

Longmont Astronomical Society

October 2004



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Dear members and friends,

Wow, it is October already! Time flies when you're having fun, and LAS this year has been no exception.

Thanks to all of you who helped with the Tri-Town star party – it was a huge success. Thanks especially to Michelle Lavers who has worked tirelessly to make this happen. Thanks also to Roy and Monica Martens who supported the rescheduled raffle star party for Mike Fellows. Although they were the only club members there, all in attendance had a good time as well.

I am happy to announce that we will have the same great menu at January's banquet at the same price as last year. See details elsewhere in the newsletter, and make your reservations early! The banquet is again at the Wayside Inn in Berthoud on January 15th.

Finally, I regret to announce the resignation of Vice President Melinda Diehl. Melinda has been involved with the LAS since she moved to Longmont many years ago. She has served as secretary/treasurer and been instrumental in projects such as Astronomy Day and the annual banquet. She will be leaving in a few weeks to pursue new opportunities in San Antonio. Please join me in thanking her for all of her support over the years, and wishing her all the best as she embarks on this new adventure. Melinda, we will miss you.

Clear skies,

Bob Spohn
President

Photo on the first page:

Hello everyone, the moon is getting smaller and the skies are getting clearer so it's time to head back out to the observatory. Last night I worked on IC 5146 is a RRGB=60:60:60:60 minutes. All images are binned 2x2.

My name is Brian Kimball and I approve this message...

Thanks for looking.

Calendar

November	Meeting	18 th at FRCC
	New Moon Party	13 th – New Moon Party at Pawnee
	1st Quarter Party	20 th – Public Observing at Flanders Park at dusk
December	Meeting	16 th at Fiske Planetarium
	New Moon Party	11 th – New Moon Party at Pawnee
	1st Quarter Party	18 th – Public Observing at Flanders Park at dusk
Jan 2005	Banquet	15 th – Wayside Inn

September meeting notes

The meeting took place at the FRCC in Longmont.

President Bob Spohn called meeting to order. Vice President Melinda Diehl recorded the minutes. Thanks Melinda!

Vice President Melinda Diehl, no report.

Secretary Mark Propp, was absent.

Treasurer Monica Martens: Dues notices were sent via email. The financial records did not change since last month. Magazine subscriptions will be as sent in as received. We cannot use our discount for magazine “gifts”
Newsletter Editor, Philippe Bridenne: Philippe went through the different articles and upcoming events in the newsletter. Please, send articles for inclusion in our newsletter. Thanks to Harry for his contributions!

Ray Warren, Publicity and Fundraising: Ray started to give a short report on the probe that crashed back to Earth. Despite the violent crash, scientists reported they could get some material intact. Ray passed stickers related to the Genesis mission.

Planispheres project: Ray manufactured several planispheres that were immediately sold for \$1 each. He still trying to find tools and people to produce these planispheres in volume.

Bumper stickers project: Ray also manufactured bumper stickers that were sold immediately. Two for \$1.

Astronomical League representative Bill Possell was absent.

Webmaster report by Steve Albers: TBD

Bob: LAS sponsored new Astronomical League observing program: “Globular Clusters”. The LAS logo is on the cover of program!

Julie Carmen: Julie and Marc donated to the club a nice Meade go-to 114mm telescope to the club.

Since the raffle star party was clouded-out it will be re-scheduled for Saturday October 2nd.

Since the tri-town start party was clouded-out it will be re-scheduled for Saturday October 9th.

Bob ask to vote for a thank you donation to the Longmont Christian Church our host for 12 years. The motion was voted at unanimity.

Michael Hotka gave us a short report on the Genesis mission. Thanks Michael!

Then all participants to the meeting went out to watch an Iridium flare of -5 magnitude right on time.

BREAK

Back to our meeting room, we introduced three new members.

Then Bob introduced Stevi Fawcett

Stevi went to school at Boulder High School in Boulder, Colorado. She has been a teaching assistant for undergraduate and graduate astronomy classes at the University of Colorado. As a high school senior, she took the Introduction to Astronomy class at the university, and she received the highest grade in the class, an A+. Stevi has a long list of exceptional achievements. She attended the University of Arizona's Advanced Astronomy camp. As part of her application for this camp, she wrote an essay, Application of Extrasolar Planetary Data in the Search for Extraterrestrial Life Using the Drake Equation. More recently, Stevi has been working on Analysis of Eclipsing Binary Stars.

During her freshman and sophomore years, she served as her school's science club president, and later, she established an astronomy club for her high school. This astronomy club built a 5-inch Newtonian reflector telescope. During her high school studies, she has taken many advanced math and science course and maintained excellent grades. When only a junior, she already completed Advanced Physics, one of her favorite subjects. Stevi observes the night skies often with her Meade ETX-90 telescope.

Among dozens of students from across the United States who competed for the edition of the Astronomical League's National Young Astronomer Awards, she was the third place in 2000 and the fifth place in 2001! Stevi's presentation topic was Unresolved X-ray sources in Intermediate redshift galaxy clusters.

Stevi answered multiple questions from the audience. Thanks to Stevi for the interesting and informative presentation!

SpaceShipOne – Back to the Future? by Ray Warren

The recent achievements of SpaceShipOne have me as excited as I was back in the 60s, when all the networks provided continuous coverage of all the manned space missions. Back then, I remember watching a launch in the morning and then heading off to school. After school, if coverage had ended, there would surely be something on the news later in the evening. The next morning, the Chicago Tribune would be loaded with pictures and stories covering everything from the technical achievements to tidbits about the Astronaut's families. Then, as now, I just can't get enough. Unfortunately, this kind of thing is no longer "news-worthy". Fortunately, now we have the internet. You can find all the SpaceShipOne details at <http://www.scaled.com/> including some neat video clips (if you missed it). In addition, the Discovery Channel documented the whole SpaceShipOne story and aired it as "Black Sky, The Race For Space".



US AIR FORCE X15

SpaceShipOne is another of the creative innovations of aviation innovator, Burt Rutan. In his bid for the \$10 million Ansari X-Prize, Burt chose to use the high altitude drop and launch method used so successfully in the X-15 program of the 60s.

It's quite possible that the early space program in the United States would have progressed quite differently had it not been for Sputnik and other Russian achievements in space. In "The Right Stuff", Tom Wolfe says that in the late 50s, "Engineers for NACA (National advisory Committee for Aeronautics - became NASA) and the Air Force and several aircraft companies were already designing manned spacecraft as the logical extension of the X series (of experimental aircraft). The preliminary design section of North American Aviation had working drawings and most of the specifications for a fifteen-ton ship called the X-15B, a winged craft that would be launched by three enormous rockets, each with 415,000 pounds of thrust, whereupon the ship's two pilots would take over with the X-15B's own 75,000-pound engine, make three or more orbits of the earth, reenter the atmosphere, and land on a dry lake bed at Edwards like any other pilots in the X series. This was no mere dream. North American was already manufacturing a ship almost as ambitious: namely the X-15. ... The X-15 was designed to achieve an altitude of 280,000 feet, just above fifty miles, which was generally regarded as the boundary where all trace of atmosphere ended and "space" began. Within a month after the launching of Sputnik I, North American's chief engineer, ... was in Washington with a completely detailed proposal for the X-15B (X-20 or Dyna-Soar, for "dynamic soaring") project." "The Right Stuff", by Tom Wolfe, Farrar, Straus and Girous, 1979, 1983, page 70.

Unfortunately, this approach "would have required rockets that were still three or four years away from delivery. So, a so-called quick and dirty approach was seized upon. Using available rockets such as the Redstone ... and the just-developed Atlas ... they would try to launch not a flying ship but a pod, a container, a capsule, with a man in it. The man would not be able to alter the course of the capsule in the slightest. The capsule would go up like a cannonball and come down like a cannonball, splashing into the ocean, with a parachute to slow it down and spare the life of the human specimen inside." (ibid, page 74).

SpaceShipOne, like the X-15 (and other X series craft) was lifted to altitude and dropped for launch. SpaceShipOne was carried aloft to 45,000 feet by its mother-ship the White Knight. The X-15 archives on the NASA web site are quite interesting (check out the videos at: <http://www.dfrc.nasa.gov/gallery/movie/X-15/index.html>) to view and compare with SpaceShipOne. The following X-15 achievements are listed:

- First application of hypersonic theory and wind tunnel work to an actual flight vehicle.
- First use of reaction controls for attitude control in space.
- First reusable super alloy structure capable of withstanding the temperatures and thermal gradients of hypersonic reentry.
- Development of [a servo-actuated ball] nose flow direction sensor for operation over an extreme range of dynamic pressure and a stagnation air temperature of 1,900 degrees Fahrenheit [for accurate measurement of air speed and flow angle at supersonic and hypersonic speeds].
- Development of the first practical full pressure suit for pilot protection in space.
- Development of inertial flight data systems capable of functioning in a high dynamic pressure and space environment.
- Discovery that hypersonic boundary layer flow is turbulent and not laminar.
- Discovery that turbulent heating rates are significantly lower than had been predicted by theory.
- First direct measurement of hypersonic skin friction and discovery that skin friction is lower than had been predicted.
- Discovery of hot spots generated by surface irregularities. [These last 4 discoveries led to improved design tools for future hypersonic vehicles, including the Space Shuttle.]
- Discovery of methods to correlate base drag measurements with tunnel test results so as to correct wind tunnel data [and thereby improve design criteria for future air- and spacecraft].

- First application of energy-management techniques [for the positioning of the vehicle for landing; these were essential for the landing of the Space Shuttle and all future reusable launch vehicles following their reentry from space.]

- Use of the three X-15 aircraft as testbeds carrying a wide variety of experimental packages. Although it has been proposed that private citizens will be invited for rides in a SpaceShipOne like vehicle, Burt Rutan has turned this part of the venture over to the Virgin Group. It seems that Burt has his eye on getting to orbit and eventually building a space tourist hotel which includes a weightless, meditation bubble (see “Black Sky, The Race For Space”, Discovery Channel). As has been noted, the Space Shuttle has benefited from the X15. It is safe to say, that SpaceShipOne would not have been possible without what was learned from the X15. Don’t be surprised if Burt’s next step incorporates many features from the long ago shelved X-15B (X-20, Dyna-Soar) project.

Sidebar: With the recent controversy over canceling the Shuttle maintenance missions to the Hubble space telescope, is it possible that a private company will be able to provide the needed maintenance? Or, retrieve Hubble from space so it can take its rightful place in the Smithsonian Air and Space Museum?



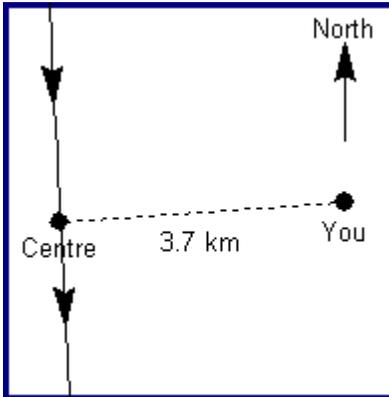
SpaceShipOne

Tri Town Star Party by Philippe Bridenne

On Saturday, 09 October, few club members gathered across the Safeway of Firestone for a star party organized by Michelle Lavers.

At 7:46:29 PM, we kicked-off this local star party with a spectacular Iridium 12 flare.

At our observation location we were just 2.3 miles East from the center line.



As such we were able to observe a -8 magnitude flare right on time. What a flare!

By the time it got dark, we had a total of 8 telescopes in action.

Ray Warren was also there, going from one telescope to another.

We had few teachers and about 30 kids running around, yelling, going from one scope to another.

Tri Town Star Party by Michelle Lavers

Thanks to all the club members who came and helped out in Frederick on Saturday. We had a total of 8 telescopes there with Dave Street, Philippe Bridenne, Mike Hotka, Andrew Planck, Jeff and I, Ray Warren. was even able to pay us a visit, and we had two non members come out and bring their telescopes as well. Dianne from Frederick brought her ETX 60 and Steve from Brighton brought his telescope as well. I apologize if I missed anyone or slander any names. We had two third grade teachers from Legacy Elementary come and stay most of the evening, Hillary Wood and Kirk Smith. They also deserve thanks for getting the word out to the third graders about the star party. There were even a few cub scouts who paid us a visit. All in all I believe we had roughly 30 or so visitors, mostly children. What was unusual was that the people who came stayed for at least two hours and boy did they have questions. The sky was wonderful and we had some great views of M13, M31, M57, M27, Arcturus and its disco ball appearance fascinated many people and the Veil Nebula was absolutely stunning through Andrew's telescope. The good news is that the Town of Frederick has given the LAS permission to use the site for public observing whenever we please we just need to drop them an e-mail. I will be doing a presentation at Legacy Elementary in the next few weeks and we are to expect something special from the third grade classes at November meeting. We all had a good time and peaked the interest of Astronomy to several people who are now very interested in obtaining telescopes of their own. I hope we will be able to get out that way more often! Thanks again for making this successful!

New Moon Star Party at Pawnee by Gary Garzone

Hello all,

We went to Crow Valley in Pawnee grasslands this weekend for the Star Party. Tom T, Steve L, Dave D, Dan, new LAS guy, Dave C. and his wife and several others for a very good night under ideal conditions.

Clear transparent skies, not too bad seeing conditions. They all were blown away with views in 30, 18, and 16, 14, 9.25 inch and 8 inch scopes. Huge group of two bus loads of people, guest speaker from university and Park Ranger. I was hoping to get to use this area in winter months but they lock gates to keep hobo's out during winter months. Maybe we can get permission to use site which is more out of the wind than Cactus Flats north. The reason we do not use it other times is of course all the people with lights and camp fires. We

use the very far end so just a few people to come and go. Last night, we entertained some campers also who loved it too, most never seen views thru scopes.

I looked at many objects, NGC 253, NGC 891, edge on galaxies, we also found NGC 6946 and the super nova going on in it. We stayed up till 2:30 am for views of Orion, first telescope view since last year, and the queen of the universe, the majestic Saturn and it's tiny moons.

The Greeley newspaper was there for write up in paper this week. Always an adventure, glad to see my astro friends again as usual, the Dark Sky Marines from LAS and NCAS. See you in the Dark, bye, Gary



Reading for observation at Crow Valley in Pawnee



Astronomy Day 2004

Enjoy lectures from local space scientists on astronomy and upcoming missions, make your own comet, discover the freezing temperatures of deep space, touch local meteorites, and watch a slide show of aurora borealis and comets with 3-D glasses! View the Sun safely through a telescope and join the Denver

Astronomical Society at 7:00 p.m. in the Chamberlin Observatory on the University of Denver campus for night-sky viewing. (Visit www.denverastrosociety.org for more information.)

Saturday, October 23

10:00 a.m.–3:00 p.m.

Free with Museum admission

Lunar Eclipse Viewing

Join Museum space science staff to watch the first total lunar eclipse visible from Denver this year—weather permitting. Bring your own telescope or view through Museum telescopes or binoculars. The eclipse begins at 7:14 p.m., with totality between 8:23 and 9:04 p.m. Dress warmly; light refreshments will be provided.

Wednesday, October 27

6:30 p.m.

Phipps IMAX patio on the east side of the Museum

Free; reservations required at 303.322.7009

60 Minutes in Space: Beyond the Headlines

Dr. Steven Lee, Dr. Dimitri Klebe, and/or Dr. Ka Chun Yu will take you behind the headlines and give you details on breaking news in space science. Find out what's happening in the cosmos with up-to-the-minute reports of breakthroughs and events in astronomy and space exploration. Call 303.370.6073 for more information.

Friday, October 29

7:00 p.m.

Gates Planetarium

Admission is free

Lunar Eclipse Viewing at Gary's place

On Wednesday evening, October 27th, the full Moon will undergo a total eclipse lasting for 82 minutes, when it will be high in the Eastern sky after dark but while most of us are still awake.

One more time Gary Garzone offered to observe this unique 2004 astronomical event at his place. (9722 Majestic Drive in Longmont) The eclipse will start around 6:15 PM, with a total eclipse starting around 8:15 PM. Bring your scope, binoculars, cameras and have fun!

The next total lunar eclipse is not scheduled before March 2007, so come and join us at Gary's on Wednesday October 27th.

Thanks Gary!

Classified

To sell:

I am trying to sell 10" Sears Craftsman table saw

Price: \$200 sends email to Brian bnimball@msn.com or calls him at 303-678-0525

I am trying to sell a Celestron Ultima 9.25. If the deal were local I would expect closer to \$1,600 or so and accept credit cards.

<http://www.astromart.com/viewad.asp?cid=233874>

Jared Workman

Celestron Firstscope 76 3" Newtonian on an equatorial mount. In "like New" condition. Asking \$100. Please contact Jerry Kunselman (friend of Bill Possel) at 303-772-8786.

JMI NGF-DX1 focuser. Has 2 inch to 1 ½ inch adapter. \$150.00. Contact Mike Hotka at mhotka@yahoo.com
All...

I am selling my binocular observing chair. It swivels and pivots to any azimuth and altitude. Everything you see in the picture, except for me, the clipboard, jacket and the binoculars, for \$70, the cost of the materials I have in this chair. Contact me at mhotka@yahoo.com if you are interested in looking at this.

I got a new (800mHz) computer & wish to sell my 3rd computer. It's a 433mHz, 64meg RAM, 9 Gig HD space, 33.6K modem, SoundBlaster sound card, with a 15" monitor, programmable keyboard & MS mouse, with Windows 98 SE for sale. \$180. No problems with it what-so-ever. Will deliver & setup within 30 miles of Ft. Collins. It would be great for a stand-alone application or a kids computer. Contact Tom Teters tomt@starmon.com

To buy:

Wanted: Large dob, say 14-15 inches, in good working order, preferably with digital settings circles. Thanks! Bill Travis, 303-530-5010, wtravis@colorado.edu

Do you have a radio that receives the WWV time signal, collecting dust in your basement? Do you wish to sell it? If so, contact me. I am looking for one. mhotka@yahoo.com

If you have astronomy stuff to buy or to sell, send an email to your newsletter editor philippe_bridenne@yahoo.com

The LAS warehouse

LAS logo T-Shirts:

Crewneck, navy blue, 8" white LAS logon on front

\$10 - S, M, L, XL

\$12 - 2XL

\$13 - 3XL

\$14 - 4XL

\$2 - 5" LAS vinyl sticker, black or white

\$5 - 4" LAS embroidered patch

\$5 - VHS tape, "An Evening With David H. Levy", 3 January 2004

\$1 - LAS Planisphere

2/\$1 - LAS un-bumper sticker

The Astro-photography corner (photos on next page)

Been having fun in the observatory. Friday night I imaged the Supernova in NGC 6946. LRGB=120:60:60:60 minutes. Last night was the Iris Nebula and M11 (Wild Duck Cluster). NGC7023 is a LRGB=120:60:60:60 minutes and M11 is a LRGB=15:15:15:15 Minutes. All images were taken through the 12.5" f6 Ritchey and the ST2000XM camera. Dark and Flats were subtracted in MaxIm DL.

Thanks for looking,

Brian



M11

**NGC 6946 and
its Supernova**



Iris Nebula

November sky map

