



Capitol Skies

The Newsletter of the Madison Astronomical Society

From the President's Desktop

By Jeff Shokler

Greetings everyone! I hope you are all managing to stay well and to stay warm during our now record-setting winter season.

The months since our last newsletter have seen some wonderful astronomical events. Comet Holmes, of course, put on quite a show and graced our skies for a number of months beginning at the end of October. Many MAS members enjoyed observing and imaging the comet as it expanded and eventually dimmed from view.

The most recent astronomical highlight, however, was the February 20 total lunar eclipse. John Rummel, Mark Weller, Wynn Wacker, and I were all at Memorial High School outside the planetarium entrance for the event. The night was a "cool" -5° F, so John and Geoff Holt (planetarium director) set up a remote video feed from the planetarium's 8 inch Meade SCT outside to the lobby area so people could enjoy the show in comfort and warmth. It was so clear, and so calm out I decided to go ahead and set up my telescope, an 80mm Stellarvue refractor, outside next to the remote scope. With the moon in eclipse, Saturn just below and a bit north (visually left) of the moon, and Regulus just above the moon the views were simply spectacular. The close proximity of the moon and Saturn also made it very easy for me to shift back and forth between the objects for members of the public as they enjoyed the views through the scope.

We had many people stop by to look at the monitor in the lobby showing the eclipse and even to brave the cold to look through my telescope. Both John and Wynn did a great job of providing insights and

commentary throughout the event. I had as many as 50-60 people look through my telescope at the moon and at Saturn that evening. I never tire of the "ooo's" and the "ahh's" from children and adults who have never had an opportunity to look through a quality telescope at objects like Saturn and an orange-red eclipsed moon!

I will leave you with one final bit of fun MAS news. Due to the inspired efforts of Chris Zeltner, Chris, myself, Wynn, and Jim Lattis spent an hour together on the radio! Yes, that's right, if you missed it on February 11th we had a whole Access Hour call-in show on WORT that evening to talk about all things astronomical. We had a great show and a great time! Over the course of the hour we had seven or eight callers - all of who had really good questions. We also put in plugs for the then upcoming eclipse events at both the Space Place and Memorial High School and talked about topics ranging from Leap Years, to Comet Holmes, to purchasing equipment for people interested in starting out in astronomy. If you missed the show and would like to hear it you can find the MP3 posted on the WORT website <http://wort.fm.org/> in their archive section under Access Hour for February 11 at 7:00 p.m. It was fun and, once again, many thanks to Chris Zeltner for working with WORT to make it happen. There may be opportunities for MAS to be on the radio again in the future!

I want to encourage all of you to register for the April banquet that will be held at the Space Place this year. I hope to see you all in March at our monthly meeting and at the banquet in April! Clear skies.

Notes From Your Treasurer

by Mary Ellestad

A warm welcome in the middle of this long winter to new members Mauricio Herrera and George Machian.

Hopefully YRS will emerge from under the snow one of these months and new observing members can schedule their orientations.

Until then, I'm looking forward to Spring more than ever and that brings me to a mention of the MAS Spring Banquet. We decided to try something different and have it catered at Space Place on April 11th (see registration form in this newsletter). Please join us - good food, dessert!, a chance to socialize with fellow MAS members and an interesting speaker. We're hoping that you will send your registration in to Tom Jacobs by April 5th and that we get enough registrations to make this event a success.

See you then.

Book Review:

Why the Sky is Blue: Discovering the Color of Life

by Götz Hoppe (translated by John Stewart). 2007 Princeton University Press.

Reviewed by Wynn Wacker

*Tell me why the stars do shine,
Tell me why the ivy twines,
Tell me why the skies are blue,
And I will tell you just why I love
you.*

I've always enjoyed this classic campfire song, both for the harmony and because, despite the religious cop-out of the following stanzas, every one of the questions has been scientifically answered. Gravity and nuclear fusion, plant hormones and evolution, and atmospheric scattering are a bit lacking in poetry for song verses, but it came something of a surprise that the most ancient and complex question was the last one. It forms the topic central topic of *Why The Sky is Blue*.

Except for the sky and water, the color blue is rare in nature. George Carlin used this observation in one of his comedy bits from the '70's in which he asked "Where is all the blue food?". (He speculated a conspiracy because blue food bestows immortality). This rarity, along with its association with heaven, has resulted in a variety of cultural associations for the color. So where does that empyrean blue come from?

When you drill into the question, it involves the nature of color and vision, as well as the properties of light and atmosphere. This translation of the German *Blau: Die Farbe des Himmels* covers the long and complex history of

this question and those who attempted to answer it. From Aristotle through Alhazen, Roger Bacon, da Vinci and Newton through Humboldt, Goethe, Young, Tyndall, Rayleigh, Maxwell, and Einstein, some of the greatest minds in human history contributed to understanding the color of the sky. In addition to entertaining and well-written narrative, the hardcover edition contains a variety of well-chosen color plates illustrating the text and covering, in addition to atmospheric phenomena, such items as Da Vinci's *Virgin on the Rocks* and a cyanometer of the type used by Humboldt to measure the change of sky color with altitude.

I experienced the scattering of blue light by small particles personally when I worked as a student hourly at McArdle Laboratory for Cancer Research at the UW back in the '60's. Concentrated solutions of bacterial viruses were bluish white in reflected light although transmitted light was as deep red as a sunset. But virus particles are many times larger than air molecules, which are so small that there should be little interaction with the much longer wavelengths of visible light. So why is the atmosphere so good at scattering blue light? Hoppe gives a good explanation without equations to scare the mathphobes.

One of the last chapters deals with a topic relevant to observers of the upcoming Lunar eclipse on the evening of February 20th.

Several years back, while attending a lunar eclipse at Space Place, I asked Director Jim Lattis, about an eclipse phenomenon I had first observed back in the '60's. As the Moon slid into Earth's shadow, it became divided into three zones of color: on one side, the yellow-white of the sunlit disk, on the other, the dim reddish hue of Earth's umbra, while in between was bluish stripe of intermediate intensity. Jim confessed to never having observed this blue color and suggested it was an optical illusion caused by the color and intensity contrast. I resisted this suggestion, but had no alternative explanation to offer. It remained this way until the eclipse of August 28th last year. I arose too late to see it myself, but many observers saw and photographed the color (see http://www.nasa.gov/vision/universe/watchtheskies/eclipse_images.html). SpaceWeather.com had the scientific explanation – the blue was due to absorption of red light by ozone in the upper atmosphere. Hoppe describes how suspicion that the blue of deep twilight is due to ozone developed and how it was eventually confirmed.

The path of the February 20th eclipse remains near the edge of the umbra, which should allow extra time to see this phenomenon, if it is present (Lunar eclipses vary in appearance with weather conditions around the edge of the Earth). So, look for the blue fringe, and read this very enjoyable book if you want to learn more. I promise you won't be left feeling blue.

Calendar of Events

<p>Mar 14, 2008</p>	<p>MAS monthly meeting, 7:30 pm, Jim Lattis of UW Space Place will speak on "Christoph Clavius and the End of the Astrolabe." Space Place, 2300 S. Park Street. Jim provided the following summary of his talk: <i>The astrolabe was one of the most important tools of the astronomer from antiquity through the Early Modern era, but by 1600 was well on the way to obsolescence. By examining Clavius's astrolabe book, published first in 1593 and again in 1611, we can begin to see why astronomers were abandoning their venerable instrument--and the invention of the telescope had nothing to do with it.</i></p>
<p>Mar 26, 2008</p>	<p>MMSD Planetarium Public Programs, 6:30 and 7:45 pm (programs are one hour): Skywatching, 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.</p>
<p>Apr 11, 2008</p>	<p>MAS Banquet, 6:00 pm social hour, 7:00 pm dinner served, 8:00 pm program TBA. See announcement and reservation form below for more info. Space Place, 2300 S. Park Street.</p>

MAS Banquet RSVP

(separate below and return to Tom Jacobs)

This year our banquet will be a buffet catered by Crandall's at Space Place.

Menu:

Entrée choices

- Tenderloin Tips
- Champagne Chicken breast
- Spinach Lasagna

All Entrées include

- Tomato basil salad or tossed garden salad.
- Hot vegetables
- Fresh baked mini loaf
- Soft drinks or Wine (wine costs extra, see below)
- Decaf coffee
- Homemade chocolate chip brownies with ice cream.

Since this is a buffet, we will order the quantity of food based an average serving size and the number on the RSVP forms. If we don't meet the minimum quantities, we may have to drop one of the choices. Please use the "comments" area to indicate an alternate. If you would like some other beverage please BYO.

Price is \$25 per person Plus \$5 for those who want wine with their meal. Send checks (payable to Madison Astronomical Society) along with this RSVP form to Tom Jacobs, 1109 Starlight Dr, Madison WI, 53711 before April 5th. Please indicate the number of servings for each selection. Include the best phone number in case we need to contact you about your meal.

Name: _____

Phone number: _____

Tenderloin Tips #: _____ Amount

Champagne Chicken #: _____ Enclosed

Spinach Lasagna #: _____

Wine #: _____

Comments:

