



# Capitol Skies

The newsletter of the Madison Astronomical Society

October/November, 2002

## From the President's Desktop

by Neil Robinson

**G**reetings, greetings fellow MAS'ers, We solved the problem of filling the secretary's position thanks to a generous offer by Matt Mills to step forward and take on the duties of this office; Thanks Matt! Since Matt had to vacate the at-large board position to assume the duties of secretary, Tom Jacobs has stepped back in to fill the vacant at-large board spot. Now all we need is a new newsletter editor. John Rummel has done yeoman service for the club for a couple years now as our editor but has decided to step down. So here's another pitch for a volunteer to step forward and fill a vacant position.

By the time you read this, we hope to have concluded the land deal with Leroy Yanna to purchase the sliver of land underlying our entrance driveway to YRS, thus securing the future of our current access to the site.

Here comes October 11th and the Moon Over Monona Terrace! The festivities start for MAS with a short business meeting at 6:00 pm followed by setup of our equipment and an evening of treating our fellow citizens of Dane County to a view of the cosmos. We will post the go/ no-go weather decision on the web site by 4pm on Friday afternoon, so if in doubt, check the web or call Tim Ellestad or myself for confirmation. If we postpone or cancel the event due to weather, there will be a meeting at the Space Place as usual.

Please plan to attend this event and bring any equipment you like; a large turnout of MAS members is essential to the success of this event. See you on the Terrace!

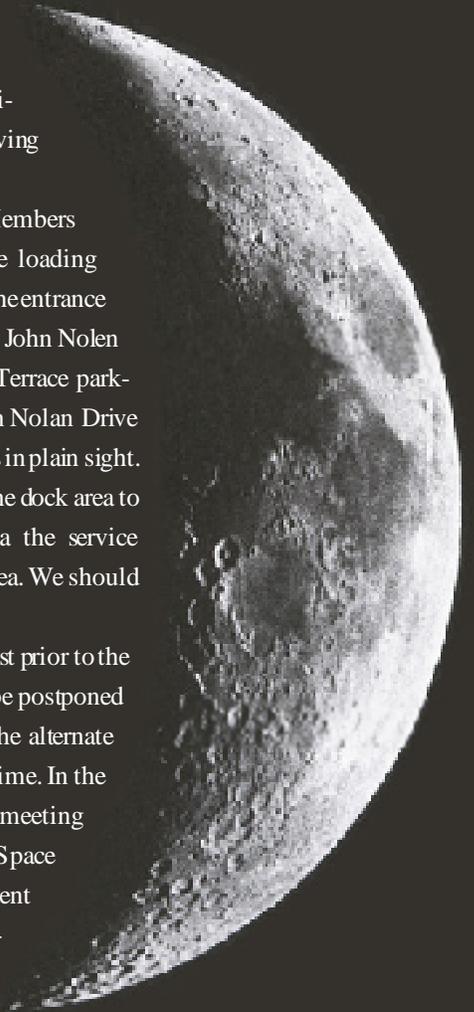
## Moon Over Monona Terrace

A banner event for MAS public outreach is at hand! An Evening of Lunar Observing for the public promises to be an important event for MAS and even more, a fun time for everyone. It is absolutely essential that many members participate and that we have numerous observing instruments on hand.

We can begin setting up at 5:30 PM. Members bringing viewing instruments may use the loading dock at the Northeast end of the building. The entrance to the loading dock is at the traffic lights on John Nolen Drive, just to the northeast of the Monona Terrace parking ramp tunnel. When turning in off John Nolan Drive make an immediate sharp right. The dock is in plain sight. Members may use the large cargo carts in the dock area to move their equipment to the rooftop via the service elevator which is also located in the dock area. We should be gone from the rooftop by 10:00 PM.

A brief business meeting will be held just prior to the beginning of observing. Should the event be postponed due to weather (clouds, excessive wind) the alternate date is the next night, October 12th, same time. In the event of a postponement, the regular MAS meeting will be held at 7:30 PM, Friday, at UW Space Place as usual. Information on a postponement decision can be had by calling either President Neil Robinson at 238-4429, Tim Ellestad at 233-3305, or Monona Terrace at 261-4042. A weather decision will be made by 4:00 PM the day of the event.

Friday evening,  
October 11th



Mark Your  
Calendars!

## Officers

### PRESIDENT

Neil Robinson  
238-4429

neilandtanya@mailbag.com

### VICE PRESIDENT

Wynn Wacker  
274-1829

wkw@mailbag.com

### TREASURER

Mary Ellestad  
233-3305

ellestad@mailbag.com

### SECRETARY

Matt Mills  
608-754-6808

mills@charter.net

### OBSERVATORY DIRECTOR

Tim Ellestad  
233-3305

ellestad@mailbag.com

### AT-LARGE BOARD MEMBERS

Dan Strome  
241-3775

dan.strome@mpcug.com

Tom Jacobs  
271-5872

tjacobs@madison.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 above.

MAS thanks

Internet Dynamics Corporation  
for hosting our web presence.

Visit MAS on the web at:

[www.madisonastro.org](http://www.madisonastro.org)

# The Plurality of Worlds: Part 1, Introduction

by Wynn Wacker

**T**hese search for extraterrestrial life has become headline-making news of late. Scarcely a month passes when *Sky & Telescope*, or the popular press, doesn't contain the announcement of a new extrasolar planet, more evidence of water on Mars, information on possible hidden oceans under Jovian moons, or the discovery of yet another biological precursor molecule in the interstellar medium. Advances in scientific techniques instrumentation, including exquisitely precise spectrosopes which reveal the tugging of planets on distant stars, the ultramicroscopic analytic techniques applied to Martian meteorites, the exploration of suboceanic and deep geological environments, and the advances of molecular biology in characterizing the relationships of terrestrial organisms, have fueled the discoveries which make many scientists feel that life is a widespread and common phenomenon in the cosmos. Even those whose reservations incline them to support the Rare Earth hypothesis concede the probability of the nearly universal occurrence of simple cells and concentrate their concerns on complex

organisms. After the great Martian disappointment in the Marinerfly-bys and Viking landers of the 1960's and 70's, the tide has turned and sentiment favoring the existence of a multitude of living planets is on the rise. The existence of other advanced civilizations is approached

more cautiously by the experts, but a third of the U.S. population believes that they not only exist but have also visited us. Why not, when the visual media constantly bombard us with realistic images of extraterrestrials, both friendly humanoid and dangerous alien? Their images appear on hats, key chains, and insulated drink holders. Friends gave me a Testors™ UFO model (1:48 scale!) with a bonus 7" tall Grey alien for a

recent Christmas. Surely the belief in a multitude of inhabited worlds, some with advanced civilizations, strewn throughout the cosmos, is, as the French would say, *très moderne*.

But how new is it really? One of my first serious encounters with this idea, apart from science fiction and Sunday supplement articles, was at a MAS talk given by a post doc in the UW Astronomy Dept. back in 1967. He was speaking about the ideas contained in a recent popular book published by a young U.S. space scientist and his Soviet colleague (whose book was the inspiration for this English revision). The book was *Intelligent Life in the Universe* by I. S. Shklovskii and Carl Sagan (1966), and it was the first time I'd heard of Sagan. I immediately ran out and purchased a copy of the day-glo cover Dell edition. It was full of the latest theories on the formation of stars and planetary systems, the origin and evolution of living organisms, the conditions for, and prospects of finding life on, other bodies in the solar system, and the possibilities for interstellar radio communications between civilizations. In short, all

the same topics being discussed today. It was a breath of fresh air after a period through the '50's when all the talk seemed to be about flying saucers, and legitimate scientists avoided the question like former socialists ducking the House

Un-American Activities Committee. I was intrigued with the science and technology. So much so that I didn't really pay attention to the first chapter on historical perspectives, or the quotations prefacing each chapter, which showed how much the authors appreciated the history of the subject. That hasn't changed much either. Perhaps in eagerness to get to the latest breakthrough or trend in speculation, most TV programs and lectures on the

"...we shall consider several questions, some of a philosophical nature."

— I. S. Shklovskii and Carl Sagan,  
*Intelligent Life in the Universe*  
(1966)

topic devote little time to reviewing the history of the debate, and it is possible that their authors may have little awareness of it. Usually they toss out a few historical tidbits, like Percival Lowell's Martians or Kepler's *Somnium* and move on. The impression left is that it was a topic sporadically addressed by a few isolated visionaries until more recent times.

So how old is it? Was it only a few individuals who thought about the question before the 20<sup>th</sup> century? Lowell certainly believed in alien intelligence at the turn of the Twentieth Century. The oft neglected co-discoverer of Darwinian evolution, Alfred R. Wallace, was strongly opposed. The topic posed widely discussed problems for prominent theologians of the mid-19<sup>th</sup> century. Or how about Johann Schröter (who first coined the term rilles for certain Lunar features), Johann Bode (Bode's law) and the famous French mathematician/astronomer Pierre Simon de Laplace? They all had theories and views supporting pluralism. Did you know that there's evidence that the famous astronomer William Herschel (discoverer of the planet Uranus) observed the Moon and may have commenced his systematic survey of the heavens in order to find evidence to support the

existence of life on a multitude of worlds? Would you be surprised to learn that John Adams (2<sup>nd</sup> U.S. President) and Thomas Jefferson probably discussed the question, or that Benjamin Franklin strongly supported pluralist views and espoused them in his *Poor Richard's* almanacs? Perhaps you've heard of the French author Fontenelle, whose slender volume, *Conversations of the Plurality of Worlds*, published in 1686 made the idea such a subject of conversation among the well-read. You may even remember Giordano Bruno who expressed belief in the plurality of worlds and was burned at the stake in 1600. But of course, he drew support for his ideas from earlier theologians and ancient Greek philosophers. The belief in a plurality of worlds with intelligent inhabitants has been *au courant* for a long time.

The question of the existence of other inhabited worlds has been a long-standing dialectic in Western civilization. It has gradually transformed from philosophical to theological to scientific arguments, though even today it remains an admixture of all three. The purpose of this series of articles will be to outline the history of this debate and to speculate on where it may go in the future.

## Book Reviews, continued from page 7

one night a week. He authored a half-dozen popular books on astronomy. He was an avid admirer of art, music and history, and was central in the establishment of the Huntington Library and Art Gallery in San Marino, CA.

Perhaps Hale's greatest achievement was bridging the gap between the observational astronomy of the 19th century (and before) to the 20th century study of physics and physical phenomena. More than any other individual, Hale recognized that astronomy and physics made the perfect marriage, and he pioneered methods to bring the physical laboratory and the astronomer's telescope together.

As good as it is, and Wright's is one of the best scientific biographies available, she does stand guilty of starting a terrible misconception about Hale's mental state. It is generally well known that Hale suffered from nervous breakdowns that were at times completely incapacitating. Wright gets the credit for starting the story about Hale's supposed little "elf" that visited and talked to him, and who has come to represent his illness. Historians William Sheehan and Donald Osterbrock trace it to a misunderstanding of one of Hale's letters to a friend and note that the "'demon' (the word he actually used) was a metaphor, referring either to his conscience or to his depressed mood (like Winston Churchill's 'black dog'), and certainly not an apparition." (Sheehan and Osterbrock's note can be found at the New York Times web site: <http://www.nytimes.com/books/99/03/14/letters/letters.html>).

For more information on Hale and a more modern reading of the building of Palomar, see Ronald Florence's excellent *The Perfect Machine*. Osterbrock's two outstanding books: *Yerkes Observatory, 1892-1950: The Birth, Near Death, and Resurrection of a Scientific Research Institution* and *Pauper & Prince: Ritchey, Hale, & Big American Telescopes* also contain much valuable information about the man the New York Times called "one of the most eminent men of science this country ever produced."

## Calendar

- |             |   |
|-------------|---|
| October 11  | Moon Over Monona Terrace - See article on page 1. Rain date October 12.   |
| October 16  | Madison Metropolitan School District Planetarium – Public show. Satellites! Earth's many artificial satellites are something amateur sky watchers can anticipate and enjoy. Come learn how to observe the International Space Station and more. One show only, 7:00 pm. Tickets \$2. Tickets go on sale approximately 20 minutes prior to the show. First come, first served. Memorial High School, 201 S. Gammon Rd., 663-6102 or <a href="http://www.mmsd.org/planetarium">www.mmsd.org/planetarium</a> for info. |
| October 29  | UW Space Place Telescope & Binocular Fair UW Space Place 6:00 - 9:00 pm. 1605 S. Park St.   |
| November 8  | MAS monthly meeting. 7:00 pm board meeting, 7:30 main presentation: TBA. 1605 S. Park St.   |
| November 20 | Madison Metropolitan School District Planetarium – Public Show. One show only, 7:00 pm. Tickets \$2. Tickets go on sale approximately 20 minutes prior to the show. First come, first served. Memorial High School, 201 S. Gammon Rd., 663-6102 or <a href="http://www.mmsd.org/planetarium">www.mmsd.org/planetarium</a> for info.   |

# Astronomy Adventures in Florida and Arizona

by Richard A. Greiner

At the August meeting of the MAS member Dick Greiner gave a slide presentation of two astronomy related trips he took earlier this year. The first in February was to the Winter Star Party in the Florida Keys and the second was with a group of UW Madison alumni to Arizona.

The WinterStar Party is an annual event hosted by the Southern Florida Astronomical Society. It takes place at a girl scout camp located on Southerland Key about 35 East of Key West. In addition to the ideal climate which was excellent for the entire week of the star party, there are excellent camping and resort facilities and the company of about 800 amateur astronomers. I stayed at a very nice resort about 5 miles from the star party site.

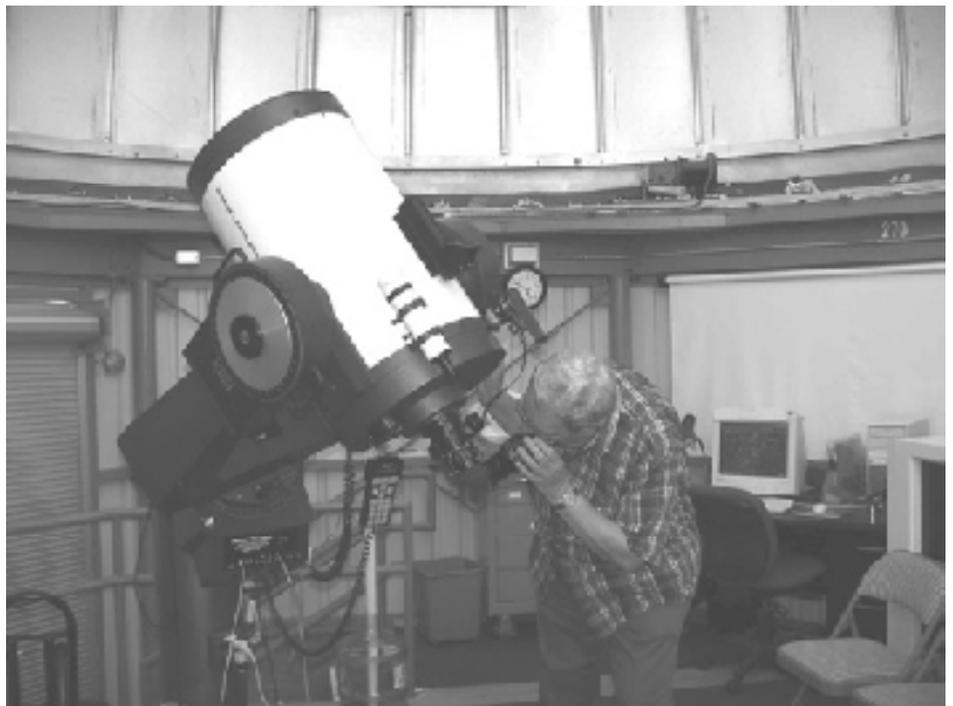
The site itself looks South onto the Atlantic Ocean. This provides very dark and steady skies. Along with the many astronomers are hundreds of telescopes of every type imaginable from 4 inch Sun scopes to 36 inch Dobsonians. Some of these telescopes are major instruments, such as the 9 inch Applied Physics refractor and a number of large Cassegrains. There is no need to take a telescope since looking through other peoples' is the name of the game just so long as you Ohh and Ahh appropriately. There is plenty of that since this is a chance to see some of the more southern objects. The site is at 24 degrees, compared to our 43 degrees. Thus, a large number of interesting objects become visible. It is a little disconcerting to see Orion directly overhead. There were also some technical talks covering topics like remote control of telescopes, CCD imaging, planetary viewing and other astronomical topics all presented by nationally well known experts. I had a great time but it was a bit tiring. So Dick Goddard and I spent another week in the Keys to relax and topped all off with a two week Caribbean cruise to provide necessary and sufficient relaxation. (grin)

The second trip was to Arizona in April with a UW Alumni group. This group was led by our own Jim Lattis with the purpose

of visiting various astronomy related sites and especially visiting some of the UW activities on Kitt Peak. Included were trips to Kitt Peak, Lowell Observatory, the meteor crater, the Grand Canyon and the University of Arizona Mirror Laboratory. The latter is an amazing sight to see. There is a large furnace which rotates to form parabolic mirror blanks which are then polished in the laboratory. The furnace was used to make the two 8 meter, 25 foot, mirrors for the large binocular telescope to be installed on Mt. Graham, also in Arizona, in 2003. One of these mirrors was being polished at the time of our visit. It is quite amazing to see three people walking around on the mirror and polishing little parts of it at a time. Words cannot express the size of an 8 meter mirror. It is really BIG.

The visit to the grand canyon was just done because it was nearby as we traveled to see the Arizona meteor crater. The purpose of this part of the trip which took us up onto the Northern plateau was mainly to see

the meteor crater and Lowell Observatory. The crater is one very large hole in the ground. Pictures do not do it justice. Standing on the rim and seeing the tiny mining site at the bottom center gives it real perspective. This is an interesting site well worth visiting. Lowell Observatory in the center of Flagstaff is a very nice place to visit mainly for historical reasons. They have a fine museum showing many of the instruments used by Percival Lowell. An example is the blink comparator used by Tombaugh to discover Pluto. The actual original plates are in the machine and visitors can do the blinking to see exactly what Tombaugh saw in 1930. Additionally the group had a chance to look through the 24 inch Clark telescope used by Lowell for many of his observations of Mars. We were just an hour too late to actually look at Mars, which had set very shortly after dark. But we did see a few nice objects through the telescope. The entire observatory is kept in wonderful shape for tourists. Actual



*This 16 inch Meade LX200 (in a 25 foot Ash dome) is the telescope used for the Advanced Observers Program. The telescope is remotely controlled from a computer in the reception center. Imaging was done with it using an SBIG camera.*

astronomy is now done at a site about 15 miles out of Flagstaff where dark conditions persist.

The highlight of the trip was for me the trip to Kitt Peak. In fact when I decided to join the UW Alumni trip, I arranged to go to Tucson several days earlier and visit Kitt Peak as part of the Advanced Observers Program (AOP). More later about this adventure. I stayed at the same hotel as the alumni group and joined them when they arrived on Saturday. My description of Kitt Peak is in two parts. The first is my own experiences at the Peak and the second with the UW group. I arranged months ahead of time to spend an evening on Kitt Peak in the Advanced Observers Program. This is a program for people wanting to spend a night on the Peak viewing and imaging with one of the telescopes. The program is excellent in every way. I went up from Tucson in the late morning, reaching the Peak at about 1 PM. They have a reception center where you introduce yourself as the AOP for the evening. Things immediately swing into gear. I was shown the facilities

near the reception center including the dormitory, dining hall and parking space. The dormitory is actually a small hotel room with all facilities and parking right outside. This where many of the visiting astronomers stay. It is very quiet since the astronomers are sleeping during the day. The dining hall is really a combination restaurant cafeteria and place to relax. There are several hot meals served each day and there are always coffee, cookies, juices, sandwiches and fruit available anytime. There are incredible 24 observatories on Kitt Peak.

I met my mentor at about supper time in the cafeteria where we discussed my viewing and imaging plans for the night. The mentor, an assistant to work the telescope, guides you through the entire night and sees to it that the equipment is all functioning correctly. I had decided to do some serious viewing, then some imaging for a few hours, and finally some more viewing. The use of the telescope starts at about 9:30 and runs until dawn. This was a terrific experience. It was a joy to view some familiar objects through the excellent skies at Kitt Peak. The Peak is at 7,500 feet above the Tucson desert plane. Though only 40 miles from Tucson, the skies are very dark. Tucson can be seen in the distance as a fine line of lights, but it does not have the usual dome of light that most cities have. Tucson has very strict light pollution laws. All of the lighting must be shielded and thus directed downward. It makes an amazing difference.

As the evening went on, I did about an hour of viewing with the automated telescope and then undertook some imaging. Imaging is difficult even with well prepared equipment. I managed to get two color images. One was a small galaxy and the other a globular cluster. By this time it was 3AM so there was another hour or so for viewing. I managed to see a nice comet at near dawn. After this long night, I went to the dorm and got 6 hours of sleep. Then I had lunch and traveled back to Tucson to recover from the all-nighter. This was a most exhilarating experience. I recommend it to anyone.

The next day, I met with the UW Alumni group and we were off on a whirlwind trip most of which is outlined above. A part of the Alumni trip was a visit to Kitt Peak to see some of the facilities in more detail and

to especially see some of the UW work and facilities. We had a grand tour of the large Mayall telescope, the gigantic solar telescope and several other observatories. One of the great instruments we saw was the WIYN telescope. This instrument was shown to us by Art Code who acted as our tour guide on the Peak. The WIYN telescope is a 3.2 meter instrument with a thin mirror made at the University of Arizona Mirror Lab.

The telescope is a great collection of mechanisms, mounts and electronic equipment. The mirror is controlled by 76 servomechanisms that make it hold its shape as it is moved. The two Nasmyth focus ports are loaded with experimental equipment. This telescope is one of the marvels of modern astronomical instruments. There is too much to it to describe here. It must be seen to be believed. The second trip to the Peak really rounded out my Kitt Peak experience. It was all a great experience. I would go back to the Peak anytime for a great experience and unbelievable night time skies.

Regards to all MAS members. RAG.



*The Mayall Observatory. It is named after an astronomer by that name who was deeply involved in setting up the Kitt Peak observatory site in 1957. The actual telescope is at the 120 foot level. Its 4 meter scope is the largest on the peak.*



*This is a 36 inch Dobsonian. I do not know the name of the person, but the Dob has been there every year for at least 5 years. I looked at Jupiter through it one year and lost my night vision accommodation. Just climbing the ladder is terrifying!*

## A Star to Call One's Own

by Greg Sellek

Most astronomers have heard of the star-naming schemes, whereby you pay an organization a sum of money to 'officially' name a star. There are several of them out there, and a quick search on the Internet resulted in over half a dozen companies, all willing to name a star for you for a not-so-small sum of money. Since only the International Astronomical Union can officially name stars, comets, minor planets, etc. it always seemed a bit odd to me to pay someone just so they would write your name in their own database of stars, never to be seen again.

So you can imagine why an odd sensation came over me when I opened the baby present given to us by some college friends. Inside were two very nice-looking framed documents. One stated that a star had been named 'Ryan Douglas Sellek' (our new son's name) and would be recorded forevermore in the International Star Registry. The other was a star chart of Orion, showing the exact location of our son's star. At first, I was a bit surprised to see the star dot so large next to the shoulder of the Hunter, just southeast of Bellatrix. After looking at star charts for years (where a bigger star 'dot' means a brighter star), I figured it must be at least magnitude 1. However, the fine print at the bottom of the frame did show an exact RA and Dec along with a magnitude, 13.4. 13.4, that's not even bright enough to see in a small scope, let alone the naked eye!

My friends are standing there with excited grins on their faces. Orion is my favorite constellation, and they were delighted that Ryan's star was in Orion. Now, I'm faced with a dilemma. Do I tell them that the whole thing is a sham, and that they just spent their money on nothing but a cute poster of Orion with a dot on it saying 'Your Star Here'? Or, do I smile and thank them for their thoughtful gift... I smiled. After all, it was probably the most thoughtful gift anyone has ever given us, and certainly an appropriate one for our new born child. They didn't know any better, and maybe never will.

Unfortunately, I could never bring myself to return the favor and buy a star for

someone else. However, I don't see any harm in hanging the star chart with Ryan's star on the nursery wall. Besides, if they come to visit again they would wonder where it was, and then I would have to explain. By the way, if you're ever star-hopping near Bellatrix, remember, GSC 112:1916 (RA: 05h 18m 10.3s Dec: +06°06'08") is now called 'Ryan Douglas Sellek.'

### Side note:

I'm curious to know if anyone else has ever run into a similar situation and how you handled it. Anyone ever buy or receive a star? Has anyone ever been asked to show someone 'their star'? Write me at orion2598@hotmail.com.

## A Note from the Observatory Director

by Tim Ellestad

Common mice have infiltrated the observatory - the tiny gray buggers. They're a real pest. For the most part they keep to business elsewhere but at this time of year they suddenly seem to aspire to more luxurious digs (well, maybe it has something to do with the approaching winter).

As cute as you might think they are, these critters are not welcome. They can generate large scale destruction if populations get out of hand. With the small numbers already seen we have had chewed, stripped, and severed wires as well as shredded paper and fabric. They're not just untidy, either—they're downright slovenly. They will leave a filthy mess for you to get into anywhere they please and with a little time the accumulation can get quite odoriferous. Besides the scat, tell-tale signs include piles of shredded paper and fabric that are usually functional nests.

If you find them, get rid of them! Use your imagination. Just don't damage anything in the process (including yourself). Multi-catch traps have been baited and put in place but they have to be checked and emptied. We are not using the "sticky traps" that were otherwise effective in the past because, unfortunately, people messed up shoes and

## A Note From Your Treasurer

by Mary Ellestad

MAS warmly welcomes the following new members: Gary Knutson, Rob Washenko, Tim Wilson, and Alex Olson.

To those who have already paid for your MAS dues and subscriptions renewals - Thank you very much for being prompt. If you still haven't sent in your payment, please do so real soon as it helps when I am working on the MAS budget. I also need it in order to renew your subscriptions by the end of September. Astronomy magazine has already sent me their bill for renewals due by Sept. 30th and Sky & Telescope will be here any day. Besides - It just doesn't make any sense for me to run off to Cancun until I have all your payments!!

clothes with them in the dark and they actually have become quite expensive. Also, we decline to use poison at this time, again, because of the jeopardy for observers in the dark as well as the negative environmental effects of secondary toxicity on natural mouse predators and pets.

Should you be successful and nab one or more of these intruders please avoid any direct contact. The standard gray variety are probably just dirty but the white footed mouse, easily confused in poor light, is a frequent host to the deer tick, the carrier of Lyme disease. Please use any convenient device handy (there is a nice new snow shovel just behind the clubhouse door) to convey and propel these undesirables into low orbit and well away from YRS facilities.

Beyond these efforts little can be done. In the future, more frequent mowing will help the indigenous mouse patrol (hawks, owls, coyotes, etc.) to do their job and, in turn, help us. Don't be disheartened if new recruits quickly replace the enemy numbers that you have previously taken out; YRS is out in nature—the mouse supply is endless. However... winter will put an end to their campaign for another year.

## Book Reviews

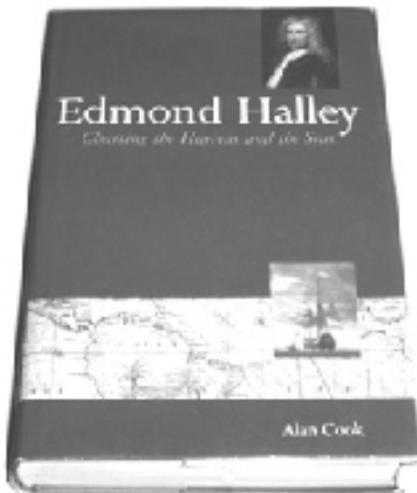
'Edmond Halley: Charting the Heavens and the Seas' by Alan Cook (May 1998)

'Explorer of the Universe : A Biography of George Ellery Hale' by Helen Wright (December, 1994)

Reviewed by John Rummel

Cook has produced an outstandingly thorough and meticulously researched biography of one of history's most celebrated scientists. Matters related to events in Halley's life are notoriously difficult to reconstruct. He was not a pack-rat like Newton or Kepler, and failed to keep thorough diaries like Hooke. Biographers have to rely on the notes of others, public records, and published papers. Cook rises to the occasion and has produced a biographic work that will rival those of other important scientists of the era.

Though remembered chiefly for the comet that bears his name, Halley was a scientist of extraordinary breadth and depth. Cook reconstructs all the major categories of Halley's productivity. Chapters are devoted to his youth, the year spent at St. Helena mapping the southern stars, his key role in prying the Principia out of Newton, his role in the quest for longitude at sea, his years as the Astronomer Royal, as well as his career on the high seas, both as a ship's captain (civilian) and scientist/explorer. A scientist like Halley demands a biography of considerable scope, and Cook delivers.

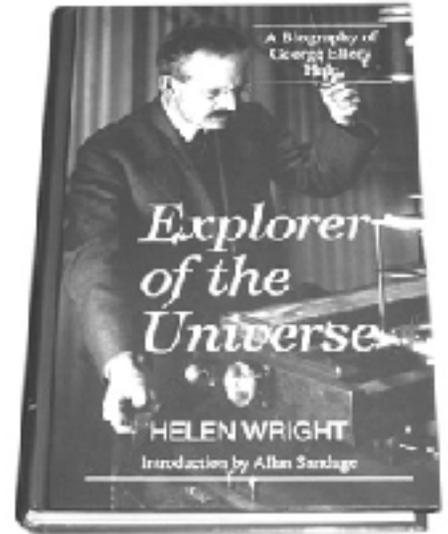


As much as any biography I've read, Cook's "Halley" spends considerable space delving into the contemporary zeitgeist. The 30 page opening chapter "Halley's World," is a splendid essay on the culture and spiritual/political/popular world of the late 17th and early 18th century in Great Britain and Europe.

This book is not an easy read, but it is absolutely essential for any student of the golden age of science. Halley lived in Newton's shadow, but was never eclipsed. Cook has done the literary world a great service in this book.

By definition, biographies have as their subjects those who have achieved greatness. Biographies of well known scientists rank among the best of the genre: Einstein, Newton, Galileo, Darwin, Pasteur, Curie, Feynman, etc.

Few, however, can compete with the list of accomplishments of George Ellery Hale. Perhaps justifiably he is remembered as the builder of giant telescopes. He built three of the greatest of all time, and spearheaded a fourth—the Palomar 200 inch—though he did not live to see it completed and named in his honor. However, Hale's considerable life's work goes much further. He was a groundbreaking solar astronomer, inventing new instruments and methods of studying the sun's activity. His invention of the spectroheliograph and subsequent discovery of the magnetic field lines of sunspots nearly earned him a Nobel prize (Hale was nominated for the Nobel prize in physics by many other recipients of that award—including Millikan. Wright repeats the unfounded rumor that Alfred Nobel did not like astronomers and wanted no astronomer to win that award, a bias which was not overcome until the 1970's). The Nobel Prize was the only major scientific



honor that eluded Hale. He won the Copley Medal of the Royal Society of London, the Janssen Medal of the Paris Academy of Sciences (twice), the Rumford Medal, the Gold Medal of the RAS, the Draper Medal of the NAS, the Bruce Medal, the list goes on.

He founded the Astrophysical Journal; was foundational in forming the International Astronomical Union and the American Astronomical Society. He was instrumental in the transformation of the Throop Institute of Pasadena into the venerable California Institute of Technology and attracting top-notch talent to its teaching and research staff. He had a vision for the cooperation of the sciences, and the National Academy of Sciences and the National Research Council were the result.

As great as his organization abilities were, his true love always remained that of plumbing the depths of stellar evolution, and he was always eager to return to his own research. In the process he turned down the presidency of MIT. He took a pass when offered the position of Secretary of the Smithsonian Institution. He also eventually resigned as director of the Mt. Wilson Observatory, both for health reasons and to allow himself time to return to his first passion: solar research.

Hale was also committed to sharing the scientific fruits of his institutions with the public. Early on he was committed that the Yerkes refractor be opened to the public

*Continued on page 3*



*Capitol Skies*  
2810 Mason Street  
Madison, WI 53705

**First Class**

*MAS would like to thank:*

*Tim Stanton and IMAGES UNLIMITED*

*for printing the newsletter*

*and*



*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

- Newsletter Editor: open to appointment
- LX200 Observatory: Dick Greiner 233-6882  
(ragreiner@mailbag.com)
- Photo Editor: Tim Ellestad 233-3305  
(ellestad@mailbag.com)
- Webmaster: Dan Strome 241-3775  
(dan.strome@mpcug.com)
- Variable Stars: Dave Weier 241-1444  
(daveweier@att.net)
- CCD Imaging: Dick Greiner 233-6882  
(ragreiner@mailbag.com)
- Jupiter Observations: Wynn Wacker 274-1829  
(wkw@mailbag.com)
- Deep Sky Observing: Tom Brissette 833-4225  
(tom.brissette@midplains.net)
- Minor Planet Search: Greg Sellek 848-6301  
(orion98@charter.net)

<b>MAS Membership Form</b>	
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 Ellestad, 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"/>