematic so if you should experience anything strange with these lights or should they fail again please call the Observatory Director ASAP.

The AKO dome now has a new shutter drive mechanism. A few weeks ago the original shutter drive hardware came abruptly to a catastrophic end—it was simply worn out. Life Member Richard “Doc” Greiner, who so generously donated the AKO dome and drives to MAS, was able to provide an expedient rebuild of this hardware by the manufacturer. Many thanks to Doc! MAS Secretary Dave Odell provided deft hands with wrenches and mineral spirits from the ladder top, doing much of the removal and re-install. Dave’s now-established expertise with this system will be a real benefit to MAS. Thanks for the help, Dave!

It’s insect season again. Bugs are a constant fact of life at YRS. Our telescope buildings are really little more than sheds in that they are purposely not air-tight. This, unfortunately, makes for easy access for six-legged critters. We are currently suffering a renewal of activity of those miserable Asian Beetles that have plagued us for the last so-many years. Most of what we are dealing with now are probably the “Undead” in horror film parlance—the ones that didn’t get actually killed off by Winter’s cold and have creepily come back to life. Later on we’ll undoubtedly be hosts to this year’s new crop and it will start all over again. So . . . we ask that you do a couple of things regarding Asian Beetles; Please don’t leave

any eyepiece ports un-plugged on any of the YRS scopes when you leave and please keep the clubhouse door closed. If you have the time when you are visiting YRS and the bugs are crawling all over everything, please sweep them out or vacuum them up with the shop vac that lives in the clubhouse. If you do suck them up into the shop vac, please empty out the vacuum cleaner before you return it to the clubhouse - otherwise the bugs, which usually survive the vacuum ordeal, will come crawling out and take over the clubhouse.

Another insect with more serious consequences that is always part of the observatory is the Hornet. While they are usually docile, these bugs are more seriously armed and can be provoked into aggression. It’s unfortunately easy to agitate them by accident. Watch for nests forming high in the domes, under overhangs and soffits, and over the tops of door frames. There is usually a can of hornet killer in the clubhouse (if you can’t find one please feel free to contribute one). Be careful of what is in the background of your hornet shooting, though. These aerosol bombs shoot a strong and relatively long range jet rather than a mist. Try to keep it from coating places that people could unknowingly get their hands or clothing into and please keep from hitting any YRS instruments.

Have a great observing season!

Mark Hanson Lends Meade 16 Inch LX200 For Temporary Install At YRS

The 12 inch LX200 telescope used in the AKO building has been removed for service. Life Member “Doc” Greiner is rebuilding the drives which had begun to show some inconsistencies in their precision. Doc provided the same rebuild to the drives on the 12 inch LX200 in the “Doc G” building and the result was a wonderfully smooth and accurate mount, both in pointing and tracking.

While the scope is removed (the rebuild will take several months) MAS members will have the very rare opportunity to ob-

serve with a legendary and spectacular telescope. MAS member and Master Astro-Imager Mark Hanson has provided the use of his magnificent Meade 16 inch LX200 which will be installed in the AKO dome until the repairs of the MAS 12 inch have been completed. MAS Observing Members will be able to use this scope just as they use the MAS 12 inch LX200’s. This is a unique opportunity to peek into the heavens through a rare and formidable instrument. MAS thanks Mark for generously offering us this experience.

Transit Book Review

Continued from page 3

Sheehan and Westfall’s orientation is so strongly historical that they make a surprising omission: There is no discussion of the reason for the curious spacing of Venus transits: a pair 8 years apart, followed by a gap of either 105 or 122 years, and then another pair 8 years apart. Perhaps this discussion, about which I think many readers would be curious, was omitted because it can be somewhat technical. More likely, they simply had to make some decisions on what to include and not include based on their particular slant.

At any rate, such an omission is more than balanced by what Sheehan and Westfall do include. I was overjoyed to read such exquisite detail about the observational and photographic instruments used to observe and measure the transits of 1874 and 1882. As far as I know, Sheehan and Westfall are the first authors to offer such thorough coverage in a popular work. There are also many photographs and drawings reproduced from this pair of transits, many more than I have ever seen in print before.

The much-anticipated Venus transit of June 2004 is fast approaching. Perhaps the rarity of this event makes it so compelling to me, as I’m sure it will to others as well. I can think of no better way to prepare than to purchase and read this excellent work.



Capitol Skies
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First Class

MAS would like to thank:

PRINT-TECH

and Tim Stanton for printing
the newsletter and

IDC

for hosting our web presence

This resource list is made up of people who have special interests which they are willing, even eager, to share with others in the Society. Many members, not listed, also are interested in particular aspects of astronomy and have considerable expertise in viewing and imaging the skies. Members are encouraged to come to the monthly meetings, not only to get to know the other members, but to discuss and enjoy their special or general interests in various aspects of astronomy. This is a Society of beginners and experienced amateurs. From time to time we have seasoned professionals attending. The meetings are a good time to meet these people as well. See you there.

Resource People and Special Interests

The resource list is currently being revised and rebuilt. If you would like to be listed as a club resource, please submit your name and contact info to darksky25@charter.net.

Possible areas of expertise include:

- Variable stars
- Planetary and lunar observing and imaging
- Deep space object observing and imaging
- Solar observing and imaging
- Observatory design and construction
- History of astronomy
- Computers and software
- Comet and asteroid astrometry and photometry
- Occultations and grazes

MAS Membership Form	
Name:	_____
Address:	_____
City/State/Zip:	_____
Phone:	_____
Email:	_____
Please circle membership type: <i>Enclose check and make payable to the Madison Astronomical Society. Mail to MAS Attention: Mary Ellertsd, 2810 Mason Street Madison, WI 53705</i>	
Student (\$5.00)	<input type="checkbox"/>
Regular (\$25.00)	<input type="checkbox"/>
Observing (\$60.00)	<input type="checkbox"/>