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## MY SECOND CHANCE TO SEE COMET LEONARD

Taken December 31, 2021.  
iTelescope T69; 11" reflector, 4-minute exposure.

### BY JOHN MANNEY

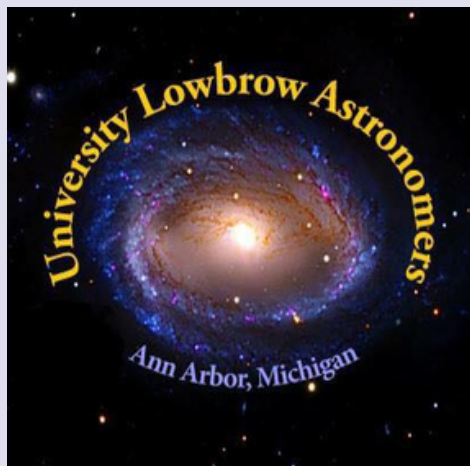
Just like the days of old, I have some apprehension when I hear that a major comet is coming. I'm not concerned about earthquakes or crop failures. I just wonder if I will be able to get a good look!

We know in advance where a comet will appear in the sky, but we don't know what it will look like. So, I get excited when I hear that a bright one is approaching. Success is uncertain even with some good planning.

### Comet Leonard Comes to Town

As C/2021 A1 (Leonard) approached us, it was visible in the Northern Hemisphere before sunrise. I'll make no excuses: I wasn't motivated to get out of bed to look for it. I waited until it moved into the evening sky.

Continued, p2.



# FROM THE DESK OF THE NORTHERN CROSS OBSERVATORY

BY DOUG BOCK

We had a couple of nights early in January 2022. I picked this object for this month due to its relatively easy access for most observers. The Double Cluster consists of the open clusters NGC 869 and NGC 884 which are close together in the constellation Perseus. Both visible with the naked eye, NGC 869 and NGC 884 lie at a distance of 7,500 light years. It is a very nice object in binoculars.

NGC 869 has a mass of 3,700 solar masses and NGC 884 weighs in at 2,800 solar masses; however, later research has shown both clusters are surrounded with a very extensive halo of stars, with a total mass for the complex of at least 20,000 solar masses. Based on their individual stars, the clusters are relatively young, both 12.8 million years old.

There are more than 300 blue-white supergiant stars in each of the clusters. The clusters are also blueshifted, with NGC 869 approaching Earth at a speed of 39 km/s (24 mi/s) and NGC 884 approaching at a similar speed of 38 km/s (24 mi/s). Their hottest main sequence stars are of spectral type B0. NGC 884 includes five prominent red supergiant stars, all variable and all around 8th magnitude: RS Persei, AD Persei, FZ Persei, V403 Persei, and V439 Persei. (ref. Wikipedia) ■

Comet Leonard, continued from p1...

Unfortunately, the evening view was unfavorable. The comet was visible for only a short time after sunset and was very low in the sky. I made a couple of trips to the edge of the city but found the sky too hazy to see the comet.

## Success in Australia

My astronomy budget didn't allow for a trip to the Southern Hemisphere, but for \$15 I was able to remotely operate a telescope in Australia. On my first try, I got a very good, sharp image.

I enjoy looking at details of a good image, but I especially enjoy standing outside and looking at objects "in person." Maybe I will set my alarm next time. ■



WO 105mm f/7 APO refractor, ZWO asi2600MC PRO camera, 50 minutes of data



# MOTION-ACTIVATED ACCESSORY BOX ILLUMINATION

BY DON FOHEY & JOY POLING

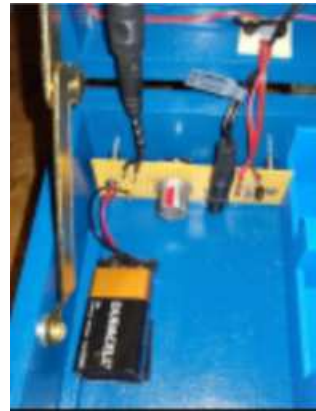
For us observational types, adaption to the dark and avoidance of nuisance light are paramount. Even dim red lights that are on all the time, like little red power supply lights, are irritating. At a dark site, it can be difficult to select eyepieces, filters, and tools from your accessory box. Keeping a red light handy, and fumbling with it, is at best annoying.

I was observing with Joy Poling one night at Lake Hudson. I had admired her eyepiece box that she had made from a toolbox. Later in the evening, I noticed that as she walked up to her box to retrieve a different eyepiece, a soft red light turned on to illuminate her box and then turned off after she had walked away. How did she do that?

She had used a SUPERNIGHT DC 5V-24V 5A PIR Motion Activated Sensor Switch!



Joy Poling's box with sensor. (Brightness adjustment control is center right)



Battery and adjustment control



Don Fohey's box with sensor

It was powered with a 9V battery and she used a rheostat to adjust the current to the LEDs mounted on the edges of her box. The PIR sensor turns the light on when it sees motion. It will keep the light on for a time after motion stops, which is adjustable for 2 to 360 seconds.

I copied her idea and used a potentiometer with an on/off switch and a transistor current source to adjust the LED brightness. The brightness can be adjusted for the ambient darkness. It has a 20-foot range, so I position my box so that it is not facing directly towards me at the telescope. It is so nice, I walk up and the light seems to magically turn on. When I go back to my telescope I smile when it turns off. ■

# OVER THE HORIZON

BY JACK SPRAGUE

The first article in this series features observing opportunities shared from my personal list in the coming month, an object of interest for binocular/small scope observing, and a more challenging object for advanced amateur with more powerful instruments.

The coming month sees several early morning opportunities for viewing conjunctions. For dog owners, the morning presents the easiest time to entertain our astronomical ambitions before the household rouses and other demands press. There is no snooze button on the beagle alarm!

Our **Low Power Lovely** for the February-March period involves an astronomical mystery that should prove rewarding and perhaps a little thought-provoking. It puts you at the eyepiece of our earliest astronomers of the modern era.

The **Optical Challenge** this month concerns the "Little Dog Lost" and a chance to split the double which is Sirius the dog star and its companion Sirius b: the pup.

Lastly, we're approaching the perfect observing window for a Messier Marathon. See a few source details later in this article.

## OBSERVING (All times EST)



Average Sunrise 07:25, Sunset 19:15.

\*NOTE\* Daylight savings time switches March 12.

Spring Forward to EDT.

## Events

- **27 Feb Sunday - Conjunction of Moon and Mars:**

Too widely separated for a telescope (AP) or eyepiece, but we should be able to view both simultaneously in a binocular F.O.V.

**Moon** 19hr 46' 30" -25° 31'

**Mars** 19hr 46' 30" -22° 00'

Visible from 05:11 until dawn around 06:51.

The pair pass within 3° 31'.

- **12 Mar Saturday - Conjunction of Venus and Mars:**

Too widely separated for a telescope (AP) or eyepiece, but we should be able to view both simultaneously in a binocular F.O.V.

**Venus** 20hr 27'50" -16° 06'

**Mars** 20hr 27'50" -20° 06'

Visible from 04:53 until dawn around 06:30.

The pair will pass within 3° 59'.

- **20 Mar Sunday - March Equinox 11:27:**

Spring - only 10 more weeks of frost for Ann Arbor!

- **27 Mar Sunday - Conjunction of Moon and Mars:**

Too widely separated for a telescope (AP) or eyepiece, but we should be able to view both simultaneously in a binocular F.O.V.

**Moon** 21hr 20' 40" -20° 51'

**Mars** 21hr 15' 50" -17° 06'

Visible from 05:59 until dawn at 07:02.

The pair will pass within 4° 06'.

DATE	DAY	PHASE	RISE	SET
08 FEB	TUES	1ST QUARTER	11:24	02:14 (9TH)
16 FEB	WED	FULL MOON (SNOW MOON)	16:56	07:52 (17TH)
23 FEB	WED	LAST QUARTER	01:04	10:52
02 MAR	WED	NEW MOON	07:27	18:24
10 MAR	THURS	1ST QUARTER	10:59	03:03 (11TH)
18 MAR	FRI	FULL MOON	19:04	08:08 (19TH)
25 MAR	FRI	LAST QUARTER	03:34	12:16

OVER THE HORIZON continues, p. 5

OVER THE HORIZON, **Events**, cont....

- **28 Mar Monday - Conjunction of the Moon and Saturn:**

Too widely separated for a telescope (AP) or eyepiece, but we should be able to view both simultaneously in a binocular F.O.V.

**Moon** 21hr 42' -19° 13'

**Saturn** 21hr 36' 20" -15° 15'

Visible from 05:38 until dawn 07:02.

The pair will pass with 4° 25'.

- **29 Mar Tuesday - Conjunction of Venus and Saturn:**

Too widely separated for a telescope (AP) or eyepiece, but we should be able to view both simultaneously in a binocular F.O.V.

**Venus** 21hr 36' 40" -13° 03'

**Saturn** 21hr 36' 40" -15° 13'

Visible from 05:35 until dawn around 7:00.

The pair will pass within 2° 09'.

## LOW POWER LOVELY

Monoceros the unicorn (constellation attributed to Plancius, 17th century) contains our target NGC 2244 (Caldwell 50) (6h 32', +4° 51') residing in the center of the Rosette Nebula (Caldwell 49) recorded as a "beautiful cluster of scattered stars" as by William Herschel in his discovery notes of January 24, 1784. As you'll see when observing, there are two sets of stars in the open cluster with the first being a large congregation and the second being a kind of winding line.

This cluster is indeed a delight to observe and was a favorite at open houses held at my alma mater's on-campus observatory.

Leland S. Copeland for years contributed to Sky and Telescope and named many modern clusters and asterisms. He called NGC 2244 "The Harp." I don't see it but I invite you to use your imagination which may exceed my own.

The cluster's stars are young, less than one million years old (Homo Sapiens as a species is 300,000 years old), and only 4900 light-years distant. 12 Monoceros is

a foreground star denoting the cluster but is not a member of the cluster's group stars which approach 25' in diameter. They fill at least twenty percent of the F.O.V. of modest binoculars.

The mystery of the Lovely lies in a nebula partner: the Rosette Nebula (Caldwell 49) which is missing from the early catalogs.

Astronomer Royal John Flamsteed mentions 12 Monoceros (at 6th magnitude) in his observing notes of 1690 and his catalog of 1729 contains only the star and neither the cluster nor the nebula. Herschel is attributed with the discovery of cluster NGC 2244 in 1784 though he also has no mention of a nebula. Charles Messier scanned the area intently in his comet search leading to the Messier Catalog of 1774 without recording any mention of the Rosette. The nebula was not noticed until Lewis Swift and Emerson Bernard (Bernard's Star fame) independently discovered the glowing emission in 1883. Admittedly, Messier includes only 4 emission nebulae in his (now) 110 listed objects.

Why did such a distinctive formation elude early astronomers who actively searched for unique objects?

The instruments employed by these early astronomers (Herschel, in part, used a 20-foot focal length twelve-inch aperture instrument) should have had sufficient resolving power to identify the nebula. Perhaps their visual acuity was not the eagle-eyed version we attribute to notable astronomers? Eyeglasses were not prescribed until well into the 1800s and acuity tests were not standardized until the 1860s. Before this, people procured eyeglasses in much the same manner we procure ours today: from generic "reader" retailers such as our CVS or Walgreen's.

Your act of observing may give an understanding into the oversight.

Try searching for the Rosette while scanning the cluster and see if you notice the nebula.

OVER THE HORIZON continues, p. 6



OVER THE HORIZON continues...

Star Hopping:

NGC2244 lies slightly above a line drawn from Orion's head and right shoulder (Meissa Mag 3.4 and Betelgeuse Mag 0.42) and nearly twice that distance down and along the line to Orion's right. Overall, the cluster has a magnitude of 4.8 in the Cambridge Star Atlas 4th Ed. It is apparent in most sky conditions.

Enjoy the cluster.

### OPTICAL CHALLENGE

The brightest star of the night – and our fifth closest at 8.6 l.y. – is Sirius the dog star (06h 45' 9", -16° 42' 58") at magnitude -1.47 located in the Canis Major constellation. It has a white dwarf partner Sirius b, the pup, whose orbit is a fifty-year circuit always within 20 AU of its much larger companion.

Ordinarily, the difference in magnitude between Sirius and Sirius b of roughly 10,000x and the tight orbit makes splitting this challenge double beyond reach. The apparent separation of the pair ranges only between three and eleven arc seconds!

2022 sees Sirius b at the apoapsis of its orbit with March being the optimum separation.

There are several observing tricks to use for splitting this double.

First, observe the pair nearest their zenith in the night sky. 8 PM on March 1 on the day before the new moon is optimal.

Second, set the expectation of the relative geometry between the pair in your telescope eyepiece. Rigel A and B in Orion have approximately the same separation as Sirius and its companion Sirius b for this split.

Third, my eyepieces can fog even into March merely from the presence of my eyeball near the lens. Keeping one eyepiece in the scope and a second safely wrapped in a warm pocket can help avoid the pre-dew distortion, providing I swap them before any heavy fog collects. An old silk pocket square is a handy accoutrement for this informal storage option.



Photograph from 2010 by Doug Scobel of the Lowbrow Astronomers, used with permission.

Lastly, know that splitting this double is best done in something greater than an 8" reflector or a 4" + refractor. A magnification factor of three hundred is not too significant to employ.

Sirius b continuously appears to blink in and out of existence at the edge of its partner's hazy cloud of luminosity.

If the white dwarf of Sirius b proves too much, the first white dwarf discovered (Herschel 1783) is in the triple star group Omicron<sup>2</sup> Eridani (4h 15' 16", -07° 39' 10") and is the easiest to observe at magnitude 9.5. Notably, this companion was not considered a white dwarf until 1910! The closest solitary white dwarf to Earth is Maanen's Star (0h 49' 10", 5° 23' 19") at only 14 l.y. distant, though as a twelfth magnitude star, this might be the most challenging of the three!

Of Special Note

The Messier Marathon is an attempt to observe all 110 Messier Catalog objects in one night. The optimal opportunities for this attempt in 2022 are the first weekends of April and March, corresponding to the new moons of 1 April and 5 March.

OVER THE HORIZON continues, p. 7

OVER THE HORIZON continues...

The order in which one attempts the observations matters greatly and an overview of the observing list can be found in *The Messier Marathon Observer's Guide* by Don Machholz (Cambridge University Press, Nov 4, 2002) and at [Messier.seds.org](http://Messier.seds.org).

The marathon dates from the 1970s, but a more recent effort was documented in **Reflections** of March 10, 2010 in the article "Messier Marathon" by John Kirchhoff: an engaging read.

Several of us are participating in our efforts to observe or photograph all 110 objects over a more extended period; but, a marathon evening seems an event that could prove to be a fine post-COVID group activity (make sure there are hot donuts and coffee).

I encourage you to consider pursuing or joining a marathon yourself – or even planning one for the Lowbrow members! ■

## UPCOMING MEETING SPEAKER SCHEDULE

**FEBRUARY 18:** Professor Claude Pruneau, WSU Physics Dept. Topic: *What the LHC mini-bangs tell us about the Big Bang*

**MARCH 18: Tentative** Professor Michael Meyer, U-M Astronomy. Topic: *The NASA/ESA/CSA James Webb Space Telescope: Discovery Space*

**APRIL 15:** Adrian Bradley, Lowbrow VP. Topic: *The Dark Skies of Michigan*

**MAY 20:** Professor Rudi Lindner, U-M History. Topic: *The Michigan-California Axis in Astronomy*

**JUNE 17: Tentative** Dr. Zachary A. Constan, MSU. Topic: *"(almost) 14 Billion Years of Nuclei"*

**JULY 15:** TBA

Just in time for Valentine's Day. . . .

## The Heart and Soul Nebulae

BY ADRIAN BRADLEY



A close look of this region in the Cassiopeia Region of the Milky Way reveals a tale of two targets. To the upper right you have NGC 869 and NGC 884, often called the Double Cluster. It is a beautiful and popular wide field target for visual astronomers in the Northern Hemisphere.

Across the dust lane 'river' sits two targets that are popular targets of astrophotographers, the Heart and Soul Nebulae. IC 1805 is one of the designations for the 'heart' and IC1848 is the 'soul'. The nebula at the bottom of the heart (sitting on top since the heart is 'upside down') is actually the 'Fish Head Nebula' or IC 1795. Melotte 15, which can be seen visually, is the cluster of stars that creates that hydrogen glow.

There are a lot of other catalogued objects in the area surrounding the Heart and Soul Nebulae, but they are small in this wide field shot. This was a stack of around 30x1-minute frames, stacked with DeepSkyStacker, and processed with Photoshop CC, Topaz Denoise AI, AstroFlat Pro, and Lightroom Classic. ■



## University Lowbrow Astronomers – Meeting Minutes – Jan 21, 2022

President **Charlie Nielsen** opened the meeting at about 7:40PM and introduced former Lowbrow president Dan Durda who spoke to us about commercial sub orbital flights to experience a weightless environment for short durations. Q and A followed his talk and continued intermittently through the following business meeting. Charlie will be arranging for a gift card to Dan as a thank you for his talk.

### Business Meeting:

- President **Charlie Nielsen** reported that room G115 has been reserved for us for the 1<sup>st</sup> quarter of 2022. Charlie received a request for an event at Cromain Library. **John Wallbank** will follow up. Charlie reported that VP **Liz Calhoun** had distributed most of the RASC materials. He reported that VP **Joy Poling** had updated our calendar to state that this meeting would be conducted via Zoom.
- VP **Dave Jorgensen** thanked Charlie for securing speakers for Dec, 2022 and Jan, 2023. There are still 2 open speaker dates for 2022: July and November. Our scheduled Sept speaker, Nicolle Zellner, will now be speaking at the AATB event instead of our cancelled Sept Lowbrow meeting.
- VP **Adrian Bradley** was on the road and had nothing to report.
- Newsletter Editor **Amy Cantu** had nothing to report.
- Observatory Director **Jack Brisbin** reported that the observatory is in good shape in anticipation of upcoming open house events. He requested that we get a team together to check the performance of the control systems for the McMath scope. Going up the road has a few ruts but is passable. But going down the 2 track to the observatory would be easier if some tree trimming was done.
- It was reported by Charlie that Communications Coordinator, **Jeff Kopmanis** will be having a Communications Committee meeting shortly.
- Treasurer **Doug Scobel** reported: (1) We have 174 memberships. This count also includes about a dozen memberships that would have expired but for grace extended due to COVID-19 pandemic considerations. (2) We have \$12,083.97 in the treasury. About \$400.00 of that amount is money owed to the RASC for the 2022 observer's handbooks. Amazingly and bafflingly, RASC has not sent us the bill for them yet! (3) VP Liz Calhoun has graciously accepted responsibility for distributing the RASC calendars and handbooks, and most have indeed been delivered. Thanks, Liz! (4) Since our December meeting our expenses consisted of payments for our usual monthly newsletter printing/ mailing costs, and the cost of mailing a T-shirt to our December speaker Don Fohey.
- There was a general discussion about the issues regarding wheelchair access at Peach Mountain. And some thoughts about large screen presentation of telescope images was discussed.
- There was some discussion about internet access at Peach Mountain.

Charlie closed the meeting about 9:20 PM.

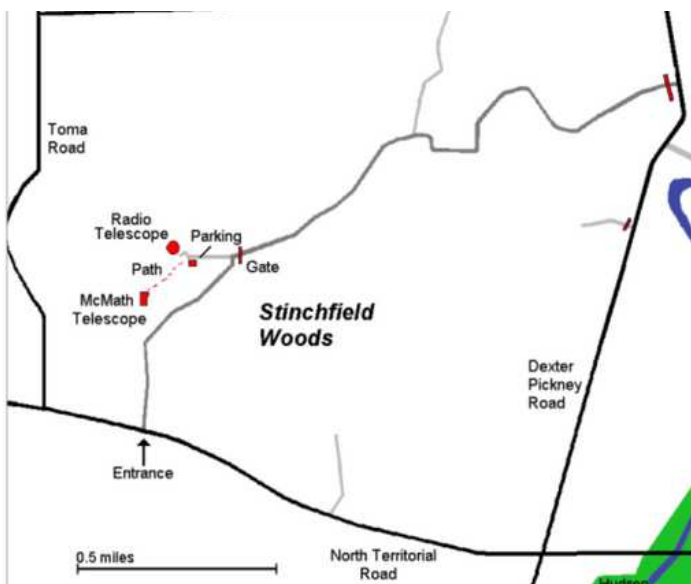
Submitted by VP, David Jorgensen



## PLACES & TIMES

Monthly meetings of the University Lowbrow Astronomers are held the third Friday of each month at 7:30 p.m. The location is usually Angell Hall, ground floor, Room G115. Angell Hall is located on State Street on the University of Michigan Central Campus between North University and South University Streets. The building entrance nearest Room G115 is the east-facing door at the south end of Angell Hall.

Peach Mountain Observatory is the home of the University of Michigan's 25-meter radio telescope and McMath 24" telescope, which is maintained and operated by the Lowbrows. The entrance is addressed at 10280 North Territorial Road, Dexter MI, which is 1.1 miles west of Dexter-Pinckney Rd. A maize and blue sign marks the gate. Follow the gravel road to the top of the hill to a parking area south of the radiotelescope, then walk about 100 yards along the path west of the fence to reach the McMath Observatory.



## PUBLIC OPEN HOUSE / STAR PARTIES

Public Open Houses / Star Parties are generally held on the Saturdays before and after the New Moon at the Peach Mt. Observatory but are usually canceled if the forecast is for clouds or temperatures below 10 degrees F. For the most up-to-date info on the Open House / Star Party status call: (734) 975-3248 after 4 pm. Many members bring their telescope to share with the public and visitors are welcome to do the same. Mosquitoes can be numerous, so be prepared with bug repellent. Evenings can be cold so dress accordingly.

Lowbrow's Home Page  
<http://www.umich.edu/~lowbrows/>

## MEMBERSHIP

Annual dues are \$30 for individuals and families, or \$20 for full time students and seniors age 55+. If you live outside of Michigan's Lower Peninsula then dues are just \$5.00. Membership lets you access our monthly newsletter online and use the 24" McMath telescope (after some training). You can have the newsletter mailed to you with an additional \$18 annual fee to cover printing and postage. Dues can be paid by Venmo, PayPal, or by mailing a check. For details about joining the Lowbrows, contact the club treasurer at: [lowbrowdoug@gmail.com](mailto:lowbrowdoug@gmail.com)

Lowbrow members can obtain a discount on these magazine subscriptions:

**Sky & Telescope** - \$32.95/year  
or \$65.90/2 years

**Astronomy** - \$34.00/year, \$60.00/2 years  
or \$83.00/3 years

### Newsletter Contributions:

Members and non-members are encouraged to write about any astronomy-related topic. Contact the Newsletter Editor: Amy Cantu [cantu.amy@gmail.com](mailto:cantu.amy@gmail.com) to discuss format. Announcements, article, and images are due by the 1st day of the month as publication is the 7th.

### Telephone Numbers:

President:	Charlie Nielsen (734) 747-6585
Vice President:	Adrian Bradley (313) 354-5346
	Joy Poling
	Liz Calhoun
	Dave Jorgensen
Treasurer:	Doug Scobel (734) 277-7908
Observatory Director:	Jack Brisbin
Newsletter Editor:	Amy Cantu
Key-holders:	Jim Forrester
	Jack Brisbin
	Charlie Nielsen
Webmaster:	Krishna Rao
Online Coordinator:	Jeff Kopmanis

**A NOTE ON KEYS:** The Club currently has three keys to the Observatory and the North Territorial Road gate to Peach Mountain. University policy limits possession of keys to those whom they are issued. If you desire access to the property at an unscheduled time, contact one of the key-holders. Lowbrow policy is to provide as much member access as possible.

Email to all members  
[Lowbrow-members@umich.edu](mailto:Lowbrow-members@umich.edu)



# University Lowbrow Astronomers

