

OBSERVER

Happy New Year!



FEELING FINE, THANKS!

Appearing none the worse for wear after her LCROSS impact several months ago, Luna displays some of her finest features: the Seas of Serenity and Tranquility, side by side, just above center, and the giant rayed crater, Tycho, dominating the impact field at lower right. Image comprised of 50 .01-second images through a Custom Scientific h-alpha filter and an 80mm refractor.
Image copyright 2009 Steve Solon

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Calendar

1..... New Year's Day

7..... Last quarter moon

15..... New moon

23..... First quarter moon

30..... Full moon

JANUARY SKIES *by Dennis Cochran*

Celestial stuff happens: Jupiter is setting, still visible at the beginning of the year but getting mighty low in the crepuscular murk by month's end. Saturn rises after midnight on the 1st, and two hours earlier at the end of the month. The rings will tilt almost 5 degrees on the 9th but close down until May, when they start to re-open. Mars is rising east of Cancer the Crab at 7 p.m. and is at opposition on the 29th. The Red Planet will be 56% as large as it appeared during the close opposition of 2003, 14 arc-minutes instead of 25. Early next month Mars will pass north of the Beehive Cluster, M44, called Praesepe by the cool.

The Earth, after New Year's Day, is at perihelion, only 91.3 megamiles from the Sun. This closeness will do nothing to dispel the winter,

however, since the seasons are caused by the 23.5-degree tilt of the Earth from the plane of its orbit rather than by its distance from the Sun. That 1.7 million mile deviation from the average 93 million-mile distance illustrates the ellipticity of Earth's orbit that Kepler brought to our attention. In some contexts, astronomers might call such an orbit "circular" because it is so near to a circle. This distinguishes it from the really elliptical orbits of Kuiper Belt Objects, as well as many of the newly-discovered exo-solar planets, and the really REALLY elliptical, cigar-shaped orbits of comets.

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PRESIDENT'S CORNER

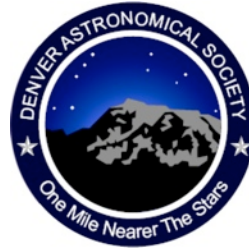
We are pleased to welcome our newest members, listed in this edition of the *Observer*, and are happy to have you join us!

The 2009 Holiday Potluck was well attended, and it appeared that everyone had a good time. Both Ron Pearson and Stephanie Pahl gave good presentations on their separate China trips to observe the solar eclipse. The banquet came to a close with a donation from the DAS to the University of Denver for the continued renovation of the Transit Room at Chamberlin Observatory. The donated monies had been managed by the DAS Restoration and Maintenance Committee (R&MC). As a lot of us know, the R&MC has been the major driving force in the care and maintenance of Chamberlin Observatory and the Clark-Segmueller 20-inch refractor telescope. Ron Pearson chaired the committee for many years and members have been keenly interested in maintaining Chamberlin Observatory and its historic significance. It was Ron and a small number of individuals who, in 2003, put forward solid concepts and a real proposal to DU for restoration. This is a part of DAS history that will be remembered. We owe Ron and

others who have struggled to keep Chamberlin Observatory the significant centerpiece of astronomy history, a debt of gratitude.

As some of us already know, Darrell Dodge does a great deal of work in maintaining our website and ensuring this newsletter gets picked up at the printer and that mailing labels are printed. Without constant and consistent attention, some of the things in the DAS we have grown accustomed to would be delayed or not done at all. The other partner in this virtual world is Chadd Warwick, who has, for the past three months, been maintaining the online reservation system.

During this short period of time, Chadd has improved its reliability and provided Public Night teams with information that helps them manage attendance on their assigned nights. Chadd has also made several proposals to the Executive Board toward a



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THE DAS HOLIDAY POTLUCK WAS WELL ATTENDED.

Photo by Ron Mickle



Society Directory

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The Executive Board conducts the business of the DAS at 7:30 p.m. at Chamberlin Observatory. Please see the Schedule of Events for meeting dates. All members are welcome.

www.denverastro.org

JANUARY SKIES (CONTINUED FROM PAGE 1)

**THE CALIFORNIA NEBULA**

About 100 light-years long, NGC 1499 (the California Nebula), resembles California on the west coast of our United States. Taken on November 17, 2009 at the EGK site, Joe used an ST-2000XM ccd camera with a Mamiya RZ 110-mm lens at f/5.6. He made 10 minutes of LRGB plus 80 minutes of Ha exposures.

Image copyright 2009 Joe Gafford

Far southeast in the evening, you may notice Sirius, the night sky's brightest star, in the constellation Canis Major. The Big Dog's body hangs down below the horizon from this colorful twinkler. If you're showing the public the sky when the seeing is bad, show them Sirius in your scope, twinkling like a disco ball. Halfway between it and Mars will be Procyon, the brighter of the two stars that make up Canis Minor. The dogs belong to Orion the Hunter, everybody's favorite asterism and often the only one that non-astronomers know. Orion has that well-known nebula, M42, so well-known that I won't mention it (except that it's too late).

Between Sirius and Procyon are a bunch of open clusters: M50 is on that line, a bit closer to Sirius than Procyon. Right below it is the nebulous patch, IC 2177, which used to be called the Eagle Nebula before that name migrated over to M16. Open clusters

abound in this region, including NGC 2335 and 2343 at the top and bottom of IC 2177. Other M-object clusters will be too far down to observe this month, so we'll visit them later.

How low can you go? Can you see Lepus the Hare beneath Orion? Can you see the glob M79 below Lepus? If so, and you're a faint-fuzzy person, you may want to try to find the Fornax and Eridanus galaxy clusters, portions of the Fornax Supercluster reported by Richard Jakiel in the January issue of *Astronomy*, p. 60. The Eridanus cluster is higher in the southern sky, at about -20 degrees declination, and east of Lepus, in the region straight south of the Circlet of Pisces. It is more spread out than the concentrated Fornax cluster, which is further south by ten degrees. The Fornax Cluster, to the upper left of Fornax's 3-star constellation, includes NGC 1365, a beautiful barred spiral

that I have on a T-shirt! Look at Jakiel's map for exact placements.

In the interest of safety, I want to inaugurate a new sub-topic: Bad Things That Can Happen to You While Observing. We'll review one per month, but sooner or later they, or even worse things, will happen, according to Murphy. Grit your teeth: life is tough.

First: Most astronomers observe at night. Most animals are active at night, especially the vermin, including arthropods such as spiders, centipedes, scorpions, tarantulas, ants & termites, cockroaches, beetles & bugs and things. Verminids are icky, slimy, hairy and have prickly legs. They come in two varieties: biters and stingers. Out on the telescope field, if you listen hard you can hear them scuttling in your direction, drawn to your warmth. They won't pounce, however, until you are wrestling your

expensive OTA into place on its mount, at which time you'll feel them creeping up your ankle slowly, tentatively, looking for the right spot. But don't drop that OTA! You hocked the farm and spent the kids' college money to get it. What's a little pain to a dedicated observer?

Only survivors of these Night Wrigglers of Death will be alive to attend the Chamberlin Open House on Saturday the 23rd or the DAS General Meeting on Friday the 29th, at which time we'll nominate officers. If you don't come, you risk being shanghaied into the toughest job - and you can't say "no" if you're not there. That's the only way we can fill some of these positions. I mean, would you knowingly run for Dark-Sky-Site Potty Cleaner? If you want to make a nomination before or after that meeting, you can call or email me; I'm on the nominating committee.

VISIT WITH A PAST PRESIDENT

by F. Jack Eastman

The highlight of the November General Meeting was a terrific talk by one of our own, past President of the DAS, Carla Swartz. She moved out to the “Land of Perpetual Smog,” Southern California, a few years ago, and being a terminally smitten astronomer, looked into the historic Mt. Wilson and Griffith observatories. After joining the guide staff at Griffith, she was asked to describe herself in three words or so. She said, “20-inch Alvan Clark Refractor” and was instantly upgraded

from Observatory Guide to Telescope Operator. She also joined the Mt. Wilson Observatory Association, and is, among other things, in training to operate the historic 100-inch Hooker Telescope.

Her talk first revolved around Griffith Observatory, which was closed for several years while being completely renovated and enlarged. An entirely new display area was constructed beneath the front lawn, almost tripling the exhibit space, and includes conference and classrooms. This was done in

such a way that the external appearance of the historic, largely art-deco building (designed by architects John Austin and Fredrick Ashley and built in the early 1930’s) remained unchanged.

The planetarium, which contained one of six original Zeiss projectors in the U.S. and Canada, was upgraded with the latest technology, including the newest Zeiss projector system. Carla said that about 13 million people have enjoyed the planetarium, from its beginning in 1935 to 2002. The original 12-inch Zeiss refractor, with its 9.5-inch guide scope, remains. It’s been estimated that an average of 350 people look through this telescope each clear night, somewhere in the vicinity of 7 million folks since 1935; clearly a leader in public outreach!

Carla then showed numerous slides of Zeiss telescopes from the early 1900’s, many of them on the unique inverted-fork mount like that at Griffith. One of the biggest was a complete refurbishment, from 2003 to 2006, of the Potsdam 80-cm refractor, originally built by Steinheil (circa 1889) and mounted by Repsold und Sohne; it is the world’s fourth largest refractor.

The subject then switched to Mt. Wilson and its narrow escape from the horrible fires of a few months ago. Carla spoke of her involvement with the 60-inch reflector (first light, 1908) and her current training to become an operator of the newly refurbished 100-inch Hooker reflector (first light, 1917.) It was interesting to hear what it takes to get that scope up and going, not the least of which is climbing up on the mount with a can of kerosene to lubricate the declination tangent arm – apparently, it sometimes makes ugly noises in the night and needs another dose of kerosene. This is reminiscent of the care and feeding of an old steam locomotive! Some of her photos

TELESCOPES AT GRIFFITH OBSERVATORY.

The 12- and 9.5-inch Zeiss Refractors of the Griffith Observatory. The newly added Celestron tube assemblies are used to send images of the object being viewed to video screens in the dome and the main hall downstairs.

Photo by Carla Swartz



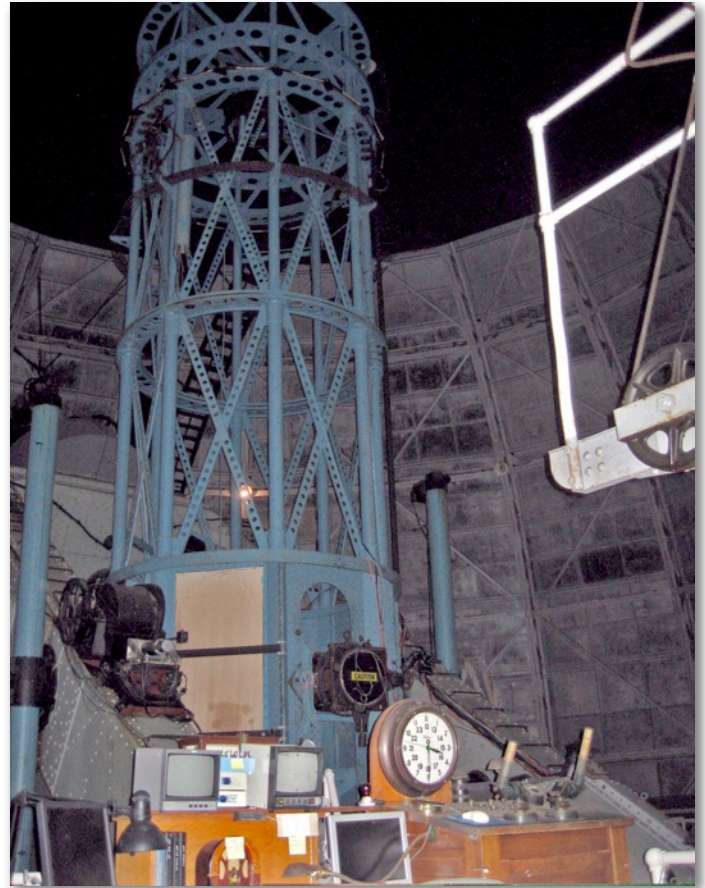
showed that, although the telescope has been equipped with modern angle encoders, the eyepieces for reading the setting circles (through a seriously complicated optical train) are still in place on the control console. The original weight-driven clock drive is also still in place, though currently disconnected.

All in all, a superb talk that sure brought back memories for me from many encounters with Griffith and Mt. Wilson before my escape to Colorado. Thanks, Carla!

THE 100-INCH HOOKER TELESCOPE.

The (mostly) original control desk of the 100-inch Hooker Telescope at Mt. Wilson (photo at right). The two brass tubes to the right of the Sidereal Clock are the optical "periscopes" for reading the Hour Angle and Declination setting circles on the telescope. Note the old radio below the monitors.

Photo by Carla Swartz



LOAN ME A SCOPE

The DAS is making one of its 8-inch Dobs available to loan to members. This is an ideal way to test or hone your skills if you're new to art of observing, or to check out a fine instrument if you're in the buying market. A \$100.00 renewable deposit is required for the one-month loan period and you must be a DAS member in good standing for at least 3 months. Please contact the DAS Equipment Quartermaster, Bill Ormsby, at: scopeloan@denverastro.org.

PRESIDENT'S CORNER (CONTINUED FROM PAGE 2)

more permanent, more reliable reservation system. Most of what Darrell and Chadd do goes unnoticed unless something in the IT field breaks or stops working. Thanks to both for their hard work.

I will not be running for President in 2010. Thanks to long-time DAS friend Jerry Sherlin, I was offered an opportunity at the Community College of Aurora (CCA) as an adjunct instructor in astronomy. While this is part time, it will require much attention and preparation. I still work full time for Homeland Security, so with the CCA astronomy course and other personal obligations, there is limited time for other commitments. I intend to continue my participation on the Public Night teams and the Open Houses. The decisions to accept the CCA offer and not to seek another term as President were difficult, primarily because it means less involvement with the DAS, which has been a rewarding part of my life since my wife and I returned to Colorado over 11 years ago.

As I mentioned in the December 2009 Observer, the DAS has over 300 members. This provides us a large pool of talent from which to draw. The General Election will be held during the February General Meeting. If you are interested in serving the DAS as an officer or Executive Board member, please let it be known at the General Meeting or contact me.

In closing, I want to wish all of you a safe and happy holiday season.



MESSIER CERTIFICATE!

As Chief Observer, Jack Eastman awarded Keith Pool his Messier certificate for observing all 110 Messier objects.

Photo by Ron Mickle

**WELCOME
December
New Members**

Jeff Smith
Bob Pinkham
Randy Allen

A TRIBUTE TO HANK RAE

By Chuck Habenicht

I first got to know Hank when I joined the DAS E-board, and when he became President of the Van Nattan Scholarship Fund committee, he asked me to join. Hank, Merrill Manion, Dr. Ed Everhart, Bob Spencer, Tony Brown and Herb Roth made up the rest of the committee.

The Van Nattan fund had just come into monies from the Charles Hanson estate, and the tax implications were such that a 501(c)(3) status would be highly beneficial, so the filing of a 501(c)(3) status was a top priority. Hank was a leader and a good businessman who led us (the DAS / Van Nattan) through previously uncharted financial waters, the 501(c)(3) as well as investments to increase the value of what we had just received for the sake of future scholarship recipients.

Although our talks were occasionally on astronomical themes, I remember Hank on the business end of the DAS, but most of all as a good friend. We had some great dinners together. I can remember visiting him on several occasions at his beautiful house on Al-bion St., always gracious and always caring. Farewell dear friend; the world is a poorer place without you.



A WISH UPON THE SKY

By Dennis Cochran

The Dream: A large-ish telescope in a permanent observatory at an astronomically good site—closer to the equator than Denver—replete with cozy mountain cabin.

The Site: The Mogollon Rim of Northern Arizona, an environment of pine, fir, aspen, meadows and cliffs. You may have heard of the nearest town: Flagstaff, home of Lowell Observatory. Also in the general area are the Grand Canyon, Oak Creek Canyon, Vortex City (Sedona), Arcosanti, Walnut Canyon Cliff Dwellings and the San Francisco Mountains, highest in Arizona, with skiing and beautiful aspen groves.

The Telescopium: I approach the dome of the one-meter Springfield with reverence and awe. It looks like a smaller version of the classy dome of the Palomar 200-inch telescope, built in a style more humane and beautiful than the industrial park-look currently in vogue. The builders of that dome knew they were involved in something noble and sublime. Inside, the long-ish f/7 tube of my mini-behemoth swings more below than above the declination axis, while a counterweight hangs overhead at an angle to the top of the tube. Learning to

ignore this weight is part of using a Springfield.

The Springfield is a kind of Coude, with the light cone diverted down the polar axis by the secondary mirror to hit a third mirror that reflects it up to the eyepiece, which at this latitude is slanted about 55 degrees up from horizontal. It is one of those rotating-field scopes, but since I do visual observation, this does not matter. With a single ocular, one could twist one's neck, as in *The Exorcist* as the field rotates, or just let it rotate.

The Observing Session: Now I sprawl in the plush observing chair and notice it is adjusted perfectly for the height of the binocular oculars. My drinky-poo goes in the cup holder next to the chair, while a writing surface can be swung out like a mini-desk, positioned correctly for my considerable girth—except that in this dream I have magically lost 100 pounds. And, what the heck—this is a dream—I look like poetic, sensitive German actor Oscar Werner, or at least Edwin Hubble with his ever-present pipe. I turn on the stereo for the *Magic Fire* Music from Wagner's *Valkyrie*. This is the music that was used for the sundown sequence that started the old Griffith Plane-

tarium shows. To me it signifies deep space and the promise of infinite adventure. This is a deep-sky scope, although it's good for planets, too. Jack Eastman recently discovered the canals of Jupiter with this scope.

I am ready to observe by the time the *Magic Fire* gets to the return of the main theme in full orchestra. Soon, I may start another Wagner-ish piece of music, maybe a Bruckner symphony. That would last an hour and be good for many light-years of observing. Later, when I tire of monumental German music, I can try some French impressionist music or anything that suggests open air and distant scenes. Observing binocularly through this scope is like looking through the wide front window of a starship. "Beam me up my star charts, Scotty!"

Ah. . . the oozing music, the tinkling ice cubes, the pine-scented breeze coming in through the dome slit, the clouds of stars, the slight crick in my neck. . . what pleasure!

DR. SUZANNE METLAY AT THE JANUARY GENERAL MEETING

By Keith Pool

Dr. Suzanne Metlay will present “Your Eyes on the Sky – NEOs, Satellites & More” at the January General Meeting. The talk will focus on how amateur astronomers aid in discovery and do much of the detailed work to confirm orbits of NEOs and space debris. Amateur astronomers play a vital role in finding and tracking these objects of interest to space professionals. By participating in online research like Galaxy Zoo, amateurs further assist scientific research for no pay, but the glory of eye candy and their own satisfaction.

Dr. Metlay is Operations Director of Secure World Foundation, a private non-profit, non-governmental organization dedicated to improving space governance. SWF is based in Superior, CO, with offices in Washington, DC, and Vienna, Austria. With Permanent Observer status to the United Nations Committee on the Peaceful Uses of Outer Space, SWF staff make presentations to the UN, as well as brief members of Congress on issues of space security, human and environmental security, and planetary defense.

Before joining SWF, Dr. Metlay was Education Programs Manager at Fiske Planetarium (University of Colorado at Boulder). As a planetary geologist and educator, she also taught at Front Range Community College and other local colleges, and encourages greater public support of robotic exploration and private entrepreneurship in space. Dr. Metlay last spoke to the DAS in August, 2008, when she gave her presentation on the Mercury Messenger mission. For more information, please visit www.SecureWorldFoundation.org.



ABOUT THE DAS

Membership in the Denver Astronomical Society is open to anyone wishing to join. The DAS provides trained volunteers who host educational and public outreach events at the **University of Denver's**

Historic Chamberlin Observatory, which the DAS helped place on the National Register of Historic Places. First light at Chamberlin in 1894 was a public

night of viewing, a tradition the DAS has helped maintain since its founding in 1952.

The DAS is a long-time member in good standing of the **Astronomical League** and the **International Dark Sky Association**. The DAS' mission is to provide its members a forum for increasing and sharing their knowledge of astronomy, to promote astronomical education to the public, and to preserve Historic Chamberlin Observatory and its telescope in cooperation with the University of Denver.

The DAS is 501 (c)(3) tax-exempt corporation and has established three tax-deductible funds: the Van Nattan-Hansen Scholarship Fund, the Public Outreach Fund and the Edmund G. Kline Dark Site Fund. To contribute, please see the bottom of the membership form for details (found on the DAS website: thedas.org).

More information about the DAS, its activities and the special tax-deductible funds is available on the DAS website at www.denverastro.org.



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www.sandsoptika.com

DAS SCHEDULE

JANUARY

- 8 E-Board meeting at Chamberlin Observatory (Begins at 7:30 P.M.)
- 15-17 EGK Dark Sky weekend
- 23 Open House at Chamberlin Observatory (Begins at 6:00 P.M.)
- 29 General Meeting at D.U.'s Olin Hall and nomination of officers (Begins at 7:30 P.M.)

FEBRUARY

- 5 E-Board meeting at Chamberlin Observatory (Begins at 7:30 P.M.)
- 12-14 EGK Dark Sky weekend
- 20 Open House at Chamberlin Observatory (Begins at 6:00 P.M.)
- 26 General Meeting at D.U.'s Olin Hall and election of officers (Begins at 7:30 P.M.)

Public nights are held at Chamberlin Observatory every Tuesday and Thursday evenings

beginning at the following times:

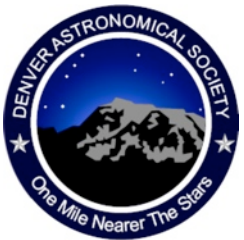
March 9 - April 14 at 8:00 p.m.

April 15 - September 1 at 8:30 p.m.

September 2 - March 8 at 7:00 p.m.

Costs to non-members are: \$3.00 adults, \$2.00 children.

Please make reservations via our website (www.denverastro.org) or call (303) 871-5172.



The Denver Astronomical Society
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