



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. 28, No. 11 December 2016

This Month's Meeting . . .

Thursday, December 8th, 2016 at 8:00 PM
Phillips Auditorium

Harvard-Smithsonian Center for Astrophysics

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

The Story of WD 1145+017 – Destruction of an Exoplanet

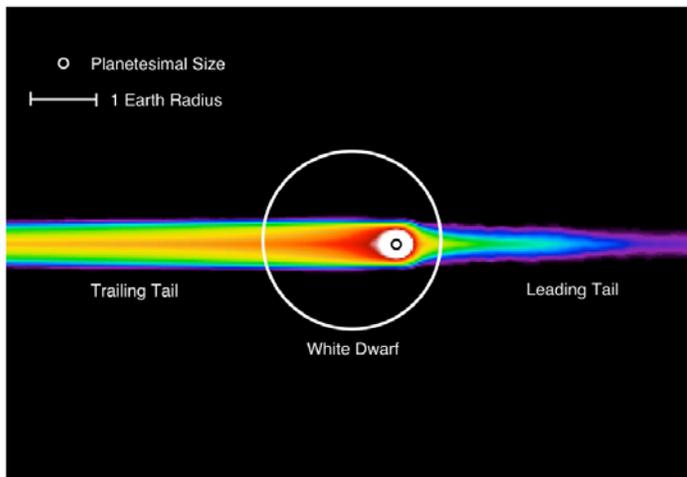


Figure from Vanderburg et al. (2015)

This month's speaker is Andrew Vanderburg who will speak on the destruction of the exoplanet WS 1145+017.

For decades, astronomers have noticed the presence of heavy elements like iron and silicon in the atmospheres of white dwarf stars, even though these elements should rapidly sink towards the center of these stars out of view. In the last ten years or so, a consensus has emerged that these elements are likely the result of planetary material like asteroids or small planets being disrupted and accreted onto the surfaces of the stars. Although the evidence was convincing, it was all circumstantial until 2015, when we noticed intriguing dips (or transits) in Kepler data of a white

dwarf star called WD 1145+017. These dips betrayed the presence of a small planetary body disintegrating as it zips around its white dwarf host. The transits of WD 1145+017 have provided the strongest yet confirmation that white dwarf stars disrupt their planetary systems and have given us a glimpse at the destruction of a small planet in real time.

Andrew Vanderburg is an astronomy graduate student at the Harvard-Smithsonian Center for Astrophysics, where he studies extrasolar planets, in particular using data from the Kepler Space Telescope in its new K2 mission. Andrew invented an analysis technique to correct for errors due to the mechanical failure that crippled Kepler in 2013 and used this technique to discover both the first planet of the K2 mission and a minor planet being destroyed by a white dwarf star.

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 . . .

"You know Orion always comes up sideways.
Throwing a leg up over our fence of mountains,
And rising on his hands, he looks in on me
Busy outdoors by lantern-light with something
I should have done by daylight"

This is the opening to one of my favorite poems – Robert Frost's "The Star-splitter." I don't think anyone has better described Orion's appearance on an early December evening. The sight of Orion straddling the eastern horizon after sunset is a sure sign of winter and the cold months ahead. We bundle up and brave the arctic chill because Orion and his starry retinue offer some of the finest sights in the night-time sky. And the roster includes my favorite deep-sky objects - double stars. Back to Frost:

"That telescope was christened the Star-Splitter,
Because it didn't do a thing but split
A star in two or three the way you split
A globule of quicksilver in your hand
With one stroke of your finger in the middle."

Again, Frost describes the resolution of a double or triple star in a way no astronomer could. Orion offers a feast for the double star observer that includes Rigel, iota, lambda, and rho, as well as the multiple stars sigma and theta 1 (the "Trapezium" in the heart of the Orion Nebula). Outside of Orion, we have h3945 Canis Majoris (the "Winter Albireo," and the LVAS February, 2017, Observer's Challenge), the bright binary pair Castor, and two amazing triples – beta Monocerotis and omicron 2 Eridani. 2017 is the year I hope to achieve a "bucket list" milestone by splitting the notoriously difficult Sirius. Several of us will be out there on the Clubhouse grounds trying to spot the "Pup," hiding in the Dog Star's overpowering glare.

Those of us who spent many an evening at the telescope contemplating these and other wonders of the winter night sky can forgive Frost's neighbor for the nefarious way he collected the funds to purchase his scope.

“He burned his house down for the fire insurance
And spent the proceeds on a telescope
To satisfy a lifelong curiosity
About our place among the infinities.”

If a winter chill forces you to remain indoors, take the time to read “The Star-splitter.” Just don’t get any similar ideas about financing that expensive high-tech scope you’ve always wanted!

Best wishes to you and your families and friends for a Merry Christmas, a Happy Chanukah, and Peace and Happiness in the New Year.

Clear Skies,

~ Glenn Chaple – President ~

November Meeting Minutes . . .



Sky and Telescope Chief Editor, Peter Tyson *

Minutes of the monthly ATMob meeting held on November 10, 2016 in the Phillips Auditorium at the Harvard-Smithsonian Center for Astrophysics. Club President Glenn Chaple called the meeting to order at 8:00 pm.

Before the business portion of the meeting, Al Takeda gave a presentation on two recent classic novae outbursts in Sagittarius, TCPJ18102829-2729590 and ASASSN-16ma. Al imaged both novae using a standard DSLR with a zoom lens on a small iOptron camera tracking device at the Clubhouse. He stacked and processed 10, thirty second images and pointed them out to the membership.

Eileen Myers had copies of the *RASC 2017 Observers Handbook*, and *Astronomy 2017* calendars available for club members to purchase. *Editor: Handbooks were sold at \$21 each, which included a \$1.35 donation to ATMob. Calendars were \$8 each, which included a \$1.50 donation to ATMob.*

- Phil Levine read the Secretary’s Report.
- Eileen Myers presented the Treasurer’s Report.
- Chris Elledge gave the Membership Report.

- As part of the "Hail and Farewell Segment", John Reed presented a eulogy for ATMob member Larry Swezey, who passed away on October 18th. Larry worked at the MIT Lincoln Labs, Haystack Observatory and whose electronic and mechanical abilities were very noteworthy. Larry participated in many research endeavors such as the “Star Wars” project. John Reed and Bruce Berger mentioned that Larry made important contributions to ATMob. These included frequent work party assists, tours of MIT Haystack, support to the Ed Knight Observatory, assistance in obtaining Groton town approval for building of the ATMob Research and Imaging Observatory (ARIO) and facilitated our getting access to high speed internet at the ATMob Clubhouse.
- Bruce Berger and his wife Donna talked about Gary Jacobson, a long time ATMob member who passed away on October 13, 2015. Donna Berger painted a very life-like portrait of Gary, and presented a framed print of the painting to the club.

- Glenn Chaple and Kelly Beatty gave the Observing Report.

Another Super Moon will occur on Nov. 14th.

The Sue French Fan Club Object of the Month is NGC 7245, an open cluster in Lacerta.

The Las Vegas Astronomical Society Object of the Month is NGC 206, a star cloud in Andromeda.

Rich Nugent suggested the following observing objects of interest:

16 Cygni and 61 Cygni, double stars in Cygnus.
M71 globular cluster in Sagitta.
M56 globular cluster in Lyra.
NGC 6934 globular cluster in Delphinus.
NGC 1502 open cluster in Camelopardalis.

- Steve Clougherty gave the Clubhouse Report. For details, please see the Newsletter.
- Announcements:
Glenn Chaple suggested that the membership check out the annual publication put out by *Sky & Telescope*. *Skywatch* magazine focuses on monthly astronomy events for beginner stargazers.

Popscope, a local volunteer based urban public outreach group, hosted an event at the Children’s Science Museum on November 11th.

Dr. David Grinspoon will be at the Harvard Book Store in Cambridge, MA, signing his book *Earth in Human Hands* on December 9th.

Bruce Berger introduced Babak Tafreshi, founder and director of The World At Night (TWAN) and our newest ATMob member, who has contributed photos to *Sky & Telescope* magazine and *National Geographic*. He currently has a photo on the cover of the *National Geographic* special edition

publication entitled *Hidden Earth*, currently on the bookshelves at Barnes and Noble.

Bruce Tinkler mentioned that the National Geographic Channel will be starting a TV series on Mars.

- Old Business: None.
- New Business: None.
- Refreshments were provided by Bernie Kosicki

Glenn Chaple introduced the guest speaker for the evening, Peter Tyson, Editor-in-Chief of *Sky & Telescope (S&T)* magazine. Peter presented an historical perspective of *S&T* and noted that this is the 75th year anniversary for the publication.

Two separate publications, *The Telescope*, and *The Sky*, merged at the suggestion of Harvard Observatory Director Harlow Shapley in 1941 to become *Sky & Telescope* magazine. The first location of the *S&T* office was in the basement of the Harvard Observatory. Past *S&T* Editor-in-Chiefs were Charles Federer, Joe Ashbrook, Leif Robinson, Rick Feinberg, Bob Naeye, and now Peter Tyson.

Peter stepped through the process an article typically undergoes before final publication. In addition to the magazine, Peter mentioned that *S&T* has an active website and has published a number of fine astronomy publications. Peter surprised the membership by announcing that *Sky & Telescope* magazine will have a new cover design starting on January 2017.

Refreshments for the evening were provided by Chris Elledge.

Glenn Chaple adjourned the meeting at 9:30 pm

~ *Phil Levine - Secretary* ~

Membership Report . . .

Important notice regarding our transition to the new ATMoB Website through Club Express: Our membership database has been copied to Club Express, and we will be activating accounts at the beginning of December. If you have an email address with the club, you should expect to receive an email from Club Express with a temporary username and password. Those should be used to login to <https://atmob.clubexpress.org> and from there you can change your username and passwords as you choose. At that time please also verify that all the information that we have on record is correct. If you do not have an email address and wish to have a login to the website, please contact me for assistance with getting a username and password.

Later in the month we will change <http://www.atmob.org> to point to the new website. This will also switch our mailing lists over to the combined Forum and email system at Club Express. We greatly appreciate your patience and understanding as we deal with this difficult transition.

I am pleased to welcome our newest members: Babak Tafreshi and Michael Nowak.

As of November 20th, 2016 we have 284 members. The grace period for renewals has ended and 70 members did not renew their membership this year.

~ *Chris Elledge – Membership Secretary* ~

Meeting Recordings . . .

The recording of ATMoB meeting #893 is available on YouTube: <https://youtu.be/o8rV6xfY8Zg>

I would like to thank Peter Tyson for allowing us to record his presentation on The Making of *Sky and Telescope* Magazine.

~ *Chris Elledge – Membership Secretary* ~

Clubhouse Report . . .



(L-R) George Paquin, Glenn Chaple, The Boulder, John Blomquist & John Stodieck *

November 2016 Clubhouse Report

- Twenty-one members signed the Clubhouse log book for the Full Moon work session on Saturday, November 14th. Paul C. made the first pot of coffee to complement the doughnuts supplied by John B. Paul C. then set up his Hydrogen Alpha filtered/guided refractor on the side lawn for solar viewing.
- A big thank you goes out to: John Blomquist, Bruce Berger, Glenn Chaple, Paul Cicchetti, Steve Clougherty, Jim Gettys, John Maher, Mike Mattei, Eileen Myers, George Paquin, Dave Prowten, John Reed, Phil Rounseville, John Stodiak, Art Swedlow, Al Takeda, Sai Vallabha and J. P. and Victoria Wendler. A great deal of effort was expended around the Clubhouse by these folks this day.
- A team led by Dave P. fixed the barn door latch. Maintaining this 1828 structure requires occasional adjusting of hinges and latches as well as constant monitoring of its structural health.

- Another team led by Paul C. and Al T. retrieved, checked and repaired last year's snow fence poles, and then pounded them in place around the SW portion of the driveway, behind the house. We no longer use the webbed material between the poles, as this allows for easier snow removal.
- Paul C. led the team performing the semi-annual change of the motorized grounds equipment. The mowers were drained of gasoline, oil checked, and stored for Winter. The snow blower was retrieved from storage and primed for its first mission.
- Had you driven by the Clubhouse this day, you would have seen a rather large group of our members working with pry bars, shovels, 2x4's and other supporting timber pieces, all struggling with a few large boulders. The first (before lunch) was behind the 17" hutch, and then the second at the driveway corner, at the entrance from Millstone Rd. Both had been slowly migrating upwards causing havoc with John B.'s mower blades and snow plow.

Both efforts took over 6 hours, and required chains and John's Jeep to pull them out and drag them to an out of way place. This should decrease expense and down time for John's equipment. The team was led by John B., J.P. and his daughter Victoria, Glenn C., John S., George P., Jim G., Dave P., with the entire group looking on, kibitzing, or helping at one time or another. This was the biggest work effort since building the ARIO.

With all this activity, food was eagerly awaited. However, when the lunch bell was rung at 2 pm, that boulder still needed to be stabilized and it took a few more minutes before the group took a break. The normal 2 pounds of pasta with 2 slow cookers of sauce, country fried chicken, salad, and garlic bread was supplemented by George P.'s Special Chili (we consumed the whole thing!) Then it was back to work. With the holes filled, the grounds are in good shape for the Winter.

The next project was the building of next year's Saturday night Duty Roster. This went late into the evening and resulted in a "test skeleton" schedule. This includes other gatherings, phases of the moon, Full moon work parties, holidays, and astronomical events. The roster will be posted on our website when it is completed. Thanks to Paul Cicchetti for providing the computer program and his time and Dave P. and Rich Nugent for checking data as they were generated. Individual Clubhouse Committee members gave their moon phase preference to allow them to maximize their personal observing program.

Later, a new member, Karen Paik, brought her binoculars and mount to view the Full Super Moon. Phil R. also provided lunar views through his superb 4.25-inch, long focal length reflector.

We would like to thank Rich Nugent for taking his Saturday duty seriously. Rich had asked if anyone could take his place by swapping nights but no one could do the swap at this late date. Rich arrived at sunset to perform his Saturday night Clubhouse duty. Perhaps if we still used the phone as freely as we use digital devices the result might have been different. It was still great to see Rich and enjoyed his time with us while we were doing our

project. Sadly his Mom passed away on the next night. We might remember that when someone asks us to swap duty due to a family emergency. We offer our condolences to Rich and his family.

~ Clubhouse Committee Chairs ~
 ~ John Reed, Steve Clougherty and Dave Prowten ~



Paul Cicchetti prepares the snow blower for another Winter. *

Clubhouse Evening Schedule	
Thursday Night Mirror Making	TBD - #
Friday Night Educational Videos	7:00 pm - 10:30 pm #
Saturday Night Observing	7:00 pm - ##
# Closing time is determined by the organizers	
## Closing time is determined by the "A" members on duty	
Note: The Clubhouse is closed on the 2nd Thursday of the month for our monthly meeting in Cambridge.	
Due to inclement weather or cloudy conditions on Saturday evenings, the "A" members on duty may elect to close the Clubhouse. Please call the Clubhouse at (978) 692-8708 or check for messages posted to ATMOB-ANNOUNCE.	

Clubhouse Saturday Schedule	
December 10	WORK PARTY # 12 Dave Prowten **
December 17	Paul Cicchetti Tom Wolf
December 24	CLOSED FOR CHRISTMAS EVE NO DUTY
December 31	OPEN - NEW YEAR'S EVE PARTY STARTING AT 6:30 PM
January 7	Paul Cicchetti John Reed
January 14	WORK PARTY # 1 NO DUTY

**Duty member is supplemented by a work crew volunteer. If a volunteer is not available, the work crew closes the Clubhouse

Stow Center School Star Party . . .

We would like to thank our ATMoB members who volunteered for the Stow Center School star party on Nov. 28, 2016:

Li Zeng
John Maher
Brewster LaMacchia
Tom McDonagh
Rich Nugent
Manjunath Venkatram
Bob Toop

This was the second year of an elementary school astronomy night organized by Stow Center School teacher Karen Mayotte < kmayotte@nrsd.metkmayotte@nrsd.net > and promoted by Christine Pulliam of the CFA.

Dr. Li Zeng of Harvard University did an indoor presentation on exoplanets. We had seven telescopes outside, with lower than average transparency and scattered cloud bands. The temperature fell below freezing between 6:30 and 8 pm. Over 100 parents and school children in grades K-'5 attended.

The Moon was almost new, giving a fair view of Mars, M31, M57, open star clusters and doubles.

~ Submitted by Bob Toop ~

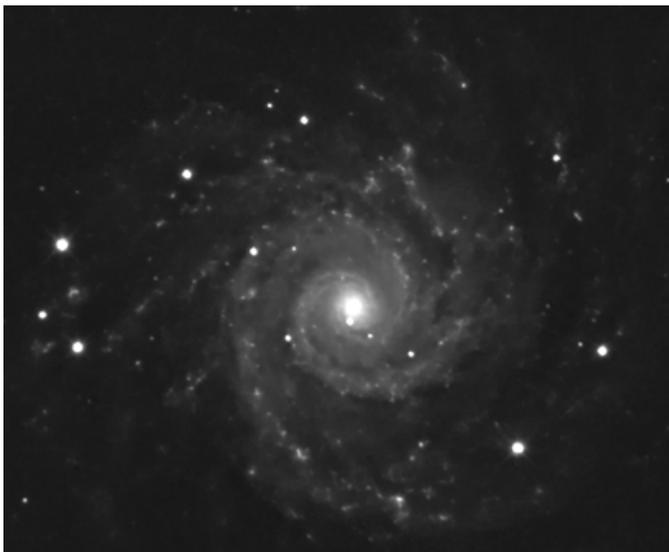
Sky Object of the Month . . .

December 2016

Courtesy LVAS Observer's Challenge***

M74 – Spiral Galaxy in Pisces

Mag. 9.4; Size 10'



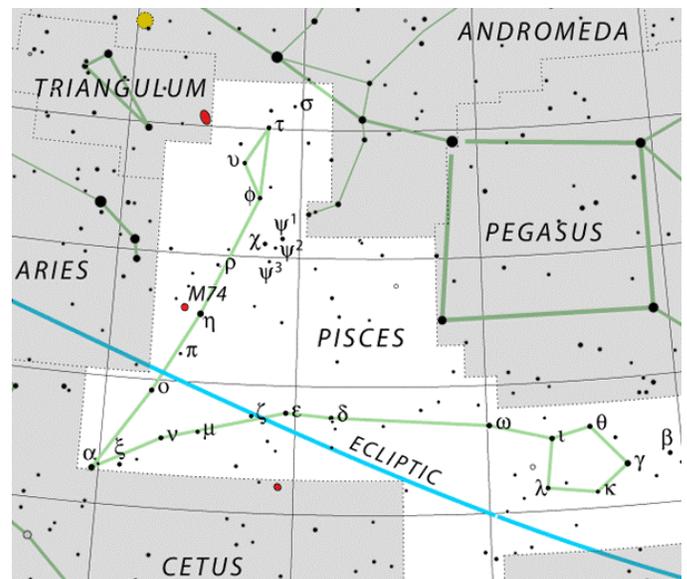
M74. Image by Mario Motta

For backyard astronomers who tackle the annual Messier Marathon, M74 is a serious stumbling block. Even in December, when Pisces rides high in the south when evening darkness has set in, this face-on spiral galaxy is difficult to view. During Messier Marathon time in mid to late March, M74 is all but lost as it sets in the glow of evening twilight.

What makes M74 such a challenge is its low surface brightness. A 9th magnitude galaxy shouldn't be difficult to observe, but when its light is spread over an area one-third the moon's apparent diameter it becomes a phantom best saved for especially clear nights.

I've seen M74 in a 3-inch f/10 scope, but only with averted vision after knowing exactly where to look. A 3-inch f/6 rich-field scope captured both M74 and the 3.6 magnitude star eta (η) Piscium 1½ degrees to its west-southwest. In both instances, I worked with a magnification under 40X. To me, M74 was large and roundish – a smaller version of M33 and M101. Even when viewed with my 13.1-inch f/4.5 reflector, M74 was a vague glow.

M74 was discovered by Pierre Méchain in the autumn of 1780. It lies an estimated 33 million light years from earth.



IAU and Sky and Telescope

***The purpose of the LVAS Observer's Challenge is to encourage the pursuit of visual observing. It is open to everyone who is interested, and if you are able to contribute notes, drawings, or photographs, the LVAS will be happy to include them in their monthly summary. If you would like to contribute material, submit your observing notes, sketches, and/or images to either [Roger Ivester \(rogerivester@me.com\)](mailto:rogerivester@me.com) or [Fred Rayworth \(fred@fredrayworth.com\)](mailto:fred@fredrayworth.com). To find out more about the LVAS Observer's Challenge or access past reports, log on to lvastronomy.com/observing-challenge.

~ Glenn Chaple – Observing Committee ~

Mario visits the Asiago, Italy Observatories . . .

Editor: From an email by Mario Motta, on September, 26, 2016

"I am happy to report that I am currently staying at the observatory in Asiago, Italy, the site is owned by Padua University. I was invited here by Ulisse Munari, an astrophysicist at Padua, who has invited me for some time. I finally took him up on it! I will be here for a few days.



1.8-meter Observatory. (Right image) (L-R) Dr. Munari and Mario Motta.
Image courtesy of Mario Motta.

The site boasts a 1.2-meter, a 1.8-meter, and a Schmidt telescope. The site is dedicated to spectroscopy these days. The 1.8-meter is the largest scope in Italy proper, though they have a 3.5-meter in the Canary Islands, and own 1/4 of the large binocular telescope on Mt Graham.



1.2-meter telescope. Mario on right. Image courtesy Mario Motta

I am staying in the visiting astronomer housing complex. Very nice. Asiago is better known for its cheese, of which I am sampling. After a few days I will visit Fabio Falchi at Lake Garda. He publishes the *World Atlas of Light Pollution*. I will then spend a week in Positano, and sample the many varieties of lemoncello."

~ Submitted by Mario Motta ~

Larry Swezey – In Memoriam . . .

The Larry We Knew

While observing out-of-state, an e-mail arrived from Eric Johansson asking if this news has made the rounds. "Received on October 19th from the Police Amateur Radio Team of Westford: Larry Swezey Jr. posted on Facebook that his father passed away yesterday at his home in Groton, peacefully and without pain, after his year long battle with cancer. Larry Jr. and his brother Bill were with him at the end. ...Our family sends our warmest thanks to all of you for your love and support over the years."

The Larry we knew joined ATMoB in 1992 after several years of visiting us at our Clubhouse and, when time was available, provided informal tours of the Firepond telescope up the hill for us. Larry was the chief engineer of that facility, and a kindred spirit to us amateurs. If we were open, there was a good chance his truck would detour for a cup of coffee and "how are things going?" When the Ed Knight observatory was finished, Larry coordinated the temporary use of one pier for an MIT scope to test some new IR equipment. He loved finding some piece of salvage that he knew would help in some project. He often spoke of his dreams for a research telescope in his backyard. Over and over he would happen by and find a way for us to overcome some obstacle. Several other ATMoB members worked with Larry in their optical shop. He was a team leader. When we hit insurmountable roadblocks in the paperwork and cost, now required for non-home construction projects, Larry went around those bumps and provided a smooth road. Thank you to Larry Jr., the LeGacy's, and to others persuaded to provide help when we really needed it.

The ATMoB Research and Imaging Observatory (ARIO), designed under Ed Knight's professional engineer's signature, rose from the holes in the ground via assistance from forklift, crane and sweat of Larry Swezey. An email found in the archives by Eileen Myers from July 22, 2011 relates: "Hello Dome builders, John & Paul: The truss structure has been moved to your designated landing area. We did a three point landing to keep warping to a minimum. The crane was not available so a forklift was pressed into service. This was a low stress/strain operation even at 101 deg temp. Please take great care in this heat, and good luck. I am committed to do the communications for the Alzheimer's Century Memory Ride Saturday so I'm sure you have enough kibitzers to keep you entertained. Regards, Larry." (This is the man we remember).

The story he never mentioned includes: He was born in Elmira, NY in the 1930's, lost his father to illness at a early age, and worked hard with his mother and two brothers to sustain the family. He enlisted in the Air Force serving as an electronic technician; these skills ultimately led him to a 40 year career with MIT. Initially he worked launching rockets from Wallops Island, then transferred to the Firepond Research Facility at Haystack, the location he ultimately managed.. Rising from technician to full Staff Member, he oversaw several strategic projects including the Strategic Defense Initiative. Work assignment locations were Maui, New Mexico & California. Larry became a licensed airplane pilot flying extensively in New Mexico and Massachusetts. He designed and hand built an ice boat, a sailing kit for a canoe (sold to Lincoln Canoe), several telescopes, and a

few houses. He used many of his inventions on epic camping trips in the wilds of Maine and New Hampshire. Later in life he became a dedicated amateur radio operator, joined the Nashoba Valley Amateur Radio Club, coordinating a great many competitions.

Volunteering was a big part of Larry's life. He remade the emergency responder maps for Groton, increasing their efficiency. Seen at foot races and Marathons, his radio skills helped ensure safety for all. He also held the posts of Groton Water Commissioner and Mosquito Inspector.

Arrangements were handled by the Badger Funeral Home of Groton, with burial and gravesite ceremony held at the Groton Cemetery, Sunday afternoon, November 20th. Our club was represented by our President Glenn Chaple, Treasurer Eileen Myers, and John & Monique Reed. A brisk NW wind brought shivers and continuous searching for the Kleenex package. The hillside was covered with Larry's friends while the family huddled on chairs near his ashes. Everyone was given a small American flag to hold during the service. A USAF military honor guard from Hanscom Field completed honors and taps for Larry at the end of the prayer service. Then everyone lined up. Each person dropped a small scoop of dirt over the box with Larry's ashes, and those who wished also dropped a rose into the little grave.

This was followed by a spokesman from his Firepond group who presented Larry's family with an engraved plaque naming the Firepond facility for Larry and his boss. We were in the open spaces Larry loved; this was a fitting tribute for our friend.

Rest in Peace Larry Swezey.

~ Submitted by John Reed ~

2017 Calendars and RASC Handbooks . . .

The remaining Astronomy Magazine's wall calendars - Deep Space Mysteries 2017 (\$8.00) and 2017 RASC Observer's Handbooks (\$21.00) will be available for purchase at the December meeting.

Astronomy Magazine's wall calendars - *Deep Space Mysteries 2017* - will be sold at the next monthly meetings until all are copies are sold. They are \$8 each, which includes a \$1.50 donation to ATMob. Please have \$8 in cash or check payable to Eileen Myers. Payment for Calendars and Handbooks may be combined.

According to their website: "*Deep Space Mysteries 2017* calendar is filled with stunning images of stars, planets, galaxies, and other deep space wonders. Every photograph includes an informative essay written by Rich Talcott, *Astronomy* senior editor. For each month, celestial viewing opportunities, historical events, and national holidays are listed.

You'll also find a special section on observing the 2017 total solar eclipse, written by Michael E. Bakich, *Astronomy* senior editor."

Handbooks are \$21 each, which includes a \$1.35 donation to ATMob. Please have \$21 in cash or check payable to Eileen Myers. Payment for Calendars and Handbooks may be combined.

Published annually by The Royal Astronomical Society of Canada (RASC), it is very readable and puts all sorts of astronomical data and reference information at your fingertips in one small book. There is also a 24-page section called "The Sky Month By Month", which gives an extensive listing of events for each month, so you won't miss any of them.

According to their website: "The *Observer's Handbook* is a 352-page guide published annually since 1907 by The Royal Astronomical Society of Canada. Through its long tradition and the expertise of more than 60 contributors, the *Observer's Handbook* has come to be regarded as the standard North American reference for data on the sky. The material in the Handbook is of interest to professional and amateur astronomers, scientists, teachers at all levels, students, science writers, campers, Scout and Guide leaders, as well as interested general readers. The *Observer's Handbook* is an integral part of many astronomy courses at the secondary and university levels, and it should be on the reference shelf of every library. The various sections in the *Observer's Handbook* are of two kinds: Upcoming Astronomical Events and Astronomical Reference Information." See <http://www.rasc.ca/handbook> for more information.



Copyright Royal Astronomical Society of Canada and *Astronomy* Magazine

~ Submitted by Eileen Myers ~

Editor: * Photos by Al Takeda unless otherwise noted.

**January Star Fields DEADLINE
Sunday, December 25th**

**Email articles to Al Takeda at
newsletter@atmob.org**

Articles from members are always welcome.

Happy New Year

Get Ready to PARTY

New Year's Eve Party at the ATMoB Clubhouse

Say goodbye to Year 2016 and a welcoming hello to Total Solar Eclipse Year 2017. The eating and festivities will start at 6:30 PM and continue past midnight. Arrive at any time since there will be 8 opportunities in all to shout "Happy New Year".



Noisemakers and cheers will ring out each time the New Year crosses a time zone, starting with Greenwich Mean Time (7PM local time), and continuing hour after hour until Midnight Eastern Standard Time, with a couple of half hour celebrations in between.

Please come and join the fun, and bring your family and friends. Pot luck dinner, so bring something to share: an appetizer, salad, entrée, dessert... Folks will be arriving and leaving all evening. There will be plenty of non-alcoholic beverages. No RSVP is needed.

The clubhouse will be warm. Moonset will be around 6:58 PM (2 days past New Moon), allowing plenty of time to take a peek at some of your favorite planets, winter stars and galaxies, so bring your telescope or look through a club scope. Don't forget your warm observing clothes and boots. The forecast looks good (ok, it is a bit too early to know) but the party is on even if cloudy or rainy.

There will be easy line dancing again this year, led by Julie Kaufmann, and we are hoping to have live music again too.

Any party suggestions or questions are welcome, so please email them Eileen at starleen@charter.net or call 978-501-6342 (day) or 978-456-3937 (evening).

Hosted by Eileen Myers, Al Takeda, and the Clubhouse Committee Revelers



POSTMASTER NOTE: First Class Postage Mailed December 6, 2016

Amateur Telescope Makers of Boston, Inc.
c/o Chris Elledge, Membership Secretary
99 College Ave
Arlington, MA 02474
FIRST CLASS

EXECUTIVE BOARD 2016-2017

PRESIDENT: Glenn Chaple (978) 597-8465

VICE PRES: Tom McDonagh

SECRETARY: Phil Levine (781) 956-6509

MEMBERSHIP: Chris Elledge (781) 325-3772

TREASURER: Eileen Myers (978) 456-3937

MEMBERS AT LARGE: Bruce Tinkler (781) 862-8040

Al Takeda (508) 494-7877

Maria Batista

PAST PRESIDENTS:

2012 - 14 Mike Hill (508) 485-0230

2010 - 12 Bernie Kosicki (978) 263-2812

COMMITTEES

CLUBHOUSE : John Reed (781) 861-8031

Steve Clougherty (781) 784-3024

David Prowten (978) 369-1596

OBSERVING: Bruce Berger (978) 387-4189

NEWSLETTER Al Takeda newsletter@atmob.org

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 see www.atmob.org and check your email on the ATMOB-ANNOUNCE list.

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 Eastern Standard Time (EST) from Universal Time (UT) subtract 5 from UT.

Dec 7 First Quarter Moon (Moonset at midnight)

Dec 12 Aldebaran Occultation by the Moon. 11:18:24 EST

Dec 13 Full Moon, Geminid Meteor Shower peak

Dec 20 Last Quarter Moon (Moonrise at midnight)

Dec 21 Winter Solstice

Dec 29 New Moon

Jan 3 Quadrantid Meteor Shower peak

Jan 5 First Quarter Moon (Moonset at midnight)