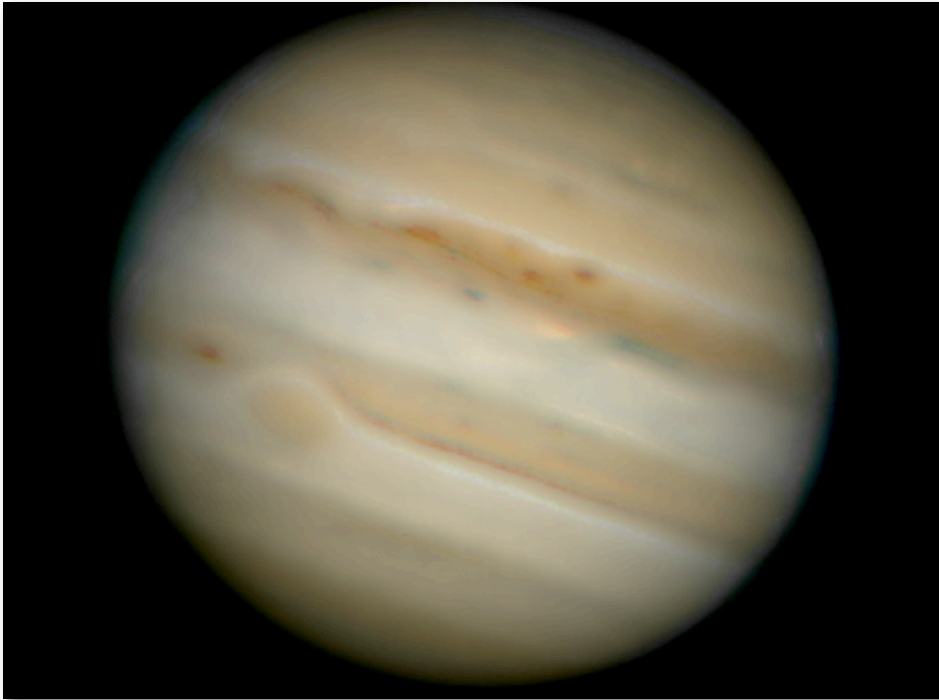


OBSERVER

Jumpin' Jupiter!



SOLAR SYSTEM VACUUM CLEANER

More than 1,000 Earths would be required to fill up the volume of this gigantic gas planet. David caught the Great Red Spot nicely in this image of Jupiter on August 27, 2009. At its widest diameter, the spot is almost big enough for three Earth's to fit side-by-side.

Image copyright 2009 David Wolf

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Calendar

1.....Daylight Savings Time Ends

2.....Full moon

9.....Last quarter moon

16.....New moon

24.....First quarter moon

NOVEMBER SKIES by Dennis Cochran

Jupiter is still up in the south, looking in binoculars like a flying saucer with all of its landing lights on. If it had been a bigger planet it might have become a companion star to our sun. Instead, it became a comet and asteroid-eating vacuum cleaner that keeps the inner solar system clear. In fact it was doing just that in July when it took a visible hit: see both *Astronomy* and *S&T* November issues. Jupiter stories, to the Greeks, involved nymphs, but to us, they mean the changing relationship between the big planet and the four easily visible Galilean moons as they swing back and forth across the field, crossing in front of and then behind Jupiter. They cast shadows on its cloud-topped surface, passing and occasionally occulting each other. You might want to read Robert Heinlein's novel, *Farmer in the Sky*, about life on a terra-formed Ganymede, or "Space Cadet," where a homesick

Ganymede cadet reminisces about "Jupiter hanging overhead, filling half the sky." That would be quite a sight.

The winged horse, Pegasus, tamed by Perseus, comes into view as the Great Square, rising in the east after the excitement of Lyra and its Ring Nebula, then Cygnus the Swan, aka the Northern Cross. But Pegasus is actually the Great Diamond, tilted over in the evening as you look southeast at the rising constellations. The northeast point of the diamond actually gives birth to Andromeda and points the way to M31, a local galaxy slightly bigger than ours that acts as the center of the Local Group. I think of Andromeda the constellation as a "spray," two curving lines of stars diverging to-

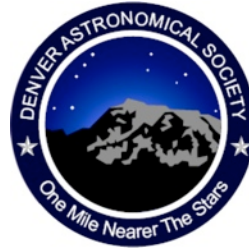
Continued on Page 3

PRESIDENT'S CORNER

We are pleased to welcome our newest members, listed on Page 7 of this *Observer*. We are happy to have you join us!

One of several highlights for October was the impact of the Lunar CRater Observation and Sensing Satellite (LCROSS) into Cabeus crater, located in the south polar region of the Moon. Scientist hoped impacting LCROSS into the surface would allow them to measure the water content through spectrometry of the post-impact ejecta cloud. A small group from the Denver Astronomical Society, Denver University Physics and Astronomy Department and the local Fox News station gathered at Chamberlin Observatory for the 5:30 A.M. predicted impact time. Steve Solon is credited with set up of the StellaCam-3 Astrovid camera, attached to the prime focus of the historic Clark 20 inch refractor. The signal was routed through a DVD recorder and digital projector. Steve was able to capture over one hour of video. The team was as successful as other teams around the nation, including NASA, in that the expected 7-10 kilometer high plume was not visible. As of the time of this article, NASA is still analyzing spectrographic data. For the Chamberlin crew, it truly was a good way to start the morning!

Another October event was the Annual DAS Auction, held at Chamberlin Observatory. This year DAS raised over \$1,000, with profits going to the Van Nattan-Hansen Scholarship Fund. Book sale proceeds go to the University of Denver for the purchase of children's' books on astronomy. I would like to thank Ivan, Sherry and Dennis for their hard work—a job well done. As some of you know, Ginny Kramer, Executive Board (E-Board) member and long time DAS member will be returning to Sweet Home Alabama, close to my old waterhole in “LA” (Lower Alabama). Ginny was one of several founders of the Mobile Astronomical Society and will be returning to continue her involvement in public outreach. While Ginny served on the Public Night staff of volunteers for DAS for years, I first met her during the variable star observing program started by Dr. Bob. Ginny, we will miss you but look forward to your visits over the next year. Upon receiving and accepting



Continued on Page 7

THE LCROSS OBSERVATION TEAM AT CHAMBERLIN

(Left to right) Hugh Davidson, Cody (FOX 31 News), Steve Solon, Aaron Reid, Dr. Bob Stencel.

Photo by Ron Mickle



Society Directory

- President:**
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- Vice President:**
Keith Pool (303) 718-7273
vp@denverastro.org
- Secretary:**
Ron Pearson (303) 670-1299
- Treasurer:**
Brad Gilman (720) 488-1028

Executive Board Members

- | | |
|----------------------------------|-----------------|
| Jack Eastman | David Shouldice |
| Joe Gafford | Tim Pimentel |
| Frank Mancini | Steve Solon |
| Norm Rosling | Dan Wray |
| Wayne Green, Past President | |
| President Emeritus, Larry Brooks | |

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- EGK Dark Site Committee:**
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Dr. Robert Stencel
Email: coloida@botmail.com.
- Public Outreach Committee:**
Ron Mickle (Chair)
- Student Astronomy Chair:**
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Chamberlin Observatory c/o Ron Mickle
2930 East Warren Avenue
Denver, Colorado 80210

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

TIME TO RENEW!

by Darrell Dodge and Brad Gilman

EVERYONE'S 2010 RENEWAL DATE IS JANUARY 1ST, 2010. It's time to renew your membership in the Denver Astronomical Society—probably the best bargain that you'll get this year!

For only \$36 (\$12 if you're a student under 23 years old) you get:

- monthly newsletter,
- membership in the Astronomical League (and copies of the AL quarterly, *The Reflector*),
- discounts on *Sky & Telescope* and/or *Astronomy* magazines,
- the chance to use a fabulous dark sky site anytime you want,
- access to Historic Chamberlin Observatory and its library,
- access to an annual auction to trade-sell-acquire astronomical equipment,
- over 300 potential friends who share your passion for astronomy and associated pursuits,
- social opportunities at the Holiday Party, Spring Banquet, and July Picnic and
- opportunities to share your passion for astronomy and space science with others at Public Nights, Open Houses, Colorado Astronomy Day, and special public outreach events.

And this year, it's easier than ever to renew. We'll be sending each member a renewal notice, together with a renewal and donation form and a pre-addressed return envelope to Brad Gilman, your hardworking DAS Treasurer. All you need to do is check a few boxes on a form, write a check or two, drop them in the envelope and mail.

If you joined the DAS before January 1st of 2009 and you paid for one year when you last renewed, your cost to renew for 2010 will be \$36.00 or (for students) \$12.00.

If you're a NEW MEMBER and you joined after January 31, 2009 and you paid the full \$36 fee when you joined, your renewal fee will be prorated \$3.00 per month to discount the number of months you weren't a member in 2009. We'll provide a renewal total that will discount the number of months that you were not a member during 2009. For example, if you joined October 1st, your renewal fee would be \$36 - (\$3 x 9 non-member months) = \$9.00.

When you register, you'll have an opportunity to donate to the Dark Site, the Van Nattan-Hanson Scholarship and/or DAS Public Outreach activities. And you'll also be able to update your contact information, specify how you want to receive the newsletter (mail or PDF online), and say whether or not you want to be listed in the DAS Roster for 2010. If you do want to be listed in the roster, it's important to register on time. The deadline for inclusion in the printed roster is February 28th, 2010.

Members who don't renew by the end of March will be removed from the membership rolls. Members may rejoin later in the year, but will not receive prorating for the months prior to the month in which they rejoined.

So please look for your DAS renewal package sometime near the end of November and DON'T DELAY to send it in. Separate reminder notices will only be sent to members who download the PDF newsletter this year.

NOVEMBER SKIES (CONTINUED FROM PAGE 1)



M33 IN TRIANGULUM

On September 18, 2009, David used an Orion StarShoot Pro II color CCD camera on a Stellarvue SV102 ED telescope @ f/6.95 guided with a Meade DSI on a Celestron Nexstar 11 GPS.

Image copyright 2009 David Wolf

wards Perseus. *Astronomy* magazine's monthly map shows it this way while *S&T*'s map is more complicated; the lower of the two spray lines has the brighter stars. Go to the second of these and then up to its counterpart in the dimmer spray and then a bit farther up to find the great galaxy. You can see the inner bulge of the nucleus from

its point. If you can't see Triangulum, your skies are not dark enough for M33.

And what of Pegasus itself? All of that space must contain something. At the opposite corner of the Pegasus square from Andromeda is its alpha star. From there, a bent line of three stars,

Chamberlin but you'll need a dark sky to see the dust-laned disk that surrounds it. It's surprisingly big and will fill the field of a low-power eyepiece. Indeed, it's visible to the naked eye at a dark site. From the back lawn at Chamberlin, Andromeda rises over the trees northeast of the observatory.

Hard-to-see M33 (photo at left), the almost-face-on galaxy in the little spear-point constellation Triangulum, can be found below M31 by moving back down the stars in Andromeda's spray lines and then farther down half the length of one of Pegasus' sides. If you can see Triangulum, M33 is right above

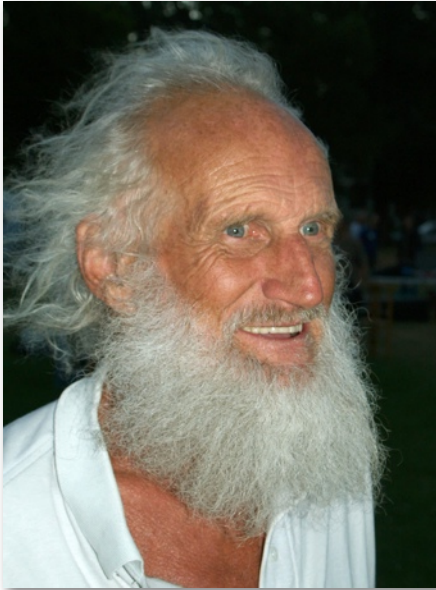
a leg or maybe a wing of Pegasus, ends in the red star Enif. Last month we mentioned that the globular cluster M15 is just out past Enif. Back at Alpha, right northwest of it are two faint galaxies, NGC 7448 and 7454 and west of these is quasar 3C454-3. "3C" means the Third Cambridge Catalog of radio sources compiled in the early days of radio astronomy. Look, then, for another red star, Scheat, the beta star, a red giant variable at the northwest corner of the diamond. From that corner sprouts two lines of stars, more limbs of the flying horse, stretching out into the space south of Deneb, the tail star of Cygnus. The northern of these two lines starts with Eta Peg (the Greek symbol for Eta is a drooping 'n'). If you sweep north of Eta with low power you'll find the galaxy NGC 7331.

The Moon is full on Monday the 2nd and then again on Dec. 1. This is a good time to see crater rays on the Moon. *S&T*, p.45 mentions a group of three craters on the southeast limb, Stevinus, Stevinus A and Furnerius A, whose ejecta blankets shine white just before and at the Full moon. You can shine in the firmament of our next General Meeting on Friday Nov. 6, starring us—you—in our annual Show-and-Tell. The month's Open House will be at 7 P.M. on Saturday the 21st. And get ready for our Holiday Potluck on Dec. 5!

A FIRST-TIMER AT OKIE-TEX

by F. Jack Eastman

Photos by Joe Gafford



**JACK EASTMAN,
DAS CHIEF OBSERVER**

Photo by Joe Gafford

Having a case of Riverside Telescope Makers Conference (and star-party-under-dark-skies-in-general) withdrawal, and succumbing to excessive beard pulling from Joe Gafford, I decided to try the Okie-Tex star party in the Oklahoma panhandle, far from any town of any size and promising very dark skies. I loaded up the old van (Moby, the great white whale) with the usual (and maybe unusual) stuff: telescope gear, photo gear, other star party gear, clothes suitable for tropical islands all the way to the South Pole, bicycle (spare tubes, helmet, pump etc.) beer cooler with beer, and headed out. Saturday, Sept. 12, head south on I-25 to Pueblo, then east on US 50 to Lamar, then south again to Boise City, Oklahoma. From there it was west-ish to the bustling burg of Kenton, OK, population 23 or so. Just before entering Kenton, there was a turn up the driveway to Camp Billy Joe. Once I headed east on US 50, the scenery could best be de-

OKIE AND TEX

Mascots Okie and Tex (right) watch over the Okie-Tex camp in Oklahoma.

scribed as boring; not the mountains and desert of all the trips to Big Bear and other points west, but flat and featureless grasslands.

Heading west out of Boise City, more flat featureless land, then some features and before I knew it there was canyon and hilly country. The camp was up in a box canyon, somewhat reminiscent of Utah or parts of Arizona, a rather pretty location. The trip was a bit over 5 hours from the Denver area and I was happy I got there about 5 minutes to 5 P.M., just in time for dinner. Oh, wait a minute! These folks are on Central time; too late? No, as luck would have it they were still serving up the goods: chicken and beef enchiladas with all the trimmings, and plenty of them.

After dinner it was relaxing to just sit around and unwind. The weather looked marginal, as it had been all the way from Denver, low-hanging, wet-looking clouds with plenty of higher altitude cloud cover. There had been plenty of rain earlier in the week, as evidenced by puddles and soaked ground, especially south of Lamar. It was warm, maybe got down to 57° for a ve-

ry comfortable night, as was the case for the whole week. I think one of the nights got down to 48° or so.

Up before the sun to a scrumptious farm-style breakfast, and more relaxation. There were no planned formal activities until Wednesday, when the afternoon talks and door prize drawings were scheduled, so we could just walk around admiring some of the equipment and meet lots of great people; a very pleasant and relaxing atmosphere. I managed a bike ride into Kenton and was surprised to find it right around the corner. A tiny place, general store, diner (it was closed) a couple of churches and maybe a dozen houses (the promise of few outdoor lights.)

Monday, the weather looked promising, so I set up the 6-inch refractor. That night the sky was somewhat clear, but seemed awfully bright. There were high clouds and smoke from the fires in California, but the Milky Way was still spectacular from horizon to horizon. Mike Conron was at the helm of a 30-inch Dob* on a driven platform, using an advanced coma corrector (more on that later) and a 17mm Ethos





PANORAMA OF THE OKIE-TEX STAR PARTY

(100-degree apparent field) eyepiece. The views were stunning, especially globular clusters M13, M92, M22, to mention a few. M33, the spiral galaxy in Triangulum, was interesting—very faint, but the structure was discernable. This is an object much more suited to large binoculars or small rich field telescopes.

The next few nights were cloudy, but there were occasional “sucker holes.” Jupiter was always a good view when clouds covered every-

thing else. The seeing was rather good as shown by our views of Jupiter and with David Cotterell’s (from Ontario, Canada) 8-inch Intes (Russian) Maksutov, which performed exceptionally well on close double stars.

I think it was Tuesday—it started out clear—I started up the Milky Way to the south, from Scorpius and Sagittarius, finding all sorts of nebulae, both bright and dark, clusters and just nifty star fields. Looking between Antares and M4, I spotted an old friend, NGC 6144,

“Comet Eastman Edwards Gardner.”

My first encounter with this little 9th magnitude cluster was perhaps 55 years ago, on Palomar Mountain, in California, where we thought we had found a comet, the object not being included on any of the charts we had with us. That’s a story in itself for a future telling. It seemed harder to see than I recalled long ago with a similar sized telescope, but then again the sky wasn’t all that good. Later, I aimed the 20 x 80 bins at M31. Even though it was still somewhat

cloudy, with more high cirrus and California smoke, M31 really stood out—looked good in my 6-inch as well.

As I was changing the focuser to the wide-field “comet” eyepiece, the clouds were back. Just as I got the eyepiece installed, I looked up just in time to see M31 disappear. It looked like a big shade was being drawn across the sky, so off to bed. And so it was, mostly cloudy and even the clear nights were not nearly as good as the previous year according to many of the folks who were there last year.

There were about 350 or so folks in attendance, telescopes from my little 40mm Newtonian* to a number of big Dobsonian* scopes, the largest ranging in size from 22 to 30 inches, there being three of the latter! Also, a number of school classes showed up for a night or two under the dark skies, although some of them seemed more intent on getting pickled than observing. In any case we can hope they were impressed enough to dive deeper into astronomy and science in general.

Wednesday after lunch the afternoon talks began. Mike Lockwood spoke on “fast optics.” He had a 14-inch f/2.55 dob/newtonian with an advanced coma corrector and an Ethos eyepiece. Spectacular! Sharp images to the edge of the field! Al Nagler (Televue Optics) is in the process of coming up with a coma corrector for fast reflectors in the f/2.8 range. Mike’s telescope shows promise for this type of system. Dennis Webb talked

Continued on Page 6

GEARING UP

Jack Eastman looks through his Alvin Clark 6-inch refractor (below).



OKIE-TEX

Continued from Page 5



COLLIMATING THE NEWTONIAN (ABOVE).

And, below, a field of faster than usual Dobsonian telescopes.

about his book, *Halton Arp and His Peculiar Galaxies*, a redo of Arp's *Atlas of Peculiar Galaxies*. Mike Ford presented a paper on "Seeing the Invisible Universe," observations at other than optical wavelengths. Then another huge farm-style dinner (I have to say the meals were outstanding—cheers to the Cimarron Heritage Center's volunteers!) then out to the 'scopes.

Thursday afternoon talks included Brad Ferguson's "Mysterious Epsilon Aurigae"

about the mystery surrounding this star and encouraging as many folks as possible to observe the current eclipse of this enigmatic object (see the article by Robert Stencel, *Sky&Telescope*, May 2009.) Kerry Magruder talked about the history and accomplishments of Copernicus and later, after dinner, he gave a second talk on the accomplishments of Galileo. After lunch on Friday, Jim Edlin gave a talk on Amateur Spectroscopy, describing how amateurs can do serious work

with the spectrograph, with examples. Then came Al Nagler with "Giant Eyepieces that Swallow Spacecraft," an in-depth description of his design work on the Apollo Lunar Lander simulator, which involved extreme wide-angle optics with very large pupils and "eye relief." This was, in a large part, the stimulus for the Ethos series of 100-degree apparent field eyepieces. Al gave a second, somewhat technical talk the next evening on choosing eyepieces, with regard to pupils, eye relief, fields of view and such. There were only 3 or 4 talks each day, giving us all even more time to for exchanging experiences and ideas, not the least of which were interesting discussions with Al Nagler on the subject of optical design, apochromatism and perfection in eyepieces. Again, kudos to the folks from the Cimarron Heritage Center for the exceptional meals and the "Cosmic Cafe" which served snacks and hot coffee during the night.

There were the door prize drawings both Thursday and Saturday after dinner and the swap meet on Saturday. I picked up a couple of books and a Unitron 2.4-inch (60mm) alt-azimuth. I told the fellow selling it that it could go, probably online, for many times his asking price, but he said he didn't care, it had to go. It had a very soft image—much, much spherical aberration. The owner admitted he cleaned the lenses and didn't guarantee he put them back correctly. I took it anyway and reversed the front element of the objective. Wow! Sharp as a tack!



Saturday night was the best observing night of the whole week—wouldn't ya know it, as we had to be packed up and out of the camp early Sunday A.M. Again, just surveying the Milky Way with my 6-inch finding all sorts of nebulae, both bright and dark, clusters and just pretty star fields. Once I was shown the way to M33, I seemed to see it every time I pointed the binos or the 6-inch with the widefield eyepiece; same for the Helix nebula in Aquarius. Again I looked up NGC 6144; it was easier to see than earlier in the week, as the sky was noticeably better than earlier.

Sunday we packed up and headed out, a pleasant five-hour trip back to Denver. I had a terrific time. Compared to the Riverside Telescope Makers Conferences at Big Bear, this one was much more laid back; plenty of free time to just sit around and talk telescopes,

astronomy and the universe in general or take bike rides around the local area. There was just enough formality to keep things interesting and probably the best meals of any outing I've been to by far.

Yes! I'm planning to go back again!

=====

**Notes. The terms "Dob", "Dobsonian", etc. may be somewhat confusing to those new to the hobby. Dobsonian, or Dob, refers to a simple design of alt-azimuth telescope mounting, usually for Newtonian reflecting telescopes. It is the invention of John Dobson, whose intent it was to make a telescope and mount as easily and cheaply as possible and still be serviceable. "Newtonian" refers to the optical design (Newton, 1668) of the simplest reflecting telescope.*

PRESIDENT'S CORNER (CONTINUED FROM PAGE 2)

Ginny's resignation, the E-Board was left with a vacancy. On October 9, Norm Rosling was nominated to fill the vacancy for the 2009 term. The E-Board, through unanimous decision, voted to confirm Norm as the newest member of DAS Executive Board. Those of us who are acquainted with Norm know him to be an accomplished Public Night presenter and he is extremely knowledgeable in astronomy. His 'even keel' temperament is a good fit to the E-Board.

The next General Meeting, November 7, will play host to our annual **Show-and-Tell**, and spotlights projects by members. Our point of

contact is VP Keith Pool. Please reach out to Keith to reserve time. In addition, the November meeting will serve as the time to appoint the Election Chairperson (aka Nominating Committee) for the DAS elections in February 2010. DAS has over 300 members. If you are interested in serving DAS in some capacity, please consider running for an officer position or a place on the Executive Board.

If you're interested in volunteering in an observing position, then consider one of the Public Outreach functions, such as Public Nights on a Tuesday or Thursday night, or staffing the Open House team every month. If this interests you, then please contact me.

In closing, former DAS president and Assistant Professor Dave Trott shared an email from one of his students with me. As some of us know, Dave has been a part of Denver astronomy since Chamberlin was first wired for electricity (well, almost), and has been teaching astronomy locally for years. His student's message reminds us of our public outreach mission:

"The Denver Astronomical Society does a great service to science and to the public by hosting such high quality events. There is always something for everyone, regardless of how many times you go. This was an extremely rewarding experience and strongly reinforced my love for the stars."—*Ronald E. Mickle, President.*

**WELCOME
October
New Members**

Fred Kuhns
Bryan Fry
Sarah Parady
Jim Skinner

DAS Holiday Potluck
Saturday, December 5th
6-9 P.M.
Columbine Unitarian Universalist
Church
6724 South Webster Street,
Littleton, Colorado.

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.



S&S OPTIKA HAS MOVED TO:

6579 SO. BROADWAY
LITTLETON, CO. 80121
(~1 1/2 blocks NORTH of
Arapahoe Road on the
WEST side of South
Broadway)

(303) 789-1089
www.sandsoptika.com

DAS SCHEDULE

NOVEMBER

- 6 General Meeting at D.U.'s Olin Hall (Begins at 7:30 P.M.)
- 13 E-Board meeting at Chamberlin Observatory (Begins at 7:30 P.M.)
- 13-14 EGK Dark Sky weekend
- 21 Open House at Chamberlin Observatory (Begins at 5:00 P.M.)

DECEMBER

- 4 E-Board meeting at Chamberlin Observatory (Begins at 7:30 P.M.)
- 5 Annual DAS Holiday Potluck (Begins at 5:00 P.M. and takes the place of the General Meeting)
- 18-19 EGK Dark Sky weekend
- 26 Open House at Chamberlin Observatory (Begins at 6:00 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
c/o Chamberlin Observatory
2930 E. Warren Ave.
Denver, Colorado 80210