



The Night Sky

The Newsletter of
The Astronomy Club of Akron
www.acaoh.org

Volume 36 Number 5

May 2014

Next Meeting: Friday - May 23, 2014 - 8:00 PM - Kiwanis

The President's Column

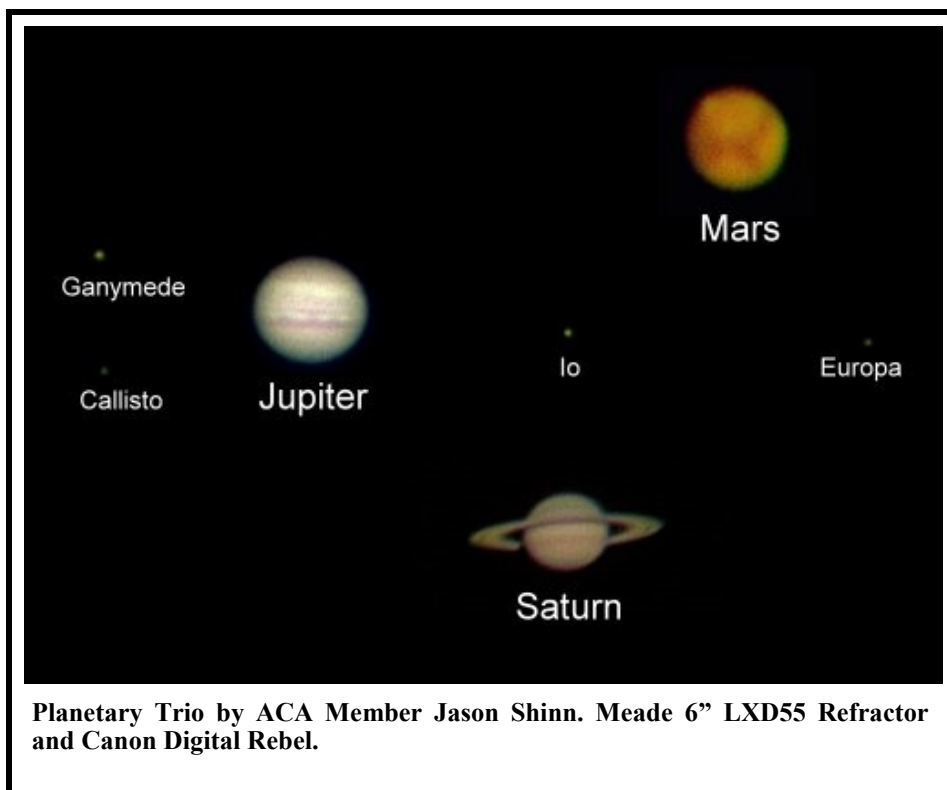
By Gary Smith

This is May 2014 and the planets are on parade!

Spring is here and the most spectacular planets of our solar system are on display. Jupiter is now the third brightest object in our sky and is visible near the observers meridian at sunset. The mysterious red planet Mars is also visible in the southeast at sunset shining at its near maximum brightness of -3.0 magnitude. Not to be outdone is the ringed planet Saturn which is at the observers meridian at midnight shining at -0.24 magnitude.

The mysterious 'moving lights in the sky' have fascinated the human mind since the very beginning. The name "planet" is derived from a Greek term meaning 'wandering star'. This was an important milestone in ancient astronomy when it was recognized the planets moved with respect to a background of fixed and immobile stars.

The attraction of the planets in our solar system to our human curiosity is nearly irresistible. All three of these planets have been visited by spacecraft and one has been landed upon successfully several times. The human talent and the money invested have yielded close up images of all three planets that were unattainable by earth-bound telescopes and even by Hubble.



Planetary Trio by ACA Member Jason Shinn. Meade 6" LXD55 Refractor and Canon Digital Rebel.

The King of Planets, Jupiter, is now west of our observers meridian at sunset but is still very much high in our sky in the constellation of Gemini. It is just north of the fourth magnitude cepheid variable star Zeta Geminorum (Mekbuda). But in this instance the location of Jupiter will aide in finding the star and not vice versa. Mekbuda is on the outstretched left leg of one of the Gemini twins Pollux.

The dimensions of Jupiter will boggle the imagination of even the advanced star gazer. Its diameter is approximately eleven times that of Earth at 86,881 miles (at its equator).

Jupiter's mass is about 2.5 times the masses of all the other planets combined. The surface features of Jupiter consist of colorful gaseous bands arranged in dark belts and light zones created by strong winds in the planet's upper atmosphere with speeds of more than 400mph.

A dominant feature of Jupiter is the Great Red Spot which is a giant hurricane-like storm seen for more than 300 years by observers on Earth. It is about three earth diameters (24,000 miles) at its widest.

(cont. page 4)

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Lou Poda

April Treasurer's Report

By Glenn Cameron

4/1/2014 Through 4/30/2014

Checking Beginning Balance	\$2,267.04
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Income

Dues	60.18
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Total Income	\$60.18
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Expenses

Transfer To Savings	-100.00
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Metisentry Web Hosting	-57.81
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Total Expenses	-\$157.81
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Income Less Expenses	-\$97.63
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Checking Ending Balance	\$2,169.41
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Savings Beginning Balance	\$2,241.20
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Earned Interest	0.09
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Dues	150.00
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50/50 Raffle	14.00
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Magazine Subscriptions	34.00
------------------------	-------

Transfer From Checking	100.00
------------------------	--------

Bank Fee	-9.99
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Refund Bank Fee	9.99
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Savings Ending Balance	\$2,539.29
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Petty Cash Beginning Balance	\$59.55
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	0.00
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Petty Cash Ending Balance	\$59.55
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Petty Cash	59.55
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Savings	2,539.29
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Checking	2,169.41
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Grand Total	\$4,768.25
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Article by Glenn Cameron
ACA Treasurer.

Astronomy Club of Akron

FY 2013 Annual Treasurer's Report - Income

Income	Dues	50/50 Raffle	Donations	Subscriptions Rcvd
April				
May	\$1,068.43		\$1,780.00	\$133.90
June	\$70.00		\$2,500.00	
July	\$220.00		\$60.00	\$34.00
August				
September				
October	\$150.00	\$28.00	\$278.00	
November				
December	\$120.75			\$32.95
January				
February				
March	\$110.25	\$20.00	\$20.00	
Monthly Totals:	\$1,739.43	\$48.00	\$4,638.00	\$200.85

Income	Interest Earned	Hot Dog Roast	Refunds	Petty Cash
April	\$0.26			
May	\$0.29			
June	\$0.20			
July	\$0.11	\$78.00		\$10.60
August	\$0.11			
September	\$0.10			
October	\$0.11		\$180.00	
November	\$0.10			
December	\$0.11			
January	\$0.11			
February	\$0.10			
March	\$0.10			
Monthly Totals:	\$1.70	\$78.00	\$180.00	\$10.60

Total FY 2013 Income: \$6,896.58

Treasury Balance 4/1/2013: \$12,192.85

Treasury Balance 3/31/2014: \$4,567.79

Treasury Balance Projection for 3/31/2015: \$5,252.96

Prepared by Glenn R. Cameron

Astronomy Club of Akron

FY 2013 Annual Treasurer's Report - Expenses

Expenses	Subscriptions Payed	Observatory Expenses	Web Hosting	Postage	Insurance
April					
May	\$133.90		\$45.00		
June		\$12,364.00		\$6.06	
July	\$34.00		\$45.00		
August		\$739.95		\$0.46	
September					
October		\$429.24	\$45.00		
November					
December	\$32.95				
January			\$45.00		
February					
March					\$425.00
Monthly Totals:	\$200.85	\$13,533.19	\$180.00	\$6.52	\$425.00

Expenses	Ohio Secretary of State	Speakers' Dinners	Newsletter Expenses	Bank Fees	Petty Cash
April	\$25.00				
May		\$50.02			\$24.29
June					
July					
August					
September					
October		\$19.22	\$31.76		
November					
December			\$15.80		
January					
February					
March				\$9.99	
Monthly Totals:	\$25.00	\$69.24	\$47.56	\$9.99	\$24.29

Total FY 2013 Expenses: \$14,521.64

Treasury Balance 4/1/2013: \$12,192.85
Treasury Balance 3/31/2014: \$4,567.79

Treasury Balance Projection for 3/31/2015: \$5,252.96

Prepared by Glenn R. Cameron

SWAP & SHOP



FOR SALE:

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

Asking: \$35 each or \$65 for both
Contact: Glenn Cameron
Phone: 330-737-1472
Email: glenn@cameronclan.org



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:

Televue Radian 12 mm Eyepiece

- Excellent condition.

Asking: \$180 (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:

Televue Radian 18 mm Eyepiece

- Excellent condition.

Asking: \$180 (cash)
Contact: Fred Fry
Email: riverfry@gmail.com

Advertise in the Swap n Shop!

ACA MEMBERS! Advertise your astronomy related item in the ACA's Night Sky Newsletter!

OHIO TURNPIKE ASTRONOMERS ASSOCIATION (OTAA) member clubs are also welcome to post their astronomy related items for sale in the ACA newsletter!

NOT ASSOCIATED with a club but live in NE Ohio? That's cool too!

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

truemartian@aol.com

YOUR QUALIFYING FREE AD COULD BE HERE!

President's Column (cont.)

The color of the Great Red Spot, which varies from brick red to slightly brown, may come from small amounts of sulfur and phosphorus in the ammonia crystals in Jupiter's clouds. Every now and then the Great Red Spot seems to fade almost entirely from view.

The newest discoveries about the Jupiter system (Jupiter and its 63 moons) have come with the Voyager and Galileo Spacecraft. It was soon realized that each of Jupiter's moons was a world of its own with characteristics that defy the imagination.

The innermost moon of Jupiter is Io with a diameter a little larger than our moon. Io is the most geologically active object in the solar system with over 400 active volcanoes. The intensity of this volcanism is greater than that of the Earth today and what is theorized in Earth's past. The result of Io's volcanism is that it has a constantly changing surface with large and frequent lava flows.

Europa is the sixth closest moon and the smallest of the four Galilean satellites. Its surface is composed of water-ice and is one of the smoothest surfaces in the solar system. The planetary scientist's ceaseless search for water has placed Europa at the top of the list for future investigation. There is data to support the theory that there is a liquid ocean that lies beneath Europa's frozen surface. Ganymede, Callisto, Almathea, and Thebe are moons that the Galileo spacecraft flew by or took significantly more detailed images.

Mars is known as the red planet and also the Roman god of war. The explanation for the red color is due to the prevalence of old fashioned iron oxide (rust) on its surface. The apparent motion of the planets Mars and Jupiter through the sky drove ancient astronomers crazy. All the astronomers of that era believed the Earth was at the orbital center of all celestial bodies, literally at the center of the universe. The easily observable

planets of Mars and Jupiter exhibited a retrograde motion on a predictable basis. These planets would seemingly stop their forward motion in the night sky and then temporarily reverse their direction. Then stop again and resume their forward motion in relation to the background field of motionless stars. The geocentric (Ptolemaic) system could not offer an explanation.

Mars is a terrestrial planet with a thin atmosphere having surface features reminiscent of the impact craters of the Moon and the volcanoes, valleys, deserts, and polar ice caps of the Earth. The numerous spacecraft that have orbited and landed on Mars over the years have yielded an enormous amount of information about our neighbor. Mars is the site of the second largest mountain in the solar system. Olympus Mons is a very large shield volcano that is nearly 14 miles in height (Mt. Everest is nearly 5.5 miles). The volcano's shape and profile have been likened to a circus tent held up by a single pole that is shifted off-center.

Mars hosts a system of canyons that run along the Martian surface called Valles Marineris. It is more than 2500 miles long, 120 miles wide, and 23,000 feet deep. Valles Marineris is located at the Martian Equator and stretches nearly a quarter of the planet's circumference. A popular explanation is Valles Marineris is a very large tectonic crack in the Martian crust.

The Martian feature named Borealis Basin (north polar basin) is a large basin that covers 40% of the planet. The explanation of its formation requires a leap of the imagination. The theory is an object some 990 to 1680 miles in diameter with a speed of 3.7 to 6.2 miles/second hit Mars at an oblique angle. If this theory is correct, then Borealis Basin is the largest impact crater in the solar system.

Without a doubt Mars is at the top of the list for the next planned manned expedition. Some of the Martian bound spacecraft and landers

have been designed to be scouts for such an expedition. The preliminary plans and strategies all take full advantage of existing technology. Nothing new needs to be invented. These proposed plans for a manned Martian expedition are at the very boundary between science fact and science fantasy.

The third member of the May planets on parade is the ringed planet Saturn, named after the Roman god of agriculture. Saturn is diminutive when compared to Jupiter, but the second largest planet of the solar system does boast some impressive statistics. It has a diameter (at equator) of 74,897 miles or approximately nine earth diameters. This gas giant has only 1/8 the density of Earth but is so large, it is 95 times more massive. Saturn's core is theorized to be rocky and metallic surrounded by a deep layer of metallic hydrogen and an intermediate layer of liquid hydrogen and helium. The subsurface and surface layers are gaseous. Saturn exhibits a pale yellow hue due to ammonia crystals in the upper atmosphere.

The Wind Speeds on Saturn can reach 1100 mph which is much faster than that of Jupiter but slower than wind speeds found on Neptune. The rings of Saturn were discovered when a telescope of sufficient quality was made. Christian Huygens was the first person to describe them as a disk surrounding the planet. There are few celestial objects that have received as much attention and theorization as the structure and origin of Saturn's rings. The rings consists of countless small particles ranging in size from micrometers to a meter, that are in orbit around the planet. The rings are made up of almost entirely water-ice with a trace amount of rocky material.

Saturn has 62 moons. The most recent spectacular discoveries about the Saturnian system is when each of its Moons is viewed as a world of its own. The giant Saturnian moon Titan is 3200 miles in diameter (76% that of Mars) and is the second largest moon in the solar system (after Ganymede). Titan has a dense atmosphere of mostly nitrogen with a smaller

percentage of methane. Titan's atmosphere is 45% more dense than Earth's density. This dense opaque atmosphere visually hides the surface from view. The mystery of Titan's surface was solved when the Huygens probe separated from the Cassini spacecraft in Dec. 2004 and successfully landed on Titan January 14, 2005. Titan is very cold with a measured temperature of -179°C .

All the moons of Saturn are very cold and Saturn's sixth largest moon Enceladus is no exception. Enceladus is highly reflective of the little amount of sunlight that it receives from the Sun. The commonly held belief was that Enceladus was frozen solid from its core to the surface. This may not be the case as approximately 70 geysers have been found at its south

pole shooting water vapor into space. While some of this material falls back to the surface as snow, much of it escapes into space.

Iapetus is Saturn's third largest moon and displays some very unusual features. One side of Iapetus is as dark as coal while the opposite side is bright and quite reflective. Iapetus has a walnut-like shape with its center bulging out and a ridge of 6 mile high mountains running around its equator.

The twentieth largest moon of Saturn is Mimas with a diameter of 246 miles. Mimas has a gaping crater 81 miles in diameter that gives this rocky moon a resemblance to the fictional 'Death Star' in the Star Wars movie. The impact that made this crater must have nearly shattered this moon; shock waves generated from the

impact created fractures seen on the opposite side. It is the smallest astronomical body that is known to be rounded in shape due to self-gravitation.

Rhea is the second largest moon of Saturn with a diameter of 949 miles. It is a small, cold, airless moon with temperatures ranging from -174°C to -220°C .

The planets of the May sky and their Moons are different worlds and part of the solar system that we inhabit. Why not explore these planets and moons during the May 2014 Parade of Planets?

*Article by Gary Smith,
ACA President.*

MINUTES FROM THE GENERAL MEETING, APRIL 25, 2014

Gary Smith, our President, greeted members and visitors and immediately got the meeting underway as we had quite an agenda planned.

Glenn Cameron presented: [Renting the Stars talk-web sites](#). Six web sites were reviewed at various costs and levels of operation. *The Bradford Robotic Telescopes* are geared toward school/entry level programs. *Light Buckets* has an hourly rate of \$200. *itelescope.net* charges \$62 an hour for 62 points. *Sierra Stars Observatory Network* has a beginners rate of \$50 for 83 credits, 40% off the beginning one time cost. *San Pedro Valley Observatory and Cherry Mountain Observatory* are additional sites. Email locations are on our ACA website for these Rent -A-Star telescopes which are especially useful during those cold winter nights when winter is daunting.

OBSERVATORY DIRECTORS REPORT- Ron Kalinoski

Our last impromptu star party was a huge success. Several members and

general public turned out for beautiful, clear skies. Ron turned on the observatory heater to keep us comfortable in the cold April air. No coffee on Wednesday nights. We observed M82, M81, M87 Jupiter and Mars looking through various filters. We viewed much more including the International Space Station. Several people stayed until 11:00 p.m.

WEB MASTER REPORT- Dave Jessie

An old library site, ACORN, used 15 years ago has been deleted from the internet. A gentleman called Dave to let him know that he had issues with this particular web site. Dave assured him that this ancient email address OR reference to our current ACA website would be eliminated.

ELECTION OF OFFICERS May 2014-May 2016

Our newly elected officers are:
President - John Shulan
Vice President - Ann Ferrell
Secretary - Lew Snodgrass
Treasurer - Glenn Cameron
Observatory Director - Ron Kalinoski
Publication Secretary - Jason Shinn
Assistant Secretary/Assistant
Treasurer - Cathy Loboda

Congratulations! Newly elected officers will take office at the May 23rd meeting.

**CAMP CHOPS May 30th 2014
AND CAMP CHEERFUL mid-
June 2014 EVENTS information
are listed in this newsletter and our
ACA website.**

OLD BUSINESS – Mark Kochheiser

The Ohio Grant Application will be submitted by May 1, 2014 requesting an estimated \$13,000 for the following:

1. Solar Telescope
2. Repair of the Observatory Roof
3. Shrubbery needed for a light barrier.

We need to submit a budget for the project, Website information, and a sample newsletter in order to complete the Grant Request.

50/50 RAFFLE WINNER: JOHN
JENKINS

*Article by Ann Ferrell,
Assistant Secretary/Treasurer.*

Observatory Report

By Ron Kalinoski



We held four star parties in April. Mars and Jupiter were showcase objects bringing observers back to the eyepiece again and again. We enhanced Jupiter's equatorial belts and other subtle cloud features by using a medium blue Orion No. 80A filter. Mars reached opposition on April 8th and appeared as an orange disk about 14 arcseconds in size. Large dark areas sweeping across the Martian surface were easily seen. The northern polar cap was very prominent. At our April 26th star party, a non-member from our impromptu group identified what we believed to be the southern polar cap. We returned to the eyepiece several times to confirm the observation. Afterwards, I did some research and found what we were actually observing was the Hellas impact basin. Hellas formed 4 billion years ago when an asteroid impacted into Mars creating a crater 1400 miles across and 26,000 feet deep. It's winter in the southern hemisphere and Hellas is coated with dry ice frost and the basin is filled with wintertime clouds making it an easy target for the 16" observatory telescope. We were working at 131X using a 31mm



Cub Scout from Pack 3161 takes a close-up look at Jupiter and its four Galilean Moons. The Cub Scouts from Cuyahoga Falls visited our observatory for an evening of stargazing on April 26th.

Nagler eyepiece. To our advantage, the observation was made late during the observing session when Mars was at high elevation. The excitement from this observation has not waned yet! Planets were not the only objects on the observing list. Globular cluster M3, open cluster M37, Cigar Galaxy M82, and galaxy M94 delighted observers. The Ghost of Jupiter bore an eerie resemblance to Jupiter and finally, the observatory telescope

reached 16% across the observable Universe to view quasar 3C273. Special thanks to Tom Alexander, Freddy Huffman, Jason Shinn, Gary Smith, John Shulan, and Glenn Cameron for setting up telescopes on the observatory grounds to share the night sky with our guests at our April star parties.

*Article by Ron Kalinoski,
ACA Observatory Director.*

"Space isn't remote at all. It's only an hour's drive away, if your car could go straight upwards."

— Sir Fred Hoyle, Astronomer

THE ASTRONOMY CLUB OF AKRON JUNE 2014 ACTIVITIES CALENDAR

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1				5 First Quarter 20:39UT 	6 STOW ASTRONOMY PUBLIC EVENT (www.stowastronomy.org)	7
8	2 Moon at apogee (farthest) 04h UT.	3	4	12	13 Full Moon 04:11UT STOW ASTRONOMY PUBLIC EVENT (www.stowastronomy.org) 	14
15 Moon at perigee (closest) at 3h UT.	9	10	11	18 Last Quarter 18:39UT 	20 STOW ASTRONOMY PUBLIC EVENT (www.stowastronomy.org)	21 THE JUNE SOLSTICE OCCURS AT 10:51 UT. Public Event at ACA Observatory at 9pm EDT.
22	16	17	24	26	27 New Moon 08:08UT STOW ASTRONOMY PUBLIC EVENT (www.stowastronomy.org) 	28 Public Event at ACA Observatory at 9pm EDT.
29	23	24	25	26		
30 Moon at apogee (farthest) 19h UT.	1	2	3	4	5	6
AKRON, OH SUNRISE JUN 1 4:56AM EDT JUN 30 4:57AM EDT SUNSET JUN 1 7:52PM EDT JUN 30 8:02PM EDT						

EST = UT - 5 hrs, EDT = UT - 4 hrs

The Night Sky

Newsletter of the Astronomy Club of Akron

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c/o Glenn Cameron
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Yes! I want to become a member of the Astronomy Club of Akron

www.acaoh.org

(PLEASE PRINT)

NAME: _____ PHONE: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

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

Visit us on the Web at www.acaoh.org,