



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. 32, No. 7 September 2020

This Month's Meeting . . .

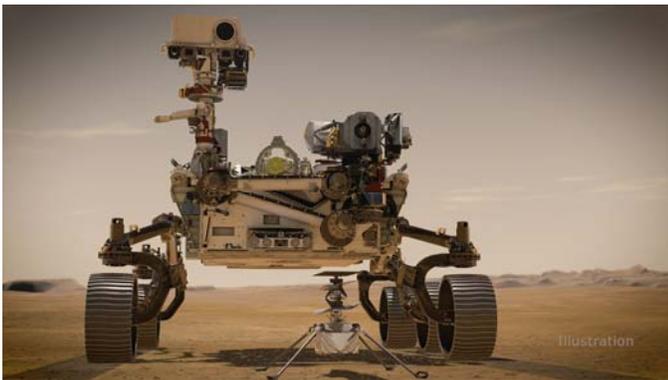
Thursday, September 10th, 2020 at 8:00 PM

[Zoom On-line Meeting](#)

All ATMoB meetings scheduled for the Harvard-Smithsonian Center for Astrophysics in Cambridge, MA have been **canceled indefinitely** due to concerns over the [coronavirus](#) outbreak.

We are holding virtual on-line meetings using the Zoom application. Please refer to the [ATMoB website](#) for future meetings. Members should check their email on the ATMOB-ANNOUNCE list for additional information. Please [select this Zoom link to attend the 933rd Meeting of the Amateur Telescope Makers of Boston.](#)

Finding Life on Other Worlds



Portrait of Perseverance and Ingenuity (Artist's Concept), NASA/JPL-Caltech

This month's speaker will be Robert Naeye, who will talk to us about life beyond Earth. With Earth currently approaching Mars for its perihelic opposition in October, and with the discovery of over 4,000 exoplanets, one can easily imagine planets beyond Earth harboring alien lifeforms, be they microbial or more complex creatures. Mr. Naeye writes:

“Are we alone or do we share our solar system and galaxy with other forms of life? And how widespread are advanced civilizations with whom we could communicate?”

Right now we don't have answers to these profound questions. But scientists are in hot pursuit. The technology of searching for life on other worlds has reached a level of maturity where the first definitive evidence of extraterrestrial life could come in the very near future.

During a Zoom lecture on Thursday, September 10th, science journalist Robert Naeye will explore three different roads for detecting life beyond Earth:

1. Launching robotic spacecraft to discover life on Mars or other worlds in our solar system.
2. Deploying large telescopes to detect the chemical signatures of life in the atmospheres of planets orbiting other stars.
3. Using various techniques to pick up signals from advanced civilizations or to find evidence of their technological activities”.

Robert Naeye is a longtime friend of the Amateur Telescope Makers of Boston and is currently a freelance science journalist based in Hershey, Pennsylvania. He is a former editor in chief of *Sky & Telescope*, one of the world's most respected popular astronomy magazines. He also worked for *Astronomy*, *Discover*, and *Mercury* magazines. And he enjoyed a stint working for NASA at its Goddard Space Flight Center in Maryland. During his 30-year career he has written hundreds of articles about astronomy and space science. He has authored two books and contributed to three others. Please visit his website at www.robertnaeye.com.

President's Message . . .

What a year so far! The world has been changed by the emergence of the novel coronavirus COVID-19. We have all been touched by the pandemic in some way, as has the club's ability to meet in Cambridge and observe in Westford. I thought I would give a brief update.

As of this writing, the Phillips Auditorium at the Center for Astrophysics is closed for the foreseeable future. I have been keeping in touch with the CfA's Building and Grounds Manager Charlie Hickey, and he has been kind enough to provide updates. In the meantime, we will continue to conduct our monthly meetings using Zoom.

The Westford observing site is closed and access to it requires approval from the folks up on the hill. If you have a valid reason for visiting the site, let me know and I will request an approval for the visit. Please do not just show up to the Clubhouse. MIT has been very accommodating, and Steve Clougherty was able to survey the farmhouse and observatories recently and reports that everything is secure and in order. Sadly, it looks like we'll have to cancel our annual September picnic. Let's hope things will have improved in time for our New Year's Eve party!

Also, the club has submitted a request to extend our current lease for the Clubhouse and observing fields for five more years. If approved, the lease will run until April 2027. I'll continue to provide updates as I receive them.

What about outreach events? As we reach the beginning of the coming school year, communities are grappling with the best ways to safely bring an education to the students. Remote learning and hybrid classrooms will set the stage for the rest of the school year. Many communities that have students return to the classrooms have seen an uptick in the number of coronavirus infections and have reversed course. Last year our star party requests were down because of the threat of mosquito-borne illnesses. That risk is now, once again, becoming more of a concern on top of the restrictions due to COVID-19. I am fairly certain we will not receive any requests for star parties this fall. Does that mean that outreach is dead? No!

Kelly Beatty and I recently met with Pop Scope organizers Michael O'Shea and Sapana Thomas to discuss ways to restart the program locally with the inclusion of ATMoB volunteers to bring astronomy to the underserved communities in and around Boston. Pop Scope volunteers set up small telescopes in an urban place and offer views of the Moon and planets to passersby. These sometimes-impromptu astronomy events are akin to the popular observing sessions offered by the Sidewalk Astronomers of San Francisco. When up and running we'll be looking for volunteers to help out, so stay tuned.

The Library Telescope Program is another way to reach underserved communities. Last November the club held its first modification party and some of those first telescopes have already found themselves in public libraries. A new strategy is being considered. Instead of only reaching out to public libraries we will also approach school libraries. Adding telescopes to a school library allows yet another way that students and families can be encouraged to enjoy the night sky, and perhaps be inspired to go further. Now, school budgets being what they are, these libraries might need some help. Consider donating a telescope to a school. If the cost is too high, then perhaps several members could purchase a scope to be donated. Of course, this program also needs volunteers to be successful. Modification parties and the occasional library visits for the maintenance of the scopes do not happen by themselves. Again, please consider volunteering.

Finally, I hope you've been enjoying my monthly "19 Objects" observing lists and my reminders about Jupiter's Great Red Spot transits and Jovian satellite shadow events. The pandemic is keeping us apart, and I for one miss my astronomy friends. The lists are to remind you that, despite any loneliness you may be feeling, you can still experience the joy of amateur astronomy by observing many of your favorite objects. Are there other ways to remain connected? Of course! I've been thinking about holding Zoom meetings on Saturday evenings as a virtual Clubhouse. Many of you know how Zoom works... even I'm getting better at it! You can use zoom.us to sign up for free! Let me know if you would be interested in participating. Chris Elledge has set up a [Discord channel](#) for real-time conversations while Corey Mooney

has been nice enough to share his live-stacking observations on his YouTube channel. I know, the day will come when we will, once again, enjoy the company of our friends at the Clubhouse and at the CfA. In the meantime, let's stay positive, be well and remain safely ahead of the pandemic.

Warm wishes and clear skies to you all!

~ Rich Nugent – President ~

September Executive Board Meeting Announcement . . .

The ATMoB Board of Directors will hold its quarterly meeting via Zoom on Thursday, September 24, 2020 at 8:00 p.m. ATMoB members are welcome to attend and listen in. An invitation will be sent to members on the ATMoB-ANNOUNCE list that week.

July Meeting Minutes . . .

ATMoB 932nd Meeting Minutes July 9, 2020

President Rich Nugent convened the July meeting at 8:05 pm. Rich welcomed everyone to the 932 meeting of ATMoB and issued the following "Thank You" callouts to departing ATMoB Board members:

To retiring President Tom McDonough, who, most recently, assisted with acquisition of the Mittelman ATMoB Observatory. Tom will continue on the Board as a "Former President".

To retiring Secretary John Harrington, who did a detailed job of documenting our meetings for posterity.

To retiring Member-at-Large, Al Takeda, who will continue his role as Editor of the Newsletter.

- Alva Couch presented the Secretary's report, including breaking news and issues discussed at the most recent ATMoB board meeting. Among other new developments, ATMoB now has its own Discord server, which will allow us to voice chat with others during virtual star parties and share the results of physically distanced observing. The board also intends in the coming year to take action to make the website more welcoming to first-time viewers, to donate one telescope to an underserved community or school library free of charge, and to fund the deployment of the Mittelman Observatory discussed at the previous meeting.
- Chris Elledge presented the Membership Secretary's report. We have 446 members, including six new members since last meeting:

Chris Dafnouleilis
Paul Gagnon
Giancarlo Gonzalez

Igan and Noah Marchand
Athina Papadoupoulou.

To all new members, a hearty welcome!

- Eileen Myers presented the Treasurer's report. So far, due to a lack of expenses, combined with membership renewals and the used equipment auction, we have collected a net inflow and have a surplus so far this year.
- Rich Nugent presented the Observer's report for Glenn Chaple due to technical problems with Zoom. The report included the predicted trajectory of Comet NEOWISE, that will grace both morning and evening skies during July.
- Steve Clougherty presented the Clubhouse report. He was happy to report that no mowing is needed. Enough people are on the access list for monitoring the Clubhouse and he has reported that no problems have yet been discovered. Even the 17.5-inch Dob continues to be mouse-free.
- Kelly Beatty presented the Outreach report. Kelly has started two overtures: one to the outreach group PopScope about the possibility of collaborating on virtual or physical Star Parties, and the second to the library director in Everett about accepting a telescope for loaning out from the library. Kelly asked that members consider donating library telescopes to underserved communities.
- Old Business:

Rich Nugent asked members to consider specifying ATMoB as a charity in <https://smile.amazon.com>. This donates a small percentage of each Amazon purchase to ATMoB. During this time of remote purchasing, that can add up quickly.

Eileen Myers thanked Maria Batista for running the Astro-Biology webinars via Zoom. This is working out well.

- New Business:

Rich Nugent then announced the sad news of the passing of two ATMoB members: former ATMoB Vice-President and President Tal Mentall and former Secretary, Treasurer, and official ATMoB Historian Anna Hillier. A memorial will be planned when the Clubhouse again becomes active.

Rich asked for volunteers to be understudies and backup in case of illness and other contingencies. Roles for which we need backup include:

- Treasurer (to support Eileen Myers)
- Newsletter (to support Al Takeda)
- Speaker search (to support Rich Nugent)
- Mittelman Project (to support Bruce Berger, Alan and Aaron Sliski)
- Outreach/Library loaner program (to support Kelly Beatty)
- Website development (to support current webmaster Chris Elledge)
- Social media platforms (as a new service to our members).

Alan Sliski reported that the Mittelman ATMoB Observatory is coming online. The local computer boots up, the pier moves, and the electronic focuser works. Bruce Berger reported that he and Alan cleaned the whole observatory on the previous Sunday, including removing pollen off of all exposed surfaces.

We then proceeded to our traditional July meeting member presentations.



Mario Motta *

Mario Motta gave a whirlwind tour of the amazing photos he collected of the "galaxies of spring". After a brief discussion of the Virgo Cluster and the density of galaxies in the cluster, Mario revealed to us the wonders he has photographed during "galaxy season".



Kelly Beatty *

Kelly Beatty described his most recent adventure in "aurora chasing" in Iceland, as the guide to a *Sky and Telescope* tour last fall. After a brief discussion of the science of auroras, Kelly pictorially documented an amazing trip in which auroras were seen and photographed on four straight nights in September of 2019.



James Chamberlain *

James Chamberlain gave a detailed account of his recent tour of observatories in Australia in October 2019, led by dark sky advocate Marnie Ogg and husband Fred Watson. Sights included many telescopes and observatories, including the town of Siding Spring, the “Astronomy Capital of Australia”.



Rich Nugent *

Rich Nugent gave a short talk due to limited time, and gave us all homework to do before the September 10th ATMob meeting. Rich documented how he observes Venus in the daytime, and challenged us to try his techniques. Using a cellphone to determine the Alt/Az coordinates of Venus, and as an electronic level to determine the altitude of a Dob, Rich outlined a simple method for finding Venus during the day.

Many thanks to Mario, Kelly, James, and Rich for their thoughtful presentations.

The next meeting of ATMob will be on Thursday, September 10 from 8-10 pm, while the next meeting of the ATMob Board will be September 24. All are invited.

The meeting was adjourned at 10:23 pm.

Rich kept the Zoom channel open for socializing afterward. During this time, Alan Sliski demonstrated the Mittelman ATMob Observatory capabilities using remote commands. We observed the telescope via a webcam mounted in the observatory

shed. Among other things, Alan demonstrated the parking and deployment procedure.

~ Alva Couch - Secretary ~

Membership Report . . .

I am pleased to welcome our newest members: Mihai Albu, Christian Bjorbaek, Chris Dafnoulelis, Paul Gagnon, Raymond Gerbi, Ivan & Noah Marchand, Athina Papadopoulou, Nteri Nelson, Peter Nelson, Brandon Parsons, and Pranatartiharan Ramachandran.

As of August 31st, 2020 we have 358 memberships covering 456 members. This is broken down as follows:

- 143 Regular Members
- 139 Senior Members
- 9 Student Members
- 59 Family Memberships covering 157 Members
- 6 Guest Members
- 2 Honorary Members

Membership renewals for the 2020-2021 year are now due. Members who joined after January 2020 are not due for renewal until next year.

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

You can also download the membership application from the website at <https://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 telescopes in good 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 ~

Meeting Recordings . . .

The recording of ATMob meeting #932 is available on YouTube: <https://youtu.be/VMo7AOzMQQQ>

I would like to thank Mario Motta, Kelly Beatty, James Chamberlain, and Rich Nugent for giving their presentations.

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 ~

Clubhouse Report . . .



The Clubhouse. Image by John Stodieck

September 2020 Clubhouse Report

I spent a good hour checking the Clubhouse facilities yesterday and I am happy to announce that things are in good shape. Here is a brief status:

The grass is mostly brown with numerous patches of weeds and crabgrass, but not enough to warrant mowing at this time. We could consider weed whacking at some point, however.

We have 18 gallons of gas on hand, and one 5 gallon container is empty. I estimate that we could tractor and hand mow at least two more times before doing another gasoline run.

I walked through every room in the Clubhouse and barn. There is no evidence of any leaking or water damage. Other than cobwebs and dust, the place looks very good. The attic area is dry, but I did not go into the basement on this sweep. Since the last time I was there the oil tank drip pan was dry and the tank has a nearly full tank of oil.

I entered each observatory and all equipment appears to be in order. I replaced one 7 W bulb in the 16-inch Meade SCT, and otherwise all heating elements are working. Each telescope could stand some cleaning especially since we did not have a chance to do any cleaning during the heavy pollen months.

I also delivered two 6-inch mirror blanks to the Glass Room. The blanks were donated by Joanna Cusano of Middleborough on behalf of her late father, who was an amateur telescope maker.

Clubhouse Saturday Schedule	
Indefinite Period	CLOSED DUE TO THE CORONAVIRUS PANDEMIC

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

Wednesday Evening Educational DVD Videos . . .

Member-at-Large Maria Batista is hosting Wednesday evening DVD lectures. These weekly Zoom meetings start at 7 PM. Members can sign up at www.atmob.org.

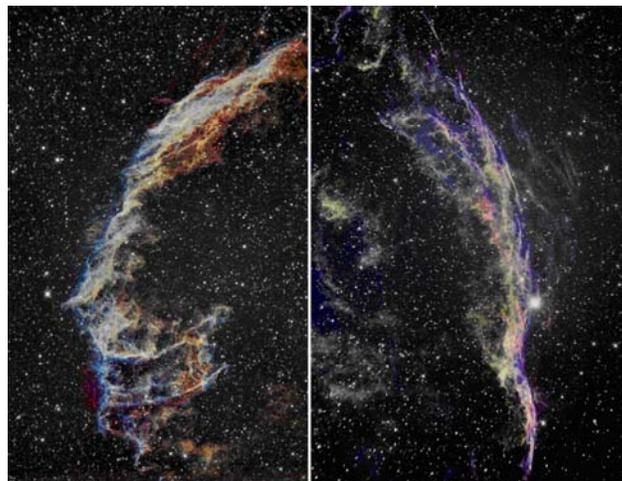
Observer's Challenge . . .

September, 2020

Veil Nebula – Supernova Remnant in Cygnus

Mag: 6.9

Size: 3.5° X 2.7°



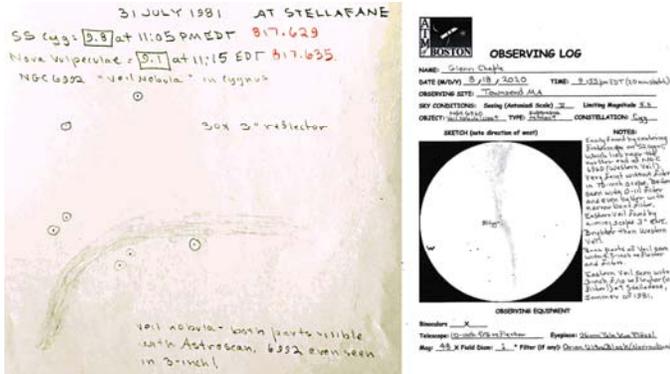
(L-R) Veil Nebula East (NGC 6992/5) and Veil Nebula West (NGC 6960). 8-inch f/8 RC; Veil East, 1.5 hours Ha, 1 hour each S2 and O3 filters; Veil West, 1 hour each of Ha, and O2, and 30 min S3 filters. North is up, Images by Mario Motta

A few degrees south and slightly east of the 2nd magnitude star epsilon (ε) Cygni is a large wreath-shaped nebula known as the Cygnus Loop. Two of the Loop's brightest portions form what is more commonly known as the Veil Nebula.

William Herschel discovered the eastern part of the Veil on the evening of September 5, 1784 and captured its westerly partner two nights later. He catalogued them as H14⁵ and H15⁵ - the 14th and 15th of his Class 5 (Very Large Nebulae) objects. Today, they are identified by the New General Catalog designations NGC 6992/5 and NGC 6960, respectively.

The best way to find the Veil Nebula is to arm your scope with a low-power, wide-field eyepiece and point it towards the 4th magnitude star 52 Cygni. This yellow-orange K-type giant is a foreground star that lies near the center of the western Veil. Once you've spotted it, continue peering into the eyepiece as you gently nudge your scope about 3 degrees eastward and slightly north. The eastern Veil should come into view. Both portions of the Veil Nebula may be glimpsed with small-aperture scopes from dark sky areas. During the 1981 Stellafane Convention in Springfield, VT, I captured the western Veil with a 3-inch f/10 reflector and both eastern and western Veils with a 4 1/8-inch f/4.2 RFT (Edmund Astroscan).

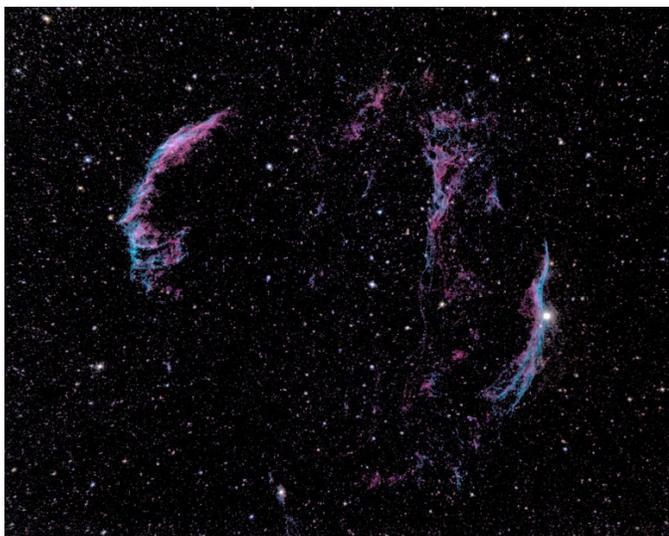
More recently, I viewed the Veil from my backyard in suburban north-central Massachusetts (limiting magnitude 5.5). It was barely visible with a 4½-inch f/8 reflector and still faint through a 10-inch f/5 reflector. Both scopes needed an assist from an O-III filter and (even better) an Orion UltraBlock narrowband filter. *Editor: To see an enlarged image of Glenn's drawings click on the following links: [Veil Nebula East](#) or the [Veil Nebula West](#).*



(L) [Veil Nebula East](#), with 3-inch f/10 reflector at 30X (R) [Veil Nebula West](#), as seen with 10-inch f/5 reflector at 48X. Sketches by Glenn Chaple

The Veil Nebula presents a variety of Observer's Challenges. It is said to be visible with the unaided eye with the help of an O-III filter and extremely dark skies. In his book *Cosmic Challenge*, Phil Harrington reports seeing the eastern Veil and (with difficulty!) the western Veil with 10X50 binoculars. Can you match these feats? Again, don't bother trying if you live in a light-polluted area. Owners of small-aperture scopes are encouraged to try their luck with the Veil. Having seen it with my 3-inch reflector, I'm going to challenge my observing skills by tackling it with a 60mm (2.4-inch) refractor. Mario Motta's close-up images of the eastern and western Veil reveal their complex filamentary structure. Can you capture this visually with a medium to large aperture scope?

Three portions of the Cygnus Loop not mentioned in this article are Pickering's Triangle, located a degree northeast of the western Veil, and NGC 6974 and NGC 6979, the most northerly portions of the Cygnus Loop. All appear in the accompanying wide-field image of the Cygnus Loop, taken by Doug Paul. What size telescope (and which filter) will give you a visual sighting?



Cygnus Loop; Canon 6D, 400mm f/2.8, ISO 1600, 51 subs x 2 min = 1.7 hr total exposure, 1/4 scale. North is up, Image by Doug Paul

The Cygnus Loop is a supernova remnant, the result of a supermassive star that suffered an explosive death some 5,000 to 10,000 years ago. Recent GAIA parallax measurements of stars imbedded in the Cygnus Loop gases indicate a distance of 2400 light years, suggesting a true diameter of 130 light years.



Finder Chart for the Veil Nebula, Stellarium and Sky & Telescope

The purpose of the Observer's Challenge is to encourage the pursuit of visual observing. It is open to everyone who is interested. If you'd like to contribute notes, drawings, or photographs, we'll be happy to include them in our monthly summary. Submit your observing notes, sketches, and/or images to Roger Ivester (rogerivester@me.com). To find out more about the Observer's Challenge or access past reports, log on to <https://rogerivester.com/category/observers-challenge-reports-complete/>.

~ Submitted by Glenn Chaple ~

Venus and the Moon . . .

I awoke in the early hours of Saturday, August 15th to image Venus passing 4 degrees away from the Moon. A [high resolution image](#) can be seen in the ATMob Gallery.



Venus and the Moon. Image by Al Takeda

Skyward . . .

By David Levi
September 2020



Venus occulted by the Moon. Image by David Levi

How to see more than half the solar system at once

Have you ever wondered if you could see more than half the solar system at once? An opportunity to do so does not come about often, but it does happen from time to time. A couple of summers ago, Venus, Mars, Jupiter, and Saturn were all in the evening sky and could be spotted at once. Now, during this summer of 2020 a couple of hours before dawn, Mars, Jupiter, and Saturn are all in the sky and can be seen at the same time.

The procession begins in the evening, with Jupiter and Saturn easily visible at about the same time in the east. Jupiter is brighter than all the stars on a summer night, and through a telescope, the rings of Saturn are exquisite. Jupiter and Saturn appear to get close in the sky every twelve years, or about once every Jupiter orbit of the Sun. They were close together in 1960, 1972, 1984, 1996, 2008, and now. They were not far apart when I first looked at Jupiter through a telescope on September 1, 1960. Galileo himself could have felt no greater thrill than I did when I used my first telescope, Echo, and saw the wonderful planet, surrounded by four bright moons and decorated with gas bands in its upper atmosphere. Dad and Mom were with me and they enjoyed that unforgettable view as well. You too can replicate that experience on the next clear night.

Toward the east, Mars is brightening with every night as it gets closer to Earth. Through a good telescope you should be able to see a polar cap, and dark markings on its surface like the prominent Syrtis Major or the very large Mare Acidaliuum. Mars has two tiny moons, Phobos, and Deimos. I have seen Phobos, one night many years ago, using a large 36-inch diameter reflector. Two spacecraft are now on their way to Mars. One carries a rover and a helicopter intended to search for evidence of past life on this planet.

Towards dawn, Venus rises in the northeast. Although it is the brightest planet (and the brightest object in the sky after the Sun and the Moon), Venus offers virtually nothing to see through its

dense clouds, even using a good telescope. However, on rare occasions it gets occulted by the Moon. The attached picture is of one such event I saw.

During about half of the nights this summer, the Moon joins this pantheon of planets. Because the Moon is a real place that we have visited, not just an object in the sky, it is a real treat in any telescope. Walk across the craters, climb its mountains, and skate along its enormous maria, or plains. The Moon is always wonderful.

It is not a trick to see so much of the solar system at once. Late on the night of August 12, 2020, while observing the Perseid meteors, I viewed Jupiter low in the west, and Saturn just a bit higher in the sky. Mars was high in the south. Further east shone the waning crescent Moon. Finally, Venus was low in the east.

You do not need a telescope to see all this. Just open your eyes and behold the wonder of our tiny neighborhood in the cosmos.

~ Submitted by Mario Motta at the request of David Levy ~

Mars and the Moon . . .

Mars is getting bigger and brighter as it approaches opposition next month. On Tuesday, October 6th Mars will be at its closest approach to Earth and will show a 22.6" disk. Seven days later Mars will be at opposition on Tuesday, October 13th.

The following image was taken on Saturday, September 5th showing Mars approximately one degree away from the Moon.



Mars and the Moon. Image by Al Takeda

Editor: * Photos by Al Takeda unless otherwise noted.

**October Star Fields DEADLINE
Sunday, September 20th**

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

Articles from members are always welcome.

POSTMASTER NOTE: Not mailed due to the coronavirus pandemic

Amateur Telescope Makers of Boston, Inc.
c/o Chris Elledge, Membership Secretary
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FIRST CLASS

EXECUTIVE BOARD 2020-2021

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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: Zoom On-Line Meetings until further notice. Meetings held the second Thursday of each month (September to July) at 8:00 PM. For meeting details go to 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 CLOSED. 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.

Sept 10 Last Quarter Moon (Moonrise at midnight)

Sept 11 Neptune at opposition

Sept 17 New Moon

Sept 22 Autumnal equinox

Sept 23 First Quarter Moon (Moonset at midnight)

Sept 25 Jupiter 1.6 degrees north of Moon, Saturn 2 deg. north of Moon

Oct 1 Full Moon, Mercury at greatest eastern (evening) elongation

Oct 2 Mars 0.7 degrees north of Moon

Oct 6 Mars at closest approach