



# The Meridian

Newsletter of the Quad Cities Astronomical Society • November 2013

## Meeting Notes

John Robbins, Secretary

**November 18.** Meeting called to order by Dale Hendricks at 7:03pm. The meeting was attended by 15: Karl Adlon, Steve VanHyfte, Bruce Brooker, Dana Taylor, Robert Mitchell, John Robbins, Matt Neilssen, John Baker, Jeff Struve, Dale Hendricks, Cecil Ward, Dave Heard, Deake Schneider, Craig Cox and Jim Rutenbeck.

### Agenda

*Treasurer's Report.* At the beginning of the meeting, the club account had \$974.14 in it. During the evening, many members paid their dues. Reminder to those who haven't paid: **please pay your dues at your earliest convenience.** Keep your club active and healthy!

*Facilities.* Electrical conduit was extended to the dome building laid in a 1.5 foot deep trench between the roll-off and the dome. Electrical leads will be connected this weekend (Nov. 23-24) which will provide a permanent electric connection.

Mirror collimation locks were installed on the 16" telescope, as well as a new collimation target (donut) on the mirror.

Concern was raised about developing a failsafe means to cut-off of power to the 16" drive motor in the case of failing to turn the power off after a nights observing. If the drive is accidentally left on, the telescope will continue to track and slew until contact

is made with the floor (or another object), potentially causing damage to the scope and mount.

Discussion and ideas were offered, Configuring a switch when the shutter is closed, inside the rotating dome, is a bit problematic (i.e., when the shutter is closed, power to the motor drive would cease). It may be possible to configure a limit switch on the mount itself, but it will take some examination to conceive how best to do it.

Bruce Brooker suggested a simple and inexpensive (~\$20) alternative: the use of a timer switch. He offered to buy and assemble a timer that the drive would be plugged into. The timer would last for about an hour. Concerns were voiced about having to remember to increment the timer periodically during long observing sessions.

Purchase of a Baader coma corrector Mk III for the 16" scope, costing \$214, was approved unanimously. \$180 was available from a special collection and through additional gifts,

*Additional QCAS Meetings.* Karl Adlon shared a desire to add a monthly workshop meeting. The third Monday of every month will continue to focus on the business, finances and facilities of QCAS along with a more formal presentation. The *first Monday of every month, starting January 6, 2014*, will be a more informal gathering where members and guests can share their personal observing activities and their knowledge in a workshop format.

## Young Stars Paint Spectacular Stellar Landscape



Astronomers at ESO have captured the best image so far of the curious clouds around the star cluster NGC 3572 [in Carina, too far south for us to see. *ed.*]. This new image shows how these clouds of gas and dust have been sculpted into whimsical bubbles, arcs and the odd features known as elephant trunks by the stellar winds flowing from this gathering of hot young stars. The brightest of these cluster stars are much heavier than the Sun and will end their short lives as supernova explosions. [Released on 11/13/2013 by the European Southern Observatory. [www.eso.org](http://www.eso.org)]

Most stars do not form alone, but with many siblings that are created at about the same time from a single cloud of gas and dust. NGC 3572, in the southern constellation of Carina (The Keel), is one of these clusters. It contains many hot young blue-white stars that shine brightly and generate powerful stellar winds that tend to gradually disperse the remaining gas and dust from their surroundings. The glowing gas clouds and accompanying cluster of stars are the subjects of a new picture from the Wide Field Imager on the MPG/ESO 2.2-metre telescope at ESO's La Silla Observatory in Chile<sup>1</sup>.

In the lower part of the image a big chunk of the molecular cloud that gave birth to these stellar youngsters still can be seen. It has been dramatically affected by the powerful radiation coming from its smoldering offspring. The radiation not only makes it glow with a characteristic hue, but also sculpts the clouds into

amazingly convoluted shapes, including bubbles, arcs and the dark columns that astronomers call elephant trunks<sup>2</sup>.

A strange feature captured in this image is the tiny ring-like nebula located slightly above the centre of the image. Astronomers still are a little uncertain about the origin of this curious feature. It is probably a dense leftover from the molecular cloud that formed the cluster, perhaps a bubble created around a very bright hot star. But some authors have considered that it may be some kind of oddly shaped planetary nebula—the remnants of a dying star<sup>3</sup>.

Stars born inside a cluster may be siblings, but they are not twins. They have almost the same age, but differ in size, mass, temperature, and colour. The course of a star's life is determined largely by its mass, so a given cluster will contain stars in various stages of their lives, giving astronomers a perfect laboratory in

## COMET ISON'S SUPER TAIL

Comet's ISON's recent outburst of activity has done more than simply brighten the comet. Whatever exploded from the comet's core also created a spectacularly-long tail, more than 16 million kilometers from end to end. Scroll down to see the full extent of Comet ISON as photographed on Nov. 17th by Michael Jäger of Ebenwaldhöhe, Austria (right).

"The tail of the comet stretches more than 7° across the sky," says Jäger. It's almost as wide as the bowl of the Big Dipper.

Physically, ISON's tail is about 12 times wider than the sun. So, when the head of ISON plunges into the sun's atmosphere on Nov. 28th, more than 15 million kilometers of the comet's tail will still be jutting into space behind it.

Because so much gas and dust is spewing from the comet's core, it is impossible to see clearly what caused Comet ISON's outburst on Nov. 13-14. One possibility is that fresh veins of ice are opening up in the comet's nucleus, vaporizing furiously as ISON approaches the sun. Another possibility is that the nucleus has completely fragmented.

"If so, it will still be several days before we know for



sure," says Karl Battams, an astronomer with NASA's Comet ISON Observing Campaign. "When comet nuclei fall apart, it's not like a shrapnel-laden explosion. Instead, the chunks slowly drift apart at slightly different speeds. Given that ISON's nucleus is shrouded in such a tremendous volume of light-scattering dust and gas right now, it will be almost impossible to determine this for at least a few days and perhaps not until the comet reaches the field of view of NASA's STEREO HI-1A instrument on November 21, 2013. We will have to wait for the chunks to drift apart a sufficient distance, assuming they don't crumble first."

[Image & story from spaceweather.com]

---

## Young Stars (continued)

which they can study how stars evolve<sup>4</sup>.

These gangs of young stars stick together for a relatively short time, typically tens or hundreds of millions of years. They are gradually disbanded by gravitational interactions, but also because the most massive stars are short-lived, burning through their fuel quickly and ultimately ending their lives in violent supernova explosions, thus contributing to the dispersion of the remaining gas and stars in the cluster.

### Notes

<sup>1</sup> The data used to create this picture were obtained by a team led by ESO astronomer Giacomo Beccari. They used the power of the Wide Field Imager to study the physics of protoplanetary discs in the young stars in NGC 3572. They were surprised to find that this cluster contains stars older than ten million years that are still unambiguously undergoing mass accretion and, therefore, must still be surrounded by discs. This proves that the star formation in NGC 3572 has been ongoing for at least 10-20

million years and would imply that the planet formation process could proceed on much longer timescales than previously thought.

<sup>2</sup> The most famous examples of such elephant trunk features are the Pillars of Creation in the Eagle Nebula, which were captured in exquisite detail by the NASA/ESA Hubble Space Telescope (<http://www.spacetelescope.org/images/opo9544a/>).

<sup>3</sup> When a Sun-like star uses up all its fuel, it puffs its outer layers off into the surrounding space. The hot remains of the star continue to shine strongly into this material, creating beautiful but short-lived glowing shells of ionised gas and forming a so-called planetary nebula. This historical name is only related to the appearance of the object in a small telescope, not to a physical relation to a planet.

<sup>4</sup> The lifetime of a star depends dramatically on how heavy it is. A star fifty times more massive than the Sun will have a life of only a few million years, the Sun will live for about ten billion years whereas low-mass red dwarf stars can live for trillions of years—much longer than the current age of the Universe.



**Member Scopes.** This is Bruce Brooker's first telescope.

Bruce says, "It was given to me by Santa when I was about eight years old. Santa looked a lot like our neighbor Larry. I saw it sitting high on a shelf where I could not get at it in a Sears store in California and wanted it even more than the microscope I wanted for my birthday.

It is a 60mm Jason Astronaut. It has a multielement objective lens, slide in and out 10x to 60x magnification and right left up down image correction element.

I remember the moon being so amazing I felt as if I could walk on it and later was really envious of Neil and Buzz! I could see Saturn's rings and the motion of Jupiter's moons over a period of just a couple of hours. The good looking girl down the street in the shower was not bad either! Kidding. Tried it but the shower curtain was closed. It is still in perfect condition after about 58 years. It actually works quite well if you put a good eyepiece on it. Made in Japan.

*If you have a photo & story of one of your old (or new) telescopes, please share it!*

### QCAS Officers and Contacts:

President: Dale Hendricks	Vice-president: Craig Cox
Secretary: John Robbins	Treasurer: John Baker
Director: Dana Taylor	Facilities: John Baker
Web Master: Dana Taylor	Outreach: Matt Nielssen
Programming: Jim Rutenbeck	

## Calendar

Nov 21 23:21 Jupiter 5.1°N of Moon  
 22 03:50 Moon at Apogee: 405446 km  
 25 09:45 Regulus 5.6°N of Moon  
 25 13:28 LAST QUARTER MOON  
 25 Mercury 0.3° of Saturn  
 27 10:10 Mars 5.7°N of Moon  
 29 10:43 Spica 0.9°S of Moon  
 30 10:59 Moon at Ascending Node

Dec 01 04:13 Saturn 1.2°N of Moon: Occn.  
 02 18:22 NEW MOON  
 04 04:15 Moon at Perigee: 360065 km  
 09 09:12 FIRST QUARTER MOON  
 13 04:10 Moon at Descending Node  
 13 Geminid Meteor Shower  
 15 20:45 Aldebaran 2.7°S of Moon  
**16 19:00 QCAS meeting**  
 17 03:28 FULL MOON  
 19 01:11 Jupiter 5.0°N of Moon

### Reminder

**Please pay your membership dues!** Thanks!



**Meetings:** Third Monday, of each month, 7:00pm, Bettendorf Library, 2950 Learning Campus Dr., off of 18th Street, Bettendorf.

### Correspondence:

Please send to the society at:

P.O. Box 3706, Davenport, IA, 52808.

Members are welcome and encouraged to submit articles for The Meridian.

Submit Any and all interesting items (via e-mail) to: John Robbins or Dale Hendricks.