Newsletter of the Delta Astronomical Society

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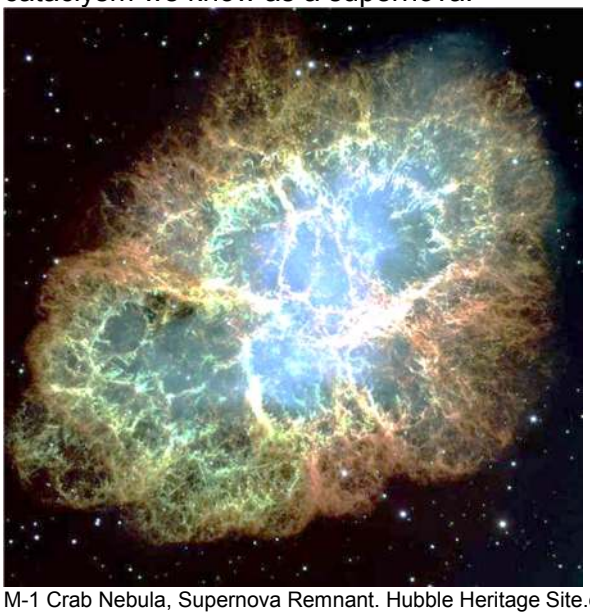
John Burroughs facilitates daylight viewing of the Sun, Venus and the Moon, 7-5-13.

Meteor Crater, near Winslow AZ, Bing images.

Last weekend, at a house warming party at a friend's new home, I held a piece of a supernova in my hand. His father was an amateur geologist who amassed an impressive collection of rocks and minerals during his life, including a large piece of float copper, weighing over 100 lbs. But the piece that caught my eye was a small hunk of silver-gray metal with dents and craters on its surface. It fit easily in the palm of my hand, and was heavier than I expected when he handed it to me. I recognized it immediately as an iron-nickel meteorite.[1] Cooked up in the nuclear furnace at the core of a giant star, this bit of iron was blasted out into interstellar space when the star's core collapsed and exploded in the cataclysm we know as a supernova.



M-1 Crab Nebula, Supernova Remnant. Hubble Heritage Site.org

After billions of years drifting through the spiral arms and cold, dark dust clouds of the Galaxy this little meteoroid wandered into the path of the beautiful blue marble we live on. It then fell blazing through Earth's atmosphere, and plopped down on the ground, where it lay until someone eventually spotted it. Perhaps the strongly magnetic meteorite got stuck to a farmer's plow, or it made a surveyor's compass swing wildly off North. However it got there, eventually it made its way into my friend's father's collection, where I spied it, last Friday.

Iron-Nickel Meteorite. Arizona Skies Meteorites, Inc.

I have held meteorites before. I once owned a very small fragment of Canyon Diablo meteorite, which was part of the asteroid that struck the Earth 40,000 years ago, forming Arizona's Barringer Crater. Somehow, the heft of this one was just enough to impress upon my imagination its origins in the incredibly dense, unimaginably hot iron core of a massive star. Perhaps it was because I had recently read that physicists now believe that all the gold in the universe is created in the violence of the mergers of neutron stars. And we know it isn't just iron and gold. Except for the Hydrogen, Helium and Lithium that were produced in the Big Bang, all the elements in the universe were forged in the bellies of stars. Sure, we know this, but it boggles the mind to think that *all that we consider precious, beautiful and of value in life*: A towering pine, the cold waters of a lake, lapping against the side of a kayak, or a baby's blue eyes—All of this was born in the death throes of massive stars.

As Carl Sagan once said, "We are all star stuff."

As Always, "Keep Looking Up!" Dan

[1] Sikhote-Alin specimen from the 1947 Siberian fall.

DAS Booth, July 4, 2013 .photo. c. R Luchay. DAS

Thanks to those who helped us with set-up, tear down and staffing our annual July 4th fundraising booth, we were able to raise a little over $1000. These funds will allow us to do necessary maintenance and repairs to our rotating observatory building north of Hyde, maintain and improve our telescope and observing equipment, and begin updating the Walk of the Planet plaques. When we cleaned them this spring, we discovered that they have begun to corrode and deteriorate, due to exposure to the elements over the 11years they have been in place on Ludington Street.


Daylight public observing, July 5, 2013--- c R. Luchay.DAS

We also staffed our booth on the evenings of July 5 & 6 for the concerts in Ludington Park in support of the Escanaba 150th celebrations, and held daytime and evening star parties, free to the public on July 12 & 13. Special thanks to: Marsha Burroughs, Leona Young, Dave Beaudin, Rich Luchay, Ari Beaudin, Mike Lemke, Kathy and Greg Bekes and of course, John Burroughs, for all the hard work. In spite of the heat, and a couple of technical glitches, we had enthusiastic participation at each public viewing event.

Get Ready for the Perseids, August 11-13.

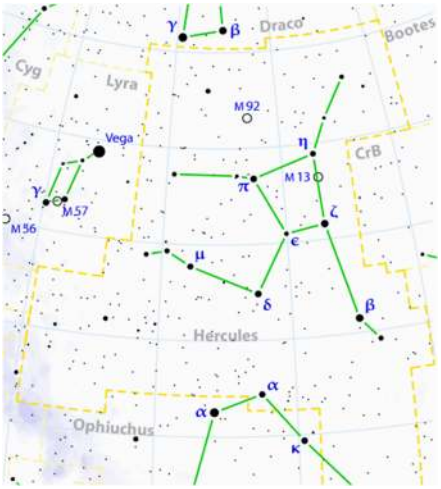

Perseid Meteors over Mt Hood. c Gary Randall

Last Saturday night, when we finally got a break in the cloudy, rainy weather, John and I went out to the club observatory site and did some deep sky observing. From about 10:30 on, we saw several bright early Perseid meteors and a few sporadics. One very bright bolide startled us as we were looking south, observing M22 in Sagittarius, with a flash in the sky over our shoulders so bright I thought it might have been a photo-flash and John wondered if it was lightning. Looking back, I saw a fading train falling down through Cygnus toward the house and trees to the east. This was in spite of a layer of patchy fog about 20 feet up and temps close to the dew point.


Cassiopeia above the trees in the northeastern skies. Bing Images.

To observe the Perseid Meteor shower, all one needs is a comfortable lounge chair, clear skies, (preferably away from city light pollution) and an open view toward the northeast, below the "W" of Cassiopeia. I prefer to look up across the expanse of the Milky Way in Cygnus in the area of the Summer Triangle, so as to catch the larger fireballs that radiate out in all directions from the place where the Earth plows into the stream of commentary dust & debris. If you want to photograph the shower, put your camera on a tripod with a wide angle lens. Use a medium-high ISO setting and lock the shutter open ("B" or Manual). Focus at infinity. For long exposures of up to 10 minutes or more, you may need a yellow or orange filter to eliminate "sky fog". Be patient, the highest number of meteors per hour (50-75) will come after midnight, in the wee hours before dawn. Start watching now, whenever it's clear. Call John for info on Club viewing: 789-1414.

OUR NIGHT SKIES IN AUGUST

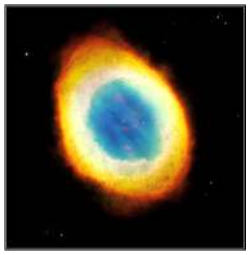


Hercules, the Hero at the Zenith. Astronomy Central.

Once August's skies are dark, around 10:00 pm, they are graced with wonders. Riding high in the night sky are the constellations *Hercules*, and after midnight, *Lyra* and the bright river of the Milky Way. Within Hercules, along the western side of the "keystone" lies M-13, perhaps the finest globular cluster in the northern skies. This ball of stars contains some 400,000x the mass of the Sun, within a sphere 125 light years wide. Easily spotted in binoculars, even a small telescope reveals individual stars.

M-13 Hercules Globular. Bob & Janet Fera.

Greek mythology claimed that the warrior Hercules fell in love with Hera, Zeus's wife. Driven mad with love he killed his own wife and children. Returning to his senses he knelt in penitence. The red supergiant star, *Rasalgethi* (*Alpha Herc.*) represents the knee upon which he knelt. In Arabic: "The Penitent's Knee." Our eyes are more sensitive to light and dark than to color, so many people see all stars as white. Rasalgathi is actually a binary star. Through a telescope, the color contrast between the Red Giant and its blue companion is easy to see. Albireo, at the south end of the Summer Cross *(Cygnus)* is another easy double to split, with orange and gold component stars.

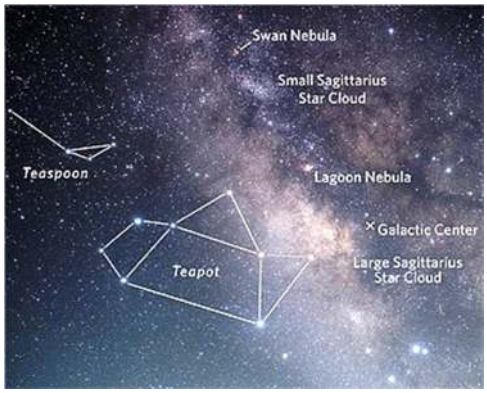


The Ring Nebula, M57. Hubble Heritage image 1999, Hubblesite.org.

Anchoring the small constellation *Lyra*, the Lyre is the brightest star in the summer skies, Vega. Only 27 light years away, this big, blue-white star is 3 times the size of the Sun and 58 times as luminous. Brightest of the 3 stars of the summer triangle, Vega is high overhead in August. Lyra's main attraction is the famous Ring Nebula, the glowing remnant of a star like the Sun that died about 20,000 years ago. In an 8- inch telescope, M57 looks like a ghostly white smoke ring. This seemingly tiny puff of glowing gas and dust is actually about 2 light years wide…wider than our entire Solar System—including the distant Oort cloud!

Saturn, Cassini, close approach 2004. NASA-JPL

The giant planet Jupiter dominated the night skies through the winter. Now the beautiful ringed planet, Saturn takes center stage. Appearing in the south as the skies darken, Saturn floats among the star fields between *Libra* and *Virgo.* A telescope under dark skies will reveal Saturn's rings and subtle cloud details. Twice as far from the Sun as Jupiter, it takes Saturn 29.5 Earth years to orbit the Sun just once. It seems to hang in the same place in the sky, month after month. Cassini has explored the system since 2004, shedding light on its 62 moons and icy rings, which are now open 17degrees to our line of sight.



The "Teapot" of Sagittarius, with bright Messier objects labeled.

Follow the river of the Milky Way south to the horizon and you will come to the dense star-fields of Sagittarius. Globular clusters and bright nebulae rise above the familiar "Teapot" asterism like steam, including M22--easily visible in 10x50 binoculars. A 4-inch table-top telescope resolves its individual stars. Just off the teapot's spout is the actual center of our Galaxy, 30,000 light years away. Within the Milky Way's dark rift float the Lagoon (M8) and Trifid (M20) nebulas.

Just above them in *Scutum* is M16, the Eagle Nebula, site of the Hubble telescope's famous photo "The Pillars of Creation." This crowded stellar nursery, contains both reflection and emission nebulas. The dark pillars of dense collapsing gas and dust are backlit by light from giant young stars, *(reflection*) while the gas between them is heated to fluoresce *(emission)* by the hot young stars' searing stellar winds. **Perseids peak** Aug. 12-13. Look northeast after midnight.

Next meeting: Tues. Aug 27, 7pm, Room 961 Bay College, Escanaba. ***Visitors Welcome.***

August 2013 Sky Calendar used with permission of Abrams Planetarium, MSU. *Not for further distribution.*