



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. 9 October 2000

This Month's Meeting...

Thursday, October 12th, 2000, at 8:00 PM
Phillips Auditorium, Harvard-Smithsonian
Center for Astrophysics

This Month's Meeting...

THIS MONTH'S speaker will be David Malin, Photographic Scientist-Astronomer for the Anglo-Australian Observatory. Mr. Malin has been at the forefront of astrophotography for 25 years. He was a major force in the development of techniques for tricolor astrophotography, including film hypersensitization and CCD imaging..

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...

I JUST got back from Nova Scotia where life is much simpler and the pace of living is much slower. While I was there I could not help notice that many homes have a small "shop" located in the back yard along side or behind the house where one could go after supper to tinker, repair and make stuff. The "shops" typically have a wood stove for winter warmth, drill press table saw, grinding wheel for sharpening, a big bench vice, a table saw, router and a wide selection of hand tools. It is my feeling that many members of our club do not have a proper place at home to work on their ideas. I would like to think of our clubhouse as a place where you can go to build astronomy related projects. In the least there are always several people willing to offer fresh ideas on how to construct something.

Lots of progress has been made on our observatory. For details please read the clubhouse report. But I would like to take the opportunity to thank all the members who have spent precious

hours helping out. A special thanks to Dave Prowten who has been leading the charge.

The club picnic was a great success. Thanks to all who brought the most excellent food and a very special thanks to the Barbecue Chefs JOHN REED, JIM SUSLOWICZ and his good friend "Pig Man". I personally sampled every dish there and some at least twice. I especially enjoyed Eileen's salmon dish.

Last week's call for papers on aurora detectors did not get much response. (I'm still open for more articles if anyone has any.) However, a very interesting idea by ERIC JOHANSSON and his friend Robert Galejs intrigued me. Robert's hobby interest is in model rocketry, and he showed me an apogee detection circuit that deploys the model rocket's parachute at the correct time by detecting the change in the Earth's magnetic lines of force. When the rocket's nose cone dips downward, the change of angle of the Earth's magnetic lines of force are detected and the parachute is deployed. The heart of the circuit is a small chip that can sense the Earth's small magnetic field (approximately 0.5 Gauss) directly. Most aurora detectors (or magnetometers) require the construction of a massive coil (10,000 turns of #28 wire on a 0.5" iron rod 10" long) which is very tedious to make properly. The circuit as seen on Robert's home page <http://www.cmass.org/uploads/Robert.Galejs/galejs.html> could be modified to detect and display the small movements of the Earth's magnetic fields during an actual auroral display. Eric Johansson said he would be willing to write some software to capture and display its data on a computer. Join us at the clubhouse on Thursday night and let's brainstorm. -Bob Collara-

Executive Board Meeting...

IT'S TIME for the Executive Board to have a meeting. I would like the meeting to convene before the end October. I will be emailing you for the most convenient time for us to meet at the clubhouse. Please send me your topics of discussion as soon as possible so they may be duly noted. -Bob Collara-

September's Minutes...

THE MEETING of the Amateur Telescope Makers of Boston, including the Bond Astronomical Club, was opened by President BOB COLLARA. Bob started off stating the purpose of the club, followed by a good astronomy joke. Then he brought to our attention several interesting news items. One was about the world's largest single-dish, advanced radio telescope which recently saw "first light" in Green Bank, West Virginia. It has a two-acre reflecting surface (100 by 110 meters) and 16,000,000 pounds of moving weight. Other articles were on a new kind of black hole detected by Chandra, hints of a Higgs particle (particle or particles thought to be responsible for the existence of the mass of each particle), and research on the speed of light.

Our guest speaker was Dr. Robert Donahue of the Harvard-Smithsonian Center for Astrophysics, and Mt. Wilson Observatory. Dr. Donahue gave an excellent short history of solar astronomy, starting with how ancient Chinese astronomers would hire people to stand on towers and see if there were any sunspots. Of course those hired went blind. He spoke about how Galileo saw that the sun was rotating by keeping track of sunspots. He spoke about Louis the XIV, called the "Sun King"

since he took the sun as his emblem, connecting himself to its radiant image. He was portrayed as the Greek sun god Apollo in portraits, woodcuts, and engravings.

Dr. Donahue described the work done on solar observing from the early 1900's to today. He talked about Maunder, an Englishman who published a paper showing the drift of the mean latitude of sunspots in 1904, and the "Maunder butterfly diagram" of sunspots, which shows that the distribution of sunspots in each hemisphere of the sun over the sunspot cycle resembles a series of butterfly wings. He spoke about the period of time between 1630 and 1710, known as the "Maunder Minimum", when there was an apparent lack of sunspots. He noted that there were several notable astronomers who were making careful observations of the Sun at that time. He showed how high-resolution photometry can monitor the rotation period and activity of slowly rotating solar-like stars. He ended talking about the new telescope array on Mount Wilson in California: the "CHARA Array", designed and operated by Georgia State University's Center for High Angular Resolution Astronomy (CHARA). It will incorporate six telescopes distributed over the grounds of the historic Mount Wilson Observatory. Each of the telescopes has a light-collecting mirror one meter in diameter that relays starlight through vacuum pipes to a central beam combination facility. The central facility houses optics that combine the light to an accuracy of one-millionth inch using the techniques of optical interferometry, enabling the array of six telescopes to work together as a single telescope 400 meters in diameter. This will allow the CHARA Array to see detail in astronomical objects as small as one ten-millionth of a degree in angular extent. This is equivalent to resolving a nickel on the moon or a football field on Mars. It will be used to see spots on other stars. See www.mtwilson.edu for information on sunspot cycles and on the research being done there.

At the business meeting, club officers gave their reports. Member-at-Large BRUCE BERGER suggested that the club have more T-shirts, hats, or sweatshirts made with the ATMob logo. BILL TOOMEY needs more Project Astro help for the Lowell schools. MARIO MOTTA gave an update on the upcoming AAVSO meeting. See September's *Star Fields* or www.aavso.com for more info. Mario also reported that he was able to purchase fiberglass roofing material needed to weatherproof the new roll-off roof observatory for \$25. JOHN SMALL asked us to thank the folks at Groton Light for their help digging the footings. Mario will have a 20 copies of the Royal Astronomical Society of Canada Observer's Handbook 2001 for sale at the next meeting (\$15). Also mentioned was that passing overhead on the Space Shuttle Atlantis was Mission Specialist Dan Burbank, a member of the Cape Cod Astronomical Association. -Eileen Myers-

Treasurer's Report...

FOR THE month of August, we had \$10.81 in revenue and \$279.55 in expenses for a net deficit of \$268.74 for the month.

As of August 31st, 2000 our assets were:

Checking Account - Regular	\$16,572.68
Investments	\$18,553.21
Total Current Assets	\$ 35,125.89

Of the total, \$1,901.81 is in the Land Fund and \$160.00 is for clubhouse key deposits.

Also, we still have a few of the Kalmbach Publishing Astronomy 2001 Calendars available at a discount. This calendar normally lists of \$12.95. We will be making it available to members at \$10.00. They will be sold first-come first-served (with full payment only, either cash or check to ATMob) at the October meeting. -Bernie Volz-

Total Solar Eclipse Trip Update...

WE ARE in the process of finalizing the June 21, 2000 eclipse trip to Africa. However, before we can do this, we need to know how many people will be participating. The rough itinerary is expected to be as follows:

Fri. June 15, 2001 Depart Boston for London

Sat. June 16, 2001 London area with evening departure for Harare

Sun. June 17 through Wed. June 20, 2001 - Harare area

Wed. June 20 through Fri. June 22, 2001 Transfer to eclipse site for eclipse on the 21st

Fri. June 22 through Sun June 24, 2001 - Transfer to Victoria Falls

Sun. June 24, 2001 Return to Boston (or continue on your own)

The price, estimated at \$4,500/person (double occupancy), includes: round-trip airfare from Boston, 9 nights accommodations, all transfers, hotel taxes, and some meals.

In order for us to finalize our planning, we need a minimum number of people to have signed up by October 31, 2000. If you're interested, please get in touch with me as soon as possible for additional details. Best to email me at volz@mediaone.net. Or, contact Jill Sussman at VACATIONS Etc. at 508-877-3200 or vacaetc@ma.ultranet.com. -Bernie Volz-

Clubhouse Report...

SATURDAY OPEN CLUBHOUSE SCHEDULE

Oct 7		WORK PARTY # 8
Oct 7	Jack Drobot	John Reed
Oct 14	CLOSED	ASTRO ASSEMBLY
Oct 21	Phil Rounseville	Steve Mock
Oct 28	Eric Johansson	Al Mazurka
Nov 4	Lew Gramer	Gary Walker
Nov 11		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		WORK PARTY # 10

SINCE LAST reported on September 7th, twelve work sessions involving 45 member-days of labor have been responsible for adding ten pads to the Milon observing field, a floor to the near barn, a sidewalk along the barn rear wall, and ten support columns for the roll-off roof observatory with its 12-ft long rectangular pier supported on three columns. Work on September 8th, 10th, 11th, and 15th led to the first concrete pour on September 16th. After the successful club picnic on

September 17th, work on September 23rd, 25th, 28th, 29th, 30th, October 1st and 2nd led to the second concrete pour scheduled on October 7th. We all take our hats off to ATMob Construction Boss DAVE PROWTEN for guiding and implementing the observatory effort. Dave has done a great deal of the work himself, as well as patiently trained teams of ATMob skilled and unskilled laborers. Hats off to BRUCE GERHARD for building the forms needed for the barn sidewalk and near barn floor. Hats off to ED LOS for the observing field framing for the new pads, designed by STEVE CLOUGHERTY. Thanks go to DAVE PROWTEN, BRUCE GERHARD, ED LOS, STEVE CLOUGHERTY, BRUCE BERGER (and Daisy the dog), PAUL CICCETTI, JACK DROBOT, DAN FELDKHUN, MIKE HILL, ANNA HILLIER, HENRY HOPKINSON, DICK KOOLISH, EILEEN MYERS, JOHN PANASWICH, JOSEPH ROTHCHILD, PHIL ROUNSEVILLE, JOHN REED, DAVE SIEGRIST, JIM SUSLOWICZ, SAI VALLABHA, and GARY WALKER. ED KNIGHT has replaced more ailing components on the furnace, and assisted by BRUCE BERGER, completed the pre-season system checkout, with the hope that the furnace will come through again for one more season. Thanks again Ed. At 8:30pm that evening MARIO MOTTA telephoned the clubhouse, hoping to talk to ATMob Construction Boss DAVID PROWTEN from Mount Palomar. Unfortunately Dave had left, after having been at the clubhouse since 8 am. Mario wanted to tell Dave that he was standing next to the 200-inch so that while Dave was working on the foundation for the club's 20-inch scope, which was initially a test blank for the 200 inch, Mario was touching the foundation of the 200-inch.

There will be another work session on October 7th. This is the final concrete pour for the new observatory. The sonotubes are in place and waiting to be filled. The next clubhouse work party after that will be November 11th.

On Sunday, September 17th, approximately 50 people supported the club picnic with their presence and food. What a feast! Observing after the picnic was rewarded with a red and green aurora which lasted 45 minutes. Thanks go to MIKE ARAMINI for alerting everyone in time to observe. At 9:15pm on September 17th an aurora was again seen at the clubhouse.

-John Reed-

Star Parties...

Saturday, November 4th - Tewksbury, MA: This is an extension to last month's Space Day celebrations there. The whole town is invited for this evening event. The contact is Paul Manning at 978-657-7339. Because of the number of people expected, Paul is also asking the North Shore group for help.

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.

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.

Monday, December 4th - Brophy School, Framingham, MA: 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-

November 4th Bus Trip to NYC...

THE BUS trip to the Rose Center for Earth and Space, including the new Hayden Planetarium is all set for Saturday, November 4th. The bus is now completely booked with 47 travelers, and there is a growing waiting list in case someone can't make the trip. The bus (Gokey & Quinn Bus Co.) must be all loaded and ready to leave near the Dunkin Donuts inside the Treble Cove Mall in Billerica on Rte. 3A/129 and Treble Cove Rd. at 5:45am sharp, and should arrive, load, and then leave the Rte. 128 Riverside stop in Newton at 6:15am. We will be asking Riverside passengers if they want us to bring them anything from Dunkin Donuts, although coffee may get cold waiting on the bus during the half-hour ride. Any ideas? There will be one stop along the route to NYC. The cost for the museum and the 11:30 am show will be \$17 for adults, \$12.50 for Seniors and students, and \$10.50 for children under 12. The bus will cost \$31. Food can be purchased at the museum for lunch, and there are nearby restaurants. We are planning to eat dinner together at a Mexican restaurant called Gabriela's at 93rd St. and Amsterdam Ave. The bus will take us there. The food is typical of Guadalajara (third largest city in Mexico - west-central part of Mexico). We are planning an early dinner so as not to return too late. (The seating time is being working out.) The restaurant is proposing a menu for \$19.95 plus tax and tip. The menu offers a few choices, but a fixed menu is the only way for them to handle a large group in a NYC restaurant. Drinks are separate since some folks will want beer(s) and some sodas or water. We are working out the final details. If you are signed up, you will be receiving email or a phone call from Eileen within the next few days. After you are contacted, send your check, **made out to Eileen Myers,** to: Eileen Myers 73 Westcott Rd. Harvard, MA 01451.

978-663-0040 or rmbc2114@email.msn.com

-Marsha Bowman-

978-456-3937 or starleen@ma.ultranet.com

-Eileen Myers-

From the Leading Edge of the Time Zone...

I HAD just hauled the last box of books into our new house and was dragging, so I stepped out onto the front porch for a breather. I sat on the steps, looked up and there was the Milky Way. A cold front had passed through the previous night bringing a cool, calm, clear night. It looked like I would miss a good observing night.

Back in Ohio I would look north as a way of gauging the sky. Staring into the orange Cleveland nebula sitting on the horizon, I would see Polaris and the pointer stars of the dipper, but very often couldn't see the rest of it. Yet here in Dudley, I could easily see the Milky Way. Could I possibly have found a dark sky site in the light polluted east?

Yet this, I thought, was a taste of what was to come. In two days we had to begin a trip west to return my son to Arizona State and I was anxious to see the legendary Arizona skies.

A week later, following I-40, we crossed into Arizona under blue skies and soft clouds. Even with a stiff breeze, the August heat pressed us, but the noon sky promised a beautiful night. Hours later the sun dropped behind Prescott and the sky imitated the Arizona flag, a spray of corpuscular rays. Ahead of us the glow of Phoenix reflected off approaching thunderheads. Yup, my first night in Arizona was clouded out.

The next day was another clear and hot day. But by sundown thunderheads were again advancing up the Valley of the Sun and they had another surprise, a dust storm! The dust blew throughout most of the night and clouds covered the remainder.

The next day we had to begin the trip back east. We started late, planning to spend the night in Flagstaff so we could visit Lowell Observatory on the following day. That night under clear skies we drove up Mars Hill and stopped next to the observatory. Anticipating a star spangled view, I hopped out of the car and looked up, right into the face of the full moon. The full moon was no more than a couple of hours old and only the Summer Triangle was visible. Anything fainter than first magnitude was washed out.

Back in Massachusetts I continue to be treated to dark skies. Just last night I counted eight stars inside the Pegasus square. I spotted 87 Pegasi naked eye. That's a 5.7 apparent magnitude!

The moral of this story is, don't go to Arizona in the summer to see pristine skies, come to Massachusetts, and just look up.

-Jerry Skala-

Invitation to ATMob Members...

THE NEW England Chapter of the Society of Photographic and Instrumentation Engineers is pleased to invite the members of the Amateur Telescope Makers of Boston to their October 17th meeting. Our guest speaker is Prof. David Latham of Harvard University and his topic is the detection of extra-solar planets.

His research interests are the search for extra-solar planets and low-mass companions of stars; the characteristics of binary stars and the multiples in various stellar populations; the formation and evolution of binaries; the kinematics and dynamic evolution of star clusters and star-forming regions; the structure of our Galaxy and the origin and evolution of the chemical elements; observational cosmology and the large-scale structure of the universe.

Prof. Latham received his S.B from MIT and his Ph.D. from Harvard. He is Senior Astronomer at the Smithsonian Astrophysical Observatory, and Senior Lecturer on Astronomy at Harvard University.

When

October 17th. Social hour starts a 6:00 PM and the meeting at 7:15, including the speaker. Those who wish will go to a local restaurant afterwards. I hope you will join us.

Where

The meeting will be held at the Corning Lasertron off Middlesex Turnpike in Bedford. The best way from the north is come south on Rt. 3 to the Concord Rd exit, or from the south, come north on Rt. 3 to Concord Rd. Then turn east towards

Billerica center. At the first set of lights turn right and go south on Middlesex Turnpike. You should pass a small lake on either side of the road, then a "99" Restaurant. Look for Oak Park on the right a little further on. Corning Lasertron is at 9 and 11 Oak Park. Turn into their parking area behind Building 9.

Corning Lasertron is undergoing expansion and we will be using a doublewide trailer (No. 5) behind Building 9 instead of their usual room for lectures. It is quite nice I understand but only has room for 65 persons, therefore **we must have your RSVP**. Please call Frank Leard, President of the New England Chapter of the SPIE, **by October 16th**. His numbers are 781/280-9240 (W), 978/443-7549 (H), LeardFL@corning.com or fileard@tiac.com.

-Arthur Pierson-

Learn the Night Sky...

TO MAKE observing more organized and challenging for beginners with binoculars, the Astronomical League has observing lists of objects which can be seen with binoculars between 20mm and 50 mm in diameter. The lists are divided into three categories: Easy, Tough, and Challenge objects. They have a sample Observing Data Sheet which you can find in their Astro Note 3. The League also has a Lunar observing list. See www.astroleague.org and look under Observing Clubs.

The League also has many other observing lists to challenge and develop your skill as an observer.

-Eileen Myers-

Astro Trivia...

IF THE EARTH were shrunk to the size of an apple, the thicker parts of the Earth's crust would be about the thickness of the apple skin. Actually, the continental crust is 30 to 40 kilometers thick while the crust under the oceans is about 5 to 6 km thick. The oldest rocks on Earth are found in the northwest territories of Canada and are about 3.9 billion years old.

WHY ARE STARS ROUND? Its due to the mutual gravitational attraction of their constituent particles. A sphere is the configuration in which all the particles are closest to one another. Within any celestial body whose diameter is more than 200 kilometers, the force of gravity overrides the chemical forces that give matter its rigidity and forces it to become spherical. Most asteroids and the moons of Mars are too small for gravity to make their rocky masses round.

SQUEEZE OUT THE EMPTINESS within and between each atom in the universe and you're left with a ball of enormous weight but only a little less than the diameter of Jupiter's orbit. The actual material in the universe is infinitesimally tiny when compared with the size and vastness of the cosmos. If the universe were a cube 10 miles on a side, all the mass it contained, including even the mysterious dark matter, would be a single grain of sand.

IMAGINE THE EARTH reduced to the size of a grain of sand--a demagnification of 100 billion. On this scale, our Sun would be the size of a dime, the distance between the Earth and Sun about 5 ft., Jupiter is the size of a small pea about 26 ft. away, and Pluto lies 200 ft. from the Sun.

Shrink the dime sized Sun down to a grain of sand: Earth is now a microscopic spec and its orbit traces a circle about 1 inch in diameter. Pluto's distance shrinks to 2 ft., and the nearest star is about 2 miles away. The stars of our galaxy are like sand grains with miles of space between them.

THE ARECIBO (Puerto Rico) RADIO TELESCOPE is a fixed 305 meter dish pointing at the zenith. By moving the signal pickup at its prime focus, it can scan band of the sky from declination 2 to 38 degrees or about 28% of the celestial sphere.

WATER WAS DISCOVERED in cold interstellar gas in 1969 by astronomer, Charles Townes. He recorded a barely legible, single bright peak in a microwave spectrum of the gas. Molecules like those of water in interstellar clouds can be pumped full of energy by undergoing collisions. They "cool" again by emitting radiation. The molecules can synchronize their emission--the radiation emitted by one excited molecule can "tickle" a second into emitting too, etc. What Townes discovered was the first known astrophysical water maser. -Ted Poulos-

- 6) Keuffel and Esser Transits - #5085CF serial 70026
- 7) Criterion Newtonian Mount with pier, and another plain old pier
- 8) 2" Meade Star Diagonal Housing (no mirror) with 1 1/4" adapter
- 9) Lenses - 2" f5 cemented doublet, 3" singlet, and focal reducer
- 10) Lumicon Cassegrain Easy-Guider
- 11) Sidereal Clock - C.M. Designs
- 12) CCD Camera and Monitor - Thorr Enterprises
- 13) JMI Motofocus with Hand Paddle - 1 for Newtonian focuser, 1 for Cassegrain focuser
- 14) Keithley Instruments: Picoammeter - model 417 // High voltage Supply - model 240
- 15) AccuTrack Guider - model 2200 with motofocus hand paddle
- 16) Eyepieces with case: Criterion Barlow / Meade 20mm Wide Angle / Meade 28mm, 16.8mm, 7mm, 4mm orthoscopes, GREAT BEGINNER SET !
- 17) Camera Mechanical Hat Trick for photography.
- 18) Star Charts: Becvar - Atlas Borealis, Atlas of the Heavens, Atlas Eclipticalis // Atlas Stellarum volumes 1,2,3.

October Event Reminders...

ASTRO ASSEMBLY will be held October 13th-14th at Seagrave Memorial Observatory in North Scituate, Rhode Island. It is sponsored by Skyscrapers, Inc., the Amateur Astronomical Society of Rhode Island. See details in September's *Star Fields*.

The Massachusetts Audubon Society is having a seminar on astrophotography on Wednesday, October 25th, 7:30-9:30 pm, at the Broadmoor Sanctuary, S. Natick, MA. ATMob MATT BENDANIEL is the instructor. See details in September's *Star Fields*

THE ANNUAL MEETING of the AAVSO (the American Association of Variable Star Observers) will be held Wed-Sun October 25th-28th in Waltham, Massachusetts. See details in September's *Star Fields*.

THE 6TH STAR WATCH training program held at Arunah Hill will be October 27th-29th. See details in September's *Star Fields*.

For Sale...

Astronomical Equipment

Contact: Steve Mock

Telephone: (617) 625-6870 home // (781) 891-2589 work

e-mail: steve-mock@excite.com

All items can be viewed at:

<http://community.webshots.com/album/5107710YdoZxEpGmv>

- 1) Super Polaris Mount with RA & Dec motors, hand paddle optical encoders and cables, Polar Alignment Scope
- 2) Meade Electronic Drive Models 532 and 533 (for their 60 - 80 mm telescopes ?)
- 3) Folded 4" Refractor of so-so quality - homemade - good for parts
- 4) Advanced Astromaster - Digital Setting Circles w/ data base
- 5) 6" Cassegrain blank

ATTENTION

November *Star Fields* deadline is SUNDAY, Oct. 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 October 6, 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 October...

Challenge: Find the "Watery region" of the sky and locate two fishes, a dolphin, a whale, a water-carrier, a river, a fish-tailed goat, and a southern fish. (Pisces, Delphinus, Cetus, Aquarius, River Eridanus, Capricornus, Piscis Austrinus).

Venus moves eastward 1.2° per day.

Sun Oct 1 - Venus sets in twilight; Oct 31 - Venus sets in dark sky.

Sat Oct 7 - Neptune 1.3° N of Moon.

Sun Oct 8 - Uranus 1.5° N of Moon.

Fri Oct 13 - Full "Hunter's" Moon. Fields have been cleared. Hunters can see fox and other animals, and catch something for the thanksgiving banquet after the harvest.

Fri-Sat Oct 20-21 - Orionid meteors, fast, 66km/sec, 20/hr in predawn, over 50% have persistent trains. But last Q Moon rises around midnight. Associated with comet 1P/Halley.

Sat Oct 21 - 1½ hours before sunrise Mars, Regulus, Moon, Jupiter Saturn aligned 112° long across the sky.

Thur Oct 26 - Zodiacal Light in E before start of morning twilight for next two weeks.

Sun Oct 29 - Daylight Savings Time ends. Change clocks back one hour. Now subtract 5 from UT to get EST.

Sun & Mon Oct 29 & 30 - Grouping of the Moon, Venus, and Antares.

Tues Oct 31 - Mid-autumn cross-quarter day (half-way between September 22nd's autumn equinox and December 21st's winter solstice).