

OBSERVER

Summer Stingers



Rho Ophiuchi and The “Eye of the Scorpion”

The Rho Ophiuchi cloud—At a distance 407 light-years away, this is one of the more colorful objects in the sky. M4, about 7,200 light-years out, is shown with some of the oldest stars in the galaxy. The image was made at the south end of South Park at an altitude of 9,500 feet. Bryan used a Canon XTi (modified), Canon 70-200mm ed f/2.8 lens on a Losmandy GM-8, manually guided.

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3.....**New moon**

10.....**First quarter moon**

18.....**Full moon**

25.....**Last quarter moon**

JULY SKIES

We are coming from the galaxy months to the Scorpius—Sagittarius months when the sights shift back to the fine furniture of our own Milky Way, a galaxy seen from the inside. But first the planets.

The main planetary attraction is Jupiter even though in the early evening he is down in the soup. Since Saturn and Mars are still visible in early evening hours, when you first set up your telescope take a look west to the unfolding drama of the “tilt of the rings.” This month contains a complete lunar cycle from start to finish, so the early days of the month will not interfere with our sighting Saturn. On the 6th the crescent moon bunches up with Saturn and Mars. By mid-month the moon is full and clos-

ing on Jupiter above and to the left of Sagittarius. Jupiter doesn’t get very high these days, and is best viewed later in the evening. Look for two smaller storms to the left of the Great Red Spot in the South Temperate Belt. White spot storms may also be visible in the North Temperate Belt, which may be below the equator in your telescopic view.

Later in the evening is also good for the “teapot” of Sagittarius but we’ll talk about that next month. Let’s look for the objects that hang around the head of one of the two constellations that

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TELESCOPE OPERATORS AND HOPEFULS: TRAINING BEGINS!

The recertification/certification training has been set:

Sat., July 12, 9:00 A.M.-12 noon, Chamberlin Observatory.

You will need to bring:

1. Current *Ops Manual*, May 2008. Aaron printed up several of these and placed them at Chamberlin.

2. Pen or pencil.

3. Apprentices need to bring their Manual with "sign-off" log.

4. Blood type.

5. The answer to "What is dark matter?"

Maybe 4.-5. are taking it a little far.—*Ron Mickle*



The 20-inch Clark at Chamberlin Observatory

Photo copyright 2008 Darrell Dodge

A Buried Bauble Within M46

At the 1998 Texas Star Party, Joe photographed (yes, with film!) the Planetary nebula PK 231+4.1 at the lower left, and PN NGC2488, the ring in the center of the photo. M46 is the open cluster. He made a 20-minute exposure with his 18-inch f/4.5 Newtonian using Kodak Royal Gold 400-2 film.

Photo copyright 2008 Joe Gafford



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.

DR. MARK BOTTORFF TO SPEAK ABOUT DARK MATTER AT JULY MEETING

Dr. Mark Bottorff, former Van Natten Scholarship awardee and DAS Associate Member, will return in July to speak at the DAS General Meeting. Dr Mark has spoken to our group several times in past years, and has never failed to educate and entertain us with his talks.

For those of you who are new to the DAS, Dr Mark graduated from Littleton High School in 1976. As a teenager, Mark was an active member of the DAS and the sole public night operator of the 20-inch Clark-Saegmuller refractor at Chamberlin for a few years. He also worked for a short time at S&S Optika, back before they moved to the Brookridge Shopping Center. (My, how the years go by.) I also owe Mark a debt of gratitude for cultivating my own continuing interest in As-

tronomy when I was just a young lad with a new Montgomery Wards 60mm Refractor, and for introducing me to the DAS.

After Graduation, Mark went on to earn his MS in applied mathematics from the University of Colorado at Denver in 1986. Mark then moved to Carlisle, PA where he taught at Dickman College for three years before moving on to the University of Kentucky



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JULY SKIES (CONTINUED FROM PAGE 1)



Jupiter
Image copyright Bryan Wilburn

actually look like what they represent: Scorpius. With a little luck we can find the globs M₄, M₈₀ and M₁₀₇. From Antares, the big red star that is the "heart of the scorpion," it's easy to find the spot where M₄ is supposed to be, just to the star's right. At Chamberlin the miasmic vapours of the city, and M₄'s faintness, make it hard to see. And don't look on the 13th because the waxing gibbous moon will be there. M₈₀ is located up nearer the head of the scorpion and a bit upper-left of the body line. M₁₀₇ may be the hardest to find since it is in Ophiuchus, the huge, empty bell-shaped constellation above Scorpius. Look for a

straggle of small stars coming down from its middle towards and almost reaching Antares. M₁₀₇ is up this line almost to the bottom of the bell.

Ophiuchus the Serpent-Bearer, an unfortunate who has to struggle with Serpens the Serpent, has two brighter globs in his empty middle, M₁₀ and 12. They're about 1/3 of the way up from the bottom of the bell to the Alpha star at the top. Ophiuchus is associated with Asclepius the physician, and the snake twined around a staff is the symbol of medicine. An open cluster I'll bet you've never seen is IC4665 just above the Beta star, which is down to the left of Alpha.

Remember the two constellations that look like their namesakes? The other one is tiny Delphinus the Dolphin. While you are staggering around Ophiuchus getting tangled up in his serpent, look to the East to the bright star Altair in Aquila the Eagle. A little farther east is Delphinus, who could be the cutie pie of constellations, leaping out of the water. Directly below his nose, 1/3 of the way to the horizon, is the big globular cluster M₁₅. After gazing at that, go back to Delphinus' nose and

and continue a similar distance towards the zenith to find M₂₇, the Dumbell Nebula, a planetary nebula (exploded star) almost as well known as the Ring Nebula in Lyra. And the Ring itself can be reached by continuing zenith-ward a short ways to beautiful Albireo, the colorful double star that shows that stars have different colors (and temperatures), located at the bottom of the Northern Cross, which to the Greeks was the head of Cygnus the Swan. Now continue up a similar short distance to the Ring. It is at the far end of the little parallelogram of stars attached to the bright Summer Triangle star Vega. From there one can cruise the zenith itself, tho straight-up viewing is difficult for many types of mounts, to find the glob M₁₃ on the western edge of the Chinese take-out-box shape of the Hercules keystone, and M₉₂ which makes a tall triangle above the top of the box.

Maybe we can see this stuff at Chamberlin at Open House on the 12th after the DAS picnic, which starts at 2 in the afternoon. Bring frisbees!

DAS IMAGER PROFILE: JOE GAFFORD

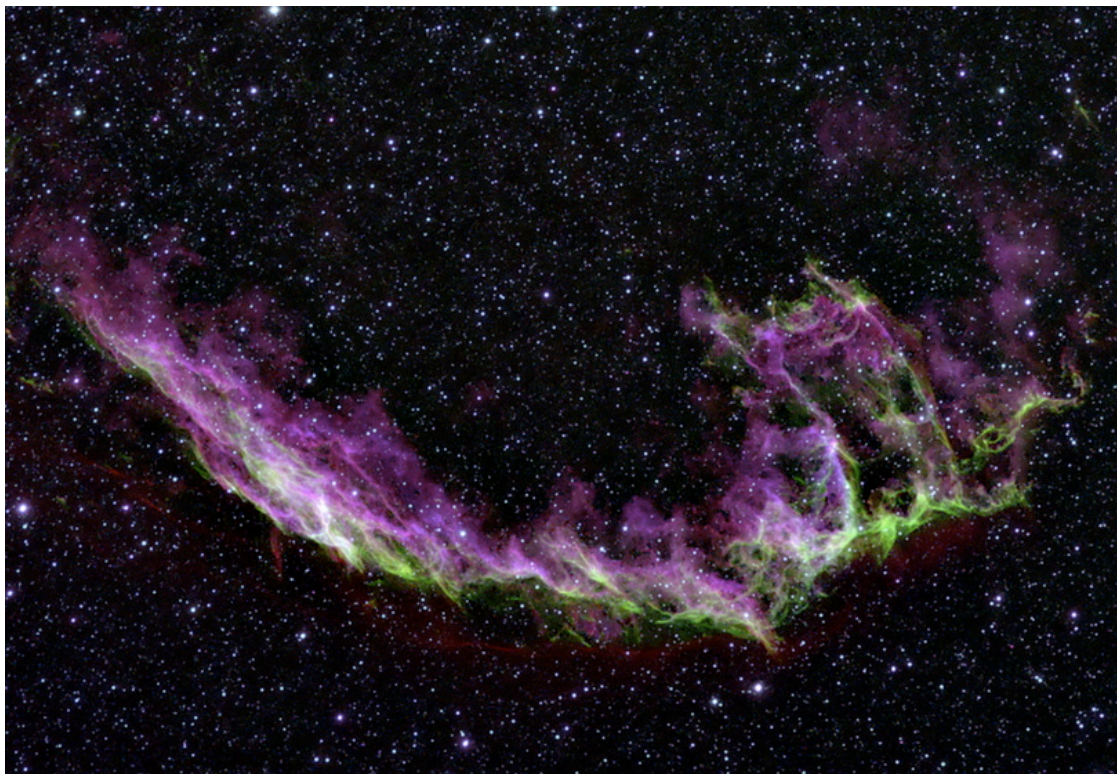
In the April issue, we began a monthly series that may answer questions that members have about astro-imaging. Initially we'll highlight photographers whose images you've come to know in the pages of the Observer, and then we'll start a question-and-answer forum. Please send questions to the editor at p_kurtz@comcast.net.

I've been an amateur astronomer for over 42 years now. I got my start with a few small cheap dime-store telescopes I bought with my allowance. My first 'serious' telescope was a Montgomery Ward 3-inch reflector on a ball and socket mount I got as a Christmas gift. It came with a plastic focuser and eyepieces with plastic lenses. My sky chart was from the Funk and Wagnall's Encyclopedia we got from Miller's supermarket. I did not have access to the Edmund Scientific catalog at that time, nor did I know that there was an observatory within a bike ride from my house with an active club attached to it (the DAS).

I used that scope until I completely wore out the el-cheapo ball and socket and fried the aforementioned plastic focuser during the solar eclipse of March 7, 1970 while trying to photograph the sun's projection on an oatmeal box/wax paper setup. I did manage to get an image of the partial eclipse (it was total along the East Coast that day). The mirror from that scope became the main element for my first photographic enlarger until I received one the following Christmas. It took the whole room to project an image on the masking tape 'easel' on the wall.



After graduating from high school and doing a four-year enlistment in the Navy, going from job to job, I fixed that scope with a new tube—Sam Brown's idea of an equatorial mount made of plumbing pipe with a 2.5-lb. sledgehammer counterweight. I also had a real 1-1/4-inch focuser made of metal, 25mm Kellner, 1/2-



SUMMER UNVEILED

NGC 6960—the Veil Nebula West. The Veil Nebula, also known as the Cygnus Loop, is a large, relatively faint supernova remnant in Cygnus. The source supernova exploded some 5000 to 8000 years ago, and the remnants have since expanded to cover an area of three degrees.

*Image copyright
2008 Philip Good*

DAS IMAGER PROFILE (CONTINUED)



THE RHO OPHIUCHI REGION IN SCORPIUS/OPHIUCHUS AREA

We sure have a colorful issue this month—check out the color pdf from the DAS website! Rho Ophiuchus is the bright star on top, surrounded by nebulosity. M80, on upper right; M4, bottom center. Antares is the bright star on the bottom. The eight spikes around the bright stars is due to iris stop in the lens. This was taken with a 110mm Mamiya RZ lens at $f/5.6$. The lens was adapted to fit the ccd camera using an ABS sewer pipe fitting. 15-minute exposures each of LRGB using an SBIG ST-2000XM ccd camera, taken at the EGK site on May 30, 2008.

Image copyright 2008 Joe Gafford

inch $f/1$ Ramsden and 9mm Ortho eyepieces, plus a recoating of that cheapo 3-inch $f/10$ spherical mirror from S&S Optika.

I got my first photographic telescope in 1985 after landing a job that made enough money to purchase it. It was a Meade DS-10 Newtonian with the astrophoto package. My first image was of Mars, taken with a handheld Olympus over the eyepiece; fair image, though. I got the rest of the astrophoto accessories and had my brother-in-law dump me at my aunt and uncle's cabin for a week.

First log entry of 7-14-85:

"G.M.T. Object: CYG; Film: Kodak 400 print; Start Time: 5:52; Exposure time: 6 min; Comments: Exp. 1,2,3,4 - 50mm lens. I started the night with the camera and lens piggybacked on the scope. Then I did an eyepiece projection of Jupiter directly into the camera using adapters

this time; several fair images. At 10:30 U.T. made my first attempt at a deep-space object, M57—failure at guiding due to shifting of weight while changing from eyepiece projection adapter to prime focus. Jiggle was bad enough it caused bright stars to appear like swans!"

The rest of the nights weren't very good during that week. It taught me to do dry runs with any kind of changes done to my scopes. The next month, my in-laws dropped me off at the cabin again—better week, better images. These are the first images in the albums I bring to the Open Houses for public viewing to this day.

The portable dome I use came about in stages. First there was a pile of scrub willow—fire hazard. Then I rigged up a tarp on a frame from parts lying around the cabin; got an excellent one-hour image of M42 taken that night. I had that rig until I joined the club in January of 1991.

In March of that year we had the dark sky site on east Quincy Ave. You drove east until you ran out of pavement. This was the "Missile Site." The first evening started out calm, then the wind came up. We all stayed anyway because there was a moon transit across Jupiter. We had good seeing at the site despite the shaking (Jack Eastman was at Chamberlin and said that the seeing was rotten there at the same time).

That was it! I borrowed a sewing machine from one of my siblings and set out building a portable dome out of PVC pipe and cloth. I finished the dome in time for the Texas Star Party in '91. This was my first star party and the dome performed better than I expected. I built a larger one for the 18" I got later and I still use it to this day. It all fits into a single duffel bag -- no rotatable portable dome on the market today can claim this.

I got my first CCD imager, the SBIG ST-4, in 1997 as a guider. It was an 8-bit serial-port camera that ran on MS DOS; I used it until 2002 when I got the ST-2000XM CCD camera. I have taken over 300 good images with this camera and made around 30 observations of new minor planet confirmations. I recently got the newer version of this model of camera with a better chip and an external guider port. It took the M51 image that was in the April edition. My current setup is a JMI 18-inch $f/4.5$ Newtonian, a highly modified "de-Meade-ed" 10-inch $f/4.5$ Newtonian, 110mm and 50mm Mamiya RZ lenses with sewer pipe fitting adaptors (there are no adaptors on the market for these fine lenses). The off-axis guider with field flattener attached is still in the optical train of the scopes. The remote guider is in the guider port now instead of my eyeball!—autoguiding now.

JANUARY 1ST RENEWAL DATE—UPDATE

The first renewal letters to implement the new DAS universal membership renewal date of January 1st were sent to members with 2008 renewal dates of June 1st on May 17th. I hope you've been spending more time looking through your telescope eyepieces, or getting your equipment ready for summer star parties than paying attention to the society's latest bureaucratic challenge. But it's important to devote a few brain cells to the more mundane aspects of DAS membership. So here's a summary of what you'll need to pay attention to over the next few months:

Effective December 31, 2008, the renewal date for all DAS memberships will be January 1st of every year. Therefore, 2008 is the last year that your DAS renewal will be due on the date that you joined the society.

In addition, in March 2008 the E-Board agreed to increase the membership dues, effective January 1st, 2009, to \$36 per year. This was done primarily to make the math for month-based prorating easier.

If your 2008 renewal date is June 1st or later you will receive a 2008 renewal bill for \$3 per month for the remaining months of 2008. That means a person whose renewal date is June 1st will be billed \$21 for the remaining 7 months of the year; a person whose renewal date is July 1st will be billed \$18, and so on. You will then receive a billing in December 2008 for \$36 to renew on January 1st, 2009.

The customized membership form included with your bill will list three options: 1) one year renewal (ending December 31, 2008), 2) two year renewal (ending December 31, 2009), and 3) opt out of the prorate system. If you select option three, you will also have to choose one of the other two options. You will just pay the full membership cost for 2008 and 2009 (\$35 plus \$36) instead of the prorated cost. Thank You!

If your renewal date is before June 1st you have (hopefully) already paid the current \$35 per year for your renewal in 2008 (If you haven't, please pay the full amount as soon as you can.) You will not have to do anything until you receive a bill for your 2009 renewal in December 2008. This bill will be computed based on the number of months between your renewal month and January 2008. If your 2008 renewal date was February 1st you will be billed \$33 for their 2009 renewal (\$36 = [1 month x \$3]). If your renewal date was May 1st your bill will be \$24 (\$36 = [4 months x \$3]).

This system will also be applied to Student memberships, using \$1 per month as the prorating amount.

If you joined or are planning to join the DAS in 2008 you paid (or will pay) the full \$35 2008 membership fee when you join(ed). You will receive a prorated renewal bill in December 2008 for the second year of your membership (2009), based on the formula for existing members with renewal dates before June 1st (see above). Henceforth, this system will be applied to all new members in subsequent years.

For those who have not yet renewed for 2008, the most important thing you can do right now is pay your \$35 renewal fee. As of May 15th, there were 15 late renewals from February 2008 or before and about 20 each from March, April, and May 2008. Most of these are long-time members (even E-Board members!) who are just having trouble rounding up a checkbook and postage stamp. This is a typical situation, and a big reason why changing to the January 1st renewal date is a good idea.—*Darrell Dodge*

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 tradi-



tion 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.

LET'S HAVE A PICNIC!

Well it's that time of the year again, RMSS is right around the corner, Fox Park with its dark sky and the DAS

Picnic on 12 July! Starting at 1 P.M. for the folks who want to help set up, 2 P.M. for the folks that want to partake, and later in the evening for everyone who want to gaze into the sky for the Open House that night.

Time for our annual get together at Observatory Park for an afternoon of food and fellowship. Time again hope-

fully for Ted and Todd to lead the way grill the food to perfection.

We'll need a bit of help to pull it all off. This year we need two grills to help cook, and three pop up tents to cover the party goes from either the sun or worst case rain. Fold up chairs to settle in and get comfortable.

DAS will provide the meat, buns, condiments, drinks and chili. Members provide your favorite side dish and or a desert. Bring your camera and good humor for a great time!

If you would like to help out drop me an email, bwilburn@4dv.net. See you there!



Image courtesy Joe Gafford

JULY SPEAKER (CONTINUED)

where he worked as a research assistant and earning his PH.D. in 1999.

Mark Currently teaches Physics and Astronomy at Southwest University in Georgetown, TX where he was recently tenured as a professor there. Still active in public outreach, he conducts public nights using the University's 16-inch Cassegrain reflector at the Fountainwood Observatory. Although Astronomy is Mark's chosen profession, It's his hobby as well. (someone once told me that getting paid to do what you like to do is 90 percent of the battle.) Mark owns a 4-inch long focus refractor he built as a teenager, a 6-inch refractor, and a 12.5-inch reflector he has just recently completed. He has also just started dabbling in the field of astrophotography.

Although he lives in South Texas, Mark still has roots in Colorado which is what brings him here a couple of times a year. Mark and I have

continued to maintain our friendship through the . . . dare I say decades? And whenever he comes to town we get together to observe and catch up on news. I also attempt to hornswoggle him into giving a talk for the DAS.

Mark will also be attending Rocky Mountain Star Stare and giving a talk there this year, an activity that he greatly enjoys and has attended for the past several years.

The general meeting for July will be held on the 18th at 7:30 P.M. in room 105 at Olin Hall on the DU campus. As usual, coffee, snacks and viewing through the Clark Refractor (weather permitting) will be held right after the general meeting at nearby Chamberlin Observatory.—

Keith Pool

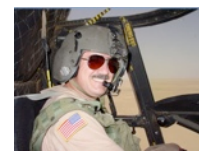
Contributors

DENNIS COCHRAN

I sure wish I had a picture of Dennis!

Many thanks to our efferescent and inspiring author of the *Observer's* monthly "Skies."

BRYAN WILBURN



A frequent contributor, Bryan is heading up the DAS Annual

Picnic. Thanks for your help, Bryan!

DARRELL DODGE



The *Observer* editor does not know what she'd do without Darrell's help in proofing, writing and keeping her on her toes—you ROCK, Darrell!

S&S OPTIKA HAS MOVED TO:

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WEST side of South
Broadway)

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www.sandsoptika.com

DAS SCHEDULE

JULY

- 4-6 EGK Dark Sky weekend
- 12 Annual Picnic (2:00 P.M.) and Open House at Chamberlin Observatory (7:00 P.M.)
- 18 General Membership Meeting at Olin Hall (Begins at 7:30 P.M.)
- 25 E-Board meeting at Chamberlin Observatory (Begins at 7:30 P.M.)

AUGUST

- 1-3 EGK Dark Sky weekend
- 9 Open House at Chamberlin Observatory (7:00 P.M.)
- 15 General Membership Meeting at Olin Hall (Begins at 7:30 P.M.)
- 22 E-Board meeting at Chamberlin Observatory (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.thedas.org) or call (303) 871-5172.



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