

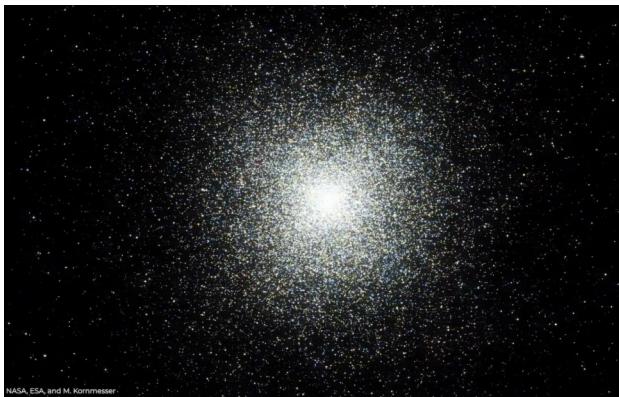


July, 2021

August Meetings

The next **Membership Meeting** will be on Monday, August 16th from 8 PM via Zoom videoconference. We will watch a video about globular clusters entitled: [How do star clusters become spherical?](#)

The video will talk about shapes of objects and systems in the Universe, will explain why the stars of globular clusters form almost a perfect sphere, and why they are so stable. It will also introduce blue stragglers, an anomalous blue stars in stellar clusters that contradict our basic understanding of how clusters evolve. What's so strange about them and how they might have formed?



NASA, ESA, and M. Kornmesser.

As always, the **Board Meeting** will be held right before the Membership Meeting, from 7 PM, and is open to every MAS member who is interested in organizational and Observatory related issues.

A **First Wednesday** informal conversation meeting will be held through Zoom videoconference on Wednesday, August 4th, from 7:30 PM. Here we usually discuss technical aspects of astronomy, however, any astronomy-related topic can be brought up. New members are especially encouraged to attend this meeting. It is a chance to receive tips on how to get started and/or get more involved in the Club's activities.

The **Astrophotography Interest Group** will meet on Wednesday, August 11th at 7 PM through Zoom videoconference.

Invitations will be sent out prior to meetings.

The MAS Google Group is as active as ever. Learn about the astronomical news, follow equipment related discussions, or just check out the latest images taken by fellow Club members.

COVID-19: The Milwaukee Astronomical Society follows the [CDC Guidance](#) in all our activities

COVID-19 Update: The MAS Board has decided that going forward we will follow the CDC COVID Guidelines. Currently, because both Milwaukee and Waukesha counties are under "substantial" risk, masks are not required for fully vaccinated people on the grounds of the observatory, but masks are required inside the domes, control rooms, and the Quonset. We understand some of our member/guests will not be comfortable with this, but participation is entirely voluntary.

Observatory Director Report

Due to the unavailability of materials needed to install the rubber roof on the A building, which may run for months, the contractor will replace the rotting plywood roof sections and temporarily cover the area with shingles.

Gene drove to Dave Kriege's to get the original bolts put onto the Kyle Baron Obsession wheelbarrow handles. Dave could not have been more gracious. He installed the correct bolts in the handles for no charge and donated a counter-weight kit needed for the Wiesen Obsession when using heavy eyepieces. Gene wanted to pay, but Dave refused. Thanks go to Dave Kriege.

Equipment maintenance: I found the clubs Skyris 618 mono planetary camera to have too much dirt on the glass covering the sensor to be usable. This was due to the camera being stored without a cover over the chip. This camera has been cleaned up and is running well. I found that if the camera stays screwed to the filter wheel and the USB cable removed from the camera it will fit into the box, we have for it. Caps have been ordered for the camera and filter wheel, but it may be a better practice to leave the camera and filter wheel attached together. I am going to check other cameras at the Observatory and clean which are needed.

Respectfully Submitted,
Paul Borchardt, Observatory Director

Treasurer's Report

\$14,032.83	<i>Starting Balance as of 06/21/2021</i>
	<u>Expenditures</u>
\$11.53	PayPal fees
\$912.00	Insurance
\$112.28	Tractor/Gas
\$100.00	AL Dues
\$57.72	WE Energies
\$36.00	Water/Sewer
\$1,229.53	TOTAL Expenditures
	<u>Revenue</u>
\$10.00	Private donations
\$414.00	Membership dues
\$60.00	Astronomical League
\$6.00	Grants
\$490.00	TOTAL Revenue
\$13,293.30	<i>Ending Balance as of 07/17/2021</i>

Respectfully Submitted,
Sue Timlin, Treasurer

Minutes

Due to the COVID-19 the July Board Meeting was held via Zoom videoconference on July 19th. The meeting was called to order at 7:04 PM by Tamas Kriska President.

Minutes, and Treasurer's Report electronically submitted ahead of the meeting were approved. **Observatory Director's Report** electronically submitted by Paul Borchardt Observatory Director ahead of the meeting was approved.

Membership Committee Report was submitted electronically ahead of the meeting. Karina Benitez & Family, James Plotz, Rebecca Surles, Kesha Patel, Larry Liebsle & Family, Ruth Brown & Family, Mitchell Keebler, Raafat Kashlan & Family, Margaret Stoiber & Family, Russ Brown, and Tricia Beckman & Family were approved.

Old Business – Rubber roofing of A-dome: The work is delayed due to unavailability of rubber material. In the meantime, roof repair and temporary cover with shingles by the contractor will be considered if leaking is observed. **Imaging upgrade:** After two meetings the Observatory Committee suggested to upgrade the cameras on G- and F-scopes. The new telescope idea was shelved until demand increases. A motion was made and carried to purchase a ZWO ASI 6200MM (G-scope), and a ZWO ASI 2600MM (F-scope) cameras with the necessary accessories as budgeted \$16,138. Anticipated cost offset from selling old parts is \$5000. The rest will be covered from the equipment fund (\$8,528.42) and from the Invesco account.

New Business – Monthly Digest: William Gottemoller volunteered to help putting together a short monthly digest for those who signed up to the MAS mailing list.

Announcement – The updated exemption cards can be asked from Sue. The AL is asking for financial support for its Annual Convention.

Program – Video viewing of Mike Stevens (Vsauce): Will we ever visit other stars?

Respectfully Submitted,
Agnes Keszler, Secretary

Membership Report

Since the last Report we received 8 new membership applications. We welcome Larry Liebsle & Family, Ruth Brown & Family, Mitchell Keebler, Raafat Kashlan & Family, Margaret Stoiber & Family, Russ Brown, Tricia Beckman & Family, and Daniel Schlei & Family. The total number of active members is 204.

Respectfully Submitted,
Jeff Kraehnke, Committee Chair

Member's Story

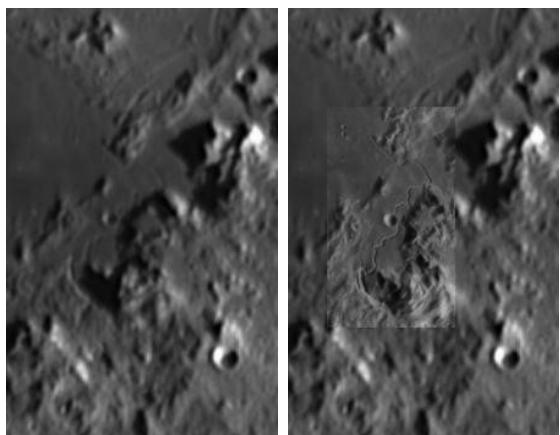
Imaging the Moon

During the Saturday Members' Night with the help of Tamas Kriska and Jeff Kraehnke, I was able to image the Gibbous Moon as my first image ever.

We used the B-scope with the Cub's Canon Ti5 DSLR camera and Backyard EOS software.

The final image was formed by meshing two pictures of the lower and upper halves of the moon with some overlap to form a seamless image.

Aniket Singh



Thought I'd share some images I took tonight of Rima Hadley, aka Hadley Rile, as well as Mons Hadley, the landing site of Apollo 15 on July 30, 1971. Somewhere down there are man's first wheels on the moon!

Taken with a Celestron Nexstar127SLT and Neximage 5 from the grounds of the Observatory. I've overlaid a picture taken by the LRO as a comparison.

Evan Marek

Imaging the Sun

Of course the club has a great 5-inch solar scope. But it requires playing with those 2 knobs that nobody understands. Air has to be bled out every so often. It's hot in there. You're guaranteed to bump into some metal dangling clamp on the way in. Great images, but maybe not for everyone starting out in solar observing.

We've also had, for many years, a 12.5-inch B-scope with a white light filter that almost fits the front end. This allows safe solar viewing of sunspots, and maintains the true orange color of the sun. We also have a few DSLR cameras and a hydrogen alpha clip-in filter for them. This lets only that small portion of the sun's spectrum through to the camera. It's not as narrow as the solar scope's band, but it's a quick and easy way to catch a sun image on the 12.5-inch scope.

Here's a single image of our Sun this last weekend with a lot of smoke in the atmosphere. It's easier than taking and compiling videos using our solar camera and scope. I believe these fasciculations on the surface are real, and the sunspots certainly are. Think about grabbing a quick image when someone opens the observatory during the day.



Russ Blankenburg

The B-scope Turns 100



The B-Scope is our oldest telescope and as of this year is now 100 years old! This extraordinary number actually is greater than the age of our club which is now 89 years. Obviously the telescope therefore predates the formation of our club.

I am willing to wager real money that most of the MAS membership don't know why we call this telescope the B-Scope and why the domed observatory that houses it the B-Dome. The reason it's a shorthand for Buckstaff as the full official name for the observatory is the Buckstaff Observatory and the scope is the Ralph Buckstaff Telescope.



Ralph Buckstaff was one of the earliest members of our club as he joined in 1934 and remained a member until his death in 1980. He served two terms on the Board, a year as Vice-President and a year as President. And all this despite the fact he lived in Oshkosh and had his own extensive private observatory with 3 domed buildings! If this was not enough he had other extensive interests including ornithology, entomology, and meteorology. And I have to mention he owned and operated the Buckstaff Furniture company.

In 1921 he acquired a 12 inch telescope, which was the largest instrument at his observatory at the time. This was the telescope he



would use for all his serious nighttime observing which was mostly variable stars. For his solar observing he had a dedicated observatory. The drawing of Mars shown here he made during the 1924 opposition was with this telescope.

But as nice and productive as the telescope was, by 1939 Buckstaff wanted a larger instrument to replace the 12-inch. He decided to acquire a 16-inch Cassegrain which due to World War II was not completed until 1946, and to donate the 12-inch to the MAS which was delivered by 1947. Accepting this telescope donation meant we would have to construct an observatory to house it and in 1949 construction began on the Buckstaff Observatory which we call the B-Dome.



In many ways the basic telescope that Buckstaff donated remains unchanged. This is not a delicate instrument that you have to be careful around. If you hit this telescope, it will hurt you because it's built like a tank. But the telescope was updated by the addition of a clock drive and very large vernier setting circles which are amazingly precise.

Will the telescope last another 100 years? I believe it easily could, but practically it won't. It will be replaced with a modern telescope possibly within just a few years.



To learn more about Ralph Buckstaff, I've written a biography which is posted on our website: http://www.milwaukeeastro.org/history/Ralph_Buckstaff.asp

by Gene Hanson

In the Astronomical News

Methane in Plume of Saturn's Moon Enceladus Could Be Sign of Alien Life

The methane wafting from Enceladus may be a sign that life teems in the Saturn moon's subsurface sea, a new study reports.

In 2005, NASA's Cassini Saturn orbiter discovered geysers blasting particles of water ice into space from "tiger stripe" fractures near Enceladus' south pole. That material, which forms a plume that feeds Saturn's E ring (the planet's second-outermost ring), is thought to come from a huge ocean of liquid water that sloshes beneath the moon's icy shell.

And there's more than just water ice in the plume. During numerous close flybys of the 313-mile-wide (504 kilometers) Enceladus, Cassini spotted many other compounds as well —

for example, dihydrogen (H_2) and a variety of carbon-containing organic compounds, including methane (CH_4). The dihydrogen and methane are particularly intriguing to astrobiologists. The H_2 is likely being pro-

duced by the interaction of rock and hot water on Enceladus' seafloor, scientists have said, suggesting that the moon has deep-sea hydrothermal vents — the same type of environment that may have been life's cradle here on Earth.

In addition, H_2 provides energy for some Earth microbes that produce methane from carbon dioxide, in a process called methanogenesis. Something similar could be happening on Enceladus, especially given that Cassini also spotted carbon dioxide, and a surprising bounty of methane, in the moon's plume.

"We wanted to know: Could Earth-like microbes that 'eat' the dihydrogen and produce methane explain the surprisingly large amount of methane detected by Cassini?" study co-lead author Régis Ferrière, an associate professor in the University of Arizona's Department of Ecology and Evolutionary Biology, said in a statement.

So Ferrière and his colleagues built a series of mathematical models that assessed the probability that Enceladus' methane was generated biologically. These simulations were diverse; the team investigated whether the observed H_2 production could sustain a population of Enceladus microbes, for example, and how that population

would affect the rate at which H_2 and methane escaped into the plume, among other things.

"In summary, not only could we evaluate whether Cassini's observations are compatible with an environment habitable for life, but we could also make quantitative predictions about observations to be expected, should methanogenesis actually occur at Enceladus' seafloor," Ferrière said.

That evaluation should cheer those of us who hope that something swims in the frigid, dark Enceladus sea. The team determined that abiotic (without the aid of life) hydrothermal-vent chem-

istry as we know it on Earth does not explain the methane concentrations observed by Cassini very well. Adding the contributions of methanogenic microbes, however, fills the gap nicely.

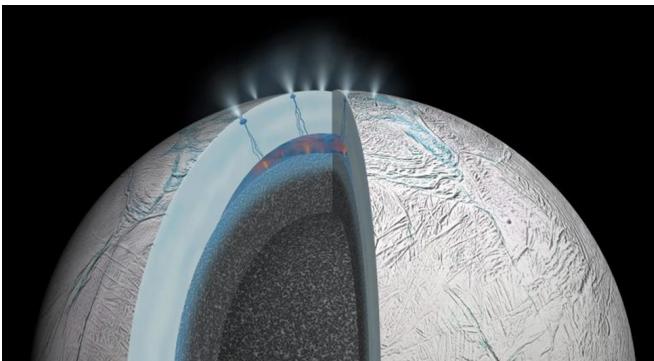
To be clear: The new study, which was published last month in the journal *Nature Astronomy*, does not

argue that life exists on Enceladus. For instance, it's possible that the icy moon features some types of abiotic methane-producing reactions that aren't prevalent here on Earth — perhaps the decay of primordial organic matter left over from the moon's birth, the researchers said. Indeed, that latter hypothesis would fit nicely if Enceladus formed from organic-rich material delivered by comets, as some scientists believe.

"It partly boils down to how probable we believe different hypotheses are to begin with," Ferrière said. "For example, if we deem the probability of life in Enceladus to be extremely low, then such alternative abiotic mechanisms become much more likely, even if they are very alien compared to what we know here on Earth."

That being said, "biological methanogenesis appears to be compatible with the data," Ferrière added. "In other words, we can't discard the 'life hypothesis' as highly improbable. To reject the life hypothesis, we need more data from future missions."

Mike Wall, space.com



Artist's rendering based on results from Cassini mission. Credit: NASA/JPL-Caltech

Adopt a Telescope Program - Signup Sheet

Adopter	Scope	Location
1 Sue Timlin/John Hammetter	18" F/4.5 Obsession	Wiesen Observatory
2 Steve Volp	12.5" F/7.4 Buckstaff	B Dome
3 Robert Burgess	12.5" F/9 Halbach	A Dome (Armfield)
4 Russ Blankenburg	9-1/4" F/10 Celestron	Albrecht Observatory
5 Jeff Krahnke	14" F/7.4 G-scope	Z Dome
6 Lee Keith/Tom Kraus	12" F/10 LX200 EMC	Tangney Observatory
7 Colin Boynton	10" F/6.3 LX200	Ray Zit Observatory
8 Tamas Kriska	Stellarvue SVQ 100 F/5.8	Jim Toeller Observatory
9 Paul Borchardt	Solar scope	SkyShed POD

At Your Service

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08/28 Mike Bauer	262-894-1253



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