

The

DENVER OBSERVER

Newsletter of the Denver Astronomical Society

One Mile Nearer the Stars



1966 Leonids
Image: © Gary Emerson, 2001

Dress Warmly for a Night with the Lion

For the last few years astronomers the world over have awaited the arrival of the annual Leonids with wary anticipation. Experts forecast good storm prospects for 2001 with two intense activity peaks on November 18 between 3 A.M. and 11 P.M. as Earth passes through the dust emitted from Comet Tempel-Tuttle back in 1866. Because the moon will only be three days old, at the worst, we should have a fabulous shower with rates estimated at a couple hundred per hour! Don't miss a minute!

Leonids—Sprinkle or Storm?


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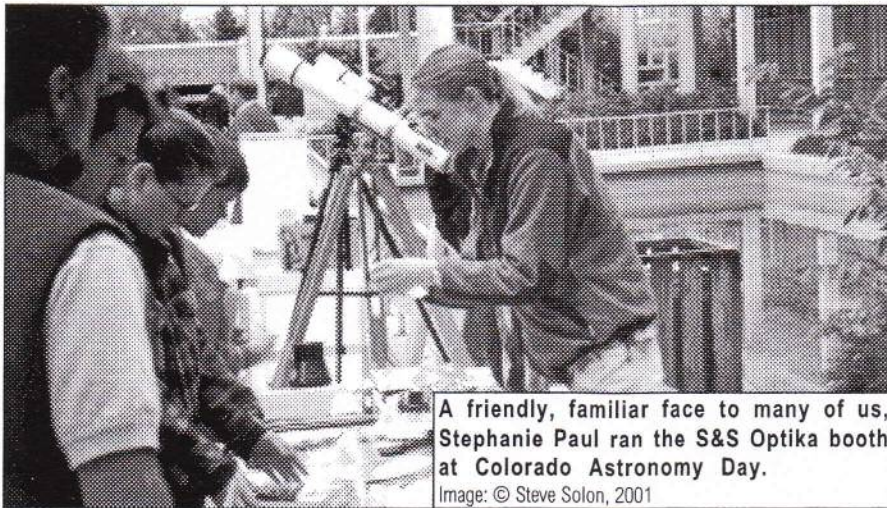
NOVEMBER SKIES 2001

The Leonid meteor shower is definitely the celestial highlight of the month. While the Americas probably won't see the thousands per hour predicted in Australasia, we could see a couple hundred per hour. While that is clearly worth a drive to dark skies, the shower isn't the *only* astronomical happening this month. For another few days at November's beginning, Mercury and Venus will be less than 1° apart in the predawn sky (this quasi-conjunction began October 27). This is Mercury's best morning display of the year and all the planets are observable in the sky during the course of the night. The gas giants dominate the dark, but Saturn is approaching its brightest apparition in years. As a bonus to the Saturnian spectacle, the moon passes 0.5° north of it at 7 P.M. on November 30.—*P. Kurtz*

8	Last quarter moon
14	New moon
18	Leonid meteor shower peaks
22	First quarter moon
30	Full moon



Left: IC 5146, the Cocoon Nebula in Cygnus shows off for the camera.
Image: © Steve Bell, 2001



A friendly, familiar face to many of us, Stephanie Paul ran the S&S Optika booth at Colorado Astronomy Day.
Image: © Steve Solon, 2001

PRESIDENT'S CORNER

I want to thank all the wonderful volunteers who helped with Colorado Astronomy Day. The day was enjoyable from beginning to end. The speakers were terrific and kept the audience spellbound. Door prizes flowed like water. Some volunteers went to the museum and had a great day down there. Clouds cleared in the evening just in time to do some observing.



Cold as it was, all had a great time. It is impossible to thank each individual that participated because there were so many that contributed. Very special

thanks to Patti Kurtz for all her work. Special thanks to Bob Stencil for his support of the day's activities and his continued support of the DAS, and to Laura Danly and Jennifer Ryan from the Denver Museum of Nature & Science. Thanks also to the committee heads: David Shoudice, Dan Wray, Carla Swartz, Ron Pearson, Chuck Carlson, Steve Solon, and Joe Gafford. To all the volunteers at Boettcher, Chamberlin Observatory, and the telescope observing field—you're the greatest. Thanks to all for your hard work and support.

It is a pleasure working with such a fine group of people. You are the greatest.—
Larry Brooks, Lbrooks100@aol.com

DAS Schedule

NOVEMBER

- 2 E-Board meeting, 8 P.M.
- 9 General Meeting at Olin Hall, DU, 7:30 P.M.—Show and Tell
- 16-18 Dark Sky Site Weekend (great place for the Leonids!)
- 22 Happy Thanksgiving!
- 24 Open House (How to Buy a Telescope)

DECEMBER

- 7 E-Board meeting, 8 P.M.
- 8 Holiday Potluck
- 10 First day of Chanukah
- 14-16 Dark Sky Site Weekend
- 22 Open House (Spectacular Saturn)
- 25 Christmas Day

Public Nights are held every Tuesday and Thursday from 7:00-9:00 P.M. at Chamberlin Observatory
Costs to non-members are: \$2.00 adults, \$1.00 children
Please call (303) 871-4333 for reservations.

DAS Officers

President:

Larry Brooks (303) 986-5255
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Jack Eastman

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Joe Gafford	Steve Solon
Greg Marino	Dan Wray
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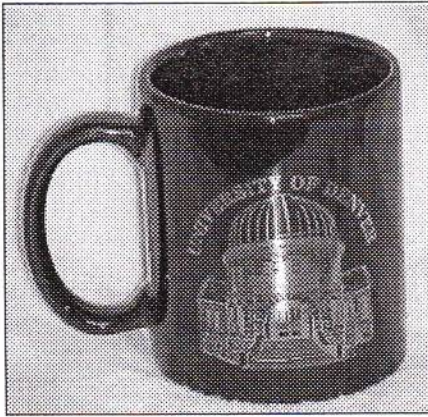
Newsletter:

Denver Observer editor, Patti Kurtz
StarFire Creations Unlimited
(303) 948-5825

The Observer is available in color PDF format from the DAS website.

The Executive Board conducts the business of the DAS at 8 P.M. at Chamberlin Observatory. Please see the Schedule of Events for meeting dates. All members are welcome.

www.denverastro.org



Sky & Telescope sends only one notice before subscriptions end. The DAS sends only one issue of The Denver Observer after dues expire. The cost of magazines (Astronomy and Sky & Telescope) is in addition to the annual dues. For questions concerning memberships, please contact DAS Treasurer, Chuck Carlson (chcarlso@du.edu). See the back page of this newsletter for more information.

The DAS StoreFront

Just in time for the holidays, the Denver Astronomical Society has received a new shipment of its popular Chamberlin Observatory coffee mugs. These beautiful deep blue and gold mugs are a must for any DAS member's kitchen, but don't put them in the microwave! At this great price, you can buy a set of four or eight.

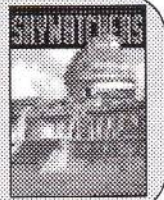
Don't forget the DAS and Chamberlin pins. They look great on your DAS jacket. They and the meteorites make a great stocking stuffer. All proceeds go to the General Fund of the DAS, and are for sale at all Open Houses.

PRICES:

- ★ Blue and gold Chamberlin Observatory Coffee Mugs \$5.00 each
- ★ Chamberlin Pin \$3.00
- ★ Denver Astronomical Society Pin \$4.00
- ★ Meteorites \$4.00, \$2.00, and \$1.00 (depending on size)

DAS Bookstore and More (!)

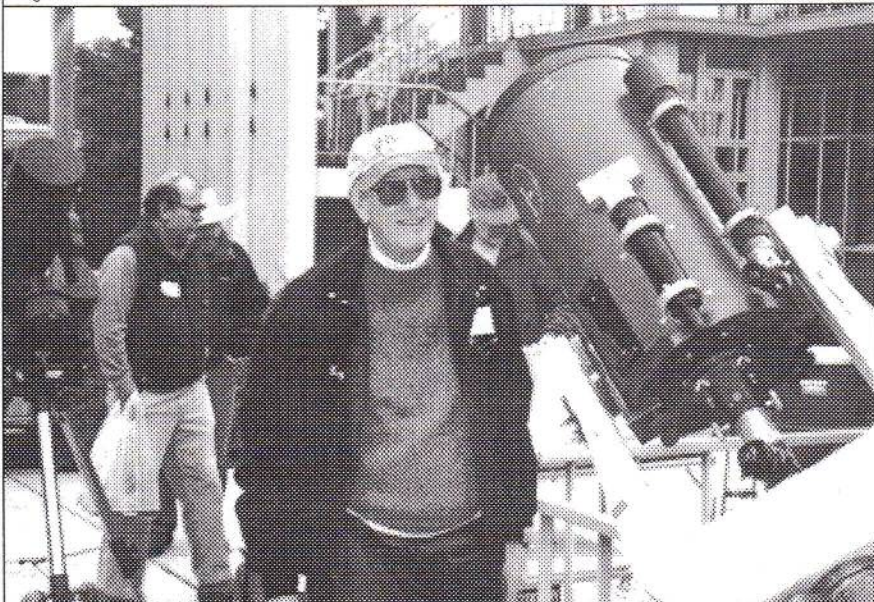
In this revised edition of *Skywatchers of Ancient Mexico*, Anthony Aveni brings the *Skywatchers* story up to the present. *Skywatchers* helped establish the field of archaeoastronomy and remains the standard introduction to the subject (from a review at Amazon.com).



Videos of Meeting Presentations to be Available in the Library

Many, many thanks go to Pat Raser, who has been video-taping the general meeting speakers' presentations for the last many months. He also taped the terrific presentations made at Colorado Astronomy Day. The DAS is archiving these tapes in the DAS library for check-out to club members. If you had to miss a meeting or Colorado Astronomy Day and wish you'd been able to hear the speakers, check out a video tape and catch up.

Wayne Kaaz with his 10-inch f/8 Ritchey-Chretien telescope at Colorado Astronomy Day. Wayne built almost all of the scope except the optics.
Image: © Steve Solon 2001



Note from the editor:

Newsletter contributions (ccd and film astrophotos, members with telescopes, star party candid, short observing anecdotes, observing and imaging tips, etc.) are welcome and encouraged. This is your chance to strut your stuff! **Please submit by the 15th of each month as follows:**

Film: Glossy prints by mail** or scanned and uploaded (high res.) to the listserv upload area.

CCD: Uploaded to the listserv upload area (resolution as high as possible, please).

Text: Articles should be no more than 250 words, please. Please paste article(s) into an email and send to me at: pkurtz@starfirecreations.com.

If you don't receive a confirmation email from me, I didn't get your email. Also, be sure to let me know if you've uploaded a file. Thank you!

***Patti Kurtz*

(call for mailing address)

(303) 948-5825

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updates

Observing Anecdotes: Comet Eastman-Edwards-Gardner, 1956 or Thereabouts

by

F. Jack Eastman, the Furry-Faced observer, with ample help from two accomplices and good friends, Ed Edwards and Mike Gardner

In a distant land, long, long ago (California, 1956) three terminally smitten amateur astronomers set out on an odyssey which promised unparalleled views of the starry heavens from a prime observing location—the home of what was then the world's largest telescope. We were still in high school, and only recently had gotten driver's licenses. Ed had just acquired a car of his very own. This was to be its maiden voyage. I think it was right after the end of school when the three of us, Ed Edwards, Mike Gardner, and yours truly loaded camping gear, cold-weather gear, telescopes, camera stuff, really cold-weather gear, food, and water, and set off for Palomar Mountain.

This was one of our very first solo voyages far (by our standards of the time) from home, and for being away for several nights. We left Manhattan Beach, headed East on Artesia Blvd., out into what was then the country, through Dairy Valley, then onto what is now I-5. We went through seemingly interminable orange groves and vineyards, to Oceanside, Escondido up S6 to 76, more orange groves and vineyards, then up the steep and winding S6 (S. Grade road) to our chosen observing site.

There was an ideal site at the top of S. Grade road where it turned into E Grade road, and Canfield Road headed North to the observatory and the other branch of E Grade road headed West to Palomar State Park. About 20 feet above the highway was a flattened area, used by the highway folks to store equipment, gravel and such, about an acre and a half. Few trees, a couple to the West otherwise a perfect horizon. Right across the road to the park was a gas station and small restaurant where we could get supplies and food when and if we got sick of our culinary abilities.

Once there, we asked the folks at the gas station if it was OK to set up and the answer was "yes." The folks that ran the place were very helpful. Said they'd keep an eye on things should we decide to go up to the observatory or whatever. We set up everything—the scopes, binoculars and all. Mike and I had our 6-inch reflectors, and I think there was a 60-mm refractor, Ed remembered his 4.25-inch reflector and we had binoculars, star charts and sufficient provisions to stave off late night starvation.

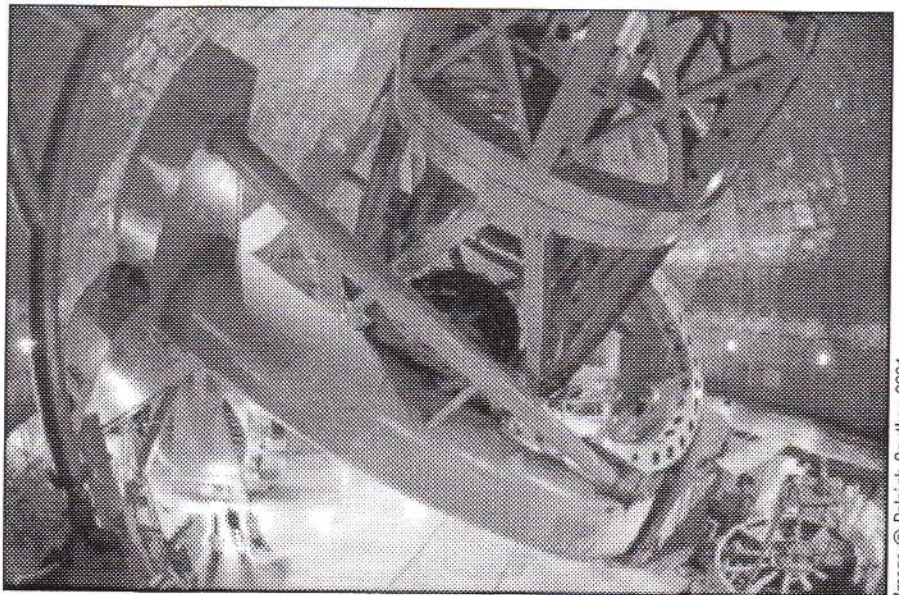
The first night was beautiful, clear, a bit cold, and had relatively good seeing. We looked at all sorts of stuff, many Messier objects and all. The usual things one would expect under the circumstances.

How 'bout M4? It looks high enough now, and so it was. The usual drill, set up on Antares, shove the scope West and there

it was. I expected more, actually it didn't look that much better than down in "Sludge Gulch," home in Manhattan Beach. One of the other guys, stumbling around in the dark, bumped into my scope, and wow! Whazzat?? A blaze of stars nearly filling the eyepiece! M4. Wow, that's more like it! But wait a minute—If this is M4 what was that other thing?? Webb's Atlas of the Stars—nothing. Norton's Atlas 1950, Nothing. You don't suppose?? We relocated the thing about halfway between Antares and M4. Faint. Roundish, maybe a little grainy looking.

At this point one must realize that here were three kids, pumped up with excitement and enthusiasm, on their first "real" camping trip, far away from home and many, many hours with no sleep.

"Mike! I think this thing has moved! A tad to the North. I think it was right between those two little stars a while ago!" Mike looks. "I think it's moved too, but looks West to me." I think Ed agreed it had moved, but Southeast. We piled in the car and zipped off the five miles to Palomar to see if we can find somebody around there to report our discovery to. No one. Not too much of a surprise, after all these guys are busy, and probably don't hear us pounding on the door anyway. Back to the site. Find our object.



The 200-inch Hale telescope at Palomar Observatory photographed by an extraordinary California photographer-member. A lone astronomer stands far below looking up.

Image © Raleigh Souther, 2001

observers deck

Yes it moved!! But again, we couldn't agree on which way or how much.

By now we're freezing our toenails off. California high mountains are that way. They can be hot as blazes during the day and go well below freezing at night. The little place across the road was no help, as they closed up shop about 8 P.M. or so. The good news was that we had a thermos of hot water and a bunch of tea bags. Ed had a patriotic set of plastic cups: red, white, and blue. We huddled in the car and made tea. "I've been cheated! My teabag's a dud!" Sure enough, my tea didn't go. The others donated their bags, and I stirred and squeezed the darn things. Still nothing. I got a fresh bag and added that. Finally. Tea. I took a swig, "Acckgh! Gads! This stuff will strip paint and grow hair on a bowling ball!" I could have dumped it out of the cup and sliced it up for hockey pucks. It turns out I got the red cup. Red liquid in a red cup under faint light looks clear. Early lesson on the use of color filters and their effects.

"What's that light over there?" pointing at the far ridge to the East. "Looks weird." "Car? I'm not sure if there's even a road over there." "Look, there's two of 'em." "The one on the right is getting bigger, and looks like it's splitting." "Go get the scope on it. Not yet, it's cold out there." (none of us would admit it at the time, but we didn't especially want to, shall we say, expose ourselves to this thing) And so three very tired, cold kids watch what appeared as a very bizarre light show on the far ridge from the relative comfort of the car. Too weird to describe, very suggestive of something not of this Earth! The show goes on for what seems a half hour or so, the light splitting, reforming, changing shape, then all of a sudden, "Damn! I know what that is!!" We

jump from the car, aim the telescope at it—the moon! Yes, the moon rising behind a ridge of trees. Half hour was probably more like two or three minutes.

Suddenly it hit us. The moon! The moon is coming up! Sky brightening, the folks up at Palomar will be giving up. Zoom! Off to the observatory again, but the results were the same as the previous trip, no signs of life. I guess if you finally get your night on the world's biggest telescope you're not gonna let a little thing like the moon slow you down. Or, they already gave up and were off soundly sleeping. At least the drive up there warmed us up. We went back to the site and hit the sack. Our discovery had set, the moon was up, and we were unbelievably tired. The sky seemed to move in bizarre ways, with spurts and stops as we staggered around trying to get our camp in order. I think our eyeballs were going on strike if we didn't give up and get some sleep!

Next morning, a hurried breakfast at the little eatery across the road. We asked if we could call up to the observatory, and the fellow said it'd be an expensive long distance call, as it would be routed through Escondido, San Diego or maybe even Mexico. No direct line the five or so miles up the hill. So we drive up to the observatory yet again. We encountered an older gentleman, thick accent, just coming out of the back door of the 200-inch dome. We described our "find" and got much encouragement, "Go down that road, second house. That is Charlie Kerns, night assistant on the 48-inch Schmidt camera. Maybe he can help." I think the person we talked to was none other than the world-famous astronomer, Rudolph Minkowski.

We find Charlie and he, too, is encouraging. "Come back tonight and we'll take a shot with the 'Big Schmidt' and get your object if we can. Would you fellows like to see the 48-inch?" Would we?! You bet! Charlie took us up to the dome, well beyond the "off limits" signs on the observatory grounds and gave us the cook's tour of the 48-inch Schmidt, the darkrooms and all. As we were leaving, Charlie said, "let's look in here." There was the big deluxe edition of Becvar's Skalnate Pleso star atlas. "You say near Antares? Between it and M4?" I'll be

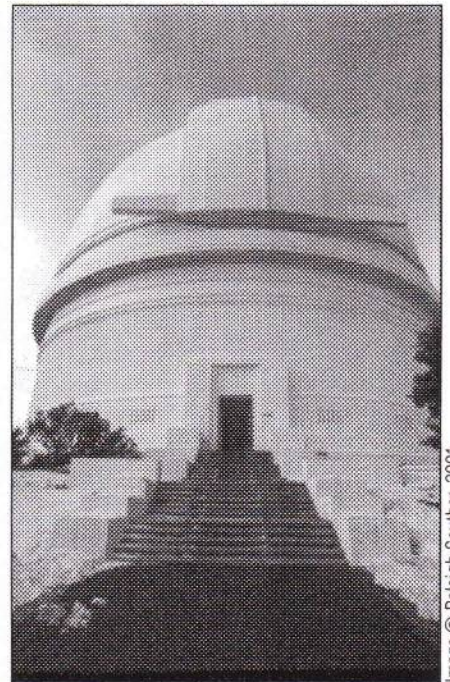


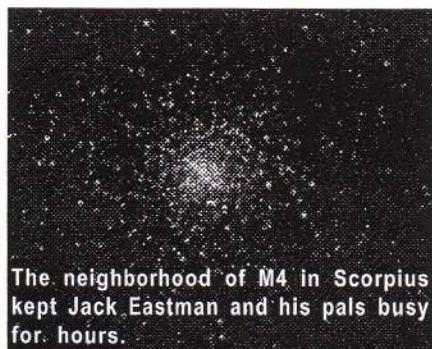
Image © Raleigh Souther, 2001

A chilly approach to a dome on Palomar mountain probably looks much as it did when three teenage boys camped down the hill for a night of stellar surprises.

darned, there's a little yellow circle with a cross in it. NGC 6144. A Globular Cluster, between Antares and a much bigger yellow circle with a cross in it—M4. Poof! went Comet Eastman-Edwards-Gardner.

Poof! went a entire night's observing to keep track of this little booger. Poof! went a night's sleep, lost over the excitement, trips up the "hill" and keeping close track of our "catch." But it was an experience and a half. The adrenaline of discovery, and getting the hell scared out of us by a moonrise (better than any ghost-stories-around-the-campfire-experience). Freezing our tusches off, and for me—tasting what had to be the world's worst tea, of my own making to boot. (I still blame that on Ed and his red teacup!) We got to see the 48-inch Schmidt camera and talk to a couple of real astronomers—all this when we were impressionable youngsters!! As Mike said, we must have really been bitten by the astronomy bug. Even a half century after this experience, all three of us are still dyed-in-the-wool amateur astronomers. However, even after numerous camping/star party/remote observing trip experiences, this remains one of the most memorable.

Image © Steve Bell, 2001



The neighborhood of M4 in Scorpius kept Jack Eastman and his pals busy for hours.

o b s e r v e r s d e c k

Directions to the Dark Sky Site

The DAS Deer Trail Dark Sky Site (DSS) is about 60 miles east of the "mousetrap" in downtown Denver.

Take I-70 east to the Deer Trail exit (exit 328), turn left at the end of the exit ramp, and turn left again on CR 217 (after the Texaco station). Take CR 217 just over 1/2 mile, and turn right (east) onto CR 34. Stay on CR 34 about 6 miles until you get to CR 241. Turn left (north) onto CR 241 and continue about 1.5 miles – you'll see a culvert with a wide gate on the right (east) side of the road.

Directions to DSS from Denver, arrival from the North (for after-dark arrivals):

Take I-25 eastbound to exit 316 (Byers). Turn left at end of ramp which puts you on eastbound US-36. Take US-36 east 17.2 miles to CR 241. Turn right (south) onto CR 241 and continue for 6.2 miles. The DSS entrance is on the left between two tall posts.

Note: Travel distance from Denver using the North route is actually 3.9 miles shorter than the traditional route. The first 5 miles of CR 241 going south from US-36 is narrow and somewhat rough. Be careful.

Warming Hut Rules

- The last people on the site must turn off the lights and the heat.
- A microwave will be provided for warming food. Please clean up after yourself.
- No pots and pans, appliances, or other supplies are to be left in the shed.
- No personal supplies are to be left in the shed overnight.
- Do not donate furniture or other things unless you clear it with the D.S.S. committee first.
- No food left overnight in the shed.
- No sleeping overnight in the shed.
- Quick naps are permitted if you feel you might fall asleep on the way home. We would prefer you get your nap rather than falling asleep on the road. However, we don't want it to become a tent for camping.
- Clean up after yourself before you leave the site.
- Please clean up all food that drops or is spilled, otherwise it will attract mice and insects.

Astronomy Day Sponsors Were Astronomically Generous

A total of \$2019 in door prizes were donated by various sponsors and vendors at Colorado Astronomy Day. Participants were treated to four separate drawings throughout the day during which many astronomy related items were given away. Many thanks to the following companies for their generosity (**denotes gift worth more than \$100):

★Astrographics

(www.astrographics.com)**

★Astronomical League

(www.astronomicalleague.com)

★Astronomy Magazine**

(www.astronomy.com)

★Astrosystems (www.ezlink.com/~astrosys/)

★AstroZap (www.astrozap.com)

★Discovery Channel

(www.discovery.com)**

★Great Wall Consulting & Trading

(www.greatwallct.com)

★Impactika (www.IMPACTIKA.com)

★Infini-Tees (www.infini-tees.com)

★JMI (www.jimsmobile.com)

★Ken Press (kenpress.com)

★Lumicon (www.lumicon.com)

★Mike's Camera in Boulder

(www.mikescamera.com)**

★Mile High Meteorites

(www.mhmeteorites.com)

★New Mexico Skies (www.nmskies.com)

★Newport Industrial Glass

(www.newportglass.com)

★S&S Optica (www.sandsoptika.com)

★Sky Publishing (www.skypub.com)

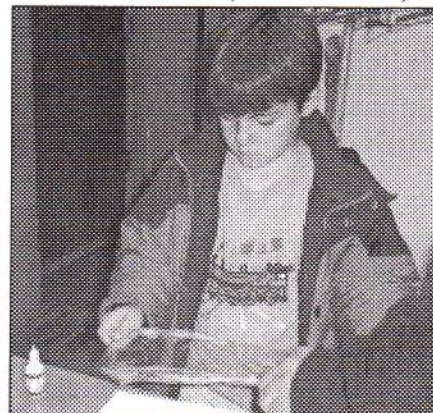
★Software Bisque (www.bisque.com)**

★Televue (<http://televue.com/default.asp>)

★Valley Microscope

(www.valleymicroscope.com)

★Rob Walrecht (www.walrecht.nl)



Dark Sky Site Guidelines

The Dark Sky Site (DSS) is for the use of DAS members and their guests. If you are neither, please contact an officer of the DAS for a "guest pass," and read the DSS Guest Policy (below). Please remember that any light disrupts your eye's dark adaptation and can ruin astrophotography. Most members (astrophotographers may be the exception) are happy to share views from their telescopes, however, please introduce yourself and ask permission upon approaching a telescope owner. Please follow these simple guidelines to maintain a positive experience for everyone:

- ★ Try to arrive before dark. If you must arrive after dark, please turn off headlights when turning into the site, and try to arrive from the north.
- ★ Don't park on the graded graveled roads.
- ★ Turn off or disable all dome and trunk lights in your car (or cover with layered red tape or duct tape)
- ★ Use only dull RED FLASHLIGHTS.
- ★ NO OPEN or CHARCOAL FIRES.
- ★ If you're the last person to leave, close the gate.
- ★ If you leave before everyone else, ask for assistance in getting out of the site without headlights.

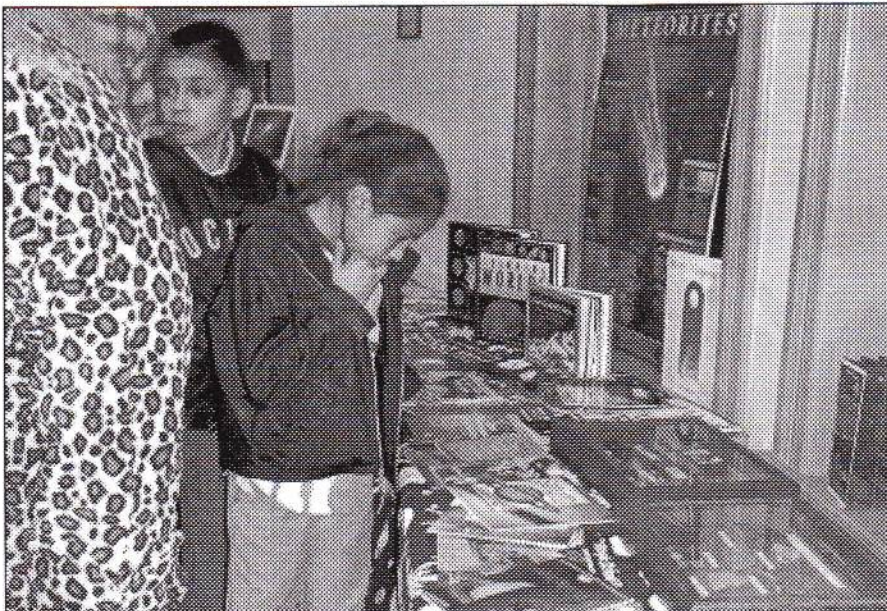
Other suggestions:

- ★ Wear warm clothing.
- ★ Bring your own toilet paper in case that in the porta-pottie has run out.

DARK SKY SITE GUEST POLICY

The DAS Dark Sky Site, while for the exclusive use of the membership for serious observing, will allow visitors on a limited basis. Groups or classes wishing to use the DSS may do so only with prior arrangement through the DAS president or vice president.

o b s e r v e r s d e c k



Astronomy Day's evening festivities at Chamberlin Observatory brought out the families—these children, like numerous others, looked through the wonderful book exhibit that Kay Anderson provided.

Image © Sherry Johnson, 2001

Astronomy Day Had Something for Everyone

It was a long eventful day for those members who stayed for both the daytime and nighttime activities of Colorado Astronomy Day. Carla Swartz met PartyTime rentals at 7 A.M. to handle the tables and skirting for the vendors, who began to arrive shortly afterwards and lined the sidewalk in front of the Boettcher Center. People milled about after registering, asked questions of the various vendors and made purchases before heading into the talks. Inbetween speakers, the door prize giveaway was extraordinary—\$2,019 in door



Marilyn Pearson and Amy Dickman answered questions and sold tickets and meteorites for the club.

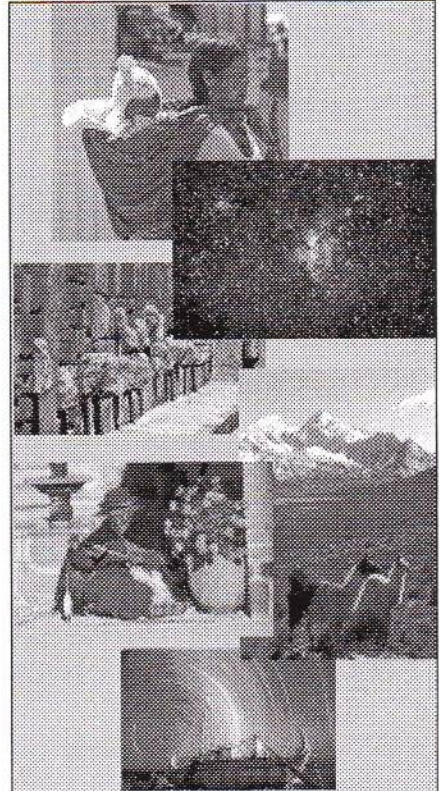
Image © Sherry Johnson, 2001



Above: Folks checked out the assembled telescope kit that Astrosystems brought and displayed for the day. Previous page: A young boy made a constellation finder.

Above image © Dan Wray, 2001; Opposite page image: © Sherry Johnson, 2001

prizes. The speakers were outstanding. One couple drove 400 miles from Rapid City, S.D. to hear Jeff Hester's talk. After the last presentation, folks rushed out for a quick dinner; some went right back into the fray—needed were telescopes and displays setup at Chamberlin. More than 400 people went through the observatory and took advantage of the meteorite displays, book displays, constellation creations, telescope observing, and more. Many, many thanks to the dedication and hard work of every volunteer, the speakers, and those who attended.—Patti Kurtz



THE SOUTHERN SKIES STAR PARTY 2002

Get ready for the high altitude, southern hemisphere, ultimate observing event. On the shores of Lake Titicaca in Bolivia you'll be treated to the southern skies experience of a lifetime.

June 8-15, 2002

68° West, 16° South

Altitude: 12,500 feet

For more information, contact Patti Kurtz at (303) 948-5825, e-mail pkurtz@starfirecreations.com, or visit <http://www.icstars.com/southernskies/>.

Cost is \$1649pp—includes R/T air from Miami, all meals, transportation, hotel accommodations, attractions at the resort, and all star party activities. Limited to 50 participants. Please refer to code DASPK.

Welcome New Members!

The following folks joined the Denver Astronomical Society during the last month. Welcome new members!

- Rick Hadley
- S. Mason Meek
- Tom Haverty
- Harry Albert
- Mark Vincent
- Patrick Brenner
- Andrew Robinson

observers deck

About the Denver Astronomical Society

The DAS is a group of amateur and professional astronomers that share a mutual interest in the heavens. The DAS operates the University of Denver's Chamberlin Observatory, along with its prized 1894 Alvan Clark 20-inch refracting telescope. Our members have been involved with the first public planetarium at the Denver Museum of Science and Nature and the Smithsonian Astrophysics Observatory's "Moon Watch" program. The DAS successfully petitioned to have the Chamberlin Observatory listed on the National Register of Historic Places.

Our Credo is to provide members a forum for increasing and sharing their knowledge, to promote and educate the public about astronomy, and to preserve the historic telescope and observatory in cooperation with the University of Denver. To these ends we have established three tax deductible funds: the Van Nattan Scholarship Fund, the Chamberlin Restoration Fund, and the DAS Dark Sky Site Fund. This last fund was established in order to construct and maintain observing facilities near Deer Trail in eastern Colorado.

Please call our Info Line at (303) 871-5172 and drop by the General Membership meetings. Become a member and enjoy speakers, facilities, events, and our monthly newsletter, *The Denver Observer*.

APPLICATION FOR MEMBERSHIP TO THE
DENVER ASTRONOMICAL SOCIETY

New Renewal

Name: _____
 Address: _____
 City, State, Zip: _____
 Phone numbers: Home () Work ()
 E-mail Address: _____
 Occupation: _____
 Other Interests: _____
 (Associates Only) School: _____ Grade: _____
 Do you want to download the newsletter in PDF format from our website instead of by postal mail?
 Yes No
 Do you want the above information excluded from the yearly roster? Yes No

Please Circle All That Apply:

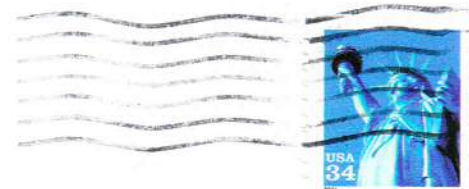
Regular Membership: \$30 Associate: \$10 (Age 22 and younger) _____ \$ _____
 Astronomy Magazine/\$29 _____ \$ _____
 Sky & Telescope Magazine/\$29.95 _____ \$ _____
 Van Nattan Scholarship Fund _____ \$ _____
 Chamberlin Restoration Fund _____ \$ _____
 Total Amount Paid _____ \$ _____
 Please mail Dark Sky Site donations to: Steve Solon; 9774 W. Elmhurst Pl.; Littleton, CO 80128. (Make checks payable to the Dark Sky Site Fund).

***Please complete this form, or a copy, and mail it with your check or money order payable to The Denver Astronomical Society:
 DAS Treasurer; Chuck Carlson; 1521 So. Vine St.; Denver, CO 80210***



Denver Astronomical Society

c/o Chamberlin Observatory
 2930 East Warren Avenue
 Denver, Colorado 80208



NOVEMBER'S
 MEETING

NOVEMBER 9:

"Show and Tell." Bring those astronomical projects you've been working on all year and share them with your fellow club members!

Expires 1/1/2003
 Bradley D Gilman
 4801 S Acoma, #55
 Englewood, CO 80110-6547

join us

