



# The Night Sky

The Newsletter of  
The Astronomy Club of Akron

[www.acaoh.org](http://www.acaoh.org)

Volume 27 Number 7

July 2005

## Ramblings of the President - by Dave Jessie

In an unusual departure from my normal article, I'd like to discuss a club issue – but first a thought experiment. You know, the kind Einstein used to figure out relativity.

Let's imagine you found one of those postcards to mail in with payment for a one year subscription to a magazine. You mail it in along with your payment and start receiving the benefits of your subscription. Then, seven months later, you receive a notice that your one year subscription is about to expire – that ALL subscriptions expire in the month of May – and that to keep your subscription, you have to renew at the one year rate.

Would you be happy about that? Well, that's exactly what happens to new ACA members! And they're not happy about it. Imagine that.

The ACA expires all memberships in the month of May. Currently, we are bound to this arrangement since our Bylaws were amended several years ago (nine?) to include this requirement. A former club Treasurer decided it would make his job easier by having this arrangement since he kept the books on paper and not in a computer database (NO! it wasn't Gary!!)

Keeping records in a computer makes it a snap to know when individual members' status are about to lapse into 'near expiration' and con-

tact them on a revolving schedule. Individual club members' records are one mouse click away from being sorted in any imaginable order. Actually, since most ACA members were, or at least appeared to be, 'lifers', this didn't matter much when it first came up.

What DOES matter is that this 'all memberships expire in the month of May' clause was the number one complaint I received from recently expired relatively new members. "I joined in August last year and I thought I was joining for one year with my dues" was communicated to me much more than once.

In a 'state of the club' type statement, I'll be happy to tell you that we currently have 93 paid up current members and 43 newly expired memberships. That's a pretty high percentage and I'm not too happy about it. I sent emails to those that have not renewed asking them if there was a problem with the club. Of those that responded, most all said there was nothing wrong with the club EXCEPT they were unhappy with the necessity of renewing as little as 7 months after they first joined with a full year's membership rate.

Now, in defense of the Bylaws, it is stated that new memberships should be pro-rated but that DOES create a hardship on the Treasurer! What's the Treasurer supposed to do? A new membership comes in

the mail with a check for a one year membership. Is the Treasurer supposed to calculate a pro-rated membership based on the number of days past June first and mail the new member back a check for the pro-rated amount? That's far too time consuming and cost ineffective – hence, it's never been done to my knowledge.

Should the new member be informed that the pro-rated amount is being cheerfully accepted as an involuntary donation? I don't think that would make us any fans, but that's exactly what we're doing by taking their one year membership and then expiring them much earlier than one year from the date of joining. Do we warn them? Sure. But who reads the fine print? On the join forms, it is stated 'All memberships expire in May'.

Somehow, even though it's spelled out, it just isn't fair. Remember how you'd feel about that imaginary one year subscription to a magazine and then received notice seven months later that your subscription was expired.

I'd like to change the Bylaws back to the way they were...that a new membership is for ONE YEAR and expires ONE YEAR to the day after the new member joins. Why am I concerned by this? Because above everything else, I try to be fair to everybody and this just isn't fair.

So what's the problem? The

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<b>OTAA Representative</b>		
Lou Poda		

## Activities Calendar

### Club

### Celestial

July 9, CAA OTAA  
 July 16, Observatory Program, Summer Constellations  
 July 30, Observatory Program, Summer Jewels  
 August 6, Mahoning Valley OTAA  
 August 13, Observatory Program, Solar & Lunar  
 August 27, Observatory Program, Uranus & Neptune

July 17, Moon occults M4  
 July 21, Largest Full Moon  
 August 12, Perseid Meteors Peak  
 August 23, Mercury at West Elongation

The deadline for article submission is **the second Tuesday after each meeting**. All word processing files should be saved in straight ASCII text files or any version of Word to minimize import problems. We will not turn away **any** submission, as long as the article's subject is astronomy or a related topic. If you don't have access to a computer, don't hesitate to write something out long hand. As long as it is legible, I will slave over the keyboard and get it published.

**PLEASE SEND IN YOUR ARTICLES!!!!**

Send your articles, items for sale, and comments to:

Ray Hyer 725 Brewer St. Akron, OH. 44305 email [rhyer@neo.rr.com](mailto:rhyer@neo.rr.com)

Bylaws are hard to change...kind of like a Constitutional amendment. So, it's difficult. Big deal. We perform difficult tasks all the time! After all, we're all amateur astronomers in northeast Ohio. What's more difficult than that!

I want to hear from you. What do you think? I certainly can't do this on my own since a Bylaws change is required. I need to know if this has a chance of making it through the process. I need you to come to the next meeting which is the fourth Friday in September – on 9/23/05 – and speak your mind. This won't happen without your support.

Perhaps we could initiate a Bylaws Review Committee and see what else in that important document isn't what it should be. I'm all ears! Now's your chance to make the club operate as it should. What are you waiting for – a written invitation? Well, here it is!

What else is bothering me? The picnic tables at our observatory! Someone is going to get a whopper of a splinter from those rickety old tables. We need to take care of this!

Who says the seat of government isn't listening?!

## Response to the Ramblings By the Editor

Gee, I've never responded to a ramble before. This could be interesting.

This month's column from our President addressed an issue that Dave called an "injustice". If it truly is an injustice, or even if it is perceived as one, we must do something about it.

I see three possible ways to fix the problem. I'll leave it up to the lawyers to determine if any of the fixes require a by-laws change.

First, we could define the dues structure and make it clear that the dues pay for the "club" year as defined from May to May. Anybody paying the dues would know that they are only paying till the next May cycle comes around. This idea leaves me cold, especially if somebody wants to join in March or April.

Secondly, we could prorate the membership dues, perhaps on a quarterly basis. If they pay in person the amount would be de-

termined. If the new member pays the full year dues, then an adjustment could be made when the member pays their second year dues. That way they would not feel cheated and the treasurer would not need to keep track of when dues are paid except for new members.

A third idea is to have the dues cover the anniversary date when the new member joins. I see this as a burden on the club officers. True, the computer technology would make it easier, but it still would require constant monitoring by the treasurer.

Even if we fix this issue, and I'm sure we will, I would be in favor of forming a committee to examine the by-laws and make recommendations where changes seem to be a good idea. I served on such a group years ago and there are several issues that should be reviewed.

While it's never easy to admit that we have problems, I applaud the recognition of a problem and the effort to do something about it. New members are precious and we certainly don't want to alienate them before they get a chance to goof up something really significant (like drop a Nagler eye-piece)!

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

William and Jennifer Myers

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

<b>Treasurer's Report: 6/1/05 - 6/30/05</b>	
Total Beginning Assets.....	\$8,556.18
Income	
Donations .....	\$56.00
Dues .....	\$485.00
Interest on balances .....	\$6.61
Magazine Subscription Paid to ACA .....	\$61.95
Expenses	
Magazine Subscriptions paid by ACA .....	(94.90)
Total Ending Assets .....	\$9,070.84



## Binoviewers?

Binoviewers are becoming a very popular accessory for telescope users. They offer several advantages over single-eyed viewing, at the cost of a few disadvantages. Some of these effects are subtle, while others are more important.

### Like binoculars (kind of)

Some characteristics of binoviewing are the same as with conventional binocular use. The primary feature of binoviewing is that it fits the way our brains process visual information better than single-eyed (Cyclops) viewing. This is true both of binoviewers and binoculars, and is one reason that conventional binoculars are so popular in astronomy. Most users find that objects or starfields appear three dimensional. Because of the narrow spacing of the objectives, binoculars do not provide true depth perception; the brain is fooled into thinking it's there. The same effect is observed with binoviewers for the same reason. Another effect is that bringing the same information into both eyes permits the brain to process the information differently, making subtle details more apparent. User comfort is also a very important feature of any two-eyed viewing system. It's much more relaxing to observe with both eyes than to either ig-

nore or close one eye.

### Not like binoculars

Other binoviewer characteristics aren't shared by binoculars. One feature of binoviewers that's not generally a factor with binoculars is the suppression of "floaters" when a small exit pupil is being used. Floaters are bits of organic matter floating within the fluid in the eye-ball. At small exit pupils these can be distracting. With binoviewers the brain can receive the same celestial view from both eyes and cancel out the floaters in each. Astigmatism is another effect noticed by many observers when using small exit pupils that can be cancelled during processing. Less technical factors exist also. It's easier and less expensive to achieve larger apertures with a binoviewer setup than with binoculars. The ability to change magnifications by switching eyepieces or adding focal multipliers or reducers is another advantage.

The downsideSome disadvantages of binoviewing are obvious. The added cost of doubling an eyepiece collection is difficult to ignore. Modern systems from Denkmeier and Siebert minimize this effect by permitting multiple magnifications. This makes each EP pair more useful and reduces the number of pairs required. Splitting the light into two paths and running it through more optical elements results in less light reaching each eye from a given object than in Cyclops mode. Most users seem to find this is offset by the increased efficiency with which the images are processed by the brain. Some find it to be a disadvantage for deep sky use. Choosing a binoviewer unit with efficient prism design and/or coatings can reduce the

losses.

### Other downsides

Less obvious disadvantages exist. The light path through a binoviewer is generally between four and five inches. Some telescopes (nearly all refractors and Newtonians) don't provide sufficient focus range to accommodate this added length. Correctors are available to compensate for this, but they add cost and complexity to the system as well as increasing light loss to some extent. The prisms used in common binoviewer designs restrict the light path. Some units have clear apertures of 26mm or greater (Denkmeier, Tele Vue), while some restrict the lightpath to 22mm or less (Celestron, Burgess, Siebert, StellarVue). It's desirable to avoid using eyepieces with field stops larger than the clear aperture of the binoviewer being used, which means that the smaller units are generally less desirable for use at lower magnifications. The Siebert Echelon series offers clear apertures of up to 35mm, but these haven't been generally available and I haven't seen one. They also offer 2" units which I also haven't seen and can't comment on.

### So what's it gonna cost?

Binoviewing is much less expensive than it has traditionally been. Very good performance can be provided by the recent crop of imported units by Burgess, StellarVue, and Celestron for \$200 or so including an eyepiece pair. Midrange units in the \$400 class (Denkmeier, Siebert) can do even better. Higher-end units by Denkmeier, Siebert, or Televue are available in the \$1000 range.

### Recommendations?

The Burgess unit is a clear winner in the entry-level binoviewer class. For (continued on page 7)



## Comet Hunting: 9P/Tempel 1 By Lynn M. Laux

On April 16, 2005 Stephanie McLaughlin of UMD/NASA Deep Impact Mission came to NASA Glenn to speak on the Deep Impact Mission Small Telescope Science Program (STSP) and Amateur Observer's Program (AOP) for CAA's Astronomy Day. Up to that point I had paid little attention to the Deep Impact Mission, in which a probe will crash into a little-known comet. Subsequently, calls went out to the amateur astronomy community to help generate data and observations prior to and directly after the impact.

### What is a comet?

Unlike the other small bodies in the solar system, comets have been known since antiquity. There are Chinese records of Comet Halley going back to at least 240 BC. The famous Bayeux Tapestry, which commemorates the Norman Conquest of England in 1066, depicts an apparition of Comet Halley.

As of 1995, 878 comets have been cataloged and their orbits at least roughly calculated. Of these 184 are periodic comets (orbital periods less than 200 years); some of the remainder are no doubt periodic as well, but their orbits have not been determined with sufficient accuracy to tell for sure.

Comets are sometimes called dirty snowballs or "icy mud balls". They are a mixture of ices (both water and frozen gases) and dust that for some reason didn't get incorporated into planets when the solar system was formed. This makes them very interesting as samples of the early history of the solar system.

When they are near the Sun and active, comets have several distinct parts:

- **nucleus:** relatively solid and stable, mostly ice and gas with a small amount of dust and other solids;

- **coma:** dense cloud of water, carbon dioxide and other neutral gases sublimed from the nucleus;
- **hydrogen cloud:** huge (millions of km in diameter) but very sparse envelope of neutral hydrogen;
- **dust tail:** up to 10 million km long composed of smoke-sized dust particles driven off the nucleus by escaping gases; this is the most prominent part of a comet to the unaided eye;
- **ion tail:** as much as several hundred million km long composed of plasma and laced with rays and streamers caused by interactions with the solar wind.

Comets are invisible except when they are near the Sun. Most comets have highly eccentric orbits which take them far beyond the orbit of Pluto; these are seen once and then disappear for millennia. Only the short- and intermediate-period comets (like Comet Halley), stay within the orbit of Pluto for a significant fraction of their orbits.

Many comets are first discovered by amateur astronomers, and are named after their discoverer. Since comets are brightest when near the Sun, they are usually visible only at sunrise or sunset. Charts showing the positions in the sky of some comets can be created with a planetarium program.

### What is Deep Impact?

Deep Impact is a NASA Discovery mission that launched January 12 2005 and will crash into comet 9P/Tempel 1 in July 2005. Mission scientists and engineers are relying on observations made before and after the impact and taken by professional observatories, students and amateurs to provide context for the data taken by the flyby spacecraft. The Small Telescope Science Program (STSP) is a collaborative effort among advanced observers, private observato-

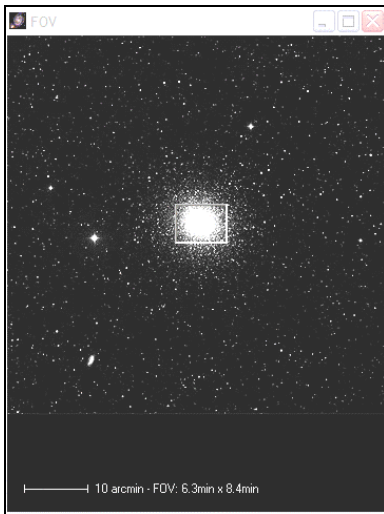
ries, and professional astronomers spread around the world to gather ground-based optical data on comet 9P/Tempel 1, the target of the Deep Impact Mission. The Amateur Observers Program (AOP) is for those who want to provide written descriptions, sketches, film photographs, or CCD/CMOS images on the comet.

### How I got Involved

After reading the information and requirements for the STSP, I determined that I had the telescope aperture (8"), filters (Astronomik IR filter), and camera (Meade DSI) that qualified me to participate. Furthermore, if I could get some observing time on the ACA club scope that would be even better. Filling out the form was another matter. It took me about an hour to get through the first two pages, I hit "save" as the site directed, intending to get back to it as soon as I could. Life intervened (as it sometimes does!) and the next thing I knew Dr. Elizabeth Warner was contacting me to find out if I was going to finish filling out the form. After a little discussion, I decided to register for the AOP and give it a try.

### The Hunt for the Comet

I enlisted Ray Paul to help me in this endeavor. But I had a few skills to master first, namely the Meade DSI. According to Meade's ads, "The Deep Sky Imager is a high-performance, easy-to-use color CCD camera that allows every astronomer to shoot and process stunning deep sky photographs of galaxies, nebulae, star clusters and planets their first night out." It utilizes a High Sensitivity Sony® Super HAD™ Color CCD Sensor with a pixel array of 510 x 492, pixel size of 9.6 microns x 7.6 microns, 16-bit A/D conversion, and a min/max exposure time of 1/10,000 of a sec to 1 hour.



Here is a screen shot from Ron Wodaski's CCD Calculator which shows the field of view I could expect to see when imaging M13 without a focal reducer. It took me several nights to figure out how to use the DSI, as of this writing I would say I am a complete novice. It is a little trickier to use than my SAC IV camera—not as intuitive—and needs practice to master. However I was fairly satisfied with the images I got of M13, M57, Albireo and M92.



**M13: Hercules Cluster**



**M57: The Ring**



**M92**



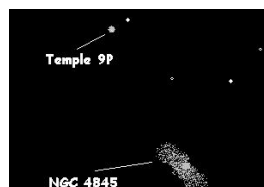
**Albireo**

Just a word on using the DSI...while it is *possible* to get images the first time out, I think “stunning” is a bit of a stretch. It definitely depends on the location you are taking pictures from, and the steadiness of your skies. Also, for an alt-az mounted telescope such as my Meade 8” LX200 Classic, you have to be aware of the camera body knocking into the base of the telescope as objects move towards zenith. The DSI imager group has recommendations for the perfect imaging “zone” if you will, and unlike other imaging methods, it is *not* when the target is at zenith. Of course, I made *all* those mistakes, but I have a better “feel” for what it takes to image DSO’s than before. I also have to add that some of the images one sees associated with this particular camera are the result of *hours* of tweaking in post-processing by the creator--so one has to be prepared to do just that. However, with practice I am sure that this little camera will become easier to use. I did determine that a Hartmann mask and a focal reducer will be necessities!!

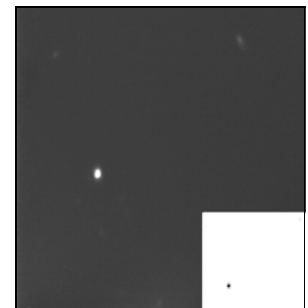
#### **On to the Comet**

At this point I felt I was ready to tackle the comet. I had managed to view it on several different occasions and from several different sites and learned that it was *very faint*: mag 11 rather than mag 9.6 as predicted by Starry Night Pro or The Sky.

I even submitted a sketch which Dr. Warner posted on the AOP site.



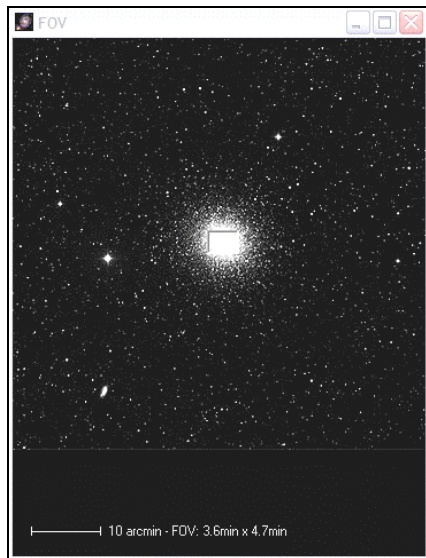
I was ready! On June 19 Ray Paul and I headed out to the ACA observatory armed with the ephemeris from The Sky. It took us a couple of hours to find the comet in both the 8” and the 14”; we determined that perhaps the ephemeris from both our planetarium programs and *Sky and Telescope* provided only a rough estimate of where the comet was; we would need more specific information. On Wednesday, June 22 I used the information downloaded from the JPL Horizons Systems <http://ssd.jpl.nasa.gov/cgi-bin/eph> to give me more exact coordinates on Comet 9P/Tempel 1 spaced every half an hour as viewed from the ACA. I located the comet visually in the eyepiece, achieved focus, stuck the DSI in and grabbed an image of the comet.



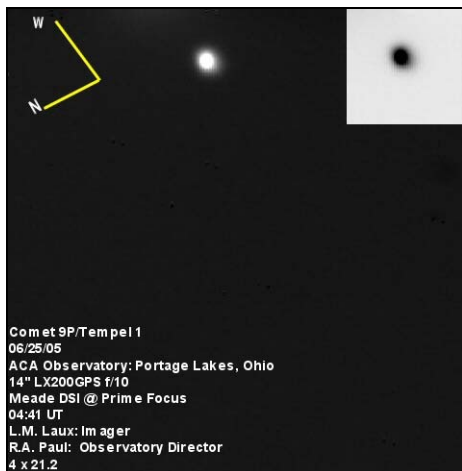
As you can see, the comet is very faint! The FITS-X program from COAA estimated its brightness closer to 10 mag. You can see the slight rotation due to the alt-az rotation of my scope (in GEM scopes the stars appear as streaks). This gave me great hopes and now all I could do was keep my fingers crossed as the weekend approached for clear skies!!

On Friday, June 24 Ray and I headed out to the observatory to try and catch the comet. Again we used the ephemeris generated by the JPL Horizons System to give us the coordinates for the comet. This time, though, we were going to use the 14” LX200 GPS to grab an image!

Here is what the FOV would be with the DSI and the 14”:



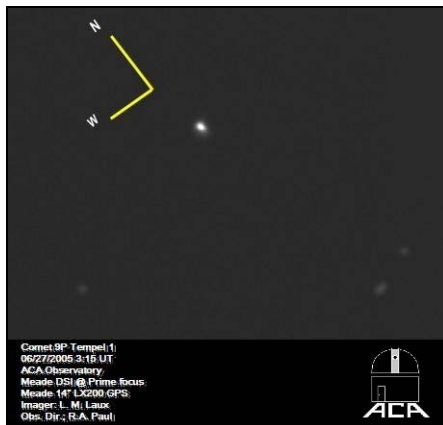
The scope performed magnificently, putting the comet in the center of the FOV of a 20 mm EP; using a 9 mm Ortho EP we achieved focus for the camera, flipped the mirror, and voila! There was the comet on my laptop!



We spent several hours refining focus and grabbing images before losing the comet to the edge of the building. If the scope was mounted lower on the pier, we would have lost the comet at least an hour and a half before we actually did; as it was we were able to view the comet from approximately 10:45 pm until 12:45 AM.

Flushed with success we headed out again on Sunday night, June 26. The

skies were rather ‘mushy’ but we decided to try anyway. On this attempt, the seeing and transparency was not as good as it had been on Friday. But using a combination of the ephemeris from JPL and two planetarium programs on my laptop (Starry Night Pro and Autostar Suite), we confirmed that we had the comet in view.



Again, we lost the comet after about an hour to the seeing conditions; one minute it was in the EP, and the next the comet ‘winked out.’ But we were fairly certain we had captured the best image we could.

#### Future Plans

The comet will not be visible at the time that Deep Impact is scheduled to occur (between 05:49 and 5:55 UT July 4th or 5:52 +/- 3 minutes—which is July 4 1:52 AM EDT). However, we hope to get some images shortly before impact and then on subsequent nights. The hopes from NASA are that ground based telescopes will be able to observe a slight brightening in the comet’s image due to ejecta generated by the impact. Those who wish to view the impact in real time are should go to this site:

NASA TV at [http://www.nasa.gov/multimedia/nasatv/MM\\_NTV\\_Breaking.html](http://www.nasa.gov/multimedia/nasatv/MM_NTV_Breaking.html)

For press releases, go here:

<http://deepimpact.umd.edu/press/050627nasa.html>

For more information on the Ama-

teur Observers Program, go here: <http://deepimpact.umd.edu/amateur/index.shtml>

For more information on the Small Telescope Science Program, go here:

<http://deepimpact.umd.edu/stsp/index.shtml>

Happy Comet Hunting!!

(continued from page 4)

\$200 you can find out whether binoviewing is for you, and if you decide you don’t like it (or like it so much that you want to upgrade) it’d be hard to lose much money disposing of it. If you find the Burgess unit unavailable at a given time (they suffer chronic supply problems) the StellarVue is comparable.

In the midrange, the Denkmeier Big Easy package is an attractive unit. For \$400 you receive a unit with 26mm of clear aperture and self-centering EP holders, plus correctors to make it work with nearly any telescope at multiple magnifications.

For a little more, the Siebert Black Night provides 22mm of clear aperture and a corrector, but adds a pair of eyepieces and a case. The most popular unit in the \$1000 class is the Denkmeier II. They have recently switched their line around quite a bit and offer a great many options including their PowerX-Switch so it’d be prudent to check with your dealer for current package pricing. The 2” Siebert units are in the same range and show promise but I’m reluctant to recommend something I haven’t seen.

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7/1/05

# The Night Sky

Newsletter of the Astronomy Club of Akron

c/o Ray Hyer, Editor

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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](http://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

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](http://www.acaoh.org), but I would rather have the B&W version mailed to my address via USPS.