



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. 31, No. 2 February 2019

This Month's Meeting . . .

Thursday, February 14th, 2019 at 8:00 PM
Phillips Auditorium

Harvard-Smithsonian Center for Astrophysics

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

Black Holes



An artist's drawing of Cygnus X-1. Credits: NASA/CXC/M.Weiss

Our guest speaker for the February meeting will be Camille Carlisle. Camille's subject will be the latest research on black holes.

Camille Carlisle is the science editor at *Sky & Telescope* magazine. A prolific writer, she writes feature articles, news columns, and blogs in her online column, *The Black Hole Files*. As science editor, Camille commissions and edits feature articles from other writers and researchers. Before joining the staff of *S&T* in 2011, Camille worked at *Science News* magazine, where her primary role was that publication's fact checker. Her articles have appeared in *S&T*, *Science News*, *Technology Review*, and MIT's webzine *Scope*. Camille holds a Master's in Science Writing from MIT. Her thesis advisor was astrophysics writer and journalist Professor Marcia Bartusiak.

Please join us for a pre-meeting dinner discussion at House of Chang, 282 Concord Ave., Cambridge, MA. at 6:00 pm before the meeting.

President's Message . . .

As outlined in the club bylaws (Article XI), the annual election process for club officers and members-at-large is fast approaching. We could use your help in this process. Help can come in three forms: running for one of the elected positions, being a member of the Nominating Committee, or casting your vote at this June's Annual Meeting.

There are two ways a member can become a candidate for one of the elected positions. The first is to be nominated for a position by the Nominating Committee at the May meeting. The second is to be nominated from the floor at the Annual Meeting in June. For this to happen, a suitable written notice containing the name(s) of the person(s) to be nominated from the floor, and signatures of at least seven members, should be filed with the Secretary not less than ten days prior to the date of the Annual Meeting.

The nominating committee is selected at the April meeting from a slate of six volunteer members presented by the President to the attending membership. A vote is taken by the attending members and the top three vote getters are selected for the Nominating Committee. That newly elected Committee is tasked with making election slate recommendations to the membership as described above.

If you're interested in participating as a club officer, or volunteering as candidate for the Nominating Committee, please contact me via email (president@atmob.org) or via phone (617-966-5221).

~ Tom McDonagh – President ~

January Meeting Minutes . . .



Kelly Blumenthal *

Minutes of the 916th ATMob meeting held January 10, 2019 at the Harvard-Smithsonian Center for Astrophysics in the Phillips

Auditorium. Vice President Richard Nugent presided in President Tom McDonagh's absence and called the meeting to order at 8:01 pm.

- Secretary John Harrington read the minutes of the Club's December meeting.
- Treasurer Eileen Myers presented the Treasurer's Report.
- Membership Secretary Chris Elledge presented the Membership Report, showing 302 total memberships covering 390 Club members.
- Vice President Nugent presented the Observer's Report. Rich spoke about the famed variable star Algol, and the upcoming total lunar eclipse on January 20-21. He also noted an upcoming Venus/Jupiter conjunction on the morning of January 22, a close pairing of Venus and Mars on the morning of January 31, and the Mars/Venus conjunction on February 13. This month's LVAS Observers Challenge object is the planetary nebula NGC 1514 in Taurus.
- Steve Clougherty gave the Clubhouse Report, noting that 23 club members participated in the December 29 work party, at which preparations were made for the New Year's Eve party, and clean up activities were carried out in the mirror grinding room. He stated that the next few work parties will focus on the mirror grinding/polishing area. The next work party is scheduled for January 19.
- Vice President Nugent presented the Outreach Report. Rich noted that several star parties will be held this coming Spring, including the rescheduled Center School and Vining Elementary School events.
- Treasurer Myers reported on the New Year's Eve party at the Clubhouse, which was a major success. Members had fun dancing to a live fiddle and hearing tales of attendees' first views through a telescope.
- Old Business: None.
- New Business:
 - Treasurer Myers announced that the next Free Friday DVD Seminar at the Clubhouse would be the PBS Nova program, Pluto and Beyond. The program focuses on the New Horizons space probe's very recent visit to the Kuiper Belt Object nicknamed Ultima Thule (2014 MU69).
 - John Reed announced that he had pulled together all of his Astronomy Book Club books and was making them available for purchase. All proceeds of the sale will be donated to the Club.

Vice President Nugent then introduced Kelly Blumenthal, a Visiting Scholar at Harvard CfA, who presented her talk "Galaxies Throughout Our History".

Kelly noted that she "smashes galaxies together for a living" using a computer program. She then described the history of galaxy observation, beginning with the ancient Greek philosophers' disagreement on the nature of the Milky Way and Alhazen's deduction that the Milky Way must be very distant since he could detect no parallax shift in its position.

It was left for Galileo to determine telescopically that the Milky Way was made of individual stars, and for Immanuel Kant to coin the phrase "island universes" for galaxies.

More recently, astronomer Heber Curtis argued that the "spiral nebulae" were in fact other galaxies beyond the Milky Way, and Edwin Hubble confirmed this hypothesis. Today we use Type IA supernovae, the Tully-Fisher Relationship, and spectral redshifts as part of the distance ladder to judge galactic distances.

Kelly works on galaxy mergers, especially those of dwarf galaxies. Such galaxies are important because they are believed to be components used in the long-term construction of large galaxies. Large galaxies then sometimes cause gravitational lensing effects due to their massive but invisible halos of dark matter. Increasing computer power allows researchers to trace the behaviors of huge numbers of test particles, thus greatly improving our ability to model galaxy collisions. Techniques for modeling collisions include N-body simulations, gravitational trees, and most recently, smoothed particle hydrodynamics. All of these techniques allow us to better understand hierarchical formation of large galaxies from smaller ones. Observational astronomy should contribute important data when the James Webb Space Telescope is finally operational and can provide superior images of the very old, red-shifted universe and the earliest galaxies.

Vice President Nugent thanked John Harrington for providing the refreshments and adjourned the meeting at 9:16 pm.

~ *John Harrington, Secretary* ~

Meeting Refreshment Assignment . . . 2019

Feb. – Eileen Myers
Mar. – Glenn Chaple
Apr. – Chris Elledge
May – Al Takeda
Jun. – Bruce Berger
July – TBD

Meeting Recordings . . .

The recording of ATMoB meeting #916 is available on YouTube: <https://youtu.be/eHfNSBsBfZY>

I would like to thank Kelly Blumenthal for giving her presentation and allowing us to record it.

This link is to the publicly available cut of the meeting recording. To view the original version of the meetings, please

see the Announce Forum on the ATMob Website <https://www.atmob.org>

~ Chris Elledge – Membership Secretary ~

Membership Report . . .

I am pleased to welcome our newest members Carlo Boccia; Rick Breen; Eric Kuzmenko; Ken Martin; Amrita Masurkar; T.L. Taylor; Kai Cai and Ning Zou; Venu, Devi, and Arun Venugopal; Hanane M’Hamdi Weber and Mark Weber.

As of February 2nd, 2019 we have 312 memberships covering 405 members. This is broken down as follows:

- 143 Regular Members
- 105 Senior Members
- 7 Student Members
- 54 Family Memberships covering 147 Members

~ Chris Elledge – Membership Secretary ~

Clubhouse Report . . .



Dave Prowten painting the former Evaporator Room floor *

Our monthly Clubhouse work session was held on Saturday, January 26 following a week of snow, then rapid thaw. Thanks to the group of members who arrived earlier during the week to clear the snow. On Saturday we had a total of 19 member volunteers who were able to help with projects inside the Clubhouse.

Continuing with our optical shop initiative, several volunteers helped clear out, clean and organize the former evaporator room, polishing room and both the first floor and second floor telescope rooms. Much of the donated and surplus equipment was brought to the Clubhouse attic for safe storage. Dave Prowten cleaned and prepped the former evaporator room floor for painting, and he completed one coat with white paint during the work session. A second and final coat will be applied at the February work party. Phil Rounseville helped direct the cleaning and organizing of the polishing room. Many test equipment parts and testing devices were identified and carefully stored in the room for much easier access. The support structure under the polishing room

floor was inspected. Rich Nugent took measurements and will be acquiring a heavy transparent plastic lab material to be hung in the room in order to create a clean space for grinding and polishing mirrors.

Al Takeda and Steve Clougherty spent a couple of hours along with other volunteers sorting through equipment in the first floor telescope room. We now have a lot more table space for telescope projects and floor space for movement. We would like to install additional shelving or cabinets to store the large amount of small parts, such as finders, counterweights, focusers, flashlights and miscellaneous items. Volunteers also helped organize and clear the second floor telescope room which houses loaner scopes for our members. Donated equipment was brought to the attic for safe keeping.

John Stodieck repaired a broken window on the second floor of the Clubhouse. John also donated a package of snow blower blade-pins.

Jim Gettys installed a new power controller in the ATMob Research and Imaging Observatory (ARIO).

Eileen Myers coordinated lunch and John Reed and Amrita Masurkar helped with the clean up.

The next work session at the Clubhouse will take place on Saturday, February 16.

We would like to thank the following members for helping out at this month's work session:

Paul Cicchetti, Steve Clougherty, Tom Consi, Nina Craven, Chris Elledge, Jim Gettys, Mike Hill, Eric Johansson, Bruno Leung, John Maher, Amrita Masurkar, Eileen Myers, Rich Nugent, Dave Prowten, John Reed, Phil Rounseville, John Stodieck, Art Swedlow, and Al Takeda.

Important Notice: Please check your email on the ATMob-ANNOUNCE list for mirror making sessions. A revised schedule will be released soon.

Clubhouse Saturday Schedule		
February 9	Jim Gettys	John Panaswich
February 16	WORK PARTY # 2 ** NO DUTY	
February 23	Bruce Berger	Glenn Meurer
March 2	Eileen Myers	Rich Nugent
March 9	Nina Craven + Brian Maerz Messier Marathon # 1	
March 16	George Paquin	Tom Wolf
March 23	WORK PARTY # 3 ** Chris Elledge	

** Closing time for the Clubhouse is determined by the work crew

Clubhouse Evening Schedule	
Friday Night Educational Videos	7:00 pm - 10:30 pm #
Saturday Afternoon Mirror Making	ATMoB-Announce
Saturday Night Observing	7:00 pm - ##
# Closing time is determined by the organizers	
## Closing time is determined by the "A" members on duty.	

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

Sky Object of the Month . . .

February 2019

Courtesy LVAS Observer's Challenge***

NGC 2175 –Reflection Nebula in Orion

Magnitude: 6.8

Size: 40' X 30'



NGC2175. Copyright Sky and Telescope

This month's Observer's Challenge, the Monkey Head Nebula, has an identity crisis where its NGC designation is concerned. Is it NGC 2174 as some star atlases and observer's guides, or is it NGC 2175 as stated in others? The dual identities arose from the fact that the nebula surrounds an open star cluster. Which, cluster or nebula, is the real NGC 2175? I'll side with Stephen James O'Meara's assessment of the situation. He researched the NGC 2174/2175 dilemma and, in his guidebook Hidden Treasures, asserts that the latter is the correct designation.

NGC 2175 is nestled in the extreme northeast part of Orion, not far from its border with Gemini. Its location is shown on the accompanying Wikisky map, where it is identified as NGC 2174! O'Meara notes that NGC 2175 is better seen with binoculars than with large aperture scopes. If the latter is used, a nebula filter will help. Dark skies are a must.

While some sources ascribe the discovery of NGC 2175 to the Italian astronomer Giovanni Batista Hodierna in the middle of the 17th century, it was most likely discovered by the German astronomer Carl Christian Bruhns during a comet search around 1857. It lies at an approximate distance of 6400 light-years.



NASA (Wikisky)

***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, click on the following links: [LVAS Observer's Challenge past reports](#) and/or visit the [Las Vegas Astronomical Society website](#).

~ Glenn Chaple for the LVAS ~

2019 Dates for Viewing Lunar X . . .

"The Lunar X (also known as the Werner X or the Purbach Cross) is an effect of light and shadow that creates the appearance of the letter 'X' about 6 hours before the first quarter and 6 hours after the last quarter moon. It is formed by the rims of Blanchinus, La Caille, and Purbach craters. It lasts for only a few hours, but the X will appear to float just beyond the terminator for about an hour." *Editor: reprinted from Julie Kaufmann's Newsletter article from March 2018.*

Date	UT Time	EST/EDT	Sun Alt at "X" location	Co-Long
01/13/2019	12:35 UT	07:35 EST	-0.987 @ X	358.07
02/12/2019	02:13 UT	21:13 EST♣	-1.031 @ X	357.64
03/13/2019	15:26 UT	10:26 EDT	-1.072 @ X	357.31
04/12/2019	04:10 UT	00:10 EDT	-1.086 @ X	357.19
05/11/2019	16:25 UT	12:25 EDT	-1.072 @ X	357.29
06/10/2019	04:17 UT	00:17 EDT	-1.039 @ X	357.59
07/09/2019	15:58 UT	11:58 EDT	-0.994 @ X	357.99
08/08/2019	03:43 UT	23:43 EDT♣	-0.949 @ X	358.40
09/06/2019	15:47 UT	11:47 EDT	-0.907 @ X	358.71
10/06/2019	04:17 UT	00:17 EDT	-0.897 @ X	358.83
11/04/2019	17:18 UT	12:18 EST	-0.907 @ X	358.72
12/04/2019	06:44 UT	01:44 EST	-0.948 @ X	358.40

♣ - Previous day

~ Submitted by Julie Kaufmann ~

Astronomy Things for Sale . . .

Books

Sky Catalogue 2000.0 Volumes 1 and 2
Uranometria 2000.0 Volumes 1 and 2

Collimation

Autocollimator Eyepiece
Cheshire Eyepiece
Kendrick 2" Laser Collimator
Orion 1¼" LaserMate Collimator

Eyepieces

Celestron 16 mm Erfle
Meade Eyepieces (2) - 26 mm Super Plössls
Orion 3.8 mm Ultrascopic
Solar Prominence Eyepiece - no name
Tele Vue NAGLER Eyepieces - 4.8 mm, 9 mm, 12 mm type 2
Tele Vue 55 mm Plössl
Tele Vue 2.5x Barlow
University Optics 32mm Wide Scan [2"]
FILTERS
Celestron LPR filter #2 [for visual back]
Celestron 2" Neutral Density [Moon] filters - .3 and .9
Lumicon OIII filter
Parks 1¼" Color Filters for planetary observing
Solar Filter - white light 8" clear aperture

Miscellaneous

Adaptor - 2" to 1¼"
Celestron Reducer/Corrector f/6.3
Celestron 1¼" Visual Back
Eyepiece Case - customizable
Flashlight - Starlite Red Light by Rigel Systems
Keuffel and Esser Surveyor's Transit
Meade Electronic Focuser [originally for LX 100/200 series]
Mirrors - 3 large fast [think "birdbath"] mirrors
Skylab 1 Limited Edition Collector's Decanter in box
VERNONSCOPE, BRANDON, DAKIN sold as a set [I hope]
Brandon eyepieces: 12mm, 16mm, 24mm, 32mm
Vernonscope 40mm Erfle [2"]
Dakin Barlows: 2.4x and 3x
21 color filters et al. with leather slot cases

Contact Steve Mock at steve_mock@hotmail.com for more information.

~ Submitted by Steve Mock ~

2019 Astronomy Conventions . . .

Below is a partial list of the 2019 dates for local astronomy conventions held by local not-for-profit astronomy clubs, and attended by many ATMoB members.

Northeast Astro-Imaging Conference

Presented by the Rockland Astronomy Club
Thursday, April 4, 2019 & Friday, April 5, 2019
Crowne Plaza Conference Center

3 Executive Blvd
Suffern, NY 10901

Highlights: Astro imaging seminars presented by experienced astrophotographers.

From www.amsky.com: "NEAIC has grown in both size and stature, becoming one of the most eagerly anticipated astronomical imaging conferences in the United States. Devoted to all aspects of Astronomical Imaging, this two-day event hosts leaders and acknowledged experts in extra-solar planets, variable star, minor planets, asteroids, comets, and supernova research with the intention of fostering pro-am collaborations. With attendance expected to be nearly 200, you will be very busy both days networking and learning from amateur, semi-pro, and professional astronomers."

<http://www.rocklandastronomy.com/neaic.html>

Northeast Astronomy Forum (NEAF)

Presented by the Rockland Astronomy Club
Saturday, April 6, 2019 through Sunday, April 7, 2019

SUNY Rockland Community College

145 College Road
Suffern, New York 10901

Highlights: Over 120 vendors of telescopes and accessories from all over the world, exhibits, solar observing with all kinds of equipment, world-renowned speakers, fabulous raffle prizes, events and activities for kids

<http://www.rocklandastronomy.com/neaf.html>

Connecticut River Valley Astronomers Conjunction

Tentative dates – Website not yet updated
Friday, August 23, 2019 through Sunday, August 25, 2019
Lectures on Saturday, August 24, 2019

Some ATMoB members stay over Friday and/or Saturday nights to observe, and some go only for the day on Saturday.

Northfield Mountain Recreation and Environmental Center
99 Millers Falls Road (Route 63), Northfield, MA 01360

Highlights: Solar observing, dark sky observing, lectures, swap tables, outdoor barbecue, camping at Barton Cove on the Connecticut River, home of nesting bald eagles. Riverboat cruise on the Connecticut River. View the Connecticut River from the nearby French King Bridge.

<http://www.philharrington.net/astroconjunction/>

Editor: * Photos by Al Takeda unless otherwise noted.

February Star Fields DEADLINE

Sunday, February 24th

Email articles to Al Takeda at
newsletter@atmob.org

Articles from members are always welcome.

POSTMASTER NOTE: First Class Postage Mailed February 10, 2019

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

EXECUTIVE BOARD 2018-2019

PRESIDENT: Tom McDonagh (617) 966-5221

VICE PRES: Rich Nugent

SECRETARY: John Harrington

MEMBERSHIP: Chris Elledge (781) 325-3772

TREASURER: Eileen Myers (978) 456-3937

MEMBERS AT LARGE: Maria Batista (617) 347-3730

Alan Sliski

Al Takeda (508) 494-7877

PAST PRESIDENTS:

2015 - 18 Glenn Chaple (978) 597-8465

2012 - 14 Mike Hill (508) 485-0230

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

COMMITTEE CHAIR: Rich Nugent starparty@atmob.org

STAR PARTIES: Bernie Kosicki

Laura Sailor

John Harrington

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.

Feb 4 New Moon

Feb 12 First Quarter Moon (Moonset at midnight)

Feb 19 Full Moon

Feb 26 Last Quarter Moon (Moonrise at midnight)

Feb 26 Mercury at greatest eastern (evening) elongation, 18 degrees

Mar 6 New Moon

Mar 10 Daylight Savings Time begins

Mar 14 First Quarter Moon (Moonset at midnight)