



The Night Sky

The Newsletter of
The Astronomy Club of Akron

www.acaoh.org

Volume 35 Number 6

June 2013

SUMMER BREAK! NO MEETING AT KIWANIS THIS MONTH.

The President's Column

By Gary Smith

Hello to all fellow star gazers and amateur astronomers. The month of June is upon us and we deserve it. The winter of 2012-2013 was both long and cold. Freezing temperatures is a strong motivation to stay in the house instead of braving the frigid conditions and cold winds to go outside and view the night sky. Many of us believe the very best conditions for star gazing occur on the coldest night of winter that has the least amount of wind. Well that might well be true, but last Monday night (June 3rd) at the ACA observatory, the viewing conditions could only be described as absolutely marvelous! A system with cooler air that moved down from Canada gave all attendees of the Monday impromptu star party a present of unbelievably pristine, transparent seeing. The bright stars shone more brightly and the dimmer stars crept out of the background to make an unmistakable appearance. The absence of the moon allowed us to see the southern constellations of Scorpius, Libra, Virgo, and the northern part of Hydra with unbelievable clarity. The thrill of experiencing such splendid seeing only increases my anticipation for the next perfect night!

The June sky is filled with unique patterns of stars that are very



M13 The Great Hercules Star Cluster - By ACA member John Crilly. Captured May 27, 2013 using the Astrotech 12" RC and the QSI683WSG-8 camera on a Meade LX850 mount.

recognizable. Most of these patterns have bright stars and can be seen with the unaided eye. These patterns of stars are called asterisms. The asterisms have become old and familiar fiends to the average sky watcher. They form the largest signposts and most prominent road markers in the sky. Let us now take a closer look at these signposts and road markers of the summer sky.

The Big Dipper. There is little doubt that the seven stars of Ursa Major that form the shape of the Big Dipper are perhaps the most famous

stars of the northern sky. They are similar in brightness and nearly equally spaced apart. The stars follow the rough outline of a large ladle or dipper. Three of the stars follow a curved pattern to form the handle and the other four stars form a rectangle with an open side to form the bowl.

The pointer stars of the Big Dipper are legendary. Simply estimate the distance between the pointer stars and multiply by five, then move this distance northward and you find the north star, Polaris.

(Con't Page 5)

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May Treasurer's Report

By Glenn Cameron

5/1/2013 Through 5/31/2013

Checking Beginning Balance	\$5,656.56
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Income

Dues	315.43
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Donations	105.00
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Total Income	\$420.43
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Expenses

April & May Spkrs Dinners	-50.02
---------------------------	--------

Sky & Telescope	-65.90
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Astronomy Magazine	-68.00
--------------------	--------

Check for Web Hosting	-45.00
-----------------------	--------

Total Expenses	-\$228.92
-----------------------	------------------

Income Less Expenses	\$191.51
-----------------------------	-----------------

Checking Ending Balance	\$5,848.07
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Savings Beginning Balance	\$6,437.85
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Earned Interest	0.29
-----------------	------

Dues	753.00
------	--------

Donations	1,675.00
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Magazine Subscriptions	133.90
------------------------	--------

Savings Ending Balance	\$9,000.04
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Petty Cash Beginning Balance	\$73.70
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Deposit to Savings	-24.29
--------------------	--------

Petty Cash Ending Balance	\$49.41
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Petty Cash	49.41
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Savings	9,000.04
---------	----------

Checking	5,848.07
----------	----------

Grand Total	\$14,897.52
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Article by Glenn Cameron
ACA Treasurer.

The Astronomy Club of Akron Annual Report - FY 2012

Income	Dues	50/50 Raffle	Donations	Subscriptions	Bank Credit	Interest Earned	Hot Dog Roast	Kiwanis Roses
April						\$0.26		
May	\$948.78	\$54.00	\$80.00	\$34.00	\$0.20	\$0.27		
June	\$250.00		\$300.00	\$34.00		\$0.26		
July						\$0.27	\$63.06	
August	\$80.00		\$20.00	\$34.00		\$0.27		
September						\$0.26		
October	\$316.29	\$17.00	\$1,200.00			\$0.27		
November	\$40.00					\$0.26		
December				\$60.00		\$0.27		
January				\$66.95		\$0.27		
February	\$30.00	\$114.00	\$28.00			\$0.25		\$20.00
March	\$17.00		\$10.50			\$0.27		
Monthly Totals	\$1,682.07	\$185.00	\$1,638.50	\$225.95	\$0.20	\$3.18	\$63.06	\$20.00
Total Income	\$3,820.96							
Expenses	Subscriptions	Obs Expenses	Web Hosting	Internet Domain	Groceries	Postage	Donations Out	Insurance
April			\$45.00					
May	\$32.95			\$28.02				
June								
July	\$68.00		\$45.00		\$59.06	\$2.25		
August	\$34.00					\$0.90		
September							\$50.00	
October						\$1.35		
November			\$45.00			\$0.45		
December	\$60.00					\$0.45		
January	\$66.95		\$45.00			\$0.45		
February								
March						\$0.46		\$425.00
Monthly Totals	\$261.90	\$0.00	\$180.00	\$28.02	\$59.06	\$5.86	\$50.00	\$425.00
Total Expenses	\$1,009.84							
2012 Balance	\$9,381.73							
2013 Balance	\$12,192.85			Projected 2014 Treasury Balance	\$15,003.97			

Article by Glenn Cameron
ACA Treasurer.

The ACA wishes to welcome our newest member:

Noah Sterns

We look forward to seeing you at all club functions!

"The Earth is just too small and fragile a basket for the human race to keep all its eggs in."

—Robert Heinlein

SWAP & SHOP



For Sale:

Pentax XW 20mm Eyepiece

- Excellent condition.
- Small mark on 1.25" barrel.
- Always used in a compression clamp.

Asking: \$220 (cash)

Contact: Fred Fry
Email: riverfry@gmail.com



For sale:

15mm Ultra-Wide Angle Eyepiece

Asking: \$40

Contact: Lew Snodgrass
Phone: 330-819-4886
Phone: 330-867-4800 Ask for Lew.
Email: chrply@aol.com



For sale:

Teleview Radian 12 mm Eyepiece

- Excellent condition.

Asking: \$180 (cash)

Contact: Fred Fry
Email: riverfry@gmail.com



For Sale:

**22mm Orion Epic ED-2 ED Eyepiece
25mm Orion Epic ED-2 ED Eyepiece**

Asking: \$40 each or \$70 for both

Contact: Glenn Cameron
Phone: 330-737-1472
Email: glenn@cameronclan.org



For Sale:

Teleview Radian 18 mm Eyepiece

- Excellent condition.

Asking: \$180 (cash)

Contact: Fred Fry
Email: riverfry@gmail.com

Advertise in the Swap n Shop!

Send a picture of your item and relevant information to the newsletter editor:

truemartian@aol.com

President's Column (con't)

Also by using the other two stars of the bowl, delta (Megrez) and gamma (Phecda), and moving southward, these stars point to the brightest star in Leo (the lion) which is Regulus.

The seven stars of the Big Dipper in various combinations will help you to find:

1. The 6th brightest star in the Sky, which is Alpha Aurigae (Capella).
2. The 2nd brightest star in Gemini, which is Castor. Castor is also the 23rd brightest star in the Sky. If you continue on toward Orion, this line will lead you to Alpha Orionis (Betelgeuse) which is the 9th brightest star in the Sky.
3. The legendary adage, "Follow the Arc to Arcturus, Speed on to Spica". By following the curve of the three stars that form the handle of the Big Dipper, this will lead you to an orange giant star called Arcturus. It is the 4th brightest star in the Sky and it is the brightest star that is north of the celestial equator. "Speed on to Spica" will take you to a blue giant star called Spica. It is the brightest star in Virgo and the 15th brightest star in the sky.

The Sickle of Leo. This magnificent asterism is formed by six stars in the constellation of Leo, the lion. The distinctive pattern has been interpreted to form three different shapes.

1. The head of Leo the lion. The pattern of stars resemble the back of a lion's head that follows the neck and mane. The bottom star is Regulus which represents the heart of the Lion.
2. The Sickle. When falling and descending the sky, as it is doing now in the early evening hours, is seen cutting downwards. One can almost imagine a giant hand wielding this celestial cutting edge and swinging it about in the spring and summer sky.

3. An inverted question mark. The sickle of Leo gives the appearance of a backwards or inverted question mark, especially when viewed under a clear moonless night. This seems to complement the appearance of the giant letter "M" or "W" in the constellation of Cassiopeia.

The Summer Triangle. This is the most famous asterism of the summer sky. It is a large imaginary triangle drawn on the northern hemisphere's celestial sphere, with its defining vertices at Altair, Deneb, and Vega. These are the brightest stars of the three constellations of Aquila, Cygnus, and Lyra. The term "Summer Triangle" was popularized by the late British astronomer Sir Patrick Moore in the 1950's, although he did not invent the term. During the summer months, the Summer Triangle lies virtually overhead near midnight, but it can also be seen during Spring in the early morning to the east. In the Autumn the Summer Triangle is visible in the evening to the west, well into November.

The stars of the Summer Triangle are spectacular. They are three of the brightest stars in the Northern Sky. Alpha Lyrae or Vega is the 5th brightest star in the sky. Can you name any of the four stars that are brighter? It has an apparent magnitude of 0.03 and lies nearby at a distance of approx 25 light years. Vega was the 1st star (other than the Sun) to be photographed and the 1st to have its spectrum recorded. Vega is only about 1/10th the age of the Sun but it is estimated that its lifetime is only 1/10th that of the Sun because it is 2.1 times more massive. Both Vega and the Sun are approaching the midpoint of their life expectancies. In 1983 Vega became the 1st star found to have a disc of dust. The IRAS satellite discovered an excess of infrared radiation coming from Vega and this was attributed to energy emitted by the orbiting dust as it was heated by the star.

Deneb (alpha Cygni) is an apparent magnitude of 1.25 and is the 19th brightest star in the sky. It is a remarkable star. It is a blue-white super-giant star and its intrinsic luminosity staggers the imagination at somewhere between 54,000 and 196,000 times the luminosity of the Sun. Its distance is very difficult to determine. The best estimate using data from the Hipparcos satellite is 1550 light year (+ or - 10%). The Gaia observatory to be launched by the ESA later this year may provide a better estimate of Deneb's distance. Even assuming the lowest estimates of distance and luminosity, Deneb is the brightest and most distant of the stars with apparent magnitude brighter than +1.5 and the most distant of the 30 brightest stars.

Alpha Aquilae (Altair) with an apparent magnitude of 0.77 is the 12th brightest star in the sky and lies at a distance of about 16.73 light years. It is one of the closest stars of the stars that can be seen with the unaided eye. Altair is a type A main sequence star that is approx 11 times more luminous than the Sun and 1.8 times more massive. Altair is not an ordinary star. It has an extremely rapid rate of rotation. Our Sun rotates once every 25 days at its equator. Altair rotates approx. once every nine hours at a speed of 286km/sec (177mi/sec). A study with the Palomar Testbed Interferometer shows that Altair is not spherical, but is flattened at the poles due to this very high rate of rotation.

These are but a few of the asterisms that are a part of our night sky. There are more. Your night sky holds both wonders and treasures that are free for the taking. Explore the reaches of your sky at night. There is no limit to what you will find.

*Article by Gary Smith,
ACA President.*

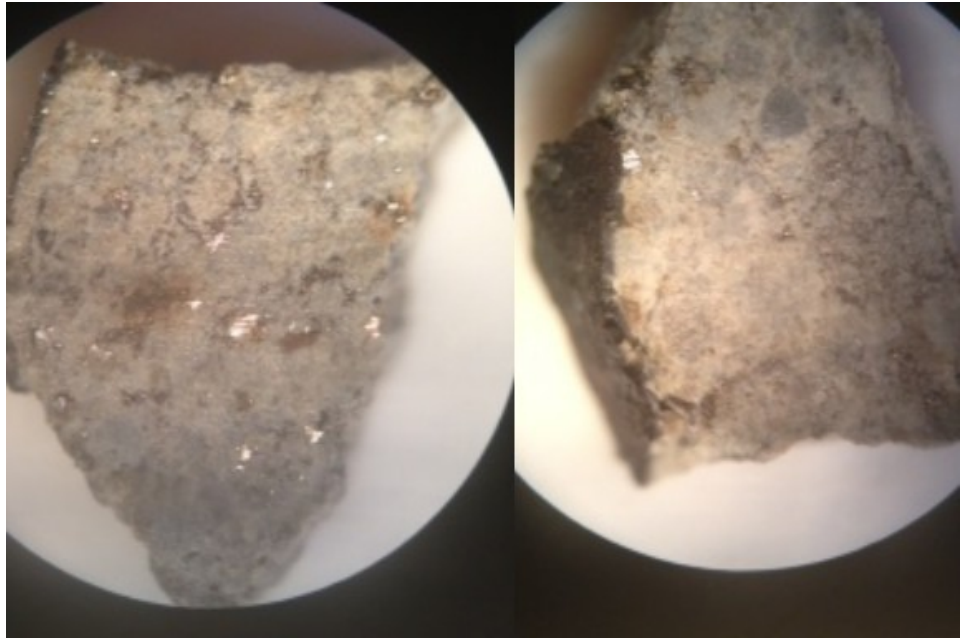
Once In A Lifetime

By Marissa Fanady



Throughout history some generations are lucky enough to witness rare events that happen only once in an entire lifetime. Ancient Chinese astronomers witnessed the first supernova in recorded history in 1054 AD now known as M1 or the Crab Nebula, in 1610 Galileo Galilei was the first person to point a telescope to the night sky discovering Jupiter's four largest moons, and on July 20, 1969 man touched the surface of a new world changing our view of the universe and our place in it. These historic moments mark a new beginning for mankind and start a new race for knowledge to understand our world, to better our future. Astronomical events that are rare or new can be shocking, confusing, and scary to those who don't understand what has happened but to astronomers these events are exciting and welcomed for they contain new knowledge and insight. We are one of those lucky generations, we have seen two Venus transits of which the next two wont occur until 2117 and 2125, we might see the greatest comet in over a century, and on February 15 a small asteroid hit our planet causing more than 1,500 injuries. Such an event only happens once every one hundred years or so, and occurring over a city is extremely rare.

The meteoroid tore through the atmosphere at approximately 3:20:20 UTC time over the Kazakhstan/Russian border making its way northwest through Russia towards the city of Chelyabinsk. Thirteen seconds after atmospheric entry the meteor reached peak brightness over Chelyabinsk traveling at 11.6 miles per second or 18.6 kilometers per second, it was estimated to be 18 meters or 19.7 yards and had a mass about 11,000 tons. When an



Chelyabinsk Meteor Fragment - By ACA member Marissa Fanady. The image on the left shows metal flakes also known as FeNi specks. The image on the right reveals chondrules and fresh fusion crust. The fragment has been classified as type LL5 chondrite. This is but one piece off a fragment that came from the main mass which was about the size of a bus or 18 meters. It is thought that the asteroid originated from the asteroid belt.

impacting object encounters the atmosphere the object is slowed and heated by atmospheric friction, in front of the object gases are compressed and heated creating a bow shock. During this time the object starts to break apart or fragment and in most cases the object disintegrates completely and leaves nothing behind. The Chelyabinsk meteor was large enough to survive this violent entry and shower thousands of meteorites in and around Chelyabinsk. The bow shock that the meteor created blasted out thousands of windows, knocked down a building, set off car alarms, and caused over 1,500 injuries due to flying glass. The energy released was equal to 440 kilotons of TNT and the sonic boom was heard for miles. Citizens initially thought that a nuclear bomb had gone off, most thought it was the end of the world, but amateur meteorite hunters and enthusiast knew right away it was a meteor. Just minutes after the event hunters scattered everywhere to claim a new meteorite and possibly sell some for profit or donate to science. Nothing is better to meteorological scientist than a fresh fall of a new

unknown meteorite, it could hold a secret to the universe unknown to us.

When I woke up on February 15th I never thought an event like this would happen in my lifetime, I was well aware that a meteoroid could and will hit the earth at any given moment but a small asteroid is a rare event I thought would not happen in my generation. The last occurrence of this type of event to happen was the famous Tunguska event that took place in Siberia in 1908. The object weighted about 220 million pounds and released energy equal to about 185 Hiroshima bombs, it leveled trees for miles and one person forty miles away was blown back out of his seat and was pummeled with intense heat. The majority of the meteor was disintegrated in the fiery entry. If such an event were to happen today in a populated area the results would be devastating. This small impact was a reminder and a wake up call that the earth can and will be stuck again, that we need to increase action to find these meteoroids, warn whoever is in its path, and work to try and prevent another Tunguska event. Once again a

rare event has forced us to learn how and why the event happened so that we can try to safeguard our future, to expect the unexpected.

Information credited www.nasa.gov

Article by ACA member

Marissa Fanady.

Observatory Report

By Ron Kalinoski



After two years of discussion about replacement of our observatory telescope, the day arrived to make a final decision. The membership meeting on May 24th was one for the ACA history books. After the presentation on black holes by Dr. Robert Owen, we started the business portion of our meeting. Our President, Gary Smith allowed the entire business meeting to be dedicated to the discussion of observatory telescope replacement. As written in our April newsletter, I presented a plan to fund the Meade 16" LX200ACF. The members listened, asked good questions, and the excitement about upgrading to a larger observatory telescope started to build. Then, the true membership spirit of the club blossomed like time-lapsed images of a flower opening its petals. First, we had Lenny Marek's donation of \$100. Then, Glenn Cameron pledged \$100, followed by Mark Kochheiser pledging \$1000 and Rick Burke pledging \$500. In 15 minutes, members committed \$1700 toward the purchase of the 16" LX200 ACF. The discussion about the telescope continued and hit a climax with a unanimously vote to purchase the Meade 16" LX200 ACF. The excitement was overwhelming. I was stunned; could not believe it. It actually took a few days to comprehend what happened at the meeting. Yes, it was true, the members have spoken! Including our anonymous donor who contributed

\$500 in October 2012, members donated \$2200 toward the purchase of the new observatory telescope. Special thanks to those members financially supporting this effort.

Well, after Friday's membership meeting, how could the weekend get any better? Just come out to an ACA solar party and find out! Our Saturday May 25th solar party started at 1:00pm. The Sun put on one of the best shows I have seen. The Sun looked incredible in hydrogen-alpha wavelength. A prominence was located at every clock digit of the solar disk. Several prominences displayed large loops, one prominence was detached, and another displayed twirling filaments that looked like a spiral staircase bent into a loop. The Sun was no less spectacular in white light; beautifully displaying an unusually large amount of sunspots situated inside intricate designs. Both Dave Jessie and Rick Burke had solar rigs setup that hosted two refractors running tandem on their mounts. One telescope was setup for hydrogen-alpha wavelength and the other for white light. Glenn Cameron and Robert Benedict among others had telescopes setup for white light solar observing. The observatory telescope was dedicated to daytime observing of planets. We continually scrolled through observations of Venus, Mercury, and Jupiter. Mercury was close to greatest western elongation with Venus close-by. Jupiter was located about 10 degrees west of the two inner planets.

We held two impromptu star parties since last newsletter. Unfortunately, not many people took advantage of our impromptu star party on Thursday, May 30th. The skies were clear with pretty good transparency. Saturn looked good, easily displaying the Cassini Division and four Moons. We cranked up both 14" telescopes with the C14 primarily focused on Saturn and the Meade LX200 viewing some of the pleasantries the evening offered. Later in the observing session we stretched

our sight to NGC6229, a globular cluster 102,000 light-years away (that's equal to the distance across our galaxy). One attendee wanted to take a look even further to 3C273, a quasar 2.4 billion light-years distant. Being well placed in the sky this time of year and having a 15th magnitude star map in hand to positively identify the object, we slewed the telescope to the quasar. Using the star map, we easily identified the quasar in the field of view. To end the night, we were treated to a fireball blazing across the southwestern sky. Long-time member Gregg Crenshaw spotted the fireball and alerted others. The fireball was brilliant green sweeping low across the horizon for about three seconds before extinguishing. Gregg recorded the event local time as 11:04pm. This was the second fireball witnessed in May by members & impromptu stargazers. The May 30th fireball was not as large or long lasting as the May 1st fireball. The American Meteor Society logged 244 reports on the May 30th fireball. Reports came in from nine states: IN, KY, MD, NC, OH, PA, TN, VA, & WVA. What a great end to the star party!

Our June 3rd star party was well attended with about 35 members & stargazers. Many first-time stargazers attended this event. The skies were pristine with 35% humidity allowing for good transparency. The seeing was okay; some slight atmospheric disturbance was noted. We cranked through the observing list viewing Saturn, double stars, galaxies, planetary nebulae, and globular clusters; lots of globular clusters. The globular clusters really put on a great show, especially toward the end of the star party as we escaped astronomical twilight. We misfired locating quasar 3C273; not sure what happened there. We'll add that one to the observing list for the next star party.

*Article by Ron Kalinoski,
ACA Observatory Director.*

Astronoquiz

By Marissa Fanady

Welcome back to Astronoquiz! As astronomers we all know how important light or electromagnetic waves are, most of the time we cannot physically go to astronomical objects and take samples to study because they're too far away and/or they are too dangerous to obtain a sample. There's only a few instances where we can and do receive samples like traveling to a nearby planet and returning soil or rock samples, but this is very expensive. Another way we get astronomical objects is when a meteoroid hits our planet and, if the object is large enough, leaves behind meteorites for us to find. Light waves are the key to studying our universe,

we use light to get the spectrum signature of our sun to reveal what elements make up our star and all the other stars in the universe, find planets orbiting other stars when they transit their parent star, listen to objects giving off a radio wave, measure the distance of galaxies, and even calculate the age of the universe. Electromagnetic waves are the only waves that can travel through the vacuum of space at 186,282 miles per second. Light waves are truly amazing and reveal the secrets of the universe, without them it'd just be black, quiet, empty space. Today's question I ask you...

Try and name the eight regions or classes of the electromagnetic spectrum that we use to study our

universe. As a bonus, if you're up to the challenge, put them in order from the lowest frequency to the highest frequency. Stay tuned to next months issue for the answers and a new quiz question!

You may submit your answers to me at speedymissy@yahoo.com or you may submit your own question for next months issue. The question can be anything astronomy related and if you wish I can make sure you get credit for the question or you can leave it anonymous. I always welcome any comments whether positive or negative to improve Astronoquiz.

*Article by ACA member
Marissa Fanady.*

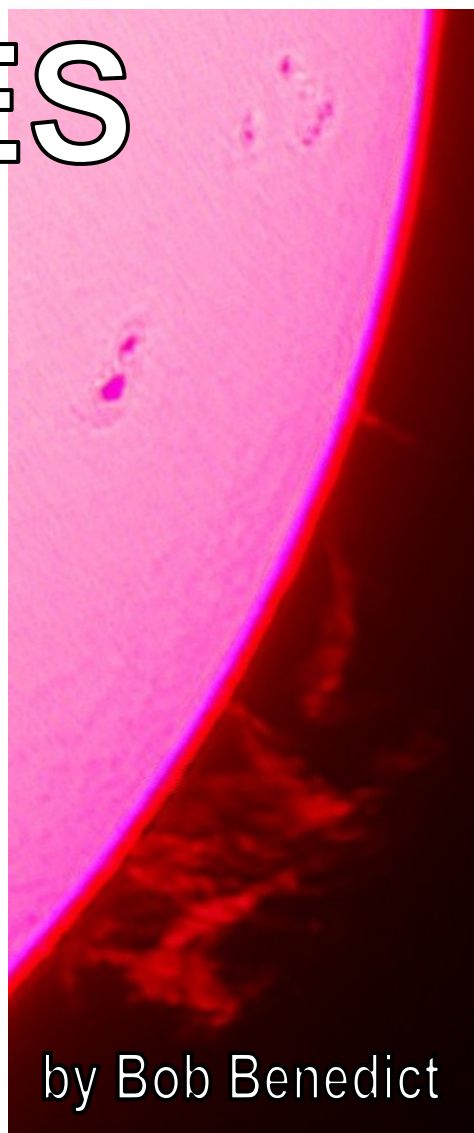
NEW IMAGES



by John Crilly



by John Crilly



by Bob Benedict

THE ASTRONOMY CLUB OF AKRON JUNE 2013 ACTIVITIES CALENDAR

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1							ACA OBSERVATORY PUBLIC EVENT 9:00p
2							New Moon 15:58UT ACA OBSERVATORY PUBLIC EVENT 9:00p
3							
4							
5							
6							
7						STOW ASTRONOMY PUBLIC EVENT (www.stowastronomy.org)	
8							
9	Moon at apogee (farthest) at 22h UT.						
10							
11							
12				Mercury at greatest elongation at 17h UT.			
13							
14						STOW ASTRONOMY PUBLIC EVENT (www.stowastronomy.org)	
15							
16							
17							
18							
19							
20						JUNE SOLSTICE AT 5:04 UT.	
21						STOW ASTRONOMY PUBLIC EVENT (www.stowastronomy.org)	
22							
23	Full Moon 11:33UT						
24	Moon at perigee (closest) at 11h UT						
25	Last Quarter 4:54UT						
26							
27							
28						Last Quarter 18:59UT	
29							ACA OBSERVATORY PUBLIC EVENT 9:00p

The Night Sky

Newsletter of the Astronomy Club of Akron

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Massillon, OH 44646-9018

Yes! I want to become a member of the Astronomy Club of Akron

www.acaoh.org

(PLEASE PRINT)

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EMAIL ADDRESS: _____

Astronomy Club of Akron annual memberships renew in the month of May.

ADULT (ages 18 and older) ___\$30.00

JUNIOR (ages 12 to 17) _____ \$15.00

ADDITIONAL ADULT member ___\$15.00

FAMILY MEMBERSHIP _____ \$40.00

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