

OBSERVER

SIZZLIN' SUMMER SKIES



THE TRIFID NEBULA, M20 (NGC 6514)

The Trifid is a star-forming, emission and reflection nebula with an open star cluster in Sagittarius. It is surrounded by a blue reflection nebula which is particularly noticeable in its northern portion.

Image copyright 2010 Darrell Dodge

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4.....Last quarter moon,
.....Independence Day

11..... New moon

18..... First quarter moon

25..... Full moon

JULY SKIES *by Dennis Cochran*

Saturn becomes a twilight object this month, leaving us to yearn for Jupiter to get over being a morning object so we'll have a spectacular planet to see in the evening. Jupiter seems to have lost its Southern Equatorial Belt, too, rather suddenly. Nobody knows why or where it went. It's creepy. I predict that Jupiter won't regain its lost belt until it becomes visible in the evening sky. This would help to answer the age-old conundrum, "If Jupiter loses a belt, would his pants fall down?" No, wait, the other conundrum: "If Jupiter loses a belt, but nobody sees it because the planet is only visible past midnight when decent people are asleep, then did he *really* lose a belt or is it all a bunch of hooey?" If the belt does not come back when Jupiter comes around again, then at least some alert cine-maker can devise a pseudo-crisis movie about it and make millions, or as Carl

Sagan would say, "billions." You might want to stay up late enough to (not) see the lost belt.

So whatta we look at? Well, at the beginning of the month we do get a nice lineup in the early evening of Venus, Regulus, Mars, and Saturn, with some changing of places when Mercury comes on the scene by mid-month. Later at night we will be forced to go deep, deep into the mysterious realm of "Utter Space!" (distant screams)

Here's an easy west-to-east sweep of eight celestial goodies, starting at Arcturus (after trying this one, devise your own straight-thru cut across the rich summer skies and tell me about it.) We were barely able to see Napo-

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PRESIDENT'S CORNER

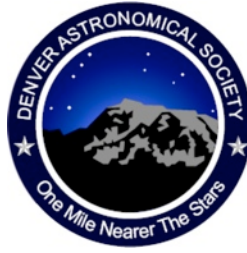
July, that Star Spangled month is upon us! There is nothing better than warm summer nights under the Milky Way, our galaxy spread out before us, containing thousands of sights to behold with our telescopes, binoculars or just a lounge chair; your eyes and a star chart will guide you through the heavens. We get out of the brightly lit cities on vacations, camping trips and picnics, celebrating under fireworks, both of nature and human. We are exploring the sky with our scopes, exploring the Earth in our parks or museums or at home discovering new books. While the nights are shorter, we are out actively seeking and learning through vacations or deep-sky observing at star parties. Exploration is at the heart of our hobby and all people.

It seems appropriate that we celebrate Independence Day under stars of the Milky Way with fireworks, which simulate the star clusters and novae of our home galaxy, because the idea of using stars on the American flag first

came from astronomers at the young Harvard University. Each star shines brightly itself, but together, form a star cluster bound by common threads like gravity. Each one represents all those that came from afar, exploring what was, for them, a new world, as it was even for those who came thousands of years before the latest. The first American naval flagship early in the 19th century was named the "Constellation" for the first 15 stars in the flag, and a modern U.S.S. Constellation was the Navy's flagship until it was retired a couple years ago.

In July, we also celebrate the anniversary of Chamberlin Observatory, which has been satisfying people's curiosity and exploring the stars for 116 years, or almost exactly half of the time since the first Independence Day! The stars of July are brilliantly woven into our fabric and nature.

As DAS members, you carry on a thirst that only a personal exploration of the sky can quench and which we all share with you. After I get back from my own journey to that state with the Big Dipper and the fixed star on it's flag, I hope you'll join us for our annual picnic. All we ask is that you share with us your favorite salad or desert. We'll be cooking up burgers and brats, their carbon-rich smoke wafting up to the sky, with plenty of ice in the drinks, as it's traditionally a hot day with our star, the sun, high over the Denver plains.
—Ron Pearson.



**DAS PRESIDENT,
RON PEARSON**

Photo courtesy Jack Eastman

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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

JULY SKIES (CONTINUED FROM PAGE 1)

leon's Hat, a coathanger-type asterism south of Arcturus, in the same low-power field, from S&S Optika's parking lot, so check that out. The "hat" is essentially a straight line of stars with a bump in the middle. Next, sweep east across the zenith and pause to look at M13 on the western side of Hercules' Chinese take-out box. This gorgeous globular cluster has about 500,000 stars. Then continue east to find the bright star Vega and its accompanying little rhombus representing a Greek harp-like lyre (which Apollo played when he was feeling poetic) in the constellation Lyra. A couple of non-rhombus stars line up with Vega. A ways out southwest is χ (chi) Lyrae, while much closer to Vega, but in the opposite direction, is Epsilon Lyrae, a double star with mag-5 components that have nearly naked-eye separation. *Peterson's Field Guide* (2nd edition, page 204) says "even a small scope separates the pair and splits each component into a second pair, making four white stars in all." FYI (and not one of our eight objects), out past Epsilon and a bit more to the north is RR Lyrae, the prototype of a class of variable stars that have periods shorter than a day.

While you're in Lyra, look at the famous "Ring Nebula," M57, a planetary nebula between the two stars at the non-Vega end of the rhombus. I like to call it "the Cheerio" for its neat, well-defined shape. Remember to tell the kids at Open House that a planetary is a dying star. Now, as mentioned last month, it's easy to continue east from M57 to Albireo, the colorful double star at the head of Cygnus the Swan (or bottom of the Northern Cross.) To make this short hop more fun, right in between, but a smidgen closer to Albireo is the globular cluster M56, a small, concentrated example of these little "wannabe" galaxies that swarm around the Milky Way like bees. When you finally get to Albireo, remember that the color difference is a difference in temperature, with the bluer star hotter than the golden one.

Continuing farther on in this M57-M56-Albireo-east-by-southeast direction a distance similar to that from M57 to Albireo brings you to the Dumbbell Nebula, M27, another planetary. It's really large, whereas so many planetaries are small and almost star-like. Now, if you drop south a short way you will cross into the constellation Sagitta the Arrow and find M71, another globular cluster, just down the arrow from its point—the end of a nice summer tour.

Number Seven of "Those Things That Get You in the Dark While You're Observing:"



'TWIXT LION AND VIRGIN

With a population of ~1500 members, the Virgo Cluster of galaxies dominates the deep sky between Leo's tail and the reclining Maiden. This 6-image mosaic shows bright ellipticals M86 and M84 (l to r, center and lower right), the wispy NGC 4438 (upper left), and beautiful spiral NGC 4388 (bottom center). Details: ST-8e CCD camera on a 12.5-inch reflector mounted on a Paramount ME. Total exposure time: 14.5 hours.

Image copyright 2010 Steve Solon

Items left on the ground. Whilst setting up your telescope, you lay parts of it on the ground. That's when these parts, newly warmed by your hands, attract the local vermin, the ones you can't see in the dark. It is disconcerting, to say the least, to discover, in the Stygian darkness, that your telescope part is now encrusted with wriggling, wormy vermin and grotesque night creatures. Ick! Ech! Blech! You should have taken up knitting.

Meetings: a double-feature on Saturday July 17—the annual DAS Picnic, a 3 P.M. potluck with club-provided burgers 'n hot-dogs followed by the monthly Open House at 8:00. Come to Chamberlin and spend all day there. Bring a folding chair. I will bring my orange Celestron ring-Frisbee from S&S. The next Friday, the 23rd, is the General Meeting at Olin Hall at 7:30 P.M., and there is an E-Board Meeting at Chamberlin the last Friday, the 30th, at the same time.

JULY SPEAKER IS ARCHEOASTRONOMER HERMAN BENDER FROM WISCONSIN

Herman Bender is an independent researcher with a background in geology (professional emphasis) and a technical field in industry. An amateur astronomer (47+ years) and approved historical consultant, he has been nationally and internationally published in the fields of archaeoastronomy, prehistoric trails, petroform research, applied geophysics and cultural landscape studies. He has conducted many public seminars and classes through the U. W. Fond du Lac Community Outreach program, and taught as an Environmental Science teacher at the Senior High School level. Over the past two decades he has presented programs on his work and research at various colleges and institutes including University of Wisconsin campuses, Princeton University (New Jersey), Marquette University, Marian University, Alverno and Cardinal Stritch Colleges, the University of Turin (Italy), the Goethe Institute of Chicago, CeSMAP the Study Center and Museum of Prehistoric Art (Pinerolo, Italy), plus numerous historical societies and organizations.

Herman is a founder and president of a tax-exempt, not-for-profit organization, the Hanwakan Center for Prehistoric Astronomy, Cosmology and Cultural Landscape

Studies, Inc. Much of his work is related to Native American traditions, land claims, repatriation issues and cultural identities. In these endeavors, he has acted as a consultant to and continues to work with members of a number of Native American tribes including the Northern Cheyenne, Lakota, Ojibway, Potawatomi and Ho-Chunk as a specialist in Plains and Woodland Native American astronomy traditions and related cosmologies. He continues to write as an editor/contributor to the Hanwakan Center *Journal* and is a member of the Editorial Advisory and Board for *Time & Mind*, *The Journal of Archaeology, Consciousness & Culture* to which he also contributes articles.



HERMAN BENDER

Bender with one of the buffalo effigy rocks at the Star Being site. This rock faces the summer solstice sunset.

Photo courtesy of Herman Bender



COMET MCNAUGHT (C/2009 R1)

This beautiful image was taken on June 21, 2010 from Trail Ridge Road in Rocky Mountain National Park from about 3:30 to 3:46 A.M. Please see Pat for image details.

Image copyright 2010 Pat Gaines

WELCOME DAS NEW MEMBERS

- Stephen Bell
- Anthony Blackburn
- Diane Marie Cook
- Don Cook
- David Delassus
- Daniel Drew
- Ralph Goldsmith
- Cesar Guinovart
- Joseph Gurrentz
- Marques Granderson
- Eric Houby
- Steve Litherland
- Susie Jo Taylor
- Barry Vasboe

WARMING HUT RESCUE

Article and photos by Darrell Dodge

On the night of April 7th, a phone message came from Wayne Green that he had received a call from someone at the Edmund G. Kline Dark Site saying that something was very wrong with our beloved warming hut. Later inspection revealed that one of the straps holding the hut in place had corroded and had broken under the strain of the violent (up to 100 m.p.h.) winds that wracked the eastern plains this spring. The wind blew the south side of the building about one meter to the east, pivoting it around the NE corner, where the strap remained intact. All that seemed to be holding the building from moving any more was a metal fence post.

While “one silly meter” doesn’t sound like much, the wind pushed the hut down a slight hill, tilting and twisting the structure. The power cable (which happened to be attached on the SW corner of the building), was ripped away as well. The hut was declared unusable because of uncertainty about additional damage to the unsupported structure and possible wiring damage.

It’s difficult to exaggerate the importance of the warming hut to those who observe at the Dark Site, especially in winter. Knowing that there is a place where one can escape the ravages of wind, sub-freezing temperatures,



Photo 5: New improved anchor hardware.

frost, mosquitoes, and even just the pockets of crudly seeing that can move in and out during many nights, makes it possible to observe at all, let alone stay for an entire night. The microwave (donated by Carla Swartz) provides hot coffee, tea, cocoa, soup, and Emission Nebula Chili for sustenance through bitter cold nights when thermos bottles would freeze.

Something had to be done before cold weather returned in September, so the more construction-minded members of the DAS Dark Site Committee swung into action.

Within two days of the initial inspection of the hut by Joe Gafford and me, Jim Holder had documented what he remembered of the structure of the hut and created a preliminary rescue plan that he called “Big Boards in the Dirt (BBITD).” When it was learned from Dan Wray that the DAS insurance policy would not pay for the damage (ending

dreams of more elaborate high-tech repair plans or even replacing the hut), Jim’s “BBITD” plan became the only viable course of action. Assisted by subsequent inspections and onsite photos, work on refining the plan began.

Over a three-week period in April and early May, Jim’s plan was discussed, revised, and refined (via dozens of email messages) by Jim, Ted Cox, and Glenn Frank into a work plan that was documented, specified, and presented (with a cost estimate of about \$1,500) to the DAS E-Board in May. The E-Board swiftly reviewed and approved the plan, and a work team was pulled together for Saturday, May 29th consisting of Jim, Ted, Glenn, Joe, Jon DeJong, Rodney Pinkney, Ken Takahashi and me.

The main outlines of the plan were to 1) temporarily strengthen the hut with large timbers, 2) jack up the hut and slide a wooden skid with a heavy steel band underneath, 3) attach a winch to the steel band and lower the hut onto the skid, and 4) winch the structure back up the hill and into place (see photo 1). All of this was accomplished in the first morning before lunch (photo 2). That afternoon, the temporary timbers were removed, the east side of the hut was jacked up (photo 3) and a treated (wolmanized) 6x6



Photo 1: Jim Holder winches the hut back into place.

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WARMING HUT RESCUE (CONTINUED FROM PAGE 5)



Photo 2: The work team breaks for lunch.

inch timber was slid under the hut and affixed to the existing doubled 2x4 lengthwise support post and the floor joists of the hut (photo 4). The damaged soffit was also replaced, and the new timber was set on large concrete blocks while the structure was leveled by Ted Cox. Temporary straps were affixed to the hut and anchored to prevent movement.

The next weekend, a four-person crew consisting of Ted, Glenn, Joe and me dug the west side of the hut out of the dirt, jacked it up, affixed another 6x6 timber, and replaced the soffit on that side. The foundation was tied together with two heavy steel rods that were bolted to the new support timbers. The ends of the rods were then attached with heavy steel hardware to 3/4-inch expansion bolts that were anchored in the concrete piers that were poured several years ago (see photo 5). Final leveling was performed by Ted.

The final task was hooking up the power and testing it to make sure that there was no damage to the wiring in the hut. This was accomplished on June 19th by Jim Holder. Some site cleanup still remains, but the warming hut is now fully usable.

As the acting Dark Site Committee chair, I'm extremely grateful to everyone who worked on this project and to Ron Pearson and the DAS EBoard for their support and trust in the skills of the committee. I'm especially grateful to Jim, Ted, and Glenn for their excellent teamwork in developing, specifying, and implementing the rescue plan.



Above right, photo 4: Close work attaching hangers to a new 6x6 support timber, and below, **photo 3:** the warming hut is jacked up and ready for the installation of new support timber.





SET SAIL FOR THE LAGOON

The Lagoon Nebula, M8 (NGC 6523), in Sagittarius is one of the brightest star-forming regions we can see and a favorite target for observers. Imaged in southern Colorado in June 2010, Alan used a QSI540 CCD camera on a 7-inch f/4 Maksutov-Newtonian telescope mounted on an Astro-Physics Mach1GTO mount.

Photo copyright Alan Erickson

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 DAS-General 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

JULY

- 9-11 EGK Dark Sky weekend
- 17 Annual DAS Picnic and Open House at Chamberlin Observatory (Picnic begins at 3:00 P.M. and Open House begins at 8:00 P.M.)
- 16 "New Astronomer's Den" on the south lawn at Chamberlin (Begins at 7:30 P.M.)
- 23 General Meeting at D.U.'s Olin Hall (Begins at 7:30 P.M.)
- 30 E-Board meeting at Chamberlin

AUGUST

- 5-8 Weekend Under the Stars (WUTS)
- 6-8 EGK Dark Sky weekend
- 14 "New Astronomer's Den" on the south lawn at Chamberlin (Begins at 7:30 P.M.)
- 17 Open House at Chamberlin Observatory (Begins at 8:30 P.M.)
- 20 General Meeting at D.U.'s Olin Hall (Begins at 7:30 P.M.)
- 27 E-Board meeting at Chamberlin

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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