

Back to the Moon?

by Jack Brisbin

There has been some back and forth in the club email of late speculating on human space travel and the likelihood of going to Mars and/or returning to the moon. Intrepid Lowbrow Jack Brisbin went to a likely source--the last man on the moon.--ed.



Photos by the author

Harrison Schmitt being interviewed at the University of Western Ontario, London, Ontario

Last November 16, I spent part of the day attending the 2012 Canadian Space Summit at the University of Western Ontario in London Ontario. I went there to listen to Harrison Schmitt; he was the Lunar Module Pilot for Apollo 17 the last Lunar Mission and was one of the last astronauts to walk on the Moon. Forget about Apollo 18, it never happened, it was a movie made for conspiracy theorists. Harrison Schmitt was the guest speaker at the panel discussion on the Future of Human Exploration and the featured speaker latter in the evening at the 9th Annual Planetary Science Distinguished Public Lecture. After the lecture I attended the wine and cheese reception with some members of the London Centre of the RASC.

The public Lecture was a review on landing Apollo 17 on the moon and a lunar walk about. What I found more interesting was the panel discussion on the Future of Human Exploration. The panel discussion consisted of Harrison Schmitt and other distinguished members from Academic and Politi-

cal backgrounds and former Space Shuttle Astronauts. The following quote is from Harrison Schmitt's opening remarks:

"Through the course of human history... I mean all of human history ... over hundreds of thousands if not a couple million years, has been the course of exploration. Tribes... Families.... have always sought to better their situation by moving away from where they have been. So I would strongly suspect that we would discover an exploration gene."

He continues his discussion on how we explore earth and our quest for space exploration is part of our "exploration gene". His belief is, that by the end of this century we will have settlements on the Moon and in the process of developing our first settlement on Mars. He had another interesting point of view that he shared with the audience. He speculated that half the audience was under 30 years of age and rest were over 30. Then he related it to the Apollo space missions that were major technological efforts; achieved by young people. The average age of NASA's Apollo engineers and its contracted engineering work force, were in their Twenties!

There were people in the audience that shared an opposing point of view on where we go next. They are not interested in the Moon or Mars. They want to develop a mining outpost on an asteroid that would be a commercial space business venture. There are still a lot of complex technical problems and life support solutions that have to be worked out, while you are on an asteroid orbiting Earth, as well as funding. How much of this will be government funded versus funded by private business?

Part of the discussion continued on how well humans function and adapt in space. The International Space Station has a well-designed exercise machine that does stress the bone structure and muscle structure and eliminates bone demineralization in the astronauts. Now an interesting discovery begins to unfold. You are replacing the bone that you lost in space, but this does not happen with osteoporosis (bone loss) on Earth. The National Institute for Health (NIH) and other medical research facilities would like to know what the difference is. They are in the early stages of developing medical research protocols to determine, if a pharmaceutical product could be a possible cure for osteoporosis.

The mission to Mars is still part of the audience speculation and a very interesting point was brought up. Let's say you are in a Space Capsule on your way to Mars. You have been in Space for about a month now and a serious problem arises. There is no "Houston we've had a problem". Your space capsule is a "Real Time Mission Control". There is no back up because your crew members are the back up. Hopefully the solution is in your space capsule. If not, then there is no solution!



Jack, far right, next to Harrison Schmitt, schmoozing with members of the Royal Astronomical Society of Canada.

More Geezer Astronomy:

A Barstool for Table Tops

by Paul J. Etzler

Sky and Telescope recently published an article featuring support designs for small telescopes. The best one, though, appears here in your newsletter.--ed.

When I ordered my Starblast, a tabletop telescope, I was planning to use an outdoor table that was already conveniently in place. When I started using the Starblast, however, I realized that the 44.5 inches height of the table was a bit too tall to allow comfortable viewing. Another irritation was that I had to move the telescope around the table to view different parts of the sky. Not a huge problem with the Dobsonian Starblast, but more than a minor irritation if I were to use an equatorial, tabletop scope, such as a Questar. Looking at solutions for elevating tabletops on the internet revealed a lot of makeshift, not very satisfactory solutions. Milk crates, laundry soap tubs, and the like.



The barstool showing construction.

I decided to build a table specifically for the Starblast. The first consideration was a comfortable height. I took the scope around to tables of various heights, and tried looking through the eyepiece at various positions. The height that seemed ideal for me was 36 inches. I also wanted to make the table as small in diameter as possible so there would be no more moving the scope around all night. I measured the Starblast and found that minimum table diameter would be 16 inches. A further consideration for the design is that it would have to be simple, as I did not have ready access to more than basic tools. Low cost was another factor.

The table, which ended up looking like a giant barstool, was built from two 2x4s, two 1x4s, a 2x2, and a scrap of 1 inch plywood for the top. Additional materials were a box of 2 1/2 inch deck screws, one 4 inch deck screw, some TiteBond III waterproof glue, a bit of contact cement, and some stain. The design is quite simple. Careful examination of the photos will show the construction details

I used a 16 1/2 inch diameter ash can lid as a template for the top and cut it out with a jigsaw. The plywood I used for the top, was a bit narrow, so its circle has two flat spots. I marked and drilled three, 1 inch diameter by 1/2 inch deep cups on the upper surface to accept the rubber feet of the Starblast. These cups keep the scope from skidding off if bumped. Because the plywood was a scrap, it has a few extra holes.

The legs are made of 2x4 and were cut with a ten degree angle to splay them outward, making the table more stable. In order to achieve a 36" height, I subtracted an inch for the top, a half inch for the feet at the bottom and took the splay into account. The legs ended up being parallelograms 35 inches long. In order to make the legs evenly spaced



The top showing 3 cups for the Starblast feet. Cups could be added for additional scopes. The extra holes are from a previous use of the plywood.



Underside of the barstool showing construction. Note adjustable feet.

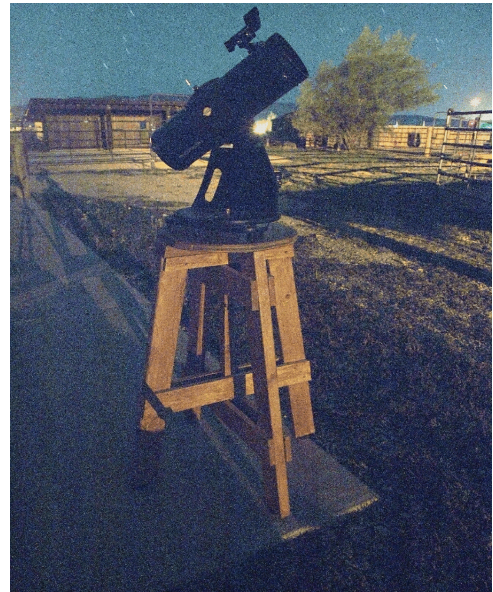
in spite of the narrow dimension of the top (the flat sides), a 2by4 spacer was cut with a 16 ½ inch top length and ten degree sloping ends. After careful measuring, two legs were glued and screwed directly to the top, and two were shortened by 1 ½ inches and attached to the spacer, which was then glued and screwed to the top. The planes of the two sets of legs being perpendicular. The outside edges of the legs are flush with the table or spacer edge.

The legs needed to be braced. Instead of using rungs typical of a barstool, I used stringers with attached to both sides of each pair of legs. This design is a lot easier to make and is out of the way of my feet when using the telescope. The dimensions of each 1by4 stringer was determined by measuring from leg edge to leg edge where the top of the stringer would go. The ends were then cut at a ten degree angle forming a trapezoid. The angle following the slant of the legs. I made two sets of perpendicular pairs of stringers, one placed just under the top, and one a bit more then halfway between the bottom of the first set and the ends of the legs. The uppermost pair of stringers (attached to the 2by4 spacer) is half width, because I ran short of lumber. The spacers are glued and screwed to the legs. The perpendicular pairs of stringers are glued where they touch.

The arrangement of the stringers results in a 1 ½ by 1 ½ channel going up the center of the table. I inserted a length of 2by2 up this channel. It is glued and screwed to the stringers. The 4 inch deck screw goes through the center of the top, the 2by4 spacer, and into the end of the 2by2. This joint is also glued.

Since uneven surfaces are the bane of four-legged furniture. I added adjustable feet at the bottom of each leg. I used 5/16 adjustable feet. (3/8 feet would have been better but were out of stock. The 5/16ths feet are sufficient.) I carefully drilled 5/16 diameter holes to tightly accept the threaded shaft of each foot, and widened the mouth of each hole to accept the threaded body of a 5/16 T-nut which was hammered into each hole. I glued the T-nuts with contact cement. Polyurethane glue would be an even better choice, but I didn't have any. I then screwed the shafts into the T-Nuts. The table can now be adjusted to keep it from rocking on uneven terrain. The final step was staining the wood to protect it from moisture.

This table was simple to build, with all cuts being either square or ten degree angles. The materials were inexpensive, the lumber was purchased for less than ten dollars. It took a couple of hours to build. With all it's boxing, and adjustable feet, it is extremely steady. The Starblast sticks nicely to the top. It is quite light and easy to carry. If I were to rebuild it I would have a pair of clamps handy, spend more for straighter 1by4s, and use a different stain [because the brand I used was terrible]. The only draw back I see in the design is that it would be rather difficult to fit in a small car. A table that somehow folded flat would be easier to transport, but much more complex to build. I have used the table all summer and it's performance has been exceptional.



Barstool in action.

Turn Left at Orion

A Review by Christopher Sarnecki

Turn Left at Orion:

Hundreds of Night Sky Objects to See in a Home Telescope and How to Find Them

by Guy Consolmagno and Dan M. Davis
© Cambridge University Press 4th Edition
256 pages 9.6"x12.2" Spiral Bound
\$29.99 (\$19.79 Amazon)

This book starts with the premise that wouldn't it be nice to have a trusted and experienced amateur astronomer at your side when you are observing to show you what to look for and where to locate it. If you are starting out in observational astronomy, one of the biggest obstacles is to know what to look for and where to find it. I have overheard a number of our newer Lowbrows express their concerns on this very topic. Well, look no further. Turn Left at Orion is a great resource for beginning and experienced amateur astronomers wishing to discover and re-discover the night sky. Many of our seasoned club members are familiar with the book having used earlier editions since the first printing in 1989. The authors' scopes of choice are binoculars, a 4-inch catadioptric telescope, and an 8-inch Newtonian dob mounted telescope. Everything chart and observing note in this book focuses on use of these smaller scopes.

The new and improved fourth edition (© 2011) has lots of updated charts, planetary/eclipse data, and double star information. A check of the contents reveals this book includes chapters on how to use a telescope, some basic telescope math (think calculating resolution, magnification, and field of view...), an extensive chapter on lunar observing broken down by the phases of the Moon, lunar eclipses to 2025; and, over 150 pages of detailed seasonal charts with the authors' observing notes. Whew, that's a lot of information for the money! It's also a lot of binary stars (about 150) and deep sky objects (about 300 open clusters, nebulae, globulars, galaxies, and variable stars [including carbon stars]) to keep both novice and experienced amateur astronomers excited about observing under the night sky. With the spiral bound large 10" x 12" format; the authors encourage you to use this book under the stars. You're also encouraged is to mark up your copy with your own observing notes. This is something I've been known to do with my most cherished astronomy books. I'll let you in to a little secret. Using a light to medium green highlighter on the text will show up as light to medium gray highlighted text under a red light when observed in the dark. Now don't try this with a dark green marker, or you won't see anything except a wide black line over your highlighted text under the same red light.

A word about bookstores and hardcopy books in particular. I noticed this book in a college town bookstore (sadly not Ann Arbor). I instantly recognized the cover as this title has been on my 'must read' list for decades after hearing many good recommendations from the amateur astronomy community. My first thoughts were, I can get this book on-line for less, but after recalling what happen to our own community bookstore (i.e. – bankruptcy), I gladly plunked down the cash and obtained my copy. So, consider doing your part to save our community bookstores and buy your own copy from a community bookstore.

INTERMISSION

Some great Trader Joe's pilsner style brews that are all under \$1 per bottle/can.

Simpler Times Pilsner, Simpler Times Brewing Co., Monroe WI – Malty nose good enough to cut thru a deep foamy head. First place at the Ocean Isle Beach Pilsner-Off of 2010.

PLZNER, Josephsbrau Brewing Co., San Jose, CA – Crisp on the pallet. Golden yellow in the glass. Nice dry ending. 99 cents a glass.

Summer Brew, Joseph Braw, San Jose, CA (a Krolsh style beer) – Slightly skunk-y head; had high-er ex-pec-ta-tions; not rec-o-mmend-ed.

I've been known to do some observing runs from my own suburban yard with an 8-inch Newtonian scope. Not your drag out, all night observing runs, but mostly short sub-hourly jaunts through a limited portion of the sky or constellation. The bulk of the book consist of chapters on "Seasonal Skies"; and, is set up by limited observational areas of the sky or by constellations, so it supports viewing smaller areas of the night sky. For a newbie astronomer, it is much easier to begin to understand a single constellation or a limited area of the sky rather than taking on a whole hemisphere of sky. The seasonal sky chapters are, well seasonal. It might not sound like something important, but for folks just starting in observational astronomy, It's very important to link the season with objects that are up in the sky on the night you are about to begin an observing run.

The seasonal night sky observing is obviously where this tome really shines. Each season starts with a couple of east and west all sky charts to help you find your bearings. Following the all sky charts are several sub-chapters on a constellations or asterisms. Each sub-chapter starts with a naked eye chart, a description on where to look (which is very helpful for beginning observers), low and high power telescope views (remember the authors scope of choice is a 4-inch catadioptric scope or 8-inch Newtonian), then more of the authors' detailed descriptions of what to look for. Many of the sub-chapters also have low and high power charts on of some of the skies best double stars along with detailed descriptions of what to look for in the eyepiece. Observing double stars is an excellent place for beginners to dial up new objects. Double stars are often easier to find then deep sky objects, more colorful, and just plain fun to look at. As an experienced amateur astronomer, I admit, I've overlooked double star observing for too long. It was a lot of fun to get back into dialing up famous binary stars and splitting some of the challenging close doubles in a small scope.

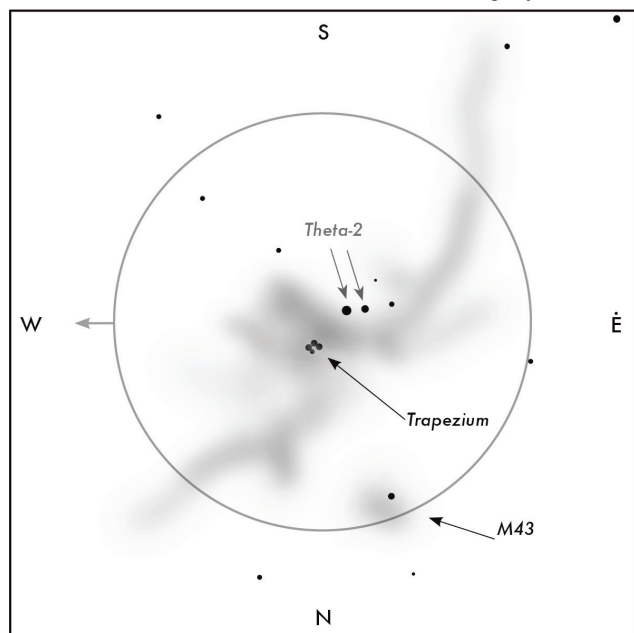
As a seasoned amateur astronomer, I've become comfortable with using star/deep sky object magnitudes to better identify what I'm seeing in the eyepiece. The authors of Turn Left at Orion purposely limit use of deep sky object magnitudes so as not to confuse the beginning observer with this information. I don't know if that is something I would agree on, but it is an issue that experienced observers will notice in the book.

Having used this book now for over half a year, I have become very attached to it for my quick grab-and-go back yard observing runs. Have to admit, it is an excellent resource of seasonal objects for small scopes. While the charts are excellent, I recommend the use of a small star atlas

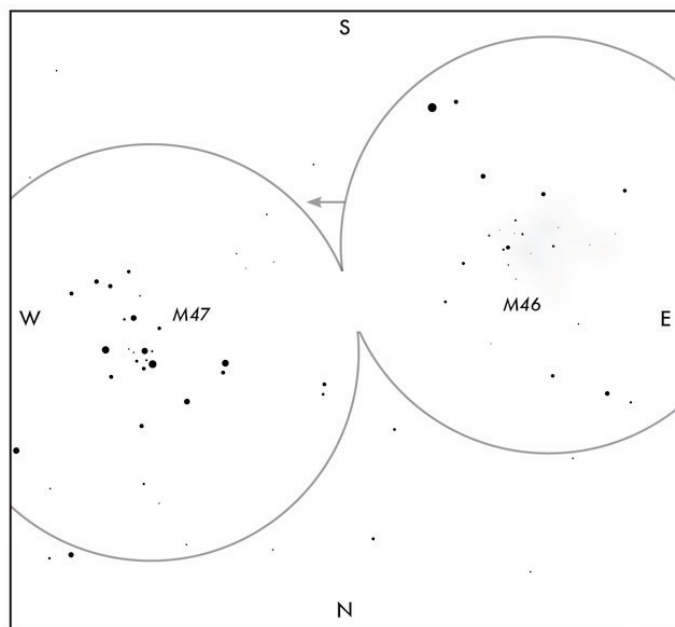
with the book to better help observers understand what you are seeing in the night sky. *Sky & Telescope's Pocket Star Atlas* is the small atlas I use with Turn Left at Orion. I now count this text as one of my 'desert island' books (i.e. – books you could take with you if stranded on a deserted island).

So there you have it. There is no excuse to not to know what to look for and where to find it. Turn Left at Orion helps those starting out in observational astronomy locating what's up in the night sky at a given the time of year.

M42 and M43 in a small Newtonian, high power



M46 and M47 in a small Newtonian, low power



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Is It a Bird? Is It a Plane? No, It's a Geminid!

Mike Radwick took this shot of a streaking meteor during last month's Geminid meteor shower. Fighting very poor skies, Mike managed this fine shot.



MEMBER OBSERVING NOTES:

JOHN MANNEY LOOKS UP

Photon Fever...and a Surprise

It seems that the people who write the 7-day forecast are doing a copy & paste routine, with slight variations from day to day. Cloudy, windy, cold, snowy weather seems to be our lot in Southern Michigan. A subtle uneasiness sets in, which can become quite intense. It goes by many names, like Photon Withdrawl or Messier Madness.

This happens to be an excellent time to look at Jupiter. It is very high in the sky, so we have less of the lumpy, bumpy, bouncy air to look through. As a plus, it is highest around 10 PM, so sleep is not an issue.

So, on the 4th of January, the sky was clear, despite a “mostly cloudy” prediction. The bad news was low temperature and high winds. I just don’t like going outside when the wind chill is 10 degrees. The scope would shake from the buffeting by the wind. I was already shaking without going outside. On the other hand, this may be the best night I’ll get for a while.

So I plotted long and hard. The east end of the house makes a wind break. Most of the sky is blocked there, but Jupiter is in the open. I wouldn’t be able to do a proper alignment on my go-to scope, but finding Jupiter is rather obvious. I can put the scope together and power it up in the house, run outside, shove the tripod into the snow, grab a chair, observe, and run back inside.

Everything went according to plan. The two major bands were plainly visible in my 3” refractor. The moons were spread out in a beautiful pattern, but I counted five of them. Five? So, which one is the impostor? One was not quite in the same plane as the other four, and it had a red tint. I had never seen a star mingling with the four big moons before. The five objects were pleasantly arranged.

Later, I checked my planetarium program, and found the four moons and a 6th magnitude red star just as I had seen them. So, January 4 was a perfect night for a quick look at our biggest neighbor!

John Manney



April 19, 2012

Dear Lowbrow astronomers,
Thank you SO MUCH! I love learning about stars and constellations. It makes me wonder if there is something we can't even begin to understand out there. And there are many things out there, like supernovas and undiscovered galaxies. I learned a lot, ~~and~~ I am in Science Olympiad learning about astronomy, so if you don't know who I am, I'll just say I was the girl with her hand raised the whole time.

Sincerely,
Catherine Small



Lowbrows Make a Difference

Most of us lead insular lives. We go to work, see our friends and families and maybe attend religious services or dabble in civic life, like being a member of a club like the Lowbrows.

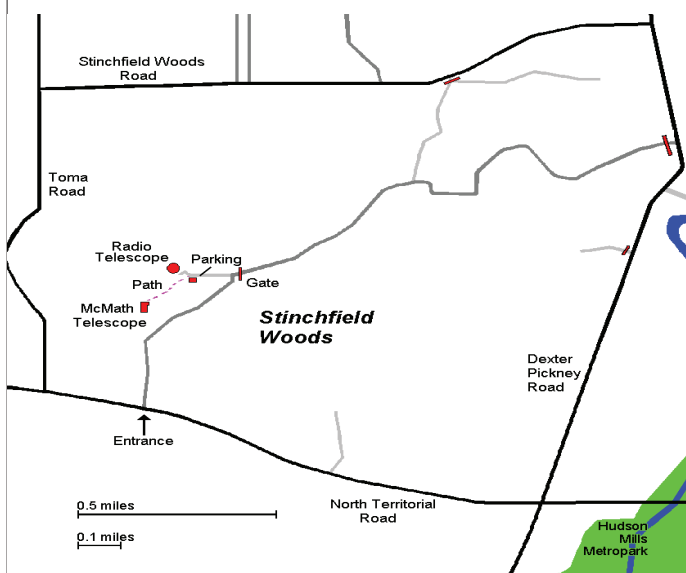
Occasionally our job, family, church or club reaches outside of itself and does something for the larger community. Lowbrow outreach programs into our public schools are an example.

This is one of the many thankyou notes we've received from 5th graders who have attended our presentations. You can see more in last August's Reflections.--Jim Forrester

Places & Times

Dennison Hall, also known as The University of Michigan's Physics & Astronomy building, is the site of the monthly meeting of the University Lowbrow Astronomers. Dennison Hall can be found on Church Street about one block north of South University Avenue in Ann Arbor, MI. The meetings are usually held in room 130, and on the 3rd Friday of each month at 7:30 pm. During the summer months and when weather permits, a club observing session at the Peach Mountain Observatory will follow the meeting.

Peach Mountain Observatory is the home of the University of Michigan's 25 meter radio telescope as well as the University's McMath 24" telescope which is maintained and operated by the Lowbrows. The observatory is located northwest of Dexter, MI; the entrance is on North Territorial Rd. 1.1 miles west of Dexter-Pinckney Rd. A small maize & blue sign on the north side of the road marks the gate. Follow the gravel road to the top of the hill and a parking area near the radio telescopes, then walk along the path between the two fenced in areas (about 300 feet) to reach the McMath telescope building.



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 Mountain observatory, but are usually cancelled if the sky is cloudy at sunset or the temperature is below 10 degrees F. For the most up to date info on the Open House / Star Party status call: (734)332-9132. Many members bring their telescope to share with the public and visitors are welcome to do the same. Peach Mountain is home to millions of hungry mosquitoes, so apply bug repellent, and it can get rather cold at night, please dress accordingly.

Membership

Membership dues in the University Lowbrow Astronomers are \$20 per year for individuals or families, \$12 per year for students and seniors (age 55+) and \$5 if you live outside of the Lower Peninsula of Michigan.

This entitles you to the access to our monthly Newsletters on-line at our website and use of the 24" McMath telescope (after some training).

A hard copy of the Newsletter can be obtained with an additional \$12 annual fee to cover printing and postage. Dues can be paid at the monthly meetings or by check made out to University Lowbrow Astronomers and mailed to:

The University Lowbrow Astronomers

P.O. 131446

Ann Arbor, MI 48113

Membership in the Lowbrows can also get you a discount on these magazine subscriptions:

Sky & Telescope - \$32.95 / year \$62.95/2 years

Astronomy - \$34.00 / year or \$60.00 for 2 years

For more information contact the club Treasurer at:

lowbrowdoug@gmail.com

Newsletter Contributions

Members and (non-members) are encouraged to write about any astronomy related topic of interest.

Call or Email the Newsletter Editor: **Jim Forrester (734) 663-1638** or jim_forrester@hotmail.com to discuss length and format. Announcements, articles and images are due by the 1st day of the month as publication is the 7th.

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Lowbrow's Home Page

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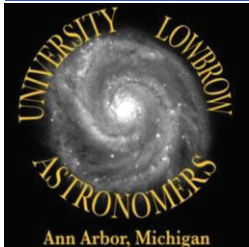


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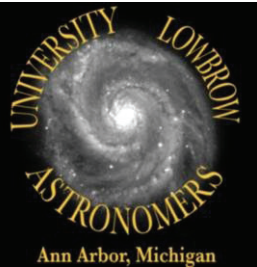
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Reflections & Refractions



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Ursa Major

Merak (Beta)

M108 galaxy

M97 planetary

Brian Ottum gives us this wide field shot of two of the easier to find Messier objects, M108 and M97.

M108 is a barred spiral galaxy about 45 million light years away. Shining at Magnitude 10 and nearly edge-on, M108 is visible in almost all telescopes.

M97, known also as the Owl Nebula beams to us at Magnitude 9.8 from a somewhat uncertain distance: The Owl is perched anywhere from 1300 to 12,000 light years away. The best present guess is 2600 ly, making this nebular cloud two light years in diameter. A Big Bird indeed!