



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. 29, No. 7 July 2017

This Month's Meeting . . .

Thursday, July 13th, 2017 at 8:00 PM

Phillips Auditorium

Harvard-Smithsonian Center for Astrophysics

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

Member's Night

The July meeting will feature talks by ATMOB members. Our slate of speakers includes Al Takeda ("Imaging the Great American Eclipse"), Julie Sage ("Cubes in Space"), Jim Mahoney ("Obtaining Red Mode for iPhone or iPad"), and Al Sliski ("Redeployment and Updating of the Princeton 36-inch Telescope").

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 . . .

"Everybody talks about the weather, but nobody does anything about it." The quote, attributed to either [Mark Twain](#) or his friend and fellow writer [Charles Dudley Warner](#), certainly applies to the astronomical community. The prevalence of cloudy skies throughout last spring and continuing thus far into summer has elicited a lot of atmoB(discuss) chatter. It's not unusual for a member to open up the Clubhouse on a non-Saturday evening simply because a rare clear, moonless evening is in the offering.

Here's hoping the weather is more cooperative on Eclipse Day, August 21, 2017. ATMOB members will be scattered along the eclipse path from Oregon to the Carolinas. Should the weather gods decide to frown down on some of us, we can always hit the highways in search of open skies. Wherever you go on Eclipse Day, best wishes for your success. We'll swap stories at the September meeting, which has been set aside for a recap of the Great America Eclipse.

The July meeting will be our 900th! If my calculations are correct and we assume that July meetings continue to be voted in by the membership, and we further assume that no meetings will be cancelled due to inclement weather or an asteroid strike on Boston (if it happened in Chelyabinsk, it could happen in Beantown), our 1000th will occur at the September, 2026, meeting. For now, let's enjoy Meeting #900 - another milestone in the rich history of ATMOB.

Clear Skies,

~ *Glenn Chaple - President* ~

Annual Meeting (June) Minutes . . .



W. Lowell Putnam *

Minutes of the Annual Meeting held on June 8, 2017 in the Phillips Auditorium at the Harvard Smithsonian Center for Astrophysics. Club President Glenn Chaple called the meeting to order at 8:00 pm.

Phil Levine read the Secretary's Report

- Eileen Myers presented the Treasurer's Report
- Chris Elledge presented the Membership Report
- Glenn Chaple gave the Observing Report.

June 19, from 10:04 pm – 10:38 pm EDT, there will be a double shadow transit on Jupiter by the moons Io and Europa.

Saturn will be at opposition on June 15th. The rings will be at their farthest tilt. The rings are tipped at nearly their greatest possible angle toward Earth.

The Sue French Fan Club object of the month is the "Jaws" Asterism in Virgo, the galaxy M104, and the Stargate asterism.

<https://www.astroleague.org/content/celestial-observations-stargate-asterism>

The Las Vegas Observer's Challenge is the NGC 6015 galaxy in Draco.

ATMoB Member Picks of the Month by Rich Nugent are:
Stargate Asterism
Quasar 3C273
Galaxy pair NGC 4754/4752

- Steve Clougherty gave the Clubhouse Report
- Announcements:

Diana Xochitl Munn, Director of Public Programs for the Harvard Museums of Science and Culture, gave the membership a preview of the Harvard Summer Solstice Program. The date for this event is Wednesday June 21 from 5 pm – 9 pm, at the Science Center Plaza. Diana invited ATMoB members to bring their solar and night-time telescopes. Parking will be available, contact Star Party Coordinator, [Virginia Renehan](mailto:Virginia.Renehan@hmsc.harvard.edu) for details.

<https://hmsc.harvard.edu/event/summer-solstice-celebration-2017-night-harvard-museums-science-culture-0>
<https://hmsc.harvard.edu/>

Glenn Chaple received an email request for advice on building an observatory by an astronomy group in Myanmar (formally Burma). See the ATMoB Announce message for details on providing technical assistance.

David Baron, former WBUR radio science correspondent, will give a talk on the solar eclipses at the Harvard Bookstore on June 9th. See the ATMoB Announce message for details.

Dick Koolish displayed an old reflector telescope with a handmade wooden focuser as an example of what an amateur astronomer would build back in the 1940's or 1950's.

- Old Business: none
- New Business:

Glenn requested that ATMoB members update their profile on the Club website by adding a selfie photo.

Since this meeting was the Club's Annual Meeting, the election of Club Executive Board members was held, and the results were President Glenn Chaple, Vice-President Tom McDonagh, Secretary Phil Levine, Treasurer Eileen Myers, Membership Secretary Chris Elledge, Members at Large Bruce Tinkler, Al Takeda and Maria Batista.

Next month's meeting will be Member's Month. One talk will be entitled "The IGY Adventure in Antarctica" by Howard Levauux (*Editor: Howard's talk has been rescheduled for another time*). Jim Mahoney will make a presentation on how to obtain red light observing mode on iPhones and iPads. Julie Sage will make a presentation about a Youth in Space Program, and her YouTube page on supernovas.

Arianna Roberts of Citizen CATE (Continental American Telescopic Eclipse Experiment) has achieved a [gofundme](#) amount of \$3,445 of her funding goal of \$3,645.

Eileen Myers collected \$192 from the membership for the ATMoB website's Dark Sky Clock.

Glenn Chaple introduced the guest speaker for the evening, W. Lowell Putnam, great-grandnephew of Percival Lowell. The talk was titled "Exploring the Universe at Lowell Observatory". He is the fifth Trustee of the Lowell Observatory in Flagstaff Arizona and a member of the Board of Trustees of the Lowell Observatory Foundation.

W. Lowell Putnam began his talk by presenting a short biography of Percival Lowell, a Boston native and prominent businessman, who attended Harvard and M.I.T. He established the Lowell Observatory at Flagstaff Arizona, where the seeing conditions would be optimal for astronomy research, and established the Lowell Trust, to further the science of astronomy. Percival Lowell became well known for his theory that life existed on Mars, and believed there were irrigation canals on the planet's surface. Based on Lowell's mathematical calculations on the orbits of the known outer planets, the observatory devoted resources attempting to discover a "Planet X" beyond Neptune. He is credited with popularizing astronomy and influencing such notable authors as E.R. Burroughs and H.G. Wells. Astronomers who worked at the Lowell Observatory included Vesto Slipher (expanding universe derived from red shift data) and Clyde Tombaugh, credited with the discovery of "Planet X", Pluto.

<http://www.phys-astro.sonoma.edu/brucemedalists/slipher/>
<http://www.icstars.com/HTML/icstars/graphics/clyde.htm>

In the 1960's the Apollo astronauts visited the Lowell Observatory before the lunar landings, to observe the moon and familiarize themselves with its landscape and geology as much as possible.

Putnam presented some current accomplishments of the Lowell Observatory team. Lowell astronomers have had substantial observing time on the Hubble Space Telescope and at the Keck Observatory. Members also participated in notable projects such as the Kepler Space Telescope and the New Horizons Mission to Pluto. The Lowell Instrument Group built a key component for Project Sofia.

https://www.nasa.gov/mission_pages/SOFIA/overview/index.html

W.L. Putnam reviewed the current Lowell Observatory facility. In addition to the original facility the observatory has expanded to the nearby Anderson Mesa. This site hosts a variety of observatories involved in a number of research projects. Some of the sophisticated equipment includes the world's largest land based optical interferometer, the Naval Precision Optical Interferometer, and the 4.3-meter Discovery Channel Telescope (DCT). A compact spectrograph utilizing solid state components, the Immersion Grating Infrared Spectrometer (IGRINS), is being used for exoplanet discoveries, and when completed, the EXtreme PREcision Spectrometer (EXPRES), is planned for detection of Earth-like planets.

<https://lowell.edu/research/research-facilities/npoi/>

W.L. Putnam presented a visually interesting video by Lowell astronomer Dr. Deirdre Hunter, on star formation, a video simulating a close flyover of the Martian surface, and composite images of Pluto from the New Horizons Mission.

Refreshments for the evening was provided by Phil Levine.

Glenn Chaple adjourned the meeting at 9:40 pm.

~ *Phil Levine - Secretary* ~

Meeting Recordings . . .

The recording of ATMob meeting #899 is available on YouTube: <https://youtu.be/y9a9gpmxIDs>

I would like to thank W. Lowell Putnam for allowing us to record his presentation "The Lowell Observatory: Past, Present, and Future"

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 <http://www.atmob.org>

~ *Chris Elledge - Membership Secretary* ~

Membership Report . . .

I am pleased to welcome our newest members Dennis Dawson, Ned and Shirley Toomey, Maureen Maerz, Rishi and Sonal Patel, Kevin Phillips, and Wayne Carlson.

As of June 28th, 2017 we have 338 memberships covering 417 members. This is broken down as follows:

- 187 Regular Members
- 98 Senior Members
- 8 Student Members
- 39 Family Membership covering 118 Members
- 6 Guest Members

Renewal season is underway. 84 Memberships have already been renewed. Only 225 more renewals to go. New members that joined since January are not due for renewal at this time; however, any that bought a magazine subscription through the club should contact me so we can arrange for a subscription renewal.

You can check if you need to renew and start your renewal process on the website at <http://www.atmob.org/renew>

You can also download the membership application from the website at <http://www.atmob.org/signup> by clicking on the "Download an application" link.

Donations are encouraged during membership renewal to help keep our club running smoothly, our Clubhouse maintained, and

our telescopes in good working condition. Donations are tax deductible to the extent allowed by law. If you choose to pay by credit card please consider making at least a small donation since credit card companies take a few percent of your payment to the club.

Please contact me if you need any help with renewing or logging into the website.

~ *Chris Elledge - Membership Secretary* ~

Clubhouse Report . . .



Eric Johansson repairing the damaged Schupmann outlet *

June 2017 Clubhouse Report

Our monthly work session at the ATMob Clubhouse was held on Saturday, June 10th with 24 members and friends in attendance. John Blomquist was able to bring his tractor mower to the site and mowed the entire lower field and observing grounds. Many thanks to John for his continued efforts this season! Other volunteers mowed around the clubhouse and observatories while others trimmed shrubbery and tall grass.

John Maher ran a conduit below the Clamshell Observatory and continue to troubleshoot the winch motor problem. Several electrical connections were faulty and a workable solution should be close at hand.

Dave Prowten helped to stabilize the collimation for the 25-inch Dob which is housed in the Ed Knight roll off observatory. Testing with a laser collimator shows that the alignment is spot on and should hold for future observing sessions.

Al Takeda refurbished the large Dob base which is used as a short scope stand.

Bruce Berger donated a 13-inch Coulter Dob base which will also be used as a small scope stand.

Eric Johansson repaired a faulty electrical outlet used by the Schupmann telescope.

Mike Mattei ran the afternoon mirror grinding workshop.

Many thanks to the lunch crew for all of their efforts both setting up lunch and the subsequent afternoon clean up.

Our next work session will be held on Saturday, July 8th beginning at 10 am.

Thanks to the following members and friends of the ATMob who helped out last month:

Bruce Berger, John Blomquist, Marsha Bowman, Paul Cicchetti, Nina Craven, Steve Clougherty, Paul Courtemanche, Skip Gaede, Jim Gettys, Eric Johansson, Dick Koolish, Vladislav Mlch, Eileen Myers, Phil Levine, John Maher, Mike Mattei, Kevin Phillips, Dave Prowten, John Reed, Brian Rusch, John Stodieck, Art Swedlow, Al Takeda and Sai Vallabha.

Important Notice: The Clubhouse **WILL NOT** be open on Thursday evenings. Mirror making sessions will now take place on **Saturday afternoons beginning at 3:00 pm. Other times may be scheduled. Check your email on the ATMob-ANNOUNCE list.** We hope that you will have patience with us as we transition to this new time period.

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

Clubhouse Saturday Schedule		
July 15	Glenn Meurer	Rich Nugent
July 22	CLUBHOUSE CLOSED STELLAFANE	
July 29	Brian Maerz	John Panaswich
August 5	WORK PARTY # 8 John Maher & Nina Craven	
August 12	Mike Hill	Dave Siegrist
August 19	CLUBHOUSE CLOSED ECLIPSE TRAVEL	
August 26	Glenn Chaple	Bill Toomey
September 2	Bruce Berger	Jim Gettys
September 9	WORK PARTY # 9 Steve Clougherty & Al Takeda	
September 16	John Panaswich	George Paquin

Clubhouse Evening Schedule	
Friday Night Educational Videos	7:00 pm - 10:30 pm #
Saturday Afternoon Mirror Making	3:00 pm - ##
Saturday Night Observing	7:00 pm - ##
# Closing time is determined by the organizers	
## Closing time is determined by the "A" members on duty.	
Saturday afternoon mirror making schedules will be posted to the ATMob-ANNOUNCE email.	
Note: The Clubhouse is closed on the 2nd Thursday of the month for our monthly meeting in Cambridge.	
Due to inclement weather 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.	

Sky Object of the Month . . .

July 2017

Courtesy LVAS Observer's Challenge***

M14 (NGC 6402) Globular Cluster in Ophiuchus

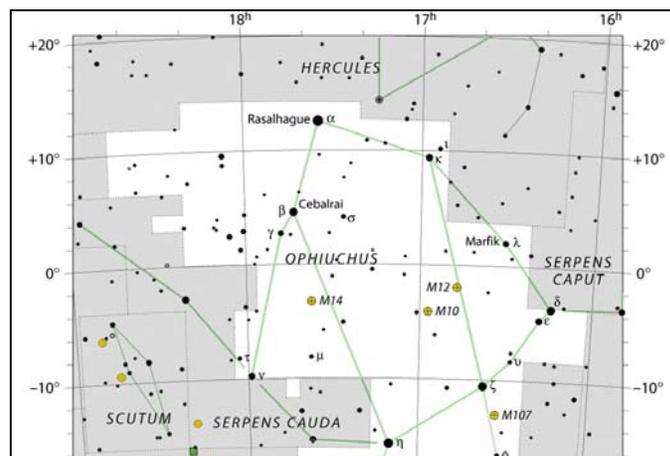
Mag. 7.6; Size 11'



M14, Mario Motta, MD

Ophiuchus is home to seven Messier globulars. One of them, M14, is this month's LVAS Observer's Challenge. It was discovered by Charles Messier on June 1, 1764 and first resolved into individual stars by William Herschel 19 years later. At magnitude 7.6, it's relatively faint, but still bright enough to be viewed with binoculars and small-aperture scopes.

I first saw M14 in the summer of 1977 with a 3-inch f/10 reflector and magnifying power of 30X. More recently, I picked it up with a 4.5-inch reflector at 76X. In neither case was there any hint of resolution.



IAU and Sky & Telescope

Finding M14 is somewhat of a challenge, as it lies in a rather star-poor region of Ophiuchus. The accompanying finder chart shows its location about 5 degrees north of the magnitude 4.6 star μ (mu) Ophiuchi.

What is the smallest scope that can resolve this cluster? Is it uniformly bright or condensed towards the center? What is its overall shape – round or oval? Find out for yourself and forward your impressions (image, sketch, and/or notes) to the LVAS via the email addresses listed below.

M14 lies some 30,000 light years away. It contains an estimated 150,000 stars and spans a distance of about 100 light years.

August 2017

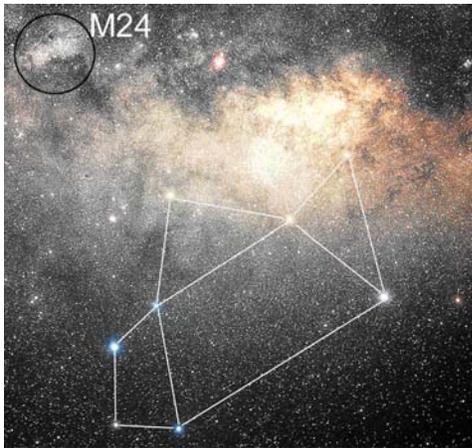
Courtesy LVAS Observer's Challenge***

M24 – Star Cloud in Sagittarius

Mag. 4.6 (2.5, according to Stephen O'Meara); Size 1x2 degrees

NGC 6603 – Open Cluster in the Sagittarius Star Cloud

Mag. 11.1; Diam. 4'



ESA/Hubble (ground-based image) M24 is at top left

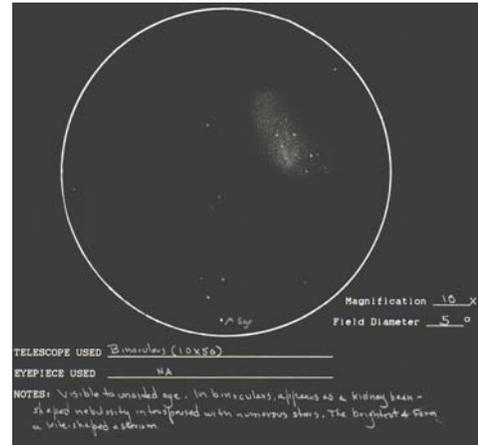
M24 is one of the more easily-seen Messier objects – at least from regions where skies are dark enough to afford a clear view of the Milky Way. Why then was it such a stern challenge when I first set out to observe all of the Messier Catalog objects back in the 1970s? The answer lay in identity confusion.

The object Messier cataloged is a 1 by 2 degree patch of the Milky Way. In his description, he clearly refers to it as a “large nebula in which there are many stars of different magnitudes.” However, M24 is sometimes connected with the embedded open cluster NGC 6603, described in the New General Catalog as “very rich and very much compressed; diam 4'; about 50 stars mags 14...” Messier could not have seen this tiny 11th magnitude open cluster with the instruments he used in the 18th century. Nevertheless, I decided not to notch M24 until I had seen NGC 6603.

On the evening of July 28, 1978, I made it official by observing M24 with 7X50 binoculars and then NGC 6603 with my 3-inch f/10 reflector and a magnifying power of 60X. Through the binoculars, M24 appeared as a “Large, oval patch of light, studded with a handful of bright stars.” Through the telescope, NGC 6603 was “Incredibly faint, but a persistent averted vision haze.”

On the LVAS website (www.lvastronomy.com) the August Observer's Challenge is listed as “M24 – Star cloud in Sagittarius.” I'm going to take the liberty of re-defining the Challenge as “NGC 6603, Open Cluster in M24 (Sagittarius Star Cloud).”

M24 was discovered by Charles Messier on June 20, 1764; NGC 6603 fell to William Herschel's son, John, on July 15, 1830. If we accept a published distance of 9400 light years, NGC 6603 is 14 light years in diameter.



M24 Drawing by Glenn Chaple (9/8/2013)

***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:Roger Ivester (rogerivester@me.com)) or [Fred Rayworth \(fred@fredrayworth.com\)](mailto:Fred Rayworth (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 LVASS ~

Stellafane Convention . . .

Presented by the Springfield Telescope Makers
Thursday, July 20, 2017 through Sunday, July 23, 2017
Springfield, Vermont

Highlights: Dark sky observing, solar observing, lectures, mirror grinding and telescope making demos, swap tables, raffle prizes

ATMoB Speakers:

Al Takeda - Imaging the Great American Solar Eclipse
Rich Nugent - The James Webb Space Telescope
Mario Motta - Observing the "Great American Eclipse" Safely

Exoplanet Workshop at the Hartness House, Thurs., 7/20/2017
www.stellafane.org

Editor: * Photos by Al Takeda unless otherwise noted.

September Star Fields DEADLINE
Sunday, August 28th

Email articles to Al Takeda at
newsletter@atmob.org

Articles from members are always welcome.

POSTMASTER NOTE: First Class Postage Mailed July 11, 2017

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

EXECUTIVE BOARD 2017-2018

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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 Daylight Time (EDT) from Universal Time (UT) subtract 4 from UT.

July 16 Last Quarter Moon (Moonrise at midnight)
July 23 New Moon
July 28 South Delta Aquariid Meteors peak (~23:00 EDT)
July 30 First Quarter Moon (Moonset at midnight)
Aug 7 Full Moon
Aug 12 Perseid Meteors peak (~19:00 UT, 15:00 EDT)
Aug 14 Last Quarter Moon (Moonrise at midnight)
Aug 21 Total Solar Eclipse, New Moon
Aug 29 First Quarter Moon (Moonset at midnight)
Sept 6 Full Moon