



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. 22, No. 8 July 2010

This Month's Meeting...

Thursday, September 9th, 2010 at 8:00 PM

Phillips Auditorium

Harvard-Smithsonian Center for Astrophysics

Parking at the CfA is allowed for the duration of
the meeting.

Stellar Archaeology: New Science With Old Stars

This lecture will address a fundamental question of modern astrophysics: the origin of the elements, which is key to understanding the birth and childhood of our own Galaxy at a time when the Universe was still very young itself. To explore this early era, Dr. Frebel targets the oldest stars in the Galaxy and small dwarf galaxies, using their chemical composition to learn about the nature and conditions of their birth places at the time of their formation some 13 billion years ago. This way she can reconstruct what the very first stars might have been like and how the elements evolved. With information from these stars we are able to study how the galaxy assembled from many smaller and bigger galaxies into what we see today.

Dr. Frebel is currently a Fellow at Harvard Center for Astrophysics. Her research interests broadly cover the early Universe and how metal-poor stars can be used to obtain constraints on the first stars and initial mass function, supernova yields, and stellar nucleosynthesis. She is best known for her discoveries and subsequent spectroscopic analyses of the most metal-poor stars and how these stars can be employed to uncover information about the early Universe.

She did her undergraduate studies at the University of Freiburg in Germany and received her PhD from the Australian National University's Mt. Stromlo

Observatory in 2006, and has received a numerous awards for her work.

Please join us for a pre-meeting dinner discussion at Changsho, 1712 Mass Ave, Cambridge, MA at 6:00pm before the meeting.

President's Message...

To me, Sagittarius is a sign that summer is in full swing- it's one of my favorite constellations. Anchoring the southern end of the Milky Way, the teapot is said to steam up its huge number of stars and deep sky objects across the entire sky. Near its spout is located the center of our galaxy. With a good finder scope, a sky chart, and clear skies that are reasonably dark down to a Southern horizon, we can pretty easily find the numerous Messier objects in the teapot's mist. This year, the opportunity to view Sagittarius on two clear and cool nights at Stellafane was a real treat. Many of our members were at Stellafane also, and the chance to interact with them and look through several of these members' telescopes added to the weekend experience.

Our clubhouse observing field also is a good place to view this region of the sky. Our club maintains several telescopes that members can use. This year the clubhouse committee is continuing the improvement of the club's observing equipment, available to members, which was recommended by the club Telescope Advisory Committee in its 2007 report (see the club web site for a copy). When this improvement program is complete, we will have three major observatories. Two are finished already (the Ed Knight observatory that currently houses the Celestron 14" and 20" reflector telescopes, and the clamshell observatory that is the home for the 8" Dahl-Kirkham - this observatory was described at our July meeting.) The third observatory will be the new home of the C14 when it is finished; construction will start in the upcoming year. When the C14 is moved to its new location, our 6" Schupmann telescope- excellent for planetary objects- will take its place. Newer members should also know that the club has several loaner telescopes that can be borrowed for short periods and taken to home or other places to observe.

There are several exciting projects going on at the clubhouse- refining telescope mounts and construction of the new observatory are two examples. Either or both of these might be a good fit to your interests. If you would like to help work on either of these projects or others, please contact one of the Committee heads. Our monthly work sessions are fun and give members the opportunity to meet and learn about each other, as well as apply their expertise in helping club projects. Or, you might prefer to help out by making an extra donation when you renew your

membership this year (don't forget-it's the time of the year to renew your membership!). If you would like to make a donation, selecting either the "general fund" or "clubhouse" boxes on the renewal form will effectively help to fund these and other projects.

September kicks off the start of our new year of members meetings in Cambridge after the August hiatus. Our first speaker is Dr. Anna Frebel, who is studying the origin of the elements, which is key to understanding the birth and childhood of our own Galaxy at a time when the Universe was still very young itself.

~ *Bernie Kosicki, President* ~

June Meeting Minutes . . .



Photos by Al Takeda

The July meeting of the Amateur Telescope Makers of Boston featured presentations by four of our club members: Chuck Evans speaking about the observatory he built at his house, Mike Hill and Steve Clougherty speaking about the functional completion of the Clam Shell Observatory at the clubhouse, Tom Calderwood speaking about his time as an astronomy volunteer at Acadia National Park in Maine, and Mario Motta giving us an update on his Wingsheek Observatory.

Chuck indicated to us that he had several design objectives for his small home observatory. These included: An attractive look/being a good neighbor (it's in the front yard), safe and convenient to use, easy entry/exit (no stooping needed anywhere), comfortable as possible for visual work, security for equipment

installed, versatility for future applications, possibility for remote operation (e.g. for long-exposure CCD imaging).



Photo by Chuck Evans

The project began with the contractor pouring the foundations and running the power, data and security conduits. An initial problem was encountered when the contractor offset the pier to the East, not the South. This problem was overcome by offsetting the observatory platform. The initial design was for a roll off roof observatory. However, before any work began, Chuck became aware of a new relatively inexpensive, one piece molded, rugged but light weight, 8' diameter dome with automation options, the Explora-Dome. This is manufactured by Polytank, who also provided the dome support drawings for a 10' by 10' building.

This project was completed at all stages with help from several and various members of the club. First, the wood was milled for the building and the dome support. The 8' dome ring was centered in the 10' by 10' roof transition. Once the dome was delivered and the wheel channel and drive rack were installed in the dome, the 20 skateboard wheels were installed (10 for support, 10 for adjustable centering), the dome was mounted on the support and tested for rotation (successfully!). Then the dome transition roofing sections were test fitted. Next the platform was built. In order to meet the "no stooping" objective, a flip up movable floor section was created at the door opening. The 4' walls were pre-fabed and then assembled on the platform.

To raise the roof transition/dome support section, three sides of the wall sheathing were put in place and table saw rollers in the two open corners. This allowed the roof transition/dome support section to be raised,

leveled and secured, the dome placed on its support/track and finally lifted and rolled into place. The completed observatory building was wrapped in Tyvek, had siding (matching the house), and door installed. The pier had to be modified because it was not tall enough. Chuck designed a two section (12" and 8") pier extension fabricated of 1/2" steel pipe. Each section weighs about 125 lbs., are painted with Rust-o-leum, and are satisfactorily rigid. Chuck is able to mount his Celestron C9.25 or his AP 130mm f/6.3 EDFS refractor on the installed AP900 goto mount. Chuck has also installed music from the house system. Future enhancements will be made for visual observing, getting the dome to automatically sync with the scope, and preparation for (automated) astrophotography.



Flip up moveable floor sequence.

Club members who assisted with this project include: Tom Lumenello, John Small, Jon Blomquist, John Maher, John Reed, Petur Nielsen, Bruce Berger, Mike Hill, Chuck Velguth, Steve Jong, Steve Makarewicz, John Evans, Jeff Sutton, Joe Cataldo, and Bruce Bonner.

Mike Hill and Steve Clougherty presented the progress and functionality of the club's new Clam Shell Observatory. Per the Telescope Advisory Committee recommendations of Spring 2008, the Clam Shell Observatory has been made functional. The Astro Haven dome, donated by Fred Ward, was pulled down from a 25' tower and loaded on a 24' truck and re-assembled on the platform. This presented many challenges that were overcome by our dedicated members. Dave Prowten took point on the carpentry and building and John Small wired the observatory for power. The other challenge was to provide safe entry and exit. This was accomplished with an internal 4' ladder, which is bolted to the floor. On the outside of the dome is a metal 6' ladder with reinforced and extended railings and an cross walk

extension which mates with the inside 4' ladder. The whole entry/exit system is very solid and rigid. The opening/closing hardware has been virtually completely replaced (cable, limit switches, winches, etc.) and optimized. The controls to open and close are in the lock box.

Affixed to the 16' sonotube pier is the club's 1955 Ed Knight mount consisting of aluminum sand castings, bronze bushings, and stainless steel components. It is driven by Tom Vogel electronics with 3 rates; sidereal, solar and lunar. Learning time for the mount is about 5 minutes. The telescope is the club's 8" Dal Kirkham which is great for lunar/planetary work. It is an f/22 with a narrow field of view. It has a small secondary. It has bad coma/curvature off axis.

While this new observatory is functional and available to members, there are a couple of items left to complete: lighting on the inside of the observatory for safety and fine polar alignment of the mount.

Tom Calderwood discussed his time volunteering as a VIP (Volunteer In Park) at Acadia National Park in Maine. Tom replied to an April 2009 Sky and Telescope request to recruit volunteers for the National Parks. This is part of an effort to actively promote the parks, especially their dark skies and the 2009 Year of Astronomy.

The experience involved a one month commitment, application process, background check, and online training. Tom volunteered for August 2009. The park provided lodging. The local chamber of commerce donated some equipment. He participated in astronomy activities at several locations including "Stars over Sand Beach," and "Night Sky Scoping" at Cadillac Mountain, Bat Ramp, Eagle Lake and Otter Point Road. Later in September was the Night Sky Festival, which he was not able to assist with. He worked with Interpretive Supervisor Sonya and Island Astronomy Institute member Peter Lord. Equipment included Celestron Nexstar 8", Orion 8" Dobsonian, 80mm refractor (not grab and go) and large binoculars on a mount (loaned). The park ended up buying a similar binocular system. The whole kit loads in an Explorer, including the scopes and signs.

While the date and times are published, visitors must call the visitor center to learn the exact location. On a dry run, the 8" had problems and the Galilean replica

was damaged. The team learned the importance of practice. Daylight activities included a 27 step model of the solar system. In addition to the public astronomy activities, Tom worked on a lighting survey which included 360 lights. Many were dark sky friendly, but there were some examples of very bad lighting. The goal of the survey is to achieve the "Dark Sky Park" rating. At the end, in appreciation, there was a VIP pie party. During the limited down times, Tom was able to sample the local culture and even take and go out on a 4 masted sailing ship. Overall, it was a very good experience.



Photo courtesy Tom Calderwood

To complete the evening, Mario Motta presented an update on his Wingaersheek Observatory. He began by presenting a stunning short animation of Pluto passing in front of Barnard 92, a dark cloud which made observing Pluto much easier. Mario summarized the project, which is recognized as the largest completely home built observatory in the US.

This observatory's 32" telescope has a 22' pier sunk 6' into the ground. The Scott Mulligan design scope has over 584 parts and uses all spherical mirrors. It is an f/3 to f/6 with no vignetting, offering a flat field and perfect color. The optics use unique quantum coatings on the optics with only 0.5% loss. The OTA employs reinforced carbon fiber supports. The primary mirror is essentially a shrunk version of an 8 meter blank and is figured to 1/20th wave. It has a warm control room and is fully robotic with wifi control from a laptop.

Recent improvements include additional stiffening, LED lit flat field lighting, and push-pull secondary sag elimination. It is both a visual and imaging scope, with a full AO SBIG STL camera system. This is complimented by co-mounted SCT and Zeiss scopes.

Mario completed his presentation by showing multiple images taken from his observatory including M13, NCG4565, M51, Abell 2151, the Dumbbell, M81, Eskimo/Clown Face, M12, 2902, M95, Whale, Thor's Heart, Leo 1, Trifid, Hubble variable, Helix, Sunflower, 7814. He concluded by mentioning that in his next book, Steve O'Meara will be using only his images.

Bernie Kosicki brought the business meeting to order at 9:31pm.

Bruce Tinkler provided the secretary's report including a summary of the June Meeting Minutes.

There was no treasurer's report or membership report.

There was a very brief Observing Report reiterating that the Clam Shell Observatory was now available for Member use.

There was a brief summary of the Club House work session on June 26th. This included that there were 20 members present, the grass was cut and raked, and the Clam Shell was worked on. It was mentioned that July 24th would be the next clubhouse work session.

There was no unfinished business.

Eileen Myers announced the club picnic will be Sunday, September 19th.

A list of upcoming star parties and events was presented including:

July 10, 2010 Hanscomb AFB Star Party
July 17, 2010 New Member Orientation Night
July 21, 2010 Executive Board Meeting
Jul 24, 2010 July Clubhouse Work Party #8

Refreshments were provided by Mike Hill and Bernie Kosicki.

The meeting was gaveled closed by Bernie Kosicki at 9:45pm

~ *Bruce Tinkler, Secretary* ~

Clubhouse Report . . .

Summer work parties continued after June 26th; on July 24th and August 28th. 18 members worked under

cloudy 80deg F skies on 7/24, and 15 members labored under clear 90+deg F skies on 8/28. Between those dates the drought was broken and the grass and shrubs are growing green again. The following activity summary indicates the number of days donated behind the member's name.

Blomquist(3) machine mowed the entire grounds and was a tremendous help to Maher(3), Maerz(2), Wilbur(1), and Myers(1) hand mowing, raking, and trimming. Flower garden maintenance continued by Hillier(2), Myers(1), and Craven(1).

After the clamshell observatory stairs were secured, the telescope mount drive components were replaced, adjusted, tested, and reset/tested by Prowten(3), and Clougherty(1) assisted by Maher(3), Rothchild(1), Takeda(3), and Wilbur(1). Koolish(3) and Takeda(3) documented activities.

Electrical conduit installation continued from the metal tool shed back thru the 4-holer storage room to the new machine shop by Simunovic(3); initially assisted by Hill(1) and Berger(2). Prowten(3), Takeda(3), Maher(3), Cicchetti(1), and Johnston(1) replaced the air conditioner and window insulation in the kitchen window.

Archiving of ATMoB materials continued by Valleli(2), Hillier(2), and Boynton(1). A new electrical outlet for the library air conditioner was installed by Cicchetti(1), Wilbur(1), Takeda(3), and Reed(2). Framing and installation of the a/c will follow. Stone replacement in the driveway by Maher(3) and Bosworth(1), curtailed by rain showers, will be rescheduled.

Scraping the North house wall by Myers(1) and Drake(1) and the South side porch walls and posts by Takeda(3) and Reed(2) continued as the first coat of white stain was applied by Takeda(3). The home dome double mounting ring resting in the field behind the Knight observatory was dismantled by Koolish(3) and Berger(3). A new level test base to hold the assembled home dome as specified by the approved plans was constructed by Prowten(3) behind the 12 foot square platform to allow future testing of the dome assembly.

The team of Vallabha(3), Swedlow(3), Johansson(2), and Myers(1) constructed the summer lunches of salad, BBQ chicken, dogs, burgers, chips and dessert

for each session. The welcome repast was enjoyed by an always hungry crew.

September weekends will be busier than this summer's. Labor Day weekend hosts Arunah Hills days; the second weekend is Bailey hill dark skies observing; the September 19th club picnic will be enjoyed by us all; and the next Work Party on September 25th will be followed by the AstroAssembly meeting in N.Scituate, RI on October 2nd. Enjoy a wonderful fall season and keep looking up!

Thank you for all your help.

~ *Clubhouse Committee Directors* ~
~ *John Reed, Steve Clougherty and Dave Prowten* ~

Clubhouse Saturday Schedule

Sep 11	Budreau	Burrier
Sept 18	Evans	Lumenello
Sept 19	Club Picnic	
Sept 25	Paquin + Prowten Work Party #10	
Oct 2	Berger	Hill
Oct 9	Maerz	Maher
Oct 16	Meurer	Mock
Oct 23	Toomey + Wolf Work Party #11	
Oct 30	Myers	Nugent

Membership Report . . .

Membership count as of 8/29/2010: 349
Same time last year: 331

Top six membership towns:

TownMember #
Westford - 15
Acton - 14
Arlington - 14
Lexington - 14
Cambridge - 14
Chelmsford - 11

Membership renewal payments are now overdue as of September 1st. The renewal process can be completed on-line using Paypal. No Paypal account is required.

<http://www.atmob.org/members/person.php?frid=renewals>

Renewal checks can also be mailed:

ATMoB
c/o Tom McDonagh
48 Mohawk Drive
Acton, MA 01720

I will be available at September 9th club meeting in Cambridge if you wish to renew at that time.

Please make every effort to send along your membership dues payment today! Thanks to all of those that have renewed already.

The Amateur Telescope Makers of Boston, Inc. is a 501(c)3 organization. Donations are gladly accepted and are tax deductible to the extent allowed by law. Consider making a tax-deductible contribution to the club when renewing your membership.

Please take the time to seek out and welcome our new club members:

Steve Daukas	John Bavuso
Marcio Araujo	Dsutin Williams
Preethan Chippada	Douglas Whallon
John Masters	Robert Share
Mark Bouyer	Judith Tavano
Glenn Becker	George Sisler
Pierre Sorrel	Michael Ubeliz
Jerry Skiles	

~ **Tom McDonagh – Membership Secretary** ~

A Historic Horn . . .

Bernie Kosicki reports that the club has been contacted by Allan F. Cook seeking support for the restoration radio telescope used in the discovery of the Cosmic Microwave Background Radiation.

Dear Sir or Madam:

The Bell Laboratories Horn Antenna in Holmdel, New Jersey stands as one of the most revered icons of Radio Astronomy and modern cosmology. By virtue of its skillful employment, Arno Penzias and Robert Wilson won the Nobel Prize for Physics for their discovery of the Cosmic Microwave Background Radiation. The same as with Edwin Hubble and the 100 inch Hooker Telescope at Mt. Wilson Observatory, the names Penzias and Wilson are rarely mentioned without a reference to the Horn Antenna.

The purpose of this letter is to share, with as many people as possible, the sad story of what has been allowed to happen to this magnificent piece of engineering technology.

In May of 2010, I made the journey from Cleveland Ohio to Holmdel New Jersey with the sole purpose of seeing the Horn Antenna. What I found on arrival both saddened and maddened me. I found that the antenna had been sadly neglected and allowed deteriorate by those charged with the care of this National Historic Landmark, Alcatel-Lucent Technologies.



*The Horn Antenna as it appeared on May 8, 2010.
Photo courtesy Allen F. Cook.*

Upon returning home, I immediately contacted the National Park Service (NPS) and reported what I had seen. Although the NPS was sympathetic, I was informed that they have no enforcement power to assure that any landmark is actually maintained. They can make suggestions but it is up to the individual caretakers as to what recommendations they follow and which they ignore. This revelation came as a real surprise to me! My complaint did result in an ad hoc coat of paint and a few repairs but what is really needed is an on-going maintenance schedule. I heard nothing of plans for such a schedule. Without this commitment the Horn Antenna will inevitably return to the same, or worse, condition than it was in when I encountered it.

Faced with the above reality, I contacted the Smithsonian Institute to gauge their interest in acquiring the Horn Antenna as an exhibit. They informed me that both they and the National Radio Astronomy Observatory, in Green Bank, West Virginia, were previously and are currently interested in obtaining, and caring for, the antenna. The main obstruction to either organization making this acquisition was Alcatel-Lucent Technologies' reluctance to donate the item. The very people

entrusted with the Horn Antenna's wellbeing are neither willing to providing the necessary care required by the antenna nor are they willing to give it to anyone who would be willing, and in an excellent position, to do so. These facts have moved me beyond frustration.

I have reached the point where I don't think that there is anything else that I, as an individual, can do to achieve my goal of having the Horn Antenna restored to and maintained in the condition that it was in when so adroitly used by Penzias and Wilson. Perhaps if others, who share my passion for astronomy and history, became aware of the situation and became, even peripherally involved, a momentum could be created that would change the dynamics of what is now a static situation. To this end, I am sending this letter to the many places that I am certain that my passion is shared, the astronomy clubs throughout the United States. I ask that you post this letter on your web site, include it in your newsletters and disseminate the information in any manner you have at your disposal. I also ask that as many people as possible contact Alcatel-Lucent Technologies in France and the United States and encourage them to donate the Horn Antenna to either the Smithsonian Institute or the National Radio Astronomy Observatory. Finally, I ask that these same people contact the National Park Service and share our concern with them.

It is my hope that someday, in the near future, I will be able to, again, visit the Horn Antenna but under the conditions such a historic instrument has earned and deserves.

Sincerely,
Allan F. Cook
Acantares@aol.com

Annual Club Picnic . . .

Sunday, September 19 is the date for this year's Club Picnic. Please note that the picnic will be held on a Sunday this year. It will be held at the Tom Britton Clubhouse in Westford starting at Noon. Come and share good times with other ATMob members and their families. Talk about your astronomy stories, experiences and plans. Members, their families and their friends are invited. Bring something tasty to share, such as a favorite entree, veggies, an appetizer,

salad, homemade bread, homemade pastry, fresh fruit or other dessert. We will provide hamburgers, kielbasa, potato chips, paper goods and plastic cutlery.

There will be solar viewing and night sky observing. Bring lawn chairs or blankets. Bring suntan lotion and mosquito repellent. Bring your telescope and your warm observing clothing and gear. The club's observatories will be open. Bring the kids and grandchildren. There will be a tour of the clubhouse facilities and a demonstration of mirror grinding. We will have some astronomy activities for kids. We also plan to walk "up the hill", stopping along the way to talk about the MIT Haystack Observatory facility. Directions to the clubhouse can be found on the last page of Star Fields, and at the ATMob website under Home Page, then at the bottom of the page click on ATMob Clubhouse.

Last minute attendees are always welcome. Come for a few hours or stay and observe into the night.

Questions - Email co-host Eileen Myers at starleen@charter.net, or contact co-hosts/co-chefs Dr. Art Swedlow, Sai Vallabha, Al Takeda or John Reed.

~ *Eileen Myers* ~

Stellafane Reports Wanted...

The Springfield Telescope Makers are collecting reports from this year's convention. Please email WebMaster@stellafane.org. Please don't forget to copy your favorite newsletter editor in your message.

Attending Shuttle Launches...

In response to July's article regarding the upcoming Space Shuttle launch schedule, Marsha Bowman writes to report that she has plans to attend the next two in November and February and would be very happy to help interested members with either tickets or alternate observing locations. Marsha can be reached by phone at 978-663-0040.

**October Star Fields DEADLINE
Noon, Sunday, September 26th**

**Email articles to the newsletter editor at
newsletter@atmob.org**

Articles from members are always welcome.

Amateur Telescope Makers of Boston, Inc.
c/o Tom McDonagh, Membership Secretary
48 Mohawk Drive
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FIRST CLASS

EXECUTIVE BOARD 2010-2011

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OBSERVING AND PUBLIC OUTREACH

STAR PARTY COORDINATOR:
Virginia Renehan starparty@atmob.org

How to Find Us...

Web Page www.atmob.org

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

CLUBHOUSE: Latitude 42° 36.5' N Longitude 71° 29.8' W

The Tom Britton Clubhouse is open every Saturday from 7 p.m. 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 farmhouse 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 The Month . . .

To calculate Daylight Savings Time (DST) from Universal Time (UT) subtract 4 from UT.

Sept 1 Last Quarter
Sept 8 New Moon
Sept 15 First Quarter
Sept 23 Full Moon