



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. 10 November 2000

This Month's Meeting...

Thursday, November 9th, 2000, at 8:00 PM
Phillips Auditorium, Harvard-Smithsonian
Center for Astrophysics

This Month's Meeting...

THIS MONTH'S speaker will be R.P. Hale. The title of his talk will be "In Caxtolcuaúhtli Tlatoliztli - A Talk on the Aztec Calendar Round". Nearly two thousand years before the European invasion, the Olmec and Mayan cultures of Mesoamerica devised what is thought to be the most accurate calendar ever made based on careful naked-eye astronomical observation of the Sun, Moon, and Venus. The uniqueness of their reckoning is that the calendar is a series of interlocking wheels within wheels. The Aztec Calendar Round, a large stone carving that is now in the National Museum of Mexico, represents the later Nahuátl view of the mechanism of the universe. The Aztec reckoning, even though directly derived from the Mayan counting, is not as accurate. R.P.Hale's talk will explore some of the history and astronomical bases of these calendars, which are still in ceremonial use in parts of Mexico and Central America.

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

President's Message...

THE CLUBHOUSE continues to be an area of exciting activity. Over the last month many members have worked on their projects and some of them close to completion. EILEEN MYERS has completed the grinding and polishing of her 8" f/6 mirror and has reached a good sphere. Soon she will apply the infamous "w" stroke and begin to parabolize. It is at this stage

where the mirror making process requires 10% work and 90% analysis. Thanks to DAN FELDKHUN, for installing a computer in the test tunnel room, near the Foucault tester, where knife edge readings can be read and entered in the computer. A computer program displays a graphical representation of the mirror's surface along with its peak to valley error. It is here where many discussions arise as to what kind of stroke to apply next to improve the mirror's figure. Dan has also installed a small black and white TV camera behind our Foucault tester, enabling the mirror's image to be displayed on a small 12" monitor. His camera/monitor combination has enabled people to confidently learn to take consistent knife edge readings in a single night. BRUCE BERGER has also completed grinding and polishing an 8" f/5.5 mirror. He has figured it to better than one-fifth wavelength, but he feels he can do better. (Go for it Bruce!). Bruce has also taken the Celestron C8 donated to the club and is refurbishing it. He has called Celestron for technical assistance and has solved the scope's severe misalignment problem. I'm very impressed! Good work, Bruce. MIKE HILL has also helped out in the Test department by purchasing and installing a white board in the test tunnel room to help record knife edge readings. Mike is also completing the polishing of a 10" f/6 mirror. BOB COHEN has modified one of our grinding machines to reduce the vertical spindle speed to 15 rpm. This will allow us to make mirrors without turning the edge (we hope). DAVE PROWTEEN is polishing a 6" club mirror on a donated grinding machine.

We had a very interesting and unexpected guest at the clubhouse on Oct 26. MIKE SCHEXNAYDRE brought Chris Johnson, the ITEK Project Manager for the Keck Telescope primary mirror, to our clubhouse. Chris showed us a video of the construction of the Keck observatory on the summit of 13,796-foot-high Mauna Kea in Hawaii. He was very enthusiastic and was able to explain how the mirrors were actually constructed in a warping harness. He would be a great guest speaker.

-Bob Collara-

Executive Board Meeting...

AN EXECUTIVE Board meeting will be held at the clubhouse in Westford on Sunday, November 19th at 7:00pm.

-Bob Collara-

October's Minutes...

WITH A large crowd in attendance, the 730th meeting of the Amateur Telescope Makers of Boston, including the Bond Astronomical Club, was opened by President BOB COLLARA. Before introducing our guest speaker, David Malin, Bob thanked Donna Young from the Wright Center of Tufts University for arranging his visit with us. Mr. Malin gave a history of photography and astrophotography, then described the techniques used to counteract the effects of airglow and to manipulate astrophotographic plates to extract the most information possible from them. He described unsharp masking and tri-color imaging. <http://www.aao.gov.au/local/www/dfm/malin.html> is David Malin's Home Page. It has a brief bio, a description of his techniques, and links to where you can view some of his work. Technical information on unsharp masking can be found at

http://www.aao.gov.au/local/www/dfm/technical. His latest book of astrophotographs is "The Invisible Universe".

At the business meeting, club officers gave their reports. Six new members were introduced. The Royal Astronomical Society's *Observer's Handbook 2001* will be available at November's meeting. TAL MENTALL reported that the High Rock Tower observatory in Lynn now has a dome in place. It will house a 12" Meade Schmidt-Cassegrain. It will also have a TV hookup to pipe down images for handicapped observers.

-Eileen Myers-

Treasurer's Report...

FOR THE month of September, we had \$3,845.37 in revenue and \$1,691.54 in expenses for a net income of \$2,153.83 for the month.

As of September 30th, 2000 our assets were:

Checking Account - Regular	\$19,288.61
Investments	\$18,553.21
Total Current Assets	\$37,841.82

Of the total, \$2,185.86 is in the Land Fund and \$160.00 is for clubhouse key deposits.

-Bernie Volz-

Membership Report...

We warmly welcome the following new members: INDIA WOOD, Lexington MA; JERRY SKALA, Dudley MA; JOSEPH MASTERS, Cambridge MA; ARJAN KLOET, Cambridge, MA; and CHRISTOPHER AKANA, Cambridge, MA. -John Small-

Clubhouse Report...

SATURDAY OPEN CLUBHOUSE SCHEDULE

Nov 4	Lew Gramer	Gary Walker
Nov 11	OPEN	WORK PARTY # 9
Nov 11	Phil Rounseville	Eileen Myers
Nov 18	Dan Feldkhun	Steve Mock
Nov 25	CLOSED	THANKSGIVING
Dec 2	Richard Burrier	David Prowten
Dec 9	CLOSED	WORK PARTY # 10
Dec 16	Phil Rounseville	Steve Herzberg
Dec 23	CLOSED	HOLIDAYS
Dec 30	John Reed	Jack Drobot

THE OCTOBER 7th work party proved to be very successful. All the things we planned to get done were completed. With the arrival of the cement truck, the sono tubes were filled with concrete, leveled and smoothed out, and the 'J' bolts installed. After the tubes were filled, the next pour was the remaining half of the barn floor. Once this was done the next form requiring concrete was the curb to the new walkway to the barn side door. With the rest of the concrete, we poured and finished the extended 7" hutch pad along with several new observing pads. If that wasn't enough the furnace was readjusted and tested in preparation for Winter and the west side of the barn roof was shingled. Thanks go to our Construction Boss DAVE PROWTEN, and to STEVE CLOUGHERTY, JACK DROBOT, BRUCE GERHARD, ANNA HILLIER, ED KNIGHT, DICK

KOOLISH, HOWARD LEVAUX, EILEEN MYERS, JOHN PANASVICH, JOHN REED, JOSEPH ROTHSCHILD, LEE SILER, ART SWEDLOW, SAI VALLABHA, AND TOM WOLF. The next work party will be held on **Nov 11th**. -Paul Cicchetti-

Next Star Parties...

Wednesday, November 1st - Hildreth School, **Marlboro**, MA: (Rain date Thursday, November 2nd) Contact Steve Sargent at Sargescs222@aol.com.

Wednesday, November 8th - Bigelow School, **Marlboro**, MA: (Rain date Thursday, November 9th) Contact Steve Sargent at Sargescs222@aol.com.

Wednesday, November 8th - Winnbrook School, **Belmont**, MA: This is in conjunction with a book fair, so we won't need a speaker. About 7 to 10 scopes should do it. I hope a few members from the Belmont area will be able to help out. Contact John Small at jsmall@ma.ultranet.com.

Wednesday, November 8th - John Eliot School, **Needham**, MA: Contact Cathy Clemens at clemens@cfa.harvard.edu or Rich Nugent.

Thursday, November 9th - Timilty Middle School, **Roxbury**, MA: Last year's event was a great success despite the clouded out observing. Alison Piatkowski is the contact (apiatkow@timilty.boston.k12.ma.us). The school is well represented at this event so more than a few scopes would be nice. Last year observing was planned to be conducted on the school roof, so it will not be possible to use giant Dobs. Note that this is also the club's meeting night.

Tuesday, November 14th - Abbott School, **Westford**, MA: (For Cub Scouts) We have enough volunteers, but show up if you like. Contact is John Small.

Thursday, November 30th - Killam School, **Reading**, MA: (Rain date Tuesday, December 5th) Contact Charlie McDonald.

Monday, December 4th - Brophy School, **Framingham**, MA: (Rain date December 5th) Third and fourth graders attend this large event. We stagger their arrival times for crowd control and to keep the lines short. We've been here several times in the past and need about 6 scopes to handle the crowds. Contact Rich Nugent at NugentRP@aol.com.

-Rich Nugent-

Lynnfield Star Party Thank You...

THANKS TO a great ATMoB response, we had a very successful star party for the Lynnfield Middle School. About 270 kids and parents came and listened to yet another one of my boring astro talks. CHARLIE MCDONALD brought reading materials for them, and then BRUCE BERGER donated 40 small binoculars to the school for astro projects. They will use them to measure Delta Cephei, a variable star.

We then had a nice star party with 13 telescopes. Thanks to the following great volunteers: DAVE AUCOIN, BRUCE BERGER, MARSHA BOWMAN, TED CARLMAN, BOB COHEN, JOE HENRY, ED LOS, CHARLIE MCDONALD, TAL MENTALL, EILEEN MYERS, ALANA PARKES, MIKE SCHEXNAYDRE, AL TAKEDA, and PAUL WAGONER If I left anyone out, let me know. It was dark out in the field.

It was a great effort by all, and the school really appreciates it. Thank you very much.

-Mario Motta-

Finding Your Way...With Setting Circles!...

I WAS chatting with EILEEN MYERS today. We were wondering if members would be interested in coming to the clubhouse on a Saturday afternoon to fine tune their observing skills. We decided to organize a session to introduce (or reintroduce) folks to the use of setting circles. We'll be there on November 18th from 3 p.m. until whenever.

Many scopes are attached to equatorial mounts. This type of mount often sports strange little wheels with numbers. These are the setting circles, and allow the observer to find all sorts of objects in the sky not visible to the naked eye. Cool! But, how do you work them? Veteran observers are often familiar with them because before the days of digital and smart, go-to telescopes, setting circles got you where you needed to get! First we need to consider the sky itself. Invisible but always present is a grid of great circles superimposed on the dome of the sky. If you could see them, you'd recognize them because they resemble lines of longitude and latitude. In the sky, though, they are respectively called right ascension and declination. The position of every object in the sky can be described by its right ascension and declination. With setting circles you can point your telescope at a specific set of celestial coordinates and the object you want to see.

During the afternoon session we'll all discuss polar alignment and the setting and use of these circles. If it's clear we can try for Venus and Vega or Altair in the daytime sky! We can order out pizza and then after dark practice our new skills on some deep sky objects. All telescopes are welcome! For more info call either Eileen or myself. See you on the 18th! You can reach me at NugentRP@aol.com or (508)879-3498 or Eileen at starleen@ma.ultranet.com or (978)456-3937

-Rich Nugent-

Observe the Space Shuttle...

AS OF this writing (early November) there are three humans in space! American Bill Shepard, and two Soviet cosmonauts, are en route to the International Space Station as Expedition One - the first permanent crew to occupy the station. During their four-month tour of duty they will be visited by three Space Shuttles.

Scheduled for launch on the evening of November 30th, the shuttle Endeavour will rendezvous with the station a few days later. Part of Endeavor's mission is to deliver and install the first of the US solar arrays. These power plants are 112 feet long and 39 feet wide, and when all eight are installed, they will provide all of the power for the station. The addition of this unit will make the station the largest structure in orbit. In a telescope the station will be more than just a point of light...you'll be able to make out the structure! During this shuttle mission the Endeavour/ISS complex should make favorable passes over New England. As a bonus, the launch is scheduled for 10:01 p.m. and that means it's an up-the-east-coast nighttime launch.

We've not had too many opportunities to view a launch from New England, but I was able to observe the last shuttle launch from Framingham. The shuttle became visible about 7 1/2 minutes after launch as a yellow star about 10 degrees above the

southern horizon (It was first seen a few degrees to the west of due south.). Then, for the next minute, we observed it reach a maximum altitude of about 15 degrees to the south-southeast. In binoculars you can see a bit of exhaust trail but in a telescope the view is magnificent! Three large exhaust cones are easily visible until main engine cutoff at 8 1/2 minutes after launch. About 10 seconds later a bright flash of light signals the release of the main fuel tank and then bursts of the shuttles orbital maneuvering engines can be seen as they arch out to the East. These bursts steer the shuttle away from the fuel tank and fine tune its trajectory toward the desired orbit. Three minutes after your observations begin the show is over...but what a great show it's been!

Launch information is available from a number of NASA web sites. A great place to start is: www.nasa.gov For visibility of the ISS or shuttle the best site I've found is: www.heavens-above.com. As we approach the launch date I'll use the email distribution list to keep you updated on the schedule.

-Rich Nugent-

Other News...

STAR FIELDS was 10 yrs old with the July 2000 issue. Thanks TED POULOS for starting and naming *Star Fields*.

MATT BENDANIEL will be teaching a six-week Telescopic Astronomy course at the Boston Museum of Science, Wednesdays starting 11/8, 7-9pm. The depth of the curriculum may be too basic for the experienced ATMoB member, but perhaps someone you know might be interested. Call (617) 589-0300 or surf to http://www.mos.org/learn_more/courses-list.html or contact Matt. Matt's astrophotographs can be seen at: <http://people.ne.mediaone.net/mbendaniel/gallery/astro>

Obituary...

CHARLES F. AVILA, who was a charter member of ATMoB, died on Sunday, October 29th. According to club documents he may have been ATMoB's first treasurer. MARION HOCHULI remembers a talk he gave along with Dr. James Baker: "During W.W.II ATMoB members helped make the optics for the Fairchild camera lenses for aerial photography. I think Charles Avila worked on the Fairchild/Bell & Howell lenses and Dr. Baker on one of the others -- probably the 12" and smaller FL, fast f/2.5 Aero-Ektars. The Fairchild/B&H aerial lenses were huge -- 6" diameter and 36" FL. There were many elements inside. The cameras were 9" x 18" format and used b/w film. Many of the amateurs who bought them on the surplus market - me, for one - could use them with yellow filters to correct for their blue sensitivity." He was a former president of Boston Edison. Contact Dolan Funeral Homes of Dorchester & Milton for funeral arrangements or www.dolanfuneral.com.

ATTENTION

December *Star Fields* deadline is SUNDAY, Nov. 29th
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 November 3, 2000

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

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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 November...

Fri, Sat Nov 17, 18 Pre-dawn Leonid meteor shower (debris from Comet Temple-Tuttle) "On November 17 around 3am EST, we may see meteors resulting from debris released by comet during its passages of 1932 and 1965. At nearly the same time the next morning, we may see meteors from debris released at the comet's passing in 1866." - Abrams Planetarium Sky Calendar November 2000.

At dawn: Jupiter, Saturn, Mars, and Mercury.
At and after sunset: Venus (magnitude -4.0 to -4.1), Jupiter (mag -2.8), Saturn (mag -0.4).
Saturn at opposition Nov 19.
Jupiter at opposition Nov 27.