



The Night Sky

The Newsletter of
The Astronomy Club of Akron

www.acaoh.org

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June 2005

Ramblings of the President - by Dave Jessie

I've rambled in this column before, but never like I'm going to now! There are several disjointed things I want to tell you. So without further ado, here goes!

ACA Picnic: We've got our famous ACA Picnic – on July 10th at 2:00PM at the same location as last year – at the beautiful home of two of our members. Please, folks, no alcohol. This is a members-only event and it's held at a private residence. For these reasons, the address won't be published in this newsletter since it's available from the Internet. Details will be forthcoming via email and/or by telephone. As last year, the Club will provide hotdogs, hamburgers, buns and soft drinks, and you'll bring a dish to share – deserts, chips, frozen grapes, baked beans, whatever you'd like to show off. Don't forget to bring your own plates and silverware!

Outreach: Two big events coming up!

Camp CHOPS (Children's Hospital Oncology Patients and Staff) is a camp for children with cancer. It takes place on Friday, June 10th at Camp Christopher - at the intersection of North Hametown Rd and Ira Rd in Bath, OH.. The ACA has once again been asked to bring our telescopes and enthusiasm to show the children the wonders of the night sky. There's no set time, but it's recommended to get there with plenty of

time to set up and be ready to show the kids and staff our stuff. This is a wonderful event and I highly recommend you come and share the joy. The children really appreciate what we do for them...as does the staff. This year, Kimberly Shaffer-Alt (Camp CHOPS coordinator) and JoAnn Bedore (Camp Wunderlung coordinator), have stated that there can be **ABSOLUTELY NO SMOKING** on the campgrounds - not even in parked vehicles. As a matter of fact, they requested that anyone that smokes on the way to the event bring a freshly washed change of clothes to change into before getting near the children. Restrictive? Well, yes, but entirely understandable given the circumstances.

Camp Wunderlung occurs the following Friday, June 17, 2005 also at Camp Christopher. This camp is for children with severe breathing disorders. Same rules, exactly, as for Camp Chops - **NO SMOKING** anywhere on the campgrounds (even in parked vehicles), change of clothes, etc. These children can suffer from the slightest hint of secondhand smoke present on clothing worn while smoking. Enough said.

If you need any additional information, please contact VP John Crilly or me.

Observing Opportunity: On June 27th at 11:30AM, Mercury and Venus are going to be less than 4 arcminutes apart! This is, by far, the closest planet conjunction I've ever had the chance to see...less than 1/3 the dis-

tance between Alcor and Mizar in the handle of the Big Dipper. And to add to this, Saturn is just 2 arcdegrees away. Just think! Three planets within a 2.1° field of view. Although closest during the late-morning and early afternoon, the threesome will still be within a 2.5° field, with Venus and Mercury just a tad under 8 arcminutes apart – and at an altitude of slightly over 9° above the west-northwest horizon at the end of Civil Twilight at 9:36PM. This is a great opportunity to see (and show) Mercury AND Venus AND a very interesting conjunction. Who says astronomy isn't interesting!?

Venus Transit of the Sun: No, I haven't lost my mind (not ALL of it, anyway). It was exactly one year ago today, on June 8, 2004, that the event anticipated for 122 years occurred... the planet Venus transited the Sun. We had magnificent weather and a tremendous turnout at the four separate locations in and around Akron where members (and yours truly) had set up for the public. I bring this up not to serve as filler, but as a reminder that time passes quickly – and that we should all take advantage of the time we have. Only 7 years from now we can observe this event again! Then, guess what, another 122 year wait. I kind of doubt I'll still be in the ACA then. This puts me in mind of a very wise saying I'm often heard quoting: "Time flies like an arrow, but fruit flies like a banana" Oh, stop the groaning! You're just dying for an opportunity to use it.

Observatory Report

Lynn and I went to the Chagrin Valley Astronomical Society's OTAA convention last Saturday, June 4. I'm not sure that I would call it a convention since they didn't have any speakers or exhibits and there wasn't any registration fee.

They did have an OK pot luck dinner however. We couldn't find any mention of starting time on their web site so we showed up about two hours early.

Since neither of us had been there before, we wandered the site of their Indian Hill Observatory which consists of two observatories and the Lori Kunkel commode. They have a good sized roll off observatory with a warming room that houses a 16" reflector on a go to mount. They also have a domed observatory about 12' dia. with a 6" Unitron refractor. It normally houses a 12" LX200 Meade which has been giving them fits and has gone back to Meade for repairs.

We took a look at a faint face

on galaxy in the 16" later and were a little baffled by the twinkling stars in the eyepiece. They were using a light gathering eyepiece which produces an image with artificial twinkling due to noise.

The site is not extraordinarily dark but is probably at least a magnitude better than our observatory site. Although it looked pretty bad for observing when we left Akron it did clear out nicely and Lynn and I set up and observed until about 1:00 am before we headed back home.

Don't forget about the Telescope seminar this Saturday the 11th. We can always use plenty of scopes out there.

Ray Paul

The ACA would like to extend a warm welcome to the following new members...

Chuck Ross
Alethea Rantanes
Eli Rantanes

We are thrilled to have you as members and look forward to seeing you at ALL club meetings and events!

ACA General Meeting Membership Meeting Minutes for Friday May 27, 2005

1. There were many guest speakers for the night, one was Dave Jessie, who had many helpful hints about how to improve observing at night. Fred Huffman also had many "home-made" things to share. Jason Shinn gave discussed his astrophotography and had on display many fantastic photos. John Crilly explained just how easy it is to get started photographing deep space objects.
2. June 11th is the ACA telescope seminar at the Portage Lakes observatory. Binoculars, refractors, reflectors, cassegrain's and accessories will be covered.
3. Memberships are now due. Please see Treasurer, Diane North.
4. ACA brochures are now available.
5. Camp CHOPS - Friday, June 10th at Camp Christopher - at the intersection of Hametown Rd and Ira Rd in Bath, OH. NO SMOKING, Please!
6. Camp WUNDERLUNG - Friday, June 17th at Camp Christopher. NO SMOKING, Please!
7. Next ACA general membership meeting will be Friday, September 23rd.
8. ACA members only club picnic, time and date to be announced later.
9. Kiwanis "Rose Remembrance Day" is coming in October.

ACA Secretary
Pete Flohr

Treasurer's Report: 5/1/05 - 5/31/05

Total Beginning Assets	\$7,883.20
Income	
50/50 Drawing	\$21.00
Dues	\$990.00
Interest on balances	\$6.81
Magazine Subscription Paid to ACA	\$32.95
Expenses	
Newsletter Expense	\$(105.92)
ACA Color Brochures	\$(255.00)
Public Event Expense	\$(16.86)
Total Ending Assets	\$8,556.18

TRIP REPORT

From the Veep

I just returned from the Sky-Tour star party near Monroeville, Ohio. It's jointly sponsored by the Huron Valley astro club and by Tech2000 (the Dob Driver guys). I didn't know any of the Huron Valley group but I've spoken to Paul at Tech2000 many times and have visited their shop to pick up parts & pieces. As it turned out I did know nearly half the people attending because ACA member Scott Horstman was there plus several Cloudy Nights denizens who I had met previously on the various CN Forums (www.cloudynights.com).

The site (about 1.5 hours away from Wadsworth) is a cleared and manicured area surrounded by crop fields. The area is flat and smooth because it's the primary field used by the local radio control flight club (who also operated the excellent canteen). Several of the Huron Valley club members also belong to the flying club, including Paul, who is a real expert. We arrived early Friday and had the opportunity to watch him flying a "pattern" airplane. I never flew pattern in my RC days but I've seen plenty of it and this was competition-grade stuff!

As can be seen in photos posted on this Club's Yahoo group, the horizons are low and far away - it was perhaps

the best exposure to the Southern horizon I've experienced with a telescope handy. There are only small towns in the area, and those are at least 20 miles away.

The organizers did a great job of making this an easy and pleasant experience. Food was varied and plentiful, and the coffee was free and hot all night long. Complimentary doughnuts were appreciated in the mornings and they set out various other complimentary food items from time to time. Registration was quick and painless, even though my lack of faith in the weather had prevented me from pre-registering.



The transparency wasn't excellent, but the sky was still dark enough to make many objects a real joy to observe.



There was a pretty good variety of gear on the field including several LX200 SCT's, a CGE14, and a handful of Dobs including Scott's ATM 17.5", an 18" Obsession, and my 20" Teeter. I saw only one larger refractor and never got over to check it out, as I was focusing on my first real outing with the Teeter.

Both Friday and Saturday nights started out looking omi-

nous but the skies were clear by 1:00 or so both mornings. The transparency wasn't excellent, but the sky was still dark enough to make many objects a real joy to observe. Real showpieces I remember include the Eagle and Lagoon nebulae in SAG, M51, M13, M57, M27, and M92. The planetary nebulae were all nice and sharp. One of the Cloudy Nights guys (Paul Rix) grabbed a very nice image of M57 with a 10" LX200 and a NexImage camera. Toward dawn Mars made its way up to a reasonable elevation and Paul snagged a pretty nice image of that as well despite its small apparent size this far from opposition. During the day his wife Erika made a beautiful and detailed sketch of a very active Sun as viewed through an ETX-70. Scott and I remained in visual mode, playing with the Dobs and having a real ball. We'll be back!

John Crilly
jcrilly@neo.rr.com

From the Editor

As I begin another year as the editor of the Night Sky, I just want to thank the many members who make such a great effort to provide articles.

My goal is to present our club's activities and we certainly have been able to showcase what our members are doing!

Many Thanks

Adventures in Planetary Imaging

By
Lynn M. Laux

In November of 2002 I was at one of my favorite observing sites to view the Leonids. I had brought along a Celestron C-90 and an HP digital camera. While waiting for the ‘show’ to begin I decided to hold my camera up to the eyepiece of the C-90 and take a picture of the Moon. Saturn was coming up in the East so I put the scope on it and took another hand held shot of the planet as well. Thus began my descent on the slippery slope of digital astrophotography!



Images L to R: Me and C-90, Nearly full Moon, Saturn 11-18-02

The Mars opposition 2003 mania only served to grease the slope. After numerous attempts to image Mars with an Olympus C4040-Z digital still camera, I stumbled across some images on the Web that people had taken with digital webcams. I noticed that many of the images were taken by “newbies” to the hobby (first scope, first camera) and that they were amazing! Needless to say the Oly was out the door and a Philips ToUCam Pro webcam was in. Being light weight, it did not put as much strain on the mount and motor drives like the heavier digital still camera, resulting in less image shift.

I had moderate success in imaging Mars, but I noticed some problems. In order to utilize the webcam for imaging, removal of the camera lens is required. In doing this, the built-in IR filter is lost. Since refractors tend to focus the infrared at a different point than the visual colors of the spectrum, the image appears “soft” due to excess color bleed. Thus images of the moon and planets one obtains without an IR filter appear rather violet. You can remove this when processing, but it is an extra step, and the question then becomes what color adjustment is correct? That chromatic aberration was present in my Mars images, but IR filters were notoriously hard to come by that summer. Instead I utilized an ordinary Orion light pollution filter which seemed to help a bit; but again, Ohio’s atmospheric conditions, combined with Mars’ position in the sky even at the meridian resulted in less-than-spectacular images than I had seen elsewhere. I also had to use an Orion Tele-extender so that I could achieve focus, since the scope’s f/9.3 ratio caused some back focus issues.



Images L to R: Mars series taken with ToUCam Pro at Prime using Meade 5” achromat and LXD55 mount.

Further frustration ensued as I attempted to image Saturn at prime focus using my 5” refractor. Although Saturn was also approaching opposition in December of 2003, and would be approximately 20 arc seconds across, it would still be smaller than Mars (nearly 25.1 arc seconds across). The plain fact of the matter is that webcams have small CCD chips which make it difficult get the target onscreen and in the center of the chip—given that most planetary imaging is done with a Barlow. Additionally, the best images of any astronomical target are best taken when it is close to the zenith, far removed from atmospheric distortion. Anyone who has a refractor knows the odd position that puts the observer/imager in!



Images L to R: Refractor at 41deg elev, Image of Saturn through ToUCam Pro at prime on Meade 5”AR LXD55

I remained convinced that webcams were ideal for planetary and lunar imaging, but felt that I could obtain better images with a webcam that had been adapted for astro-imaging. A little research revealed that a company by the name of SAC produces inexpensive cameras that are relatively easy to use and have the ability to capture single images along with avi's. The SAC IVc excels in high resolution color imaging due to its small pixel size, plus comes with its own software (Astrovideo). The camera plugs into a computer via USB, so image download is virtually real-time. I also purchased an Astronomic IR blocking filter, and a Televue 2.5X Powermate Barlow. Another absolutely essential piece of equipment that I obtained was a flip-mirror. This handy little device is inserted into the OTA, and has two openings: one for the webcam and the other for an eyepiece. After bringing the planet into view in the center of the eyepiece, the mirror is "flipped" to project the image onto the center of the CCD chip in the webcam. By adjusting the eyepiece so that it is parfocal with the camera, one can also achieve nearly perfect focus without having to insert an eyepiece, adjust the image, remove the eyepiece, insert the camera, and wait for the image to appear on the computer screen. The OTA remains fairly steady as one doesn't have to keep adjusting the focus and risk blurring the image by shaking the scope or losing the object as it drifts out of the center of the FOV (due to less than perfect polar alignment).

I had recently exchanged the 5" Meade refractor for a 6" Celestron CR-6, but still wasn't happy with the performance of the mount, its fickle go-to, or the limited light gathering ability of the scope. Still the images of Jupiter I took with the CR-6 and the SAC IV were much better than any I had gotten with the Oly or the ToUCam.



Images L to R: CR-6 on LX200 with imaging train, FITS image Of a single frame of Jupiter

Eventually I exchanged my 6" refractor for a Meade 8" SCT LX200. Along with increased aperture the scope is fork-mounted on a solid field tripod. Using the scope in alt-az eliminates the awkward positioning problem. The LX200 is very easy to align, and the scope's Go-to capability is spot on. Moreover, the SCT design as well as increased aperture took the back focusing problems I had noticed with my refractors out of the equation. An 8" SCT is also less prone to poor seeing that larger instruments sometimes suffer from. My first session with an improved imaging train and telescope came in August of 2004.

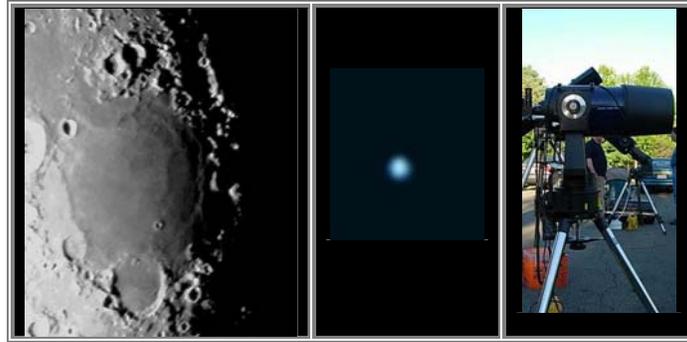
Here were/are the steps I take during an evening that I plan to image. I first set up the scope using a three-star alignment procedure. This assures that my go-to and tracking will be dead on. While waiting for the scope to cool down, I do some visual observing, and practice getting the target in the center of the FOV of a 10 mm Plossl eyepiece. Through trial and error I have found that a 10 mm eyepiece is almost parfocal with the camera at prime focus. I have a parfocal ring on the eyepiece barrel that I can adjust to get the EP exactly parfocal with the camera once I find my target. Once the scope is acclimated, I fire up the laptop (Toshiba SA 75, 3.2 GHz Intel Pentium 4 processor, 448 MB RAM, 3200 MHz speed) and camera. I use a red screen shield on the laptop's screen so as not to lose my night vision.

Once everything is ready to go, I get ready to take pictures. Flip mirror is inserted, target is acquired, and camera is inserted into the flip mirror. One last look at the target, a bit more focusing, then I start my camera control program, Astrovideo (or K3CCD Tools). When it's up and running, I select the proper driver for the camera I'm using from a menu. I then choose a frame rate for my webcam video, usually 10 or 15 frames per second for best quality, and hit "preview." Using the flip mirror, I adjust the scope's aim until the target is centered on the monitor and, taking my time, focus until I'm satisfied that the target is as sharp as I can make it. I then re-center the target if necessary before beginning the exposure.

I like to start with the Moon because any focusing problems show up rather quickly (one of the few times I appreciate it!) If the Moon is not up I choose a very bright star instead. (On that August 2004 night I chose to image the Moon and Uranus.) I will spend at least an hour on each target until I am satisfied that I have done my best. When I am capturing targets for imaging, it is important to adjust the brightness, gain, and shutter speed properly. I have found that the target needs to be barely visible on the computer screen to be properly exposed when post-processing. If I am capturing images for others to view live at a public event, I make sure the brightness and gain are tweaked so that the target is bright enough to be seen on the computer screen. Either way, once I am finished, I like to spend a little more time doing some visual observing before calling it a night.

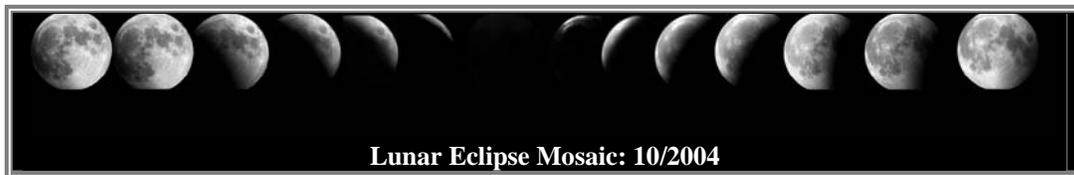
Astrovideo stores single images in FITS format by default. A user can change the format to other options by clicking on the menu and selecting that feature. If the images are saved via FITS, they can then be processed later using FITS-X , Stellar Magic, or other software that supports the FITS format. Alternatively, K3CCD Tools can be used to capture images in avi format, and the user can pick and choose what frames to keep manually or use Registax to register and align the images. Post processing is a whole topic by itself, and one that I don't intend to get into here. The point is, however, that a SAC camera has a lot of versatility.

Here are two of the images I captured that August evening in 2004 of the Moon and Uranus, using an 8" Meade LX200 and SAC IVc at prime focus. I was very pleased with the results, and had very little post-processing to do.



Images L to R: Mare Nectaris, Uranus, 8" Meade LX200

In October 2004 I used the SAC IVc to capture the lunar eclipse through the ACA club refractor (Orion 100 mm achromat) mounted piggyback on a 14" Meade LX200GPS. Even with a focal reducer there was not enough in-focus to capture the entire disk of the Moon, but I was still quite pleased with the results.



Lunar Eclipse Mosaic: 10/2004

I like the SAC IVc's ease of use and simple set-up. I don't have a great deal of patience for cumbersome, time-consuming types of imagers, I prefer plug and play! I don't have to try and squint at a tiny LCD screen in order to figure out if the image is in focus or not. There are not a lot of cables to worry about. It doesn't need fancy, or expensive, lenses. At public events I can observe visually, while sending an image to my laptop for the general audience to see real time (it was a big hit at the Mars event in 2003 when many visitors stood in long lines to catch a glimpse of Mars). Because it is inexpensive, I can spend my dollars elsewhere: a new eyepiece, telescope, filter, or another camera, like the Meade DSI.

Future plans include using the SAC IVc as an autoguider with my Orion 80ED piggyback on the SCT, while imaging deep sky objects through the main scope with a Meade DSI. I hope to be able to share some decent images soon. I will still use the SAC IVc as my main planetary camera, and look to the Mars opposition in November of 2005 with excitement and high hopes!



The Night Sky

Newsletter of the Astronomy Club of Akron

c/o Ray Hyer, Editor

725 Brewer St

Akron, OH 44305-2103

To join the ACA, **or to renew your membership**, please fill out the form below, place in an envelope and mail to the address shown in the return address area of the form.

Please be sure to enclose payment for the membership level desired.

The Astronomy Club of Akron
c/o Diane North, Treasurer
795 Mohawk Ave
Akron, OH 44305-1811

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

ADDED ADULT member \$15.00

FAMILY MEMBERSHIP\$40.00

I realize the full color version of *The Night Sky* newsletter is available for download by members from our web page at www.acaoh.org, but I would rather have the B&W version mailed to my address via USPS.