



STAR FIELDS

Newsletter of the Amateur Telescope Makers of Boston
Including the Bond Astronomical Club
Established in 1934
in the Interest of Telescope Making & Using

Vol. 11, No. 7 July 2000

This Month's Meeting...

Thursday, July 13th, 2000, at 8:00 PM
Phillips Auditorium, Harvard-Smithsonian
Center for Astrophysics

This Month's Meeting...

IN PREPARATION for Stellafane, this month's meeting will be a combination of Show-and-Tell and Flea Market. If you have an interesting project you would like to share with us, please contact me for scheduling time (H-781-275-9482, W 978-250-8648, email starbob@gis.net). If you have telescopes, optics, books, eyepieces, glass, DC motor/controllers, etc. that you would like to sell or get rid of, please bring them to July's meeting and join in on the fun. Most ATM'ers love gadgets and bargains. In the past we used to have a flea market at least once a year, but the tradition was lost. I will also bring my Twyman-Green type interferometer or LUPI (Laser Unequal Path Interferometer) and demonstrate modern optical testing.

To give you a head start on our speakers for the Fall, at our SEPTEMBER 14th meeting we will have Bob Donahue from the CfA, who will give a talk on stellar and solar research and adaptive optics. Our OCTOBER 12th speaker will be the world renowned astrophotographer David Malin, from the Anglo-Australian Observatory. He has created spectacular images of galaxies, stars, and dusty clouds which tell the story of our galaxy and the birth and death of the stars within it. Thanks go to MATT BENDANIEL for arranging for David Malin to speak to us.

Join us for dinner at 5:45 PM at the Changsho Restaurant located at 1712 Mass Ave. in our fair city, Cambridge.

-Bob Collara-

President's Message...

AS YOUR new President, I want to thank all of you who supported me in the last election. I am eager to work with all the existing committees which have been doing a wonderful job. I also want to extend a heartfelt and sincere thank you to Joseph

Rothchild, our past president, for charting our club through two very fine years.

Our first major task at hand is to complete the construction of the new roll-off-roof observatory by this fall. MARIO MOTTA, one of our most excellent past presidents, is coordinating this project. The new observatory will house the double folded Newtonian as well as the Shupmann telescope.

Since my interest in amateur astronomy is in the building and testing of telescopes, I would like to expand the telescope making capacity at our clubhouse. As some of you are aware, I have pioneered the Thursday night mirror making sessions for the last 8 years in our little clubhouse in Westford, MA. Many members have produced some very good mirrors (DAVE SIEGRIST being the latest with a 6", f/5, tenth wave surface mirror). But many more members have expressed interest for us to be open a second night. I would like to make this happen.

The clubhouse now has two grinding machines to assist the avid TN (telescope nut). While these machines speed up the making of telescope mirrors, little information is easily available for the tyro. So learning by doing is still the heart of our Thursday night mirror making sessions. If you would like to make a telescope mirror or even a doublet, please join us Thursday night at the clubhouse.

-Bob Collara-

June's Minutes...

THE MEETING of the Amateur Telescope Makers of Boston, including the Bond Astronomical Club, was opened by President JOSEPH ROTHCHILD. Our guest speaker was Dr. Philip Morrison, assisted by his wife Phylis. Dr. Morrison spoke about the great many hypotheses proposed for the origin of the solar system, rejecting theories that make the planetary system out of gases ejected from the Sun, from passing stars, or from collisions of stars. He explained how 1-angstrom high resolution high precision spectroscopy works, describing how the Butler/Marcy group uses a telescope with a temperature controlled chamber of iodine vapor. The iodine filter is put on the front of the telescope, and covers the whole field. It does not move with respect to the spectrograph. 40 stars are now known to have planets. In 1999, if astronomers could have known the time of a transit of a planet, they would look have looked for the obstruction on the disk. To watch for a transit you have to see a drop in the intensity of light from the star. Astronomers have now found a distant transit. It was a 2% transit of a planet larger than Jupiter, so hot that the atmosphere blurred: the planet swells up when it gets hot so close to star. Two groups measured the transit, so it was confirmed. The NASA Ames Research Center is now planning the Kepler Mission, designed to continuously and simultaneously monitor the brightness (one part in 10,000 diminution in the light of the star) of a star field of 100,000 main-sequence stars in Cygnus brighter than 14th magnitude for transits of terrestrial or larger planets.. Planned for a launch in 2003, it will have a one-meter aperture differential photometer with a 84 square degree field of view, use less than a kilowatt of power, and weigh less than a car. NASA is also planning space interferometers for launch in 2011 - 4 Hubble type telescopes. Dr. Morrison then spoke about the 2.5 million people who are doing the SETI on-line search, stating, "You expect too much to expect to see a hit right away. The data still needs more computation."

At the business meeting, officers gave their reports. Membership Secretary JOHN SMALL reported that 10% of the club's 334 members have already renewed their memberships. Members do NOT need to wait for their *Sky & Telescope* card to renew. Observing Committee RICH NUGENT announced upcoming star parties, noting that members are available during the summer to help out. MATT BENDANIEL brought in some interesting rocks to see if they are from a meteor strike. EILEEN MYERS took a poll to see if members favored September 9th, September 23rd, October 21st, or November 4th for the NYC bus trip to visit the Rose Center for Earth and Space, including the Hayden Planetarium. The vote was evenly divided. MARIO MOTTA gave an update on the Massachusetts Dark Sky Bill, which was removed from the Big Dig financing bill at the last minute. The process to pass the Dark Sky Bill may have to start again next year.

RICH NUGENT thanked the other members of the Nominating Committee (MARION HOCHULI and PETER BEALO). The slate of officers for 2000-01 was unanimously elected. The 20" and the 6" Schupmann were laid out in the observing field. It was determined that 22 more feet will be needed to accommodate the two telescopes. The plans for the new observatory will be amended to reflect the new length. BRUCE BERGER has recollimated the club's 17" Dob using the new laser collimator which he won in the Northeast Astronomy Forum raffle. DICK KOOLISH showed photos of club members working with the public taken on Astronomy Day at the Boston Museum of Science.

-Eileen Myers

2000-01 Executive Board Elected...

THE FOLLOWING members were unanimously elected to serve on the 2000-2001 Executive Board:

President	Robert Collara
Vice-President	Steven Herzberg
Secretary	Eileen Myers
Treasurer	Bernie Volz
Membership Secretary	John Small
Member-at-Large	Bruce Berger
Member-at-Large	Steven Clougherty

Three past presidents will also serve on the Executive Board:
 Joseph Rothchild (1998-2000)
 Peter Bealo (1996-1998)
 Mario Motta (1994-1996)

Treasurer's Report...

FOR THE 1999-2000 fiscal year (which ended May 31st), we had \$10,844.05 in revenue and \$6,169.25 in expenses, for a net gain of \$4,674.80.

Income for the year:

Membership Dues	\$7,363.20	67.90%
Contributions	\$2,659.61	24.53%
Sales (Glass, etc.):	\$ 655.00	6.04%
Other (Interest, etc.):	\$ 166.24	1.53%

Expenses for the year:

Clubhouse	\$2,636.75	42.74%
Star Fields	\$1,881.03	30.49%
Meetings	\$ 604.72	9.80%
Insurance	\$ 389.00	6.31%
Other Expenses	\$ 660.99	10.71%

For the month of June, we had \$224.85 in revenue and \$504.40 in expenses for a net loss of \$279.55 for the month.

As of May 31, 2000 our assets were::

Checking Account - Regular	\$13,562.64
Investments	\$18,553.21
Total Current Assets	\$32,115.85

Of the total, \$1,814.81 is in the Land Fund and \$145.00 is for clubhouse key deposits.

-Bernie Volz-

Clubhouse Report...

SATURDAY OPEN CLUBHOUSE SCHEDULE

July 8	David Richardson	Tom Wolf
July 15	CLOSED	WORK PARTY
July 22	Dan Feldkhun	John Small
July 29	CLOSED	STELLAFANE
Aug 5	Art Swedlow	Gary Walker
Aug 12	CLOSED	WORK PARTY
Aug 19	Paul Cicchetti	John Reed
Aug 26	CLOSED	CONJUNCTION
Sept 2	Richard Burrier	Eileen Myers
Sept 9	Steve Clougherty	Phil Rounseville
Sept 16	OPEN	WORK PARTY
Sept 16	John Small	Jim Suslowicz
Sept 23	John Drobot	Steve Hertzberg
Sept 30	Lew Gramer	Steve Mock

ALTHOUGH THERE was only a moderate number of volunteers at the last clubhouse work party, we managed to accomplish a fair amount work. The west side of the barn roof was stripped of the old shingles up to the last 15 feet. Several old and rotten boards were replaced and seven sheets of 1/2" plywood were applied to the roof in order to form a smooth surface for the new shingles. Drip edge was applied along with rubber ice dam material. Also that day ED KNIGHT installed a new rebuilt burner for the clubhouse furnace. Several days later, JOHN REED and BRUCE GERHARD added the first several rows of new shingles. Thanks to MIKE HILL, ANNA HILLIER, ED KNIGHT DAVE PROWTEN, BILL MACHELL, DAVE SIEGRIST, BRUCE GERHARD, and JOHN REED. Since this will be the last *Star Fields* until September, I just want you to know that there will be work parties on July 15th, August 12th, and September 16th.

-Paul Cicchetti-

Thanks to Star Party Volunteers...

THIS HAS been a very busy time for ATMobers involved in star parties! As cloudy as the weather was this spring, we managed to run quite a few events. I want to take this opportunity to thank the members who have helped out.

CHARLIE MCDONALD was busy at several schools this spring. At the Ditson School in Billerica, while I gave a slide presentation inside, Charlie was joined by JOHN REED, ED LOS, MARSHA BOWMAN and her family, and BOB COHEN. A number of parents and the school's coordinator also brought telescopes!

In Reading, Charlie ran star parties at Joshua Eaton School and at the Birch Meadow School. MARIO MOTTA, PAUL WAGONER, ALANA PARKES, DAN FELDKHUN, JOHN REED, ED LOS, and DAVE AUCOIN helped out at these events. I gave six back-to-back slide presentations at Birch Meadow. Charlie's neighbor Ray Tamasch also brought out his scope!

In Needham, Cathy Clemens organized a Project Astro star party at the Newman School. After several postponements, she finally got a night of good weather! She got plenty of help from DAVE AUCOIN, GEORGE ROBERTS, JOHN SMALL, PAUL WAGONER, ALANA PARKES, and Wellesley College astronomer Kim McCloud.

Another Project Astro event was held at the Kennedy Middle School in Woburn. This was a rain or shine event and as fate would have it, the evening was clouded out. Inside, the students got to experience Starlab planetarium shows as well as my slide programs and some inside observing, courtesy of CHARLIE MCDONALD. Many of the students displayed their astronomy projects and, despite the weather, a great time was had by all!

We had some excellent views of Mars, Jupiter and Saturn at a star party at the Bates Elementary School in Wellesley. These planets were grouped together nicely, low in the West. After a slide presentation, the students and family members got to observe through scopes provided by EILEEN MYERS, GEORGE ROBERTS, WELCOME BENDER, DAVE AUCOIN and myself. Although the event did not run very late, the folks saw a number of beautiful objects as well as a nice -1 magnitude Iridium flare!

CHARLIE MCDONALD finally succeeded in holding an event at the Community Charter School in Marblehead. The students involved in the school's astronomy club worked alongside the astronomers and, as the visitors waited in line, described the object being viewed. The students, sporting astronomy club baseball caps, got a chance to show off a little and the people in line learned a little astronomy! Telescopes were set up by TED CARLMAN, ERIC REINES, PETER TEAGUE, MARSHA BOWMAN, BOB COHEN, DAN FELDKHUN, and DAVE AUCOIN. BILL TOOMEY gave slide presentations.

EILEEN MYERS ran a very nice late-season public observing night in Harvard. On hand were GARY JACOBSEN, AL TAKEDA, MIKE SCHEXNAYDRE, BOB COLLARA, MIKE HILL, ERNIE GINNETTI, Joe Caruso from Oak Ridge Observatory, and Harvard U. (and raised in the town of Harvard) astrophysics student Anne Marie Cody. The quarter Moon was of particular interest to several youngsters who were seen racing from scope to scope looking for the dark crater Plato. Gary Jacobsen has started creating a set of quick reference fact cards to use at star parties. They can be used to assign scopes to different objects, and to answer how far away/how large questions for the sky's showpieces.

STEVE SARGENT, MIKE HILL, ERNIE GINNETTI, and ROGER GREENWOOD organized a solar party at the Holliston High School. Originally planned as an evening star party, it was

postponed several times by poor weather and was finally held in June! The students got a chance to observe sunspots and the first quarter Moon. Afterward, we all took turns looking at Mercury (and its easily seen crescent phase) and some very high power views of the Moon through Roger's 6" Meade refractor. Spectacular images!

You know, sometimes it's difficult to keep track of who has brought a telescope. It's dark and swarming with people so, if I've missed you, please let me know so I can give you the credit you deserve! I try to keep track of star parties in the "Red Book". For the 1999-2000 school year, I recorded 27 successful star parties! Many were clustered in October and March. We also had to postpone an additional 9 star parties until next fall. Thanks also to all of the members who had reserved some of their free time to volunteer for those events. This was the first year I relied heavily on the club's email lists to announce star parties and their status and to seek volunteers and to help everyone to get directions. Thanks to JOHN SMALL and BREWSTER LAMACCHIA for setting all of this up!

I'm not sure how many other clubs mobilize to visit as many schools as we do. Planting seeds of knowledge is always worthwhile. Many of these students will never forget the experience! Please feel very proud to be part of this effort! Thank you, thank you everyone!

-Rich Nugent-

Bus Trip to NYC...

THE DATE for the club bus trip to the Rose Center for Earth and Space, including the new Hayden Planetarium has been narrowed down to Saturday, November 4th. The museum is checking to see if this date is OK for them. Please let me know as soon as possible if you are interested in participating. We need to have 50 attendees in order to fill the bus. We are now planning to invite other astronomy clubs to join us. Do offer any ideas and suggestions which you may have for the trip. 978-663-0040 or rmbc2114@email.msn.com

-Marsha Bowman-

Club Mirrors progress slow...

THE FIVE 6" f/8 mirrors that will be used for the club's loaner scopes are slowly making headway. We have polished out two of the mirrors in about 45 minutes each. One of them has a very bad turned edge left over from a bad grind. If I had to correct the edge by hand using the traditional walk-around-the-barrel method, my strategy would be to go back to a 5 micron grind and then re-polish for 6 hours. But since the machine is more efficient, I am going to attempt to force polish the mirror into a sphere using various overhanging strokes. This latter technique should take considerably less time. If all goes well, we should have three fully polished mirrors by the end of this month.

The items that we have on hand for the completion of our club's loaner scopes are: mirror cells, spider with coated diagonal and all metal focusers. The only items that are needed are five good heavy duty tubes and plans to construct a sturdy but light weight Dob type mount. We are not going to use sonotubes (unless we can find some that is at least 3/8" thick) because it will not stand up to rough handling, which I expect these loaners will suffer. So, if anyone has a good working set of plans for a 6" f/8

Dob or a good source for telescope tubes please contact me at starbob@gis.net or at home 781-275-9482 -Bob Collara-

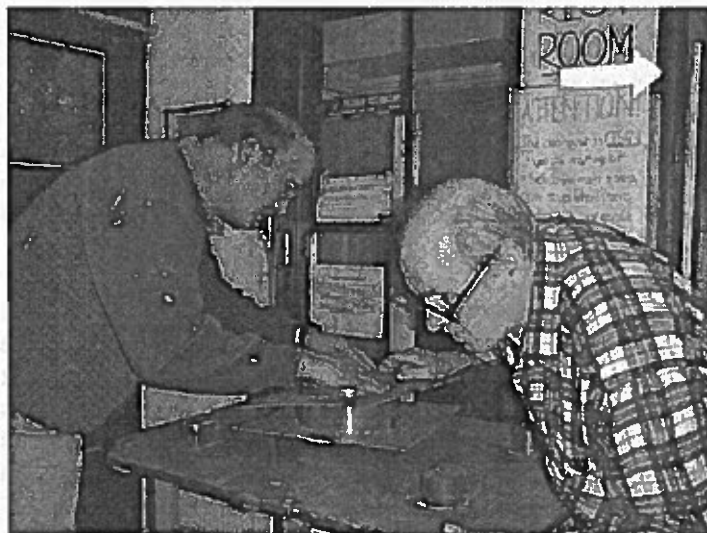
Clubhouse Gets A Machine...

MIKE MOURIS has donated a B&I Satellite Lens and Mirror making Machine along with a 6" mirror and tool, several 4" Pyrex blanks and various amounts of grits and polishing agents. The maximum size blank the machine is capable of grinding/polishing is eight inch. The machine is of the Hindle style and is bolted to a three door cabinet-stand and is completely functional! This is a wonderful gift that will enhance our mirror making activities. Thank you very much Mike for the great gift! But wait...there's more! The really serendipitous part is the clubhouse already has one of these machines half disassembled with many missing parts. Over the years there have been many attempts to get it up and running but without success. Now that we have a complete working unit we can use it as a model to copy the missing pieces to restore our old machine. I know just the person in our club willing and capable of such a task and I bet it will be perfectly functional soon.

-Bob Collara-



Dave Schuh grinding his 12 1/2" on a grinding machine at the clubhouse.



Bob Cohen and Dave Schuh at work at the clubhouse.



New ATMoB President Bob Collara entertains during a break on a Thursday grinding night.



New ATMoB President Bob Collara won an award for mechanical design for his 6" f/4 Newtonian at Stellafane 1999.

Eyepieces and Gravity...

WELL IT'S like I tell my sons: gravity is always waiting for you! Usually it results in a few scratches and scrapes but sometimes it's worse. Eyepieces are sometimes like kids! For Father's day, I treated myself to a shiny, new Televue 22 mm Panoptic eyepiece. Nice. Right out of the box I noticed that the glass inside was rattling. Not nice. Well, you know, usually there's some sort of retaining ring holding the lenses in place. I unscrewed the chrome 2" / 1.25" barrel and, a moment later, lenses were spilling out of the eyepiece! Adrenaline rush # 1 for the evening! Fortunately, the glass only dropped a few inches and was, except for a little easily removed dust, still intact. I put the thing back together and replaced the chrome barrel (it's the

chrome barrel assembly that allows you to snug up the optics if they've loosened during shipment) and the eyepiece worked just fine.

I did call Televue the next day, 5 minutes after they opened, and chatted with them about my experience, and telescopes and coma and eyepiece collimation. The understanding tech rep reminded me that Televue does send a warning about the lenses. Ah, yes, there it was. A smallish box at the bottom of a sheet with a bunch of reasons why I should buy more of their eyepieces. "Warning..." it started. Hmmm.

Well, this is in no way a put-down of Televue or their workers or their products. Their eyepieces are top notch! The images are superb! The guy I spoke with was pretty cool! I just wanted to let you know about my experience so you'll know that it can happen. Had I been fooling around with the thing in the driveway, the lenses would have been ruined and I don't want that to happen to any of you. So, remember....gravity is always waiting!

By the way, adrenaline rush # 2 that night involved a very large skunk a very short distance away from me while I was observing with the very same eyepiece! Skunks are always waiting, too, and it's lucky for me that they're usually content to mind their own business! Tomato juice, anyone? -Rich Nugent-

Project Astro...

AS MANY of you already know, Project Astro is a program which teams teachers with amateur and professional astronomers in order to enhance the astronomy curriculum in our schools. Here in Boston, the program is coordinated by Cathy Clemens through the Center for Astrophysics. Astronomers and teachers attend several workshops held at the Museum of Science and astronomers usually visit their school four times throughout the school year. Star parties are sometimes organized by the teams (usually with our help) so that the students and their families can get some "hands-on" experience with astronomy.

Cathy is still searching for astronomers to team with teachers. She especially needs folks interested in helping out in Braintree and Lowell. If this all sounds interesting, why not join us! For more info you can contact Cathy directly at the CfA (617.496.7867 or clemens@head-cfa.harvard.edu) or give me a call! Thanks in advance! -Rich Nugent-

Astronomical History...

IT'S ALWAYS nice to take a moment, now and again, to reflect (or refract) on how far the technology of our brand of science has come. When we pore over the beautiful color images from the Hubble Space Telescope or perhaps the new Subaru 8.2-meter (325-inch) telescope on Mauna Kea or even capture photons on our own to produce outstanding images it's easy to forget the humble beginnings of astrophotography. This month marks the 150th anniversary of the first daguerreotype image of a star other than the Sun. The event took place not very far from home!

On the evening of July 16-17, 1850 William Cranch Bond, first director of the Harvard College Observatory, oversaw experiments conducted by J. A. Whipple with the 15-inch "Great Refractor" which resulted in the recording of Vega's image.

Compared with the emulsions used today, the Daguerreotype process was extremely slow. Even though Bond and Whipple were using the largest telescope in the United States at the time, the exposures needed were on the order of 100 seconds and would not record 2nd magnitude stars. By 1857, using the wet-plate collodion process, William and his son George (second director of the observatory) photographed the Alcor/Mizar double star system. It wasn't until the 1880s that dry emulsions allowed astronomers to really take advantage of the light gathering power of their telescopes to record celestial objects. Today, CCD detectors have all but replaced photographic equipment at the major observatories while space telescopes collect photons from across the spectrum. For info on the Daguerreotype process, check out www.daguerre.org.

For more information on all of this, check out this month's *Sky & Telescope* magazine and the July 1950 *S&T* issue it refers to or <http://cfa-www.harvard.edu/cfa/grref.html> for those with web access. As you walk towards the Phillips Auditorium before this month's club meeting gaze up at the dome of the Great Refractor and take a moment to think about the history made there. Later, when the meeting is over glance up at Vega and recall how much astronomy and our understanding of the universe has changed since that long ago night! Clear Skies! -Rich Nugent-

C/1999 S4 (LINEAR)...

ON JULY 5th Comet 1999 S4 LINEAR was reported at magnitude ~8.3. The comet is now between 2 and 2.5 magnitudes fainter than its original predictions. Barring a major outburst (which seems highly unlikely), the comet may make - 6.0 and should brighten another 1.9 magnitudes.

Other News...

NO CLUB MEETING IN AUGUST!

See you at Stellafane!

See you in September!

ATTENTION

No August *Star Fields*

September *Star Fields* deadline is SUNDAY, Sept. 3rd
email articles to ATMob Secretary/*Star Fields* Editor

Eileen Myers at starleen@ma.ultranet.com

Articles from members are always welcome.

POSTMASTER NOTE: First Class Postage Mailed July 7, 2000

Amateur Telescope Makers of Boston, Inc.
c/o John Small, Membership Secretary
9 Bear Hill Terrace
Westford MA 01886-4225

FIRST CLASS

EXECUTIVE BOARD 2000-2001

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HISTORIAN:	Anna Hillier	(781) 861-8338
OBSERVING:	Richard Nugent	(508) 879-3498

How to Find Us...Web Page www.atmob.org

MEETINGS: Held the second Thursday of each month (September to July) at 8:00PM in Phillips Auditorium, Harvard-Smithsonian Center for Astrophysics, 60 Garden St., Cambridge MA. For INCLEMENT WEATHER cancellation listen to: WBZ (1030 AM)

CLUBHOUSE: The Tom Britton Clubhouse is open every Saturday from mid-afternoon to late evening. It is the white farmhouse on the grounds of MIT's Haystack Observatory in Westford, MA. Take Rt. 3 North from Rt. 128 or Rt. 495 to exit 33 and proceed West on Rt. 40 for five miles. Turn right at the MIT Lincoln Lab, Haystack Observatory at the Groton town line. Proceed to the farm house on left side of the road. Clubhouse attendance varies with the weather. It is wise to call in advance. (978) 692-8708.

Heads Up for July...

Venus sets in WNW in bright twilight, 24 min. after sunset July 1, to 45 min. after sunset by July 31.

Before dawn: Jupiter, Saturn.

July 18-31 Mercury.

Challenge - Find bright asteroid Vesta with binoculars and camera, mag 5.8 to 5.4 to 5.8 in July. Vesta retrogrades until late August moving WSW in Sagittarius, closest at 109 million miles from Earth. July 4-7 Vesta passes within 4° due N of the top of a kite-shaped asterism, 2.1° long, consisting of four stars of mag. 4.5 to 4.8: Omega, 59, 60, and 62 Sagittarii. On the night of July 27th Vesta passes very closely N of 4.6-mag 52 Sgr. The 5.7 mag star 51 Sgr is just 0.2° NW (upper right) of 52. Vesta shifts WSW past the pair of stars by nearly 1/4° per day.

Challenge - Before dawn find Comet 1999 S4 LINEAR in Perseus July 15/16 several degrees W of Alpha Persei. July 20th 5° E of Omicron Ursae Majoris, the tip of the Great Bear's snout.. Evening of July 23rd (max brightness) between legs of bear. End of July in Leo in evening twilight.