MICHIANA ASTRONOMICAL SOCIETY

The Sirius Observer

April 2007 **South Bend, Mishawaka, Elkhart, Niles**

From the Editor:

I feel that I should apologize for the lateness of this issue of the newsletter. No excuses – I just didn't get everything written in time to meet the scheduled deadline. While I make every effort to get this to you before the regularly scheduled meeting on the third Monday of the month, obviously this didn't happen this month. I'm sorry about that.

I wish that I could promise that it won't happen again. Alas, July in particular looks like a very busy month for me and June also holds potential for delays due to work and life activities. My apologies in advance.

Please remember the public star party happening this Friday at St. Patrick's County Park, in conjunction with the St. Joseph County Department of Parks and Recreation. This is a great opportunity to introduce to the public the club and a wonderful family activity and I hope that you can join us to share your enthusiasm for the night sky.

Michael Sherck

April 2007

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2 ○	3	4	5	6	7
8	9	10 ◗	11	12	13	14
15	16	17 ●	18	19	20	21
22	23	24 ◖	25	26	27	28
29	30					

April 2:	Full Moon
April 10:	Last Quarter Moon
April 16:	MAS Meeting, 7:00 PM
April 17:	New Moon
April 20:	Star party: St. Patrick's County Park 7:30 to 9:30 PM
April 21:	New Moon observing, Potawatomi
April 25:	First Quarter moon
April 28:	"Irish Astronomy" at Fiddler's Hearth in downtown South Bend 2:00 – 4:00 PM

May 2007

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2 ○	3	4	5
6	7	8	9	10 ◗	11	12
13	14	15	16 ●	17	18	19
20	21	22	23 ◖	24	25	26
27	28	29	30	31 ○		

May 2:	Full Moon
May 10:	Last Quarter Moon
May 16:	New Moon
May 18-19:	Star Party at Linda & Steve's
May 21:	MAS meeting, 7:00 PM
May 23:	First Quarter Moon
May 31:	Full Moon (Again!)

The Sirius Observer is published monthly by the Michiana Astronomical Society, PO Box 262, South Bend, IN 46624. For information, submissions, and comments please contact the editor: Michael Sherck, at Msherck@aol.com or by writing to the above address.

An April Observing List

Astronomers, like most scientists, are compulsively organized people and one way to get and stay organized is to make lists. We're all familiar with them: the Messier list is perhaps the first which comes to mind but there are many others, usually the result of systematic surveys of the sky. Comet hunter Charles Messier was just trying to keep track of faint fuzzy things which weren't comets. The New Galactic Catalog gave us the NGC numbers for objects, which we still use today. And there are a myriad of others. One problem of proliferating lists, of course, is that many objects have multiple identifications. Messier object #92 (M92) for example, is also known as NGC 6341 and also as Caldwell... well, something or other. You get the point. There are lots of lists and probably no one knows them all.

Although I'm not compulsively organized, I too have lists. Lists of my favorite objects for each season, for example. I doubt that the Sherck list will ever be immortalized in print (well, except for here!) but the subject of observing lists came up recently in discussion with other club members and I thought I'd share mine this month.

Please note that all of the objects on this list should be considered to be challenging to find, even with a decently large telescope. Also, you probably won't find them on other lists. For example, none of them (and precious few field stars,) are plotted in my Uranometria 2000. In large part, that's why I put them on my list: because I thought they were interesting enough to want to find them again.

So, for what it's worth, here's the Sherck list. If you have made your own lists, send them in! As Tom Laskowski says, you can't have too many lists!

She-1	A faint smudge, probably a galaxy, located between two faint 10th magnitude stars at RA 0^h 44^m dec. +45° 42' 36" north.
She-2	Positioned just 58" south of She-1, a faint asterism in an odd shape. What's it look like to you?
She-3	RA 0^h 21^m, dec. 42° 48' 15" N. An elongated smudge oriented northeast to southwest, with an unusual double stellar core.
She-4	I see what appears to be a sparse open cluster just west of a double star (which is actually plotted!) in Andromeda at 2^h 9^m W., 40° 58' N.
She-5	Lying midway between open clusters NGC 7789 and St19 in Cassiopeia, a faint four-lobed smudge best seen by gently tapping the telescope tube.
She-6	Found while trying to re-locate She-6, and only 2^m west and 34" to the south. Looks like a faint, compact globular to me.
She-7	Only 16^m west and 39" South of She-5, another asterism of instantly recognizable to anyone familiar with popular culture. Bite my shorts, dude!
She-8	Once you've seen this one, you'll add it to your list, too! All I'm going to say is, RA 23^h 52^m, dec. 39° 14' North. Beer!
She-9	Lost: I found it once but haven't glimpsed it again. A rich but faint cluster, 13^m west of She-6 at almost the same declination.
She-10	Swing 'way over to Ursa Major for a real treat, a smoky nebula which, if brighter, would give the Ring a run for its money! RA 11^h 10^m, dec. 50° 8' 23".

As Grandma once told me, 'if you can't be bright, be brief!' That's the list and I hope you enjoy it as much as I did.

Mike Sherck

MAS Volunteers needed!

"Irish Astronomy" at Fiddler's Hearth in South Bend

Saturday, April 28, 2:00-4:00 pm, 127 N. Main Street, downtown South Bend

South Bend resident Dayle L. Brown is a children's book author and illustrator in astronomy. Dayle's many skills include specializing in writing and illustrating ancient constellation stories. She will read to elementary age children, incorporating Irish/Celtic constellations stories. The children will then participate in programs provided by:

- Art to Science: art supplies will be provided so that they can draw and color their own ideas of stars and constellations (supplies provided by Joint Institute for Nuclear Astrophysics, operated by MAS volunteers).
- Michiana Astronomy Society will also have telescopes on display.
- For young adults, the CNO Cycle Card Game will also be on hand.

If you can help at this interesting outreach event, please contact **Suzanne Aleva.**

Earth's Moon: Nature's Light Pollution?

Listen to any assembly of amateur astronomers and sooner or later you'll hear a monotonous litany of complaints. It's too big, it's too bright, it's too booooring! For something which hangs overhead three out of every four weeks, you would think that someone somewhere would try to think of something good to say about the old rock.

I like distant galaxies and dusty nebulae as much as anyone (well, except maybe for Tom,) but I've always been unusually attracted to lunar observing. Possibly because it was one of the first objects I turned my first (borrowed) telescope to, possibly because my childhood was consumed with following the Apollo manned moon missions, or just maybe because, like an old, dependable friend, its always up there, ready and waiting. And its *really* easy to find!

Most people believe that there isn't much not known about our natural satellite. Space probes have been flying around, past, and into it for forty years now, and a dozen astronauts have landed and returned with rocks and soil for close-up examination. Yet despite all the attention it received at the beginning of the space age, much of our nearest neighbor in space is still a mystery. It is almost as though after the visit by Christopher Columbus and a couple of balloon overflights, Europe had written off the New World as "boring, just like home!"

That would be an incorrect conclusion, as my high school science teacher would have phrased it. Take it's size, for example. With a diameter of 2160 miles, our moon is between one-fourth and one-third of the diameter of the Earth. Some astronomers have referred to the Earth-Moon system not as a planet and it's satellite but as a double planet. Although other planets have moons larger than Earth's moon, in comparison to the size of the planets around which they revolve they are minuscule. Only the Earth has a moon so comparatively large in relation to itself (not counting Pluto and it's large moon Charon, since Pluto is no longer considered a planet, at least, not by the International Astrophysical Union.)

Of all the planets and their moons, why are all their moons so relatively tiny and ours so comparatively huge? The answer may lie in the manner in which our moon formed. While moons around other planets are thought to be either captured bodies (asteroids, comets, etc.) or to be the result of collisions between smaller

bodies, the current favorite theory of our moon's formation is that it is the result of the collision between the infant Earth and a Mars sized planetesimal, not long after the Earth formed 4.5 billion years ago.

The intruding object struck a lifeless, still cooling, somewhat smaller Earth a glancing blow. Some of the impacting mass was vaporized, much of it melted and "splashed" back into space, and some of it merged with the re-liquified proto-Earth. Over the next few tens of thousand years much of the combined mass which had splashed back into space re-impacted the molten Earth, adding lighter minerals to what would become its crust, while more of the mass stayed in orbit, gradually combining into the body which would eventually become the Moon.

This "Big Splat" impact theory explains at least some of the questions about the moon which resulted from previous robotic and manned exploration: why, for example, the moon seems almost completely without volatile elements yet possessing almost the same proportion of non-volatile elements as does the Earth's crust, and why although it must once have had a molten core it does not have one today, as evidenced by its lack of an appreciable magnetic field? On the other hand this theory does not explain why the Earth-Moon system has too little angular momentum which would have resulted from an event of this nature, so perhaps the last chapter on the origin of the Earth-Moon system has yet to be written.

The moon still has considerable influence over our planet today. Our ocean tides are much more affected by the Moon's gravity than they are by the much stronger (but much further away,) gravity of the Sun, for example. But a quick glance at the Moon's surface also gives clues to another effect of the Moon on us.

Even a cursory examination of the Moon through a small telescope reveals a multitude of craters, mostly formed by the impact of falling rocks. Yet even with the accepted erosion of similar craters on the Earth by geologic processes, weather, biological effects and even human activity, the Earth shows fewer craters than it would have had the Moon not been acting as a sort of shield. In addition to absorbing some impacts which might have struck the Earth, the Moon's gravity has also protected us by deflecting incoming meteors away from the Earth-Moon system.

While many of the Moon's craters (and most of the very largest,) came during the period of the Late Heavy Bombardment, when the last of the chaotically wandering large leftover chunks of rock and ice were clearing themselves out of the newborn solar system, smaller asteroids and meteorites still impact all of the Sun's revolving family today. It has been estimated that the Earth's mass grows by about 20 tons per day, chiefly from cosmic dust entering our atmosphere. Occasionally, larger objects reach the surface, which we collect as meteorites. Even more occasionally, small objects impact the Moon's surface and the flash can be seen from Earth. NASA operates a small telescope (a 14" Celestron Schmidt-Cassegrain,) on permanent watch over the Moon's surface, with special software to rapidly detect and identify lunar impacts and have in the past solicited amateur involvement in the program.

While the major lunar features such as seas and craters may be familiar to many of us, the Moon possesses a wealth of less known highlights. Many of these little-known gems can be seen with surprisingly small telescopes. In next month's continuation, we'll take a look at some of the goodies peppering the face of our nearest cosmic neighbor.

Michael Sherck