



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. 13, No. 1 January 2002

This Month's Meeting...

Thursday, January 10th, 2002, at 8:00 PM
Phillips Auditorium, Harvard-Smithsonian
Center for Astrophysics

This Month's Speaker...

THIS MONTH'S speaker will be Dr. Sun Kwok, professor of astronomy at the University of Calgary and Killam Fellow of the Canada Council for the Arts. The title of his talk will be "Cosmic Butterflies: The Colourful Mysteries of Planetary Nebulae".

At the end of a star's life, it wraps itself in a cocoon by spilling out gas and dust. Sometime later, a butterfly-like nebula emerges from the cocoon and develops into what astronomers call a planetary nebula. Recent observations by the Hubble Space Telescope have revealed the details of this transformation. In this talk, Dr. Kwok will summarize our modern understanding of planetary nebulae and show how research on planetary nebulae has impacted other fields ranging from the mapping of dark matter to new insights into the origin of life.

Dr. Sun Kwok is the chairman of the Planetary Nebulae Working Group of the International Astronomical Union and co-chair of the 2001 IAU symposium on planetary nebulae in Canberra, Australia. He has two recent books on planetary nebulae published by the Cambridge University Press: "The Origin and Evolution of Planetary Nebulae" in 2000 and "Cosmic Butterflies" in 2001.

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

President's Message...

I HOPE everyone has happily survived the hectic pace of the holidays. Now that they are over, I am ready to plunge ahead into the New Year imbued with a positive attitude. There are a lot of neat things to look forward to in the upcoming year. First of all, our roll-off-roof observatory should be in use by summer. That means our 20", equatorially mounted, folded Newtonian telescope

will finally see first light on its new permanent pier. Second, we will be able to enjoy summertime observing at our clubhouse due to the drastically reduced mosquito population. BRUCE BERGER has done an admirable job in organizing the donations and purchase of the Mosquito Magnet. In general, many different projects have been completed, helping make our humble clubhouse a pleasant experience. The new furnace has been installed with the guidance and expertise of ED KNIGHT and is up and running. The attached barn has a new roof. Our attic underwent a major cleaning. ANNA HILLIER, our club historian and EILEEN MYERS, our club secretary, have organized the upstairs library. One is actually able to walk into the library, select a book, and sit at a desk to read it. The telescope storage room has been cleaned out and organized. The downstairs front room has been painted. A large white board complete with markers has been mounted. DAN FELDKHUN has organized a small upstairs room and transformed it into an electronics laboratory. Dan is present on Thursday nights helping assist members interested in building their own Cookbook CCD camera. MIKE MATTEI has given our club a new refrigerator. It's not only bigger and cleaner looking, but it has been fitted with a can dispenser for soft drinks. All that is needed is to remove the offensive white refrigerator light and replace it with a suitable red one as soon as possible. The huge mound of trash behind the clubhouse has been hauled away and the surrounding area seeded. Direct access to the bathroom from the observing field has been made easier due to this general clean up. A huge amount of work has gone into brush removal from the backside of the clubhouse. We continue to organize and run star parties at nearby schools and we always appreciate those who show up with their scopes to lend a hand. Telescope making continues on Thursday nights. One of the most exciting things that I am looking forward to this year is our club sponsored camping trip at Baxter State Park, ME. Past trips to Baxter have always provided us many pleasant memories. Please sign up early to reserve your spot. Space may be limited. The dates are July 3 thru July 14. The cost is \$4.00 per night per person. You may reserve as many nights as you like. Bring your favorite telescope for some really dark sky observing. Days are filled with hiking and leisure. Join in on the camaraderie.

-Bob Collara, President-

December's Minutes...

PRESIDENT BOB COLLARA opened the 743rd meeting of the Amateur Telescope Makers of Boston, including the Bond Astronomical Club.

To honor the holiday season and all things emanating from the North Pole, our own multi-talented elf TAL MENTALL retold the story of "A Visit From St. Nicholas" as reported by Clement Clarke Moore: " 'Twas the night before Christmas..." Next Tal related a darker story, "The Cremation of Sam McGee" by Robert William Service, a tale about a gold miner on Christmas day in the bitter cold of the Yukon. The poetry reading continued with BOB COLLARA, who recited "The Star-Splitter", written by Robert Frost. This poem is included in the 1924 Pulitzer Prize winning "New Hampshire" collection, and tells the story of Brad McLaughlin, who

...burned his house down for the fire insurance
And spent the proceeds on a telescope
To satisfy a life-long curiosity

About our place among the infinities.”

The three poems can be found on the Internet:

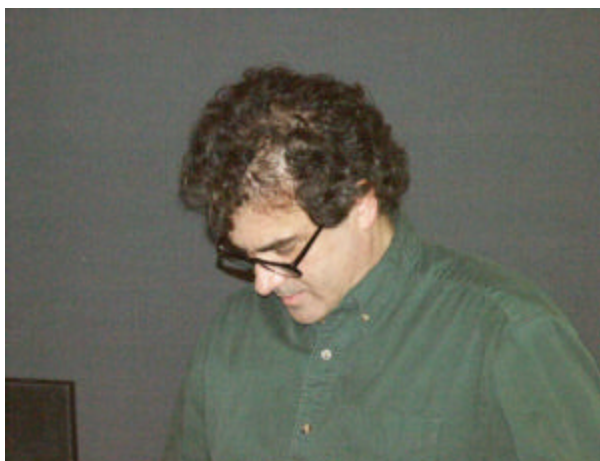
<http://www.nyise.org/moore/>

http://members.aol.com/acadac/poems/s_mcgee.html

http://www.everypoet.com/archive/poetry/Robert_Frost/robert_frost_the_star_splitter.htm



Tal Mentall Photo by Bruce Berger



Bob Collara Photo by Bruce Berger

Our guest speaker was Dr. Jeremy Heyl, Chandra fellow at Harvard Observatory. In his talk entitled "Severe Weather on Neutron Stars", Dr. Heyl described neutron stars as being 10 km in radius, 20 km in diameter, about the size of Manhattan island, with a mass about 1.5 times that of the Sun compressed into that object. If compressed even further into less than 4 km it would become a black hole. Gravity is extremely strong on the surface of a neutron star. Space-time is extremely curved, and the magnetic field of a radio pulsar ranges from one billion times to a quadrillion times that of Earth. Some of the fastest spinning neutron stars can rotate at almost 1000 times per second and are called millisecond pulsars. If the radio signal were to be hooked up to a speaker it would sound like middle C. In structure, a neutron star has a vapor atmosphere, a crust 200m thick (an outer "ocean" of metallic iron a million degrees), an inner crust 1km thick in which the iron is compressed so much that neutrons start to drip out of the nuclei, and a core with a whole mass of neutrons and protons with some electrons flying around to keep the charge in balance, essentially a big atomic nucleus. In low mass X-ray binaries, a neutron star may accrete material from a low-mass main sequence star, spinning up from the friction of the material hitting its surface. The Rossi X-ray Timing Explorer is used determine if there is periodicity. Bursts lasting a few seconds occur when material accumulated on the stellar surface suddenly ignites and burns. There can be several in a day, with variations in the burst. The exploding gas on the star, which is spinning 300 times per second, is affected by the strong gravity. Different types of burning were described. Some can cause a high pressure system on the surface of the star, taking about a year (from the point of view of the neutron star) for the burning to take over the entire surface. The thermonuclear explosion may excite waves in the neutron star's atmosphere with frequencies of about one cycle per second. On the Earth the analogs to these waves are the Rossby waves which distort the path of the jet stream and help fuel El Nino.

At the business meeting Member-at-Large BRUCE BERGER announced that \$822 has been collected towards the purchase of a Mosquito Magnet for the clubhouse. With a goal of \$750, which the club treasury will match, the additional funds may go to buying another one if and when that is necessary. Clubhouse Director PAUL CICHETTI again expressed our thanks to DAVE PROWTEEN for all of the work he is doing constructing the new observatory. STEVE CLOUGHERTY, in a clubhouse observing report, mentioned that observing on weekends and even on weekdays has picked up. TAL MENTALL donated a large number of books from *Sky & Telescope* to the clubhouse. DICK KOOLISH announced that there is now a CD-ROM titled "The Amateur Scientist: The Complete 20th Century Collection" which is an electronic archive *Scientific American's* popular column "The Amateur Scientist", debuted in 1928. It has practical how-to information for people interested in building their own scientific instrumentation and apparatus. The column has delighted science enthusiasts, inspired innumerable science fair projects, and helped launch careers in science. It can be found selling for \$39.99. CHARLIE MCDONALD announced a January star party for 400 in Reading. JOHN REED showed slides of the Leonid meteor storm of 2001. Counts were made using the slides. Zodiacal light could be observed as well.

-Eileen Myers, Secretary-

Membership Report...

WE STAND at 320 paid members as of the end of the year. Approximately 45 members did not renew. We had 330 members at the end of last year, so we are down a little. Just a very few years ago, we would drop down to about 250, then build back up to 300 or so.

We have three new members this month: JOHN BLOMQUIST from Fitchburg, KATHY CUNNINGHAM from Acton, and CHASE GREEN from Belmont. Please give them a warm welcome.

-John Small, Membership Secretary-

Treasurer's Report...

FOR THE month November, we had 1,840.96 in revenue and \$2,243.88 in expenses for a net loss of \$402.92 for the month. As of November 30th, 2001 our assets were:

Checking Account - Regular	\$ 18,620.67
Investments	\$ 19,006.66
Total Current Assets	\$ 37,627.33

Of the total, \$2,641.21 is in the Land Fund and \$155.00 is for clubhouse key deposits.

For the first 6 months of this fiscal year we had \$10,416.51 in income (vs. \$10,155.25 last year) and \$8,556.36 in expense (vs. \$4,513.10 last year) for a net income of \$1,860.15 (vs. \$5,642.15 last year). Given this and based on last year's data, I predict we will run a deficit this fiscal year of approximately \$2000. This will be the first year in a long time that we have run a deficit. Of course, this year we've had higher than normal expenses because of a new furnace and the observatory.

-Bernie Volz, Treasurer-

Clubhouse Report...

SATURDAY OPEN CLUBHOUSE SCHEDULE

January 5	Closed	
January 11 or January 12		Planetary Nebula workshop
January 12	David Richardson	Jim Suslowicz
January 19	Eric Johansson	John Reed
January 26		Work Party #1
January 26	John Small	Gary Walker
February 2	Bruce Berger	Mike Hill
February 9		Messier Marathon
February 9	Bruce Gerhard	Art Swedlow
February 16	Steve Clougherty	Phil Rounseville
February 23	Eileen Myers	Dave Prowten
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March 2		Work Party #2
March 16		Messier Marathon
March 30		No Blue Moon in 2002 Work Party Work Party #3
April 6	StarConn	Wesleyan University Middletown, CT
April 20	Astronomy Day	Boston Museum of Science
May 18-19	North East Astronomy Forum & Telescope Show	Rockland, NY Community College
June 15	ATMoB Club Picnic	
July 12-14	Arunah Hill Days	Arunah Hill Natural Science Center Cummington, MA
August 9-10	Stellafane	Springfield, VT
September 6-8	Connecticut Star Party	Colebrook, CT
September 6-8	Conjunction	Northfield, MA
September 14	ATMoB Club Picnic	
October 5	Astro Assembly	North Scituate, RI
October 25-26	International Dark-Sky Association Fall meeting	Boston

ON DECEMBER 1st we had an impromptu work party to get the new observatory weathertight for the upcoming winter months. The rest of the T-111 exterior paneling was installed on the south wall and temporarily on the exterior of the box beams to shed water. A spare piece of 3/8-inch plywood sheet was screwed over the door opening to prevent any critters from making the new observatory a home for the winter. A temporary plastic covering was placed over the plywood roof.

The officially scheduled work party took place on December 29th. The second floor office was cleaned, the disconnected outlet on the south porch was removed, and the south side screen door was repaired. After lunch the crew removed the old refrigerator from the kitchen (thanks MIKE MATTEI for bringing it to the dump). The remaining air conditioners were stored in the barn. The machine shop was cleaned; the grinder was bolted down to the workbench; the lathe table was strengthened and the lathe motor locking device was re-engineered. It now works. Two of the three boards needed on the concrete curb were installed. When completed there will be red lighting along the walkway at the rear of the barn.

Thanks to BRUCE GERHARD, ANNA HILLIER, DICK KOOLISH, GARY LAMBERT, BRIAN MAERZ, MIKE MATTEI, DAVE PROWTEN, and JOHN REED.

-Paul Cicchetti and John Reed, Clubhouse Directors-

Fun at the New Year's Eve Party...

THE FESTIVE atmosphere in the clubhouse, decorated with balloons, streamers and platters of food, was enhanced by the presence of ANNA HILLIER, whose hair was covered with a stars, and EILEEN MYERS and her glittering rhinestone jewelry. MARSHA BOWMAN was a good sport when her nieces turned her into a Star Trek ambassador using toilet paper, ray guns, and rubber hands. Their policeman dad, who arrived just at 9 PM while Rocky the Lobster was singing, pronounced the scene as something out of the X-Files. There were on the hour celebrations following world wide televised programming of the arrival of 2002 in each time zone. Thank you ED LOS for your fiddle serenade, capped with "Auld Lang Syne" at midnight (actually several midnights). Thank you ED KNIGHT for bringing your 6" scope. The DAS family, who joined up that night, enjoyed comparing views from your 6" and the club's 17". Eileen challenged us with Moon and geography quizzes and supplied us with great prizes. Thank you MATT BENDANIEL for the grand prize of your astrophotograph of the Eagle Nebula. We started off the New Year right by observing Jupiter at 1 AM, exactly at opposition. Using the 17" with full aperture we had a fabulous view of Jupiter overhead using low power. DAVE PROWTEN also pleased us with views of Rigel's small bluish companion star (mag 6.7). We also successfully found four of Saturn's faint moons despite the Full "Moon Before Yule".

-Eileen Myers and John Reed-

Planetary Nebula Workshop...

HAVE YOU ever looked in your telescope on a dark moonless night, peering into the depths of time, looking at a bright Messier object that you knew about and thought, what else can I see that looks like this? Have you seen the HST photographs or perhaps a picture of a planetary nebula in a magazine and thought what it would look like in your scope? Do you find planetary nebulae interesting deep sky objects to look at, but have no idea what to look for, let alone where to find it? Well then, this workshop is for you!

We will talk about types of planetary nebula, magnitudes and surface brightness, sizes and aperture needed to find the brightest and the faintest planetary nebula in the sky, from your own

backyard, the clubhouse or a really dark sky location. I will explain techniques on finding planetary nebula and eyepiece and filter selection. A knowledge of the constellations and starhopping is desired, but not necessary. If you have *Sky Atlas 2000* and *Uranometria North and South* it would be helpful as my copy might not be enough for everyone to see. Bring your telescope and equipment if you want, or share in the club's scope or someone else's. You will walk away with a better idea on where to look and what to see. All are welcome. I would like to schedule this for new moon weekend January 11th or 12th. Please let me know via atmob_discuss if you are interested.

-Dave Aucoin-

Upcoming Star Party...

VOLUNTEERS ARE needed for a star party scheduled for my Somerville Project ASTRO classes on Wednesday, February 13, with Friday the 15th as backup.

-Tom Calderwood-

Caught the Meteor Watching Bug?...

IF YOU enjoyed the experience of watching the Leonids in November you should definitely read the journal produced by the North American Meteor Network at <http://www.namnmeteors.org> Their "NAMN Notes" provides pertinent and timely information about upcoming meteor showers, events, and programs. NAMN and ATMoB member LEW GRAMER is frequently at the ATMoB clubhouse doing meteor counts, and is always eager for company and willing to explain how counting is done.

Other News...

MATT BenDaniel's stunning photo "New Moon in Old Moon's Arms" appears in the February '02 issue of *Sky & Telescope*, p. 132. Congratulations, Matt!

A PHOTOGRAPH of TOM WOLF and his son Jonathan appears in the January '02 issue of *Sky & Telescope*, p. 79. They were photographed at May '01 Muscular Dystrophy Association's Great Walk 2001 in Boston while enjoying live views of sunspots on the setup called SHARE, the System for Handicap Accessibility, Recreation, and Education of the North Shore Amateur Astronomy Club (NSAAC). The self-contained, fully portable observing system was created by NSAAC for their public outreach programs to allow those who have physical disabilities that prevent them from looking directly through the eyepiece of a telescope to have access to the night sky. The equipment consists of an 8-inch f/6.3 Meade LX200 coupled to an Astrovid 2000 video camera, along with a Collins Electro Optics \hat{P} image-intensifier eyepiece and an InFocus video projector. The project was made possible by the generosity of local corporations and small businesses. The program has been made available to more than 10,000 people in schools, libraries, and hospitals throughout New England.

-John Reed-

SCI-FI MOVIE Nights for the general public are now being held on the first Thursday of each month at 7:30 PM (doors open at 6:45 PM) in the Phillips Auditorium of the Center for Astrophysics.

See http://cfa-www.harvard.edu/cfa/ep/movie_night.html

The series will screen a classic science fiction film and will explore the idea that "everything we learned about science, we learned from the movies". No tickets are required, however seating is limited and filled on a first-come basis.

February 7- *The Day the Earth Stood Still* (1951, 92 min.)

Presented by Charles Lada, CFA

Don't miss one of the finest science fiction films ever made, and burn these words into your memory banks: "Gort, Klaatu, Barada, Nikto!" A showing of *Flash Gordon Episode 2--Ming the Merciless* will precede the movie at 7:10 PM.

March 7 - *War of the Worlds* (1953, 85 min.) Presented by Roy Gould, CFA

A fleet of sinister alien ships menaces the world and humanity seems powerless to stop them. Will our civilization survive? A showing of *Flash Gordon Episode 3--Polarite* will precede the movie at 7:10 PM.

There will be a discussion followed by the movie, popcorn may be passed around, and maybe a prize will be given at the end. It all depends on who is running it. I attended the series in the fall and it was great fun! -Anna Hillier, Historian-

THANK YOU CARL HEIN for your donation of an 8" mirror blank and tool. It was purchased by MARSHA BOWMAN, who is now in the polishing phase of making her first mirror. Carl, we hope you will be there for its first light.

History in the Making...

It's a great chicken coop. But I heard it was the hangout for a kookie MOB named The 'A's' early in the century.



Cartoon By George Foster

February *Star Fields* deadline is SUNDAY, February 3rd

Email articles to Star Fields Editor / ATMoB Secretary

Eileen Myers at starleen@charter.net

Articles from members are always welcome.

POSTMASTER NOTE: First Class Postage Mailed January 4, 2002

Amateur Telescope Makers of Boston, Inc.
c/o John Small, Membership Secretary
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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 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 January...

To calculate Eastern Standard Time (EST) from Universal Time (UT) in January subtract 5 from UT.

The Milky Way crosses overhead diagonally from SE to NW.

Thu Jan 3 Quadrantid meteors.

Sat Jan 5 Latest sunrise (7:22 AM).

Jan 6 – 12 Observe Mercury (mag -0.7) low in WSW 45 minutes to one hour after sunset. Look for lineup of planets: Mercury-Mars-Saturn-Jupiter. Look for Uranus with telescope near Delta Capricornus.

Wed Jan 9 Mercury 1.2° SSE of Neptune (mag 8.0).

Tues Jan 15 Mercury 4° N of Moon

Jupiter in Gemini (mag -2.7 to -2.6). Saturn in Taurus (~mag 0), tilt of rings 25.8°, nearly maximum tilt towards us, hiding the north end of the planet and sticking out a bit from behind the south end.

Sat Feb 2 Groundhog Day, one of the four cross-quarter days, half way between solstices and equinoxes.