



## 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. 2

February 2000

### This Month's Meeting...

Thursday, February 10th, 2000, at 8:00 PM  
Phillips Auditorium, Harvard-Smithsonian  
Center for Astrophysics

OUR SPEAKER this month will be club member TOM CALDERWOOD whose talk is entitled "Adventures in Chandra-Land". For the last two years he has been working on data analysis software at the Chandra X-ray Center. The past 26 months have been a time of great excitement as well as great anxiety for the Chandra project, and he will be sharing his many experiences with Chandra.

Join us and our most excellent speaker for dinner at 5:45 PM at the Chang Sho Restaurant located at 1712 Mass Ave. in our fair city, Cambridge.

### President's Message...

IN THE January 27<sup>th</sup> edition of *The Reading Advocate* and the January 24<sup>th</sup> edition of the *Daily Times Chronicle* Reading Edition, there were front page articles about a star party at the Killam School in Reading. Thanks to the efforts of ATMoB member CHARLIE MCDONALD, the enthusiastic teachers, and Project Astro, this very successful star party had over 400 participants. Charlie has told me that this star party was one of the biggest of the many he has been involved with over the years. The newspaper photos show Charlie, JOHN REED, TED CARLMAN, and BOB COHEN and their telescopes surrounded by young students. My impression has been that, overall, the star parties are getting bigger and bigger each year. I recall in past years being very impressed when hearing about the 300 people expected at the Lynnfield star party that MARIO MOTTA had organized. This year there have been many sizable star parties and the total number of events has increased, particularly thanks to efforts of RICH NUGENT who has managed the increased

demand and the many people who have brought their scopes. There is now a very large group of students (and their parents) in the Boston area who have been exposed to astronomy and observing. Some have come to our meetings or joined the club, although we need to find new ways to invite those who have recently become interested in astronomy to participate in club activities.

Again, many thanks to all of the club members who have helped make these star parties a great success!

-Joseph Rothchild-

### January's Minutes...

THE MEETING of the Amateur Telescope Makers of Boston, including the Bond Astronomical Club, was opened by President JOSEPH ROTHCHILD. The Show-and-Tell format began with MARIO MOTTA presenting his homemade filter wheel for CCD photography. Containing six standard filters, it will eliminate the need to refocus each time a change of filter is needed. Mario will use it for taking standardized measurements for his AAVSO work. He also explained how a CCD with a broadband filter system can get real color images of the colors of deep sky objects. Mario showed astrophotographs taken with his 32" Dobsonian with stepper motors.

BOB COLLARA explained that since he built an interferometer he needed a flat to test an object against it. He used Zerodur, a ceramic with a very low coefficient of expansion. Bob had to perforate the back for a microscope objective. To make a hole in the center of the flat, Bob used copper to cut it, taking three hours to complete. Eighteen hours to polish and it is still not fully polished out. However the flat is now 18th wave peak to valley.

BOB COHEN showed slides of the grinding machine he has made for the clubhouse. With 60-70 rpm a mirror maker can generate the curve and go thru the grits, skipping every other grit. It is fast and efficient. It can be used for polishing as well.

PETER BRUCKNER showed his design for the new observatory to be built at the clubhouse for the 20". It will have a 5' wide entrance, and will have a door that will be completely out of the way when open. There will be a bench for any lap tops or CCD's, placed so that they will not be hit by anyone looking through the telescope.

DAVID AUCCOIN displayed the beautiful 13" Dobsonian he built with a low profile rocker box. David explained step by step how he proceeded, giving details of its construction.

GERRY SUSSMAN is working on the dual design guider of a twin 6.5m telescope to be located at Las Campanas Observatory in Chile. Micro resolution of the stepping motor will be possible. One guider will move in altitude and azimuth and will move the instruments. The other will test constantly to keep the scope in alignment. The Nasmyth mirror can be rotated to the instrument being used. Gerry is now doing the design and writing the software to move the probe detectors around. The detectors will be used to track near Earth asteroids.

HOWARD LEVAUX described his experiences viewing the recent transit of Mercury across the Sun as seen from Key West in Florida.

The business meeting began. Once again, ANNA KNIGHT was remembered. Club officers gave their reports. JOHN REED

mentioned that the New Year's Eve party was a great success, with observing in the old year and in the new. The clubhouse will be open for lunar eclipse viewing. CHARLIE MCDONALD talked about the 400 kids, parents, and teachers at the Reading star party, and mentioned that the chili served there was fantastic. JOHN REED displayed a Galileo type telescope he is trying to get to work. Star parties in Westford and Peabody were announced. Mario and BERNIE VOLZ gave the latest details on the 9-day solar eclipse trip to Zimbabwe, which will include a visit to Victoria Falls and S. Africa. The price is still high and all avenues are being explored to bring it down. -Eileen Myers-

## Membership Report...

WE WARMLY welcome the following new members: RUSSELL WERNER, Boston; TODD RYAN, Hudson; TED RICE, Dedham; BILL DUANE, Westford; MICHAEL QUINN, Brookline, NH; and ZAC PUJIC, Somerville. -John Small-

## Treasurer's Report...

REVENUE FOR December was \$1,126.49, expenses were \$286.40. Net income of \$840.09 for the month.

Assets as of 31-Dec-1999:

|                  |             |
|------------------|-------------|
| Checking Account | \$16,000.89 |
| Investments      | \$18,553.21 |
| Total Assets     | \$34,554.10 |

Of this total, \$1,804.81 is in the Land Fund and \$145.00 in the Clubhouse Key Deposit account.

As of 1/12/2000, we've had revenue of about \$10,100 and expenses of \$3,700 for a net income of \$6,400 for the year (just over 7 months). Of course, we won't have much income for the remainder of year - mostly expenses. This is slightly ahead of last year, but basically on track. -Bernie Volz-

## Clubhouse Report...

### SATURDAY OPEN CLUBHOUSE SCHEDULE

|             |                  |                  |
|-------------|------------------|------------------|
| February 5  | Steve Clougherty | Phil Rounseville |
| February 12 | Dave Prowten     | Art Swedlow      |
| February 19 | CLOSED           | WORK PARTY #2    |
| February 26 | Dan Feldkhun     | Eileen Myers     |
| March 4     | Jim Suslowica    | Tom Wolf         |
| March 11    | Eric Johansson   | Al Mazurka       |
| March 18    | John Drobot      | Steve Herzberg   |
| March 25    | Pauc Cicchetti   | John Reed        |

THE LAST work party was attended by a number of souls who braved the frigid weather in order to continue inside projects. Unfortunately, because of the extreme cold, it took well over an hour to get the inside of the clubhouse to a tolerable temperature. After a quick cup of hot coffee, our work began in earnest. A new grinding table acquired from MIT was hauled by several work party members into the barn. The basement around the furnace and oil tank was cleared of debris and organized. The first coat of joint compound was added to the wall repair in the evaporator room as was the addition of another run of electrical

conduit. All-in-all it was a productive day. Thanks to JOHN REED, STEVE CLOUGHERTY, TOM WOLF, GARY JACOBSON, BRUCE GERHARD, and V. CICCHITTI.

The next work party is scheduled for February 19. John will be out of town, so I will need some more people to help that time. We usually start at 10:00am, but I may be delayed that day and will let you know the exact starting time at the next ATMoB meeting. -Paul Cicchetti-

## February Star Parties...

HERE'S A list of the star parties scheduled for the month of February. If you are interested in attending, please contact the person listed or myself for info and directions. I'll send out reminders over the email list and I'll try to be at the February club meeting to mention these dates.

Peabody, MA Tuesday, February 8 at the Middle School. A good sized crowd is expected so it would be nice to have 6-8 scopes present. Mario Motta (781-334-3648) is a contact for this event.

Westford, MA Wednesday, February 9 at the Blanchard School. John Small (617-484-2780x119-day/978-692-8938-eve) is a contact for this event.

Reading MA Monday, February 14 (Rain Date is 2/15) at the Barrows School. Charlie McDonald (781-944-6140) a contact for this event.

Marblehead, MA Thursday, February 17 (No rain date has been set.) at the Community Charter School. Charlie McDonald is the event coordinator.

For March we have a number of events scheduled:

- 3/10 : The Devotion School in Brookline, MA
- 3/13 : The Ditson School in Billerica, MA
- 3/15 : The Joshua Eaton School in Reading, MA
- 3/15 : The Charlotte Dunning School in Framingham, MA
- 3/21 : The Birch Meadow School in Reading, MA

There are also two star parties at Needham schools planned for March, two events scheduled for April and several other requests that have not been worked out yet! A very busy Spring schedule!

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-Rich Nugent-

## Star Party Thanks...

WELL THE temperatures were low but the enthusiasm was high as the ATMoB hosted a pair of star parties on January 12th! Students from the Cummings school in Somerville and L from the Killam School in Reading got a great night to view the Moon, Jupiter, Saturn, and Mars as well as star clusters, nebulae, and galaxies!

LOU COHEN organized the Somerville event and was helped by GERRY SUSSMAN, PETER GIRARD, LEW GRAMER, TOM CALDERWOOD, HOWARD LEVEAUX, PAUL WAGONER, ALANA PARKES, JOHN HOPKINS and MARCIA TUCCI.

CHARLIE MCDONALD organized the Reading event, which drew a crowd estimated to be 400 strong! I gave slide presentations indoors (a hot sweaty job...but someone has to do it!!) while ATMoB members JOHN REED, TED CARLMAN, MARCIA BOWMAN, BOB COHEN, MATT BEN DANIEL, and DAVE AUCOIN joined Charlie outside for observing. Members of the Killam community also set up several telescopes while Kay Clark of Reading gave presentations on the night sky to the students and family members. Charlie and the Project Astro teachers from Reading hosted a news conference later that week for the Reading newspapers. The event was covered nicely by the press with some excellent front page pictures!

The many times TED CARLMAN has demonstrated his STARLAB Planetarium and how telescopes work to the students in the Reading Elementary School should also be noted.

"Well done!" to everyone involved with both star parties!!

-Rich Nugent-

## Taipei Astronomy Museum...

I WAS in Taiwan again recently on business, and I was finally able to get some free time to visit a terrific astronomy-only museum: the Taipei Astronomy Museum. The museum has some of the best telescope-theory exhibits I've seen, and some interesting historical ones as well. It is located in a new 55,000 sq ft building, and in addition to exhibit halls has an Omni theater that also apparently has a Zeiss planetarium projector, a 3D movie theater as well as rooftop observatories (I only saw the exhibit halls on my too-short visit). They only run English-language shows once a month, but the exhibits do have brief English titles above the extensive (and illegible to me) descriptions. I'll try to talk one of my Chinese colleagues into going with me the next time I'm there. Alas they don't allow photography inside the museum (as I learned upon taking a picture of a couple of early 20th C four-inch refractors in the lobby).

Their history of astronomy display had some elegant models of the Florence Galileo scopes, Hevelius's aerial telescope, the Royal Society Newton reflector, Herschel's 40-foot reflector and a cutaway-dome model of the 200-inch Hale scope, along with photos of both Herschels, Henrietta Leavitt, Lowell, Tombaugh, Hale and others, all arranged chronologically in a timeline from Lippershey to Buzz Aldrin. They also have an animatronic robot of Fraunhofer that moves and talks while holding a prism (presumably about spectroscopy, but since he was speaking Chinese it was hard for me to tell). They also had nice models of modern scopes and observatories such as the Keck.

Equally enjoyable (and perhaps less commonly found) were extensive displays that teach about telescope optics. One exhibit demonstrates various image faults such as coma, spherical aberration, astigmatism and chromatic aberration by example. You look into different eyepieces to see the effects these faults make on an image. They have telescopes (generally small Takahashi Fluorite scopes, by the way) set up to show the benefit of increased aperture on resolution, the difference between altaz

and equatorial mounts, and how seeing affects images. In the latter, they have a clear cell in front of the objective. When you press a button a small heating element is turned on, and you can see the image move in an all too familiar way. There are also clear tubed models of Newtonian, Cassegrain and Keplerian (typical refractor) telescopes, as well as a neatly sectioned 4-inch Takahashi that shows the layout and baffling better than a diagram could ever do. Finally there is a model of a large observatory reflector (I don't recall which one) cutaway to show the path light travels to a coude focus on the floor below (another push the button, see the light path exhibit).

The admission prices are VERY low by American standards, and I think it is well worth a detour. They have a web site (which has an "English" choice on the home page): <http://www.tam.gov.tw>

-Ken Launie-

## Other News...

THERE IS an excellent article on the gamma ray burster team involving professionals and amateurs in collaboration. It is in the February issue of *Scientific American*, page 96-97, in the Amateur Scientist section. The AAVSO is mentioned along with Dr. Janet Mattei as leading the collaboration, and I am mentioned on page 97 as a co-director with Dr. Gerald Fishman of NASA. This should be an exciting project!

-Mario Motta-

ERIC PAUER gave a talk on solar eclipses to the fifth graders at the Brookline, NH Elementary School on January 31st. The students are studying astronomy as part of their science curriculum. Eric described how solar eclipses happen, the different types of eclipses, and then showed photos, videos, and slides of the two total solar eclipses he has witnessed. There were several hands on demonstrations.

THE NEW Hayden Planetarium at the American Museum of Natural History in New York sounds great, according to the article in the Jan 17 "New Yorker." The article doesn't talk much about astronomy, but it is a fascinating story of the history of the planetarium, the people, the money, the politics, the architecture. Thanks to my wife, Iris, for finding this article.

-Eric Reines-

THERE WILL be over 200 tables of cameras and images, priced to sell, at PHOTOGRAPHICA '00 at Waltham High School, 617 Lexington St., Waltham, MA on Saturday, April 29 (10am-5pm) and Sunday, April 30 (10am-4pm). General admission \$5. Dealers from the U.S., Europe, and the Orient will provide a spectacular photographic show, featuring thousands of used cameras and lenses of all periods, types, and formats, accessories, and vintage photographs. (617) 965-0807 for more info.

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### ATTENTION

MARCH *Star Fields* deadline is SUNDAY, February 27th  
email articles to club secretary Eileen Myers at  
[starlecn@ma.ultranet.com](mailto:starlecn@ma.ultranet.com)

Articles from members are always welcome.

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**POSTMASTER NOTE: First Class Postage Mailed February 4, 2000**

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

**FIRST CLASS**

**EXECUTIVE BOARD 1999-2000**

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**COMMITTEES**

|                        |                   |                |
|------------------------|-------------------|----------------|
| <b>CLUBHOUSE DIRS:</b> | Paul Cicchetti    | (978) 433-9215 |
|                        | John Reed         | (781) 861-8031 |
|                        | Steven Clougherty | (781) 784-3024 |
| <b>HISTORIAN:</b>      | Anna Hillier      | (781) 861-8338 |
| <b>OBSERVING:</b>      | Richard Nugent    | (508) 879-3498 |

**How to Find Us...**

**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.

**OUR WEB PAGE IS [www.atmob.org](http://www.atmob.org)**

**Heads Up for February...**

Mercury, Mars, Jupiter, Saturn in a line at dusk - Moon passes by.  
Feb 2 - One of the four cross-quarter days, half way between solstices and equinoxes.  
Wed Feb 2 - Venus 1.4° S of Moon 11am - daytime viewing of Venus.  
Feb 6-19 - Mercury best situated for viewing.  
Tues, Wed Feb 15,16 at dusk - Mercury 18° W (lower right) of Mars, their minimum distance apart during the current trip of Mercury around the Sun.  
Tues Feb 22 and for the next two weeks - Zodiacal light 1 to 2 hours after sunset, around the part of the ecliptic near the sun; Gegenschein or counter glow, around midnight and around the part of the ecliptic high in the sky. Caused by sunlight reflected from meteoric dust lying in the plane of the solar system and extending far out beyond the Earth.