



Capitol Skies

The Newsletter of the Madison Astronomical Society

June/July 2007

The MAS Annual Picnic and Meeting

The MAS annual picnic and meeting will be on **Saturday, June 9th** at Yanna Research Station. This replaces the regular June Friday evening meeting at Space Place.

You are welcome to show up early—there will be a yard work party held starting at 1:00 pm to do some bush and tree trimming prior to the main event, a short business 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 grills. Call the Ellestad's at 608-233-3305 or any other officer if you need directions to YRS.

Please plan to attend this enjoyable annual event!!

Greg Sellek Discovers Minor Planet

By Matt Mills

On the night of April 20, 2007, Greg Sellek, a past president of the Madison Astronomical Society, discovered his first minor planet. The minor planet was designated 2007 HG5 by the Minor Planet Center on April 25th. NASA has determined that it is an outer main-belt asteroid orbiting between Jupiter and Mars. It has an absolute magnitude of 15.2. When Greg took the discovery image the object was 1.494 AU from Earth.

Minor Planet 2007 HG5 takes a little less than six years to complete its orbit around the Sun. When it is 'recovered' on its return trip around the Sun it will receive a new numbered designation. Greg will have the opportunity to name his discovery at that time.

Presently, Greg is imaging from the Greiner Research Observatory, Middleton, Wisconsin. He is an active researcher with the Minor Planet Project team operating from the Greiner Research Observatory.

Welcome!

Welcome To New MAS Members - George Machian, Terry Genske, John Moisant, Les Phelps, Brent Renteria-Packham, John Chisholm, Randy Marks and Kent Vollmar. If you are an observing member and would like your YRS orientation, please contact Tim Ellestad at 608-233-3305 and he will schedule a time with you.

From the President's Desktop

by Jeff Shokler

I am very pleased to extend an invitation to everyone to attend our upcoming June picnic and annual meeting on Saturday, June 9th. For those who might be interested in helping out with a few small projects out at YRS in conjunction with the picnic a work party is planned for 1:00 p.m. with the goal of cleaning up the site and trimming brush. Please bring saws, pruners, rakes, and gloves if you would like to participate! As in past years the business meeting and officer/board elections will begin at 4:00 p.m. The picnic (and food!) will follow at 5:00 p.m. Weather permitting, there will be observing at YRS that night, so plan on bringing your observing equipment or just your eyeballs for some great observing (cross your fingers!).

I would also like to take this opportunity to thank Chuck Forster, our speaker at the May 11th general meeting, for joining us and presenting on the topic of Amateur Radio Astronomy. Chuck's presentation was both fascinating and inspirational. If anyone is interested in exploring radio astronomy just let a MAS officer know and we can check into the possibility of forming an interest group in the society.

Tell your friends, bring your family, and join us for the MAS June picnic, annual meeting, and star party!

The Minor Planet Project at the Greiner Research Observatory

by Matt Mills

The Minor Planet Project is now based at the Greiner Research Observatory (GRO) in Middleton, Wisconsin. The Minor Planet Project was begun at the Madison Astronomical Society's Yanna Research Station in 2001. The Yanna Research Station is located near Brooklyn, Wisconsin, Observatory Code 927. A total of 267 astrometric measurements from the Yanna Research Station were accepted by the Minor Planet Center from 2001 through 2005.

The GRO was constructed in the Spring of 2005 and obtained the Observatory Code, H51 from the International Astronomical Union shortly after it became operational. The GRO houses a robotic telescope which can be operated entirely over the internet. The Minor Planet Project uses the Meade 0.4m LX200R at f/8.8, giving us a focal length of 3520mm. The telescope is mounted on the Bisque Paramount ME. The SBIG 1001E research camera is used to image minor planets. This combination gives us 1.4 arc-seconds per pixel with a field of view of 24 x 24 arc-minutes. Remote focus is achieved using FocusMax and the Optec 3" TCF-S.

The imaging and measuring team consists of five members, Richard (Doc) Greiner, Greg Sellek, Mark Hanson, Dennis Roscoe and Matt Mills, the principle contact for the Minor Planet Center at Harvard.

The mission of the Minor Planet Project is to gather astrometric observations of small solar-system bodies and submit those measurements to the Minor Planet Center. Our main goals are confirmation and early follow-up of Near Earth Objects (NEOs), recovery of minor planets in their second opposition, follow-up astrometry of poorly observed NEOs and critical objects, and the search for new minor planets. Our primary goal is astrometric follow-up of one-opposition unnumbered objects.

The Minor Planet Project has had 2,263 accepted minor planet and comet astrometry measurements since 2005 by the Minor Planet Center.

The Minor Planet Project maintains a website at:

<http://www.minorplanetproject.com/>

Our search methods and techniques are described on the website, as well as all of our on going scientific research.

MAS Telescope Loaner Program

by Ian Jarvis

Two years ago, I was given, on loan, an 8-inch Dobsonian telescope. Last year I was presented with the 8-inch Meade Schmidt-Cassegrain, which gave me another opportunity to pursue an avid astronomical appetite. Needless to say, this fine optical piece of engineering was no match for anything, of comparative size, I had ever used before. The convenient right ascension, declination mount combined with professional grade mirrors and an array of eyepieces and filters absolutely blew my mind. And that was before I tried it out. Aiming at the sky, I peeked into the eyepiece and discovered a whole new realm of possibility. Slewing around for a while proved just how wonderful the telescope functions. So in a sense, the past year was as much of a new and exciting experience as the one before. Next year, I will be attending Beloit College where I plan to major in physics and study astronomy.

I would like to thank the MAS for loaning me the telescope and John Rummel for showing me the ropes and encouraging me as well as others to pursue our nightly interests.

Calendar of Events

- June 9 MAS Annual Picnic at YRS. This replaces the usual monthly meeting. For information and contact info, see the first page.
- June 12 Space Place Guest Speaker, 7:00 pm; (2300 S. Park St., in the Villager Mall). Dr. Miller Goss, Operations Director VLA, Socorro, New Mexico. "A Woman, a War & Radar: The Early Days of Radio Astronomy in Australia."
- July 13 MAS monthly meeting at Space Place (2300 S. Park St., in the Villager Mall). Business meeting 7:00 pm, main meeting 7:30; "Purchasing your first (or 100th) telescope: getting the most value for your money." Presenter: John Rummel.
- August 10 MAS monthly meeting at Space Place (2300 S. Park St., in the Villager Mall). Business meeting 7:00 pm, main meeting 7:30; "Astronomical mirror cleaning - new technologies." Presenter: Philip Jackson, Photonic Cleaning Technologies.

Community Outreach Opportunity

Oakwood Retirement Home is looking for an amateur astronomer to come and in and do a presentation on a monthly basis.

- Target Group: 60-90 years old (Independent living residents, sharp individuals)
- Topic: Anything related to astronomy that is not too complicated
- Dates: sometime in July, August, September, and October.
- Time: Afternoon (1 hour)
- Place: Oakwood Village West, 6209 Mineral Point Road Madison
- Size: 40-100 residents
- Contact Info: Nicole Harpt, Activities Assistant, 230-4223
- Pay: Held for discussion

Book Review: *The Sun Kings: The Unexpected Tragedy of Richard Carrington and the Tale of How Modern Astronomy Began* by Stuart Clark. Princeton University Press, 2007.

by John Rummel

The 1800s was an explosive period in the history of science. As the tools of observation and measurement rapidly improved, new discoveries were happening on almost a daily basis in every field. *The Sun Kings* documents developments in astronomy during this tumultuous period. And it does so in a such a way that immediately endears itself to me: by revealing a major character and an area of study with which I am largely unfamiliar. Astronomy from Kepler onward was largely concerned with charting stellar positions more accurately (to obtain the longitude, chiefly), discovering new planets and asteroids, and, as the latter half of the 19th century unfolded, with determining the makeup of the universe through spectroscopy. *Sun Kings* focuses on a neglected (at least by me) area of solar system research, that of the development in our understanding of the sun - the only star that we can examine from up-close.

The principle character of the story is astronomer Richard Carrington (1826-1875). I was unfamiliar with Carrington prior to reading Clark's book, as I gather are most amateur historians of astronomy, as judged by the fact that he merits barely a paragraph in Wikipedia. Carrington's contributions however, are far larger than his footprint in history. In 1859, Carrington was observing sunspots in his private observatory in southeast England. At the time, nobody knew exactly what sunspots were, and beyond noting their size, number, and longevity, nobody paid them much

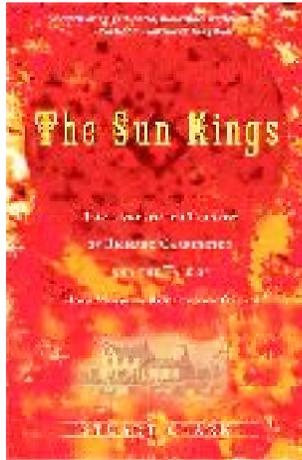
attention. Carrington's primary interest was determining the rotation rate of the sun by precisely timing the transits of the spots. On this day however, Carrington was the first to observe what is now known as a solar flare. Along with the contemporaneous discovery of the tool of spectroscopy, 1859 represented a true tipping point in the development of astronomy, though one that is little appreciated now, and was strongly resisted at the time. Scientific interest in the phenomena of aurora and of regular magnetic disturbances picked up by compasses and other sensitive instruments were also piquing scientific curiosity at the time. Carrington speculated that there was a connection between these new flare phenomena and the spots which seemed to spawn them, and the anomalous terrestrial happenings. The problem was that no one could imagine a

mechanism for how events on the sun could so influence events on the earth. No less an authority than the larger-than-life Astronomer Royal George Airy had said such a connection was preposterous, and to buck a pronouncement by Airy was equivalent to intellectual suicide. History has shown Carrington to be correct, and Airy wrong, but Airy's opposition and his preeminence in British science certainly accounts for Carrington's obscurity. *Sun Kings* tells the whole story in gripping fashion.

Carrington and those who followed him made profound contributions to the development of astrophysics, a discipline that wouldn't even be named until half a century later by one of Carrington's direct intellectual heirs, George Ellery Hale—

who is remembered primarily for his success in building large observatories, but who also made breakthrough discoveries in the nature of solar physics and was the first to photograph a solar flare. Clark's tale continues with work of Maunder, Schwabe, Spörer, the Herschals, Airy and many more. He documents how Carrington and others utilized records of telegraph service disruption (which often occurred around the time of bright auroral displays) and made the connection with solar activity (and recalls the elder Herschal's similar observation of the relationship between the frequency of sunspots and wheat prices in Europe, an observation that had a similarly detrimental effect on his reputation). He tells the stories of eclipse observations and photographs which, during periods of peak solar activity, resulted in coronal displays that were much more expansive than during times of minimal activity. Walter Maunder and his wife Anne actually photographed coronal streamers extending out from the sun's disk many times its own diameter during the eclipse of 1898. Such observations helped to cement the contention that activity on the sun could affect telegraph lines and compasses on Earth. Finally, he also covers the controversy as it continues today as the connection between solar activity and the climate on Earth continues to be explored and debated.

Clark's account is engagingly written and manages to include a tremendous amount of information without being overwhelming. The science is covered extensively, as are the personal stories of the people. There is something wonderful about being escorted on such an entertaining trip down a less-traveled road of the history of science. Clark's research and presentation are meticulous and his writing style is clear. The narrative makes for an entertaining and informative read.



Book Review: *The Hubble Wars*. Eric J. Chaisson, 1994. Harpercollins Publishers, New York.

by Don Martin

When this book was published in 1994, NASA was an agency so entrenched in bureaucracy, hyperbole and paranoia (over its image) that it was almost impossible to work with them and maintain any credibility as a scientist. I do not know if the agency is less bureaucratic and more accountable now as I have not had an opportunity to find out (if that is even possible), but I hope it is a better run agency some fourteen years later.

Fortunately when Hubble was launched on 24 April 1990, there was one very competent part of NASA that was conducted themselves with professionalism and genuine concern for the success of the Hubble project, and that was the crew of Space Shuttle Discovery. "Its crew of five astronauts had performed their mission superbly – the only aspect of the mission that had gone almost exactly according to plan."

During his tenure with Hubble, Chaisson maintained a daily journal that provided the meticulous details and personal observations concerning the Hubble project without the issue of relying on memory.

Coupled with this wealth of accurate, day-to-day information, is Chaisson's writing style that is clear and concise, yet does not bore with excessive details, but instead it is a readable account of the largest and most complex and expensive science project undertaken by humankind. Chaisson introduces and then expands upon the intricacies involved from conception through development, production, launch, commissioning, and science (up to early 1994) of Hubble.

His concise account of Hubble and his involvement as a senior scientist with the project from 1987 to 1993, including the first three orbital years, provides one of the best resources on this complex scientific project in terms of both science and the extensive interactions between so

many different personalities and agencies involved.

His writing style helps bring Hubble to life in a refreshing way such that technical details of both science and engineering, including observations made with Hubble, are presented in a way that is understandable to the lay reader with little familiarity with the details, and yet not so simplistic that various professionals conversant in one or more areas discussed by Chaisson should feel he is talking down to them.

While relating the complexity involved with the hardware and software of Hubble, the myriad support elements (both in space, such as the solar arrays) and on the ground (Goddard, Marshall, and the Space Science Institute), he gives a wonderful account of the conflicts between varied personalities, some with exaggerated egos, or individuals who seemed to function on the paranoia principle that translates as more concern for their personal status or the status of their agency or observational program than for the success of the Hubble project.

The infighting, posturing, deceit and dishonesty displayed by far too many participants went to such egregious levels that I was actually shocked by the number of incidents and how vicious they could become (are we talking naïve here?). These interpersonal conflicts, at times more than just contentious, but outright infantile and acrimonious, shows the dark side of melding politics and science without the requisite system management and clearly defined roles for each participant, whether as individuals or agencies.

One particularly troubling incident occurred in the summer of 1989 while Chaisson was attempting to explain the rationale regarding early Hubble images to display to the public. This effort was hotly contested by a number of astronomers who feared being upstaged if a

notable discovery were made by someone other than themselves, thus depriving them of the credit for the discovery.

In that meeting one member objected so violently and in an uncouth manner, "...repeatedly and heatedly interrupted, eventually blurting out loudly and with great emotion, 'If you look at those objects before I do, I'll kill you.'" Only slightly perturbed, I took this outburst in the spirit of a grown man whose delusions of grandeur had gone to his head – but it was a highly charged, albeit irrational, statement, one that several members of the working group found egregiously offensive." Duh? and that is science? sounds like that particular individual would have been more at home in a Mafia style gangland meeting than one for scientist interested in broadening our understanding of the universe we live in.

Chaisson's ability to communicate to the layman without losing him is not unlike the difference between the fiction writer who simply bores his reader by telling a story, and the writer who delights his audience by showing, and therefore engaging, their interest in what he has to say. Thus he brings much of the Hubble project to light in a refreshing way because he can write about the technical details of science and engineering, including observations made with Hubble, in a way that is palatable to both the lay reader and the professional already well versed in one area or another.

In *The Hubble Wars* Chaisson strongly advocates that government and scientists should both be proactive in their support for and active involvement with education; Chaisson was quite active in developing education programs at this time, being a vocal adherent and spokesman for the dissemination of scientific knowledge, while being proactive in encouraging programs that help children to become interested in and pursue careers in the sciences.

And yet *The Hubble Wars* also shows

an erudite and intelligent man with a great sense of the place of astronomy (and science in general) at both the academic level and as perceived by the public. His sense of humor is refreshing, his sense of self (who he is in the overall scheme of Hubble) shows a man without an all encompassing ego the size of the Defense Department's budget, instead the reader sees an astronomer who embraces not only the pursuit of knowledge through the scientific process (method) but a strong advocate for education, both in schools and the public at large, concerning astronomy and science in general.

As for humor, well, after reading the book, it certainly took a person with a sense of humor, patience and forbearance, to remain sane and professional in the face of the outrageous conduct and egregious acts displayed by various members of government, military, science, and even the press.

At the same time I was delighted with the easy way he wove the intricacies of the 'Hydra' that the Hubble project became in terms of the multitude of personalities and agencies involved; more often than not in virtual life and death struggles over their area of responsibility or territory (turf wars), or else egomaniacs and paranoiacs who were far more concerned with image than the success of Hubble. So not only does Chaisson explain the technical & scientific aspects of Hubble in clearly and in understandable language, he is equally adept at showing the reader the intricate interplay between the various individuals that helped to bring Hubble to fruition. From individuals who were more concerned with Hubble's success than their own agendas, to those who, while not necessarily trying to destroy it, still made decisions not in Hubble's best interests, and finally to individuals more concerned with their own or their agency's agendas and images than for the success of Hubble.

Thus in *The Hubble Wars*, Chaisson weaves an intricate story of a three-way confrontation in a political-economic interplay of human personalities from private industry, the government (including military interference from their

"National Security" perspective and NASA's paranoia factor that overrode everything else), and the international scientific community that Chaisson examines in detail.

The Hubble Wars, then is not an attempt to portray any individual or group as good guys or bad guys, but to relate the extreme complexity of the Hubble project as he states in the preface, "Rather, it is the process and methodology of science...I seek to disseminate, sharing the ups and downs of hard science and engineering along with nontechnical vignettes of what I felt and experienced while intimately involved in such a grand and difficult project. This is the real 'scientific method,' with all its human values and emotions not well described in sterile and specialized textbooks. To be sure, modern science has a decidedly subjective component and none more evident than in expensive, politicized, and publicly visible projects such as this one."

Chaisson never comes across as superior to anyone else involved with Hubble, on the contrary, he acknowledges his own foibles as well as those of the other participants, which is what this book is really about, Astropolitics as seen from two perspectives: The science project – Hubble, in relation to the political interplay between the myriad individuals and agencies they represented – the Wars.

But why the entrenchment, the obsession with protecting image among so many individuals involved? Why was NASA so paranoid about publicity and what prompted them to become the spin-doctors par-excellence?

One could object that these questions, and attempts to address them, fall outside the scope of this review; the counter to that line of reasoning is that by asking and attempting to answer them one gets to the very underpinnings of how dysfunctional the system has become, or, if you wish, degenerated to.

I don't claim to know any answers, but the need to ask is as important as answering, for if we never make inquiries, then we can never advance beyond the limiting confines of the parochial milieu we would be enslaved in. The answers, at least in part, stems from the way our

legislative and executive branches of government dole out the funding, that is, by, if not overt threats to future funding, then certainly by implied threats, that either certain results had better be forthcoming or the proper spin better be employed so that the results come within some acceptable degree of pre-funding expectations.

While this is an over simplification of a much more convoluted and insidious process of funding projects, it does get to the gist of the issue in that people in power usually have preconceived notions they want substantiated. How they are substantiated or validated is of less importance than real concern of how the politician appears to voters in the next election – that is – increased or decreased chances of being reelected.

This mentality has become so pervasive that it is now endangering not only our educational system, but it is endangering our ability to discern truth from fallacy, or, if it goes far enough, to even care.

So when NASA's spin-doctor accounts of Hubble – that is – their attitude towards technical truth and accuracy of press releases that misrepresentations or outright lies were perfectly acceptable, then we see the specter of dishonesty playing full circle. An example of this is NASA's attitude concerning scientific concepts the agency botched with pre launch educational materials and press releases. As Chaisson notes, "These were not picky little facts...Rather, these were major conceptual errors that NASA knew were wrong and was repeatedly urged to correct but refused to do so since, in their words, 'this kind of selling is necessary if Congress is to fund our programs.' Today's technomanagers (and some scientists, too) just don't understand that honest arguments articulated well and with enthusiasm are often more effective than hype or the hard sell."

In the next issue of the MAS newsletter I will detail some of the more interesting clashes and incidents of *The Hubble Wars*.



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First Class

MAS would like to thank:

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for hosting our web presence

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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 at left or visit us on the web at:

www.madisonastro.org

MAS Membership Form

Name _____

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Please circle membership type:

Student (\$5.00)

Regular (\$30.00)

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Enclose check and make payable to the Madison Astronomical Society.

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