



Nightfall

Monthly publication of the Huachuca Astronomy Club

October 2013

Next Meeting

The next meeting of the Huachuca Astronomy Club will be held on October 25, 2013 at 7:00 PM in room 1101 of the Science Building, Cochise Community College, Sierra Vista Campus. The meeting is free and open to the public. A door prize will be awarded. The guest speaker will be Jeff Ofstedahl, also known as "Mr. Oh!" the science director at the Center for Academic Success. Jeff, a National Science Foundation fellow and NASA Education Ambassador will be giving a presentation about NASA's next mission to Mars, the MAVEN mission scheduled to launch Nov. 18th. Learn about the connection between Mars' magnetic fields and the loss of its atmosphere: Could it happen to Earth?

President's Notes by David Roemer

It's said that Bernard of Chartres (sometime in the 12th century) used to say that we are like dwarfs on the shoulders of giants, so that we can see more than them, and things at a greater distance, not by virtue of any sharpness of sight on our part, or any physical distinction, but because we are carried high and raised up by their giant size. This is how I feel taking the mantle of president of the Huachuca Astronomy Club. I cannot expect to do the great deeds of earlier presidents' merely try to incrementally improve on their accomplishments and not screw anything up. On both of these credos I expect to ask for help... often.

But enough about me, let me tell you a little about a hobby of mine, astronomy, and how I came to it. You may have similar tales to tell if you think back. It was a few days before Christmas and I was in fourth grade, so, about nine years old? Anyway, as was the custom in our family, my brother and I had awakened in those wee hours before the reasonable hours begin, to sneak a peek at our presents. We were pretty good at this and had an excellent success rate at figuring out what we were getting. That year, however, I was stumped by one box. Now don't get ahead of me. I know this probably your story too.

My parents were semi-wise to our brotherly traditions and were known to plant phony presents, but this box had the earmarks of a real one. The box was about four feet by one foot by one foot, yet not very heavy. The balance of the box was off to one end on the long axis but pretty close one the short axis. Short of actual surgery, a no-no in our family, I would have to wait, and this time I really had no clue. I had not petitioned for any high-value item that year. No Red Rider BB gun, if you know what I mean.

As a penance for not guessing, I opened that box last. No other present gave any hint. I was totally shocked and totally changed. Anyway you're already waiting with the answer; you just don't know the manufacturer. It was Tasco. Yep, a gleaming white 60mm refractor, on an alt-az mount, packed in Styrofoam and encased in a smelly wooden chest. It was sooo cool. I was out of the house and in the front yard in a flash, setting that thing up and looking at what?

(Continued on page 4)

Pictures From Astronomy Day

On October 12, HAC held the second Astronomy Day of 2013 at Patterson Observatory. Tommy Neyhart wrote

Thank you so much, one and all, for making Astronomy Day such a memorable success. In a relatively short period of time we touched so many lives of the steady stream of visitors who came to the Patterson through the afternoon and evening. Despite the other large events going on nearby, we should all feel good about the degree of response from so many interested folks, both young and old.

Tommy Neyhart took many pictures of Astronomy Day. Only a few are included here



Astronomical League Observing Programs - Planetary Nebula October Edition

by Ted Forte

(Captured from the HAList)

The list of objects for October, the objects on the Planetary Nebula Program list optimally placed this month, is just six objects long.

I'll take them just the way they show up in the program, in Right Ascension order.

Our first object is in the much ignored constellation of Lacerta. The tiny "W" asterism that makes up the lizard has been called the little Cassiopeia. How many of you, I wonder, ever bother to stop here? Anyway, the one PN highlight of this part of the sky is the rather small bluish disk, IC 5217 that was discovered in 1904 by Williamina Fleming. I discovered it 101 years later at the DelMarVa Stargaze and I was surprised by how bright and easy it was. I noted that the object blinked profusely. That is, when stared at with direct vision the tiny disk goes away and it becomes stellar; use your averted vision and the small blue-green nebula blossoms out. It is a bit elongated along the N-S axis and has a tapered appearance toward the south. An OIII filter enhances the object, but kills the cool blink effect.

Our next object is one of the most famous showpieces in the sky. It is remarkable in that you don't need a big telescope to see it, in fact, it may be viewed in binoculars, is best in small rich-field scopes, and many large scope owners will attest that it is better seen in the finder. The Helix Nebula in Aquarius is just 700 light years away which accounts for its large size; it spans 12' x 10' of sky - more than 8 times the size of the Ring Nebula (M57). Low power and a wide field is the ticket, and this object breaks the usual rule about small scopes and narrowband filters. I think the filter helps at any aperture. I wonder if anyone here has tried to see the Helix naked eye? Any reports to share? Speaking of eyes - you may know the Helix as "The Eye of God" if your introduction to this object came after the release of the Hubble photo in 2003. The Helix is a ghostly, delicate wreath with a distinct hole in the center that contains not only the 13.5 magnitude central star but also several field stars. It makes a continuous annular ring when studied but is particularly brighter in the NNE and SSW.

NGC 7354 in Cepheus is located SE of the center of an imaginary line connecting Iota and Zeta Cephei. Photographs reveal an intricate morphology - a cocoon inside a bubble. Alas, the telescope view is far less revealing, but still interesting. In smaller scopes it will appear as a disk of nebular gray. In the 30-inch I see it as clearly annular with a darkened inner hole, and I get the strong impression that I can see the 16th magnitude central star. In my 18-inch, the annularity is less certain and there is no hint of the central star. At 197x, the field of view is almost exactly bisected by a line of stars with the PN anchoring the middle of the field. A pair of 10th magnitude stars just 40" apart terminates the line to the north.

Who doesn't list the magnificent bauble known as the Blue Snowball among their favorite objects? NGC 7662 in Andromeda is an unmistakable bright blue disk in the eyepiece. Too bad. If our eyes were not so overwhelmed by its 8th magnitude intensity we might see more of the convoluted structure within or the faint amorphous outer halo that surrounds it. Nevertheless, it will always elicit a response when this pretty Easter-egg blue disk comes into view. It's a must see!

In contrast to the bright objects like the snowball, our final two objects are much more challenging. Jones 1 is a large faint apparition that is indeed challenging. Located in Pegasus just north of the Great Square halfway between Alpheratz and Scheat. It usually appears as no more than two faint arcs; segments of the large (5.2 minute diameter) ring. It isn't even helped a whole lot by a nebular filter. A real toughie in apertures under 16 inches, so don't be discouraged if you conclude that it's one of those "aint-no's".

Abell 82 in Cassiopeia is typical of the large faint planetaries cataloged by George Abell. It takes averted vision, low power and a filter to detect it. It appears small and round in smaller scopes; larger scopes will detect nebulosity further out from the 14.9 magnitude central star.

Good luck with these if you try them. I hope you'll share your observations right here. And don't forget to properly log them so that you can work toward getting that pin!

This month's objects:

IC 5217	PN G100.6-05.4	Lac	22h24m20.5s	+51°00'49"
Helix	NGC 7293	Aqr	22h30m11.7s	-20°47'05"
NGC 7354	PN G107.8+02.3	Cep	22h40m43.3s	+61°20'00"
Blue Snowball	NGC 7662	And	23h26m23.0s	+42°35'10"
Jones 1	PK 104-29.1	Peg	23h36m23.3s	+30°31'15"
Abell 82	PN G114.0-04.6	Cas	23h46m17.3s	+57°07'02"

President's Notes (Continued from page 1)

I didn't know the sky at all. I didn't know anyone who did. So I just looked up and tried to find something. Everything was new, strange and fascinating. This was helped along by the sad state of Tasco eyepieces, as well as my state of knowledge; but I kept on trying. Bubbly blob there – who knows; bright point of light with sparkling rays coming off it – a star perhaps? Then the Moon: blinding and glorious. Nothing stayed in the field of view very long, but the instructions told how to adjust the finder and I was off and running. Star; star; another star; a blob; and then sometime during that night I saw Jupiter. Well, that was it. It was all over. The scope and the night sky had won. I was forever hooked.

That is why I joined this club, to hook others on astronomy. To forever change the way people see the night sky or think about their place in the universe. Was I right? Was this your story as well? Yep, thought so. There is a great story of first contact in November's *Scientific American* by Steve Mirsky. Here is a pointer to the electronic version, <http://www.scientificamerican.com/article.cfm?id=seeing-saturn-for-the-first-time-really-opens-ones-eyes>.

Comet ISON Observations by HAC Members

David Roemer

Beautiful morning,

The zodiacal light extended 50 degrees up from the eastern horizon. I haven't seen that for a long while. The comet was visual in the C-14 with a hint of a tail. I took two series of images 10 at 2 min. each and 10 at 30 sec. Here is a median combined image of ten 2 min. exposures with the C-14 working at f/1.9



Glen Sanner

Hi All,

I have attached a single image of the comet taken this morning at 5AM with some labeling on it. I have also attached a stacked image of ISON from this morning. The stacked image is the result of 6 three minute Raw exposures at ISO 800 taken with a Canon 1D mkiii attached to an Orion 10" astrograph at f/3.9, using an AP 800 mount. I am using a Baader coma corrector as well. The field is about .8 degrees x .55 degrees when cropped. I started the images about 4:04AM and finished at 5:05AM. As David said in his message the zodiacal light was impressive and easily reached the Beehive, with the winter Milky Way making crossed swords with it. The comet is moving rapidly and continues to gain speed, this morning it was traveling at 83,000 miles per hour. During my photography session of a little over an hour it would have traveled about 1/3 the distance to the Moon, during any one photo about 4000 miles. The magnitudes of

the labeled stars were taken from the NASA extragalactic database (NED), listing both Blue and Red mags. A very nice, if not chilly morning (46 degrees).



Bob Kepple

I stayed up all night imaging various deep-sky objects then caught three comets before dawn, ISON, Encke, and Lovejoy. Seems ISON is getting all the attention, and the other two are forgotten.



2013—ARIZONA's Astronomically Handy Sky Calendar from Doug Snyder & the H.A.C.—2013
ARIZONA Observers SKY EVENTS Calendar for 2013 —All Times shown are MOUNTAIN STANDARD TIME*

January 2013

HIGHLIGHT1: Moon & Jupiter on 21st
HL2(month): Saturn's Rings open to 4.8°
 Note: **HAC** = Huachuca Astronomy Club
 03 Th Quadrantids Meteor Shower - unfavorable year due to Moon light! 04
 Fr ☾ Last Quarter Moon 2058 hrs.
 11 Fr ● **NEW MOON** 1244 hrs.(lunation#1114)
 12 Sa **HAC Member Star Party** (S.P.)
 17 Th **HAC Pub. S.P.; P.O.; SS@1743h.**
 18 Fr ☽ First Quarter Moon 1645 hrs.
 21 Mo MOON & Jupiter v. close, 2000h
 25 Fr **HAC Meeting**, Cochise College, 1900 hrs
 26 Sa ○ Full Moon, 2138 hrs.
 29 Tu Zodiacal Lt. in W., pm, next two weeks after evening twilight.

February 2013

HIGHLIGHT: Merc. & Mars close on Feb. 8th
 03 Su ☾ Last Quarter Moon 0656 hrs.
 09 Sa **HAC Member Star Party** (S.P.)
 10 Su ● **NEW MOON** 0020 hrs.
 14 Th **HAC Pub. S.P.; P.O.; SS@1808hrs.** 15
 Fr **NEA** 2012 DA14; to mag.12 in evening hrs.; size= 57meters; visit spaceweather.com
 16 Sa Merc. evening planet in W., 9"
 17 Su ☽ First Quarter Moon 1331 hrs. 22
 Fr **HAC Meeting**, Cochise College
 25 Mo ○ Full Moon 1326 hrs.
 27 We Zodiacal Lt. in W., pm, next two weeks after evening twilight

March 2013

HIGHLIGHT: Messier Marathon S.P. 04
 Mo ☾ Last Quarter Moon 1453 hrs. 09
 Sa **HAC Messier Marathon S.P.**
 09 Sa **Comet Pan-Starrs** (C/2011 L4); 2100hrs, at Perihelion—Mag. 0?
 11 Mo ● **NEW MOON** 1251 hrs.
 14 Th **HAC Pub. S.P.; P.O.; SS@1829h.**
 16 Sa **Kartchner Caverns State Park** SP.
 17 Su Moon&Jup. close;1900hrs; 1.4°
 19 Tu ☽ First Quarter Moon 1027 hrs.
 20 We **Vernal Equinox**, 0402 hrs.
 22 Fr **HAC Meeting**, Cochise College
 27 We ○ Full Moon 0227 hrs.
 31 Su ● Merc. morning planet in E. size 9"
 Easter Sunday

April 2013

HIGHLIGHT: Saturn Opposition, 4/28
HL2: Comet Pan-Starrs (early in month & bright?)
 02 Tu ☾ Last Quarter Moon, 2137 hrs. 06
 Sa **HAC Member S.P.**
 10 We ● **NEW MOON** 0235 hrs.
 14 Su Jupiter within 4° of crescent Moon
 18 Th ☽ First Quarter Moon 0531 hrs.
 Th **HAC Pub. S.P.; P.O.; SS@1852h.**
 20 Sa **ASTRONOMY DAY—Global**
 22 Mo Lyrid Meteors—v. unfavorable due to moonlight; peak 0400?
 25 Th ○ Full Moon, 1257 hrs.
 26 Fr **HAC Meeting**, Cochise College
 28 Su Saturn at **Opposition**, 0100 hrs. mag. +0.1, size 18.8", 8.82 AU

May 2013

HIGHLIGHT: Merc., Venus, Jup. Conjunction! 02
 Th ☾ Last Quarter Moon, 0414 hrs.
 05 & 06 Su & Mo **η Aquarid Meteors**; favorable; pk@4am each morning; possibly 40 per hr.
 09 Th ● **NEW MOON** 1728 hrs.
 11 Sa **HAC Member S.P.**
 16 Th **HAC Pub. S.P.; P.O.; SS@1912hrs.**
 17 Fr ☽ First Quarter Moon 2134 hrs.
 24 Fr ○ Full Moon, 2125 hrs.
 very shallow penumbral Lunar Eclipse, 1.5%; mostly undetectable, starts at 2053hrs.
 24 Fr **HAC Meeting**, Cochise College
24-29 Planetary Conjunction, best of 2013; evening twilight line up of Merc., Venus, Jup.; 26th is !!
 31 Fr ☾ Last Quarter Moon, 1158 hrs.

June 2013

HIGHLIGHT: (Gamma) Delphinids?
 04 Tu Venus in **M35**, pm, low in NW
 08 Sa ● **NEW MOON** 0856 hrs.
HAC Member S.P.
 11 Tu **Meteors—Del.**; 0100-dawn? v. favorable year, activity is ??
 12 We Merc. G. Elong. 24°, pm planet
 13 Th **HAC Pub. S.P.; P.O.; SS@1927hrs.**
 16 Su ☽ First Quarter Moon 1024 hrs. 20
 Th Merc. 2° S. of Venus, pm
 20 Th Summer **Solstice** 2204 hrs. 23
 Su ○ Full Moon, 0432h. largest of 2013 28
 Fr **HAC Meeting**, Cochise College
 29 Sa ☾ Last Quarter Moon, 2153 hrs.

July 2013

HIGHLIGHT: Mars, Jup., Merc., am, E., July 22nd
 01 Mo Pluto at Opposition, 1800 hrs.
 06 Fr Moon/Mars close; . low in E., 0430h.
 08 Mo ● **NEW MOON** 0014 hrs.
 15 Mo ☽ First Quarter Moon 2018 hrs.
 22 Mo ○ Full Moon, 1116 hrs.
 26 Fr **HAC Meeting**, Cochise College
 29 Mo ☾ Last Quarter Moon, 1043 hrs.
 29-30 Mo-Tu: **Meteors: Delta(δ) Aquarids;** am hrs.; favorable year

August 2013

HIGHLIGHT1: Perseid Meteor Shower
HL2: Moon/Planet pairings, am! & pm during month
 06 Tu ● **NEW MOON** 1451 hrs
 11-13 Su-Tu; **Perseids**; Pk. am of 12th; fast, bright
 14 We ☽ First Quarter Moon 0356 hrs.
 20 Tu ○ Full Moon, 1845 hrs.
 23 Fr **HAC Meeting**, Cochise College
 26 Mo **Neptune** at Opposition, 1900 hrs.
 28 We ☾ Last Quarter Moon, 0235 hrs.

September 2013

HIGHLIGHT: Moon&Venus close, pm, 8th
 03 Tu Zodiacal Lt. in E., am, next two weeks before twilight.
 05 Th ● **NEW MOON** 0436 hrs.
 12 Th ☽ First Quarter Moon 1008 hrs.
HAC Public S.P., P.O.; SS@1830hrs.
 19 Th ○ Full Moon (Harvest), 0413 hrs.
 22 Su Fall **Equinox**, 1344 h. (Aurora?)
 26 Th ☾ Last Quarter Moon, 2055 hrs.
 27 Fr **HAC Meeting**, Cochise College

October 2013

HIGHLIGHT: Jup. Dbl Shadow Transits (3) 17th, 18th, 26th; details online
 03 Th Zodiacal Lt. in E., am, next two wks.
Uranus at Opposition, 0700 hrs.
 04 Fr ● **NEW MOON** 1734 hrs.
HAC Member S.P.
 05 Sa **Kartchner Caverns State Park** S.P.
 10 Th **HAC Public S.P., P.O.; SS@1755hrs.**
 11 Fr ☽ First Quarter Moon 0402 hrs.
 12 Sa **Astronomy Day** (Autumn)
 18 Fr ○ Full Moon, 1638h.; Lunar eclipse @MR
 25 Fr **HAC Meeting**, Cochise College
 26 Sa ☾ Last Quarter Moon, 1640 hrs.

November 2013

HIGHLIGHT: Comet ISON (C/2012 S1) !!!! ??? 01
 Fr Venus G. Elong. E.(47°), 0100hrs., pm planet
 02 Sa **HAC Member S.P.**
 Jup., dbl. Shadow Tr., 0414hrs., I & Eu;
 03 Su ● **NEW MOON** 0550 hrs.
 05 Tu S. Taurid meteors Pk., 0400 hrs.; favorable;
 07 Th **HAC Public S.P., P.O.; SS@1727 hrs.**
 09 Sa ☽ First Quarter Moon 2257 hrs.
 17 Su ○ Full Moon, 0816 hrs.; Merc. am planet 22
 Fr **HAC Meeting**, Cochise College
 25 Mo ☾ Last Quarter Moon, 1228 hrs.
 28 Th **Comet ISON, Perihelion** @ 1600hrs.
 30 Sa **HAC Member S.P. (for December)**

December 2013

HIGHLIGHT: Comet ISON ??? !!!!
 02 Mo ● **NEW MOON** 1722 hrs.
 06 Fr Venus @ greatest illumination, mag. -4.9, 26% illuminated, size 41" 09
 Mo ☽ First Quarter Moon 1008 hrs. 12
 Th **HAC Public S.P., P.O.; SS@1714h.** 13
 Fr Geminid Meteors Pk. 2300h., fair? 14
 Sa **HAC Meeting/XMAS Party** 17
 Tu ○ Full Moon, 0413h. (smallest 2013)
 21 Sa Winter **Solstice**, 1011 hrs.
 22 Su Ursid Meteors Pk., 0700 hrs.
 25 We ☾ Last Quarter Moon, 0648 hrs.
 26 Th **C/ISON:** closest to Earth, 0300h.

*Times/Dates = ARIZONA Mountain Standard Time (NO DST; UT-7hrs); **updates/ details**, see: www.hacastronomy.com or <http://skycalendar.blackskies.org>;
Abbr: Tr=Transit; Pk=Peak; Merc=Mercury; E=East W=West; S=South; N=North; J, Jup.=Jupiter; V=Venus; v. = very; °=arc seconds; SS=SunSet; S.P.=Star Party;
 h., hrs.=hours (24 hour time system); MP=Minor Planet; MS=Moon Set; MR=Moon Rise; wks=weeks; Lt=Light; pm=evening; @=at; Pub.=Public; NEA= Near Earth Asteroid; am=morning; mag.=magnitude; **meteor dates reflect predicted Peak Morning, but Moon may still be present; P.O.=Patterson Observatory; ; I=Io; Eu=Europa; G=Ganymede; C=Callisto; UT=Universal Time; **bold text**=possibly a promising worthy event, activity or object; G_Elong=Greatest Elongation; dbl= double; AU=Astronomical Unit; °= degrees; **compiler: Doug Snyder** (C/2002 E2, MP15512); V1.1.2013

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